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Manual of Instructions for the Survey of Canada Lands

Third Edition

Volume 2
Administrative Requirements, General Instructions and Appendices

Canada

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MANUAL OF INSTRUCTIONS FOR THE SURVEY OF CANADA LANDS

VOLUME II

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PART D — General Instructions

GENERAL REQUIREMENTS AND PROCEDURES FOR SURVEYS

Management of Surveys

1. The Surveyor General of Canada Lands, subject to the direction of the federal Minister of Natural Resources, has the management of all surveys made under the authority of the *Canada Lands Surveys Act*.

2. The Surveyor General also has the management of surveys made under the authority of other legislation and agreements. Parts A and B of this manual contain excerpts of such legislation and agreements.

3. The Surveyor General manages legal surveys by:

a) issuing instructions, examining and recording plans of surveys of Canada Lands;
b) initiating surveys of Canada Lands to maintain boundaries and survey frameworks; and
c) carrying out, by staff or through contracting, surveys and mapping of Canada Lands, or lands to become Canada Lands, at the request of other federal government departments.

4. The Surveyor General also provides advice on matters related to surveys of Canada Lands; writes and/or reviews legal land descriptions of Canada Lands; and manages surveying and mapping programs for other federal government departments responsible for administering Canada Lands.

5. The office of the Surveyor General of Canada Lands is the Legal Surveys Division of Geomatics Canada of the federal Department of Natural Resources.

6. The headquarters office of Legal Surveys Division is located in Ottawa. The Division also operates from three Regional Operations Centres (ROC), and eight Client Liaison Units (CLU)located as follows:

Office	*Location*
Eastern ROC	Ottawa, Ont.
Atlantic CLU	Amherst, N.S.
Quebec CLU	Quebec, Que.
Ontario CLU	Toronto, Ont.
Western ROC	Edmonton, Alta.
Manitoba CLU	Winnipeg, Man.
Saskatchewan CLU	Regina, Sask.
Alberta CLU	Edmonton, Alta.
British Columbia CLU	Vancouver, B.C.
Northern ROC	Yellowknife, NWT
Northwest Territories CLU	Yellowknife, NWT
Yukon CLU	Whitehorse, YT

7. Each Regional Operations Centre is managed by a Deputy Surveyor General. The Deputy Surveyor General is the representative of the Surveyor General for the management of surveys of Canada Lands within a region.

8. Client Liaison Units are managed by a Head, Client Liaison Unit who reports to the appropriate Regional Operations Centre. Client Liaison Units provide Canada Lands Surveys Records information to clients and the public, and provide advice and consultation to clients.

Canada Lands Surveys Records

9. The Surveyor General has the custody of all the original plans, journals, field notes and other papers connected with surveys under the *Canada Lands Surveys Act*. These documents are recorded in the Canada Lands Surveys Records in Ottawa.

10. Subject to paragraphs 11 and 12, a person wishing to obtain Canada Lands Surveys Records information should contact the appropriate Client Liaison Unit. Each Unit has copies of Canada Lands Surveys Records

documents and other survey related documents pertaining to Canada Lands in its region.

11. Requests for certified true copies should be addressed to the Canada Lands Surveys Records in Ottawa.

12. Oil and gas survey information in the Yukon, the Northwest Territories, and the offshore is available only from the Canada Lands Surveys Records in Ottawa.

Survey Instructions

General

13. Any surveyor engaged to undertake a legal survey or prepare a plan of Canada Lands must carry out the work in accordance with the instructions of the Surveyor General of Canada Lands.

14. For legal surveys carried out under the following legislation, general instructions are contained in Part D of this manual and no further instructions are required:

a) *Canada Mining Regulations*;
b) *Canada Oil and Gas Land Regulations*;
c) *Condominium Act* (N.W.T.);
d) *Condominium Act* (Yukon);
e) *Indian Oil and Gas Regulations, 1995*;
f) *Land Titles Act* (N.W.T.);
g) *Land Titles Act* (Yukon);
h) *Yukon Placer Mining Act* (except for surveys of baselines); and
i) *Yukon Quartz Mining Act*.

15. For legal surveys, other than those made under the legislation identified in paragraph 14, specific survey instructions are required and may be obtained from the appropriate Client Liaison Unit.

16. It is the responsibility of the land surveyor to review the status of rights in the land which will be surveyed before requesting specific survey instructions. Copies of documents dealing with land rights can be obtained from the federal or territorial government department which administers the lands.

17. A surveyor requesting specific survey instructions shall supply Legal Surveys Division with the following information :

a) authorization to carry out the survey from the department, person or other body which has the responsibility for approval of surveys;
b) the above authorization shall include a diagram depicting:
    i) the dimensions and/or extent of the lands to be surveyed and, in the case of a subdivision, the layout of the lots; and
    ii) the location of the lands to be surveyed relative to an existing survey framework, or if none exists, relative to control surveys or topographic features;
c) the nature and term of the legal transaction for which the survey is intended;
d) the nature of all interests affecting the land to be surveyed with the name of the persons holding the interests;
e) the name and qualifications of the land surveyor who will be carrying out the survey;
f) the anticipated date of commencement of the survey;
g) a request for any documents from the Canada Lands Surveys Records required for the survey; and
h) any other documentation required in Chapters C2 to C6 for the issue of specific survey instructions.

18. If a surveyor cannot comply with any general or specific survey instruction, then the surveyor must inform Legal Surveys Division and obtain, in writing, authorization to proceed in another manner. If the intention or applicability of any survey instruction is in doubt, the matter should be referred to Legal Surveys Division for clarification.

19. Specific survey instructions lapse if the returns of survey are not received within one year of their date of issue. Legal Surveys Division, with due cause, may at any time extend the term of, amend, or cancel specific survey instructions.

20. The issuing of specific survey instructions does not constitute a financial undertaking by the Legal Surveys Division to pay any costs related to the survey. The surveyor will be charged for any documents provided with the specific survey instructions.

Control Surveys and Coordinated Survey Areas

21. Specific survey instructions are required for control surveys carried out to support legal surveys, including control surveys carried out to support surveys of oil and gas rights under the *Canada Oil and Gas Land Regulations* (See Chapter D12).

22. Coordinated Survey Areas, established pursuant to section 28 of the *Canada Lands Surveys Act*, are under the management of the Surveyor General of Canada Lands. Coordinated Survey Areas have been established in parts of the Northwest Territories, the Yukon Territory, and some of the National Parks. Chapter A3 of this Manual contains a complete list of existing Coordinated Surveys Areas.

23. Specific survey instructions are required for any survey which will establish, densify, extend or maintain the network of coordinated control monuments in a Coordinated Survey Area.

24. Legal surveys in a Coordinated Survey Area must be integrated into the network in accordance with the provisions concerning surveys in Coordinated Survey Areas in Chapter D1.

Basemapping

25. Specific survey instructions are required for mapping carried out to support legal surveys on Canada Lands (See Chapter D13).

Survey Monuments

26. For surveys of Canada Lands situated in a province, surveyors may use the same type of monuments used for provincial surveys if authorized by Legal Surveys Division and provided that the monuments meet the minimum requirements described in Chapter D1.

27. Monuments and ancillary monumentation for use on Canada Lands in the territories are available to Canada Lands Surveyors from private suppliers. Information on suppliers is available from Legal Surveys Division offices in Whitehorse, Yellowknife, Edmonton, and Ottawa.

Returns of Surveys

28. Returns of survey consist of plans, field notes, reports, and any other documents prescribed in Part D, or in specific survey instructions.

29. The surveyor shall carefully check the returns of a survey before submitting it to Legal Surveys Division. The survey instructions will indicate the number of paper prints of the survey returns which are to be submitted. The original plan and field notes of survey shall be retained by the surveyor until the returns have been reviewed and found satisfactory by Legal Surveys Division.

30. Legal Surveys Division will review the returns of a survey to determine whether the surveyor has complied with the survey instructions, administrative requirements, and legislation. If it is apparent early in an examination that the returns have not been carefully prepared and checked, then the examination will be discontinued and the

returns sent back to the surveyor for completion.

31. Legal Surveys Division will also obtain comments from the person or body delegated the responsibility for approval of surveys on behalf of the administering department to determine whether the plan of survey is satisfactory to that department.

32. Legal Surveys Division will identify corrections required to the original plan and field notes. If the surveyor is unable to comply with any correction requested, the matter shall be discussed with the Division's contact person identified in the instructions.

33. The surveyor shall clearly indicate if additional amendments have been made or if plans or other returns have been re-drafted or re-plotted.

34. When notified that the returns of the survey are satisfactory, the surveyor shall send the original plan, field notes, and other returns to Legal Surveys Division for final ratification.

Inspection of Surveys

35. Legal Surveys Division may conduct inspection surveys of completed surveys at any time, to ensure instructions were followed and the plan and field notes correctly represent the survey.

36. The surveyor is responsible for correcting any errors or omissions in a survey discovered as a result of an inspection survey.

SURVEYS IN THE NORTHWEST TERRITORIES

General

1. The provisions of this Chapter apply to Federal Lands, Commissioner's Lands, Titled Lands, and Settlement Lands in the Northwest Territories.

2. Federal Lands for the purpose of this Chapter are Territorial Lands as defined in the *Territorial Lands Act* which are under the administration and control of a Minister of the federal government.

3. Commissioner's Lands for the purpose of this Chapter are Territorial Lands as defined in the *Territorial Lands Act*, which are under the administration and control of the Commissioner of the Northwest Territories.

4. Titled Lands for the purpose of this Chapter are parcels of land for which a certificate of title has been issued under the *Land Titles Act* (Canada), *Land Titles Act* (N.W.T.), or the *Condominium Act* (N.W.T.).

5. Settlement Lands for the purpose of this Chapter are lands transferred to native groups in accordance with the provisions of land claim settlement legislation.

Administration of Surface Rights

Federal Lands

6. Most Federal Lands in the Northwest Territories are administered by the federal Department of Indian Affairs and Northern Development (DIAND) under the Northern Affairs Program. Other Federal Lands are administered by various federal government departments.

7. Surface rights on Federal Lands administered by DIAND are managed by the Regional Manager, Lands Resources Division, Yellowknife. The Regional Manager is also responsible for authorizing legal surveys and maintaining records of documents affecting these lands.

8. On behalf of the federal government, the Deputy Minister of the territorial Department of Municipal and Community Affairs administers land in communities which have not been transferred to the territorial government.

Commissioner's Lands

9. The Deputy Minister of the territorial Department of Municipal and Community Affairs deals with most matters regarding Commissioner's Lands. Within the Department, the Community Planning Division is responsible for subdivision approvals; the Surveys and Mapping Division is responsible for surveying and mapping projects; and the Lands Division maintains records of transactions affecting Commissioner's Lands.

Titled Lands

10. Since July 19, 1993, Titled Lands are regulated and administered under the *Land Titles Act* (N.W.T.) by the territorial Department of Justice. Official records of land titles may be obtained from the Land Titles Office in Yellowknife. Prior to July 19, 1993, Titled Lands were regulated under the *Land Titles Act* (Canada).

Settlement Lands

11. Settlement Lands are administered by Native organizations in accordance with enabling land claims settlement legislation. The organizations responsible for the administration of Settlement Lands are listed in Schedule C2–1.

Administration of Subsurface Rights

12. Rights to oil and gas in the Northwest Territories are administered by the Northern Oil and Gas Directorate, Department of Indian Affairs and Northern Development in Hull, Quebec. Copies of licenses and other documents pertaining to oil and gas for lands in the Northwest Territories are available from the Office of the Registrar, Northern Oil and Gas Directorate in Hull.

13. Oil and gas rights in the Norman Wells area are administered under the provisions of the Norman Wells Agreement of 1944 (P.C. 1944-5594), the Norman Wells Expansion Agreement of 1983 (P.C. 1983-3132), and the Norman Wells Amending Agreement of 1994 (P.C. 1994-1939).

14. The National Energy Board, located in Calgary, Alberta, is responsible for all oil and gas exploratory and development activities, such as drilling and seismic programs.

15. Mineral rights in the Northwest Territories are administered by DIAND. Documents pertaining to mineral rights are recorded in the office of the Mining Recorder in Yellowknife under the provisions of the *Canada Mining Regulations*.

16. Mineral rights, including petroleum resources, in Settlement Lands may be administered by Yukon First Nations in accordance with the enabling legislation.

Creation and Alienation

Federal Lands

17. Letters patent for the alienation of Federal Lands are not issued until a plan of survey thereof has been confirmed by the Surveyor General, or a person designated by the Surveyor General to confirm such plans, and filed or registered in the Land Titles Office.

Commissioner's Lands

18. Land being made into Commissioner's Lands may be described by survey or by metes and bounds description.

19. Commissioner's Lands may not be sold until a plan of survey of the land has been filed or registered at the Land Titles Office.

20. Every application for a disposition of Commissioner's Lands requires a description referenced to:

a) for surveyed land, a legal survey plan; or
b) for unsurveyed land, a sketch prepared on site and, if necessary, making reference to the boundaries having been marked off on the ground.

Titled Lands

21. Certificates of title are not issued until an official plan of survey, prepared under the *Canada Lands Surveys Act*, has been filed in the Land Titles Office. However, it should be noted that this does not apply to titles established by land claim settlement legislation and that some titles created prior to the adoption of the *Territorial Lands Regulations* in 1960 are based on written land descriptions.

Settlement Lands

22. Settlement Lands are transferred to Native organizations through land claims settlement legislation. Settlement Lands may be alienated in accordance with the legislation.

Legal Surveys

General

23. In this section, "Regional Office" means the office of Legal Surveys Division in Yellowknife.

24. Legal surveys in the Northwest Territories may be made to define the boundaries of:

a) federal or territorial jurisdictions;
b) native land claim settlement areas;
c) lands subject to a sale or grant;
d) lands subject to a lease, permit, or other limited interest; and
e) a parcel made to accommodate a requirement of a federal or territorial government department.

25. Legal surveys of lands in the Northwest Territories may also be made to re-establish or restore boundaries when monuments or other evidence of boundaries have become lost or obliterated, or to correct errors in previous surveys.

26. Special surveys may also be made for the purposes identified in section 35 of the *Canada Lands Surveys Act*.

27. Surveys in Iqaluit (Frobisher Bay), Hay River, Inuvik, Rankin Inlet and Yellowknife must be integrated into the Coordinated Survey Areas established in these locations.

28. Legal surveys of lands in the Northwest Territories must be carried out by a Canada Lands Surveyor.

29. When an application is made for specific survey instructions the surveyor must identify which lands are Federal Lands, Commissioner's Lands, Titled Lands, or Settlement Lands.

Federal Lands

30. General administrative requirements and procedures for legal surveys are given in Chapter C1.

31. Legal surveys of Federal Lands are made under the authority of the *Canada Lands Surveys Act*.

32. Legal surveys on Federal Lands require the approval of the federal government department administering the lands. For lands administered by DIAND, the Regional Manager, Lands Resources Division is the approval authority.

Commissioner's Lands

33. General administrative requirements and procedures for legal surveys are given in Chapter C1.

34. Legal surveys of Commissioner's Lands are made under the authority of the *Canada Lands Surveys Act*.

35. Legal surveys of Commissioner's Lands require the approval of the Commissioner. This approval may be obtained from the Director of Planning of the territorial Department of Municipal and Community Affairs.

Titled Lands

36. Legal surveys of Titled Lands are carried out in accordance with the *Canada Lands Surveys Act* as specified in the *Land Titles Act* (N.W.T.) and the *Land Titles Plans Regulations* (N.W.T.).

37. Legal surveys of Titled Lands do not normally require specific survey instructions. However, specific survey instructions are required if the lands dealt with in the survey include Federal or Commissioner's Lands.

38. The Surveyor General may be requested by departments of the federal or territorial government to issue specific survey instructions for the survey of Titled Lands owned or required by these departments.

39. A proposed subdivision of Titled Lands requires a sketch plan prepared in accordance

with the *Land Titles Plans Regulations* (N.W.T.) to be approved by the Minister responsible for the *Planning Act* (N.W.T.). After approval, the surveyor must submit the sketch to the Regional Office who will issue lot numbers.

40. After the plan of survey of a subdivision has been completed the surveyor shall send it to the Regional Office for examination. When it is found satisfactory the plan will be sent to the Minister for approval.

41. After the plan of survey of a subdivision is approved by the Minister it is returned to the Regional Office who will send it to the surveyor. The surveyor is responsible for submitting the survey plan and any necessary duplicate certificates of title, or transfer documents, to the Land Titles Office. After the plan is registered, the Land Titles Office will make two duplicates, one for the Regional Office, and one to be forwarded to the Surveyor General for recording in the Canada Lands Surveys Records.

42. Plans of survey of condominiums must be approved by the Commissioner under subsection 6(5) of the *Condominium Act* (N.W.T.). General instructions for these surveys are given in Chapter D4.

Oil and Gas

43. Surveys or land descriptions are required for oil and gas development in connection with:

a) exploration, significant discovery, and production licenses;
b) drilling approvals; and
c) surface rights required for pipelines, wellsites and other related facilities.

44. Land descriptions for exploration, significant discovery and production licenses are based on a geographical grid system as defined in the *Canada Oil and Gas Land Regulations*.

45. For exploratory wells completed for production, and for development wells, legal surveys are required as outlined in Sections 20 and 21 of the *Canada Oil and Gas Land Regulations*.

46. Section 104 of the *Canada Oil and Gas Drilling Regulations* requires a legal survey to confirm the location of:

a) any development well;
b) any exploratory well that has been assigned the status of a discovery well by the Chief Conservation Officer under section 221 of the Regulations; or
c) any other well, on the request of the Chief Conservation Officer.

47. Subject to paragraph 48, specific survey instructions are not required for oil and gas surveys. General instructions for these surveys are given in Chapter D7. Plans of survey are forwarded to the Surveyor General in Ottawa for examination and recording in the Canada Lands Surveys Records. Copies of these plans are available from the office of the Surveyor General in Ottawa. They are not available from the Regional Office.

48. On Canada Lands, specific survey instructions are required for control surveys carried out to support surveys of oil and gas rights under the *Canada Oil and Gas Land Regulations.* General instructions for these surveys are given in Chapter D12.

49. Legal surveys for surface rights required for pipelines, wellsites and other related facilities are carried out under the *Canada Lands Surveys Act*.

Mineral Claims

50. Most surveys for mineral claims are carried out under the *Canada Mining Regulations*.

51. General instructions for these surveys are given in Chapter D8. Specific survey instructions are not required but the surveyor must obtain lot numbers from the Regional Office.

52. The surveyor shall send the plan of survey to the Regional Office for examination. When it is found satisfactory, the plan will be forwarded to the Surveyor General for approval.

53. The plan of survey will be approved by the Surveyor General once notification has been received from the Mining Recorder that the provisions of the *Canada Mining Regulations* have been complied with.

54. Plans of surveys of mineral claims are recorded in the Canada Lands Surveys Records and a copy is deposited with the Supervising Mining Recorder in Yellowknife.

55. Surveys for a dredging lease may be required under the *Territorial Dredging Regulations*. These surveys require specific survey instructions.

SCHEDULE C2–1

(*paragraphs 11*)

Land Claim Settlements, N.W.T.

Enabling Legislation	Native Group	Lands administered by	Office Location
Western Arctic (Inuvialuit) Claims Settlement Act (S.C.1984, c.24)	Inuvialuit	Inuvialuit Land Administration	Inuvik
Gwich'in Land Claim Settlement Act (S.C.1992, c.53)	Gwich'in	Gwich'in Tribal Council	Fort McPherson
Nunavut Land Claims Agreement Act (S.C.1993, c.29)	Inuit	Nunavut Tungavik Inc.	Ottawa
Sahtu Dene and Metis Land Claim Settlement Act (S.C.1994, c.27)	Sahtu Dene and Metis	Sahtu Tribal Council	Fort Norman

SURVEYS IN THE YUKON TERRITORY

General

1. The provisions of this Chapter apply to Federal Lands, Commissioner's Lands, Titled Lands, and Settlement Lands in the Yukon Territory.

2. Federal Lands for the purpose of this Chapter are Territorial Lands as defined in the *Territorial Lands Act* which are under the administration and control of a Minister of the federal government.

3. Commissioner's Lands for the purpose of this Chapter are Territorial Lands as defined in the *Territorial Lands Act*, which are under the administration and control of the Commissioner of the Yukon Territory.

4. Titled Lands for the purpose of this Chapter are parcels of land for which a certificate of title has been issued under the *Land Titles Act* (Canada), *Land Titles Act* (Y.T.) or the *Condominium Act* (Y.T.).

5. Settlement Lands for the purpose of this Chapter are lands identified as settlement lands of a Yukon First Nation under the terms of land claims settlement legislation.

Administration of Surface Rights

Federal Lands

6. Most Federal Lands in the Yukon Territory are administered by the federal Department of Indian Affairs and Northern Development (DIAND) under the Northern Affairs Program. Other Federal Lands are administered by various federal government departments.

7. Surface rights on Federal Lands administered by DIAND are managed by the Supervisor of Lands, Whitehorse. The Supervisor of Lands is also responsible for authorizing legal surveys and maintaining records of documents affecting these lands.

Commissioner's Lands

8. The Deputy Minister of the territorial Department of Community and Transportation Services deals with most matters regarding Commissioner's Lands. Within the Department, the Lands Branch is responsible for subdivision approvals, for surveying and mapping projects, and for maintaining records of transactions affecting Commissioner's Lands.

Titled Lands

9. Since July 19, 1993, Titled Lands are regulated and administered under the *Land Titles Act* (Y.T.) by the territorial Department of Justice. Official records of land titles may be obtained from the Land Titles Office in Whitehorse. Prior to July 19, 1993, Titled Lands were regulated under the *Land Titles Act* (Canada).

Settlement Lands

10. Settlement Lands are administered by Yukon First Nations in accordance with enabling land claims settlement legislation. Subject to its Settlement Agreement, each Yukon First Nation, as owner of Settlement Lands, may enact bylaws for the use of and occupation of its Settlement Lands, and may establish a system to record interests on such lands. Yukon First Nations responsible for the

administration of Settlement Lands are listed in Schedule C3–1.

Administration of Subsurface Rights

11. Rights to oil and gas in the Yukon Territory are administered by the Northern Oil and Gas Directorate, Department of Indian Affairs and Northern Development in Hull, Quebec. Copies of licenses and other documents pertaining to oil and gas for lands in the Yukon Territory are available from the Office of the Registrar, Northern Oil and Gas Directorate in Hull.

12. The National Energy Board, located in Calgary, Alberta, is responsible for all oil and gas exploratory and development activities, such as drilling and seismic programs.

13. Mineral rights in the Yukon are administered by DIAND. Documents pertaining to mineral rights are recorded in district offices in Watson Lake, Whitehorse, Dawson, and Mayo. Each district office is headed by a mining recorder who reports to the Regional Manager of Mineral Rights in Whitehorse. Legislation administered consists of the *Yukon Placer Mining Act*, the *Yukon Quartz Mining Act*, and the *Territorial Dredging Regulations*.

14. Mineral rights, including petroleum resources, in Settlement Lands may be administered by Yukon First Nations in accordance with the enabling legislation.

Creation and Alienation

Federal Lands

15. Letters patent for the alienation of Federal Lands are not issued until a plan of survey thereof has been confirmed by the Surveyor General, or a person designated by the Surveyor General to confirm such plans, and filed or registered in the Land Titles Office.

Commissioner's Lands

16. Land being made into Commissioner's Lands may be described by survey or by metes and bounds description.

17. Every application for a disposition of Commissioner's Lands requires a description referenced to:

a) for surveyed land, a legal survey plan; or
b) for unsurveyed land, a monument or conspicuous physical feature.

Titled Lands

18. Subject to paragraph 19, certificates of title are not issued until an official plan of survey, prepared under the *Canada Lands Surveys Act*, has been filed in the Land Titles Office. However, it should be noted that this does not apply to titles established by settlement legislation and that some titles created prior to the adoption of the *Territorial Lands Regulations* in 1960 are based on written land descriptions.

19. A certificate of title may be issued without the benefit of a legal survey when the purpose of the registration is for a utility easement for the pipeline referred to in the *Northern Pipeline Act*.

Settlement Lands

20. Settlement Lands are transferred to Yukon First Nations through land claims settlement legislation. Settlement Lands may be alienated in accordance with the legislation.

Legal Surveys

General

21. In this section, "Regional Office" means the office of Legal Surveys Division in Whitehorse.

22. Legal surveys in the Yukon Territory may be made to define the boundaries of:

a) federal or territorial jurisdictions;
b) land claims settlement areas;
c) lands subject to a sale or grant;
d) lands subject to a lease, permit, or other limited interest;
e) a parcel made to accommodate a requirement of a federal or territorial government department; and
f) placer mining baselines.

23. Legal surveys of lands in the Yukon Territory may also be made to re-establish or restore boundaries when monuments or other evidence of boundaries become lost or obliterated, or to correct errors in previous surveys.

24. Special surveys may also be made for the purposes identified in section 35 of the *Canada Lands Surveys Act*.

25. Surveys in Whitehorse must be integrated into the Whitehorse Coordinated Survey Area.

26. Legal surveys of lands in the Yukon Territory must be carried out by a Canada Lands Surveyor.

27. When an application is made for specific survey instructions the surveyor must identify which lands are Federal Lands, Commissioner's Lands, Titled Lands, or Settlement Lands.

Federal Lands

28. General administrative requirements and procedures for legal surveys are given in Chapter C1.

29. Legal surveys of Federal Lands are made under the authority of the *Canada Lands Surveys Act*.

30. Legal surveys on Federal Lands require the approval of the federal government department administering the lands. For lands under the administration of DIAND, the Supervisor of Lands is the approval authority.

Commissioner's Lands

31. General administrative requirements and procedures for legal surveys are given in Chapter C1.

32. Legal surveys of Commissioner's Lands are made under the authority of the *Canada Lands Surveys Act*.

33. Legal surveys of Commissioner's Lands require the approval of the Commissioner. This approval may be obtained through the Lands Branch of the territorial Department of Community and Transportation Services.

Titled Lands

34. Legal surveys of Titled Lands are carried out in accordance with the *Canada Lands Surveys Act* as specified in the *Land Titles Act* (Yukon) and the *Land Titles Plans Regulations* (Yukon).

35. Legal surveys of Titled Lands do not normally require specific survey instructions. However, specific survey instructions are required if the lands dealt with in the survey include Federal or Commissioner's Lands.

36. The Surveyor General may be requested by departments of the federal or territorial government to issue specific survey instructions for the survey of Titled Lands owned or required by these departments.

37. A proposed subdivision of Titled Lands requires a sketch plan prepared in accordance with the *Subdivision Regulations* (Yukon) to be approved by an approving officer appointed under the *Subdivision Act* (Yukon). In Whitehorse and Dawson, the municipality is the approving authority. After approval the surveyor must submit the sketch plan to the Regional Office who will issue lot numbers.

38. After the plan of survey of a subdivision has been completed, the surveyor shall send it to the Regional Office for examination. When it is found satisfactory the Regional Office will send it to the approval authority for approval.

39. After the plan of survey of a subdivision is approved by the approval authority, it is returned to the Regional Office. The Regional Office records it in the Canada Lands Surveys Records and submits the original plan along with two reproducible copies to the Land Titles Office. The Registrar registers the original and puts the land registration information on both copies of the plan and returns them to the Regional Office. The Regional Office keeps one copy and sends the other one to the Surveyor General for filing in the Canada Lands Surveys Records in Ottawa.

40. Plans of survey of condominiums are prepared in accordance with the *Land Titles Act* (Yukon) and the *Condominium Act* (Y.T.). In addition to the approvals required in paragraphs 37 and 38, condominium plans must be approved by the Surveyor General or a person designated by the Surveyor General to approve such plans. Specific survey instructions are not required. General instructions for these surveys are given in Chapter D4.

Oil and Gas

41. Surveys or land descriptions are required for oil and gas development in connection with:

a) exploration, significant discovery, and production licenses;
b) drilling approvals; and
c) surface rights required for pipelines, wellsites and other related facilities.

42. Land descriptions for exploration, significant discovery and production licenses are based on a geographical grid system as defined in the *Canada Oil and Gas Land Regulations*.

43. For exploratory wells completed for production, and for development wells, legal surveys are required as outlined in Sections 20 and 21 of the *Canada Oil and Gas Land Regulations*.

44. Section 104 of the *Canada Oil and Gas Drilling Regulations* requires a legal survey to confirm the location of:

a) any development well;
b) any exploratory well that has been assigned the status of a discovery well by the Chief Conservation Officer under section 221 of the Regulations; or
c) any other well, on the request of the Chief Conservation Officer.

45. Subject to paragraph 46, specific survey instructions are not required for oil and gas surveys. General instructions for these surveys are given in Chapter D7. Plans of survey are forwarded to the Surveyor General in Ottawa for examination and recording in the Canada Lands Surveys Records. Copies of these plans are available from the office of the Surveyor General in Ottawa. They are not available from the Regional Office.

46. On Canada Lands, specific survey instructions are required for control surveys carried out to support surveys of oil and gas rights under the *Canada Oil and Gas Land Regulations.* General instructions for these surveys are given in Chapter D12.

47. Legal surveys for surface rights required for pipelines, wellsites and other related facilities are carried out under the *Canada Lands Surveys Act*.

Mineral Claims

48. Most surveys for mineral claims are carried out under the *Yukon Quartz Mining Act* (Canada) or the *Yukon Placer Mining Act* (Canada).

49. Specific survey instructions are not required for surveys of mineral claims carried out under the *Yukon Quartz Mining Act*. Under the *Yukon Placer Mining Act* they are only required for surveys of baselines. General instructions for surveys under both Acts are

given in Chapter D9. The surveyor must obtain lot numbers for all mineral claim surveys from the Regional Office.

50. The surveyor shall send the plan of survey to the Regional Office for examination. When it is found satisfactory, the plan will be forwarded to the Surveyor General for approval.

51. The plan of survey will be approved by the Surveyor General once notification has been received from the Mining Recorder that the provisions of the appropriate act have been complied with.

52. Plans of surveys of mineral claims are recorded in the Canada Lands Surveys Records and a copy of each plan is deposited with the Regional Manager of Mineral Rights in Whitehorse and with the Mining Recorder in the appropriate district office.

53. Surveys for a dredging lease may also be required under the *Territorial Dredging Regulations*. These surveys require specific survey instructions.

SCHEDULE C3–1

(*paragraphs 10*)

Land Claims Settlements, Yukon

Enabling Legislation	Yukon First Nation administering the lands	Office Location
Gwich'in Land Claim Settlement Act (S.C.1992, c.53)	Gwich'in Tribal Council	Fort McPherson
Yukon First Nations Land Claim Settlement Act (S.C. 1994, c. 34) and *Yukon First Nations Self-Government Act* (S.C. 1994, c. 35)	Champagne and Aishihik	Haines Junction
	Teslin Tlingit Council	Teslin
	Nacho Nyak Dun	Mayo
	Vuntut Gwitchin	Old Crow

SURVEYS OFFSHORE

General

1. Canada's offshore may be divided into six areas according to the *1982 United Nations Convention on the Law of the Sea*. These areas are referred to baselines established under the *Territorial Sea and Fishing Zones Act*. The areas are as follows:

a) internal waters, which include all waters landward of the baselines;
b) territorial sea, which extends up to 12 nautical miles seaward from the baselines;
c) contiguous zone, which extends from the outer limit of the territorial sea up to 24 nautical miles seaward from the baselines;
d) exclusive economic zone, which extends from the outer limit of the territorial sea up to 200 nautical miles seaward from the baselines;
e) high seas, which is beyond the exclusive economic zone; and
f) continental shelf, which in general may extend to a maximum 350 nautical miles seaward from the baselines.

2. Canada has complete jurisdiction over internal waters and the territorial sea, subject to the right of innocent passage in the territorial sea. Canada also has declared exclusive fishing zones extending up to 200 nautical miles from the baselines and has asserted jurisdiction over the continental shelf as defined in the *Canadian Laws Offshore Application Act*. Canada's jurisdiction in the offshore is also subject to various treaties signed with other countries.

Line of Administrative Convenience

3. Administrative responsibility for oil and gas and minerals in the offshore is divided between two departments of the federal government. For administrative convenience, a line is used to separate the area of jurisdiction of each department. This line is described in Schedule VI of the *Canada Oil and Gas Land Regulations* (see Chapter A3). It is generally the 60th parallel of latitude and the north shores of Hudson Bay and Hudson Strait (see figure C4-1).

4. The Department of Indian Affairs and Northern Development administers oil and gas and minerals north of the line, while the Department of Natural Resources administers oil and gas and minerals in the offshore south of the line.

5. The provinces through provincial legislation have exercised jurisdiction to other resources, particularly fisheries, in the offshore south of the line of administrative convenience. The matter of jurisdiction to land resources other than oil and gas and minerals in the offshore adjacent to the provinces needs to be dealt with on a case by case basis.

Administration of Oil and Gas Rights

6. Canada administers oil and gas rights over the internal waters, territorial sea and the continental shelf.

7. The Northern Oil and Gas Directorate, Natural Resources and Environment Branch of the Department of Indian Affairs and Northern Development administers oil and gas rights in the offshore north of the line of administrative convenience.

8. The Northern Oil and Gas Directorate is located in Hull, Quebec. There is also a regional office in Whitehorse, Yukon Territory and in Yellowknife, Northwest Territories. Copies of

licenses and other documents pertaining to oil and gas rights for lands north of the line of administrative convenience are available from the Office of the Registrar, Northern Oil and Gas Directorate in Hull.

9. The Frontier Lands Management Division, Energy Sector, of the Department of Natural Resources is responsible for oil and gas rights in the offshore south of the line of administrative convenience, except for the Accord Areas referred to in paragraph 11.

10. The Frontier Lands Management Division is located in Ottawa, Ontario. Copies of licenses and other documents pertaining to oil and gas rights for lands south of the line of administrative convenience are available from the Frontier Lands Management Division.

11. For joint management and revenue-sharing of offshore petroleum resources, the following accords have been made:

a) in 1985, the Atlantic Accord provided for the establishment of the Canada–Newfoundland Offshore Petroleum Board to administer interests in petroleum resources in the Newfoundland and Labrador offshore areas; and
b) in 1986, the Canada–Nova Scotia Offshore Petroleum Resources Accord provided for the establishment of the Canada-Nova Scotia Offshore Petroleum Board to administer interests in petroleum resources in the Nova Scotia offshore areas.

12. The Canada–Newfoundland Offshore Petroleum Board is located in St. John's, Newfoundland. Interests in petroleum resources within the offshore adjoining Newfoundland and Labrador are issued by the Board in accordance with the provisions of the *Canada–Newfoundland Atlantic Accord Implementation Act.* Copies of licenses and other documents are available from the Board.

13. The Canada–Nova Scotia Offshore Petroleum Board is located in Halifax, Nova Scotia. Interests in petroleum resources within the offshore adjoining Nova Scotia are issued by the Board in accordance with the provisions of the *Canada–Nova Scotia Offshore Petroleum Resources Accord Implementation Act.* Copies of licenses and other documents are available from the Board.

14. The National Energy Board, located in Calgary, Alberta, is responsible for all exploratory and development activities such as drilling and seismic programs. The National Energy Board is not responsible for the drilling programs for the Accord Areas; however, it does maintain a data base showing well locations and other information. The Offshore Boards are responsible for regulating activities in the Accord Areas.

Administration of Mineral Rights

15. The Mining Directorate, Natural Resources and Environment Branch of the Department of Indian Affairs and Northern Development administers mineral rights in the offshore north of the line of administrative convenience. Documents pertaining to mineral rights in the Northwest Territories are recorded in the office of the mining recorder.

16. The Resource Management Division, Mineral Policy Sector, of the Department of Natural Resources in Ottawa administers mineral rights in the offshore south of the line of administrative convenience.

Legal Surveys

Oil and Gas

17. Surveys or land descriptions are required for oil and gas development in connection with:

a) exploration, significant discovery, and production licenses;
b) drilling approvals; and
c) surface rights required for pipelines, wellsites and other related facilities.

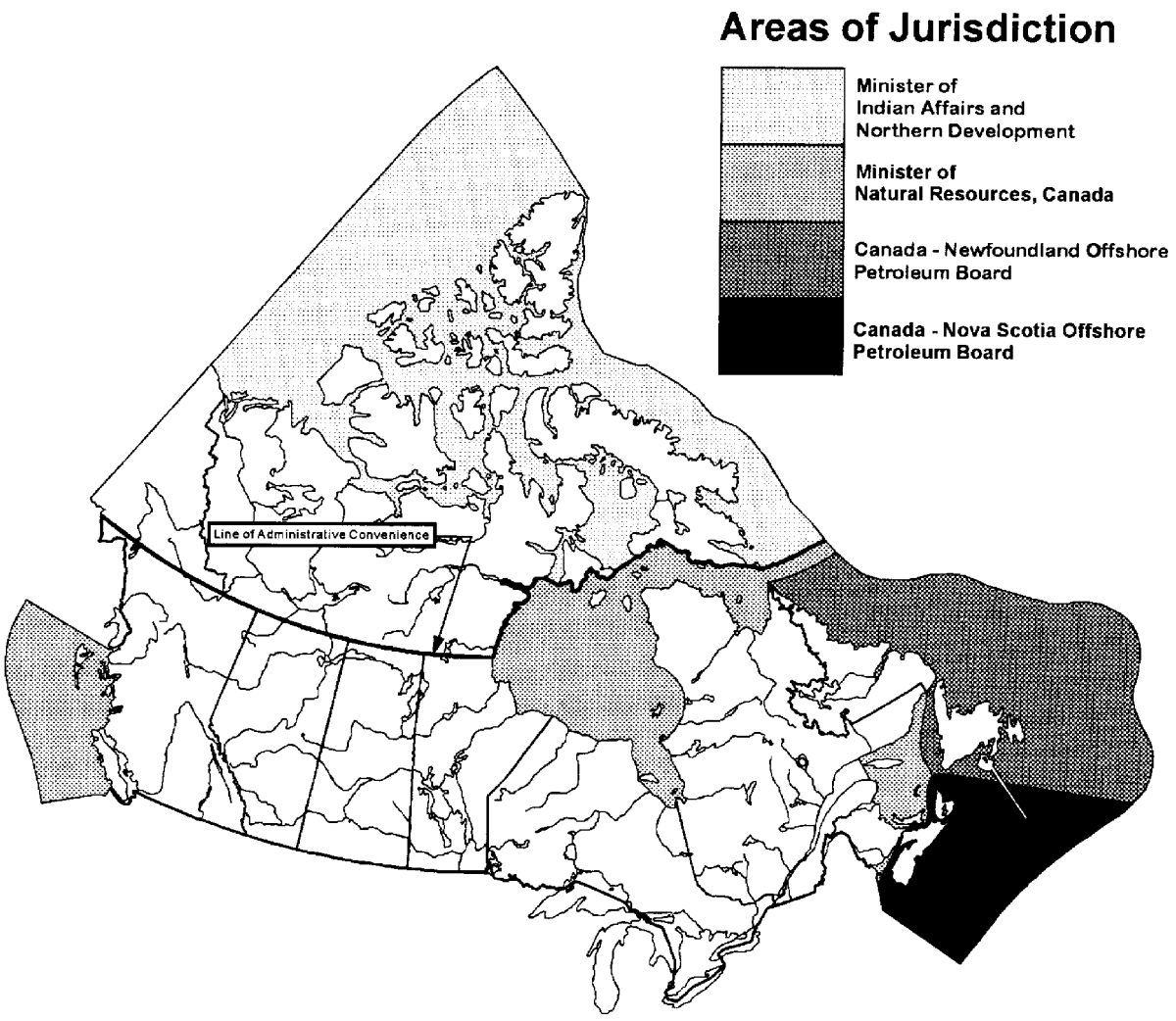


Figure C4-1
Areas of Jurisdiction for the Management of Petroleum Resources in the Offshore

18. Land descriptions for exploration, significant discovery and production licenses are based on a geographical grid system as defined in the *Canada Oil and Gas Land Regulations*.

19. For exploratory wells completed for production, for development wells, and for offshore development structures, legal surveys are required as outlined in sections 20 and 21 of the *Canada Oil and Gas Land Regulations*.

20. Section 104 of the *Canada Oil and Gas Drilling Regulations*, section 74 of the *Newfoundland Offshore Petroleum Drilling Regulations*, and section 74 of the *Nova Scotia Offshore Petroleum Drilling Regulations*, require a legal survey to confirm the location of:

a) any development well;
b) any discovery well; or
c) any other well, on the request of the Chief Conservation Officer.

21. Subject to paragraph 22, specific survey instructions are not required for oil and gas surveys. General instructions for these surveys are given in Chapter D7. Plans of survey are forwarded to the Surveyor General in Ottawa for examination and recording in the Canada Lands Surveys Records. Copies of these plans are available from the office of the Surveyor General in Ottawa. They are not available from any regional office of Legal Surveys Division.

22. On Canada Lands, specific survey instructions are required for control surveys carried out to support surveys of oil and gas rights under the *Canada Oil and Gas Land Regulations.* General instructions for these surveys are given in Chapter D12.

23. Legal surveys for surface rights required for pipelines, wellsites and other related facilities are carried out under the *Canada Lands Surveys Act*.

Mineral Claims

24. There is no particular legislation to deal with surveys for mineral rights in the offshore. Disposition of mineral rights in the offshore comes under the *Federal Real Property Act*.

SURVEYS OF INDIAN LANDS

General

1. The provisions of this Chapter apply to:
   a) Reserves, Designated Lands, and Surrendered Lands as defined in section 2 of the *Indian Act*;
   b) federal real property under the administration of the Minister of Indian Affairs and Northern Development and used to carry out the Inuit and Indian Affairs Program, hereinafter referred to as "Departmental Lands"; and
   c) lands covered by land claim settlement legislation such as the *Sechelt Indian Band Self-Government Act* and the *Cree-Naskapi (of Quebec) Act*.

Administration of Surface Rights

2. Surface rights on Reserves, Designated Lands, Surrendered Lands and Departmental Lands are administered by the Lands, Revenues and Trusts Branch of the federal Department of Indian and Northern Affairs (DIAND) through its headquarters office in Hull, Quebec, and nine regional offices located as follows:

Regional Office	*Location*
Atlantic	Amherst, N.S.
Quebec	Quebec, Que.
Ontario	Toronto, Ont.
Manitoba	Winnipeg, Man.
Saskatchewan	Regina, Sask.
Alberta	Edmonton, Alta.
British Columbia	Vancouver, B.C.
Yukon	Whitehorse, Y.T.
Northwest Territories	Yellowknife, N.W.T.

3. In each regional office, land matters are the responsibility of the Director, Lands, Revenues and Trusts.

4. DIAND maintains an Indian Lands Registry to record all interests acquired or granted under the *Indian Act*, including interests in lands identified in subparagraph 1(b) above. Interests held by individual Indian band members under tribal custom are usually not recorded in this registry.

5. Surveyors or other interested parties may access information in the Indian Lands Registry through the Registrar of Indian Lands in Hull, Quebec. Most of the information is also available in the regional offices mentioned above.

6. Surface rights on lands covered by land claim settlement legislation may be administered by the band or a native organization which has the title to the land.

7. For lands covered by land claim settlement legislation, interests may be registered in the Indian Lands Registry, a provincial land registration system or a land registration system established by the legislation.

8. Information on the lands managed under the *Cree-Naskapi (of Quebec) Act* can be found in the central land registry office and local land registry offices established pursuant to the *Cree Naskapi Land Registry Regulations*. The central land registry office is located in the Quebec regional office.

Administration of Subsurface Rights

9. Subsurface rights relating to the development of oil and gas on Reserves and the associated surface rights required for this development are issued and administered by Indian Oil and Gas Canada, Department of Indian Affairs and Northern Development, located in Calgary, Alberta. The rights are issued in accordance with the *Indian Oil and Gas Regulations, 1995*.

10. Surrendered mineral rights on Reserves, other than those in British Columbia, are administered by DIAND in accordance with the *Indian Mining Regulations*.

11. In British Columbia, the administration and disposition of mineral rights are subject to the laws of the province in accordance with the agreement confirmed by the *British Columbia Indian Mineral Resources Act* (Canada).

Creation and Alienation

Reserves

12. Nowadays, a Reserve is created when the federal government sets aside, by order-in-council, lands vested in Her Majesty in right of Canada as a Reserve for the use and benefit of an Indian Band. In the past, Reserves were created by various other methods, such as grants, treaties and legislation.

13. Within provincial jurisdictions, lands which are to become a Reserve are surveyed in accordance with provincial legislation. Standards for the survey of Canada Lands should be followed insofar as possible, providing provincial authorities agree and there is no conflict with provincial legislation or survey standards. If the survey is managed by the Surveyor General of Canada Lands, the plan should be approved by the Surveyor General and DIAND.

14. The Surveyor General, when requested by DIAND, manages legal surveys of lands which are to become a Reserve.

15. Reserves, or parts of Reserves, may be alienated for public purposes with the consent of the Governor in Council, under section 35 of the *Indian Act*.

16. Reserves, or parts of Reserves, may be surrendered or interests may be designated under section 38 of the *Indian Act*.

17. Where lands in a Reserve are to be alienated, they shall be surveyed in accordance with the *Canada Lands Surveys Act* and, if applicable, conform with additional survey requirements outlined in agreements between the Surveyor General and provincial authorities.

Surrendered Lands

18. By a surrender process pursuant to subsection 38(1) of the *Indian Act*, an Indian Band may surrender absolutely all its rights in land to the federal government (absolute surrenders are not made in the provinces of Quebec and Prince Edward Island because of the reversionary interest which the province retains). As provided for in the *Indian Act*, the proposed surrender is voted on by the band and, if assented to, the federal government accepts the surrender by order-in-council and disposes of the lands in accordance with the terms of the surrender.

19. Surrendered Lands may be:

a) retained as Canada Lands in which case they are administered by DIAND;
b) transferred to another federal government department by ministerial letter;
c) transferred to a provincial government by order-in-council; or
d) transferred to a private individual or company by issue of letters patent.

Designated Lands

20. Pursuant to subsection 38(2) of the *Indian Act*, an Indian Band may designate, by way of a surrender that is not absolute, any right or interest in its land to the federal government. The proposed surrender is voted on by the Band and if assented to, the federal government accepts the surrender by order-in-council and disposes of the right or interest in the lands in accordance with the terms of the surrender.

Departmental Lands

21. Departmental Lands are acquired by purchase from a private individual or company, transfer from a provincial government by order-in-council or transfer of administration from another federal government department. The alienation of these lands is made in accordance with the *Federal Real Property Act*. Departmental Lands are alienated to a private individual or company by letters patent or a grant, to a provincial government by transfer of administration accepted by order-in-council, or to another federal government department by transfer of administration.

Settlement Lands

22. Legislation resulting in an Indian Band obtaining title or control of their land normally results from land claim settlement and/or self-government negotiations. These lands are hereinafter referred to as Settlement Lands.

23. Conditions for the alienation of Settlement Lands are provided in the enabling legislation.

24. Settlement Lands may be set aside as Canada Lands where the legal title is vested in the Indian Band or a native organization. Lands covered by settlement legislation and defined as Canada Lands include:

a) Sechelt lands under the *Sechelt Indian Band Self-Government Act*;
b) Category IA and IA-N land under the *Cree-Naskapi (of Quebec) Act*; and
c) settlement lands as defined in the *Yukon First Nations Self-Government Act*.

Legal Surveys

General

25. Surveys of Indian Lands may be made to define the boundaries of:

a) federal jurisdiction;
b) an allotment of land to individual Indian band members;
c) a lease, permit, or other limited interest;
d) a parcel to accommodate a requirement of DIAND;
e) a parcel of land to be alienated; or
f) to re-establish or restore boundaries, or to correct errors in previous surveys.

26. Surveys of Reserves, Designated Lands, Surrendered Lands, and the Settlement Lands identified in paragraph 24, are made under the authority of the *Canada Lands Surveys Act*. Specific survey instructions are required.

27. Surveys of Departmental Lands are normally carried out under provincial legislation. However, under subsection 47(1) of the *Canada Lands Surveys Act*, the Minister of Natural Resources may cause a survey of such lands to be made in accordance with the Act .

28. The type of survey or plan to be used for each type of interest or disposition, with the exception of plans for oil and gas rights, is outlined in an Interdepartmental Agreement effective December 1, 1993. A copy of this Agreement, between the Surveyor General of Canada Lands, Department of Energy, Mines and Resources (now Natural Resources), and the Director, Lands Directorate and the Registrar of Indian Lands, Department of Indian Affairs and Northern Development, is contained in Part B of this manual.

29. In addition to the requirements of Chapter C1, paragraph 17, when a surveyor requests specific survey instructions for a survey on Indian Lands, a copy of the Band Council Resolution requesting or authorizing the survey and granting permission from the band to enter the lands to carry out the survey must also be supplied. Some bands have delegated responsibility for authorizing legal surveys to a specific band official in which case written authorization from that official is required in lieu of the Band Council Resolution.

30. The Band Council Resolution or other authorization should contain:

a) permission to do the survey;
b) permission to enter the Indian Lands;
c) a description of the lands to be surveyed; and
d) the nature of the transaction for which the survey is intended.

31. The surveyor shall inform the Indian Band prior to and upon entering the Indian Lands to conduct a survey.

32. At the completion of the field work, the surveyor shall show on the ground those boundaries surveyed to the Band representative identified in the specific survey instructions.

33. General requirements and procedures for processing and distributing plans are given in Chapter C1, Returns of Surveys.

Oil and Gas

34. Before commencing a survey for oil and gas rights, pipeline, or other facility on a Reserve, the surveyor must determine whether the surface rights are being disposed of under the *Indian Oil and Gas Regulations, 1995* or the *Indian Act*.

35. In general the *Indian Oil and Gas Regulations, 1995* apply to surface rights for wellsites and other facilities related to drilling and production operations, such as tanks, flow lines and access roads where the facility services resource development in a Reserve. Surveys for surface rights disposed of under these Regulations are carried out in accordance with the provisions of Chapter D6.

36. If a pipeline or other facility crosses a Reserve, Designated Lands, Surrendered Lands, or any of the Settlement Lands identified in paragraph 24, and that pipeline or facility does not service development on those lands, then rights are granted under the *Indian Act* and specific survey instructions are required.

Mineral Rights

37. A survey of a lease for mineral rights may be required under the *Indian Mining Regulations*. Specific survey instructions are required for legal surveys of mineral rights.

SURVEYS OF LANDS ADMINISTERED BY PARKS CANADA

General

1. The provisions of this Chapter apply to lands administered by Parks Canada, Department of Canadian Heritage. These lands consist of National Parks, National Park Reserves, National Historic Sites, and other public lands used to carry out the programs administered by Parks Canada.

2. The provisions of this Chapter may also apply to lands administered by the National Battlefields Commission. The Commission administers the acts respecting the National Battlefields at Quebec (see Chapter A2) and reports to Parliament through the Minister of Canadian Heritage.

3. The boundaries of National Parks are described in Schedule I of the *National Parks Act*. These lands are vested in Her Majesty in right of Canada and are Canada Lands.

4. National Park Reserves are lands set aside for National Parks pending the settlement of Native land claims. These lands are described in various pieces of legislation or proclamations. The *National Parks Act* applies to these reserves as if they were parks within the meaning of that Act, and as such, National Park Reserves are Canada Lands.

5. Federal ownership of National Historic Sites is not a requirement unless the sites are set aside as National Historic Parks in accordance with section 9 of the *National Parks Act*. Documents containing boundary descriptions of National Historic Sites may be found in Parks Canada's Land Registry in Hull, Quebec. National Historic Park lands are described in the *National Historic Parks Order* (see Chapter A3 of this Manual).

6. Other public lands administered by Parks Canada and used to carry out their programs include Historic Canal Lands, Ordnance Lands, Admiralty Lands, and lands required in connection with the management of National Parks, National Park Reserves or National Historic Parks. These lands are vested in Her Majesty in right of Canada but are not Canada Lands.

Administration

7. The lands administered by Parks Canada are the responsibility of Investment Portfolio Management, Parks Canada, at Hull, Quebec and six regional offices located as follows:

Regional Office	*Location*
Atlantic	Halifax, N.S.
Quebec	Quebec, Que.
Ontario	Cornwall, Ont.
Prairie and Northwest Territories	Winnipeg, Man.
Alberta	Calgary, Alta.
Pacific and Yukon	Vancouver, B.C.

8. Regional offices are managed by the Regional Executive Director, Professional and Technical Services, Parks Canada. In a region, land matters are the responsibility of the Regional Executive Director.

9. Investment Portfolio Management maintains a land registry in Hull, Quebec. The registry contains documents for all lands administered by Parks Canada to which Her Majesty in right of Canada has title or an interest in the lands. Copies of documents may be obtained from the registry or from the appropriate regional office.

Creation and Alienation

10. National Parks and National Park Reserves may be created or added to by legislation, or by

proclamation under enabling legislation. The lands must first be vested in Her Majesty in right of Canada.

11. Lands in National Parks may be alienated from the park only by an Act of Parliament.

12. National Historic Sites are designated or revoked by the Minister of Canadian Heritage in accordance with the *Historic Sites and Monuments Act*. In some cases, Parks Canada acquires the lands on behalf of Her Majesty in right of Canada.

13. National Historic Parks are created or alienated by Order-in-Council pursuant to section 9 of the *National Parks Act.* Title to the lands must be vested in Her Majesty in right of Canada before the creation of a National Historic Park.

14. Historic Canal Lands, Ordnance Lands, Admiralty Lands, and other public lands administered by Parks Canada may be alienated by:

a) letters patent or an instrument of grant, in a form satisfactory to the Minister of Justice, to an individual or corporation; or
b) an instrument transferring administration and control, in a form satisfactory to the Minister of Justice, to another federal government department or provincial government.

15. The National Battlefields Commission may purchase, acquire and expropriate lands in Quebec City with the prior approval of Parliament.

Legal Surveys

16. Legal surveys of lands within provincial jurisdiction to be vested in Her Majesty in right of Canada are carried out in accordance with provincial legislation. Provisions for the survey of Canada Lands should be followed provided there is no conflict with provincial legislation and survey standards.

17. Legal surveys of lands in National Parks and National Park Reserves may be made for the purpose of:

a) alienating part of the lands;
b) selling, leasing or disposing of the lands in accordance with subsection 6(2) of the *National Parks Act*;
c) re-establishing or restoring boundaries;
d) correcting errors in previous surveys; or
e) any other purpose as required by Parks Canada.

18. Legal surveys for the lands identified in paragraph 17 are made under the authority of the *Canada Lands Surveys Act* and require specific survey instructions (see Chapter C1).

19. In addition to the requirements of Chapter C1, paragraph 17, an Environmental Assessment and Review Process for the proposed survey, completed by Parks Canada, is required before specific survey instructions can be issued.

20. The *National Parks Lease and Licence of Occupation Regulations* outline requirements for legal surveys for leases granted in National Parks. Legal surveys are not normally required for granting licences of occupation in remote areas; however, if a licence of occupation is in a town, visitor centre or other built up area, a legal survey in accordance with subsection 3(2) of the Regulations may be required by Parks Canada.

21. Surveys in the following locations must be integrated into the established Coordinated Survey Area:

a) Town of Banff, Banff National Park, Alberta;
b) Town of Jasper, Jasper National Park, Alberta;
c) Lake Louise Visitor Centre, Banff National Park, Alberta; and
d) Field Visitor Centre, Yoho National Park, British Columbia.

22. The Town of Banff was established as a Municipal Corporation (January 1, 1990)

pursuant to the Town of Banff Incorporation Agreement made on December 12, 1989. Under the Agreement, certain provisions of the *Municipal Government Act* (Alberta) and of the *Planning Act* (Alberta) apply to the Town of Banff (see Chapter B2).

23. Legal surveys of National Historic Sites and Parks, Historic Canal Lands, Ordnance Lands, Admiralty Lands, National Battlefields Commission Lands and other public lands administered by Parks Canada which are not Canada Lands are normally surveyed under provincial legislation and regulations. However, if the lands are vested in Her Majesty in right of Canada, they may be surveyed under the *Canada Lands Surveys Act* pursuant to section 47 of the Act.

24. At the completion of the field work of a legal survey of a National Park boundary the surveyor shall show on the ground those boundaries surveyed to the Parks Canada official identified in the specific survey instructions.

OFFICIAL SURVEYS

General

1. An official survey is a survey of Canada Lands for which a plan is confirmed under Part II or Part III of the *Canada Lands Surveys Act*.

2. Whether or not an official survey is required depends on the type of land transaction for which the plan will be used. The types of land transactions requiring official surveys are outlined in interdepartmental agreements between the Surveyor General and the government departments having administration and control of the land.

3. Specific survey instructions are required for official surveys.

4. If the boundary of the Canada Lands being surveyed is common to provincial lands then all applicable provincial laws and regulations pertaining to surveys must also be followed. If there is any conflict between federal and provincial survey requirements, consult the regional office of Legal Surveys Division. Generally the requirements leading to the higher standard of survey are to be followed.

Monumentation

5. In normal ground conditions set CLS 77 posts (see figure 1) at all corners unless otherwise specified in these general instructions or in any specific instructions.

6. At block corners, for jurisdictional boundaries, and at other principal corners, CLS standard posts (see figure 2) may be used if available and authorized in specific survey instructions.

7. Alternative monumentation or equivalent provincial monumentation may be used if authorized in specific survey instructions. Monuments must be of magnetic metal, and should be not less than 75 cm in length and 2.0 cm square (or diameter).

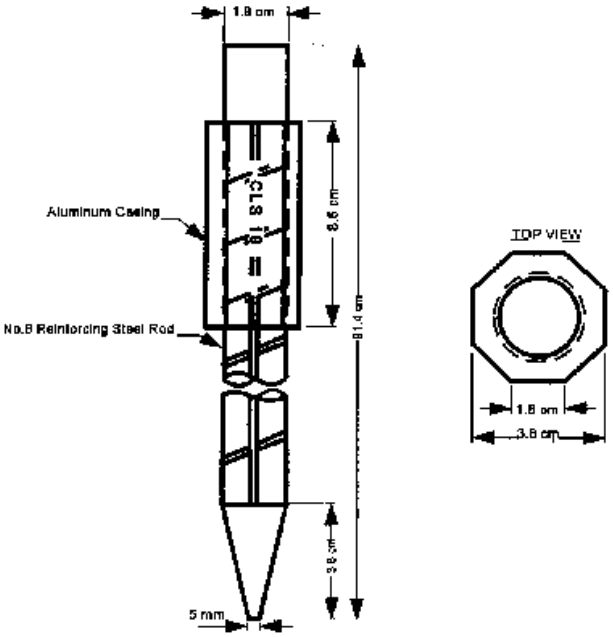


Figure 1
CLS 77 Post

8. When bedrock or a large boulder is encountered less than 30 cm below the ground surface, cement a CLS standard rock post (see figure 3) in a hole drilled in the rock. Where a CLS standard rock post is not available a CLS 77 post, or provincial equivalent, may be cut down to 15 cm in length and cemented 8 cm into the rock. The top of the rock shall be cleared of all earth within a radius of one metre of the monument location.

9. In swamp or muskeg, a CLS standard rock post may be secured in the top of an iron pipe that is driven flush with the ground. Where a CLS standard rock post is not available a

CLS 77 post, or provincial equivalent, may be secured into the pipe. The pipe shall have an internal diameter of 25 mm and a minimum length of one metre, or longer to ensure stability.

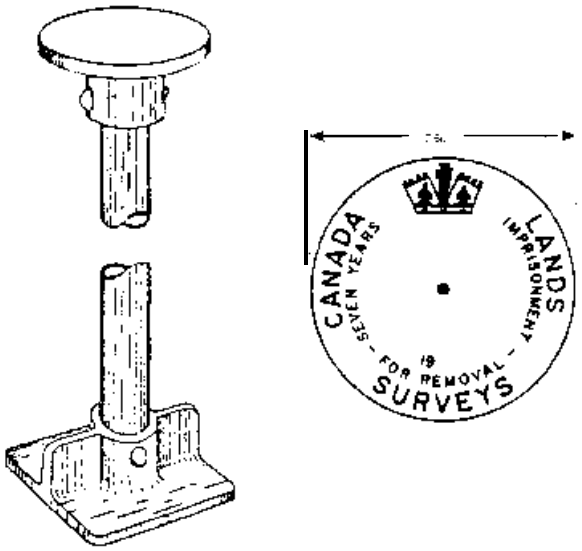


Figure 2
CLS Standard Post

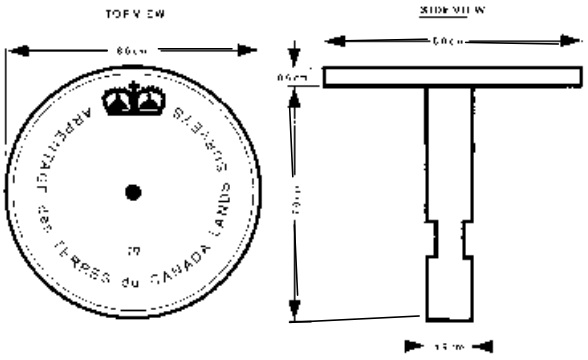


Figure 3
CLS Standard Rock Post

10. Block corners, jurisdictional boundaries, and other principal corners which fall in concrete or asphalt shall be marked with CLS 77, standard or standard rock posts or approved alternatives. For other corners the following may also be used to mark or reference the corner: in concrete or similar surfaces a drill hole with a lead plug having a tack therein; or in asphalt an iron bar at least 30 cm long driven through the asphalt flush with the surface.

Monument Markings

11. Subject to paragraph 12, mark every monument placed in a survey as follows:

a) with the letters "IR", for monuments on Indian Reserve boundaries, and "NP" for National Park boundaries;
b) with the letters "R/W" on the side of the monument facing the right-of-way, for monuments on right-of-way boundaries;
c) with the letter "R" on the side of the monument facing the road, for monuments on road boundaries;
d) with lot and block numbers, for monuments in subdivisions; and
e) on capped posts, with the year when placed and lines indicating the directions of the boundaries radiating from the post.

12. In addition to, or as an alternative to, paragraph 11 above, if authorized in specific survey instructions, mark every monument with a distinguishing letter or number.

13. Witness monuments shall be marked with the letters "WT" followed by the distance and the approximate direction from the monument to the witnessed corner (e.g. WT 15 N).

14. If monuments on Indian Reserve boundaries also define section and quarter section corners in a provincial township system, the monuments shall include markings in accordance with the provincial practice for section and quarter section monuments.

15. In the survey of a subdivision, if existing monuments are used to mark corners of new lots, the new lot numbers shall, if possible, be marked on the monument.

16. Mark monuments by stamping the inscriptions into them with marking dies.

17. If any of the above provisions regarding monument markings are impractical, marking requirements may be amended by specific survey instructions

Ancillary Monumentation

18. Ancillary monumentation may be:

a) part of the monument such as pits and earth or stone mounds;

b) reference devices such as bearing trees or reference posts which can be used to restore the position of the monument; or

c) marker posts used to protect monuments from destruction and make them easier to find, or used to help locate the position of boundaries.

19. The surveyor shall determine the type of ancillary monumentation to be used considering the nature of the ground, the terrain, safety and local custom. Specific survey instructions may recommend or specify the type of ancillary monumentation to be used.

20. If new pits and earth or stone mounds are made then they must be made in accordance with the pattern in figure 4. If existing pits and mounds are restored then they must be restored to their original form.

21. If bearing trees are specified in the specific survey instructions, then they shall be made for monuments where there are suitable trees at reasonable distances from the monument. Three trees are preferred. Blaze the side of the tree facing the monument and scribe on the blaze the letters "BT". Record the description of the bearing tree (kind and diameter) and the horizontal distance and direction from the monument to the blaze. The direction shall be referred to the reference meridian used for the survey.

22. If reference posts are specified in the specific survey instructions, then they shall:

a) be of magnetic content;

b) be placed at approximate 120E to each other in relationship to the monument or control survey marker;

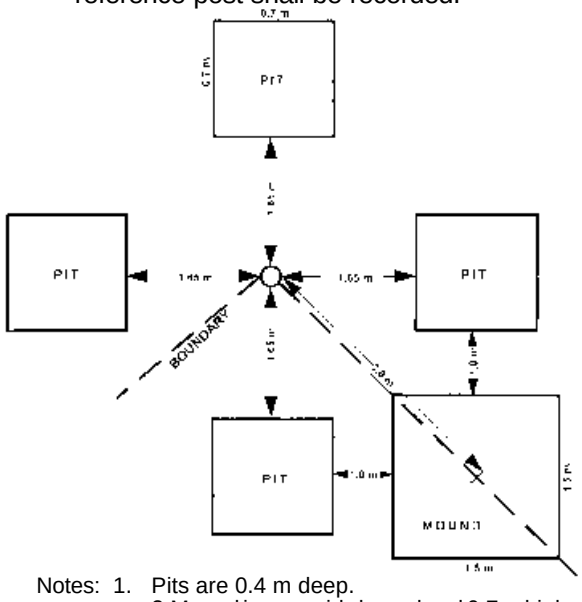
c) be placed in as safe a place as possible;

d) not protrude above ground level;

e) be no smaller than 1.2 cm square (or diameter) x 45 cm;

f) be placed in groups of three; and

g) the type of reference posts placed, their markings and the horizontal distance and direction from the monument to each reference post shall be recorded.



Notes: 1. Pits are 0.4 m deep.
2. Mound is pyramid shaped and 0.7 m high.
3. Rotate pits to avoid obstacles; if necessary one pit may be omitted.

Figure 4
Positioning of Pits and Mound

23. Marker posts used to protect monuments and make them easier to find may consist of:

a) a T-section, angle or similar type of fencing post about 2 m long firmly driven into the ground or cemented into a drilled hole in rock. It shall be placed, if possible, on the boundary 0.3 m from the monument. A plaque with suitable markings shall be attached to the marker.

The plaque should face the monument. Record the markers position relative to the monument;

b) a pressure treated wooden post at least 1.2 m long, 10 cm square, bevelled at the top. It shall be firmly planted if possible on the boundary approximately 0.3 m from the monument. This marker shall be marked with the lot numbers and if on a boundary of an Indian Reserve with "IR". Record its position relative to the monument;

c) a wooden post 5 cm square, 60 cm long placed approximately 0.3 m from the monument. This marker is suitable for townsites and subdivisions. Its position does not need to be recorded; or

d) any other object, such as a stone mound, fibreglass marker etc., acceptable to Legal Surveys Division.

24. Make ties to monuments from permanent features such as building corners, bridge abutments etc., to assist in finding or re-establishing the position of a monument in the future.

25. If marker posts are placed to help locate the position of boundaries they shall be placed on the boundaries at intervals of approximately 300 metres, or other distance as specified in the specific survey instructions, and may consist of the following:

a) a T-section, angle or similar type of fencing post about 2 m long firmly driven into the ground or cemented into a hole drilled in rock;

b) a pressure treated wooden post 10 cm square, 1.2 m long firmly planted into the ground; or

c) any other object acceptable to Legal Surveys Division.

26. Markers on Indian Reserve or National Park boundaries may be augmented with an identification plaque attached to them. The plaque shall be inscribed with suitable wording such as "Indian Reserve Boundary" or "National Park Boundary".

Placing of Monuments

27. On all artificial boundaries being surveyed place monuments:

a) at each change of direction of straight line boundaries;

b) at the beginning and end of curves, at points of changes of curvature and at points where straight line boundaries intersect curves;

c) in the case of a spiral curve at the beginning and end of the spiral;

d) at intervals not exceeding one kilometre for straight line boundaries, and preferably in locations where the monuments are intervisible; and

e) at points of intersection with previously surveyed boundaries, except in the cases outlined in paragraphs 28 and 29.

28. The placing of monuments at points of intersection with previously surveyed boundaries may be exempted only by specific survey instructions and in the following situations:

a) where an existing parcel or subdivision is not being used, or is not likely to be used for any purpose, providing:

i) the boundary of the parcel or subdivision is not part of a main survey fabric, such as a section line or concession line;

ii) there are no existing rights based on the parcel or subdivision;

iii) the department administering the land agrees; and

iv) sufficient connections are made to the parcel or subdivision to illustrate the relationship on the plan of survey;

b) where in the resurvey of a jurisdictional boundary such as the exterior boundary of an Indian Reserve or National Park, the boundaries of parcels adjoining the jurisdictional boundary do not affect the position of the jurisdictional boundary. However the monuments for the parcels adjoining the jurisdictional boundary must be searched for and the results of the searches reported; or

c) when the boundaries intersect surveyed mineral claims. In this case sufficient connections shall be made to the monuments marking the boundaries of the claim to illustrate the relationship on the plan of survey.

29. When surveying a right-of-way or road:

a) Only one limit of the right-of-way or road has to be monumented unless the right-of-way is over 30 m in width in which case both limits must be monumented. The requirement to monument both sides may be relaxed by specific survey instructions if the right-of-way crosses large areas of vacant crown land; and

b) If a right-of-way for a limited interest, such as an easement, crosses a series of adjoining lots, only the intersection with the first and last boundaries crossed, or with others as specified in the specific survey instructions, has to be monumented.

30. Where only one limit of a right-of-way is being monumented and a deflection point on that limit cannot be monumented or witnessed, monument the corresponding deflection point on the opposite limit. In addition, monument both limits at the next deflection point in either direction.

31. Monuments marking parcels being superseded by parcels of a new survey, that may cause confusion to the layperson should be removed if they are of no value for future surveys. Make or ensure that there are sufficient ties to enable the position of the monument to be maintained.

32. If it is impossible, or inadvisable, to monument a point of deflection or a point of intersection, then place a witness monument as near as practical to the true location, on one of the boundaries being surveyed. Do not place a witness monument if the corner is already defined by a witness monument. Record the distance and direction from the witness monument to the point of deflection or intersection and the reason why the point could not be monumented.

33. If the nature of the terrain prohibits the re-establishment of a monument on a straight line boundary in its original position, and it is not necessary to place a witness monument because the position does not mark a lot corner, then a new monument may be erected at a new location on the boundary as close as possible to the original position. Record the reason why the monument cannot be re-established in the original position.

34. Where an artificial boundary terminates at a natural boundary place a monument on the artificial boundary far enough from the natural feature so that it is reasonably safe from destruction. Measure and record to the nearest 0.1 m the distance, along the artificial boundary, from the monument to the natural boundary.

35. When placing a new monument on an existing monumented curve or straight line boundary, it shall be placed on the line joining the two adjacent monuments marking the boundary. Should the adjacent monuments be obliterated, lost or disturbed, they should be restored or re-established. The distance and direction between the new monument and both of the adjacent monuments shall be measured.

36. Subject to paragraph 37, set CLS standard posts, CLS standard rock posts and other capped monuments flush with the ground. Other types of monuments should protrude enough to allow markings to be read.

37. If it is necessary to place a monument in a travelled road or trail, cultivated field or other location where it could be a hazard, then countersink the monument sufficiently to avoid injury or damage.

38. All obliterated, lost or disturbed monuments used during the course of the survey should be restored or re-established.

Cutting out and Blazing Lines

39. An environmental assessment and review process may be required by the administering

department for line cutting and other survey work which may damage the environment. Before starting any line cutting work ensure that the requirements of any environmental assessment and review will be followed. In case of conflict with any survey standard, consult the regional office of Legal Surveys Division.

40. For jurisdictional boundaries, in addition to the requirements in this part, all line cutting shall be done in accordance with provincial or territorial government requirements and in accordance with any requirements of the administering department.

41. When cutting and blazing boundaries take all reasonable precautions to avoid causing damage to private property. Every effort must be made to inform each owner affected and to respect any concerns they may have.

42. Unless otherwise specified in the specific survey instructions, in an environmental assessment and review process, or in any provincial or territorial government or administering department requirements, in undeveloped wooded areas:

a) cut out all boundary lines and blaze suitable trees to make the boundary recognizable as a cut line. Remove all fallen trees, logs, and brush from the cut line; and
b) blaze suitable trees within 2 metres and on both sides of a boundary. Blaze the side of the tree facing the boundary line and each of the sides at right angles to this side. The blazed trees are not intended to mark the boundaries or the limits of the parcels. They are blazed to assist in finding the boundaries.

43. If practical, survey along the actual boundaries so that only one line need be cut out. This will eliminate the possibility of traverse lines being mistaken for boundaries in the future. Where it is impractical to survey along the boundaries minimize cutting and, if possible, traverse along nearby clearings, roads, or trails.

44. Line cutting and blazing are not required in developed townsites or subdivisions, for rights-of-way, or where boundaries follow features such as fences, hedges, or tree lines.

45. In undeveloped multi-lot subdivisions consisting of lots and blocks, cut out all block outlines and the rear boundaries of all lots. For lots smaller than one hectare, it is only necessary to cut out every fifth sideline. For lots larger than one hectare every second sideline should be cut out.

46. In the township system, where road allowances are adjacent to Indian Reserves or National Parks, the actual reserve or park boundary may not have been monumented or cut out in the original survey. Any new monumentation, boundary line cutting or blazing shall be done on the actual boundary.

47. The cutting of merchantable timber should be avoided. If merchantable trees are left on the boundary, they should be blazed with 3 blazes placed vertically (one above the other) on each side of the tree where the boundary line intersects the tree. Record the size and type of the tree and the distance from the nearest monument to the blaze.

Adjustment and Testing of Measuring Equipment

48. All equipment used in the survey must be in adjustment, in calibration and standardized. The surveyor must keep records of calibration and standardization results and carry out sufficient analysis of the data to prove that the equipment is operating to the manufacturer's specifications.

49. Records of calibration and standardization results and copies of any analysis carried out must be retained so that, if requested, they can be submitted as part of the returns of survey.

50. Indirect positioning systems, such as the Global Positioning System (GPS), must be tested on a control network acceptable to Legal Surveys Division. Records of tests must be

retained so that, if requested, they can be submitted as part of the returns of survey.

Survey Methods

51. A surveyor shall obtain and record sufficient corroborative evidence to show that a monument, or control survey marker, is in its original position before accepting it for the current survey.

52. It is preferable that straight lines, rather than curved lines, be used for boundaries. New spiral curve boundaries shall not be created. If it is legally possible, circular curves shall be substituted for existing spiral curves.

53. The preferred method of placing monuments and of determining the length and direction of boundaries is by direct measurement along the boundary.

54. Indirect measurements, such as radial ties or positions obtained by GPS, may be used to place monuments or to determine the length and direction of existing boundaries provided they are verified by an independent method, for example:

a) incorporating the monuments in a closed traverse;

b) comparing with measurements of the same boundary shown on a prior official plan; or

c) making additional radial ties from another control survey marker or traverse point incorporated in the control network.

55. Survey traverses shall be closed by: making a loop closing on itself; closing on official control survey markers; or closing on connected monuments shown on official plans.

56. A surveyor may adopt the boundary of a prior official survey without actual retracement only if the surveyor personally measured that boundary and provided that:

a) the field notes of the previous survey are recorded in the Canada Lands Surveys Records (CLSR);

b) the accuracy of the previous survey achieves the accuracy requirements specified in paragraphs 63 to 68 of this Chapter;

c) the monuments marking the boundary are in good condition, are in their original position, and a report of their condition is included in the field notes for the new survey; and

d) the field notes for the new survey indicate which measurements are adopted.

57. When a lot is to be created beside an unsurveyed road or portion of road, the limit of the road common to the lot must be surveyed and additional monuments placed on the road limit on either side of the lot to provide for any future extension thereof.

Bearings

58. Bearings may in order of preference be controlled by or be derived from:

a) Coordinated Control Monuments in a Coordinated Survey Area;

b) federal or provincial control survey markers;

c) astronomic observations for azimuth providing that the accuracy requirements for legal surveys are attained; or

d) monuments established in a previous legal survey for which the plan is recorded in the CLSR. The distance between boundary monuments selected should be sufficient to enable legal survey accuracy standards to be met, and over 100 m, if possible.

59. No more than 30 courses shall be permitted between successive lines of bearing control.

60. Angles and bearings shall be expressed in degrees, minutes and seconds.

61. The maximum allowable angular misclosure is 20 ***/*** n seconds (n=number of

angles measured in the traverse loop or between lines of bearing control).

62. If a meridian to which bearings are to be referred to is not specified in the specific survey instructions for the survey, refer the bearings to one of the following meridians:

a) the customary meridian in the area of the survey;
b) if the survey is located within a recognized coordinate system to the central meridian of the coordinate system; or
c) if one of the above two methods is not applicable, then to the meridian through a point, preferably monumented, central to the survey.

Accuracy

63. The minimum accuracy standard for legal surveys is defined by the ellipse showing the 95% confidence region for the positioning of one station relative to another. The semi-major axis of this ellipse in centimetres (r) with respect to another station must be less than or equal to C(d+0.25) where:

C = an assigned value depending on the accuracy requirement; and
d = the distance in kilometres to any station.

64. For surveys involving the surveyor's own work, C is assigned the value 8. The following table illustrates how various distances affect the semi-major axis of the 95% confidence region of one station with respect to another, parts per million (ppm) and the accuracy ratio for r = 8(d+0.25):

d (km)	*r (cm)*	*ppm*	*ratio*
0.01	2.1	2100	1/480
0.03	2.2	733	1/1360
0.10	2.8	280	1/3570
0.50	6.0	120	1/8033
1.00	10.0	100	1/10000

65. For surveys using the surveyor's own measurements combined with previous surveyors' measurements, C is assigned the value 15. The following table illustrates how various distances affect the semi-major axis of the 95% confidence region of one station with respect to another, parts per million (ppm) and the accuracy ratio for r = 15(d+0.25):

d (km)	*r (cm)*	*ppm*	*ratio*
0.01	3.9	3900	1/260
0.03	4.2	1400	1/710
0.10	5.3	530	1/1890
0.50	11.3	225	1/4420
1.00	18.8	190	1/5320

66. The surveyor shall use methods, procedures and equipment that will meet the accuracy standard and be satisfied that the survey will meet the standard. Any one station of the survey must meet the standard relative to all other stations.

67. If the accuracy for a connection, involving a previous surveyor's work does not meet legal survey standards, the connection shall be remeasured or verified using an independent method.

68. See Appendix E4 for additional information regarding the concept of confidence region for legal surveys and the application of this standard for legal surveys.

Connections

69. All surveys shall be connected to one, and preferably two, monuments of the closest existing legal survey provided a legal survey lies within one kilometre of the current survey.

70. All surveys shall be connected to existing federal or provincial survey control networks providing there are survey markers within one kilometre of the survey. Connections shall be made from at least two well separated monuments of the legal survey to at least two of the survey markers which best straddle the survey.

71. Where only one survey marker exists within one kilometre it is only necessary to connect to the one survey marker, however the connection should be made to at least two monuments of the survey.

72. If the connections specified in paragraphs 69 to 71 are not possible then connect to:

a) the closest legal survey or survey marker; or

b) a permanent feature easily identifiable, both on the ground and on a National Topographic System map (or provincial equivalent), or aerial photograph. The feature shall be identified on the plan of survey.

73. If the connection specified in subparagraph 72(a) is not practical then an authorized regional representative of the Surveyor General may approve a connection to another legal survey or survey marker.

74. When subdividing a previously surveyed parcel which has been integrated into existing federal or provincial survey control networks, new connections to the control network are not mandatory, however connections should be made to control survey markers within or near the parcel being subdivided, to ensure the survey fabric has not been disturbed.

75. Any structure, fence, hedge, or similar features which are close to, or encroach on a boundary being surveyed shall be tied in and related to the boundary.

Location of Natural Boundaries

76. The position of natural boundaries can be determined by any method, provided the boundary can be plotted at the final plan scale to an accuracy of 0.5 mm.

77. The following table shows the accuracy, at various plan scales, to which natural boundaries must be located using a plotting accuracy of 0.5 mm:

Plan Scale	*Accuracy*
1:10,000	5.0 m
1:5,000	2.5 m
1:2,000	1.0 m
1:1,000	0.5 m
1:200	0.1 m

78. If a boundary of a parcel being surveyed and monumented is the limit of a reservation that is measured from a natural boundary then the natural boundary shall be located to an accuracy of at least 0.5 of a metre for plan scales greater than 1:1,000.

79. If the natural boundary is plotted from aerial photographs, maps or other information source that the surveyor has not prepared, the surveyor shall inspect the boundary on the ground:

a) to verify (including if necessary taking sufficient measurements) that the plotting accuracy of 0.5 mm at the final plan scale (or the accuracy specified for the establishment of the limit of a reservation) can be achieved; and

b) to clearly mark the position of the natural boundary on the photograph, map or other information source.

80. Aerial photographs, maps or other information source that have the position of natural boundaries marked on them under subparagraph 79(b) must be signed and dated by the surveyor. They form part of the returns of survey and will be recorded in the CLSR.

81. Natural boundaries located from a photogrammetric or mapping process require the following support documentation:

a) a signed and dated surveyor's report providing details of the method used;

b) a manuscript showing the control points used to prepare the plot;

c) descriptions for all control stations in a format acceptable to Legal Surveys Division;

d) aerial photographs and diapositives (if requested) from which the product was produced;

e) if applicable, a copy of the numerical adjustment in a format acceptable to Legal Surveys Division; and

f) if requested, the coordinates of the natural boundary or a digital file of it in a form acceptable to Legal Surveys Division.

Surveys in Coordinated Survey Areas

82. Every legal survey carried out within, or partly within, a Coordinated Survey Area shall be connected to Coordinated Control Monuments so that the survey can be closed through the connections. Connections shall be made from at least two well separated monuments of the legal survey to:

a) the two Coordinated Control Monuments that best straddle the survey;
b) all Coordinated Control Monuments within the perimeter of survey; and
c) all Coordinated Control Monuments within 150 m of the survey.

83. Bearings shall be derived from one or more pairs of Coordinated Control Monuments or alternatively from monuments of a survey previously integrated in the Coordinated Survey Area.

84. When subdividing or consolidating previously surveyed parcels which have been integrated into a Coordinated Survey Area, new connections to the control network are not mandatory, however connections should be made to Coordinated Control Monuments within or near the parcel being subdivided.

85. If the surveyor finds that a Coordinated Control Monument is disturbed or if it appears that the coordinates are in error it shall not be used in the survey and the surveyor shall report the matter to the regional office of Legal Surveys Division.

Official Field Notes

86. Fields records are the records made in the field during the course of the survey.

87. Official field notes are any field notes recorded in the Canada Lands Surveys Records (CLSR).

88. Keep field records of everything found, observed and done, including:

a) the description and the location of the project;
b) the names and duties of persons in the field party;
c) the type and identification of survey equipment used;
d) the date of observations;
e) each quantitative observation or measurement;
f) a complete description of every monument found, restored or placed, including markings and ancillary monumentation;
g) searches made for monuments and other physical evidence;
h) if applicable, reasons why monuments cannot be placed where specified in the instructions;
i) the methods used to re-establish lost monuments; and
j) searches made for documentary or verbal evidence.

89. Field record entries must not be erased or obliterated. Stroke out incorrect entries in such a way that they remain legible but are obviously discarded.

90. Unless specified otherwise in the specific survey instructions, official field notes may be prepared in whichever of the following forms is the most suitable for clarity and completeness:

a) Plan form. Except where otherwise specified in this Chapter, follow the guidelines in Appendix E3;
b) Incorporated with the plan of survey. This form is appropriate only where the boundaries have been directly measured and the addition of field note information does not clutter up the plan. The title of the plan should read "Plan and Field Notes of Survey of ....."; or
c) Book form. This form shall be either the original field records if they are clear and easily understandable, or a clear and understandable compilation of the field records.

91. The field records shall be held by the surveyor, and, even though official field notes have been filed in the CLSR, a surveyor may still be required to submit the field records or copies of the field records.

92. Electronic field records may be submitted; however, they must be accompanied by a hard copy which is well organized with sufficient diagrams and annotations to be clear and easily understandable. The hard copy will be the official field notes and must comply with all provisions of this Chapter regarding official field notes.

93. Provide in the title of the official field notes:

a) a descriptive heading as specified in the specific survey instructions;
b) the section, township, and range or lot and concession in which the survey is located;
c) the name of the Indian Reserve, National Park, etc., as applicable;
d) the county, parish, or community and the province or territory in which the survey is located;
e) in remote areas, the approximate latitude and longitude of the site of the survey;
f) in the Yukon and Northwest Territories indicate the Quad sheet number(s); and
g) the period in which the field work for the survey was carried out and the name and qualifications of the surveyor in the following form:

"This survey was executed during the period of *(date)* to *(date)*, by *(surveyor's name)* CLS."

94. Provide in the legend of the official field notes:

a) a statement describing the type of bearings (e.g. astronomic), how the bearings were obtained (ie. the type of observations and points at which the observations were made or the line from which bearings were adopted) and the meridian to which the bearings are referred;
b) the source of any derived data involved in the survey;
c) the roll and photograph number and source of each aerial photograph, or the CLSR number of any plan or reference to other documents used to plot the position of any natural feature or boundary shown in the official field notes;
d) if a coordinate system is used, a description of it, including a statement identifying the conversion factor used to convert ground level distance to the projection plane; and
e) an explanation of all abbreviations used which are not listed in Schedule 3 of Appendix E3.

95. Show in the diagram of the official field notes:

a) all control survey markers used or established in the survey with a description of the marker and any published coordinate values;
b) balanced bearings and measured distances reduced to the horizontal at general ground level for every observed or measured boundary, traverse course, triangulation line, and offset line;
c) the radius, arc length, chord length and chord bearing of each circular curve boundary and if the curve is non tangential, the radial bearing at the beginning and end of curve;
d) the length, the starting point radius and the terminal point radius of each spiral curve boundary and the lengths and bearings of chords between adjacent monuments on the spiral curve boundary;
e) all boundaries within the limits of and adjacent to the survey;
f) all evidence searched for or placed indicating what was found, restored and placed;
g) descriptions of the types, condition and the markings of monuments and ancillary monumentation;

h) the designation of each lot, parcel, road, right of way, etc. involved in and adjacent to the survey;
i) the surveyed connection to, and descriptions of, every structure, topographic feature, fence, hedge, or other similar improvement or feature tied in during the survey; and
j) a north arrow.

96. Show in the official field notes the survey work carried out to verify measurements between monuments which differ from previous plans in an amount exceeding the accuracy requirements for legal surveys outlined in this Chapter.

97. For clarity, diagram information such as distances, directions and monument descriptions may be shown using detail insets, not necessarily to scale, or tables.

98. Add and execute the following affidavit or affirmation on the official field notes:

"I _____ of the _____of _____, Canada Lands Surveyor, *(or provincial commission)* solemnly swear *(or affirm)* that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by these field notes *(and accompanying plan, or this plan and field notes)*; and that the said field notes *(and accompanying plan, or this plan and field notes)* are correct and true to the best of my knowledge and belief. *(Add, in the case of an oath,* SO HELP ME GOD*)*."

(signature of surveyor)
.....

Sworn *(or affirmed)* before me
at .....
this ..... day of....., 19.....

(signature of a Justice of the Peace, Notary Public, Commissioner for Oaths or Canada Lands Surveyor)
.....
(name in block letters)

99. Any person signing or witnessing an affidavit or affirmation shall have their name printed in the affidavit or affirmation, or printed directly under the signature.

Official Plans

100. Official plans shall be prepared in accordance with the guidelines in Appendix E3.

101. An official plan shall be similar in form to the appropriate specimen plan SP1–1 to SP1–8.

102. An official plan must clearly document the nature and position of the boundaries dealt with by the official survey.

103. In certain situations, official plans may be compiled from existing survey information shown on field notes recorded in the CLSR; these plans may only be prepared under specific survey instructions.

104. Give in the title of the official plan a descriptive heading as specified in the specific survey instructions.

105. In the title block give the date of the survey and the name and qualifications of the surveyor in the following form:

"Surveyed by ....., CLS, in ....."

106. Provide in the legend:

a) a statement describing the type of bearings (e.g. astronomic), how they were obtained (i.e. the type of observations and the points at which observations were made or the line from which bearings were adopted), and the meridian to which the bearings are referred;
b) the roll and photograph number and source of each aerial photograph, or the CLSR number of any plan, or reference to other documents used to plot the position of any natural feature or boundary shown on the plan; and
c) the CLSR number(s) of the field notes for the survey dealt with by the plan.

107. Show in the diagram of the plan:

a) a heavy black line, between 1 and 1.5 mm in width coinciding with the exterior boundaries of the lands dealt

with by the survey or, in the case of a boundary survey, the boundary;

b) the type and position of all monuments used in the survey;

c) the type, position, and identification number of any monument or control survey marker to which a surveyed connection has been made;

d) the designation of each new lot, block, parcel, road, or right of way dealt with by the plan;

e) the width of each road, right-of-way or easement dealt with by the plan;

f) the designation, according to plans of record, including registration plans, of each previous lot, block, parcel, road, right of way or easement involved in and adjacent to the survey;

g) plan numbers of other plans, such as registration plans or Regional Surveyor plans, for which a registry abstract was opened or for which an interest was issued, or which otherwise affects the survey;

h) if lots are subdivided or consolidated, the designation of the underlying parent lots, the plan record numbers and lot boundaries in phantom. It is only necessary to show the last generation of underlying surveys;

i) the nature and position of all significant natural and man-made features which are close to or encroaching on the boundaries of the lands being surveyed;

j) names of features according to the *Canadian Gazetteer*, published government maps or local usage;

k) the balanced bearing and the measured distance reduced to the horizontal at general ground level of each straight line boundary dealt with by the plan;

l) distances and bearings along the boundary lines to monuments used to create or re-establish boundaries dealt with by the plan;

m) the radius and arc length, and if necessary for clarity the chord bearing and distance, and if the curve is non tangential the radial bearing at the beginning and the end of the curve of each circular curve boundary dealt with by the plan;

n) the length, the starting point radius and the terminal point radius of each spiral curve boundary and the lengths and bearings of chords between adjacent monuments on the spiral curve boundary;

o) the area of each surveyed lot, road or right-of-way, except for roads within subdivisions where only a total area is required; and

p) for combined plan and field notes the calculated bearings and distances shall be identified by appending "(c)". Plans of survey do not normally identify calculated distances.

108. Where a lot is surveyed beside an unsurveyed road, only the lot should be dealt with on the plan and no reference to the road should be made in the title, however the survey of the road limit should be shown in the body of the plan.

109. If it is not apparent in the plan title or in the diagram of the plan that parcel(s) shown on a previous plan are to be superseded with parcel(s) shown on the new plan, then a prominent note should be added to the plan as follows:

> "Parcel*(s)* ..... dealt with by this plan supersede*(s)* parcel*(s) (or part(s) of)* ..... dealt with by plan*(s)* .....".

Official Plans in Coordinated Survey Areas

110. In addition to the information outlined above, official plans in Coordinated Survey Areas shall also show:

a) in the legend, a statement identifying the combined conversion factor (the product of the elevation factor and the projection scale factor) used to convert ground level distance to the projection plane; and

b) in the diagram, all Coordinated Control Monuments relevant to the survey.

111. The integration of surveys into a Coordinated Survey Area shall be based on the principle of working from the whole to the part. When calculating coordinates, discrepancies shall be distributed proportionally in each part of the survey (the coordinates of Coordinated Control Monuments are to be assumed errorless unless there is evidence that a monument has been disturbed).

112. The plan shall show balanced bearings and measured distances reduced to the horizontal at general ground level.

113. The returns for official plans in Coordinated Survey Areas shall include with the report the coordinate datum, the date of the coordinates and a listing of coordinates of all relevant coordinated control monuments and boundary monuments found or established in the survey. This list shall be suitably annotated so that the monuments can be identified on the plan. In the case of extensive subdivisions only the main monuments, such as those located at block corners, curve terminations, deflection points and any other points required to obtain approximate maximum intervals of 150 m between coordinated points, need be tabulated.

Official Plans of Rights-of-Way

114. The following guidelines should be followed when showing rights-of-way on official plans:

a) the full extent of each of the underlying lots or parcels taken for the right-of-way shall be defined on the plan;

b) if the official plan is prepared for the sole purpose of defining the extent of a right-of-way, the title shall be in the following form:

"Plan of Survey of
(ROAD, PIPELINE, UTILITY)
RIGHT-OF-WAY
in LOTS 5, 6, and 7, etc."; and

c) if the official plan deals with other lots and/or parcels in addition to the right-of-way and the right-of-way is a separate parcel, the title shall be in the following form:

"Plan of Survey of
LOTS 5, 6, and 7 and
(ROAD, PIPELINE, POWER LINE)
RIGHT-OF-WAY".

115. If the right-of-way is monumented on one side only, it is sufficient to dimension only the monumented side if the other side is parallel to the monumented side. In addition, show the width of the right-of-way.

116. In surveys of long rights-of-way, bearings may be referred to more than one meridian but the convergence between these meridians must be clearly indicated on the plan.

117. If the right-of-way is for a limited interest such as an easement, access agreement or permit, which will not cause a severance of the lot or parcel in which it lies, the right-of-way should be shown on an explanatory plan. However, if satisfactory to the administering department, a right-of-way for a limited interest (whether monumented or not) may be shown on an official plan dealing with other parcels. In such a case:

a) the boundaries of the right-of-way should be shown by dashed lines so it is clear that a severance is not intended;

b) the plan should clearly show the lots or parcels that the right-of-way affects;

c) the right-of-way should be labelled on the diagram of the plan as Access Right-of-Way, Utility Right-of-Way, etc.; and

d) the title should not include a designation for the right-of-way.

118. A table of reference may be added to right-of-way plans to show areas of land taken from parent parcels of land (See Schedule D1–1).

Approvals and Confirmation of Official Plans

119. Place the appropriate endorsement certificates in the spaces as indicated on the specimen plans.

120. The plan shall be approved by the duly authorized officer(s) of the department of the Government of Canada or commissioner administering the Canada lands.

121. Upon the approval of the plan as specified in paragraph 120, the Surveyor General or a person designated by the Surveyor General to confirm such plans, will confirm the plan if the survey and plan conform with these general instructions and the specific survey instructions. The plan will be deemed to be an official plan upon confirmation.

122. Official plans are recorded in the Canada Lands Surveys Records and a copy is sent to the appropriate land titles or land registry office.

Returns of Survey

123. The returns of official surveys shall consist of:

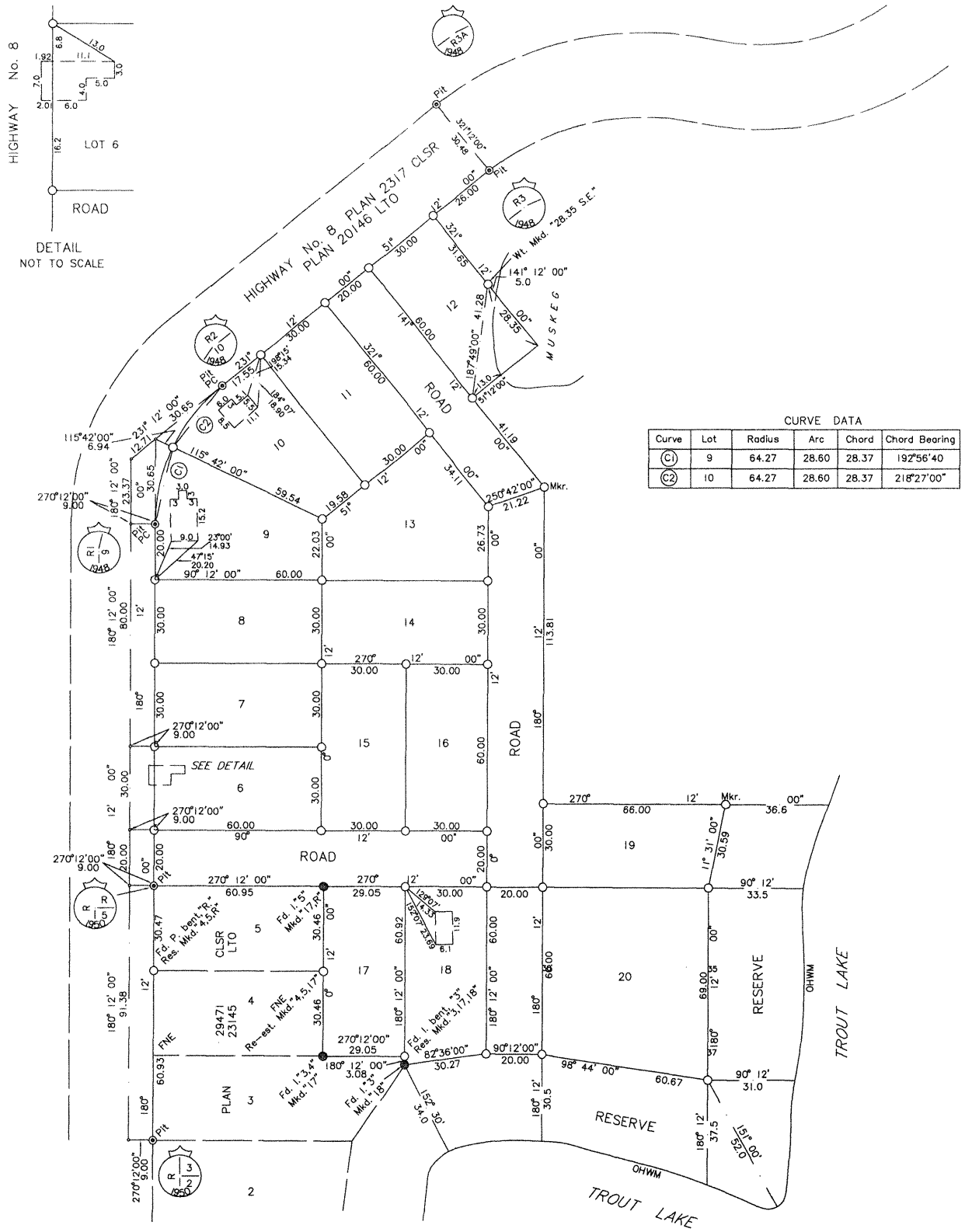
a) official field notes in one of the prescribed forms;
b) a survey report as prescribed in Chapter D15;
c) an official plan;
d) plans or other documents pertaining to the survey that were obtained from sources other than the CLSR;
e) a copy of any written authority required to carry out the survey (if not previously submitted);
f) calibration or standardization results for instruments or equipment if requested by Legal Surveys Division; and
g) coordinate information required by paragraph 113, if applicable.

SCHEDULE D1–1
(*paragraph 118*)

Sample Table of Reference for Right-of-Way Areas

R/W Parcel	Area	Parent Lot	CLSR Plan	LTO Plan
1	154.8 m^2	W-4	64239	M 13521
2	2.97 ha	G	45675	M 8116
3	6.49 ha	G	45675	M 8116
4	154.8 m^2	W-5	64239	M 13521

2 cm



CURVE DATA

Curve	Lot	Radius	Arc	Chord	Chord Bearing
C1	9	64.27	28.60	28.37	192°56'40
C2	10	64.27	28.60	28.37	218°27'00"

LEAVE SPACE FOR RECORD DETAILS
5 X 20 Centimetres

S P E C I M E N O N L Y

FIELD NOTES
OF SURVEY OF

LOTS 6 TO 20 AND ROAD
TROUT LAKE SUBDIVISION

(Location Description)
(See Guidelines for Preparation of Plans)

THIS SURVEY WAS EXECUTED DURING THE PERIOD
JULY 12 TO AUGUST 8, 1993 BY J.S. DENNIS CLS

SCALE 1:1000

50 0 50 100 METRES

LEGEND

Bearings are astronomic, referred to the meridian through the Northwest corner of Lot 8 and were derived from Polaris observation at this corner. (See Note 2)

DLS standard post, found
Old pattern iron post, found
CLS '69 post, placed
Traverse line and stations
Building

Distances are in metres.

All posts placed in this survey are marked with the appropriate lot numbers, the the when placed and R (where applicable).

I, J.S. Dennis, of the City of Ottawa, Canada Lands Surveyor, solemnly swear that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by these field notes, and accompanying plan and that the said field notes and accompanying plan are correct and true to the best of my knowledge and belief

SO HELP ME GOD

Sworn before me at Whitehorse
this 25th day of August, 1993. _____ CLS

'Signed'
Justice of the Peace or
Notary Public or
Commissioner for Oaths or
Canada Lands Surveyor

See Sec. 49 Canada Lands Surveys Act

(Note: Oath may be substituted by solemn affirmation in accordance with the provisions of Chapter D1)

NOTE:-

1. *Specimen Plans D1-1 to D1-6 and D2-1 are intended to show a variety of survey situations evolving over a period of time in one area. Included are surveys which supersede previous surveys (D1-3), subdivisions surveys (D1-4) and road relocations (D1-5) and road widenings (D1-6).*
2. *For the purpose of these Specimen Plans bearings have been referred to a central point within the Trout Lake Subdivision. It is preferred that bearings be referred to the central meridian of a recognized coordinate system in the area and be derived from survey control.*

SP1-1

2 cm

D1-16

CANADA LANDS SURVEYS RECORDS 8 1 0 1

CANADA LANDS SURVEYS RECORDS 8 1 0 1

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N O N L Y

PLAN OF SURVEY OF

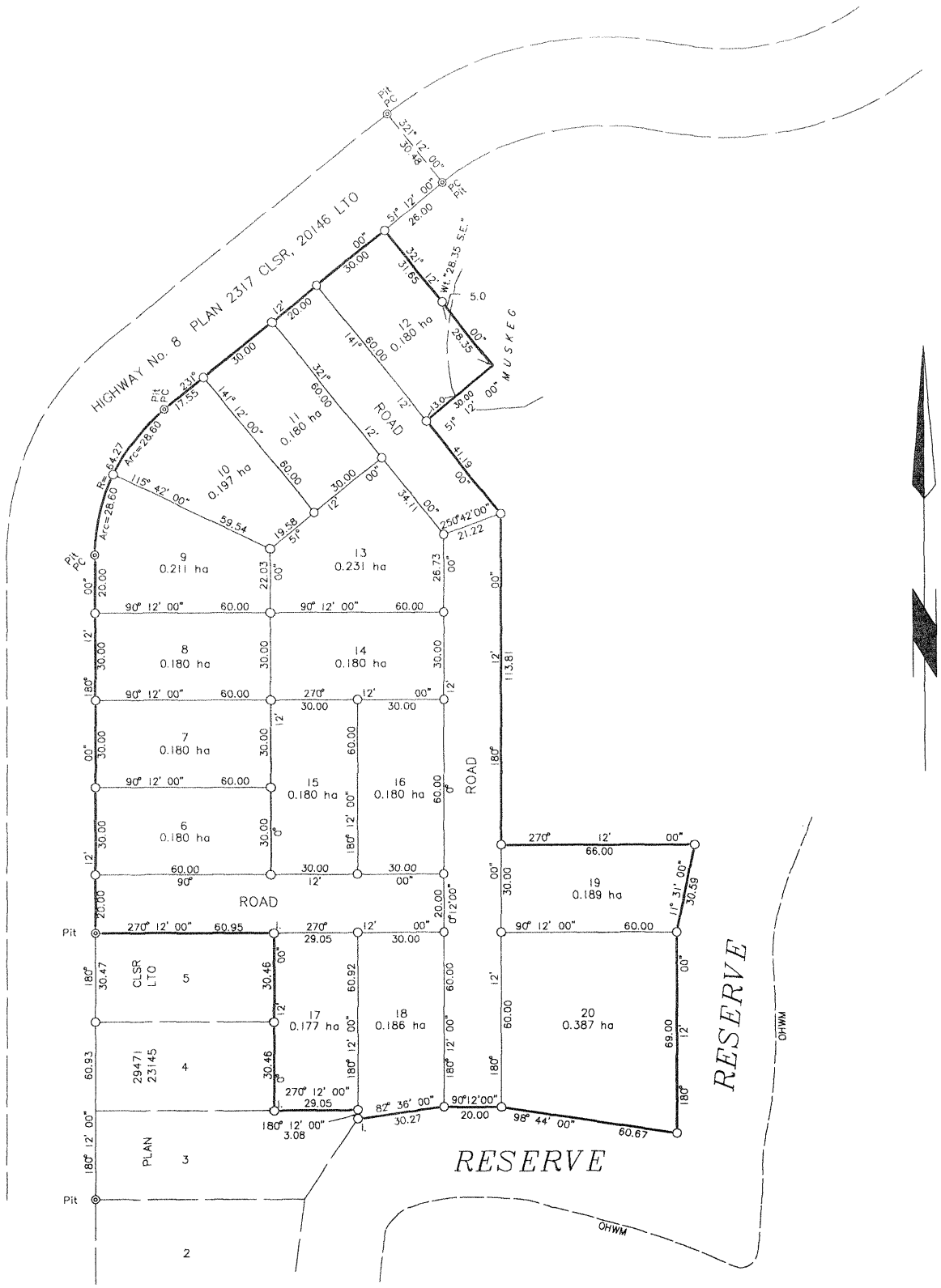
LOTS 6 TO 20 AND ROAD
TROUT LAKE SUBDIVISION

(Location Description)
(See Guidelines for Preparation of Plans)

SURVEYED BY J.S. DENNIS, CLS IN 1993

SCALE 1:1000

50 0 50 100 METRES



LEGEND

Bearings are astronomic, referred to the meridian through the Northwest corner of lot 8 and were derived from Polaris observation at this corner.

DLS standard post ⊙
Old pattern iron post ○I.
CLS '69 post ○
Lands dealt with by this plan bounded thus ——

Distances are in metres.
Total area of roads dealt with is 0.836 ha.
Field notes for this survey are recorded under Plan 51078 CLSR.

ADD APPROPRIATE ENDORSEMENT CERTIFICATES

2 cm

2 cm

SP 1-2

D1-17

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N   O N L Y

PLAN AND FIELD NOTES
OF SURVEY OF

LOTS 21 TO 27 AND ROAD

TROUT LAKE SUBDIVISION

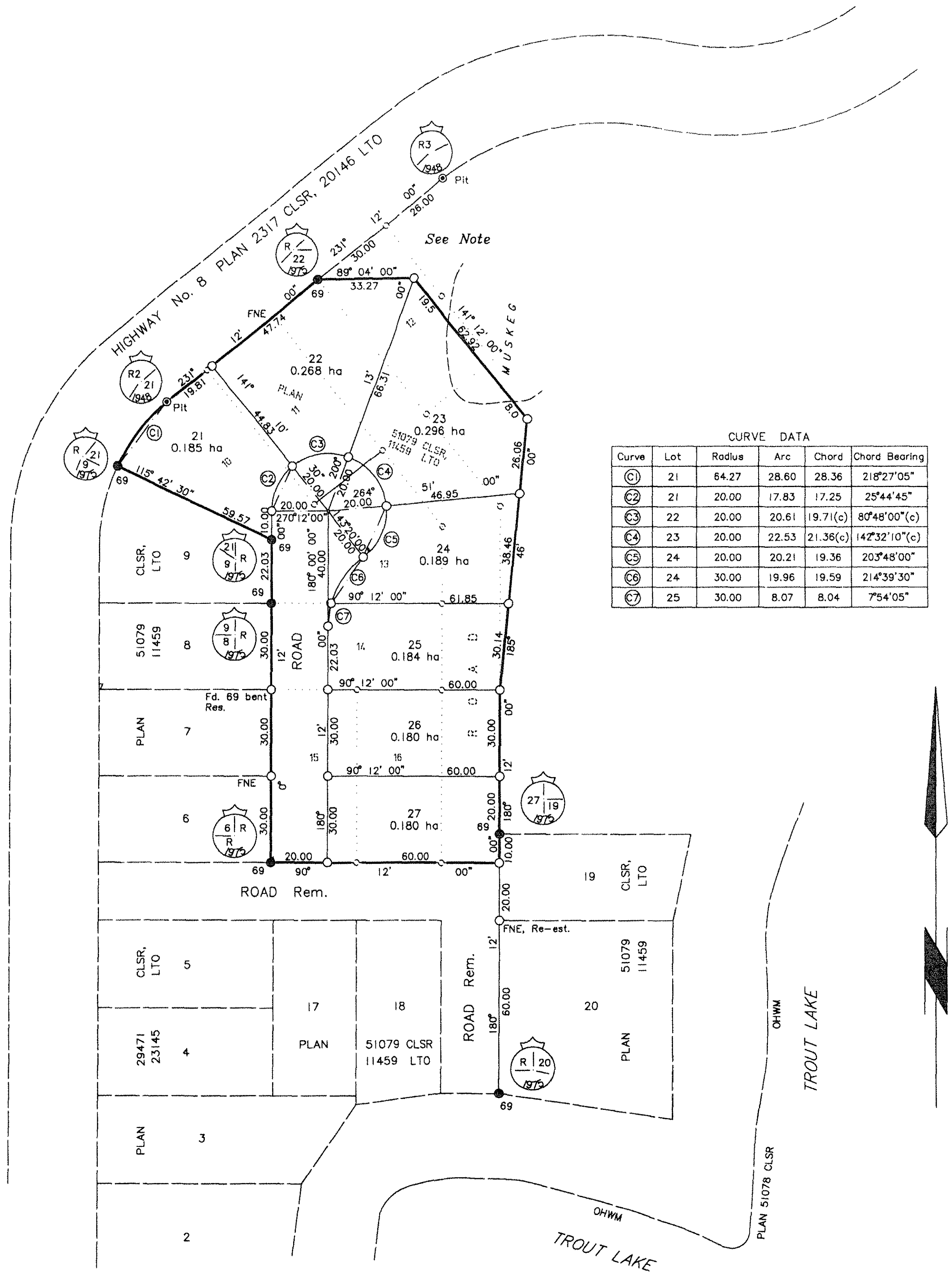
(Location Description)

(See Guidelines for Preparation of Plans)

THIS SURVEY WAS EXECUTED DURING THE PERIOD
AUGUST 8 TO AUGUST 11, 1993 BY E. DEVILLE CLS

Lots 21 to 27 inclusive and Road as shown on this plan supersede Lots 10, 11, 13 to 16 inclusive, part of Lot 12 and a portion of road as shown on Plan 51079 CLSR, 11459 LTO.

SCALE 1:1000



CURVE DATA

Curve	Lot	Radius	Arc	Chord	Chord Bearing
C1	21	64.27	28.60	28.36	218°27'05"
C2	21	20.00	17.83	17.25	25°44'45"
C3	22	20.00	20.61	19.71(c)	80°48'00"(c)
C4	23	20.00	22.53	21.36(c)	142°32'10"(c)
C5	24	20.00	20.21	19.36	203°48'00"
C6	24	30.00	19.96	19.59	214°39'30"
C7	25	30.00	8.07	8.04	7°54'05"

L E G E N D

Bearings are astronomic, derived from the bearing 0° 12' 00" of the line between C.L.S. 69 posts at the Southeast corner Lot 6 and the Northeast corner of Lot 9 as shown on plan 51079 CLSR and according to that plan are referred to the meridan through the Northwest corner of Lot 8.

DLS standard post, found .... ◉
CLS '69 post, found .... ● 69
CLS '77 post, placed .... ○
Posts found and removed ....
Traverse line and stations ....
Lands dealt with by this plan bounded thus ....

Distances are in metres.
All posts placed in this survey are marked with the appropriate Lot numbers and R (where applicable). Found posts have been remarked as shown.
Total area of Road dealt with by this plan is 0.344 ha.

I, E. Deville, of the City of Quebec, Canada Lands Surveyor, solemnly swear that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD

Sworn before me at Quebec
this 25th day of August, 1993.

CLS

'Signed'
Justice of the Peace or
Notary Public or
Commissioner for Oaths or
Canada Lands Surveyor
} *See Sec. 49 Canada Lands Surveys Act*

(Notes: Oath may be substituted by solemn affirmation in accordance with the provisions of Chapter D1)

ADD APPROPRIATE ENDORSEMENT CERTIFICATES

NOTE:— Re: Lot 12
1. If a title or interest, based on a parcel has never been issued or will be cancelled and there is no possibility that the remainder of the parcel will be used, then, with the agreement of the administering department, the original parcel designation and its boundaries lying outside the lands dealt with may be shown in phantom.

CANADA LANDS SURVEYS RECORDS 6 0 0 5 1

CANADA LANDS SURVEYS RECORDS 6 0 0 5 1

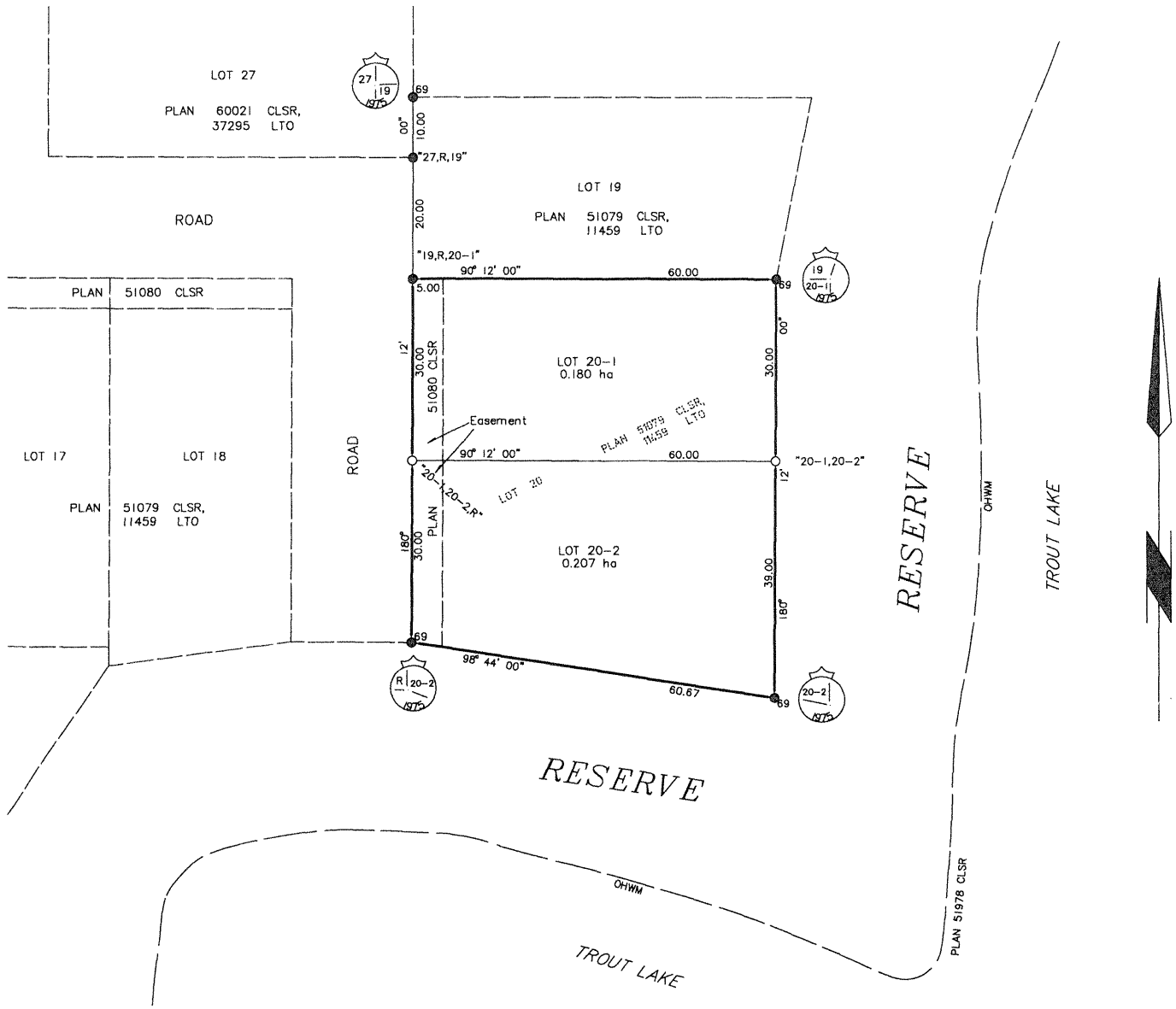
—2 cm—

—2 cm—

SP 1-3

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N O N L Y



PLAN AND FIELD NOTES OF
SURVEY OF

LOTS 20-1 and 20-2

(Being a Subdivision of Lot 20,
Plan 51079 (CLSR))

TROUT LAKE SUBDIVISION

(Location Description)

(See Guidelines for Preparation of Plans)

THIS SURVEY WAS EXECUTED ON
AUGUST 12, 1993 BY P.R.A. BELANGER CLS

SCALE 1:500

10 0 20 40 METRES

LEGEND

Bearings are astronomic, derived from the bearing 180°12'00" of the line between the found CLS 69 posts at the NW corner of Lot 19 and the SW corner of Lot 20 as shown on Plan 51079 CLSR and according to that plan are referred to the *meridian* through the Northwest corner of Lot 8 as shown on said plan.

CLS '69 post found 69
CLS '77 post found .....
CLS '77 post placed ..... O
Lands dealt with by this plan bounded thus .....
Distances are in metres.
Found posts for Lot 20 were remarked to show the new lot numbers.

I, P.R.A. Belanger, of the City of Montreal, Canada Lands Surveyor, solemnly swear that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD

Sworn before me at Whitehorse
this 25th day of August, 1993.

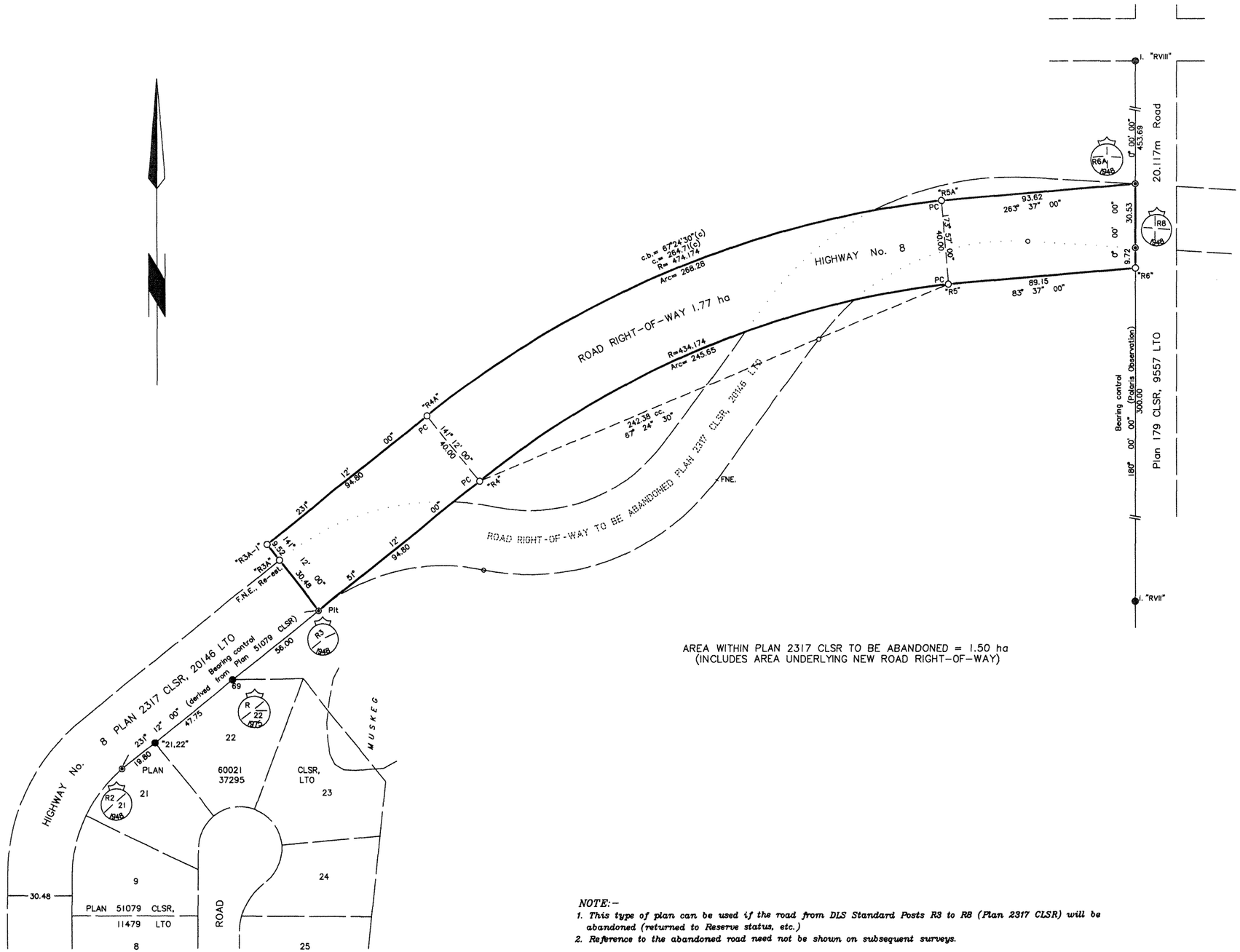
CLS

'Signed'
Justice of the Peace or
Notary Public or
Commissioner for Oaths or
Canada Lands Surveyor

} *See Sec. 49 Canada Lands Surveys Act*

(Note: Oath may be substituted by solemn affirmation in accordance with the provisions of Chapter D1)

ADD APPROPRIATE ENDORSEMENT CERTIFICATES



AREA WITHIN PLAN 2317 CLSR TO BE ABANDONED = 1.50 ha
(INCLUDES AREA UNDERLYING NEW ROAD RIGHT-OF-WAY)

NOTE:–

1. *This type of plan can be used if the road from DLS Standard Posts R3 to R8 (Plan 2317 CLSR) will be abandoned (returned to Reserve status, etc.)*
2. *Reference to the abandoned road need not be shown on subsequent surveys.*

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N O N L Y

PLAN AND FIELD NOTES OF

ROAD RIGHT–OF–WAY

(Location Description)
(See Guidelines for Preparation of Plans)

THIS SURVEY WAS EXECUTED DURING THE PERIOD
SEPTEMBER 9 TO SEPTEMBER 10, 1993 BY W.F. KING, CLS

SCALE 1:1000

50 0 50 100 METRES

LEGEND

Bearings are astronomic referred to the meridian through the Northwest corner of Lot 8 as shown on Plan 51079 CLSR and were adjusted between the lines of bearing control shown on the diagram of this plan.

DLS standard post, found	◉
Old pattern iron post, found	● I.
CLS '69 post, found	● 69
CLS '77 post, found	●
CLS '77 post, placed	○
Post found and removed	o
Lands dealt with by this plan bounded thus	———
Traverse Lines shown thus	— —

Area required for new road is 1.77 ha.
Distances are in metres.

I, W.F. King, of the City of Ottawa, Canada Lands Surveyor, solemnly swear that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes; and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD

Sworn before me at Ottawa
this 5th day of October, 1993.

CLS

'Signed'
Justice of the Peace or
Notary Public or
Commissioner for Oaths or
Canada Lands Surveyor

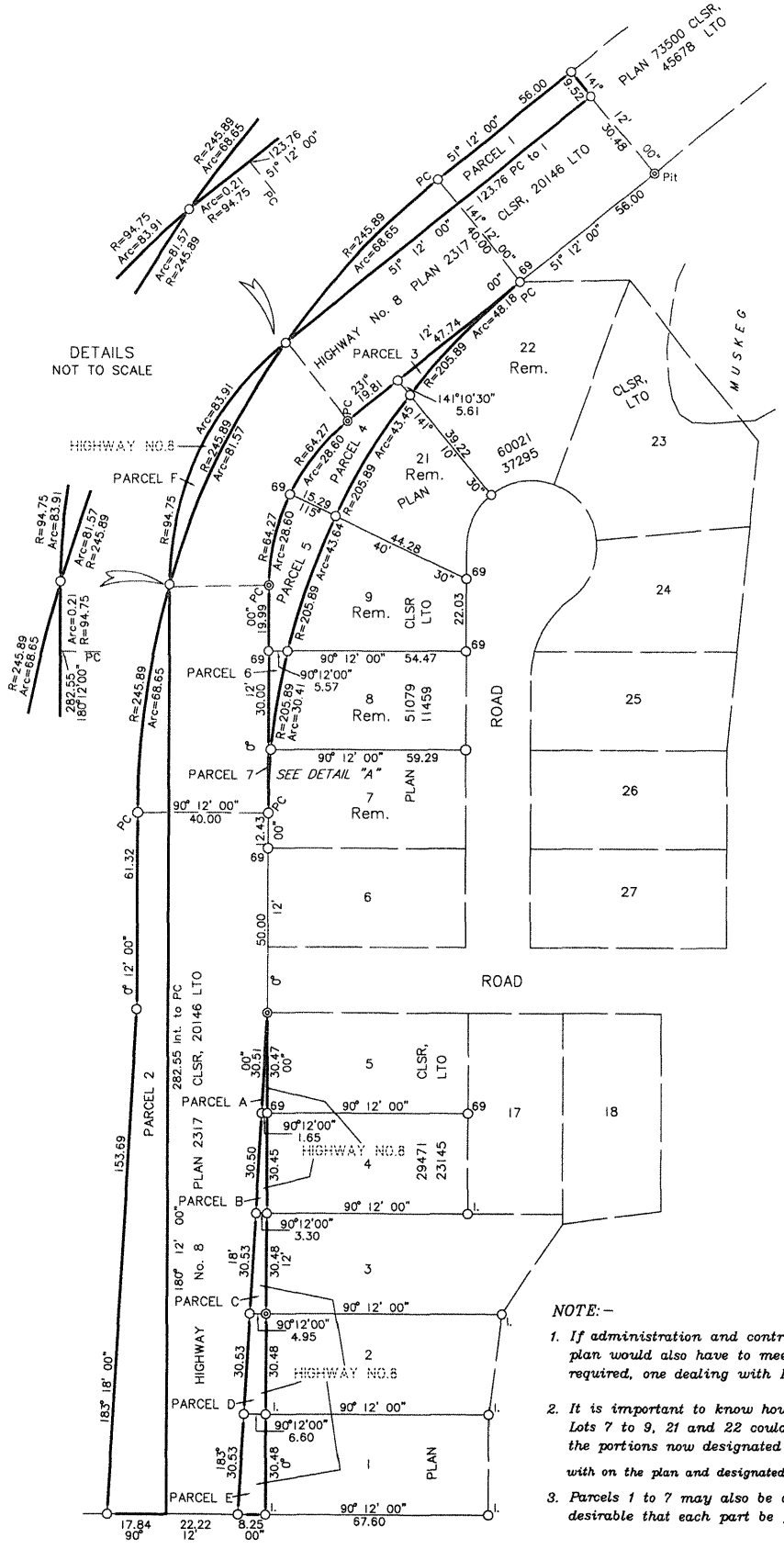
See Sec. 49 Canada Lands Surveys Act

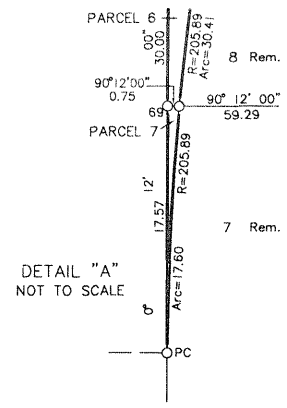
(Note: Oath may be substituted by solemn affirmation in accordance with the provisions of Chapter D1)

ADD APPROPRIATE ENDORSEMENT CERTIFICATES

SP 1–5

D1–20





PARCELS REQUIRED FOR ROAD			
Parcel	Lot	Plan (CLSR)	Area (m^2)
1			964
2			3114
3	22	60021	89
4	21	60021	522
5	9	51079	523
6	8	51079	83
7	7	51079	4
		Total Area	5299 m^2
			0.530 ha

ROAD		
Parcel	Plan (CLSR)	Area (m^2)
A	2317	25
B	2317	75
C	2317	126
D	2317	176
E	2317	226
F	2317	317
Total Area		945 m^2
		0.095 ha

NOTE:–

1. *If administration and control for Highway No.8 are vested in a Province, the plan would also have to meet provincial requirements. Two plans may be required, one dealing with Provincial lands and one dealing with Canada Lands.*
2. *It is important to know how title to the parcels will be handled. For example Lots 7 to 9, 21 and 22 could also be shown as a subdivision, in which case the the portions now designated as 7 Rem., 8 Rem., etc., would be dealt with on the plan and designated 7–1, 8–1 etc.*
3. *Parcels 1 to 7 may also be designated as ROAD, in which case it is usually desirable that each part be given a unique designation. ie. ROAD (Part 1)*

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N O N L Y

PLAN OF SURVEY OF

Parcels 1 to 7 (Required for Road Right–of–Way)

AND OF

Parcels A to F, (Road Right–of–Way)

TROUT LAKE SUBDIVISION

(Location Description,)

(See Guidelines for Preparation of Plans)

SURVEYED BY C.A. MAGRATH, CLS IN 1993

SCALE 1:1000

50 0 50 100 METRES

LEGEND

Bearings are astronomic, derived from the bearing 0°12'00" of the line between the NW corners of Lots 2 and 8 as shown on Plan 51079 CLSR and according to that Plan are referred to the Meridian through the NW corner of Lot 8.

DLS standard post . . . . . ◎
Old pattern iron post . . . . . O I.
CLS '69 post . . . . . O 69
CLS '77 post . . . . . O
Lands dealt with by this plan bounded thus . . . . . ——

Field Notes for this survey are recorded under 5001 CLSR
Distances are in metres.

ADD APPROPRIATE ENDORSEMENT CERTIFICATES

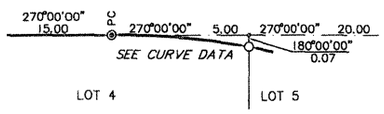
SP 1–6

2 cm

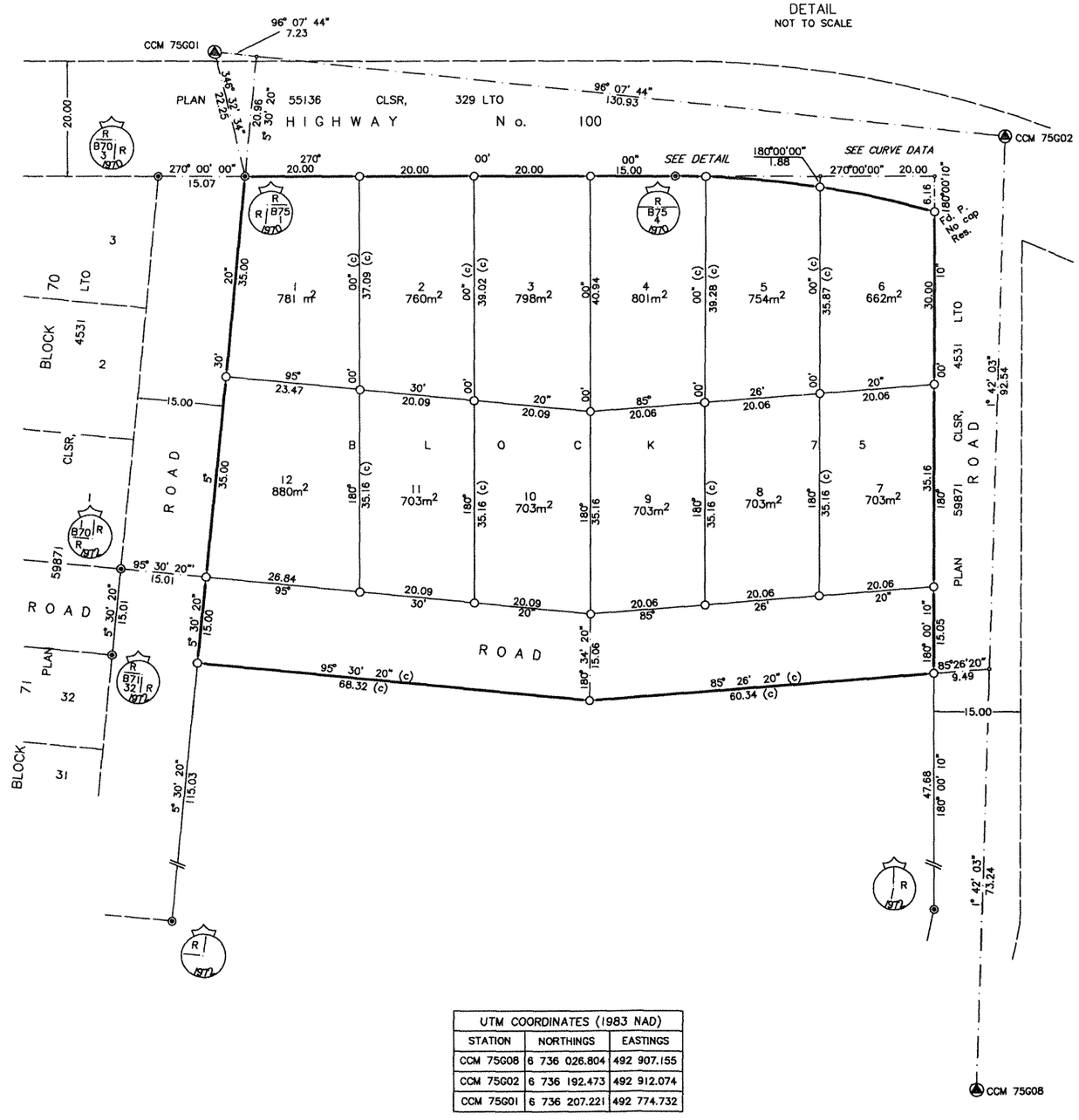
LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

CURVE DATA

Block	Lot	Radius	Arc	Chord Bearing	Chord
75	4	167.39	5.00	270°51'20"	5.00
75	5	167.39	20.09	275°09'02"	20.08
75	6	167.39	20.46	282°05'11"	20.45



DETAIL
NOT TO SCALE



UTM COORDINATES (1983 NAD)		
STATION	NORTHINGS	EASTINGS
CCM 75G08	6 736 026.804	492 907.155
CCM 75G02	6 736 192.473	492 912.074
CCM 75G01	6 736 207.221	492 774.732

CANADA LANDS SURVEYS RECORDS

CANADA LANDS SURVEYS RECORDS

S P E C I M E N O N L Y

PLAN AND FIELD NOTES
OF SURVEY OF

LOTS 1 TO 12, BLOCK 75 & ROAD

IBEX COORDINATED SURVEY AREA

(Location Description)

(See Guidelines for Preparation of Plans)

THIS SURVEY WAS EXECUTED DURING THE PERIOD
AUGUST 8 TO AUGUST 11, 1993 BY J.H. OGILVIE, CLS

SCALE 1:500

10 0 20 40 METRES

LEGEND

Bearings are derived from the line between CCM 75G08 and CCM 75G02 and are referred to the central meridian of UTM Zone 8 (135° West)

Coordinate Control Monuments found. . . . . CCM
CLS standard post found. . . . . .
CLS 77 post placed. . . . . O
Traverse lines and stations. . . . . .
Lands dealt with by this plan bounded thus. . . . . ——

Distances shown are horizontal at ground level and are expressed in metres.
To compute UTM coordinates, distances have been converted to sea level and to the projection plane by applying a combined conversion factor of 0.99978.

All posts placed in this survey are marked with the appropriate lot and block numbers and 'R' for Road (where applicable).
Total area of road dealt with is 0.192 ha.

I, J.H. Ogilvie, of the Town of Campbellford, Canada Lands Surveyor, solemnly swear that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD

Sworn before me at Ottawa
this 25th day of August, 1993. _____ CLS

'Signed'
Justice of the Peace or
Notary Public or
Commissioner for Oaths or
Canada Lands Surveyor
} *See Sec. 49 Canada Lands Surveys Act*

(Note: Oath may be substituted by solemn affirmation in accordance with the provisions of Chapter D1)

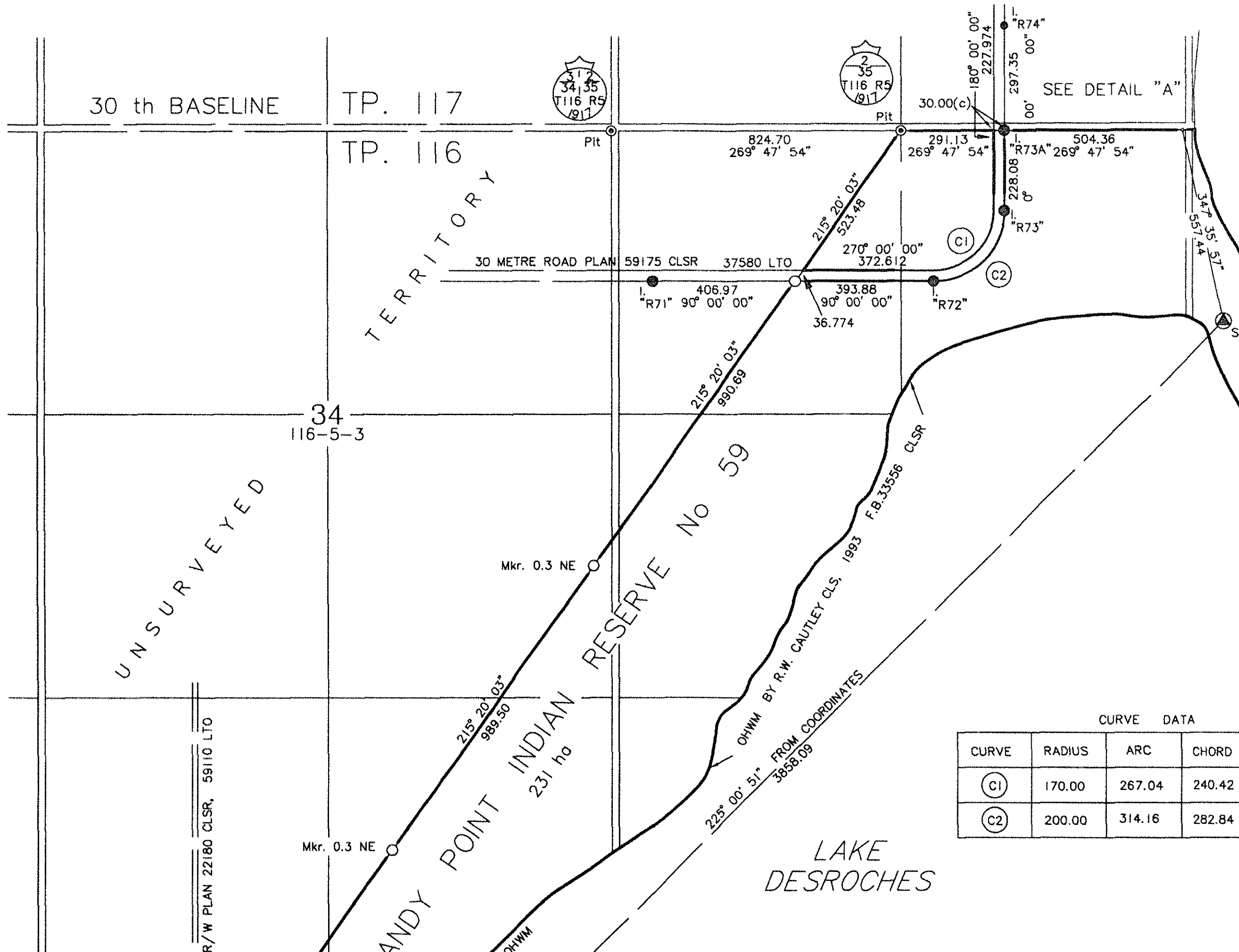
ADD APPROPRIATE ENDORSEMENT CERTIFICATES

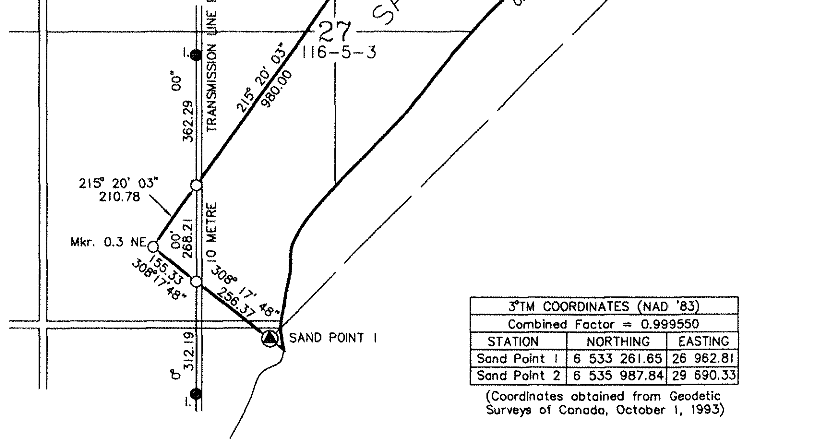
SP 1-7

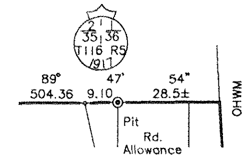
D1-22

2 cm

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres





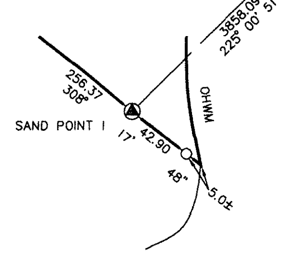


DETAIL "A"
NOT TO SCALE

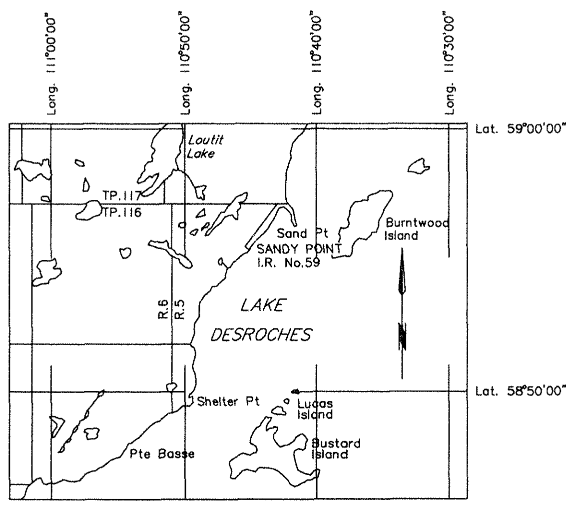
CURVE DATA				
CURVE	RADIUS	ARC	CHORD	CHORD BEARING
C1	170.00	267.04	240.42	225° 00' 00"
C2	200.00	314.16	282.84	225° 00' 00"

3°TM COORDINATES (NAD '83)		
Combined Factor = 0.999550		
STATION	NORTHING	EASTING
Sand Point 1	6 533 261.65	26 962.81
Sand Point 2	6 535 987.84	29 690.33

(Coordinates obtained from Geodetic Surveys of Canada, October 1, 1993)



DETAIL "B"
NOT TO SCALE



KEY PLAN
SCALE 1 : 250 000

S P E C I M E N O N L Y

PLAN and FIELD NOTES OF SURVEY OF THE EXTERIOR BOUNDARIES OF SANDY POINT INDIAN RESERVE No.59

(Location Description)
(See Guidelines for Preparation of Plans)

SCALE 1:10000

500 0 500 1000 METRES

THIS SURVEY WAS EXECUTED DURING THE PERIOD OCTOBER 13 TO OCTOBER 19, 1993, BY R.W. CAUTLEY, CLS

LEGEND

Bearings are grid, and are derived from the line between Geodetic Survey Markers Sand Point 2 to Sand Point 1, and are referred to the Meridian of 111° West Longitude.

DLS standard post found
Old pattern iron post found
Geodetic Control Survey Marker found
CLS '77 post placed
Traverse line and stations
Lands dealt with by this plan bounded thus

Distances are in metres.
All posts placed are marked "I.R. 59, 1993" unless otherwise shown.
Marker Posts (Mkr.) placed 0.3 North of all found and placed monuments unless otherwise shown.
The ordinary high water mark of Lake Desroches has been plotted from Vertical Aerial photographs 427131-54 to 57 which are recorded in the Canada Lands Survey Records under FB 33556 CLSR
All road allowances within the boundaries of the reserve, as shown on this plan, form part of the reserve.

I, R.W. Cautley, of the City of Prince Albert, Canada Lands Surveyor, solemnly swear that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD

Sworn before me at the City of Prince Albert this 14th day of November, 1993 ______ CLS

'Signed'
Justice of the Peace or
Notary Public or
Commissioner for Oaths or
Canada Lands Surveyor
} *See Sec. 49 Canada Lands Surveys Act*

(Note: Oath may be substituted by solemn affirmation in accordance with the provisions of Chapter D1)

ADD APPROPRIATE ENDORSEMENT CERTIFICATES

CANADA LANDS SURVEYS RECORDS

CANADA LANDS SURVEYS RECORDS

2 cm

SP 1-8

EXPLANATORY PLANS

General

1. Explanatory plans are a type of administrative plan prepared under section 31 of the *Canada Lands Surveys Act*.

2. Explanatory plans are used to define the extent of limited interests in Canada Lands. Types of land transactions for which explanatory plans may be used are outlined in interdepartmental agreements contained in Chapter B1 of this Manual.

3. Specific survey instructions are required for the preparation of explanatory plans.

4. Explanatory plans are recorded in the Canada Lands Surveys Records.

Boundary Definition

5. An explanatory plan must describe, clearly and unambiguously, all the boundaries of the parcels dealt with by the plan.

6. The surveyor must ensure that the explanatory plan correctly describes the extent of the limited interest in the lands which is to be transferred.

7. Boundaries of parcels dealt with by an explanatory plan must:

a) be defined on existing official plans or explanatory plans;
b) be described in relationship to boundaries defined on existing official plans or explanatory plans; or
c) be surveyed in accordance with Chapter D1.

8. If the explanatory plan is to define a parcel for an improvement such as a power line or pipeline, sufficient survey connections should be made to the improvement from the boundaries of the parcel so that the connections can be used in future surveys to locate the boundaries of the parcel. The connections shall be shown on the plan.

9. Monuments depicted on a plan registered or filed in a provincial land titles or land registry office may be shown on an explanatory plan only after a reproducible copy of the plan has been recorded in the Canada Lands Surveys Records.

10. Prepare official field notes in accordance with chapter D1 when monuments are re-established or restored in the survey.

11. If a significant difference is found between a measurement made in the field and a dimension on an existing plan, then verify the measurement, show the measured dimension on the explanatory plan, and prepare official field notes, in accordance with chapter D1, showing the correct measurement.

Plan Preparation

12. Explanatory plans shall be prepared in accordance with the guidelines in Appendix E3.

13. The explanatory plan shall be similar in form to specimen plan SP2–1.

14. When boundaries of parcels dealt with by an explanatory plan have been defined on existing official plans or explanatory plans, the plan dimensions shown on the existing plan and the record number of the plan shall be shown on the explanatory plan.

15. If bearings from more than one existing plan are used they may be rotated so they are

referred to a common reference meridian. The explanatory plan shall include a note stating the amount of rotation applied to the bearings.

16. If an explanatory plan defines a right-of-way crossing a series of existing boundaries, then define the positions of the crossings at approximate intervals of 1.5 km and as follows:

a) on the first and last boundaries crossed in a series of lots in a block;
b) on the closest boundary to any deflections of the right-of-way; and
c) on additional crossings, if necessary, to make it clear which lots are affected by the right-of-way.

17. Show the title of an explanatory plan as:

"Explanatory Plan of
(Power Line Right-of-Way, Utility Right-of-Way, etc.) ...".

Approvals and Certifications

18. The surveyor certifies the plan correct and dates the certification.

19. Subject to paragraph 20, the Surveyor General may require that an explanatory plan be approved by the proper authorities of the government having administration of the lands.

20. An explanatory plan of Indian Lands shall be approved by the persons designated by the Minister of Indian Affairs and Northern Development to approve such plans.

21. The Surveyor General (or a person designated by the Surveyor General to approve such plans) will approve an explanatory plan for the specific transaction for which it is prepared. The plan will be approved when it conforms with the survey instructions.

Returns

22. The returns shall consist of:

a) the explanatory plan;
b) official field notes prepared;
c) a survey report as prescribed in Chapter D15;
d) reproducible copies of plans registered or filed in a provincial land titles or land registry office used in the preparation of the explanatory plan; and
e) any other information required by the specific survey instructions.

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N O N L Y

EXPLANATORY PLAN OF
UTILITY RIGHT-OF-WAY THROUGH

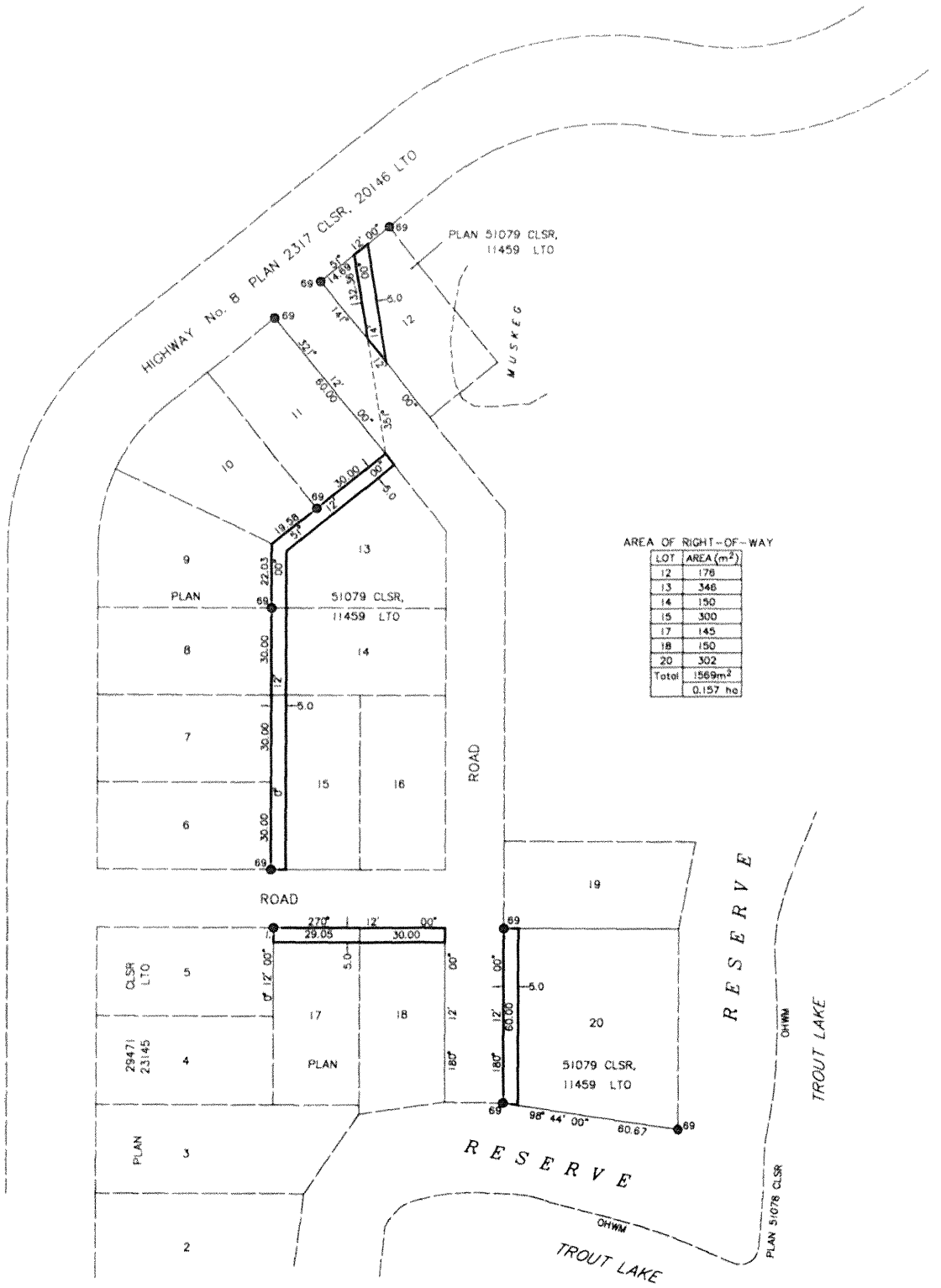
LOTS 12, 13, 14, 15, 17, 18 AND 20
TROUT LAKE SUBDIVISION

(Location Description)
(See Guidelines for Preparation of Plans)

PREPARED BY G.H. BLANCHET CLS IN 1993

SCALE 1:1000

50 0 50 100 METRES



AREA OF RIGHT-OF-WAY

LOT	AREA (m^2)
12	178
13	348
14	150
15	300
17	145
18	150
20	302
Total	1569m^2
	0.157 ha

LEGEND

Bearings are astronomic, copied from Plan 51079 CLSR and according to that plan are referred to the Meridian through the NW corner of Lot 8.

Old pattern iron post, found
CLS 69 post, found
Lands dealt with by this plan bounded thus

Utility Right-of-Way is 5.0 metres wide.
Distances are in metres.

Certified Correct

G.H. BLANCHET CLS
Ottawa, Ontario, September 15,1993

ADD APPROPRIATE ENDORSEMENT CERTIFICATES

STRATA SURVEYS

General

1. A strata survey is a legal survey which describes a volume of space, for example:
   a) an apartment in an apartment building;
   b) a store in a shopping centre;
   c) an underground tunnel; or
   d) an overhead walkway.

2. A strata survey can be carried out to prepare an official plan under section 29 of the *Canada Lands Surveys Act* or an administrative plan (e.g. an explanatory plan or a plan under condominium legislation) under section 31 of the *Canada Lands Surveys Act*. In either case the survey requirements will be similar.

3. Specific survey instructions are required for strata surveys.

Boundary Definition

4. The volume of space described in a strata plan shall be designated as a strata lot or strata parcel.

5. Unless otherwise specifically required the boundaries of strata parcels should follow features such as the inner surface, median plane, or outer surface of walls, floors and ceilings.

6. In the case of irregular shapes such as tunnels, where it would be difficult to locate or describe an actual physical boundary, geometric shapes may be used and referenced to monuments and control survey markers for horizontal location and to geodetic bench marks for vertical location. The geometric shapes forming the boundaries of strata parcels should be limited to:
   a) horizontal, vertical, or inclined plane surfaces; and/or
   b) cylindrical or portions of cylindrical surfaces which shall have axes which are horizontal, vertical, or inclined.

7. The strata parcel shall be connected to:
   a) a minimum of two bench marks; and
   b) monuments marking the boundaries of the surveyed parcel in which it lies.

Plan Preparation

8. Strata plans shall be prepared in accordance with the guidelines in Appendix E3.

9. The strata plan shall be similar in form to specimen plans SP3–1 or SP3–2.

10. The title of the plan shall read :

    "Plan of Survey of
    Strata Parcel ....."

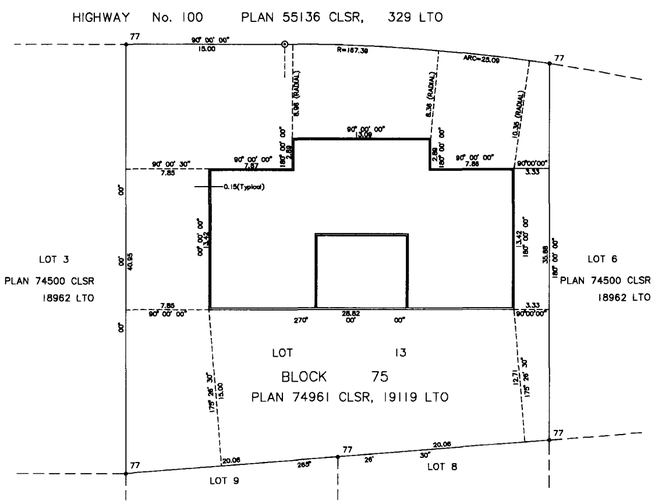
11. Provide in the legend of the plan:
    a) a note describing the nature and location of the boundaries of the strata parcel. It should be clear whether the boundary is a physical feature such as the inner surface, median plane or outer surface of a wall, or is a geometric shape the position of which is defined by its relationship to monuments and control survey markers; and
    b) a note stating that all elevations shown are mean sea level and are referred to Bench Mark(s) (official identification names or numbers).

12. Show in the diagram of the plan:
    a) the location and dimensions of the strata parcel including connections to legal survey boundaries and monuments; and

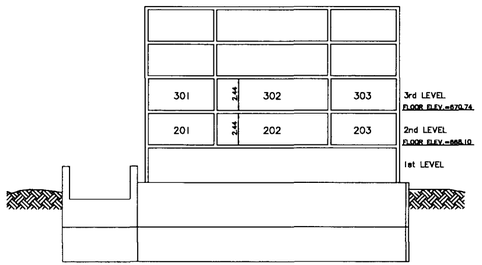
b) the elevation, to the nearest 0.1 m,
   i) of the ground floor of each strata parcel; or
   ii) of each corner of the strata parcel if the strata parcel is irregular in shape.

Returns

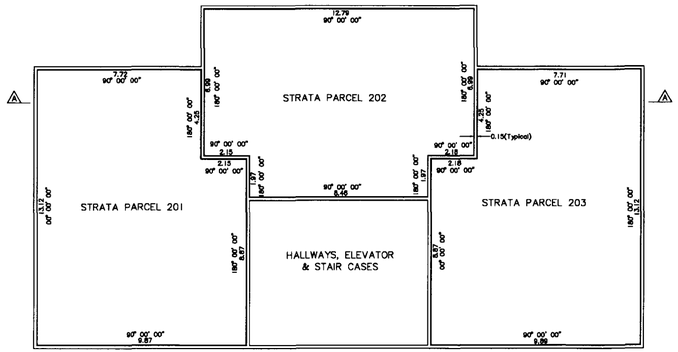
13. The returns shall consist of:
   a) the strata plan;
   b) field notes, if
      i) an official survey was carried out to prepare the strata plan;
      ii) boundaries have been surveyed; or
      iii) monuments have been placed, re-established or restored;
   c) a survey report as prescribed in Chapter D15;
   d) copies of control survey marker and bench mark description sheets of existing markers used in the survey;
   e) reproducible copies of plans registered or filed in a provincial land titles or land registry office used to prepare the plan; and
   f) any other information required by the specific survey instructions.



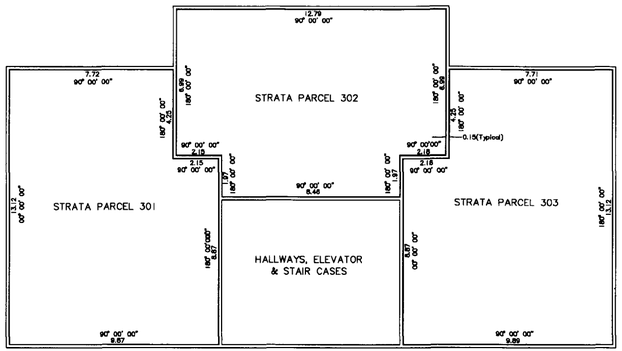
SITE PLAN
SCALE 1:200



SECTION A–A NOT TO SCALE



LEVEL 2
SCALE 1:100



LEVEL 3
SCALE 1:100

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N O N L Y

PLAN OF SURVEY OF
STRATA PARCELS 201,202,203,301,302 & 303
WITHIN
LOT 13, BLOCK 75, PLAN 74961 CLSR
IBEX COORDINATED SURVEY AREA
(LOCATION DESCRIPTION)
(SEE GUIDELINES FOR PREPARATION OF PLANS)

SURVEYED BY A.C. TALBOT, CLS IN 1993

SCALE 1:100

5 0 5 10 METRES

L E G E N D

Bearings are grid derived from the bearing 180°00'00" of the line between the posts defining the East boundary of Lot 13 as shown on Plan 74961 CLSR and according to that plan are referred to the Central Meridian of U.T.M. Zone 8 (135° West Longitude).

CLS Standard posts found shown thus ⊙
CLS 77 posts found shown thus ○77
Volume dealt with by this plan bounded thus ———

Distances are horizontal at ground level.
Distances and elevations are in metres.
Field notes for this survey are recorded under _____ CLSR.
Elevations are geodetic and are derived from CCM monuments:
1. CCM 70G9 – Elevation = 667.784 and
2. CCM 70G10 – Elevation = 667.599
Boundaries of the Strata Parcels are the undecorated interior surfaces of the walls, floors and ceilings, as the case may be.
Distances from the building to the property lines are taken from the exterior of the building at ground level and are perpendicular to the property lines unless shown otherwise.

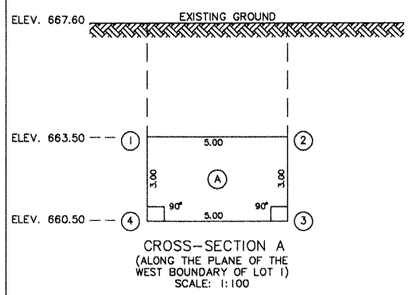
Certified Correct

_____
A.C. TALBOT CLS
IBEX, NWT, September 15, 1993

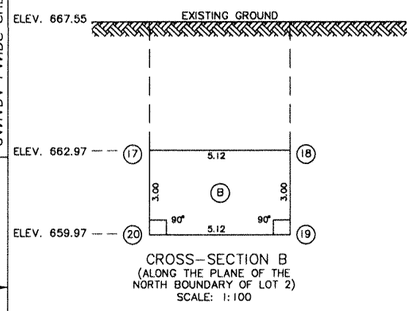
ADD APPROPRIATE ENDORSEMENT CERTIFICATES

SP 3–1

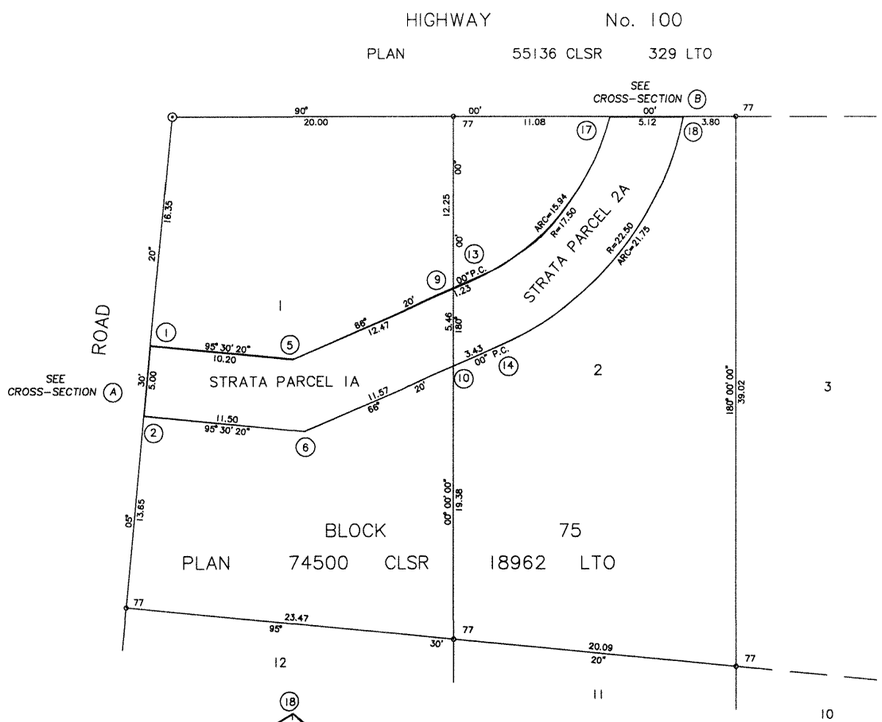
D3–3

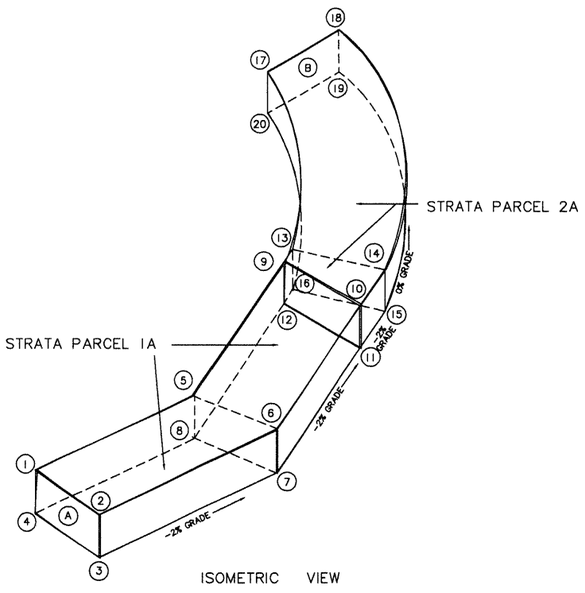


CROSS-SECTION A
(ALONG THE PLANE OF THE WEST BOUNDARY OF LOT 1)
SCALE: 1:100



CROSS-SECTION B
(ALONG THE PLANE OF THE NORTH BOUNDARY OF LOT 2)
SCALE: 1:100





ISOMETRIC VIEW

TABLE OF ELEVATIONS	
POINT	GEODETIC ELEVATION
1	663.50
2	663.50
3	660.50
4	660.50
5	663.30
6	663.27
7	660.27
8	660.30
9	663.00
10	663.04
11	660.04
12	660.00
13	662.97
14	662.97
15	659.97
16	659.97
17	662.97
18	662.97
19	659.97
20	659.97

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N O N L Y

PLAN OF SURVEY OF
STRATA PARCELS 1A & 2A
BEING PART OF
LOTS 1 & 2, BLOCK 75, PLAN 74500 (CLSR)
IBEX COORDINATED SURVEY AREA

(LOCATION DESCRIPTION)
(SEE GUIDELINES FOR PREPARATION OF PLANS)

SURVEYED BY G.M. CHRISTIE, CLS IN 1993

SCALE 1:200

5 0 10 20 METRES

LEGEND

Bearings are grid derived from the bearing 05°30'20" of the line between the posts defining the West boundary of Lot 1 as shown on the Plan 74500 CLSR and according to that plan are referred to the Central Meridian of U.T.M. Zone 8 (135° West Longitude).

CLS standard posts shown thus . . . . . ⊙
CLS 77 posts shown thus . . . . . •77
Volume dealt with by this plan bounded thus . . . . . _____

Distances are horizontal at ground level.
Distances and elevations are in metres.
Elevations are geodetic and are derived from CCM monuments:
1. CCM 70G9 – Elevation = 667.784 and
2. CCM 70G10 – Elevation = 667.599
Strata Parcel boundaries are either horizontal or vertical planes unless otherwise shown.
Field notes for this survey are recorded under _____ CLSR.

Certified Correct

_____
G.M. CHRISTIE, CLS
IBEX, NWT, September 15, 1993

ADD APPROPRIATE ENDORSEMENT CERTIFICATES

CONDOMINIUM SURVEYS

General

1. Condominium surveys are carried out under specific condominium legislation. The *Condominium Act* of the Northwest Territories, the *Condominium Act* of the Yukon Territory and the *Condominium Property Act* of Alberta (used for surveys in National Parks in Alberta for administrative convenience) are currently the only condominium legislation applying to Canada Lands.

2. A condominium plan may be in the form of:
   a) a strata plan, used to describe volumes of space, usually defined by reference to floors, walls and ceilings; or
   b) a bare land subdivision, used to describe horizontal parcels of land by reference to surveyed boundaries.

3. Bare land condominiums shall be surveyed as official surveys in accordance with Chapter D1.

4. Specific survey instructions are required for condominium surveys in National Parks in Alberta. They are not required for condominium surveys in the Yukon and Northwest Territories.

5. Normally, condominium plans are registered in the Land Titles Office and a copy is recorded in the Canada Lands Surveys Records. For bare land condominium plans in Alberta, the original is recorded in the Canada Lands Surveys Records and copy is registered in the Land Titles Office.

Boundary Definition

6. The objective of a condominium plan is to divide property into parts to be owned individually, called units, and parts to be owned in common.

7. A condominium plan shall delineate the perimeter of the horizontal surface of the land and the perimeter of the buildings in relation thereto. This survey shall include the location in the field of all monuments and verification of all bearings and distances around the perimeter.

8. An official plan under section 29 of the *Canada Lands Surveys Act* or, if private lands in the territories, a plan prepared under land titles legislation is required in addition to the Condominium Plan if:
   a) the parent property is not defined by a Certificate of Title;
   b) any of the monuments defining the perimeter of the parent property require restoration or re-establishment; or
   c) the survey falls within a Coordinated Survey Area and the monuments along the perimeter have not been previously coordinated.

9. An official plan is required to create a title for the area to be dealt with. This plan shall be filed in the Land Titles Office and title created prior to registration of the condominium plan.

10. Unless specifically required in any act or regulation, the boundaries of units should follow physical features such as the inner surface or the median planes of walls, floors and ceilings. To describe exclusive use portions of the common land a reference to the structure may be used (for example a line offset so as to include a patio).

Plan Preparation

11. Condominium plans shall be prepared in accordance with the guidelines in Appendix E3.

12. The condominium plan should be similar in form to specimen plans SP4–1 to SP4–3.

13. A condominium plan shall:

a) in the title:
   i) identify the plan as a plan of survey of condominium; and
   ii) include a description of the land which is the same as the description in the certificate of title for the parent parcel;

b) in the legend include a description of the boundaries of:
   i) the units;
   ii) the common land; and
   iii) the exclusive use portions of the common land appurtenant to the respective units; and

c) in the diagram show:
   i) the location and type of monuments defining the parent property;
   ii) the boundaries, including bearings and distances, of the parent property;
   iii) the exterior perimeter of the buildings at ground floor level, tied by survey to the boundaries of the parent property;
   iv) where vertical separation of units is involved, the elevation of the ground floor of each building to the nearest 0.1 m, referred to mean sea level as established from a minimum of two bench marks; and
   v) diagrams showing the units, the common land and exclusive use portions of the common land including, as necessary:
      — plan views to scale showing the boundaries of each unit, the common land and any exclusive use portions of the common land (e.g. parking spaces, locker spaces) with their relationship to the exterior perimeter of the building;
      — dimensions of each unit, the common land and exclusive use portions of the common land;
      — a side view portraying the vertical relationship of all floor levels identified in the unit diagrams and showing finished grade around the building; and
      — perspective drawings if necessary for clarity.

14. Units, the common land, and, if applicable, exclusive use portions of the common land shall be designated in a manner that clearly distinguishes them from each other.

15. Units shall be numbered consecutively commencing with 1.

16. For a strata condominium show the floor area of each unit. For a bare land condominium show the horizontal ground area of each unit.

17. Notwithstanding Schedule E3–I, areas may be expressed to a precision of 0.01 m² for areas of parcels up to 10 m², and 1 m² for areas of parcels between 10 m² and 100 m².

18. Each unit shall be assigned a unit factor corresponding to the percentage the unit area occupies with respect to the total area of all units in the condominium. In National Parks in Alberta, the unit factor shall be a whole number.

19. The plan shall have on it a schedule specifying the unit number, unit factor and the approximate area for each unit. The schedule should be similar in form to Schedule D4–I.

20. If all the information cannot be shown clearly on one sheet, include additional sheets. Each additional sheet shall have a title on it.

21. In the upper right hand corner of each sheet of a condominium plan, show the sheet

number and the total number of sheets in the plan as follows:

"sheet.....of.....sheets".

22. If multiple sheets are required the first sheet shall provide space for all certifications and approvals required.

Approvals and Certifications

23. The owner of the property (the persons who are registered as the owners of the fee simple estate or leasehold estate in the case of a leasehold condominium) shall sign the plan.

24. The surveyor shall certify the plan correct in accordance with the applicable legislation.

25. In the Northwest Territories, condo- minium plans are approved by the Minister responsible for the *Planning Act* (NWT) or a person designated by the Minister to approve such plans.

26. In the Yukon Territory, condominium plans are approved under subsection 6(2) of the *Condominium Act* (Yukon) by the Surveyor General or a person designated by the Surveyor General to approve such plans.

27. In Alberta, the local authority, as defined in the *Condominium Property Act*, approves the condominium plan. The plan is also approved or confirmed, under the authority of the *Canada Lands Surveys Act*, by the Surveyor General or a person designated by the Surveyor General to approve or confirm such plans.

Returns

28. The returns shall consist of;

a) the condominium plan (under the *Condo- minium Act* of the Northwest Territories and the *Condominium Act* of the Yukon Territory structural plans are considered part of the condominium plan);

b) official plan and field notes if boundaries have been surveyed or monuments have been placed, re-established or restored;

c) a survey report as prescribed in Chapter D15;

d) copies of control survey marker description sheets of existing markers used in the survey;

e) reproducible copies of plans registered or filed in a provincial land titles or land registry office used to prepare the plan; and

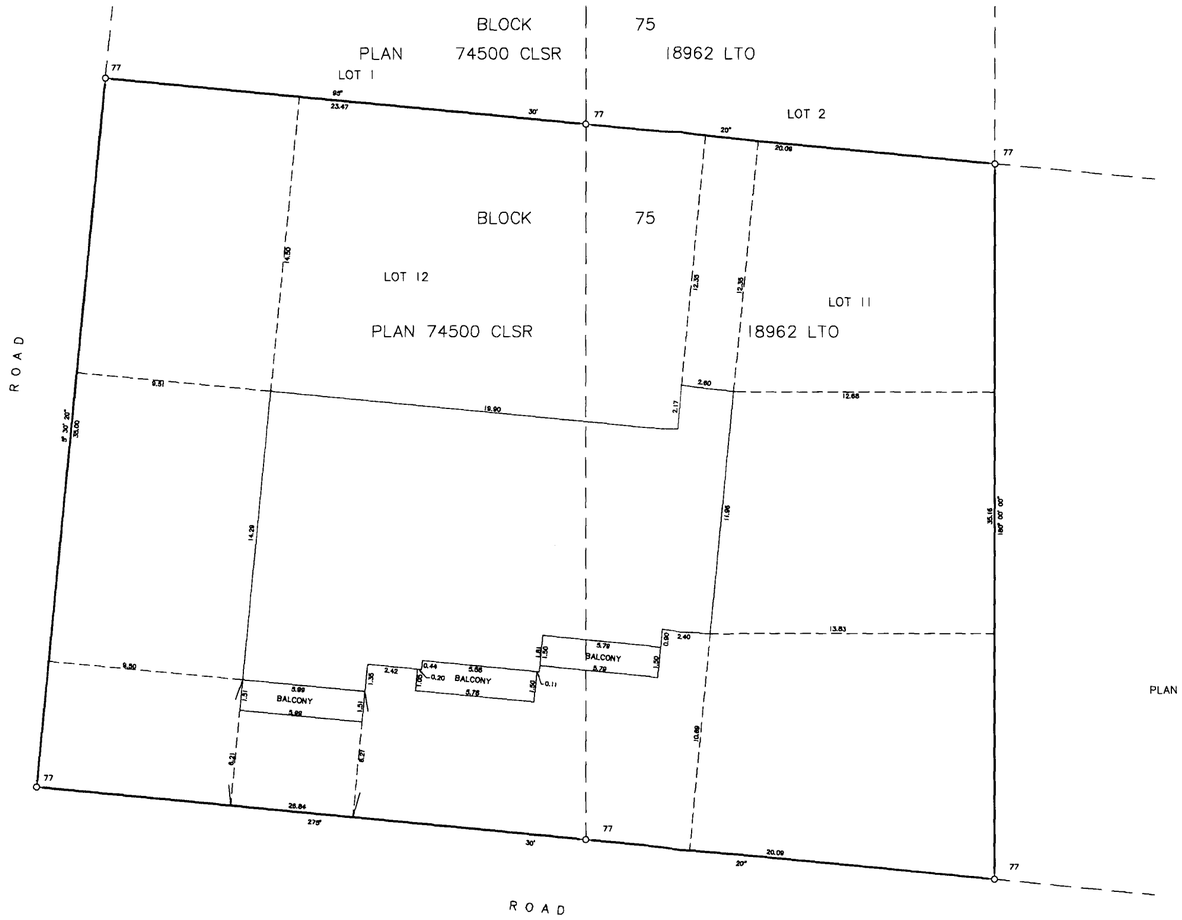
f) any other information required by the specific survey instructions.

SCHEDULE D4–1

(paragraph 19)

Schedule of Unit Factors and Areas

Unit Number	Area (m^2)	Unit Factor	Remarks
Total		100	



SCHEDULE			
UNIT NUMBER	AREA (m2)	UNIT FACTOR	REMARKS
1	78.4	9.07	
2	66.8	7.81	
3	115.2	13.4	
4	68.1	7.96	
5	81.1	9.43	
6	89.7	10.46	
7	76.4	8.91	
8	116.4	13.56	
9	76.4	8.91	
10	89.7	10.46	
TOTAL	858.2	100.00	

LOT 10
BLOCK 75
PLAN 74500 CLSR 18962 LTO

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N O N L Y

NIGIT' STIL MANOR

PLAN OF SURVEY OF

CONDOMINIUM

COMPRISING

LOTS 11 & 12, BLOCK 75, PLAN 74500 CLSR

(LOCATION DESCRIPTION)

(SEE GUIDELINES FOR PREPARATION OF PLANS)

SURVEYED BY W.A. ASHE, CLS IN 1993

SCALE 1:100

5 0 5 10 METRES

LEGEND:

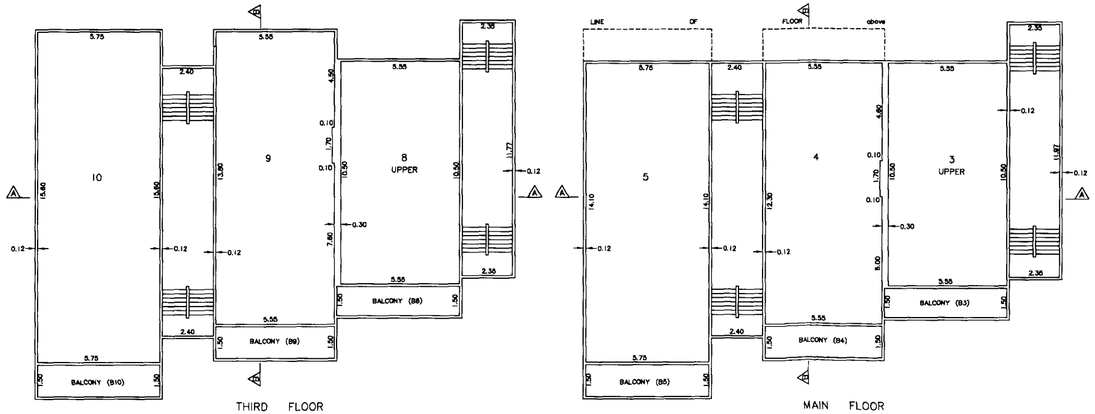
Bearings are Grid derived from the bearing 5°30'20" of the line between the posts defining the West boundary of Lot 12 as shown on the Plan 74500 CLSR and according to that plan are referred to the Central Meridian of U.T.M. Zone 8 (135° West Longitude).

Lands dealt with by this plan bounded thus . . . . . ——

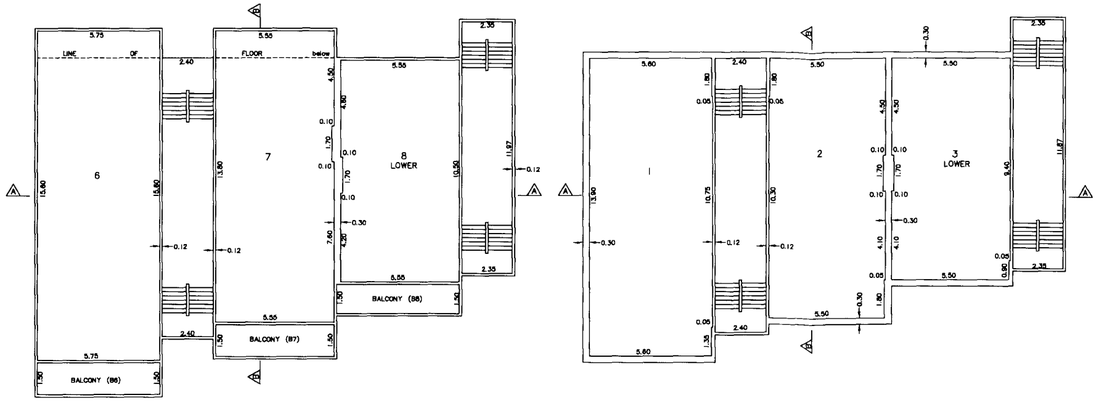
CLS '77 Post shown thus o77

Distances are in metres.
Internal unit dimensions refer to unit boundaries and are an indication of unit size as determined by field measurements.
Exterior building dimensions refer to ground level exterior concrete foundations walls.
Ties to building corners are perpendicular to the lot line.
All areas not designated with a unit number are common property.
All finished material such as lath, plaster, gypsum board, panels, flooring material, or any other material that is attached, laid, glued or applied to the face of the support or structural material, including doors and windows, are part of the unit.
The boundary of a unit with another unit or with the common property is that portionof the floor, wall or ceiling as the case may be, which is considered to be the face of the support or structural material.
Unit areas include the total of all levels for each unit, but do not include the areas of the balconies.
Areas designated with a number suffixed by a letter are exclusive use portions of the common property.

ADD APPROPRIATE ENDORSEMENT CERTIFICATES

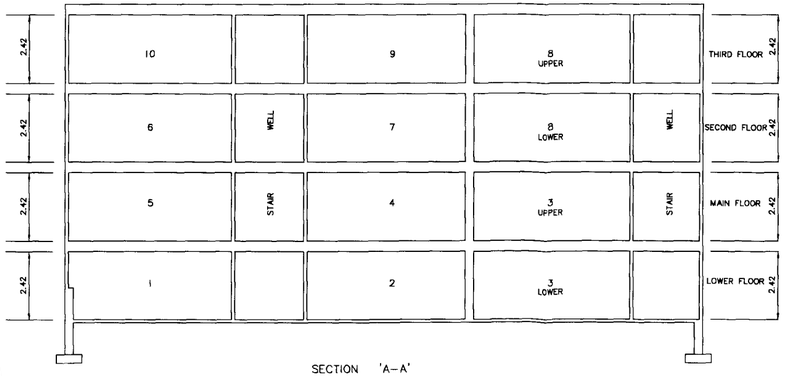


THIRD FLOOR MAIN FLOOR

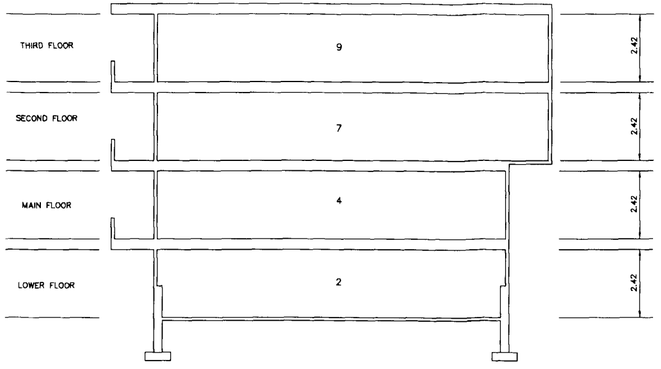


SECOND FLOOR LOWER FLOOR

FLOOR PLANS
SCALE 1:100



SECTION 'A–A'
BUILDING SECTION
SCALE 1:75



SECTION 'B–B'
BUILDING SECTION
SCALE 1:75

LEAVE SPACE FOR RECORD DETAILS
6 X 20 centimetres

S P E C I M E N O N L Y

NIGIT' STIL MANOR
PLAN OF SURVEY OF
CONDOMINIUM
COMPRISING
LOTS 11 & 12, BLOCK 75, PLAN 74500 CLSR

(LOCATION DESCRIPTION,
SEE GUIDELINES FOR PREPARATION OF PLANS)

SURVEYED BY W.A. ASHE, CLS IN 1993

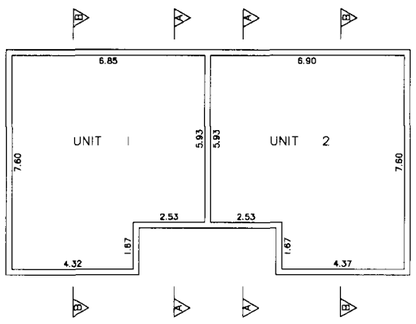
SCALE AS SHOWN

2 cm

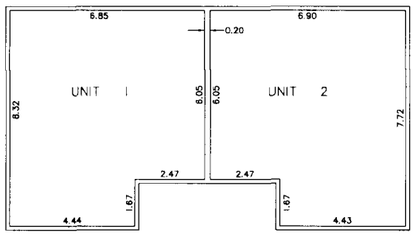
CANADA LAND SURVEY RECORDS

2 cm

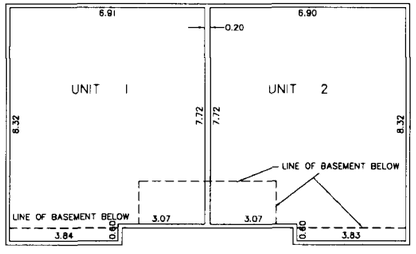
BASEMENT FLOOR LEVEL
SCALE: 1:100
ALL WALLS ARE 0.20m IN WIDTH

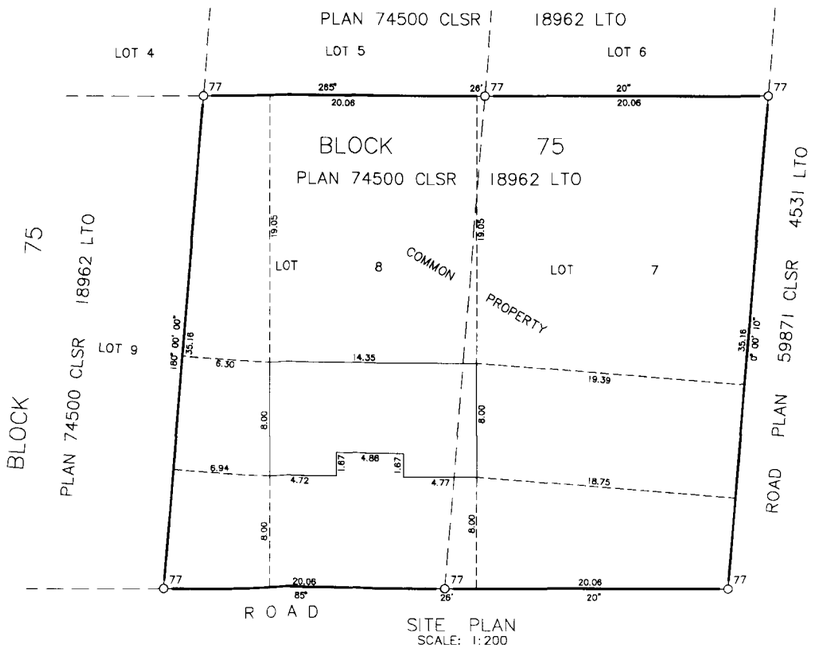


MAIN FLOOR LEVEL
SCALE: 1:100
ALL WALLS ARE 0.14m IN WIDTH UNLESS OTHERWISE SHOWN

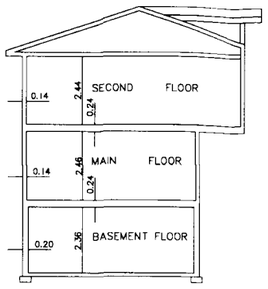


SECOND FLOOR LEVEL
SCALE: 1:100
ALL WALLS ARE 0.14m IN WIDTH UNLESS OTHERWISE SHOWN

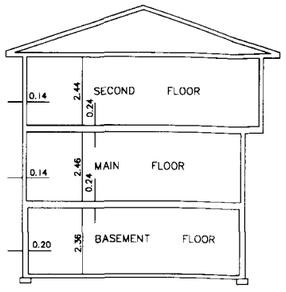




SITE PLAN
SCALE: 1:200



SECTION A–A
SCALE: 1:100



SECTION B–B
SCALE: 1:100

SCHEDULE			
UNIT NUMBER	AREA (m^2)	UNIT FACTOR	REMARKS
1	155.0	5034	
2	152.9	4966	
TOTAL	307.9	10000	

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N O N L Y

PLAN OF SURVEY OF
CONDOMINIUM
COMPRISING
LOTS 7 & 8, BLOCK 75, PLAN 74500 CLSR

(LOCATION DESCRIPTION)
(SEE GUIDELINES FOR PREPARATION OF PLANS)

SURVEYED BY H.J. CAMBIE, CLS IN 1993

SCALE 1:100

5 0 5 10 METRES

LEGEND:

Bearings are Grid, derived from the bearing 0°00'00" of the line between the posts defining the West boundary of Lot 8 as shown on the Plan 74500 CLSR and according to that plan are referred to the Central Meridian of UTM zone 8 (135° West Longitude).

Lands dealt with by this plan bounded thus ——— 77
CLS '77 Post shown thus ○

Distances are in metres.
Internal unit dimensions refer to unit boundaries and are an indication of unit size as determined by field measurements.
External building dimensions refer to ground level exterior concrete foundation walls.
Ties to building corners are perpendicular to the lot line.
All areas not designated with a unit number are common property.
All finished material such as lath, plaster, gypsum board, panels, flooring material, or any other material that is attached, laid, glued or applied to the face of the support or structural material, including doors and windows, are part of the unit.
The boundary of a unit with another unit or with the common property is that portion of the floor, wall or ceiling as the case may be, which is considered to be the face of the support or structural material.
Unit areas include the total of all floor levels.

ADD APPROPRIATE ENDORSEMENT CERTIFICATES

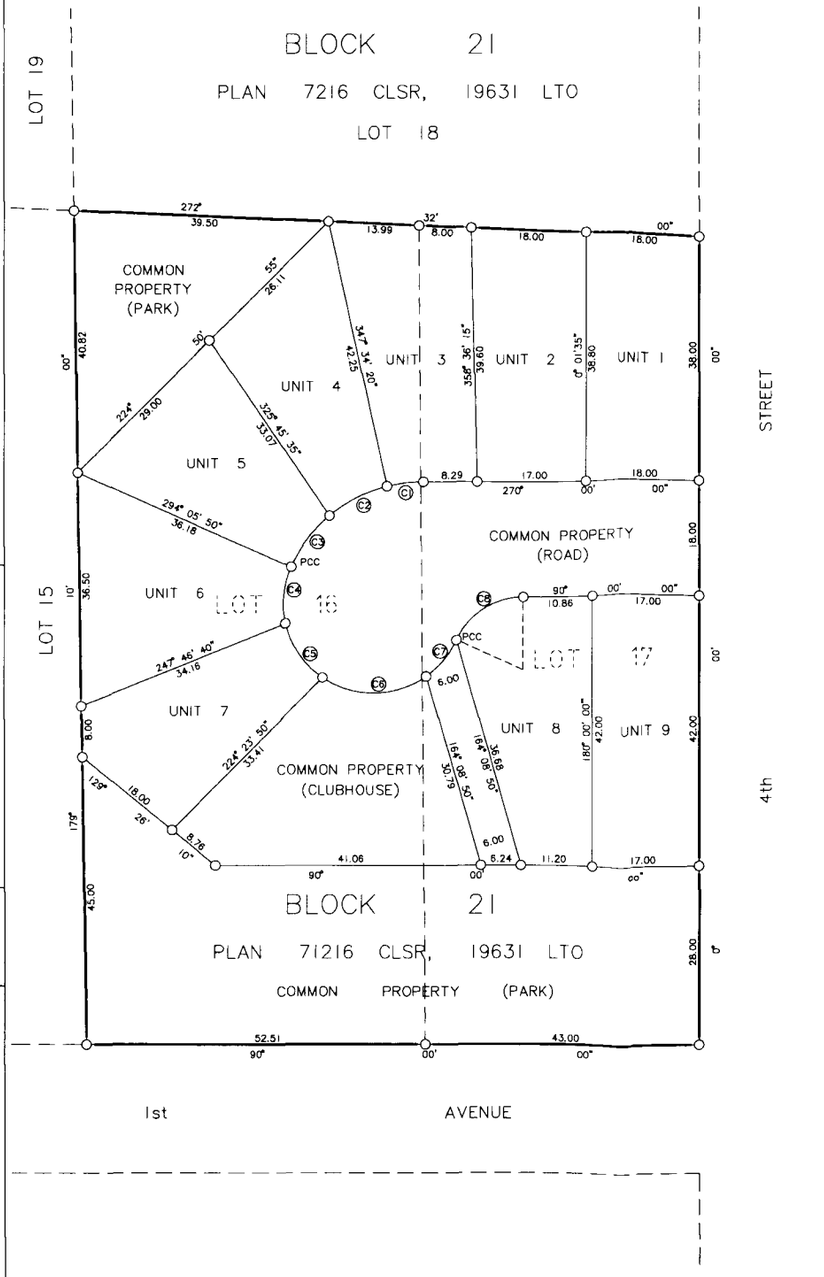
SP 4-2
D4-6

2 cm

CANADA LAND SURVEY RECORDS

2 cm

2 cm



CURVE TABLE					
Curve No.	Radius	Arc	Chord	Delta	Chord Bearing
C1	22.45	5.62	5.61	14°20'56"	82°49'32"
C2	22.45	10.10	10.02	25°46'35"	62°45'46"
C3	22.45	10.10	10.02	25°46'35"	36°59'11"
C4	14.00	9.00	8.85	36°49'59"	05°40'54"
C5	14.00	10.50	10.26	42°58'19"	145°46'45"
C6	14.00	17.08	16.04	69°54'11"	89°20'31"
C7	14.00	7.40	7.32	30°17'32"	39°14'39"
C8	11.35	13.06	12.35	65°54'07"	57°02'57"

SCHEDULE			
BARE LAND UNIT NUMBER	AREA (m^2)	UNIT FACTOR	REMARKS
1	690.8	11.30	
2	685.4	11.21	
3	720.0	11.77	
4	624.7	10.21	
5	643.6	10.52	
6	728.1	11.91	
7	614.0	10.04	
8	695.0	11.36	
9	714.0	11.68	
TOTAL	6,115.6	100.00	

LEAVE SPACE FOR RECORD DETAILS
5 X 20 centimetres

S P E C I M E N O N L Y

PTARMIGAN PLACE

PLAN OF SURVEY OF

BARE LAND CONDOMINIUM

COMPRISING

LOTS 16 & 17, BLOCK 21, PLAN 71216 (CLSR)

(LOCATION DESCRIPTION)

(SEE GUIDELINES FOR PREPARATION OF PLANS)

SURVEYED BY G.M. DAWSON, CLS IN 1993

SCALE 1:500

25 0 25 50 METRES

LEGEND:

Bearings are Grid, derived from the bearing 179°10'00" of the line between the posts defining the West boundary of Lot 16 as shown on the Plan 71216 CLSR and according to that plan are referred to the Central Meridian of UTM Zone 8 (135° West Longitude).

Area affected by the registration of this plan is shown thus ———
CLS '77 Post shown thus .....O

Distances are in metres.
All areas not designated with a unit number are common property.
The boundary of any unit is governed by the survey monuments placed or found pursuant to the Canada Lands Surveys Act.

ADD APPROPRIATE ENDORSEMENT CERTIFICATES

REGISTRATION AND LAND USE AREA PLANS

Introduction

1. The plans (registration plans and land use area plans) described in this chapter are unique to land on Indian Reserves, designated lands, surrendered lands and lands held under specific legislation which have, or will have, interests registered against them in the Indian Lands Registry.

2. a) Types of land transactions for which these plans may be used are outlined in the Interdepartmental Agreement.

   b) In this Chapter, "Interdepartmental Agreement" means the Interdepartmental Agreement between the Surveyor General of Canada Lands, Department of Energy, Mines and Resources, and the Director, Lands Directorate and the Registrar of Indian Lands, Department of Indian Affairs and Northern Development signed on November 25, 1993, and in force on December 1, 1993; a copy of which is contained in Part B of this manual.

3. Registration plans and land use area plans are prepared under section 31 of the *Canada Lands Surveys Act* and in accordance with the Interdepartmental Agreement.

4. Specific survey instructions are required for the preparation of these plans.

Registration Plans

General

5. The provisions regarding surveys in Chapter C1 apply to registration plans.

6. A registration plan is assigned a number by the regional office of Legal Surveys Division and the suffix "R" is added to this number to indicate that the plan is a registration plan.

7. Plans prepared under this part are deemed to be registration plans when they are approved by the Registrar of Indian Lands.

Parcel Definition

8. A registration plan must clearly and unambiguously describe the parcels dealt with by the plan.

9. A surveyor preparing a registration plan must carry out sufficient research to be satisfied that the parcels created by the plan represent the intentions of the parties involved in the land transaction. In the case of a registration plan requested by Indian bands or other third party, the surveyor shall obtain confirmation in writing from the party requesting the plan that the plan is satisfactory.

10. Registration plans should be prepared in the office from existing information such as official plans, registration plans, aerial photographs, line maps, photomaps, or transfer documents. This information may be used to determine bearings and distances.

11. Parcels must be related to boundaries and monuments defined on existing official plans or official field notes and to parcels shown on registration plans. Where a permanent feature is the basis of a parcel location or orientation, then the parcel must also be connected to the permanent feature.

12. Monuments or boundaries depicted on a plan of survey of record in a land titles or land registry office may be shown on the registration plan. If a copy of the land titles or land registry plan is not recorded in the Canada Lands

Surveys Records a reproducible copy shall be included with the returns.

13. The exact location and dimensions of a parcel dealt with by a registration plan may be changed by a subsequent official survey of the same parcel.

Plan Preparation

14. Registration plans shall be prepared in accordance with the guidelines in Appendix E3.

15. The plan shall be similar in form to specimen plans SP5–1 to SP5–3.

16. A registration plan shall show:

a) for parcels dealt with by the plan:
   i) bearings and distances of lot lines (bearings and distances along or to lot lines defined by natural features shall be shown as approximate and the natural feature shall be identified on the plan);
   ii) areas in hectares (they may also be shown in acres if acres are used on the particular reserve);
   iii) parcel designations; and
   iv) relationship of the parcels to parcels shown on official plans of survey, field notes or to parcels shown on prior registration plans;
b) for underlying and adjacent parcels shown on official plans of survey, field notes or for parcels shown on prior registration plans:
   i) their location;
   ii) parcel designations; and
   iii) plan numbers; and
c) the location of any other parcels for which interests are registered in the Indian Lands Registry that are within, or adjacent to, the lands dealt with by the plan. (If the location of these parcels can not be determined exactly their location should be qualified with the words "approximate location").

17. If the plan is for a subdivision of an existing parcel, then all of the parent parcel must be dealt with on the plan, and all new parcels within the parent parcel shall be designated, including the remainder.

18. Access to all parcels created by the plan must be provided. The location of any access road shall be shown on the plan. If access is provided in a way other than by a specific access road, then the nature of the access shall be noted on the plan. Also, if necessary, further information can be included in a report submitted with the returns.

19. The plan size should be 21.6 cm by 35.6 cm. To facilitate filing and copying, the maximum permissible size is 27.9 cm by 43.2 cm. If necessary, a plan may consist of more than one sheet. Each sheet must include:

a) to facilitate placing in a binder, a border at least 2 cm wide along the left side of the sheet, or along the top of the sheet if the left side is greater than 35.6 cm; and
b) a border at least 0.4 cm wide on the remaining sides.

20. Give in the title of the plan the designation of all parcels created by the plan. In the case of a subdivision or consolidation of parcels, the underlying parcels must also be indicated in the title.

21. Add the following note to the plan:

"The exact location and dimensions of a parcel (or lot) dealt with by this plan may be changed by an official survey of the same parcel."

22. If the origin of new parcels created by a plan is not evident from the diagram or from the title of the plan, the following must be added:

a) a list of parcels or parts of parcels shown on previous plans that have been superseded; and/or
b) a history of parcel designations from the last lot number on an official plan to the current parcel designation.

Approvals and Certifications

23. A registration plan shall include the following certification and approval statements:

a) to be completed by the surveyor who prepared the plan to indicate that the plan was prepared in accordance with the instructions of the Surveyor General of Canada Lands for Registration Plans:

"Prepared in accordance with the instructions of the Surveyor General of Canada Lands for Registration Plans.

(signature of surveyor)
.....
(name, qualifications and date in block letters)"

b) to be completed by the Surveyor General, or a person designated by the Surveyor General, to indicate that the plan was made under the authority of section 31 of the *Canada Lands Surveys Act*, under the provisions of the Interdepartmental Agreement and in accordance with these standards:

"Dept. of Natural Resources

Re: Section 31, Canada Lands Surveys Act and Interdepartmental Agreement (December 1993).

APPROVED

(signature)
.....
(name, title and date in block letters)"

c) to be signed by the Registrar of Indian Lands, or his duly authorized representative, to indicate that the plan meets the Registration Plan provisions of the Interdepartmental Agreement:

"Department of Indian Affairs and Northern Development

Re: Interdepartmental Agreement — December 1993

APPROVED
(signature)
.....
(name and date in block letters)
Registrar of Indian Lands"

24. The certification and approvals listed in paragraph 23 are executed in the order presented. After the original plan is approved by the Registrar, it is returned to the regional office of Legal Surveys Division and placed in regional records. A reproducible copy is then sent to the Surveyor General for filing in the Canada Lands Surveys Records.

Returns

25. The returns shall consist of:

a) the registration plan;
b) a report, if necessary, to explain: the method of determining distances and directions, results of title searches, concerns regarding definition of parcels, provision for access, etc.;
c) copies of any plans, photographs, photomaps or other documents, used to determine distances and directions;
d) a reproducible copy of any plan that shows monuments or boundaries used in the preparation of a registration plan which is of record in a land titles or land registry office but not recorded in the Canada Lands Surveys Records;
e) confirmation in writing from the parties involved that the plan is satisfactory; and
f) any other information required in the specific survey instructions.

Land Use Area Plans

Parcel Definition

26. Land use area plans must clearly and unambiguously describe land use areas dealt with by the plan.

27. A surveyor preparing a land use area plan must carry out sufficient research to be satisfied that the land use areas created by the plan represent the intentions of the parties involved in the land transaction. The surveyor should obtain confirmation in writing from the Indian band and the party requesting the plan that the plan is satisfactory.

28. The surveyor preparing a land use area plan must carry out sufficient office and/or field research to determine the nature and location of the boundaries of land use areas.

29. Any basemapping used to prepare a land use area plan must conform to the provisions in Chapter D13 of this manual.

30. All boundaries of parcels dealt with by a land use area plan must:

a) be defined on existing official plans, registration plans or explanatory plans;
b) be described in relation to boundaries shown on existing official plans, registration plans, or explanatory plans;
c) be surveyed in accordance with Chapter D1 of this manual, in which case, official field notes must be submitted with the returns of survey; or
d) be a physical feature (such as a fence line, edge of field, edge of unsurveyed road, bank of river, or bank of a lake) visible and delineated on the plan.

31. If physical features visible on the photomap or linemap base are used to define boundaries, the physical feature is the boundary — not the line used to delineate the feature.

32. Monuments or boundaries depicted on a plan which is not recorded in the Canada Lands Surveys Records may be shown on a land use area plan. A reproducible copy of the plan shall be included with the returns so it can be recorded in the Canada Lands Surveys Records.

33. Sufficient control points shall be provided on the basemap to enable surveyed legal boundaries to be plotted to the accuracy requirements described in Chapter D13.

34. Legal survey information shall be plotted so that:

a) ninety-five percent of all legal survey information will be shown within 0.5 mm of the true position of the map detail; and
b) all remaining map information will be shown within 1.0 mm of the true position of the map detail.

Plan Preparation

35. Land use area plans shall be prepared in accordance with the guidelines in Appendix E3.

36. The plan shall be similar in form to specimen plan SP5–4.

37. In the township system, land use areas should be numbered consecutively within each section.

38. Areas of land use area parcels shall be calculated by any method that will give an accuracy within 1% of the true area.

39. Where a parcel shown on an official plan consists of several land use areas the total area of the land use areas shall be adjusted so that it is the same as the area of the parcel on the official plan.

40. Land use area plans should include the following predominant note below the title:

"Revised to .....".

41. Provide in the legend the dates and numbers of aerial photographs used to compile the basemap.

42. In the diagram of the plan show:

a) land use area boundaries depicted by a line consisting of dashes and dots so that the image of the natural feature can be seen on the plan;
b) the plan numbers of all current plans, including registration plans in the area dealt with by the land use area plan;
c) land use area numbers; and
d) areas in hectares(they may also be shown in acres if acres are used on the particular reserve).

43. Provide a key plan with an index to sheet numbers if there is more than one land use area plan.

Approvals and Certifications

44. A land use area plan shall include the following certification and approval statement:

a) to be completed by the surveyor preparing the plan to indicate that the plan was prepared in accordance with the instructions of the Surveyor General of Canada Lands for land use area plans:

"Prepared in accordance with the instructions of the Surveyor General of Canada Lands for Land Use Area Plans.

(signature of surveyor)
.....
(name, qualifications and date in block letters)"

b) to be completed by the Surveyor General, or a person designated by the Surveyor General to approve such plans, to indicate that the plan was made under the authority of section 31 of the *Canada Lands Surveys Act*, under the provisions of the Interdepartmental Agreement, and in accordance with these standards:

"Dept. of Natural Resources

Re: Section 31, Canada Lands Surveys Act and Interdepartmental Agreement (December 1993).

APPROVED

(signature)
.....
(name, title and date in block letters)"

45. Land use area plans are filed in the regional records. A copy is sent to the Registrar of Indian Lands.

Revision and Replacement of Land Use Area Plans

46. If revisions are to be made to an existing land use area plan, a copy of it must first be made and retained in the regional records.

47. For any revisions made, note on the plan the date of revision, description of revision, and name of person making revision.

48. In any revision of a land use area plan, land use area parcel numbers of deleted or revised land use areas are not to be reused. New or revised land use area parcels are assigned the next sequential number within the map sheet or within the survey unit.

49. If significant change occurs to land use area boundaries a new basemap may be prepared using new photography. If interests based on the previous land use area plan will remain in effect after the new land use area plan is completed and the land use area parcels affected have not materially changed, the numbers of the previous land use areas may be retained. In this case a table should be placed on the plan in the form of Schedule D5–1.

Returns

50. Returns shall consist of:

a) the land use area plan;
b) any material used to prepare the land use area plan such as basemaps, legal survey overlays, and land use overlays;
c) official field notes if boundaries have been surveyed and/or monuments have been placed, re-established or restored;
d) a survey report as prescribed in Chapter D15;
e) reproducible copies of plans registered or filed in a provincial land titles or land registry office used to prepare the plan; and
f) any other information required by the specific survey instructions.

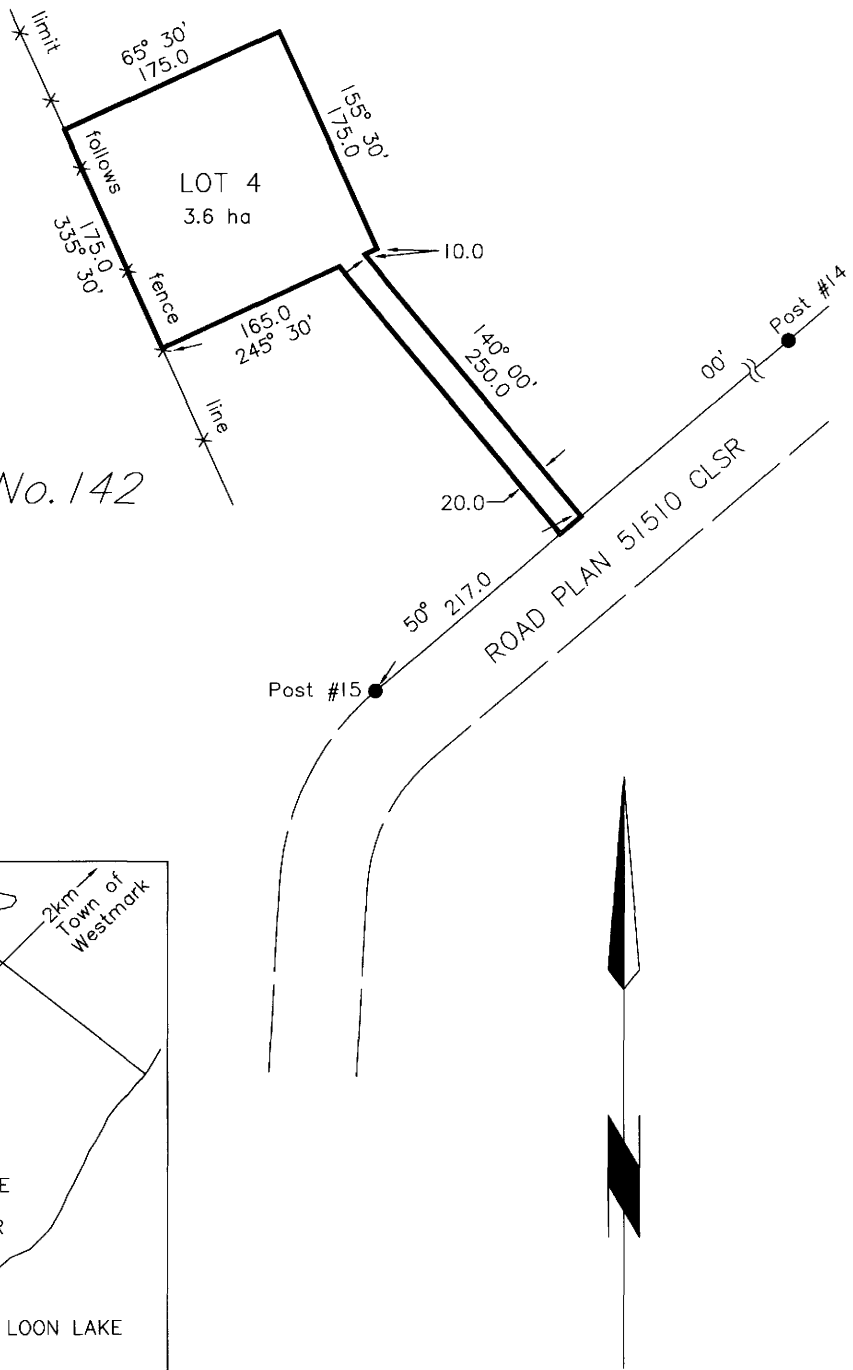
SCHEDULE D5–1

(*paragraph 49*)

Table of Land Use Areas carried forward

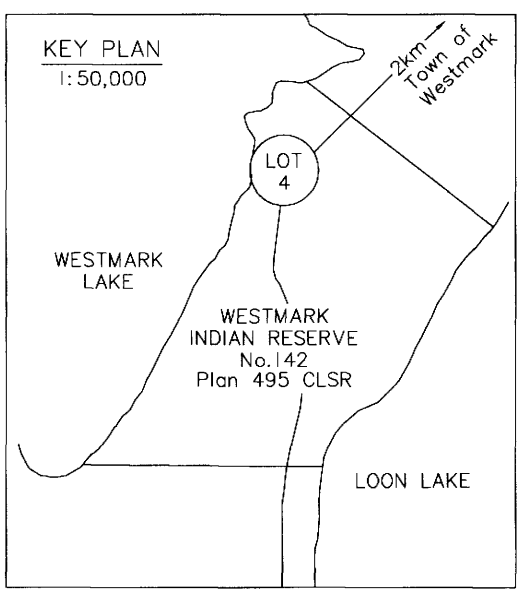
Table showing land use area parcel numbers carried forward from plan number ____ for which interests are still in effect as of _____.	
Section	Land Use Area Parcel(s)
SE 1/4 27	12, 15, 27, 29

SPECIMEN ONLY



WESTMARK INDIAN RESERVE No. 142

PLAN 495 CLSR



(Leave space for additional approvals from band/occupant if required and for notes regarding amendments)

REGISTRATION PLAN OF

LOT 4

WEST MARK INDIAN RESERVE No. 142

PROVINCE OF BRITISH COLUMBIA

SCALE 1:5000

100 50 0 100 200 METRES

LEGEND

Monuments shown thus: ●

Lands dealt with shown thus: ▬

Based on: *(list plans, field notes and other documents such as letter requesting plan, band council resolution etc. from which the plan is prepared)*

Surveyors Report filed in regional records R.S. _____.

Note: The exact location and dimensions of the lot dealt with by this plan may be changed by an official survey of the same lot.

Prepared in accordance with the Instructions of the Surveyor General of Canada Lands for Registration Plans.

A.H. Green CLS *(Date)*

DEPARTMENT OF NATURAL RESOURCES
RE: Section 31, Canada Lands Surveys Act and Interdepartmental Agreement (December 1993)

APPROVED

REGIONAL SURVEYOR, B.C. *(Date)*

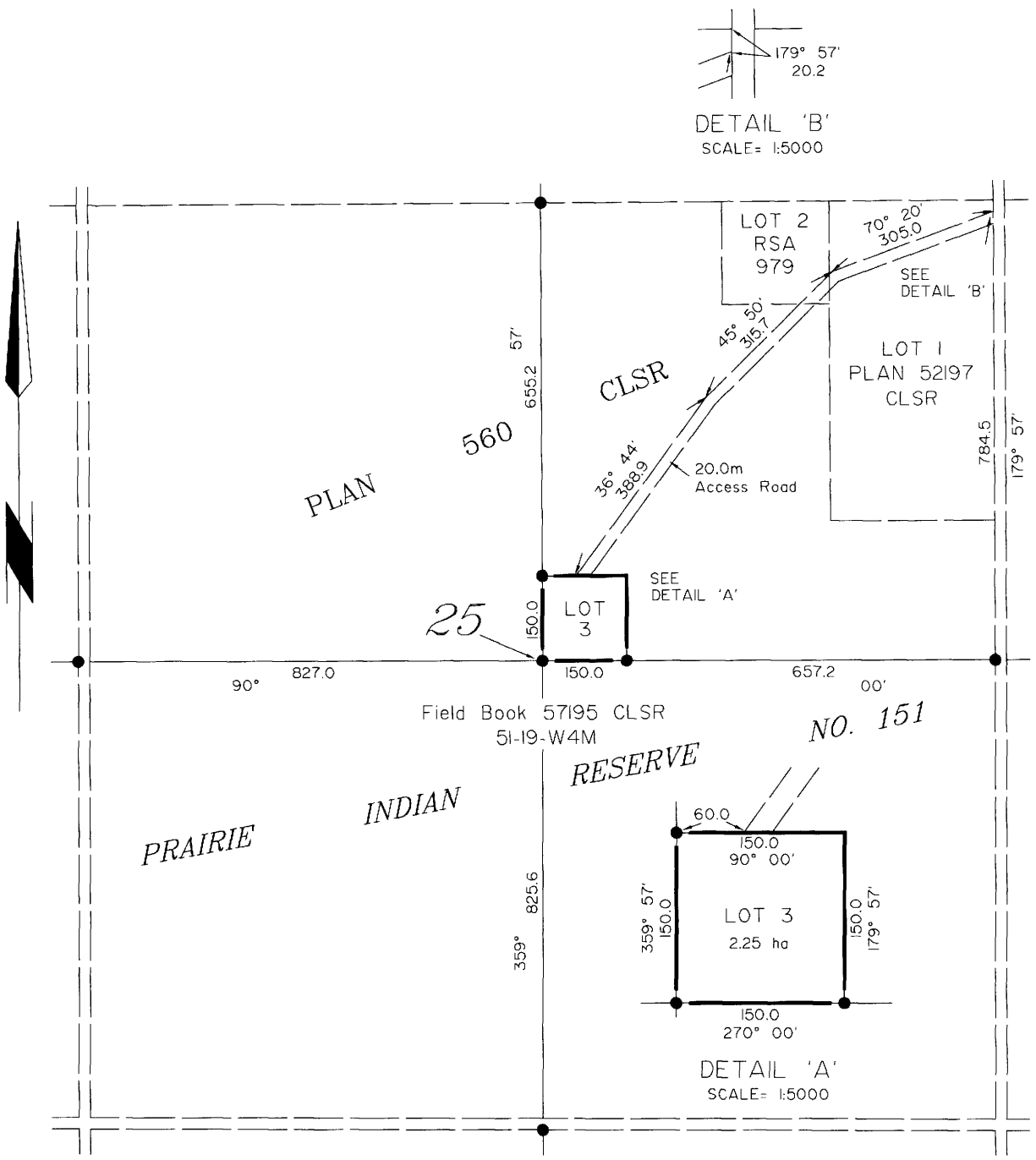
DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
RE: INTERDEPARTMENTAL AGREEMENT (DECEMBER 1993)

APPROVED

REGISTRAR, INDIAN LANDS *(Date)*

R.S.B.C. 5000 R

SPECIMEN ONLY



(Leave space for additional approvals from band/occupant if required and for notes regarding amendments)

REGISTRATION PLAN OF

LOT 3

IN THE

NE 1/4 Sec.25–Tp.51–R.19–W.4M.

PRAIRIE INDIAN RESERVE No. 151

PROVINCE OF ALBERTA

SCALE 1: 10,000

200 100 0 200 400 METRES

LEGEND

Monuments shown thus: . . . . . ●

Lands dealt with shown thus: . . . . . ▬

Based on: *(list plans field notes and other documents such as letter requesting plan, band council resolution etc. from which the plan is prepared)*

Surveyors Report filed in regional records as R.S. _____ .

Note: The exact location and dimensions of the lot dealt with by this plan may be changed by an official survey of the same lot.

Prepared in accordance with the Instructions of the Surveyor General of Canada Lands for Registration Plans.

J.K. Mclean CLS *(Date)*

DEPARTMENT OF NATURAL RESOURCES
RE: Section 31, Canada Lands Surveys Act and Interdepartmental Agreement. (December 1993)
APPROVED

REGIONAL SURVEYOR, Alberta *(Date)*

DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
RE: INTERDEPARTMENTAL AGREEMENT (DECEMBER 1993)
APPROVED

REGISTRAR, INDIAN LANDS *(Date)*

R.S.A. 5001 R

SPECIMEN ONLY

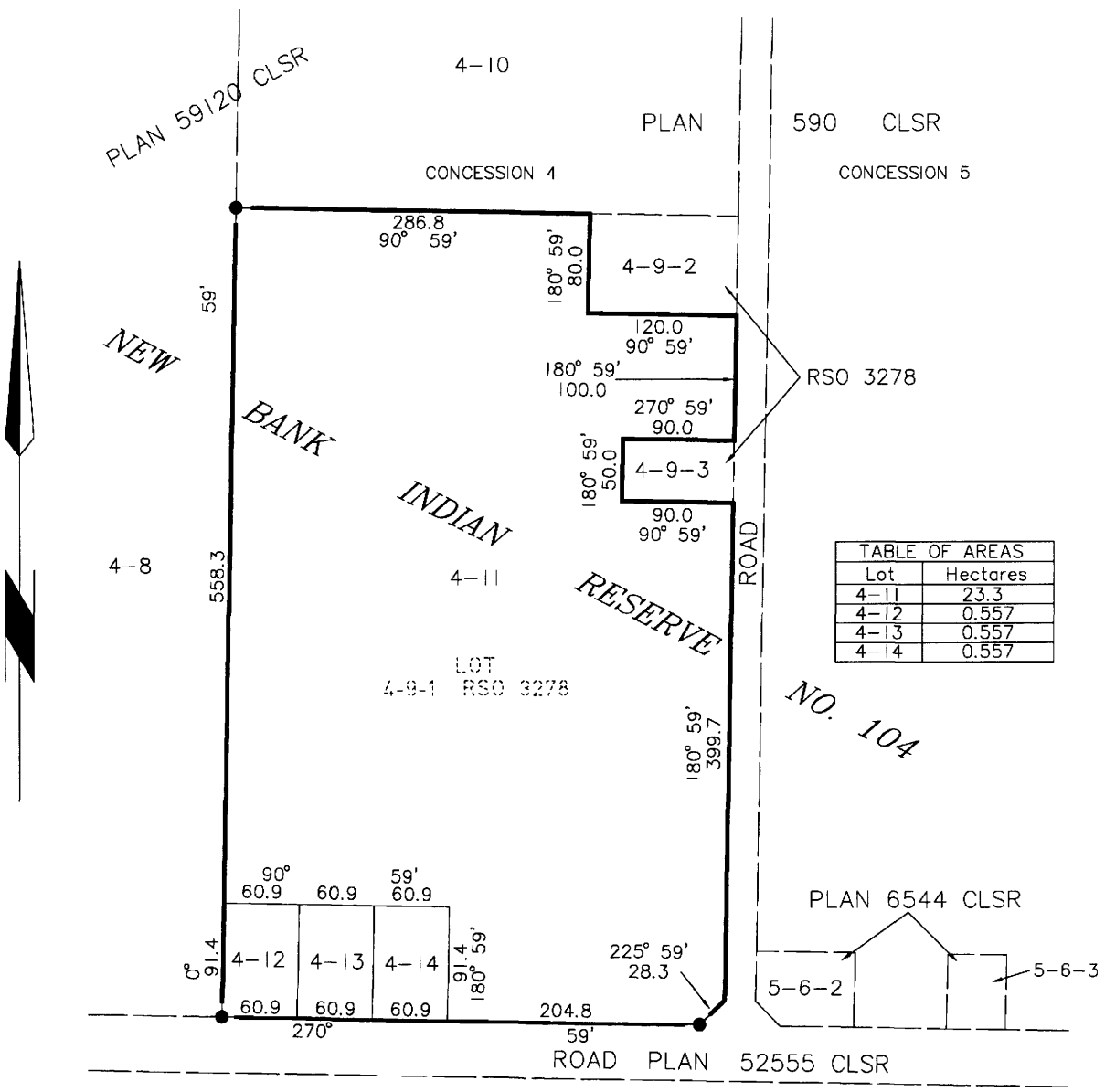


TABLE OF AREAS	
Lot	Hectares
4-11	23.3
4-12	0.557
4-13	0.557
4-14	0.557

PARCEL HISTORY	
PARCELS CREATED	CREATED FROM
4-11, 4-12, 4-13, 4-14	4-9-1 RSO 3278
4-9-1 RSO 3278	4-9 59120

(Leave space for additional approvals from band/occupant if required and for notes regarding amendments)

REGISTRATION PLAN OF

LOTS 4-11 TO 4-14

(being a Subdivision of Lot 4-9-1, RSO 3278)

NEW BANK INDIAN RESERVE No. 104

PROVINCE OF ONTARIO

SCALE 1:5000

100 50 0 100 200 METRES

LEGEND

Monuments shown thus: . . . . . ●

Lands dealt with shown thus: . . . . . ▬

Based on: *(list plans field notes and other documents such as letter requesting plan, band council resolution etc. from which the plan is prepared)*

Surveyor's Report filed in regional records as R.S._____ .

Note: The exact location and dimensions of the lots dealt with by this plan may be changed by an official survey of the same lots.

Prepared in accordance with the Instructions of the Surveyor General of Canada Lands for Registration Plans.

T.D. Green CLS *(Date)*

DEPARTMENT OF NATURAL RESOURCES
RE: Section 31, Canada Lands Surveys Act and Interdepartmental Agreement (December 1993)

APPROVED

REGISTRAR SURVEYOR, Ontario *(Date)*

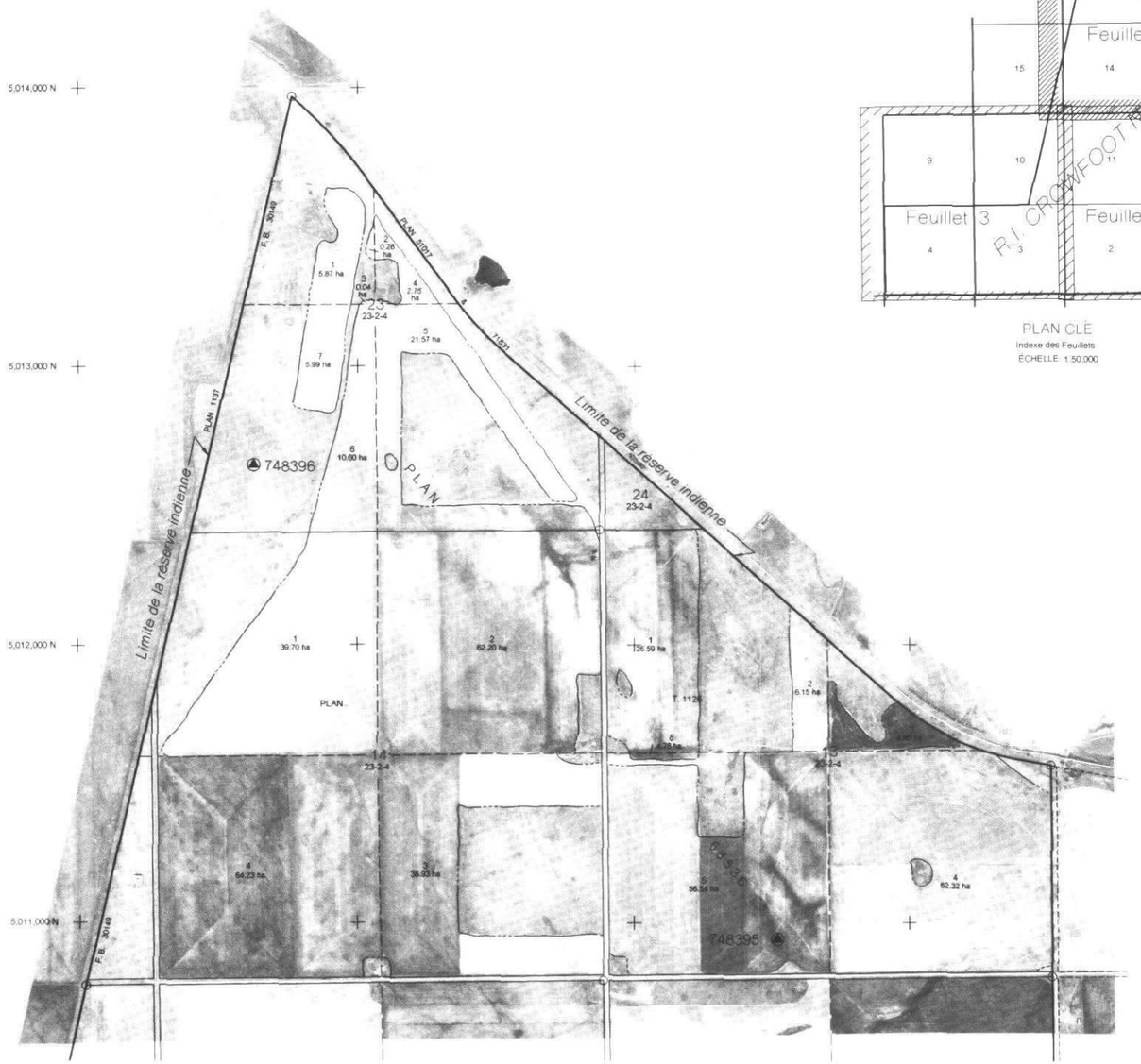
DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
RE: INTERDEPARTMENTAL AGREEMENT (DECEMBER 1993)

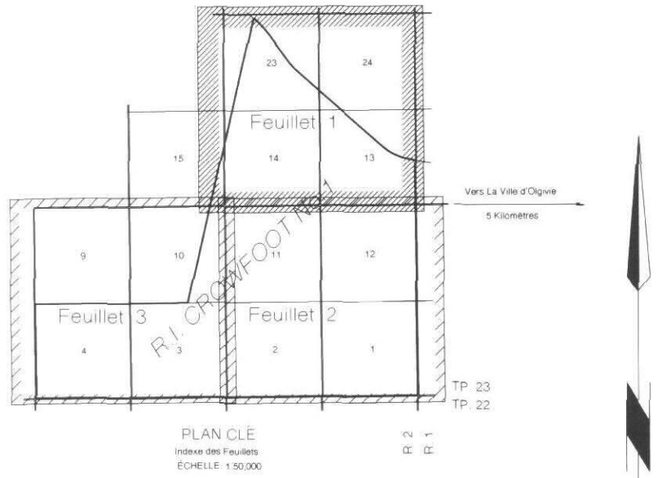
APPROVED

REGISTRAR, INDIAN LANDS *(Date)*

R.S.O. 5002 R

(SP 5-3) D5-9





PLAN CLÉ
Indexe des Feuillets
ÉCHELLE: 1:50,000

Laisser un espace pour les détails sur le dépôt
5 x 20 centimètres

S P É C I M E N S E U L E M E N T

PLAN

D'UTILISATION DES TERRES DANS

LES SECTIONS 13, 14, 15, 23 ET 24

TP. 23, R. 2, O. 4 M.

RÉSERVE INDIENNE DE CROWFOOT Nº1

PROVINCE DE L'ALBERTA

FEUILLE 1 DE 3

Échelle 1:10000

500 0 500 1000 MÈTRES

RÉVISÉ EN DATE DU: _____

LÉGENDE

Le quadrillage de coordonnées indiqué provient de la projection cartographique de Mercator transverse universelle du système de référence nord américain de 1983, ayant son origine au méridien de longitude de 111° et l'équateur

Les intersections de quadrillage de 1 000 mètres indiqués ainsi ..... + 5,010,000 N

L'imagerie orthophoto a été compilé à partir de photos aériennes de 1990, rouleau nº A 26569.

Les numéros des zones d'utilisation des terres 3

Les superficies ..... 62.32 ha

Repères de contrôle ..... ▲

Borne servant comme balise de contrôle ..... ○

Limites des zones d'utilisation des terres .....

Limites de quart de section non arpentées .....

Clôture .....

Préparé en conformité avec les instructions générales de l'arpenteur général des terres du Canada visant les plans d'utilisation des terres.

_____ _____

William Ogilvie — Date

Arpenteur fédéral

Ministère des Ressources naturelles
Objet: article 31, Loi sur l'arpentage des terres du Canada et l'Entente interministérielle (décembre 1993)

APPROUVÉ

(signature)

_____

(nom, titre et date en lettres moulées)

R.S.A.

PLAN NO.

PS5-4
D5-10

OIL AND GAS SURVEYS IN INDIAN RESERVES

General

1. These general instructions apply where surface rights pertaining to oil and gas development on Indian Lands are being disposed of pursuant to section 27 of the *Indian Oil and Gas Regulations, 1995*. In general, this section covers wellsites and other facilities related to drilling and production operations such as tanks, flow lines, and access roads, where the facility services resource exploration on an Indian Reserve.

2. Specific survey instructions are not required for oil and gas surveys in Indian lands. The surveyor is responsible for gathering all the survey and control information required to carry out the survey. Survey information is available from the regional office of Legal Surveys Division.

3. Oil and gas surveys shall be made by a Canada Lands Surveyor, or by a surveyor commissioned for the province concerned who is authorized by the Surveyor General pursuant to subsection 26(2) of the *Canada Lands Surveys Act*.

4. Before commencing the survey, the surveyor must obtain authorization from the Indian Band Council and any other party that may be affected by the survey.

5. The general instructions in Chapter D1 apply to oil and gas surveys, in so far as they are not inconsistent with the provisions of this Chapter.

Monumentation

6. Monuments placed shall be of the type used for such surveys in the province concerned.

7. Place monuments at the corners of the parcel being surveyed for the wellsite or other facility.

8. Place monuments at points where right-of-way boundaries intersect previously surveyed boundaries. Where the boundary of a pipeline, access road or other facility crosses the boundary of an existing surveyed wellsite, monument the intersection with the wellsite boundary. If the previous wellsite monuments cannot be found, the intersection may be shown by calculation only.

9. Where an access road or other right-of-way terminates at the boundary of a previously surveyed wellsite, monuments must be placed on the wellsite boundary.

10. Along a right-of-way place monuments either on one boundary, or on the surveyed traverse line.

Survey Methods

11. Survey connections shall be made to structures of a permanent nature, such as the well casing, wellhead equipment, or concrete foundations that may serve as permanent reference.

12. If the position of any monument shown on a prior official plan of survey is re-established in the course of carrying out a survey under this Chapter, the re-established monument must be shown on the oil and gas plan. In addition, official field notes must be prepared in accordance with Chapter D1.

13. Lands occupied by individual band members, which are required for oil and gas purposes should be located to an accuracy sufficient to compute the areas thereof.

The boundaries of such individual holdings should be determined in consultation with the band and the band member.

Plan Preparation

14. Oil and gas plans shall be prepared in accordance with the guidelines in Appendix E3.

15. The oil and gas plan shall be similar in form to specimen plan SP6–1.

16. The plan size should be such that prints will fit onto a 21.5 cm x 35.5 cm file with no more than two folds. The width shall not exceed 60 cm.

17. Where the area surveyed is for an additional area to be added to a parcel on an existing legal survey plan the surveyor may in consultation with the applicant:

a) submit a plan of the entire area applied for; or
b) submit a plan showing only the additional area required.

18. Give in the title of the plan:

a) the corporate name of the applicant for the surface rights; and
b) the name or number assigned to each wellsite by the provincial conservation authority.

19. Show in the diagram of the plan:

a) the boundaries of the parcel required for oil and gas purposes with the lengths and bearing of the lines;
b) the location of those portions of individual land holdings affected by the area applied for;
c) the position of each well related to the boundaries of any unit of land used for the spacing of oil and gas wells; and
d) areas required in each section, quarter section, other surveyed parcel or parcel of land under separate band member occupancy for:
   i) the wellsite or other facility;
   ii) the access or other road; and
   iii) flow lines or other pipeline rights-of- way.

Approvals and Certifications

20. The plan of survey shall be signed by an authorized representative of the applicant.

21. The plan of survey shall be certified correct by the surveyor who performed the survey in the following manner:

> "I ..... certify that the survey represented by this plan is correct and true to the best of my knowledge, is in accordance with the general instructions of the Surveyor General, and was completed on the ..... day of .....19 .....**.**
>
> ....
> *(Canada Lands)* Surveyor Date"

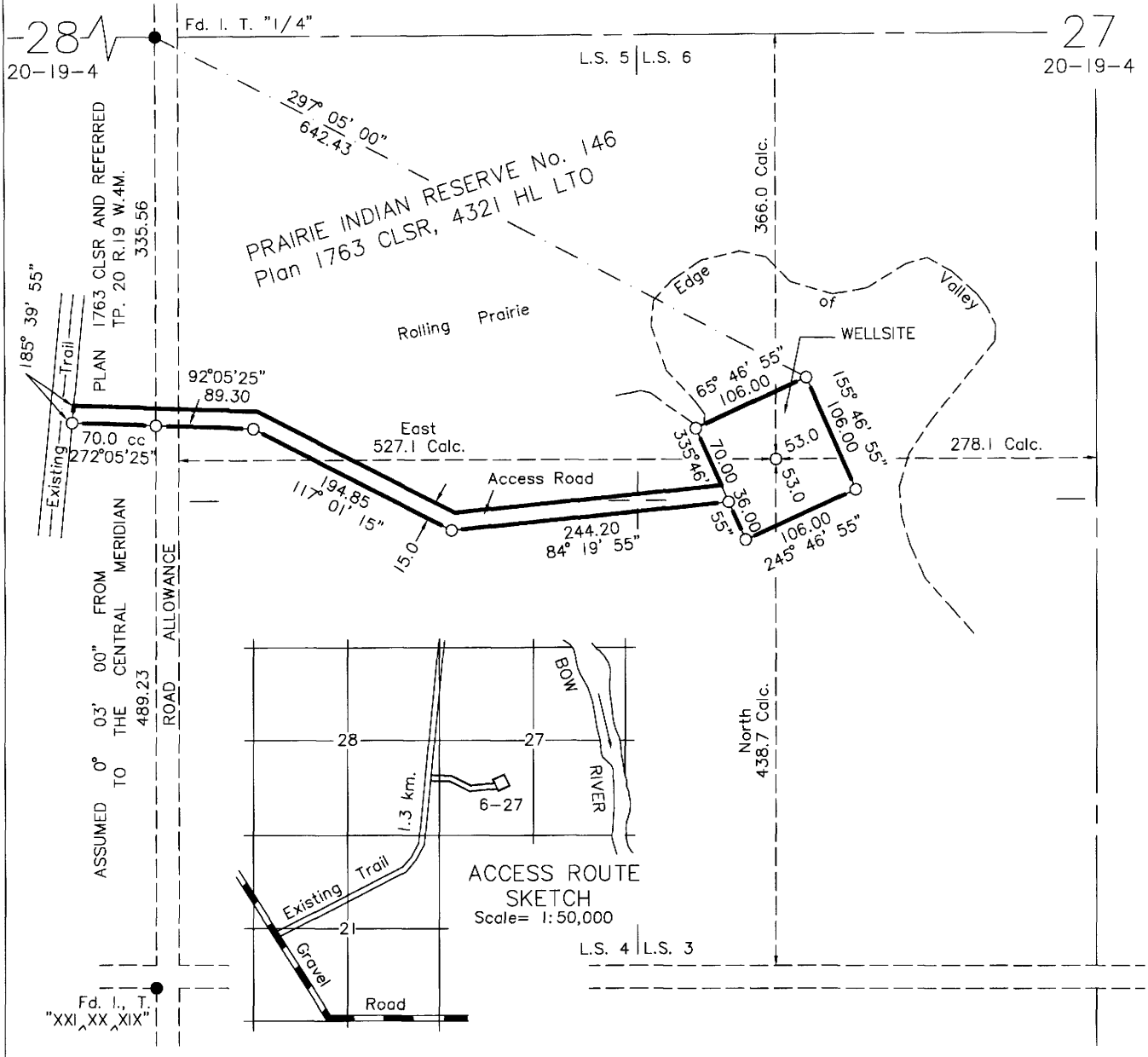
22. The plan of survey is reviewed by the Surveyor General or a person designated by the Surveyor General to review such plans. The plan is recorded in the Canada Lands Surveys Records if it conforms with these general instructions.

Returns

23. Oil and gas plans are delivered directly to the applicant (the Oil Company). Under subparagraph 27(2)(c)(iii) of the *Indian Oil and Gas Regulations, 1995*, the applicant shall deliver to the Executive Director of Indian Oil and Gas Canada a sensitized polyester base film copy and four paper prints of the plan. The polyester copy shall be at least 0.04 mm thick. The Executive Director forwards the polyester copy to the regional office of Legal Surveys Division for review and recording in the Canada Lands Surveys Records.

24. Submit to the regional office of Legal Surveys Division for examination and recording in the Canada Lands Surveys Records any field notes prepared under paragraph 12.

SPECIMEN ONLY



OILCAN ET AL JUMPBUSH 6-27-20-19

Plan of Survey of

Well Site in SW 1/4 Sec.27 and Access Road Through SW 1/4 Sec.27, SE 1/4 Sec.28 and Road Allowance

All within Tp. 20, R. 19, W. 4 M.

PRAIRIE INDIAN RESERVE No. 146

Province of Alberta

I, A. G. Stewart, CLS certify that the survey represented by this plan is correct and true to the best of my knowledge, is in accordance with the general instructions of the Surveyor General, and was completed on the . . . day of . . . . . 19 . . . . .

A. G. Stewart
Canada Lands Surveyor

(Date)

OILCAN ENERGY RESOURCES LIMITED

AREAS:	hectares	acres
Well Site	1.124	2.78
Access Road in		
SW 1/4 Sec.27	0.752	1.86
SE 1/4 Sec.28	0.109	0.27
Road Allowance	0.030	0.07
Total	2.011	4.98

SCALE 1:5000

Posts found shown thus: . . . . . ●
Posts placed shown thus: . . . . . O (30 cm. Iron Bar)
Lands dealt with bounded thus: ———
Distances are in metres and decimals thereof.

"SIGNED" IN BLACK INK

Natural Resources, Canada
Re: Subsection 40(1), Indian Oil and Gas Regulations, 1995
Reviewed

. . . . . .
Surveyor General Date

CANADA LANDS SURVEYS RECORDS

Date:

(SP 6-1) D6-3

OIL AND GAS SURVEYS

UNDER REVIEW

The general instructions for surveys of oil and gas rights in the Territories and the Offshore are under review. The general instructions included in Part E of the *Manual of Instructions for the Surveys of Canada Lands – 2nd Edition* (reprinted in this Chapter for convenience purposes) still applies to Oil and Gas surveys in the Territories and the Offshore in so far as they are not inconsistent with new legislation, regulations or other policies.

Chapter E1
General Provisions

1. These specifications apply to all legal surveys under the Canada Oil and Gas Land Regulations (COGLR) which govern the disposition of oil and gas under all offshore Canada Lands and the Yukon and Northwest Territories.

2. Legal surveys may be approved by the Surveyor General for the purpose of establishing:

(a) the position of a well within a unit of a grid area pursuant to section 12, 13, 20, or 21 (2)(a) of the regulations,
(b) the position of monuments on a fixed platform pursuant to section 21 (3)(a) of the regulations, or
(e) the position of a boundary or boundaries or a grid area or any subdivision thereof pursuant to section 12 or 13 of the regulations.

3. Approval by the Surveyor General of a plan of legal survey showing a well or other works, confirms only the positional information, and does not authorize the placement of the well or other works in the surveyed position.

4. After approval of a legal survey within a grid area, that legal survey shall govern all other such surveys within the same grid area.

5. Prior specific instructions for legal surveys are not essential but may be issued on request. It is the surveyor's responsibility to ensure that he has all pertinent, up-to-date control or other survey data necessary for any project. This data is available through the office of the Surveyor General, Department of Energy, Mines and Resources, 615 Booth Street, Ottawa, Ontario, KIA 0E9 – telephone number 613-995-4341.

6. The General Instructions in Part B of this Manual apply to oil and gas surveys insofar as they are not inconsistent with the provisions of this Part.

Chapter E2
UTM Coordinate System

1. (1) The Universal Transverse Mercator (UTM) system is a plane rectangular coordinate system derived by using a Gauss-Kruger transverse Mercator projection within narrow zones of the spheroid bounded by meridians. The projection is conformal and has a constant scale factor along the central meridian of the zone of 0.9996. The spheroid is divided into 60 zones with central meridian at west longitudes, 8 = 3° 51°, 57°, 63° ... 135°, 141° ... Zones are numbered eastward from longitude 180°; the number 'n' of a zone is given by the formula: n = (183 - 8) /6

(2) The Clarke spheroid of 1866 is used to represent the shape of the earth for the UTM projection in North America, It has a and b axes of 6 378 206.4 metres and 6 356 583.8 metres respectively.

(3) UTM coordinates are expressed in metres. The coordinate axes of a zone are the central meridian and the Equator, but the central meridian is given a false easting of 500 000 metres to avoid negative eastings.

(4) Basic formulae for conversions between IJTM and geographical coordinates can be found in the following references:
Lee, L.P. "Conformal Projections Based on Elliptic Functions". *Cartographica,* Monograph 16, Dept. of Geography, York University, Toronto, 1976;
Lee, L.P. "The Transverse Mercator Projection of the Spheroid". *Empire Survey Review,* Vol. VIII, No. *45,* Oct. 1945;
Redfearn, J.C.B. "Transverse Mercator Formulae". *Empire Survey Review,* Vol. IX, No. 69, July 1948;
Schmid, Erwin. "The General Term in the Expansion for Meridian Length". *The Canadian Surveyor,* Vol. 25, No. 2, June 1971;

FACTOR FOR REDUCING HORIZONTAL DISTANCES TO UTM GRID DISTANCES

(AT DIFFERENT ELEVATIONS AND UTM EASTINGS)

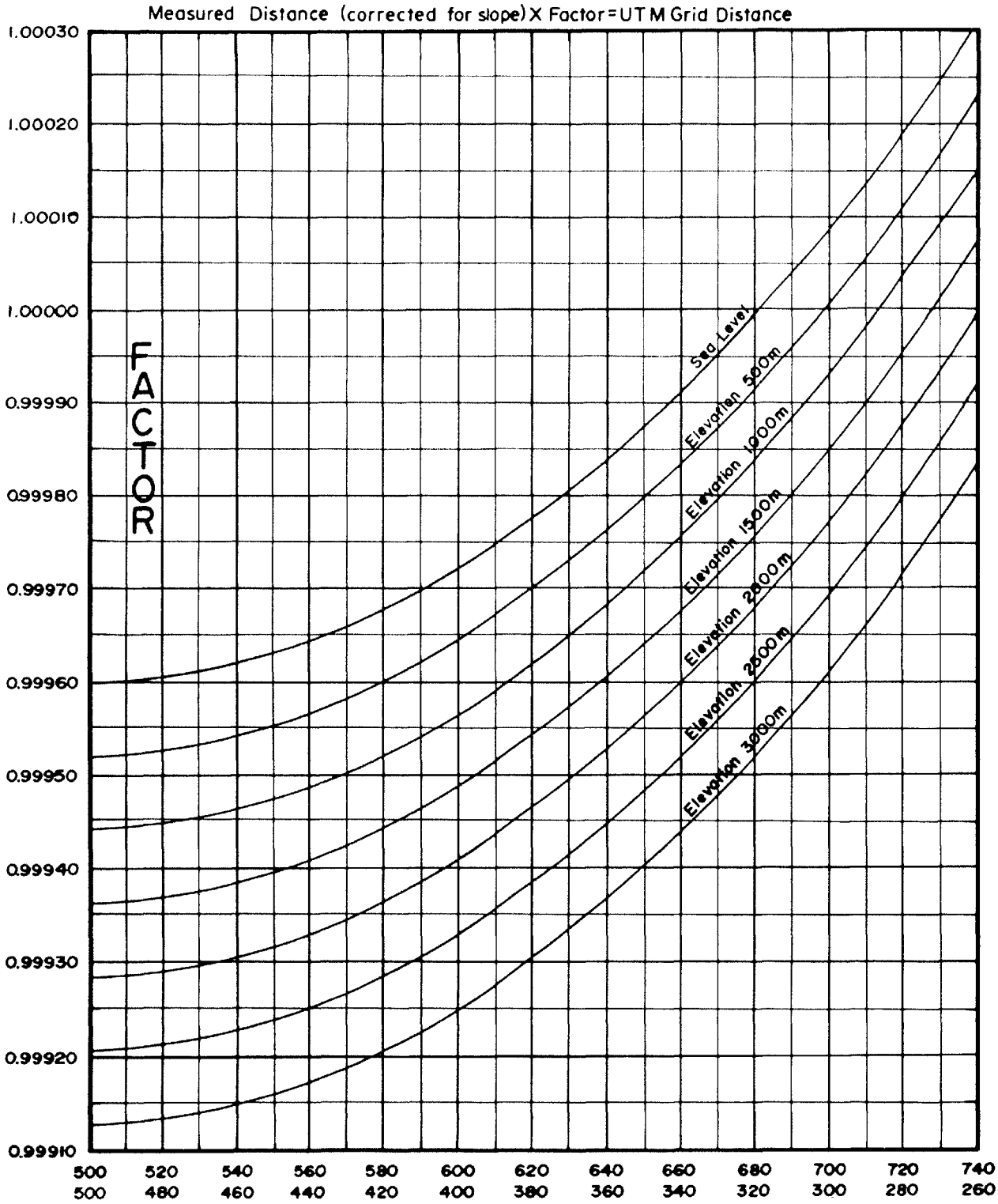


FIG. E 1

Thomas, Paul D. 'Conformal Projections in Geodesy and Cartography" *Special Publication 251,* United States Department of Commerce, National Geodetic Survey, Washington, 1952;
United States Department of the Army. "Universal Transverse Mercator Grid". *Technical Manual TM 5-241-8,* U.S. Government Printing Office, Washington, April 1973.

(5) Tables of official UTM coordinates for COGLR grid area corners between Latitudes 40° and 850 are available, on request, from the Surveyor General.

2. Before plane coordinate computations can be made the measured quantities must be reduced to equivalent measurements on the projection plane. Distances may be reduced from the mean elevation of measurement to the projection plane by using the combined factor obtained from the preceding graph.

3. Measured angles, bearings or directions do not normally require any reduction to equivalent plane surface measurements before using them for plane coordinate computations because the curved spheroidal surface of the earth is only slightly tilted with respect to the UTM plane. However, whenever long sight lines are involved there may be a significant difference between an observed direction or bearing T (the azimuth, corrected for convergence between the central meridian and the observation point) and the grid bearing t.The difference is always less than 6" for sight lines less than 10 km.
but may be as much as a minute on a 100 km sight line. For a sight line between instrument station I and target station 2, with coordinates (N_1, E1) and (N_2, E2) respectively, the following formula gives the value of (t - T) to a small fraction of a second:

$$(t - T)" = 0.85" \times 10^{-9}(N_1 - N_2)(2E_1 + E_2 - 1\,500\,000)$$

where t is defined by the equation $\tan = \dfrac{E_2 - E_1}{N_2 - N_1}$

4. If a survey has many long lines or crosses zone boundaries it is advisable to use a computer program such as GALS, MANOR, or COSMOS which computes in geographic coordinates directly and provides UTM coordinates as a final output.

5. The east and west boundaries of a grid area are defined in COGLR as meridians. The north and south boundaries are defined not as parallels of latitude but as straight lines being chords to parallels of latitude. Coordinates of points on any of the boundaries may be found directly by interpolation between the official UTM coordinates of the corners and areas are computed on the UTM plane from the coordinates. If the geographic coordinates of a point are given it may be easily and precisely located within a COGLR subdivision by first converting its geographic coordinates to UTM coordinates.

Chapter E3
Control

1. If a legal survey within the grid area concerned has been approved by the Surveyor General pursuant to COGLR, then any other position subsequently determined within that grid area shall be derived from that legal survey, or if all monuments are missing, from the control monuments upon which it was based.

2. If no previous legal survey has been approved under COGLR for the grid area concerned, positions shall be derived from nearby 1927 NAD control monuments specified by the Dominion Geodist to be of third order or higher accuracy, or monuments shown on an approved plan of legal survey under COGLR. In general, the surveyor should use the best control available to maintain accuracy for later surveys which may be derived from his survey.

3. Bearings shall be derived preferably from control monuments but may also be derived from astronomic observations provided that the required positional accuracy is maintained for the new stations.

Chapter E4
Methods and Accuracy

1. As a general principle, legal surveys under COGLR shall be integrated with the authorized control for the particular grid area (See Chapter E3). This includes checking the stability and reliability of the control monuments used, adhering to specified accuracy requirements and systematically adjusting the discrepancies of the survey.

2. Positions may be determined by any method, instrument or system that is demonstrated in the particular case to produce third order accuracy as defined in "Specifications and Recommendations for Control Surveys and Survey Markers, 1978". This document, issued by the Surveys and Mapping Branch, besides prescribing standards of positional accuracy gives measurement guidelines for obtaining the various orders of positional accuracy using conventional survey methods, and nominal standard deviations for various instruments and methods.

3. Where the system used does not provide redundant measurements, checks must be obtained by using an independent system that will isolate the type of errors to which the main system is subject. The difference between the positions derived by the two systems should be within acceptable tolerances.

4. In general, connections from stations to a control network shall be to the control monuments lying nearest and most nearly surrounding the station. Ideally the tie should start at one control monument, pass through the station in question and end at another control monument.

5. When a Doppler satellite system is used to determine a required legal position, it is preferable to take simultaneous observations at both the new station and an authorized control station. Single point positioning expressed in relation to 1927 NAD may be authorized if the datum shift for the area is accurately known and the required accuracy can be achieved.

Chapter E5
Monumentation

1. Monumentation is governed by Chapter B6 of this Manual and by the following provisions.

2. Where the purpose of the survey is to establish the position of a well on land, at least two monuments shall be made near the well but in locations safe from damage by development or other operations.

3. Where the purpose of the survey is to establish the position of monuments on a fixed botten-mounted offshore development platform, at least two C.L.S. Rock Posts shall be fixed to the structure in locations that are safe from damage by operations on the platform.

4. Where the purpose of the survey is to establish the position of a boundary or boundaries of a grid area, section or unit,
each corner defining the boundary shall be monumented. Each section corner shall be marked with the four appropriate section numbers, and each unit corner that is not a section corner shall be marked with the four appropriate unit letters and the relevant section number or numbers.

5. Connecting traverses on land from authorized control monuments to ground positions being established shall be monumented at each station but not more frequently than at about 1 km intervals.

6. For posts placed in positions other than at section or unit corners, each post placed shall be marked with the letter "C", followed by a distinguishing serial number, e.g. C23, C34 or C34A.

7. Structures of a permanent nature, such as well casing, wellhead equipment or concrete foundations that may serve as permanent references to a well whose position is being established shall be carefully tied in and described in the returns of survey.

Chapter E6
Documentation

1. For surveys done by conventional land-based methods requirements for field records and returns are given in Chapters Bl0andBl2ofthis Manual.

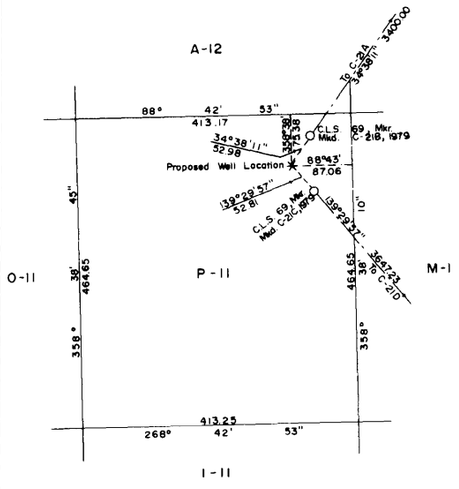
2. For surveys using Doppler satellite systems, inertial survey systems or other position determining systems, submit a detailed report on the system used and on the method of operation, giving sufficient information to demonstrate the accuracy of the derived positions.

3. The plan of survey shall include the relevant items of Chapter BI 1 and the following:

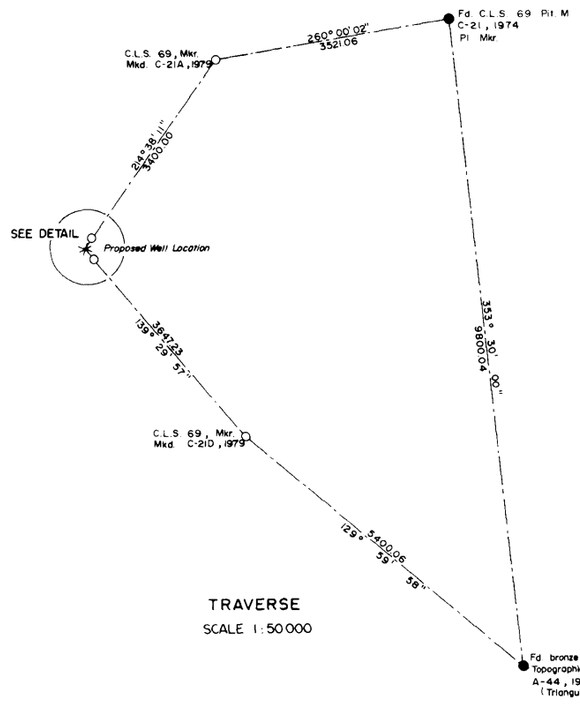
(a) in the descriptive heading, any name assigned to a well or offshore structure and reference to COGLR.
(b) features required by subsection 11(2) COGLR.
(c) tabulated UTM coordinates of corners of the grid area and each unit involved, of all monuments and of each well.
(d) tabulated geographic coordinates on 1927 North American Datum and elevation above sea level of each well and all control monuments.
(e) identification of the source of coordinates used to control the survey, with name and date of adjustment, etc. and the basis and method used to obtain elevations.
(f) the perpendicular distances from the well or proposed well to the nearest unit boundaries.
(g) water depth at location (if applicable).

LEAVE SPACE FOR RECORD DETAILS
5 x 20 centimetres

SPECIMEN ONLY



DETAIL
UNIT P, SECTION 11
SCALE 1 : 5 000



TRAVERSE
SCALE 1 : 50 000

PLAN AND FIELD NOTES
OF SURVEY OF
PROPOSED EXPLORATORY WELL
RAMSILL TIDAW
IN UNIT P, SECTION 11
GRID AREA 69°20', 133°30'
NORTHWEST TERRITORIES
CANADA OIL AND GAS LAND REGULATIONS

SCALE 1 : 50 000
1000 0 2000 4000

SURVEYED FOR
HUDSON'S OIL CANADA LIMITED
BY: J. BROWN, C.L.S.
1979.

LEGEND

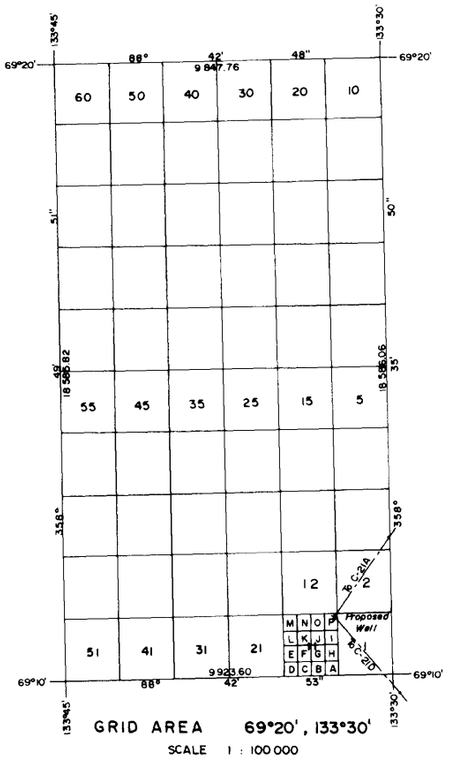
UTM coordinates are computed for Zone 8, central meridian 135° W.
Bearings were derived from the bearing 353° 30' 00" computed between authorized control monument C-21, plan 61111, C.L.S.R. and station HULL and are referred to meridian 135° W.
Distances are expressed in metres and decimals thereof.
Distances shown in traverse are measured distances reduced to the horizontal at general ground level.
For the computation of coordinates measured distances have been reduced to the UTM plane by multiplying them by an average combined scale factor of 0.99964. Coordinates were then adjusted to fit the control.
Distances shown on grid area subdivisions are UTM plane.
Authorized control monuments found ●
Monuments placed O
Mkr. denotes metal marker post 2.0 m long placed 0.30 m N.
Traverse lines
Elevations were derived from contours on N.T.S. provisional maps 107 C/2 East and West. Average elevation is 30m, ranging from 15m to 45m.
Survey was completed prior to drilling; therefore well as drilled may not necessarily agree with proposed location.

I, J. Brown, of the City of Moose Jaw, Saskatchewan, Canada Lands Surveyor, make oath and say that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD

Sworn before me at Moose Jaw, this 19th day of August, 1979

J. Brown
Canada Lands Surveyor

"Signed"
Justice of the Peace,
Notary Public,
Commissioner of Oaths or
Canada Lands Surveyor
} See section 63, C.L.S. Act.



GRID AREA 69°20', 133°30'
SCALE 1 : 100 000

All coordinates shown are on 1927 North American Datum. They are based on values for Topographical Survey monument "HULL" computed by Geodetic Survey of Canada (Western Aerodist, May 1973 adjustment) and C.L.S. monument C-21, plan 61111, C.L.S.R. Monument C-21 is based on Geodetic Survey monuments "SPAR" and "HULL" (Western Aerodist, May 1973 adjustment).

GEOGRAPHIC AND UTM COORDINATES, (1927 NAD)				
Station	Latitude	Longitude	Northings	Eastings
CONTROL MONUMENTS				
C-21	69°12'44.678"	133°24'17.255"	7 678 691.04	563 179.65
HULL	69°07'29.828"	133°22'59.829"	7 668 957.53	564 288.64
GRID AREA				
NE	69°20'	133° 30'	7 692 076.67	559 079.39
NW	69°20'	133° 45'	7 691 855.57	549 234.12
SE	69° 10'	133° 30'	7 673 496.18	559 534.38
SW	69° 10'	133° 45'	7 673 273.62	549 613.28
P-11, NE			7 675 317.16	557 836.63
P-11, NW			7 675 307.89	557 423.56
P-11, SE			7 674 852.64	557 847.68
P-11, SW			7 674 843.37	557 434.54
TRAVERSE STATIONS				
C-21A	69° 12' 27.786"	133° 29' 33.556"	7 678 079.86	559 713.28
C-21B	69° 10' 59.045"	133° 32' 35.078"	7 673 283.42	557 781.48
C-21C	69° 10' 56.340"	133° 32' 34.879"	7 675 199.70	557 785.66
C-21D	69° 09' 25.014"	133° 29' 06.264"	7 672 427.35	560 153.48
PROPOSED WELL				
✳	69° 10' 57.681"	133° 32' 37.903"	7 675 239.84	557 751.38

NOTES —

1. To facilitate microfilming, plan width shall not exceed 60 cm.
2. Lettering size should not be less than 2.0mm (no. 80 CL template).
3. Describe fully type of authorized control monument, also any permanent structures used to reference a well or proposed well.
4. State combined conversion factor for reduction of distances (product of elevation and projection scale factors).
5. For lines less than 10km long the true bearing (i.e. the azimuth corrected for convergence from the central meridian) can be considered equal to the grid bearing.
6. Traverse data may be given in table if more convenient.
7. Endorsement by the company is optional.

THIS SURVEY WAS EXECUTED DURING THE PERIOD
AUGUST 2 TO AUGUST 14, 1979, BY J. BROWN, C.L.S.

HUDSON'S OIL CANADA LIMITED

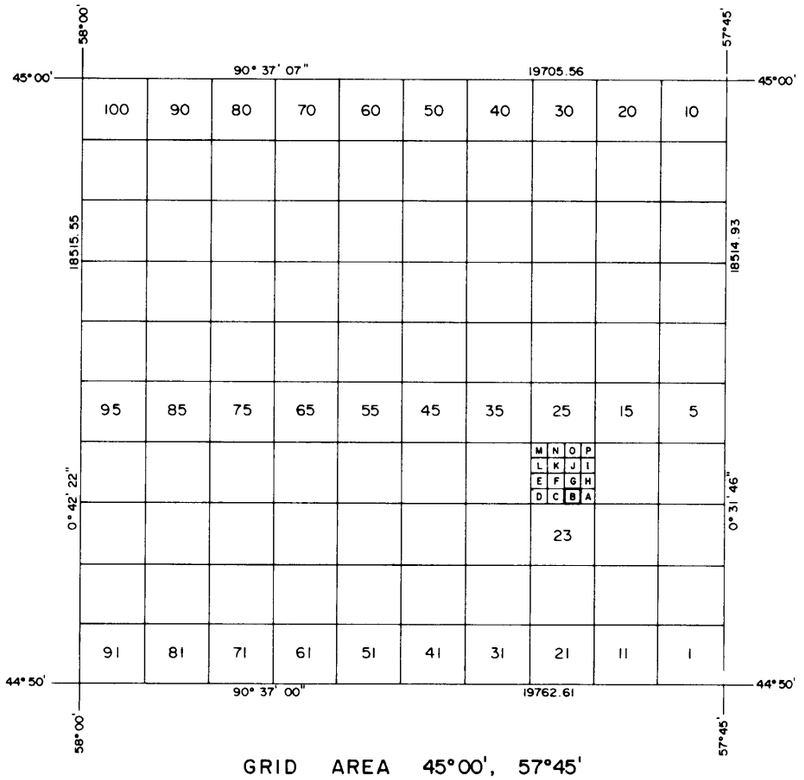
(See Note 7)

(signature, title) .....

(signature) ..... Witness

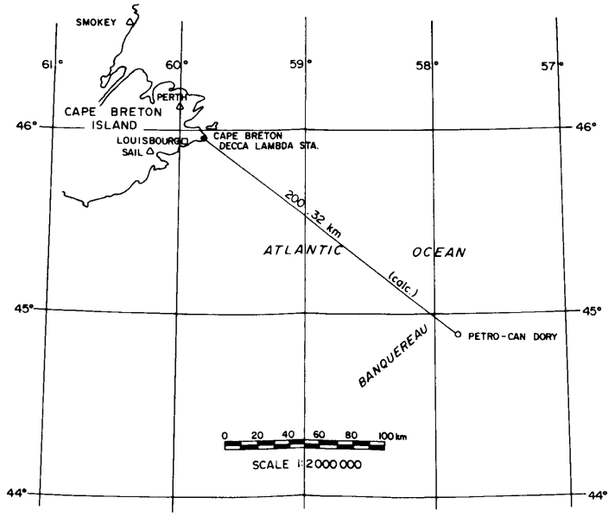
..... Date

LEAVE SPACE FOR ENDORSEMENTS
5 x 20 centimetres



GRID AREA 45°00', 57°45'

SCALE 1 : 100 000



LEAVE SPACE FOR RECORD DETAILS
5 x 20 centimetres

SPECIMEN ONLY

PLAN AND FIELD NOTES OF SURVEY OF LOCATION OF OFFSHORE PLATFORM PETRO-CAN DORY

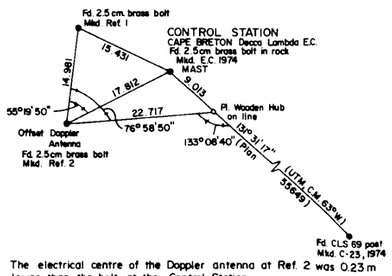
EAST OF NOVA SCOTIA

IN UNIT B, SECTION 24 GRID AREA 45°00', 57°45'

CANADA OIL AND GAS LAND REGULATIONS

LEASE No. .....

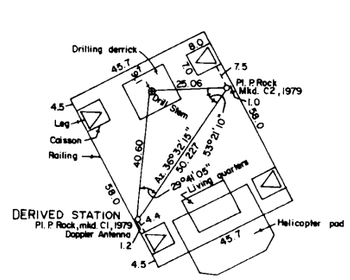
SURVEYED SEPT. 27 TO 29, 1979 BY J. BROWN, C.L.S. FOR PETRO-CANADA CORPORATION



The electrical centre of the Doppler antenna at Ref. 2 was 0.23 m lower than the bolt at the Control Station.

STATION DETAIL AT CAPE BRETON CONTROL POINT

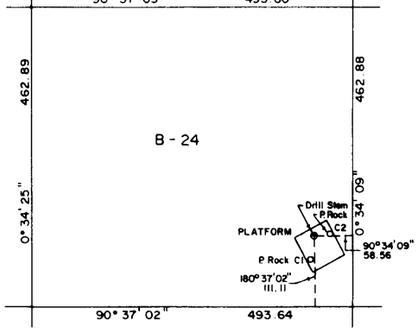
SCALE 1 : 500



The electrical centre of the Doppler antenna at C1 was 0.48 m above the P.Rock.

STATION DETAIL AT PLATFORM

SCALE 1 : 1000



DETAIL OF UNIT B, SECTION 24

SCALE 1 : 5000

SUMMARY OF DOPPLER SATELLITE POSITION-DIFFERENCE SURVEY

	CONTROL STATION: CAPE BRETON Decca Lambda E.C. — 21 accepted passes observed between 19 h G.M.T. day 270 and 10 h G.M.T. day 272, 1979			DERIVED STATION: PETRO-CAN DORY, C1 — 20 accepted passes observed between 21 h G.M.T. day 270 and 10 h G.M.T. day 272	
	1927 NAD COORDINATES (CLSR Plan no. 55649)	OBSERVED GEOCENTRIC COORDINATES (1) (broadcast ephem, WGS 72)	DERIVED DATUM SHIFT (Geocentric−NAD)	OBSERVED GEOCENTRIC COORDINATES (1) (broadcast ephem, WGS 72)	DERIVED 1927 NAD COORDINATES (Geocentric − Datum Shift)
cartesian coordinates x	+ 2 235 199.213 m	+ 2 235 155.48 m	− 43.72 m	+ 2 411 739.79 m	+ 2 411 783.51 m
cartesian coordinates y	− 3 838 992.190 m	− 3 838 723.07 m	+ 169.12 m	− 3 830 723.84 m	− 3 830 892.96 m
cartesian coordinates z	+ 4 561 469.147 m	+ 4 561 650.52 m	+ 181.37 m	+ 4 478 232.39 m	+ 4 478 051.02 m
Latitude φ	45°57'12.1192" N				44°53'02.4701" N
Longitude λ	59°47'23.4567" W				57°48'25.3910" W
Ht. above sea level H	20.68 m (2)				25.38 m (4)
Geoid ht. (GEM 10b) (3) N	17.5 m (3)				15.4 m (3)
Ht. above spheroid h	38.18 m				40.78 m

(1) The broadcast ephemeris of coordinates of Doppler satellite orbits is based on the geocentric World Geodetic System WGS 72.
(2) The elevation of the plug at Decca E.C. was derived from tidal observations during the observing period.
(3) GEM 10b is the Goddard Earth Model of the geoid for which the given heights are computed relative to an ecentric 1927 NAD spheroid. The eccentricity used was the published datum shift at station SMOKEY: $X_o = -42$, $Y_o = +162$, $Z_o = +181$ (in Surveying Offshore Canada Lands for Mineral Resource Development, Second Edition, 1975).
(4) The drilling engineer supplied a value of 26.7 m for the elevation of the platform deck on which C1 is attached.

TABLE OF DEFINITIVE COORDINATES, 1927 NAD

	GEOGRAPHIC		UTM, ZONE 21, C.M. 57° W.	
Station	Latitude, N	Longitude, W	Northing	Easting
GRID AREA				
NE	45°00'	57°45'	4 983 006.79	440 886.78
NW	45°00'	58°00'	4 983 219.59	421 182.37
SE	44°50'	57°45'	4 964 492.65	440 715.65
SW	44°50'	58°00'	4 964 705.45	420 954.19
UNIT B SECTION 24				
NE			4 970 557.63	436 329.11
NW			4 970 562.95	435 835.54
SE			4 970 094.78	436 324.51
SW			4 970 100.10	435 830.90
PLATFORM				
C1	44°53'02.4701"	57°48'25.3910"	4 970 166.27	436 261.79
C2	44°53'03.7774"	57°48'24.0285"	4 970 206.31	436 292.08
Drill Stem	44°53'03.7759"	57°48'25.1703"	4 970 206.51	436 267.03

NOTES:
To facilitate microfilming plan width shall not exceed 60 cm.
Lettering size should not be less than 2.0 mm (No 80 CL template).

Positioning was done by simultaneous Doppler satellite observations using Marconi 722 B receivers. Positions were computed from the combined data from both stations using the GEODOP program for which documentation is available from the Geodetic Survey of Canada. Offsets of the electrical centres of the Doppler antennas from the Control and Derived station monuments are accommodated in the program. Average meteorological data were arbitrarily assumed. The derived position difference is between the identified monuments. Computer listings of the Doppler solution are included in the Surveyor's Report of this survey (F.B. ....., C.L.S.R.).

Distances are in metres and decimals thereof.

Bearings and distances shown for the Grid Area and Unit are UTM plane, Zone 21, and the bearings are referred to the central meridian of the Zone, 57° W.

Distances on the station details are measurements reduced to the horizontal.

The bearing shown on the line from C1 to C2 is an azimuth derived from sun observations at both C1 and C2 and is referred to the meridian through C1.

Geodetic Survey stations ..... △
Authorized control monuments found ..... ● Monuments placed ..... o

All coordinates shown are on 1927 NAD based on the coordinates for the shore station mast of the Decca Lambda system established by Petro Canada Corporation as given on Plan 55649 C.L.S.R. The given position is shown in the above identified Surveyor's Report to meet third order accuracy specifications relative to the neighbouring Geodetic Survey Stations SAIL and PERTH.

Water depth at location is 51 metres (supplied by the drilling engineer).

I, John Brown, of the City of Ottawa, Canada Lands Surveyor, make oath and say that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD.

Sworn before me at Ottawa
this 23rd day of October, 1979.

J. Brown
C.L.S.

"Signed"
Justice of the Peace
Notary Public
Commissioner for Oaths or
Canada Lands Surveyor

} See section 63, C.L.S. Act

LEAVE SPACE FOR ENDORSEMENTS
5 x 20 centimetres

W.B.

MINERAL CLAIM SURVEYS IN THE NORTHWEST TERRITORIES

UNDER REVIEW

The general instructions for surveys of mineral rights in the Northwest Territories are under review. The general instructions included in Part D of the *Manual of Instructions for the Surveys of Canada Lands – 2nd Edition* (reprinted in this Chapter for convenience purposes) still applies to mineral claim surveys in the Northwest Territories in so far as they are not inconsistent with new legislation, regulations or other policies.

Chapter D1
General Provisions

1. The following instructions apply to the survey of all mineral claims staked under the authority of the Canada Mining Regulations dated November 3, 1977, as amended, the Yukon Quartz Mining Act or the now-revoked Northwest Territories Quartz Mining Regulations, and the Canada Mining
Regulations of 1960 and 1961.

2. The General Instructions in Part B of this Manual will apply to mineral claims surveys insofar as they are not inconsistent with the provisions of this Part.

3. The position of the boundaries and the dimensions of a mineral claim are fixed by the regulations in force at the time of the location of the claim. The survey must comply in every particular with the provisions of the regulations.

4. Prior specific instructions for such surveys are not essential but may be issued on request. It is the surveyor's responsibility to ensure that he has all necessary information in regard to adjacent legal surveys or pertinent control.

5. Every surveyed claim or, in the case of a perimeter survey, a group of claims, is designated by a Quad lot number. Before commencing the survey, the numbers of the lot and Quad must be obtained from the Surveyor General. On making application for numbers the surveyor shall give the names, record numbers and if possible the staking sheet numbers of the claims and the best information in his possession as to the location of the claims to be surveyed so that the Surveyor General may determine the Quad to which they belong.

6. The survey must be made by the surveyor in person as called for by the affidavit of execution prescribed by the Canada Lands Surveys Act.

7. The survey made must, in every case, be an actual survey on the ground. If a previous survey forms a common boundary or boundaries with a claim being surveyed, such line or lines must be retraced, except in the case where the line has been run personally by the surveyor at some previous date, in which case the line need not be run again if a proper closure can be effected without so doing. In this case the information used from the previous survey must be incorporated in the field notes which are to be dated accordingly.

8. A mineral claim includes all water areas lying within its boundaries. Locate those portions of the banks of lakes, streams, or islands within 75 m of a surveyed boundary. Sketch on the plan additional water outlines in sufficient detail to help identify the geographical position of the claims.

9, In the event of the claim or group of claims to be surveyed being so staked that it encroaches upon one or more prior claims which have lapsed in the interval between the staking and the survey of the encroaching claim, the survey shall be made so as not to include any of the area of the lapsed claim or claims. When the prior claim has lapsed before the staking of the new claim which encroaches upon the area formerly occupied by the lapsed claim the survey of the new claim will be made without regard to the boundaries of the lapsed claim.

10. If the claim or group of claims to be surveyed is affected by a claim of prior location, but unsurveyed, the surveyor shall survey the latter to an extent sufficient to determine the boundaries common to both and incorporate this data in his field notes, together with a copy of the application for the prior location.

11. No mineral claim may consist of more than one parcel. Where a claim is divided by prior locations into two parcels the surveyor must determine which parcel shall constitute the claim.

12. When the evidence of any person on a matter relating to the mineral claim to be surveyed is taken by the surveyor he must, after reducing it to writing, read it over to the person who has given the evidence and take the affidavit of such person as to the truth of the statements contained therein. The evidence so attested shall be copied in the field notes, but it shall not relieve the surveyor from the obligation of procuring any further evidence, corroborative or otherwise, as can be obtained, and of reaching a conclusion from all the evidence available.

13. In surveying a claim which is in dispute with another claim the surveyor shall record all the intersections of the boundaries of the two claims. If the other claim is unsurveyed its boundaries shall be surveyed to an extent sufficient to determine the intersections and the full extent of the overlap.

14. In case of a dispute the surveyor has no authority to decide priority of rights; his duty is to note all adverse overlapping claims as he finds them and to show them in the field notes and on the plan of his survey.

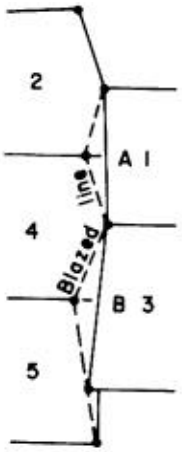
Chapter D2
Surveys of Claims Staked under the Canada Mining Regulations

1. The following provisions apply to the survey of all mineral claims in the Northwest Territories including those staked under previous mining regulations.

2. The boundaries of a claim shall be surveyed as straight lines joining the location posts placed by the licensee in staking the claim, provided that

(a) the surveyor shall exclude from the claim any overlapping prior claim in good standing at the time of staking and
(b) the surveyor may survey the claim in such a way as to accommodate the licensee's intention to make his claim adjoin the boundary of a prior claim in good standing at the time of staking but this provision cannot operate to remove from the claim land that would otherwise be included.

The following example illustrates the application of this section:

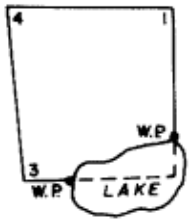


The claims were staked as partly shown on this diagram in order of priority as shown by the numbers. Part of the westerly limits of Claim No. I and Claim No. 3 will form the easterly limit of Claim No. 4, and in the survey of No. 4, the surveyor will plant the corner post at points "A" and "B", but show in his field notes the position of the licensee's posts. In surveying Claim No. 5, join the No. 2 post with the south boundary of Claim No. 3 by a straight line between No. 1 post, as established by survey, and No. 2 post.

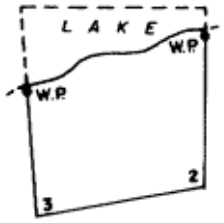
3. Where a licensee places a witness post on a boundary to mark an inaccessible corner, the boundary shall be the straight line joining the planted posts and its production to the witnessed corner.

4. Where an inaccessible corner of a claim is witnessed on both boundaries meeting at the witnessed corner, the corner shall lie at the intersection of the two boundaries.

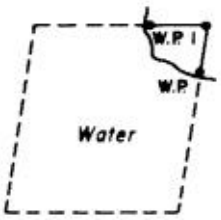
5. The following examples illustrate the methods to be adopted in surveying claims involving witnessed corners. The diagrams illustrate the positions of posts and the boundaries of the claims. The letters W.P. stand for the licensee's witness post and Wt. for additional witness monuments to be erected by the surveyor.



(a) Produce the line through the W.P. on the easterly limit to intersect the production of the line through the W.P. on the southerly limit. A similar method shall be adopted where any one of the four corners is similarly witnessed.



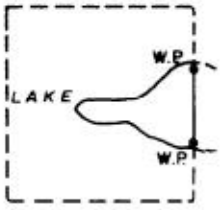
(b) Produce the line through the W.P. on the easterly limit the "call" distance to establish the northeasterly corner. Produce the line through the W.P. on the westerly limit the "call" distance to establish the northwesterly corner. Join the two corners so established with a straight line. A similar method shall be adopted when the wholly inaccessible boundary is the east, south, or west limit of the claim.

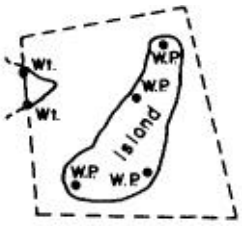


(e) Produce the line through the W.P. on the easterly limit the "call" distance to establish the southeasterly corner. Produce the line through the W.P. on the northerly limit the "call" distance to establish the northwesterly corner. To establish the southwesterly corner draw a line parallel to the northerly limit through the south-easterly corner as established to intersect a line parallel to the easterly limit drawn through the northwesterly corner as established. A similar method shall be adopted where there is similar staking at any of the four corners of the claim.

(d) The licensee planted two (2) witness posts on the lines near No. 3 post and a witness post at "C" not on the lines of the claim. The claim shall be surveyed from the two witness posts near No. 3 post as in (c) above. The witness post at "C" shall be disregarded.

(e) Produce the line through the northerly W.P. the "call" distance to establish the northeasterly angle of the claim. Produce the line through the southerly W.P. the "call" distance to establish the southeasterly angle; thence westerly at right angles to the easterly limit 457.2 metres to establish the southwesterly angle. To establish the northwesterly angle draw a line parallel to the easterly limit through the southwesterly angle as established to intersect a line parallel to the southerly limit drawn through the northeasterly angle as established. A similar method shall be adopted when the only accessible boundary is the south, west, or north limit of the claim.



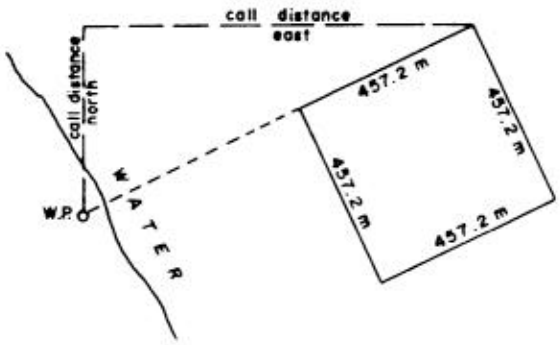


(f)Where all four sides of a claim fall in water, the witness location posts for the corners being within the boundaries of the claim the surveyor shall compute the positions of the corners of the claim from the record of the witness location posts. If any of the boundaries intersect an island or other land the usual corner or witness monuments shall be erected thereon. The plan shall show the computed dimensions of the boundaries of the claim.

6. A submerged claim staked according to the provisions of Sec. 18 of the Canada Mining Regulations (1961) shall:

(a) be square with sides 457.2 metres long and
(b) have its northeast corner at the "call" distances north or south and east or west from the single witness post (bearings being referred to the astronomic meridian through the witness post).

The following diagram illustrates how the position of a submerged claim is determined. The staker's sketch will indicate whether the line from the witness post to the northeast corner or the production of this line will coincide with the northerly or easterly boundary of the claim.



7. If any of the boundaries of a submerged claim intersects an island or other land, the surveyor shall plant the usual corner or witness monuments.

8. Any number of adjoining claims may be surveyed as one Quad lot provided that the aggregate area, as it appears in the applications to record, does not exceed 1045. 1 ha (2582.5 A.). In this case it will only be necessary to survey those claim boundaries which form part of the perimeter of the group lot, or which are necessary to determine the position of any claim corner on this perimeter.

9. All monuments marking corners and angles in the boundaries of a claim or group of claims shall be numbered consecutively clockwise beginning if possible, at the north-easterly corner.

Chapter D3
Surveys of Claims Staked under the Yukon Quartz Mining Act
(Two post staking)

1. The surveyor shall begin by retracing the location line from post No. 1 to post No. 2 and measuring its length and bearing. The Act provides that the location line must be marked so that it can be distinctly seen; in a timbered locality by blazing trees and cutting underbrush, and in a locality where there is neither timber nor underbrush by legal posts or monuments of earth or rock.

The surveyor shall note the condition of the blazes or marks as well as the dimensions and character of the posts or monuments and enter this information in his field notes.

2. The inscriptions on location post No. I and location post No. 2 shall be copied and entered in the field notes.

3. Should location post No. 2 be more than 457.2 metres from location post No. 1, or more than 804.7 metres in the case of a location for iron or mica, the surveyor shall plant another post on the location line at a distance of 457.2 metres or 804.7 metres, as the case may be, from post No. 1. but he shall not disturb the original location post No. 2.

4. Should one or more of the location posts be obliterated or lost, the evidence used for restoring or re-establishing the said post or posts is to be given in the field notes.

5, The survey of the boundaries of the claim shall be made by laying out from the ends of the location line as established by the surveyor, and perpendicularly thereto to the right and left, the distances recorded by the locator. The extremities of the lines so laid out shall next be joined by straight lines.

6. A claim staked as a fractional claim may be surveyed to include as nearly as possible all the unoccupied ground lying between the previously located mineral claims described in the affidavit and sketch furnished by the locator when the claim was recorded, provided that the area of the claim as surveyed is less than 24.3 hectares (60 acres). Where the plan of survey reveals significant differences between the stakers apparent intention as reflected in the affidavit and sketch and the final surveyed fraction, the Surveyor General will seek the confirmation of the Mining Recorder that the fraction as surveyed complies with the Act, before approving the plan.

7. The corners or angles of the claim are to be numbered from
three upwards consecutively around the claim, Numbers 1 and 2 being reserved for the location posts found or re-established.

8. Section 82 of the Act provides that where location post No.
1 or No. 2 of a mineral claim is on the boundary line of a previously located claim, which boundary line is not at right angles to the said location line, the fraction so created may be included in the claim being surveyed provided it is available and open to disposal and that the claim including the fraction will not exceed 24.3 hectares (60 acres).
The fraction is understood to be the gore of unoccupied land that would result if the two claims were surveyed strictly rectangular to the location lines. This gore would be defined by joining the respective corners of the two rectangles by a straight line and not in any case by producing the sides of the rectangles.

Where both claims affected are being surveyed and the fraction could be added to either claim without exceeding the limit of area, or it could be divided between them, the circumstances in each case will indicate to the surveyor how he should dispose of the fraction and the matter is left to his discretion.

9. Section 13(2) of the Act deals with claims which are contiguous and comprise a group recorded in the name of one person.

(a) It covers the case in which a prospector stakes what he believes to be a solid row of claims and, inadvertently, the location lines of the contiguous claims do not form one straight line or are not parallel. In this case the contiguity of the claims would not be destroyed, although fractions would be created. It is these fractions which are reserved to the recorded owner and which may be included in a mineral claim under section
82.
(b) Section 13(2) reserves to the owner of a group the vacant land within that group which has been created by reducing the length of the location line of a contiguous claim to 457.2 metres.
(c) If two or more rows of claims comprising a group recorded in the name of one person are located in such a manner that the location lines are parallel or are intended to be parallel, and it is the manifest intention of the locator of such group at the time of staking that the claims of the adjoining rows would adjoin each other, and it so happens that when these claims are surveyed they do not adjoin, then the vacant land so created between the two rows would be considered under section 13(2) to be reserved for the owner of the group.
(d) The types of vacant land mentioned above in items (b) and (c) may not be included in the claims being surveyed but must be staked by the recorded owner of the group as separate claims if he wishes to acquire mineral rights. The surveyor should provide his client with sufficient information regarding the size and location of this vacant land so that his client may stake one or more fractional claims in accordance with section 16 of the Act. (Note and adhere to section 6 above and section 83 of the Act when surveying a fractional claim.)
(e) The last part of section 13(2), which reads “any such lands may upon survey be included in one or more of such claims by a Canada Lands Surveyor pursuant to this Act,” allows the surveyor to include that certain vacant land described above in item (a) in either one or the other or several

adjoining claims provided that the area of any of the claims does not exceed 24.3 hectares (60 acres).

10. When it is found from the records of the Mining Recorder that adjoining claims not owned by the same party were located on the same day the surveyor should endeavour to ascertain from the owners, before going into the field, which claim was actually the prior location in order that he may know how to complete his survey in case the claims are found to overlap.

Chapter D4
Monumentation

1. A monument shall, if possible, be placed at each corner and at each angle of the boundaries being surveyed, including points at which legal posts have been placed pursuant to subsections 14(2) and 14(3) of the Canada Mining Regulations, and at every intersection of these boundaries with the boundaries of overlapping prior or disputed claims.

2. The monument is to be placed at the true corner. In order to do so it may be necessary to remove the location post and mound. After removal the location post is to be erected again in the centre of the surveyor's stone or earth mound. In case separate location posts for two or more claims are found at the same point all the location posts are to be moved to the centre of the surveyor's mound, even though all the claims represented are not being surveyed. If no mound is built, replace the location post as close as possible to the corner.

3. A surveyor finding a location post in a mound erected by a surveyor in the survey of an adjoining claim shall place the comer of the claim being surveyed at the same point as the corner of the adjoining surveyed claim and add his inscription to the post already planted.

4. If a comer or angle of a mineral claim falls in water or in any other locality unfavourable to the erection of a monument, it shall be perpetuated by a witness monument. Where the witness monument replaces a witness location post it shall be placed at the same point as the witness location post or as near as possible thereto with due regard to the safety of the monument from destruction due to erosion or other natural causes.

5. Where, under paragraph 54(8)(b) of the Canada Mining Regulations, the surveyor is directed by the holder to reduce a claim, he shall establish a new corner location post, pursuant to Section 23, to mark the new corner of the claim and shall monument the cut-off line at intervals of approximately 450 metres.

6. The following posts may be used in monumenting the boundaries of a mineral claim:

(a) a C.L.S. pattern post as described in section B6: 22, or
(b) a mild steel bar not less than I .5 cm square and 75 cm long driven into the ground so that no more than 15 cm protrudes above ground level; or the same type of bar not less than 23 cm long set in rock with not more than 15 cm protruding.

7. Pits and mounds or stone mounds in accordance with the specifications in Part B of this manual are to be made at all posts except that where any two posts marking a boundary line are less than 100 metres apart, they need be made at only one of these posts. Where pits and mound are not practical, three bearing trees or a marker post may be substituted for them.

8. The inscription on capped posts shall include the post and lot numbers placed in the segment of the cap facing the claim. On other posts these numbers are placed on the side of the post facing the claim. This inscription shall be in the form 3 L1642 where the 3 is the number of the post and 1642 is the number of the Quad lot.

9. Witness posts shall also be marked "WT" plus the distance and direction or the distance in each cardinal direction to the corner. When two witness posts are used to mark one corner of a claim and each is placed on one of the two boundaries meeting at the corner, witness distances will not be marked on the posts.

Chapter D5
Documentation

FIELD NOTES

1. Prepare field notes in one of the forms prescribed in Part B of this Manual.

2. In addition to the information prescribed in Part B the following are also to be added to the field notes of mineral claims:

(a) the name of the claim and the name of the person or persons for whom the survey was made are to be given in the title, and
(b) the certificate required by paragraph 55(1) (a) of the Canada Mining Regulations or by section 86 of the Yukon Quartz Mining Act.

3. The abbreviations L.P. for location post and W.P. for witness location post may be used without explanation.

PLAN OF SURVEY

4. Prepare a plan of survey in accordance with the specifications in Part B of this Manual but the scale shall be not less than 1:5000 for fully surveyed claims containing less than 25 ha or 1:10 000 for other mineral claim surveys.

5. In addition to the information prescribed in Part B the following are to be added to the plan of a mineral claim survey:

(a) the name of the claim and the name of the person or persons for whom the survey was made are to be given in the title,
(b) all location posts and location lines involved in the survey, with bearings and distances sufficient to correlate these to the boundaries surveyed, and any location posts that are now not on the boundary by virtue of the claim being reduced in area pursuant to section 54(8) (b), and
(c) the name of the claim inscribed in the claim together with the lot number.

6. In the case of a perimeter survey of a group of claims give

(a) in a separate table on the plan and not in the title, the name of each claim included in the group and its number in the Mining Recorder's Office, and
(b) the name of each claim adjoining the perimeter written in its appropriate position next to the boundary of the group.

7. The surveyor's affidavit must appear on the plan of a mineral claim. If the plan forms a separate document, add and execute the following affidavit on the plan:
"I……of the of……...Canada
Lands Surveyor, make oath and say that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan; and that the said plan is correct and true to the best of my knowledge and belief. SO HELP ME GOD."

……

Note
For format of corresponding solemn declaration see Canada Evidence Act, sec. 38.

Sworn before me at
This……..day
Of……19....
……

**A Justice of the Peace,
Notary Public,
Commissioner for Oaths, or
Canada Lands Surveyor.**

RETURNS OF SURVEY

8. The returns of survey shall consist of:

(a) the plan of survey,
(b) the field notes, in one of the prescribed forms,
(c) a copy of the application for the claim together with the sketch which accompanied it,
(d) all vertical air photographs used in plotting features shown on the plan, and
(e) any other items requested in specific instructions for the survey.

9. When submitting the returns of survey, retain the original plan and field notes and submit four paper prints of the plan and three paper prints of the field notes if they are plotted separately in plan form, or one copy if in book form. The original plan and field notes will be submitted as described in section B 12:3.

10. The returns of survey must be submitted to the Surveyor General within six months of the completion of the field work.

LEAVE SPACE FOR RECORD DETAILS
5 x 20 centimetres

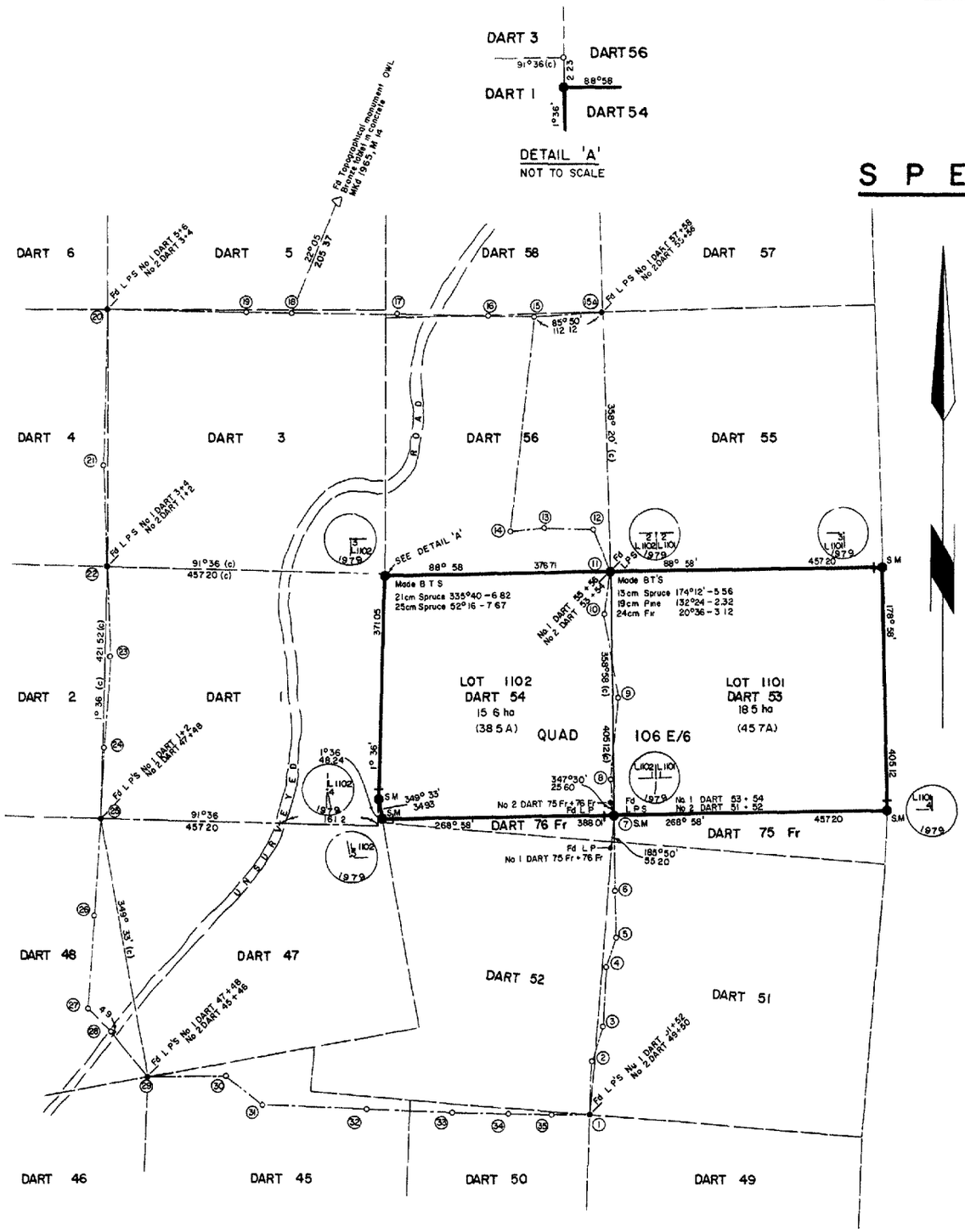
SPECIMEN ONLY

TRAVERSE DATA

STA	BEARING	DISTANCE
1-2	2° 31	89 77
2-3	17° 13	60 44
3-4	3° 15	100 24
4-5	19° 28	51 55
5-6	358° 37	77 46
6-7	359° 12	127 04
7-8	354° 59	57 77
8-9	5° 34	135 84
9 10	350° 18	142 91
10-11	6° 57	71 97
11-12	338° 16	74 29
12-13	271° 35	81 18
13-14	264° 50'	56 85
14-15	6° 33	359 11
15-16	271° 19'	74 97
16-17	271° 09	151 99
17-18	270° 42	175 07
18-19	270° 39	78 00
19-20	270° 54'	228 60
20-21	181° 22	259 62
21-22	178° 07	166 34
22-23	178° 15	149 22
23-24	184° 00	154 23
24-25	182° 42	118 48
25-26	183° 52	161 11
26-27	184° 05	155 08
27-28	135° 07	55 13
28 29	140° 30	97 87
29-30	89° 18	130 24
30-31	127° 38	79 44
31 32	92° 13	170 83
32-33	92° 03	145 22
33-34	91° 16	92 21
34-35	91° 13	76 18
35 1	90° 07	55 00

INSCRIPTIONS FOUND ON LOCATION POSTS

LOCATION POST	POST MARKINGS	
L P No 1 DART 53 & 54	L P No 1 DART 53 J DOE, JULY 4, 1969, NORTH R 1500	TAG No Y864288
	L P No 1 DART 54 J DOE, JULY 4, 1969, NORTH L 1500	TAG No Y864289
L P No 2 DART 51 & 52	L P No 2 DART 51 J DOE, JULY 4, 1969,	TAG No Y864286
	L P No 2 DART 52 J DOE, JULY 4, 1969,	TAG No Y864287
L P No 1 DART 55 & 56	L P No 1 DART 55 —— ILLEGIBLE ——	TAG No Y864290
	L P No 1 DART 56 J DOE, JULY 4, 1969, ILLEGIBLE	TAG No Y864291
L P No 2 DART 53 & 54	L P No 2 DART 53 J DOE, JULY 4, 1969,	TAG No Y864288
	L P No 2 DART 54 J DOE, JULY 4, 1969,	TAG No Y864289
L P No 1 DART 57 & 58	L P No 1 DART 57 J DOE, JULY 4, 1969, NORTH R 1500'	TAG No ILLEGIBLE
	L P No 1 DART 58 J DOE, JULY 4, 1969, NORTH L 1500'	TAG No Y864293
L P No 2 DART 55 & 56	L P No 2 DART 55 J DOE, JULY 4, 1969,	TAG No Y864290
	L P No 2 DART 56 J DOE, JULY 4, 1969,	TAG No Y864291
L P No 1 DART 5 & 6	L P No 1 DART 5 J DOE, JULY 1, 1969, NORTH R 1500	TAG No Y864243
	L P No 1 DART 6 J DOE, JULY 1, 1969, NORTH L 1500	TAG No Y864244
L P No 2 DART 3 & 4	L P No 2 DART 3 J DOE, JULY 1, 1969,	TAG No Y864241
	L P No 2 DART 4 J DOE, JULY 1, 1969,	TAG No Y864242
L P No 1 DART 3 & 4	L P No 1 DART 3 J DOE, JULY 1, 1969, NORTH R 1500'	TAG No Y864241
	L P No 1 DART 4 J DOE, JULY 1, 1969, NORTH L 1500'	TAG No Y864242
L P No 2 DART 1 & 2	L P No 2 DART 1 J DOE, JULY 1, 1969,	TAG No Y864239
	L P No 2 DART 2 J DOE, JULY 1, 1969,	TAG No Y864240
L P No 1 DART 1 & 2	L P No 1 DART 1 J DOE, JULY 1, 1969, NORTH R 1500	TAG No Y864239
	L P No 1 DART 2 J DOE, JULY 1, 1969, NORTH L 1500	TAG No Y864240
L P No 2 DART 47 & 48	L P No 2 DART 47 J DOE, JULY 3, 1969,	TAG No Y864282
	L P No 2 DART 48 J DOE, JULY 3, 1969,	TAG No Y864283
L P No 1 DART 47 & 48	L P No 1 DART 47 J DOE, JULY 3, 1969 NORTH R 1500	TAG No Y864282
	L P No 1 DART 48 J DOE, JULY 3, 1969, NORTH L 1500	TAG No Y864283
L P No 2 DART 45 & 46	L P No 2 DART 45 J DOE, JULY 3, 1969,	TAG No Y864280
	L P No 2 DART 46 J DOE, JULY 3, 1969,	TAG No Y864281
L P No 1 DART 51 & 52	L P No 1 DART 51 J DOE, JULY 3, 1969, NORTH R 1500'	TAG No Y864286
	L P No 1 DART 52 J DOE, JULY 3, 1969, NORTH L 1500	TAG No Y864287
L P No 2 DART 49 & 50	L P No 2 DART 49 J DOE, JULY 3, 1969,	TAG No Y864284
	L P No 2 DART 50 J DOE, JULY 3, 1969,	TAG No Y864285
L P No 1 DART 75Fr & 76Fr	L P No 1 DART 75F J DOE, JUNE 7, 1973, North 250 R 1500	TAG No Y975289
	L P No 1 DART 76F J DOE, JUNE 7, 1973, North 250 L 1500	TAG No Y975290
L P No 2 DART 75Fr & 76Fr	L P No 2 DART 75F J DOE, JUNE 7, 1973,	TAG No Y975289
	L P No 2 DART 76F J DOE, JUNE 7, 1973,	TAG No Y975290



PLAN AND FIELD NOTES OF SURVEY OF

DART 53 & 54 MINERAL CLAIMS

LOTS 1101 & 1102, QUAD 106E/6

LAT. 65°35' LONG. 135°15' (APPROX.)
MAYO MINING DISTRICT
YUKON TERRITORY

SCALE 1 5000

100 0 100 200 300 400 METRES

THIS SURVEY WAS EXECUTED DURING THE PERIOD OCTOBER 29 TO 31, 1979, BY J BROWN, C.L.S, FOR NORTHERN YUKON MINING COMPANY.

LEGEND

Bearings are astronomic, referred to the meridian through the southwest corner of Lot 1101 and were derived from observations on Polaris at this corner (See Note 5)
Iron bars 16 cm square 75cm long (See Note 6)
Centre o. stone mound (S M) is 3 m from post as indicated
C L S 69 posts
Traverse lines and stations
Mineral claims dealt with by this plan bounded thus

Distances are in metres and decimals thereof

Coll distances inscribed on the location posts are in feet
To convert feet to metres, multiply by the conversion factor 0.3048 (exactly)

I, John Brown, of the City of Whitehorse, Canada Lands Surveyor, make oath and say that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief
SO HELP ME GOD

Sworn before me at Whitehorse
this 1st day of November, 1979

J. Brown
C L S

. . . . "Signed" . . . . . .
Justice of the Peace or
Notary Public or
Commissioner for Oaths or
Canada Lands Surveyor
} See section 63, C.L S Act.

I hereby certify that I have carefully examined the ground included in DART 53 & 54 mineral claims surveyed by me, and have otherwise made all reasonable investigations in my power to ascertain if there was any other existing claim conflicting therewith, and I certify that I have found no trace or indication and have no knowledge or information of any such claim except as follows (If none, so state; if any, give particulars.)

J. Brown
C L S

NOTES —

1 Plan and field notes may be combined as in this specimen when the survey is of a simple nature, but if detail insets to show field note information clutter the plan unduly, separate field notes should be prepared.
2. Traverse data may be given in table, as shown, to eliminate crowding of information
3 Boundary lines 10 to 15 mm wide
4 To facilitate microfilming, plan width shall not exceed 60 cm
5. An alternative bearing statement might be — "Bearings are astronomic derived from the bearing of the line between (describe specifically the posts defining the line) as shown on plan , and according to that plan, are referred to ..(describe reference meridian)
6. This monument is not shown on the diagram of this plan, but is shown here for the purpose of this specimen plan only.
7 Lettering size should not be less than 2 mm (No 80 C L Template)

LEAVE SPACE FOR ENDORSEMENTS
5 x 20 centimetres

2 cm

SP - 9, Jan. 1979.

LEAVE SPACE FOR RECORD DETAILS
5 x 20 centimetres

SPECIMEN ONLY

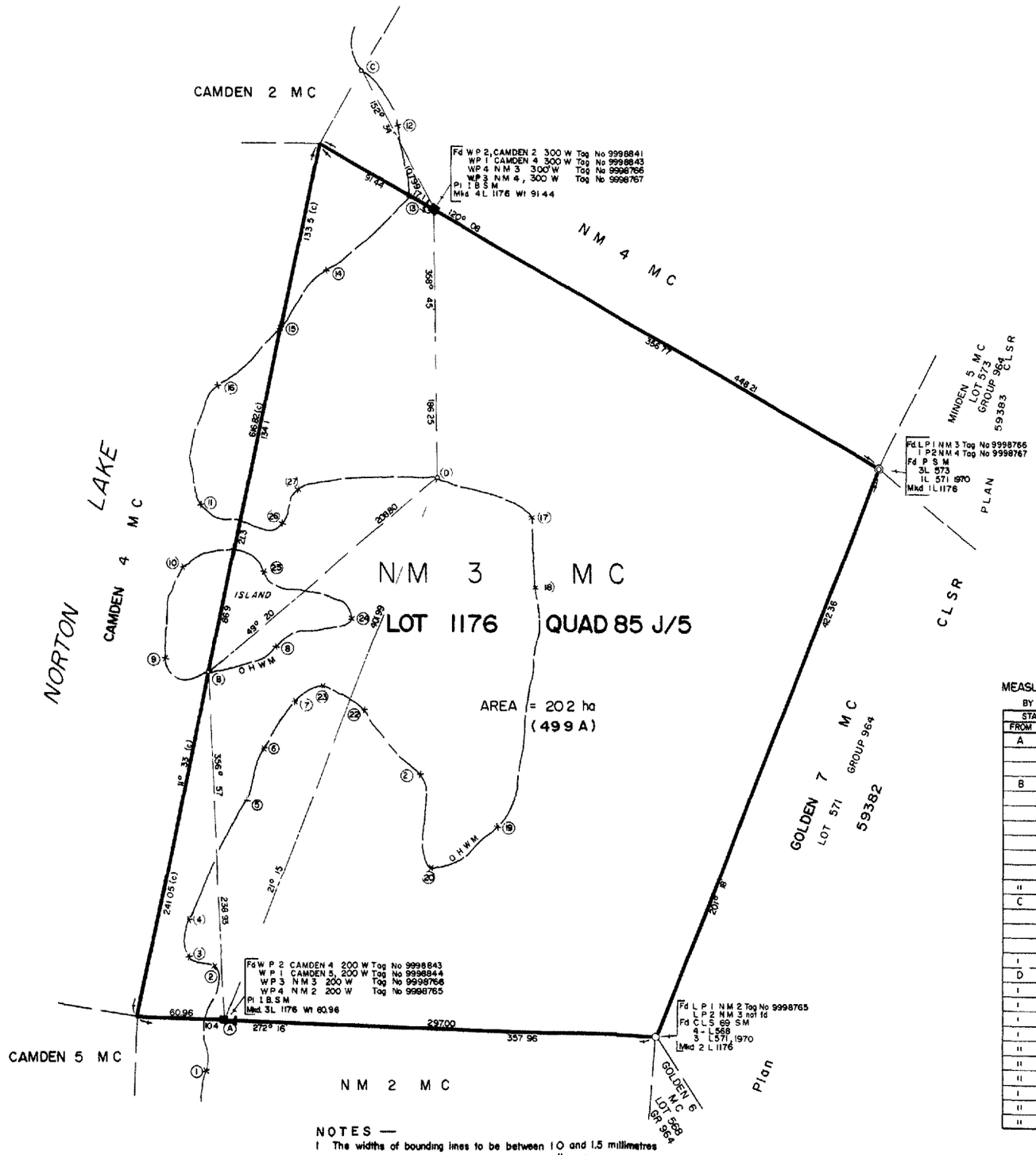
PLAN AND FIELD NOTES OF SURVEY OF N.M. 3 MINERAL CLAIM

LOT 1176, QUAD 85 J/5

LAT 62° 20', LONG 115° 45' (APPROX)

MACKENZIE MINING DISTRICT

NORTHWEST TERRITORIES



SCALE 1 2000

100 0 100 200 METRES

THIS SURVEY WAS EXECUTED DURING THE PERIOD JULY 12 TO AUGUST 8, 1979, BY J BROWN, C L S FOR NORTHWEST MINING LIMITED

LEGEND

Bearings are astronomic, referred to the meridian through the northeast corner of Lot 1176 and were derived from Polaris observations at this corner (See Note 2)

C L S standard posts ◎

Iron bars 16 cm square 75 cm long ■

C L S 69 posts ○

Mineral Claim(s) dealt with by this plan bounded thus ———

Traverse lines and stations ——o——o——o——

Centre of stone mound (S M) is 3 m from post as indicated ⊕

Distances are in metres and decimals thereof

Call distances inscribed on the witness location posts are in feet

To convert feet to metres, multiply by the conversion factor 0.3048 (exactly)

MEASUREMENTS TO O H W M OF LAKE BY DISTANCE METER

STATION FROM	STATION TO	BEARING	DISTANCE
A	1	201° 05'	39.6
	2	353° 55'	37.2
	3	331° 35'	49.7
B	4	4° 55'	170.7
	5	164° 00'	91.4
	6	144° 25'	65.8
	7	109° 00'	63.7
	8	67° 45'	48.8
	9	288° 38'	31.1
	10	346° 00'	74.7
"	11	359° 15'	120.4
C	12	142° 17'	46.6
	13	158° 04'	93.9
	14	190° 07'	140.8
	15	197° 04'	186.5
'	16	204° 28'	241.1
D	17	111° 13'	73.2
'	18	136° 42'	103.9
'	19	169° 41'	243.5
'	20	180° 32'	267.9
'	21	182° 19'	203.9
"	22	196° 57'	164.9
"	23	210° 14'	164.3
"	24	214° 02'	114.3
'	25	241° 20'	134.1
"	26	252° 08'	111.6
"	27	263° 57'	96.3

I, John Brown, of the City of Ottawa, Canada Lands Surveyor, make oath and say that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief

SO HELP ME GOD

Sworn before me at Ottawa
this 21st day of October, 1979

J Brown
C L S

"Signed"
Justice of the Peace or Notary Public or Commissioner for Oaths or Canada Lands Surveyor
} See section 63, C L S Act

I J Brown, C L S have carefully examined the ground included in the N.M. 3 Mineral Claim surveyed by me, and have otherwise made all reasonable investigation in my power to ascertain if there was any other existing claim conflicting therewith and I certify that I have found no trace or indication and have no knowledge or information of any such claim except as follows (If none, so state, if any, give particulars.)

Dated at Ottawa this 21st day of October, 1979

J Brown
C L S

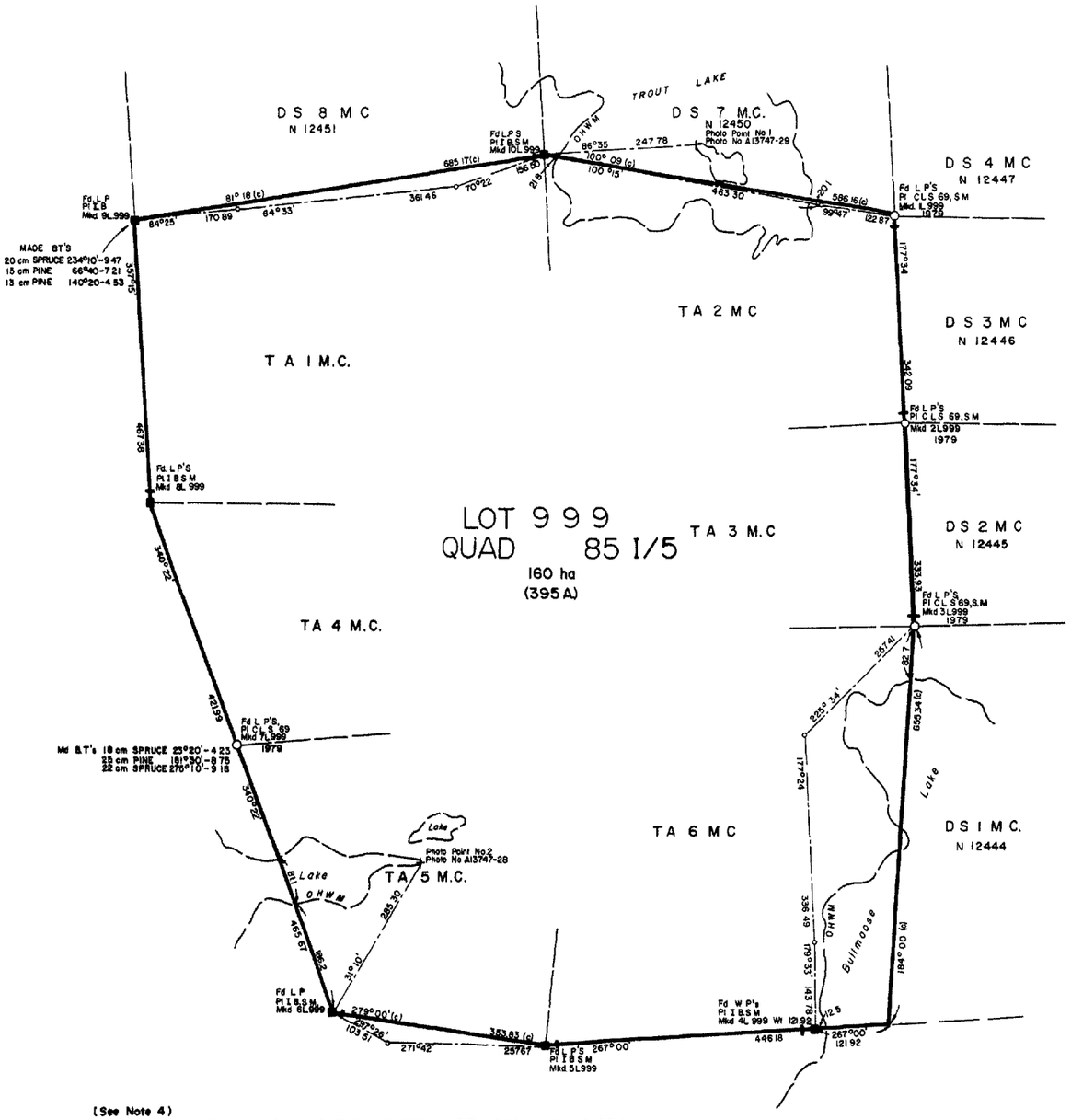
NOTES —

1 The widths of bounding lines to be between 1.0 and 1.5 millimetres
2 An alternative bearing statement might be — "Bearings are astronomic derived from the bearing of the line between (describe specifically the posts defining the line) as shown on plan and according to that plan, are referred to (describe the reference meridian)"
3 To facilitate microfilming, plan width shall not exceed 60 cm
4 Post inscriptions may be given in tabular form if more convenient
5 Lettering size should not be less than 2 mm (No 80 C L Template)
6 The claim surveyed was located under the 1961 Regulations

LEAVE SPACE FOR ENDORSEMENTS
5 x 20 centimetres

SP-10, Jan. 1979.

LEAVE SPACE FOR RECORD DETAILS
5 x 20 centimetres



SPECIMEN ONLY

PLAN AND FIELD NOTES OF PERIMETER SURVEY OF MINERAL CLAIMS INCLUDED IN

LOT 999, QUAD 85 I/5

LAT. 62°29', LONG. 113°41' (APPROX.)
MACKENZIE MINING DISTRICT
NORTHWEST TERRITORIES

SCALE 1 : 5000

100 0 100 200 300 400 METRES

THIS SURVEY WAS EXECUTED DURING THE PERIOD JULY 20 TO AUGUST 8, 1979, BY J BROWN, C.L.S FOR NORTHWEST MINING LIMITED

LEGEND

Bearings are astronomic, referred to the meridian through the northwest corner of mineral claim T A 1 and were derived from Polaris observations at this corner (See Note 3)
Iron bars 16 cm square, 75 cm long ... ■
Centre of stone mound (S M) is 3 m from post as indicated . —+—○— or —■—
C L S 69 posts ○
Mineral claims dealt with by this plan bounded thus ▬▬▬
Traverse lines and stations ○———○

O.H.W.M of lakes were plotted from 1971 vertical aerial photographs unless otherwise stated
Photographs number A 13747-28 and 29 are recorded under number (See Note 5)(C L S R)

Distances are in metres and decimals thereof
Call distances inscribed on the witness location posts are in feet
To convert feet to metres, multiply by the conversion factor 0 3048 (exactly)

I, John Brown, of the City of Ottawa, Canada Lands Surveyor, make oath and say that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief
SO HELP ME GOD

Sworn before me at Ottawa
this 21st day of October, 1979

J Brown
C L S

"Signed"
Justice of the Peace or
Notary Public or
Commissioner for Oaths or
Canada Lands Surveyor
} See section 63, C.L.S. Act

I, J Brown, C.L.S, have carefully examined the ground included in the group of mineral claims designated as Lot 999, Quad 85 I/5 surveyed by me, and have otherwise made all reasonable investigation in my power to ascertain if there was any other existing claim conflicting therewith, and I certify that I have found no trace or indication and have no knowledge or information of any such claim except as follows
(If none, so state, if any, give particulars)
Dated at Ottawa this 21st day of October, 1979

J Brown
C L S

CLAIMS INCLUDED IN LOT 999, QUAD 85 I/5

NAME	NUMBER	NAME	NUMBER
TA1	A37246	TA4	A37249
TA2	A37247	TA5	A37250
TA3	A37248	TA6	A37251

(See Note 4)
INSCRIPTIONS FOUND ON LOCATION POSTS, LOT 999, QUAD 85 I/5

SURVEY POST No.	POST 1	POST 2	POST 3	POST 4
1L 999	LP¹ TA2 TAG⁸ A37247 G DOE L 9977 SEPT 30/69 9 00 A M	LP²2 DS 7 TAG⁸N 12450 B WILEY	LP³3 DS4 TAG⁸N 12447 B WILEY	NOT FOUND
2L 999	LP¹ TA3 TAG⁸A37248 G DOE SEPT 30/69 10 00 A.M	LP²2 TA2 TAG⁸ A37247 G DOE	ILLEGIBLE TAG⁸ N 12446	LP⁴4 DS 2 TAG⁸N 12445 B WILEY
3L 999	LP¹1 TA6 TAG⁸A37251 G DOE SEPT 30/69 12 00 A.M.	LP²2 TA3 TAG⁸A37248 G DOE	LP³3 DS2 TAG⁸N 12445 B WILEY	LP⁴4 DS 1 TAG⁸ N12444 B WILEY
4L 999 WI 12192		WP²2 TA6 TAG⁸A37251 400'E G DOE	WP³3 DS 1 TAG⁸N12444 B WILEY 400' E	
5L 999		LP²2 TA5 TAG⁸A37250 G DOE	LP³3 TA6 TAG⁸A37251 G DOE	
6L 999			LP³3 TA5 TAG⁸A37250 G DOE	
7L 999			LP³3 TA4 TAG⁸A37249 G DOE	LP⁴4 TA5 TAG⁸A37250 G DOE
8L 999			LP³3 TA1 TAG⁸A37246 G DOE	LP⁴4 TA4 TAG⁸A37249 G DOE
9L 999			LP³3 DS8 TAG⁸N12451 B WILEY	LP⁴4 TA1 TAG⁸A37246 G DOE
10L 999	LP¹1 TA1 TAG⁸A37246 G DOE SEPT 30/69 8 00 A.M	LP²2 DS 8 TAG⁸N 12451 B WILEY	NOT FOUND	NOT FOUND

NOTES.—

1 The width of bounding lines to be between 1.0 mm and 1.5 mm.
2 To facilitate microfilming, plan width shall not exceed 60 cm
3 An alternative bearing statement might be:—"Bearings are astronomic derived from the bearing of the line between (describe specifically the posts defining the line) as shown on plan ... and, according to that plan, are referred to (describe the reference meridian)"
4. Post inscriptions found may be stated beside the appropriate monument in the diagram
5 Photographs used will be recorded in the Canada Lands Surveys Records as support information.
6. Lettering size should not be less than 2 mm (No 80 CL Template).
7 Under the 1977 Regulations the holder may have the surveyed area reduced so as not to exceed that indicated by the application

LEAVE SPACE FOR ENDORSEMENTS
5 x 20 centimetres

MINERAL CLAIM SURVEYS IN THE YUKON TERRITORY

UNDER REVIEW

The general instructions for surveys of mineral rights in the Yukon Territory are under review. The general instructions included in Part D of the *Manual of Instructions for the Surveys of Canada Lands – 2nd Edition* (reprinted in Chapter D8 for convenience purposes) still applies to mineral claim surveys in the Yukon Territory in so far as they are not inconsistent with new legislation, regulations or other policies.

FIELD MONITORING OF EXTERIOR BOUNDARIES AND INTERIOR FRAMEWORKS

General

1. Field monitoring is an on-site examination and assessment of the condition of exterior boundaries or interior frameworks of Canada Lands.

2. For the purposes of this Chapter, boundaries are divided into two categories:

a) exterior boundaries, which are jurisdictional boundaries such as the perimeter of an Indian Reserve or National Park; and

b) interior frameworks, which are the boundaries of major lots, blocks, and systems of subdivision; surveyed roads and rights-of-way; and control survey markers of networks established to support legal surveys. (Boundaries of roads and other rights-of-way within, but not forming part of, Canada Lands are to be considered part of the interior framework.)

3. Specific survey instructions are issued for field monitoring.

Procedures

4. The exterior boundaries and/or interior frameworks specified in the specific survey instructions shall be visually examined on-site.

5. The surveyor shall contact local persons who:

a) may have information concerning the boundary or framework being monitored; or

b) are responsible for administering the Canada Lands on which the boundaries or frameworks being monitored are situated.

6. Sufficient photographs, using 35mm colour negative film, shall be taken of boundary or framework evidence:

a) to convey the general condition of the boundary vista;

b) to support the assessment of monuments which are in poor condition; and

c) to support the field monitoring report and the assessment of work required.

7. If during the course of a field monitoring evidence of the condition of a boundary or framework shows that a boundary maintenance or a resurvey is required, contact the regional office of Legal Surveys Division for further instructions before continuing with the field monitoring.

8. Assess and record whether:

a) the boundary is easily recognizable;

b) monuments and ancillary monumentation are in good condition and easy to locate;

c) the boundary is fenced or otherwise marked;

d) there are obvious or possible encroachments;

e) development such as housing or logging is taking place, or natural occurrences such as erosion exist which could result in damage to, or loss of, monumentation;

f) travelled roads, trails, utility lines, etc., exist which could be useful in a future survey;

g) control survey markers are intervisible; and

h) any additional monuments or control survey markers are required.

Returns

9. The returns of a field monitoring shall consist of:

a) the plans supplied by Legal Surveys Division on which the surveyor shall have indicated the portions of the exterior boundaries or interior frameworks which were field monitored;

b) completed field monitoring report forms provided by Legal Surveys Division;

c) one print and the negative of each photograph taken. The print of each photograph shall be appropriately captioned and cross referenced to positions on the plans mentioned in (a) above; and

d) a written report which includes:

i) the items identified in paragraph 8 above;

ii) the name and position of persons who supplied information concerning the boundary or framework monitored;

iii) the name and position of local officials contacted who are responsible for administering the Canada Lands on which the boundaries or frameworks being monitored were situated; and

iv) the names of any individuals who were shown the location of the boundaries or frameworks on the ground.

BOUNDARY MAINTENANCE

General

1. Boundary maintenance of previously surveyed boundaries may consist of any or all of the following:
   a) clearing of vistas;
   b) blazing trees; or
   c) restoring obliterated monuments and ancillary monumentation.

2. Specific survey instructions are issued for boundary maintenance surveys.

Procedures

3. The general instructions in Chapter D1 regarding cutting out and blazing lines apply to boundary maintenance surveys.

4. The condition and markings of all monuments and ancillary monumentation shall be recorded.

5. The general instructions in Chapter D1 for the placement of marker posts apply to boundary maintenance surveys.

6. Lost or disturbed monuments shall not be re-established, unless specific survey instructions to do so have been issued by the Surveyor General or a person designated by the Surveyor General to issue such instructions.

Returns

7. The returns shall consist of:
   a) a survey report as prescribed in chapter D15;
   b) sketch plans, if necessary, to convey the condition of the vistas and monumentation;
   c) official field notes, if ancillary monumentation or monuments have been restored;
   d) reproducible copies of plans registered or filed in a provincial land titles or land registry office pertaining to the survey; and
   e) any other information required by the specific survey instructions.

CONTROL SURVEYS

General

1. This Chapter applies to control surveys which support legal surveys of Canada Lands, including control surveys carried out in connection with surveys under the *Canada Oil and Gas Land Regulations*.

2. Specific survey instructions are issued for control surveys carried out under this Chapter.

3. Control surveys carried out under this Chapter should be made by a Canada Lands Surveyor.

4. Prior to issuing specific survey instructions for a control survey, Legal Surveys Division may request the surveyor to supply a design and preanalysis of the proposed control network to ensure that accuracy requirements can be met.

Control Surveys under Provincial or Federal Requirements

5. In the provinces, control surveys which are intended to support legal surveys on Canada Lands shall be carried out under provincial requirements and integrated into the control network used in the province.

6. In the Yukon Territory and the Northwest Territories control surveys intended to support legal surveys on Canada Lands shall be carried out under the requirements of Geodetic Survey Division, Natural Resources Canada, and integrated into the control network used in the territories.

7. Control surveys intended to support legal surveys in offshore Canada Lands shall be carried out under the appropriate provincial or Geodetic Survey Division requirements and integrated into the provincial or federal control network.

8. Control survey field notes or other records of control surveys that have been integrated and published by a provincial survey control agency or Geodetic Survey Division are not normally recorded in the Canada Lands Surveys Records. However, Legal Surveys Division may request copies for filing.

Other Control Surveys

9. Where the requirements for control surveys described in paragraphs 5 to 8 cannot be met, or a higher standard is required, the remainder of this Chapter or parts of the remainder shall be used as outlined in specific survey instructions.

Methods

10. Control surveys shall be carried out insofar as possible in accordance with the publication "*Specifications and Recommendations for Control Surveys and Survey Markers (1978)*", or later version, available from Geodetic Survey Division, Natural Resources Canada, Ottawa.

11. Positions obtained using the Global Positioning System (GPS) shall be obtained in accordance with the publication "*Guidelines and Specifications for GPS Surveys (1992)*", or later version, available from the Geodetic Survey Division, Natural Resources Canada, Ottawa and with any other specific survey instructions.

12. The requirements in Chapter D1 for adjustment and testing of measuring equipment shall apply to control surveys under this part.

13. The datum used should be NAD 83.

14. The datum plane for vertical control shall be mean sea level as defined by Geodetic Survey Division.

15. When choosing control survey marker locations, take into consideration the accessibility, intervisibility, stability, suitability for satellite observation, and safety from destruction of the markers.

16. The surveyor shall record the markings of horizontal control and vertical control survey markers, measure to all reference posts and confirm the description of all survey markers found and used in the control survey.

17. The surveyor must ensure the stability and position of all horizontal and vertical control survey markers used by measuring to at least two other horizontal or vertical control survey markers or to reference posts.

18. If the stability and position of the survey markers cannot be confirmed by measured connections to adjoining survey markers or reference posts then measurements shall be made to additional control survey markers to confirm the stability and position of the markers used.

19. If the surveyor is unable to use a previously established control survey marker because it is destroyed, or damaged, or because the coordinates appear to be in error, the circumstances shall be reported to the regional office of Legal Surveys Division and to the provincial government control survey agency, or Geodetic Survey Division, as applicable.

20. Control survey network designs and survey methods should provide sufficient redundant measurements to allow identification of blunders and systematic errors. Where the survey system used has not provided redundant measurements, additional measurements shall be made using an independent system. The difference between the positions derived by the two systems should be within the accuracy requirements specified for control surveys.

21. Monuments and control survey markers (including markers placed in control surveys carried out by other government departments, private companies, etc.) in the vicinity of the control survey should be tied in during the course of the survey.

22. Make ties to monuments and any other permanent feature which may assist in re-establishing the position of, or may help to find, the control survey marker in the future. Ties should be made to at least three existing features or, if no suitable features are available, to three reference posts (see Chapter D1- Ancillary Monumentation).

Accuracy

23. Horizontal control surveys shall be carried out by any method capable of achieving second order accuracy as defined in Part 2 of the publication "*Specifications and Recommendations for Control Surveys and Survey Markers (1978)*", or later version. The final accuracy will depend on the accuracy of the control network into which the survey is being integrated. If this accuracy is not acceptable for any particular project, the matter will need to be resolved with Legal Surveys Division, and either the provincial government control survey agency or Geodetic Survey Division, as applicable.

24. The minimum accuracy requirement for vertical control surveys is third order as defined in Part 1 of the publication "*Specifications and Recommendations for Control Surveys and Survey Markers (1978)*", or later version.

Monumentation

25. Part 3 of the publication "*Specifications and Recommendations for Control Surveys and Survey Markers (1978)*", or later version, lists the various types of control survey markers suitable for particular ground characteristics and

for various accuracies. For control surveys under this chapter the following substitutions may be made:

a) CLS rock posts for Type 1 survey markers;
b) CLS 77 post for Type 4 survey markers;
c) helix pipe marker (see "*Guidelines and Specifications for GPS Surveys (1992)*" or later version) for Type 3 survey markers; or
d) other equivalents with the permission of Legal Surveys Division.

26. If it is not possible to mark control survey markers with the numbers assigned by a province or by Geodetic Survey Division, they should be marked with a numbering system assigned by Legal Surveys Division.

Field Note Preparation

27. Requirements in Chapter D1 for official field notes shall apply to control surveys, in so far as they are applicable and consistent with this Chapter.

28. The guidelines in Appendix E3 shall be followed in the preparation of field notes of control surveys, if plan format is used.

29. Field notes of control surveys, in plan format, and survey marker description sheets shall be similar in form to specimens SP12–1 to SP12–3.

30. Provide in the legend of the field notes:
a) the projection system used, and if applicable, the zone, the central meridian and the datum. If desired the amount of convergence from a control survey marker central to the survey to the central meridian may be shown; and
b) the source of coordinates used for the survey including the date of the coordinate information and the marker names or numbers.

31. Show in the diagram of the field notes or in a table:
a) distances from survey marker to survey marker (i.e. slope distance corrected for the height of the instrument and height of the target). In order to avoid mistaking slope distances for horizontal distances they should be put in a table with a heading stating that they are slope distances from survey marker to survey marker;
b) the elevation of each survey marker (the relative difference in elevation between survey markers must be to an accuracy sufficient to meet the accuracy requirements of the survey when used to reduce slope distances to the horizontal);
c) observed azimuths;
d) measured angles;
e) found and placed control survey markers including their identification numbers; and
f) for control surveys where GPS measurements are used, show GPS coordinate differences in lieu of distances and angles, and show observed base lines.

32. Show on the field notes or on survey marker description sheets:
a) found and placed control survey markers including their identification numbers, a description of marker type, markings, and ties to permanent features and reference posts; and
b) measurements to monuments or other control survey markers tied in during the survey.

33. If requested in the specific survey instructions, show distances reduced to the horizontal at general ground level. If they are shown provide in the legend:
a) a statement that they have been reduced to the horizontal at general ground level;
b) the combined conversion factor (product of elevation factor and projection scale factor); and
c) the datum plane used for vertical and/or horizontal control.

34. Show topographic, legal survey fabric, or other features and/or a key plan as necessary to locate the control survey.

35. Coordinates and/or elevations of all found survey markers used for the survey shall be tabulated in the field notes of control survey.

36. Field notes of control surveys shall include the affidavit or affirmation for field notes used for official surveys (see Chapter D1, paragraph 98).

Returns

37. The returns of a control survey shall include:

a) the field notes of the control survey;

b) a report which, in addition to the requirements for reports in Chapter D15, includes:

i) an analysis of the stability of found control survey markers;

ii) a list of the instruments used including make, model, and serial numbers, and the measurements they were used for;

iii) information used to calculate coordinates including coordinates of found survey markers, observations, and assigned weights;

iv) a paper copy of the adjustment output showing residuals, statistical accuracy, and calculated coordinates;

v) a table showing the coordinates of all relevant control survey markers and monuments found or established in the survey. They shall be expressed in the system used in the province or territory in which the control survey is located; and

vi) a detailed report on the system and method of operation used, giving sufficient information to demonstrate the accuracy of the derived positions;

c) a copy of the field records;

d) copies of all control survey marker description sheets for existing markers used in the survey;

e) observations in a digital form acceptable to Legal Surveys Division;

f) if requested, pin-pricked aerial photographs;

g) if requested, 35 mm photographs of control survey markers which include the surrounding areas to aid in locating the markers in the future;

h) if requested, survey marker description sheets for all new control survey markers; and

i) if requested, calibration or standardization results for instruments or equipment.

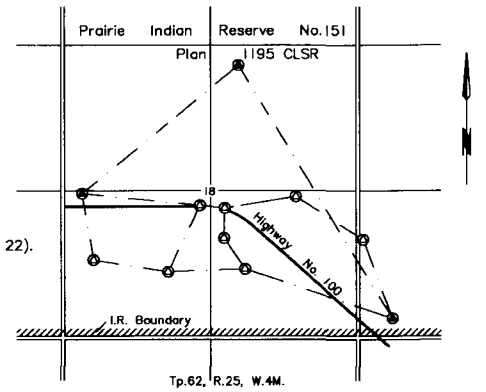
Slope distances are from top of Control Monument to top of Control Monument	
Station to Station	Slope Distance
736103 to 736104	1116.612
736103 to 75G01	652.867
736103 to 75G07	372.383
736104 to 736105	1638.047
736105 to 75G04	464.699
736105 to 75G05	859.517
75G01 to 75G02	138.165
75G01 to 75G06	407.387
75G02 to 75G03	397.211
75G02 to 75G08	165.775
75G03 to 75G04	442.807
75G05 to 75G06	424.815
75G05 to 75G08	206.713
75G06 to 75G07	416.148

NOTE: Slope is corrected for height of instrument and the height of target.

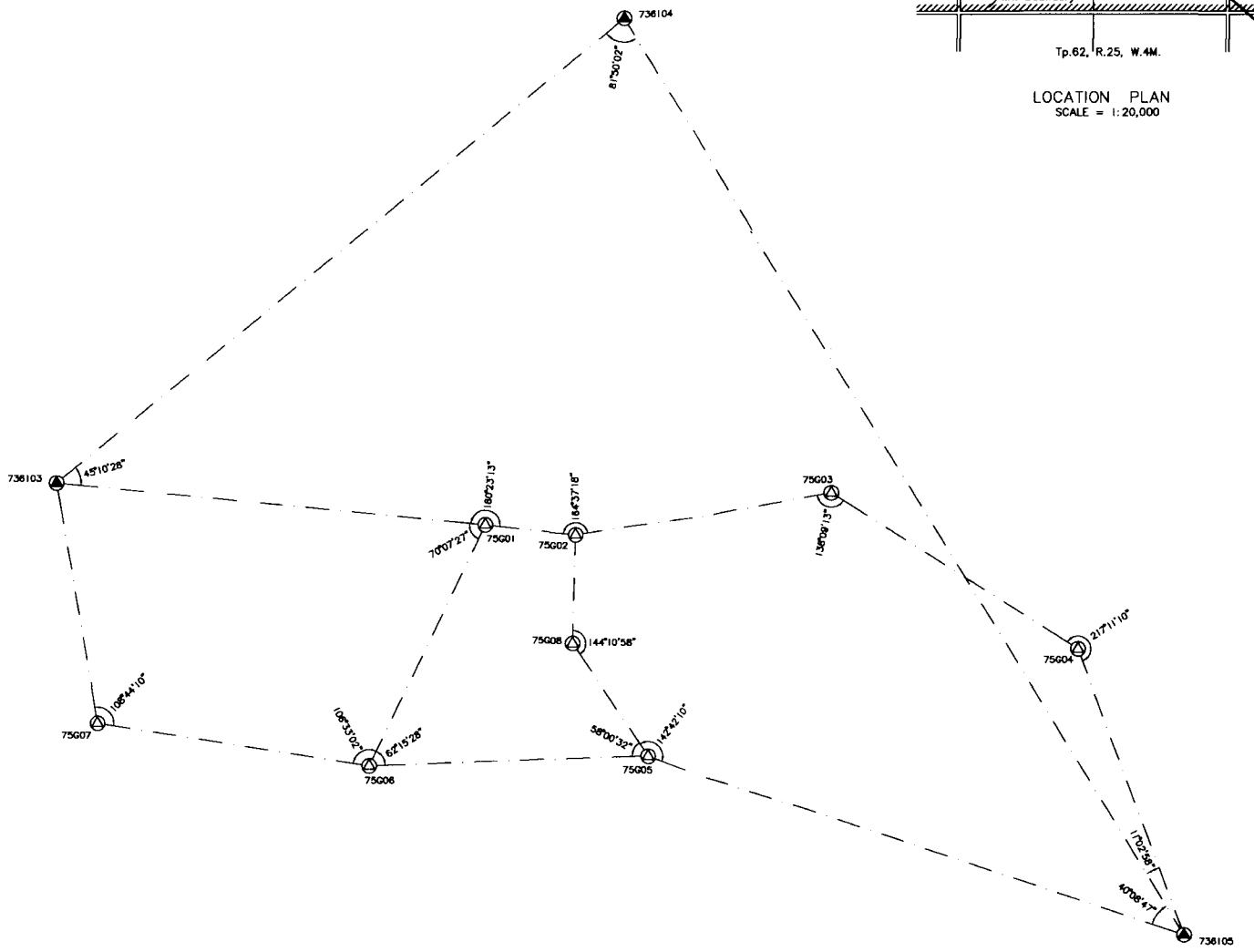
Elevations of placed Control Monument	
Station	Elevation
75G01	728.65
75G02	728.40
75G03	720.98
75G04	717.20
75G05	727.41
75G06	727.94
75G07	722.16
75G08	727.82

UTM COORDINATES, ZONE 8 (CM 135°) NAD 83 NATIONAL GEODETIC DATA BASE 92-09-17			
Station	Northing	Easting	Elevation
736103	6 736 272.533	492 125.312	725.34
736104	6 736 981.561	492 987.532	732.16
736105	6 735 581.837	493 837.432	714.55

(see Chap. DIZ, Sec. 22).



LOCATION PLAN
SCALE = 1:20,000



LEAVE SPACE FOR RECORD DETAILS

5 X 20 CENTIMETRES

S P E C I M E N O N L Y

FIELD NOTES OF
CONTROL SURVEY FOR

IBEX COORDINATED SURVEY AREA

(Location Description)
(See Guidelines for Preparation of Plans)

THIS SURVEY WAS EXECUTED DURING THE PERIOD
AUGUST 15 TO 22, 1993 BY HANS KLINKENBERG, CLS

SCALE 1:5000

250 0 250 500 METRES

LEGEND

Coordinate Control Monuments, found
Coordinate Control Monuments, placed

Coordinates are UTM projection coordinates referred to the meridian of 135° West Longitude.

Distances, elevations and coordinates are in metres.
Angles shown are the mean of 6 sets observed using a KERN DKM2AE 1" theodolite; Serial No. _____.
Distances shown are the mean of 6 sets observed from one end of the line using a SOKKISHA RED 2L EDM; Serial No. _____.
All Monuments placed are CLS short standard posts cemented in 1.5 metre deep concrete cylinders.
All Monuments are marked with the monument number and year when placed.
Monuments description sheets are recorded in FB _____ CLSR.

I, Hans Klinkenberg, of the City of Ottawa, Canada Lands Surveyor, solemnly swear that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by these field notes, and that the said field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD

Sworn before me at the City of Ottawa
this 14th day of November, 1993.

_____
CLS

'Signed'
Justice of the Peace or
Notary Public or
Commissioner for Oaths or
Canada Lands Surveyor

See Sec. 49 Canada Lands Surveys Act

(Note: Oath may be substituted by solemn affirmation in accordance with the provisions of Chapter D1)

SP 12-1

2 cm

LEAVE SPACE FOR RECORD DETAILS

5 X 20 CENTIMETRES

S P E C I M E N O N L Y

FIELD NOTES OF
CONTROL TIES TO
CONTROL MARKERS FOR

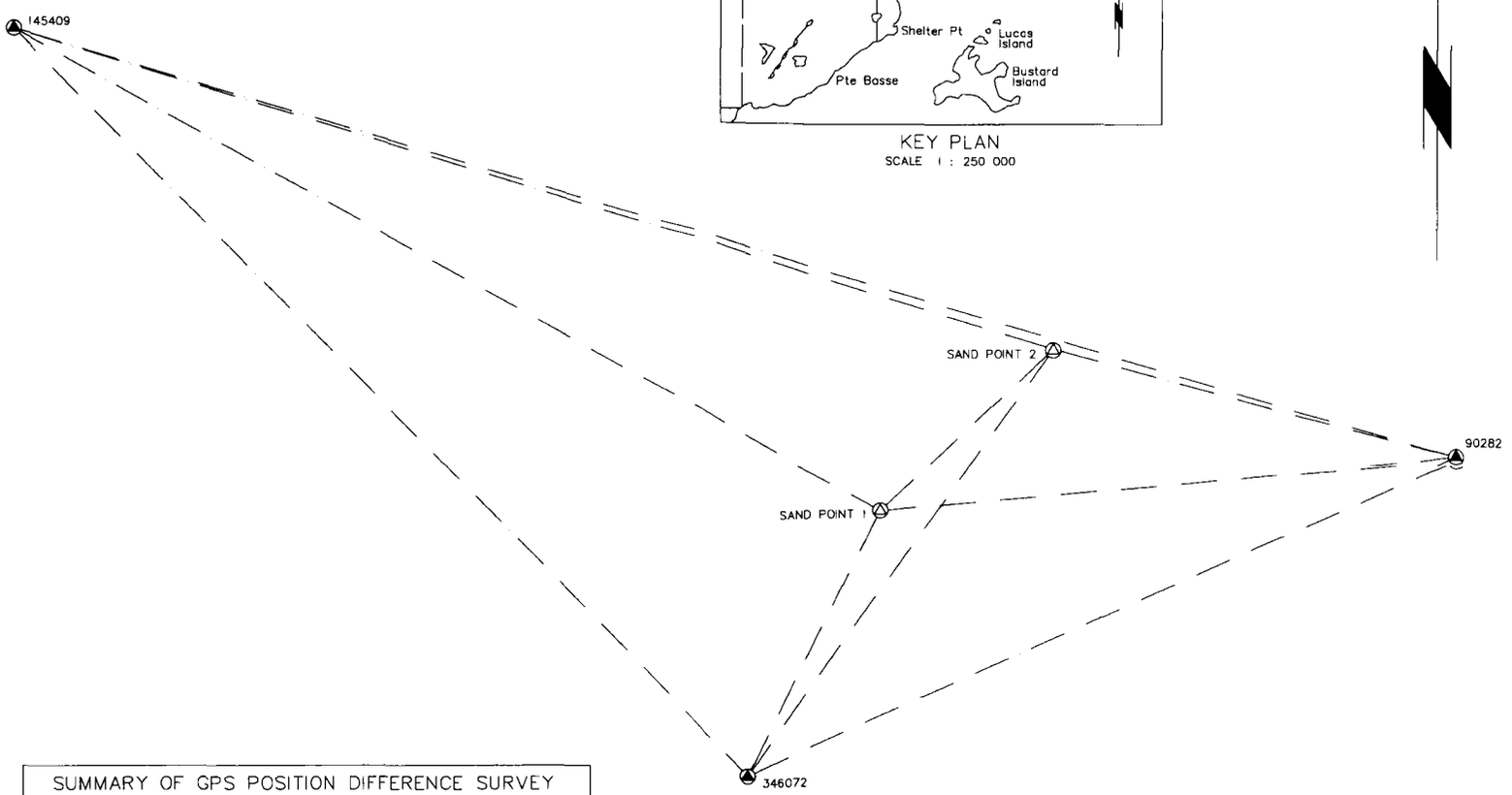
SANDY POINT INDIAN RESERVE No.59

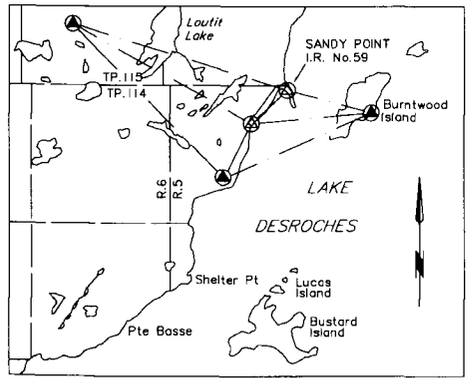
(Location Description)
(See Guidelines for Preparation of Plans)

THIS SURVEY WAS EXECUTED DURING THE PERIOD
SEPTEMBER 19 TO 21, 1993 BY T. FAWCETT, CLS

SCALE 1:50,000

2500 0 2500 5000 METRES





KEY PLAN
SCALE 1 : 250 000

LEGEND

Control Survey Markers, found ▲
Control Survey Markers, placed △

NOTES

Position differences were determined from GPS satellite observations collected with Leica System 200 receivers and processed with the Leica "SKI" software package.

Final coordinates were derived from a three dimensional least square adjustment of the position differences using the program "GEOLAB". Ellipsoidal height differences were used for derivation of elevation of all new stations (Slope of geoid was assumed to be negligible).
Full details about the determination of position differences and final coordinates are contained in the Surveyor's Report FB_____.
Survey marker description sheets with final coordinates are recorded in FB_____.
Coordinates for control markers 145409, 90282 and 346072 were obtained from the National Geodetic Data Base on August 20, 1993.

I, T. Fawcett, of the Village of Uffington, Canada Lands Surveyor, solemnly swear that I have in my own proper person, according to law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown on these field notes, and that the said field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD.

Sworn before me at Quebec
this 25 day of October, 1993.

_____
CLS

'Signed'
Justice of the Peace or
Notary Public or
Commissioner for Oaths or
Canada Lands Surveyor

See Sec. 49 Canada Lands Surveys Act

(Note: Oath may be substituted by solemn affirmation in accordance with the provisions of Chapter D1)

SUMMARY OF GPS POSITION DIFFERENCE SURVEY

FROM STATION	TO STATION	COORDINATE DIFFERENCE OBSERVATIONS (Metres)		
		DELTA X	DELTA Y	DELTA Z
145409	90282	14123.736	-16768.974	5893.612
145409	346072	2981.984	-15021.296	8316.196
145409	Sand Point 1	6707.355	-12829.030	5896.998
145409	Sand Point 2	10103.183	-12217.116	4207.395
346072	90282	11141.722	-1747.606	-2422.563
346072	Sand Point 1	3726.149	2193.188	-2616.585
346072	Sand Point 2	7121.977	2805.102	4106.236
90282	Sand Point 1	-7145.359	3940.457	-194.909
90282	Sand Point 2	-4019.531	4552.371	-1684.560

TABLE OF COORDINATES (NAD 1983)

STATION	GEOGRAPHIC		ELEVATION (Metres)
	LATITUDE N	LONGITUDE W	
145409	53° 27' 15.24418"	118° 21' 12.46515"	2068.708
90282	53° 21' 51.23981"	118° 02' 50.05580"	2169.497
346072	53° 19' 28.21115"	118° 12' 25.47890"	2442.530
Sand Point 1	53° 21' 59.527"	118° 10' 24.007"	2336.791
Sand Point 2	53° 23' 18.844"	118° 07' 57.717"	2254.681

SP 12-2

D12-6

CANADA LANDS SURVEYS RECORDS

CANADA LANDS SURVEYS RECORDS

SURVEY MARKER DESCRIPTION SHEET

A

NAME OF SURVEY: IBEX COORDINATED SURVEY AREA

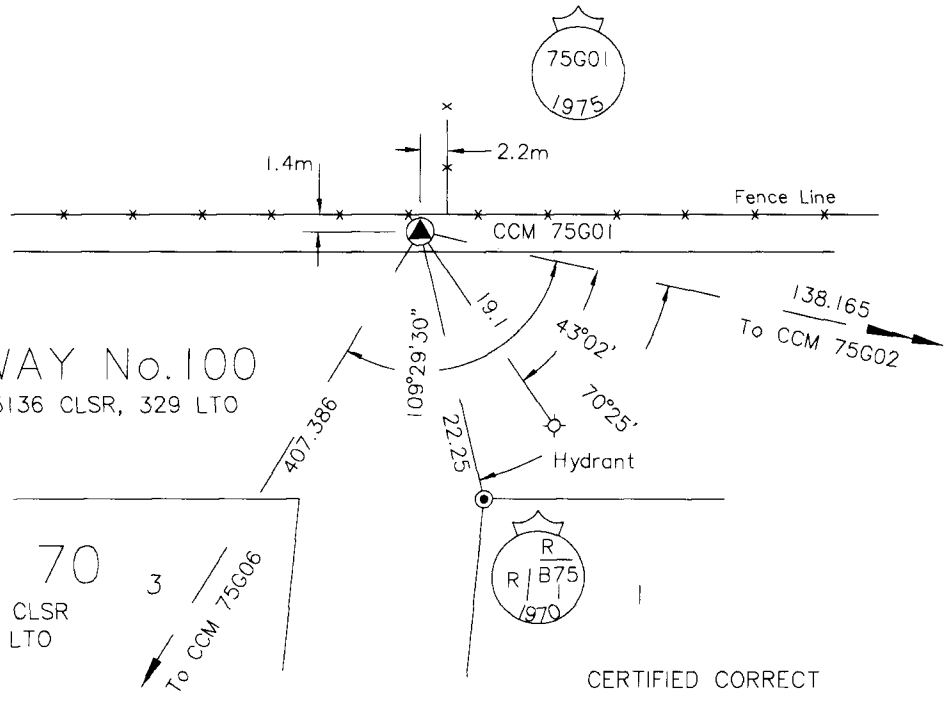
SURVEY MARKER NO.: 75G01 DATE OF SURVEY: August 19, 1975

TYPE OF SURVEY MARKER: CLS short Standard post cemented in 1.5 metre deep concrete cylinder.

NTS SHEET: 83 J APPROX. LAT.: 54° 30' N APPROX. LONG.: 134° 15'W

B

DIAGRAM



CERTIFIED CORRECT

Hans Klinkenberg — CLS (Date)

NOTE:—

1. ***Bearings may be added after adjustment.***
2. ***Part C to be completed in Regional Surveyor's office after final adjustment.***

Bearings shown are referred to 135° W.
Distances shown are horizontal, expressed in metres at the mean elevation of the end points of the line.
To convert horizontal distances to the UTM Projection Plane, multiply distances by the combined factor.

C

COORDINATE SYSTEM: UTM ZONE: 8 (135° W.)

COORDINATES: Northing: Easting: Elevation:

Sea Level Factor: Scale Factor: Combined Factor:

Anyone finding a Survey Marker that has been damaged or destroyed is requested to submit a report to the Regional Surveyor.

SP 12–3

BASEMAPPING

General

1. This Chapter applies to the mapping of base maps (basemapping) which supports legal surveys of Canada Lands.

2. Specific survey instructions are issued for basemapping carried out under this Chapter.

3. Basemapping carried out under this Chapter should be done under the supervision of a Canada Lands Surveyor or, with the permission of Legal Surveys Division, a land surveyor commissioned to survey lands in the province in which the survey is located.

4. Control surveys carried out for basemapping should conform to Chapter D12.

Photography and Targeting

5. All aerial photography used in any mapping project shall conform to the specifications of the Interdepartmental Committee on Air Surveys (ICAS) and will be recorded in the National Air Photo Library. Photography of record in provincial or territorial photo libraries will also be accepted providing it will meet ICAS specifications.

6. Control points to be targeted for aerial triangulation and numerical adjustment, and monuments to be targeted to facilitate registration (overlaying) of legal survey boundary information with mapping detail, will be specified in the specific instructions for the mapping.

7. Targeting shall be of sufficient size and contrast to be visible on the final base map.

8. The surveyor is responsible for obtaining permission to place targets on private property, for removing the targets and for any damage caused during the course of the work.

Mapping

9. The projection system for mapping should be the official system used in the province or territory in which the mapping is located.

10. The datum plane for contours should be mean sea level as defined by Geodetic Survey Division, Natural Resources Canada.

11. Map sheet size, location of image area, overlap of map detail, location of title block and other requirements may vary from one province or territory to another. Regional requirements will be outlined in the specific instructions.

12. For base maps that are to be registered with cadastral survey or other positional information the minimum accuracy requirement is as follows:

a) ninety-five percent of all map information must be shown within 0.5 mm of the true position of the information on the map; and

b) all remaining map information must be shown within 1.0 mm of the true position.

13. The following table shows absolute accuracy requirements for recommended map scales. The accuracy selected should be for the largest scale the mapping is likely to be used.

Recommended Scale	*Accuracy Requirement*
1:1,000	0.5 m
1:2,000	1.0 m
1:5,000	2.5 m
1:10,000	5.0 m
1:20,000	10.0 m

14. Map sheets should be oriented so the top of the sheet is North or approximately North. A north arrow shall be placed on the base map.

15. Where a base map is to be manually registered with a cadastral or other overlay the HARRIS Registration System shall be used unless otherwise specified in the specific survey instructions. Registration will be along the north edge of the base map and the overlays. The use of tabs or pre-punched register strips is not permitted.

16. The base map shall show a grid system preferably consisting of "edge ticks" around the perimeter of the image area and crosses on the interior of the map. Grid intervals shall be at a minimum of 10 cm. North/South grid coordinate values shall be displayed along the left edge of the image area and East/West coordinate values shall be displayed along the bottom edge of the image area.

17. Grid lines shall be determined by relating the theoretical grid lines to geodetic control survey markers or to other acceptable control, the position of which is known in relationship to the map detail.

18. The base map shall show official names of places and natural features according to the federal, provincial or territorial edition of the *Gazetteer of Canada*, published government maps or, if no official name exists, local usage.

19. Lettering shall be typeset, scribed or made using digital fonts.

20. Provide in the title of the map:

a) a description of the area mapped;
b) the scale and a scale bar; and
c) the date of compilation.

21. Provide in the legend of the map:

a) the coordinate datum used, the type of projection, the central meridian, and the zone; and
b) the identification numbers and source of the photographs used in the compilation.

22. Provide at the top right hand corner of the map a 5 cm x 8 cm block for recording information.

Photomaps

23. The degree of contrast and density of a photomap assembly shall be controlled by a densitometer. The minimum density should not be less than 0.2 and the maximum density should not exceed 1.2. The contrast should be in the range 0.8 to 1.0.

24. Photographs shall be selected to avoid specular reflection from water surfaces wherever possible. In the event that some reflection cannot be avoided, the water areas affected shall be re-touched in the assembly, so that these areas have a similar tone to other water areas on the same sheet.

25. Imagery on the final photomap shall be screened using a 133 line magenta contact screen.

26. Mosaic joins shall be as inconspicuous as possible. There shall be no gaps or double images exceeding 1.0 mm in the assembly.

27. There shall be no noticeable exposure patches detracting from photographic detail.

Linemaps

28. Features and feature symbols on linemaps will conform, insofar as possible, with the *National Topographic Data Base Standards and Specifications, Second Edition, 1991*, or later version, available from the Canada Centre for Geomatics, Sherbrooke, Quebec.

Approvals and Certifications

29. The following statement shall be added to the map:

"Prepared under the supervision of *(name of surveyor C.L.S.)*"

30. The Surveyor General (or a person designated by the Surveyor General to approve such plans) will approve a base map if it conforms with this Chapter and the specific survey instructions. Base maps are filed in the regional records.

Returns

31. The returns for basemapping shall include:

a) a mapping report which includes:

i) the scale and library numbers of the photographs used in the compilation;

ii) a list of models compiled;

iii) a description of instruments used and configuration; and

iv) a description of all occurrences of unresolvable parallax;

b) for linemapping, two positives of the map on double matte stable based film, right reading emulsion down, of a thickness between 0.10 mm (0.004 in) and 0.18 mm (0.007 in), or as specified in the specific survey instructions;

c) for photomapping, two halftone positives on the same type of film and of the same thickness as specified for line mapping in subparagraph (b) above; and

d) all associated working material such as scribe sheets, manuscripts, master surrounds, lists of coordinates and/or elevations used, and model set-up diagrams showing both the vertical and horizontal disparities with all set-up points used in the model.

LAND DESCRIPTIONS

General

1. A land description is the part of a document dealing with land which defines the actual location and extent of the land by reference to features on the ground, to a plan of survey or to a map.

2. The format of a land description must be satisfactory to the department administering the land and consistent with other descriptions prepared for similar purposes.

3. Descriptions of provincial lands to be transferred to Canada may be prepared in accordance with provincial formats and standards provided the lands are clearly defined.

Procedures

4. A full written land description should contain the following:

a) the parcel designation, if any, and its source;
b) the location of the parcel by reference to province, territory, county, township, section, range, Indian Reserve, National Park, etc.;
c) the nature of each boundary of the parcel which is a natural or man-made feature;
d) the bearings of all artificial boundaries of the parcel;
e) a description of the meridian or point of origin to which all bearings are referenced;
f) the length of all artificial boundaries and the unit of measurement;
g) the source, reference datum, reference meridian, origin and date of the last adjustment for any coordinates used;
h) the area of the parcel;
i) the record numbers of all survey plans, maps, or other documents referred to in the description;
j) official names for places and natural features according to the federal, provincial or territorial edition of the *Gazetteer of Canada*;
k) references to the registration number of a previous description of the parcel if the previous description is being amended or replaced;
l) any restrictions, rights, obligations, or caveats having an effect on the boundaries of the lands being described; and
m) if applicable, a statement as to whether or not mines and minerals are included in the parcel and, if only partly included, the extent of the inclusion.

5. If the parcel to be described is completely depicted on an official plan of survey which is recorded in the Canada Lands Surveys Records or in a provincial registration office, the parcel designation and the plan record number(s) shall be used in preference to a full written description of the boundaries.

6. When a description is based on a survey plan any restrictions on the use of the survey plan also apply to the use of the description (e.g. a description based on an explanatory plan should not be used for a transfer of title).

7. If a map or plan is used in a land description and the map or plan is not registered or deposited in a public registry, then it shall be referred to by source, name, scale, and date of edition. A transparent and stable copy of it shall be recorded in the Canada Lands Surveys Records or regional records.

8. When the boundaries of lands being described are governed by natural or man-made features then the natural or man-made features must be mentioned in the description regardless of whether the features are also described by coordinates or other measurements.

9. When a reference to more than one element (such as coordinates, a monument, or a natural feature) is used in the description of a parcel, it must be clear which one of the elements is the primary element defining that boundary.

10. Bearings, lengths, lot and block numbers, sections, ranges, townships, meridian, Indian Reserve numbers, plan numbers, areas, etc., are to be described by numeric or alpha-numeric references as applicable instead of in the full written form.

11. Subject to paragraph 12, where a new survey has been made to describe an existing parcel, the previous description should be replaced by a new description based on the new survey.

12. A previous description used in a transaction should not be amended unless there is a change in the boundaries being described.

13. When areas or distances used in a full written land description are subject to the position of monuments, natural boundaries or other objects on the ground the term "more or less" or "about" shall qualify such areas and distances measured.

SURVEY REPORTS

General

1. For every survey undertaken on Canada Lands, a surveyor shall submit for filing in the Canada Lands Surveys Records, a report describing:

a) circumstances where the general instructions, the specific survey instructions, or other requirements could not be complied with, and the resulting action taken;
b) any occurrences which may have impeded the project;
c) any monument destruction, or activity which could result in monument destruction, in the area of the survey;
d) the type of terrain, access to the site, or weather conditions which affected the execution of the survey;
e) contacts made with local officials and the reasons for the contacts;
f) any affidavits regarding evidence of boundaries taken during the course of the survey; and
g) any other matters that the surveyor believes to be relevant to the survey.

2. If a surveyor believes that there is nothing to report, then a report stating this should be submitted by the surveyor.

3. The survey report shall include copies of any plans or other documents which are mentioned in the survey report, have not been previously submitted and are not recorded in the Canada Lands Surveys Records.

4. The survey report shall be signed and dated by the surveyor.

Official Surveys

5. For official surveys the following additional items must be reported on:

a) the name of the person or agency who requested the survey, the reason for it and the type of transaction which will be based on the plan;
b) the ownership or other interests affecting the land surveyed;
c) any encroachments over the boundaries surveyed;
d) the results of searches made for physical, documentary or verbal evidence which is not shown on the plan or in the field notes;
e) an explanation of any survey problems encountered and how they were dealt with;
f) the legal principles used to restore or re-establish monuments if the principles are not evident on the plan or in the field notes;
g) the background or reasons for determining shape, size, or location of parcels;
h) if access to the parcel is not evident on the plan, an explanation of how access is to be provided;
i) any adjustments made to boundaries, including boundaries of parcels shown on registration plans being replaced by official plans;
j) blazing and cutting out of boundaries;
k) any measurements of boundaries adopted from prior surveys where the surveyor personally surveyed those boundaries and the reasons for their adoption; and
l) any discrepancies with previous surveys and an explanation of how they were dealt with.

AS-BUILT SURVEYS

General

1. The Surveyor General is occasionally asked by other government departments to approve plans showing the location of utilities (e.g. gas lines, telephone lines and power lines) as they have been built. Usually these as-built plans are required to comply with agreements for utility distribution systems.

2. Specific survey instructions are not required for as-built plans unless an explanatory plan is used.

Boundary Definition

3. A plan showing a parcel or right-of-way within which the utility falls may be acceptable. If so it should be dealt with by an explanatory plan or other plan as may be outlined in interdepartmental agreements between the Surveyor General of Canada Lands and government departments having administration of the land.

4. Utilities may also be located as follows:
   a) by establishing on the ground a traverse line, tied to the closest survey evidence available, along the general course of the utility such that the utility is within a minimum distance (usually specified in the agreement) of the traverse line; or
   b) showing the actual location of the utility tied to the closest survey evidence available.

5. If the utility is located underground and a ditch line is not visible at the time of the survey, the utility must be located by a dependable locating device. The plan should include a statement identifying how the utility was located.

6. The utility must be located to sufficient accuracy so it is shown on the correct parcel of land at all times.

Plan Preparation

7. As-built plans shall be prepared in accordance with the guidelines in Appendix E3.

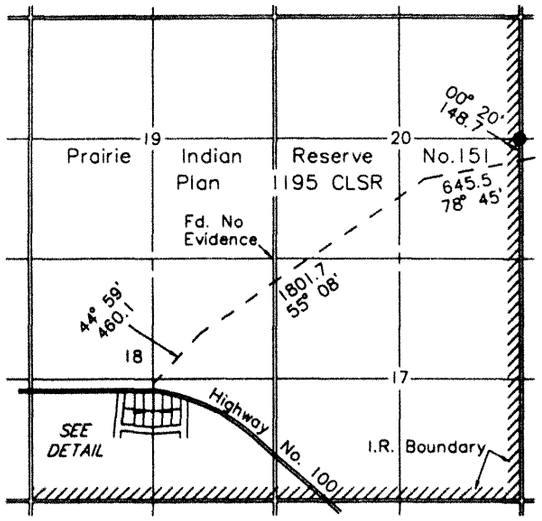
8. As-built plans should be similar in form to specimen plans SP16–1 and SP16–2.

Approvals and Certifications

9. The plan shall be certified correct by a Canada Lands Surveyor or a surveyor qualified to survey in the province in which the land lies.

10. As-built plans are approved by the Surveyor General, or a person designated by the Surveyor General to approve such plans, when they conform with these general instructions.

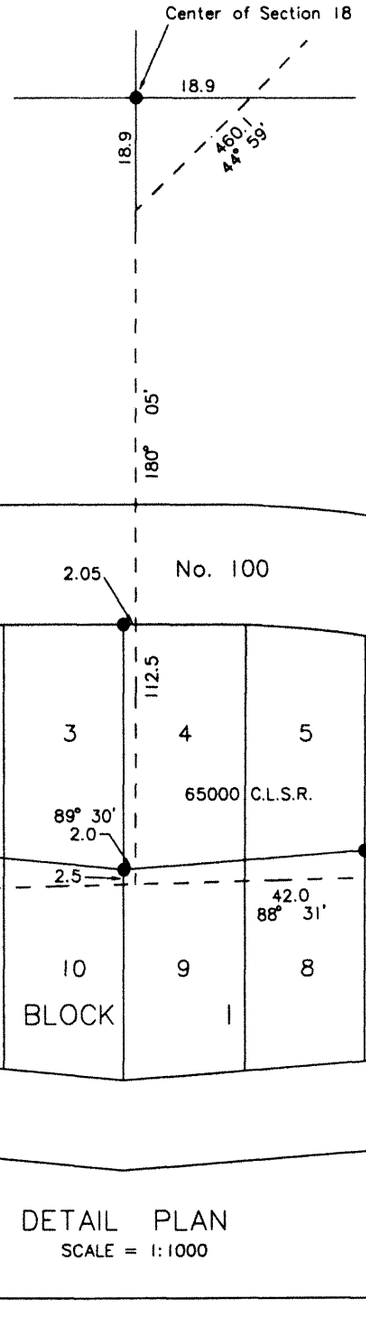
11. As-built plans are filed in the regional records
.



Tp.62, R.28, W.4M.

LOCATION PLAN

SCALE = 1:40,000



DETAIL PLAN

SCALE = 1:1000

LEAVE SPACE FOR RECORD DETAILS

5 X 20 CENTIMETRES

S P E C I M E N O N L Y

PLAN SHOWING

AS – BUILT LOCATION of

GAS LINE

IN

PRAIRIE INDIAN RESERVE No. 151

Township 62 Range 28 W.4M.

Province of Alberta

LEGEND

Bearings are derived (copied) from the monuments marking the east boundary of Lot 3, Block 1 as shown on Plan 65000 CLSR and are referred to the Central Meridian through Tp.62, R.28, W.4M.

Monuments found ●

Traverse lines – – – –

Distances are in metres.

Gas Line is within 2.0 metres of either side of the traverse line.

Gas Line was located using a ferromagnetic pipe locator.

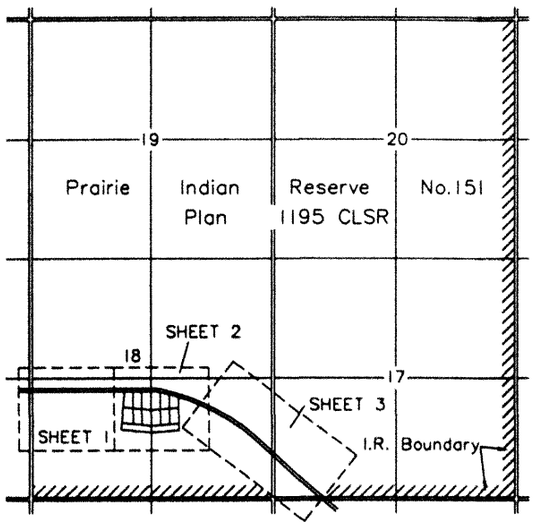
Certified Correct

J.J. McARTHUR, CLS, March 1, 1993.

ADD APPROPRIATE ENDORSMENT CERTIFICATES

SP 16–1

D16–2



Tp.62, Rge.28, W.4M.

LOCATION PLAN

SCALE = 1:40,000

COORDINATE TABLE		
PT.	NORTHING	EASTING
CSM 75G01	6,736,207.221	492,774.732
CSM 75G02	6,736,192.473	492,912 074
1	6,736,175.2	492,953.1
2	6,736,190.2	492,923.9
3	6,736,149.6	492,923.9
4	6,736,114.3	492,899.9
5	6,736,148.9	492,890.9
6	6,736,148.1	492,855.0
7	6,736,147.4	492,819.7
8	6,736,146.7	492,787.9
9	6,736,150.8	492,776.5
10	6,736,201.5	492,883.7
11	6,736,204.0	492,854.8
12	6,736,205.6	492,854.8
13	6,736,204.0	492,817.1
14	7,736,203.9	492,781.1

LEAVE SPACE FOR RECORD DETAILS

5 X 20 CENTIMETRES

S P E C I M E N O N L Y

SHEET 2 OF 3

PLAN SHOWING

AS – BUILT LOCATION of

TELEPHONE LINE

IN

PRAIRIE INDIAN RESERVE No. 151

Township 62 Range 28 W.4 M.

Province of Alberta

LEGEND

Monuments found

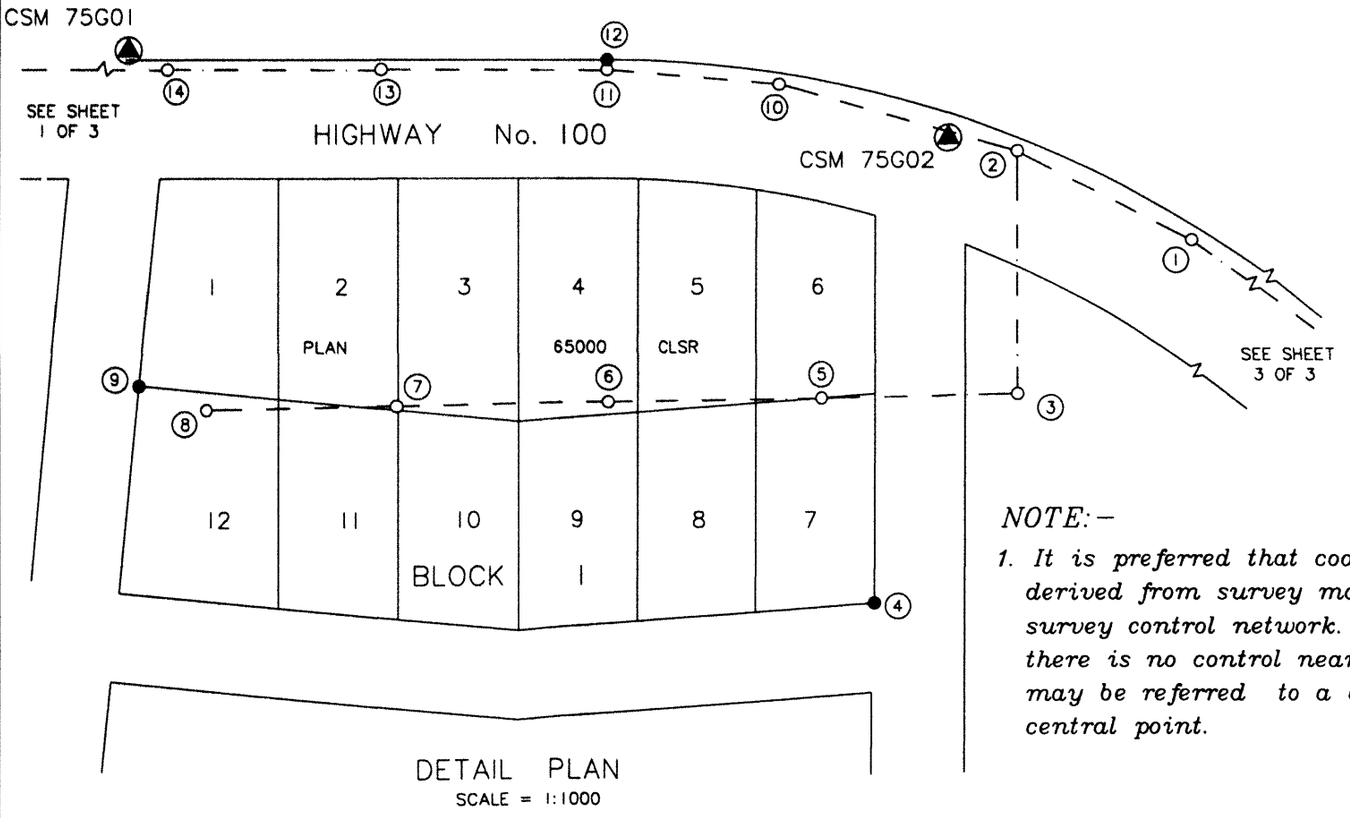
Control Survey Markers found

Powerline and Poles shown thus: —o— — — —o—

Distances are in metres.
Coordinates shown are UTM, referred to the Central Meridian of Zone 8(135° West).
To obtain ground level distances multiply joins between coordinates by the combined factor of 0.99978.

Certified Correct

G.A. BAYNE, CLS, March 1, 1993.



DETAIL PLAN

SCALE = 1:1000

NOTE:–

1. *It is preferred that coordinates be derived from survey markers in a survey control network. However if there is no control nearby coordinates may be referred to a convenient central point.*

LEAVE SPACE FOR ENDORSEMENTS

SP 16–2

D16–3

GLOSSARY

This glossary defines surveying and related terms used in Parts B, C, D and E of this Manual. It is intended to clarify how these terms are used with respect to Canada Lands. It is not intended to standardize terminology for national usage.

alienation ◆ In real property law, usually means the transfer or conveyance of property to another. The transfer or conveyance of property is not required to alienate Canada Lands. Canada Lands may also be alienated when the trust responsibilities of the federal government have been removed. See also *disposition*.

approval (plan) ◆ A declaration indicating that a plan is good, satisfactory or acceptable for a specific purpose. Approvals are usually in accordance with legislation, standards, and / or instructions. See also *confirmation (plan)*.

artificial boundary ◆ See *boundary, artificial*.

azimuth ◆ The direction of a line through a point with respect to the meridian through the point expressed as the clockwise angle from north. Except where the line is along a meridian or the equator, the azimuth of a straight line changes as the point moves along the line.

balanced bearing ◆ See *bearing, balanced*.

bank ◆ See *ordinary high water mark; bank, right or left.*

bank, right *or* ***left*** ◆ The *right bank* or *left bank* of a river or stream is that bank which is on the right or left side of the bed when the observer is looking downstream.

basemapping ◆ Mapping showing physical features on which thematic information may be shown. Basemapping may be in the form of photomaps and linemaps.

bearing ◆ The direction of a line with respect to a reference meridian expressed as the clockwise angle from north or as a quadrant angle from north or south. A straight line has the same bearing at all its points.

bearing, balanced ◆ The bearing of a course in a closed traverse which has been adjusted to eliminate the error of closure.

bearing, calculated ◆ See *calculated bearing.*

bed ◆ The *bed* of a body of water is the land covered so long by water as to wrest it from vegetation, or as to mark a distinct character upon the vegetation where it extends into the water or upon the soil itself.

boundary ◆ The line of division between two parcels of land. It delimits the extent of parcels in separate ownership or subject to different rights.

boundary, artificial ◆ A boundary defined by a straight line, a circular curve of known radius or, in rare cases, a spiral curve.

boundary, jurisdictional ◆ A boundary dividing the area of authority between two governments or two levels of government. (e.g. the International Boundary, interprovincial and municipal boundaries, the boundaries of an Indian Reserve or National Park).

boundary, natural ◆ A boundary defined by a natural feature such as the bank of a body of water or the middle thread of a stream.

calculated bearing ◆ A bearing derived by computation rather than by direct measurement in the field.

calculated distance ◆ A distance derived by computation rather than by direct measurement in the field

Canada Lands ◆ See *Lands, Canada*.

closed traverse ◆ See *traverse, closed.*

Commissioner ◆ The Commissioner of the Northwest Territories in the case of land situated in the Northwest Territories, or the Commissioner of the Yukon Territory in the case of land situated in the Yukon Territory.

compiled plan ◆ See *plan, compiled*.

confirmation (plan) ◆ A declaration indicating that a plan is good, satisfactory or acceptable for a specific purpose. The term is used exclusively in this manual for a confirmation by the Surveyor General in accordance with Section 29 or Part III of the *Canada Lands Surveys Act*. A plan, once confirmed under section 29, is deemed to have official status and governs all boundaries of the lands affected. Plans confirmed under Part III have similar status on filing of the plan in the appropriate land titles office.

control survey marker ◆ See *marker, control survey*.

Coordinated Control Monument ◆ See *marker, control survey*.

creation ◆ With respect to a particular type of land, *creation* means the bringing of land under a particular jurisdiction or system.

disposition ◆ With respect to property, means the transfer or alienation of rights and interests in property by any method, such as assignment, gift and sale. See also *alienation*.

disturbed monument ◆ See *monument, disturbed*.

Federal Lands ◆ See *Lands, Federal*.

federal real property ◆ Real property belonging to Her Majesty in right of Canada, including any real property of which Her Majesty in right of Canada has the power to dispose.

field notes, official ◆ Any field notes recorded in the Canada Lands Surveys Records.

field records ◆ The records made in the field during the course of the survey.

hanging line ◆ An unclosed traverse.

Indian Lands ◆ See *Lands, Indian.*

instructions, survey ◆ See *survey instructions*.

intervisible ◆ When applied to two monuments, *intervisible* means that there is a clear line of sight between points 1.5 m above the ground at each monument.

jurisdictional boundary ◆ *See boundary, jurisdictional*

land use area ◆ A parcel of land depicting one specific use, such as agriculture, grazing or recreation. The parcel is created in accordance with the *Interdepartmental Agreement respecting Legal Descriptions of Indian Lands, 1993,* a copy of which is included in Part B of this Manual..

Land Use Area Plan ◆ See *Plan, Land Use Area*.

Lands, Canada ◆ *Canada Lands* are Canada Lands as defined in the *Canada Lands Surveys Act*. In general, these include National Parks, Indian Reserves, and all lands belonging to Her Majesty in right of Canada that are located in the Yukon Territory, the Northwest Territories and Canada's offshore.

Lands, Commissioners ◆ Lands in the Yukon or Northwest Territories that are vested in Her Majesty in right of Canada but the right to the

beneficial use or to the proceeds of which is appropriated to the territorial government.

Lands, Federal ◆ *Federal Lands* are territorial lands as defined in the *Territorial Lands Act* under the administration of a Minister of the federal government.

Lands, Indian ◆ Indian Reserves, designated lands, surrendered lands, and any other lands held and administered by the Department of Indian Affairs and Northern Development for the use and benefit of Indians.

lands, public ◆ Any lands belonging to Her Majesty in right of Canada, including lands of which Her Majesty in right of Canada has power to dispose.

Lands, Territorial ◆ When used in the context of the *Territorial Lands Act*, means lands situated in the Yukon Territory or the Northwest Territories that are vested in Her Majesty in right of Canada or of which Her Majesty in right of Canada has power to dispose. When used in the context of special surveys under the *Canada Lands Surveys Act*, means any lands situated in the Yukon Territory or the Northwest Territories.

left bank ◆ See *bank, right or left*.

legal survey ◆ See *survey, legal*.

lost monument ◆ See *monument, lost*.

marker, control survey ◆ A control station forming part of a provincially or federally established control network. In a Coordinated Survey Area established in accordance with section 28 of the *Canada Lands Surveys Act*, control survey markers are called *Coordinated Control Monuments*.

marker post ◆ See *post, marker*.

middle thread ◆ The *middle thread* of a stream is the line midway between the banks.

monument ◆ A monument as defined in section 2 of the *Canada Lands Surveys Act*. It is a general term for some device, object or thing marking a surveyed boundary of land.

monument, disturbed ◆ A monument that has somehow been moved other than by an authorized surveyor in the exercise of a professional duty, and that can be proven beyond doubt to have been moved from its original position.

monument, lost ◆ A "*lost monument*" is one whose position can be re-established only by measurements from some other monument or monuments to which it had previously been connected by survey.

monument, obliterated ◆ A monument which can be restored with confidence from traces remaining on the ground of the original monument or from other physical evidence of the position of the original monument.

monument, witness ◆ A monument, placed on a boundary of a parcel, which witnesses the position of a point that cannot be monumented. The point is defined by the distance and direction from the witness monument. A point can have only one witness monument defining its position.

natural boundary ◆ See *boundary, natural*.

obliterated monument ◆ See *monument, obliterated*.

official field notes ◆ See *field notes, official*.

official plan ◆ See *plan, official.*

official survey ◆ See *survey, official*.

offset ◆ The direction and distance of a single straight line from a point fixed by survey to another nearby point. Usually the offset is at right angle to the boundary or traverse line.

ordinary high water mark ◆ The limit or edge of the bed of a body of water. In the case of non-tidal waters it may be called the "bank".

parcel ◆ An area of land surveyed or otherwise defined. It includes, but is not limited to, lots, blocks, rights-of-way, land use areas, condominium units, sections, quarter sections, legal subdivisions and concessions.

plan, compiled **P** An official plan made under the direction of the Surveyor General from official field notes of one or more surveys.

plan, official **P** A plan of surveyed Canada Lands confirmed by the Surveyor General under Part II of the *Canada Lands Surveys Act.*

Plan, Land Use Area **P** A plan showing land use areas prepared in accordance with the *Interdepartmental Agreement respecting Legal Descriptions of Indian Lands, 1993.* It is a graphical depiction of the extent of certain interests in Indian Lands.

plan, registration **P** A registration plan as defined in the *Interdepartmental Agreement respecting Legal Descriptions of Indian Lands, 1993* (see Part B of this Manual). It is a graphical description of the extent of certain interests in Indian Lands, prepared without a full survey of the land, approved by the Registrar of Indian Lands and approved by the Surveyor General under section 31 of the *Canada Lands Surveys Act*.

post, marker **P** A wooden, metal, plastic or similar type post placed near monuments or on boundaries. Used to protect and help locate monuments and boundaries.

post, reference **P** A post placed near a monument or control survey marker which may be used to re-establish the position of the monument or to confirm the stability of the monument or control survey marker.

public lands **P** See *lands, public*.

re-establish **P** To determine the position of a lost or disturbed monument.

reference post **P** See *post, reference*.

registration plan **P** See *plan, registration*.

restoration survey **P** See *survey, restoration*.

restore **P** To refurbish an obliterated monument to its original or near original condition. It includes straightening the monument, re-digging the pits and mounds and replacing the original monument with a similar monument. The field notes must explain what was done to restore a monument.

resurvey **P** The survey of a previously surveyed boundary made for the purposes of correcting errors, re-establishing lost monuments, or placing additional monuments on the boundary.

retracement survey **P** See *survey, retracement*.

right bank **P** See *bank, right or left*.

right-of-way **P** A corridor, or similar area of land, over which people, vehicles or other things such as pipelines and powerlines have a right to cross. A right-of-way may be owned as a limited interest in land, such as an easement, or it may be owned in fee simple or administered and controlled for exclusive use, such as a road.

shore **P** See *foreshore*.

supersede **P** With respect to parcels, *supersede* refers to the situation where the parcels dealt with on a new plan replace all or part of the parcels dealt with on a previous plan.

survey **P** In its general sense, the determination of the position of points permanently or temporarily marked on the ground including the keeping of records of all measurements used in the determination. In this manual the term survey often means legal survey. The term legal survey has generally been used when there is a need to clarify that it does not include control, topographical or other types of surveys. See *survey, legal*.

survey instructions **P** Details on procedures for surveys of Canada Lands issued by the Surveyor General pursuant to sections 24 and 36 of the *Canada Lands Surveys Act*. They are issued in two forms: general survey instructions which are in Part D of this manual, and specific survey instructions which are issued for particular projects.

survey, legal **P** A survey made to define boundaries of parcels of land suitable for the transfer of rights. It includes the preparation of

field notes and plans and any examination, approval or confirmation that may be required. See also *survey*.

survey, official ¶ A survey of Canada Lands for which a plan is confirmed under Section 29 of the *Canada Lands Surveys Act.*

survey, retracement ¶ A survey of a previously surveyed boundary in order to determine the directions and distances between the monuments marking it.

surveyor ¶ A Canada Lands Surveyor or a person holding a provincial land surveyor's commission and authorized by the Surveyor General to survey Canada Lands.

Surveyor General ¶ Means the Surveyor General as defined in the *Canada Lands Surveys Act*.

Territorial Lands ¶ See *Lands, Territorial*.

traverse, closed ¶ A traverse which begins and ends at the same point (closed loop), or begins and ends at points whose relative positions have been determined by other surveys.

unit ¶ With respect to a condominium, a parcel of land or space in a condominium for which title may be issued.

unit factor ¶ A factor assigned to each unit on a condominium plan so that condominium fees, levies, etc., can be apportioned in an equitable manner. It is based on the area or volume of the unit with respect to the total area or volume of all units in the condominium.

vista ¶ A lane cleared of overgrowth along a boundary to provide a clear view.

witness monument ¶ See *monument, witness*.

LEGAL PRINCIPLES FOR SURVEYS OF CANADA LANDS

1. In making an official survey the surveyor should be guided by the same precepts and rules that courts of law would apply. Decisions made in the field may be examined in court at a later date, and the surveyor may be required to appear to explain or justify those decisions.

2. An original survey is the first official survey of a boundary. In conducting an original survey the surveyor must ensure that the boundaries are well marked on the ground, and that the nature and position of the monuments marking the boundary are accurately recorded. The boundaries defined by the original survey are usually the boundaries by which a parcel is first granted, bought, sold, or otherwise dealt with and these boundaries are the boundaries of the parcel for all future owners.

3. In all surveys, other than an original survey, the surveyor must make an exhaustive search for original monuments, ancillary monumentation and if necessary physical evidence such as post holes, blazes, and cut lines marking a boundary. Only by finding original monumentation, or actual physical evidence of the original monumentation, can boundaries of a parcel be identified conclusively. The surveyor shall never abandon a search for evidence until convinced that no other surveyor could subsequently find better evidence.

4. Numerous court judgements have supported the following order of importance of evidence in redefining boundaries:

a) evidence of natural boundaries;
b) evidence of original monuments;
c) evidence of possession which can reasonably be related back to the time of the original survey; and
d) measurements quoted by the original surveyor on a plan or in field notes.

5. The surveyor must bear in mind that a boundary does not only mark the limits of one parcel, but the dividing line between two or more parcels. In any search for evidence, the surveyor must consider the rights of all owners, and include in the search evidence created in surveys of adjacent properties.

6. Even after a monument is found, the surveyor should not assume that it is the original monument, or that it is in the position in which it was originally placed. Sufficient corroborative evidence must always be collected and recorded in the field notes to support the acceptance of a monument and its position.

7. Legal principle requires that actual physical evidence of the original monument shall govern its position. This does not imply that original survey dimensions should be ignored. Measurements provide an indication of the position of a monument, and in some cases may be the best evidence of the original monument location.

8. In surveying natural boundaries of Canada Lands a surveyor must be guided by the legislation, legal principles and jurisprudence in force in the province or territory where the survey takes place. The following general principles should be considered in defining natural boundaries:

a) A natural boundary of Canada Lands, at any instant, is the identifiable natural feature as it exists at that instant, and its position changes with the natural movements of the feature provided the movements are gradual and imperceptible from moment to moment.
b) A natural boundary of Canada Lands fronting on a body of water is the natural feature identified in the original survey on

which the official plan of survey is based, subject to the following conditions:

i) If the body of water is a stream that is neither tidal nor navigable, then the boundary will normally be the middle thread of the stream, notwithstanding that the bank or high water mark was identified in the original survey. If erosion of, or accretion to, the bank occurs due to natural causes, then the middle thread will retreat or advance with the change in the bank. This general rule will not apply where there is a statute to the contrary, or where there is a specific and clear contrary intent in the original description of the land. A contrary intent is not to be assumed from the fact that the lands are shown on a plan by measurement and colour to exclude the bed.

ii) If the body of water is the sea, a tidal stream, or a navigable stream or lake, and erosion occurs due to natural causes, then the land covered by water will normally form part of the bed of the body of water.

iii) If the body of water is the sea, a tidal stream, or a navigable stream or lake, and accretion occurs due to natural causes, then the additional land will normally form part of the Canada Lands.

9. In surveys of occupied parcels the surveyor must be very cautious about doing anything which would upset the established limits of occupation, or lead to a dispute. Settled possession which can reasonably be related back to the time of the original survey may provide the courts with satisfactory evidence of the original boundary.

10. In a case of a disputed boundary the surveyor can only advise those affected by the boundary and provide an opinion of the correct position of the boundary. Care must be taken not to perform an act which might have the effect of prejudicing the case of any party.

11. Boundaries of Canada Lands defined by monuments placed in surveys made under the *Canada Lands Surveys Act* become the true boundaries of those lands :

(a) on confirmation of the Surveyor General (or a person designated by the Surveyor General to confirm such plans) for plans confirmed under Part II of the Act, or;

(b) on filing of the plan in the land titles office for plans confirmed under Part III of the Act.

12. An error in a survey, or a failure to find original evidence, should not result in a loss of land to an owner. If an error is discovered, or if original evidence is found after a plan has been confirmed, then a resurvey correcting the work or incorporating the additional evidence may be required to rectify any problems caused by the previous survey.

GUIDELINES FOR THE PREPARATION OF PLANS

General

1. The following guidelines apply to the preparation of all types of survey plans in so far as they are not inconsistent with any other specific requirement.

2. Specimen plans, included in Part D, are for guidance in preparing plans of Canada Lands. Requirements of various property rights systems or local custom may require departure from the specimens. Specific survey instructions may provide details where any digression from the specimen plans is required.

3. Part D may outline additional requirements for a particular type of survey or plan, including endorsement and signature blocks.

Format

4. The plan should be well organized and neatly drawn and should not bear signs of having been tampered with.

5. Plans shall be drawn to a scale sufficient to ensure clarity. Table 1 of Schedule E3–1 lists suggested scales.

6. Plans should be prepared on polyester film, matte both sides, 0.05 mm to 0.10 mm thick, or on tracing linen.

7. Plans, including margins, shall not exceed 60 cm in width or 300 cm in length unless authorized in specific survey instructions.

8. A margin of 2 cm shall be left outside the borders of the plan.

9. Black permanent ink shall be used.

10. Lettering shall not be less than 2 mm in height.

11. The use of stick-on material to amend or add information to a plan is not permitted.

12. Except for signatures, information shown on a plan may be produced thereon by photographic techniques approved by Legal Surveys Division.

Content

Title Block

13. The title block should include:
    a) a title in accordance with the provisions of paragraph 14;
    b) the scale ratio and a bar scale;
    c) a legend in accordance with the provisions of paragraph 15; and
    d) certifications of the surveyor if applicable.

14. The title of the plan should include:
    a) the section, township, and range or lot and concession in which the survey is located;
    b) the name of the Indian Reserve, National Park, etc., as applicable;
    c) the county, parish, or community and the province or territory in which the survey is located;
    d) in remote areas the approximate latitude and longitude of the site of the survey; and
    e) in the Yukon and Northwest Territories the quad sheet numbers.

15. The legend should include:
    a) Subject to Schedule E3–2, an explanation of all symbols used;

b) an explanation of abbreviations used which are not listed in Schedule E3–3;

c) the source of any derived data;

d) if a coordinate system is used a description of it and, if the plan shows distances, a statement identifying the conversion factor used to convert ground level distance to the projection plane; and

e) a statement to identify the unit of measurement used on the plan.

Diagram

16. The diagram portion of the plan should be oriented so that North points towards the top of the plan.

17. Unless specified otherwise in specific survey instructions, areas and distances shall be expressed in metric units. Areas shall be quoted in accordance with the precision listed in Table 2 of Schedule E3–1.

18. Distances shown on the plan shall be field measured distances or calculated distances from field measurements, reduced to the horizontal at general ground level. Distances adjusted to fit map projection coordinates shall not be shown on the plan unless specifically required.

19. All bearings shall be expressed as full circle bearings in degrees, minutes, and seconds.

20. Show in the diagram of the plan the Canada Lands Surveys Records number and the provincial or territorial land registration numbers for each plan affecting the survey. Reference to a plan in the Canada Lands Surveys Records must consist of the plan number and the suffix "CLSR" even though the plan may have a different suffix or none at all.

21. Where necessary for clarity, diagram information may be shown in tabular form, details or insets.

22. If the location of a survey is not easily discernible from the diagram of the plan, add a key plan at a reduced scale depicting the general location of the survey relative to the exterior boundaries of the Indian Reserve, National Park, or other jurisdictional area and to surrounding topographic features.

23. The key plan should be oriented in the same general direction as the diagram of the plan.

Endorsements and Affidavits

25. All signatures shall be in black permanent ink which does not fade, smear, or chip away from the plan surface. Plans having signatures in blue or other colours of ink may be rejected.

26. Signatures must have the name and title of the person signing printed in the affidavit or certification, or below the signature.

27. Seals should not be added unless they are required by a statutory authority. The use of crimping tools to apply a seal should be avoided if possible.

SCHEDULE E3–1

(para. 5 and 17)

TABLE 1

Parcel Size	*Suggested Scale*
Up to 1 hectare	1:1,000
1 to 2 hectares	1:2,000
2 to 10 hectares	1:5,000
Over 10 hectares	1:10,000

1. Smaller scales (1:20,000 or 1:50,000) may be adequate for large simple parcels. Larger scale insets for detail may be used to permit smaller overall plan scales.

TABLE 2

Area of the parcel	*quote to*
Up to 0.1 ha (1000 m^2)	1 m^2
Over 0.1 ha to 1.0 ha	0.001 ha
Over 1.0 ha to 10.0 ha	0.01 ha
Over 10.0 ha to 100.0 ha	0.1 ha
Over 100 ha	1 ha

SCHEDULE E3–2

(para. 15)

TABLE 1
Recommended symbols

	Placed	*Found*
DLS or CLS standard post		
DLS or CLS standard rock post		
Old pattern iron posts		
CLS 69 posts		
CLS 77 posts		
Control Survey Markers		

1. The abbreviations shown adjacent to the symbols above may be deleted if not required to differentiate from one type of post to another.

2. All symbols for survey posts must be explained in the legend. If required alternative symbols may be used.

TABLE 2
Line symbology
(must be explained in legend)

Lands (or boundaries) dealt with	(1 to 1.5 mm)
Traverse lines and stations	(0.25mm)

1. The line symbology in Table 2 above shall be used in the legend.

TABLE 3
Line symbology
(need not be explained in legend)

Lot or parcel boundaries within the lands dealt with and other measured boundaries	(0.35mm)
Lot or parcel boundaries outside the lands dealt with	(0.35mm)
Underlying lots or parcels	(0.35mm)

1. The above line types should be used on plans and field notes and need not be explained in the legend.

SCHEDULE E3–3

(para. 15)

Abbreviations that may be used without explanation on a plan

TERM	ENGLISH ABBREV.	FRENCH ABBREV.	TERM	ENGLISH ABBREV.	FRENCH ABBREV.
acre A.	A.		mineral claim	M.C.	CM
approximately	approx.	approx.	made	Md.	
azimuth	az.	az.	marker post	Mkr.	
block	Bk.	Bk.	marked	Mkd.	mar.
boundary	bdy.	lim.	(markings on found or placed posts may also be shown in italics, e.g. "*16,R,17*")		
bearing tree	BT	AD	monument	Mon.	
chord	c.	c.	number	No.	No.
calculated	(c)	(c)	North	N.	N.
chord bearing	c.b.	d.c.	National Historic Park	NHP	PHN
check chained, or check measured	cc.	m.v.	National Historic Site	NHS	LHN
coordinate control monument	CCM	CCM	National Park	NP	PN
chain	ch.	ch.	National Topographic System (map sheet)	NTS	SNRC
centreline	℄	℄	obliterated	oblit.	endom.
Canada Lands Surveys	CLS	ATC	observation	Obsn.	Obsn.
Canada Lands Surveyor	CLS	a.f.	ordinary high water mark	OHWM	LHEO
CLS capped iron post, 1969 pattern	CLS 69	ATC 69	standard post (specify CLS, DLS, or provincial type)	P.	Rep. or Bor.
CLS post, 1977 pattern	CLS 77	ATC 77	point of curvature	PC	PC
Canada Lands Surveys Records	CLSR	CLSR	point of change of curvature	PCC	PCC
Certificate of Title	C. of T.	C. de T.	point of intersection	PI	PI
centimetre	cm	cm	4 pits	Pit	Fos.
post set in concrete	conc.	bét.	placed	Pl.	Pl.
corner	cor.		polaris	Pol.	Pol.
Coordinated Survey Area	CSA	CSA	pipe post, (rock post in iron pipe)	Pp.	
diameter	diam.	diam.	rock post (specify CLS, DLS, or provincial type)	P. Rock	R.c.
Dominion Land Surveyor, or Dominion Lands Surveys	DLS	DLS	range	R.	Rg
East	E.	E.	radius	R	R
found no evidence	FNE	r. tr.	re-established	Re-est.	ré-ét.
found	Fd.	tr.	remainder	Rem.	RE
foot or feet	ft. or '	pi ou '	restored	Res.	rét.
fractional	Fr.	Fr.	reference object	RO	
group	G.	G.	reference post	RP	R.s.
hectare	ha	ha	Regional Surveyor Plan	RSP	RSP
horizontal circle reading	HCR	MCA	right-of-way	R/W	
highway	Hwy.	Rte	railway	Ry.	c.f.
old pattern iron post	I.	I.	south	S.	S.
iron bar (specify size)	I.B.	R. f.	section	Sec.	Sec.
Indian Reserve	I.R.	RI	stone mound	S.M.	b.p.
kilometre	km	km	sub-tangent	ST	ST
length of curve	L	L	station	Sta.	Sta.
lot L.	L.		trench	T.	T.
latitude	Lat.	Lat.	trace	Tr.	Tra.
links	Lk.		township	Tp.	Tp.
longitude	Long.	Long.	Territorial Resource Base Mapping	TRBM	TRBM
Land Registry Office	LRO	BE	traverse station	T.S.	s.c.
Legal subdivision	L.S.	s.o.	vertical circle reading	VCR	MCZ
Land Titles Office	LTO	LTO	West	W.	O.
mound	M.	b.t.	wooden post	Wo.	
meridian	M.	M.	witness	Wt.	tém.
metre	m	m			
square metre	m^2	m^2			
magnetic	mag.	mag.			

ACCURACY STANDARD FOR LEGAL SURVEYS

General

1. This appendix gives a brief background on the concept of confidence region, gives reasons to justify the use of the concept for legal surveys and outlines the method used to develop the semi-major axis of the ellipse bounding the 95% confidence region as the accuracy standard for legal surveys.

2. The concept of confidence region has been used for control surveys for several years. It was introduced in 1973 by the Surveys and Mapping Branch, Energy Mines and Resources, Canada, in the publication *Specifications and Recommendations for Control Surveys and Survey Markers*. In 1978, the concept was extended to cover short lines.

3. An explanation of the concept of confidence region can be found in Appendix A of *Specifications and Recommendations for Control Surveys and Survey Markers* (1978 Edition) issued by Geodetic Surveys Division, Geomatics Canada, Ottawa.

Concept of Confidence Region for Legal Surveys

4. Even though the concept of confidence region was extended to cover short lines it has not been used to any great extent for legal surveys on Canada Lands. Legal surveys normally do not have sufficient redundant measurements for a good statistical analysis and do not require the accuracy and reliability of measurements required for control surveys. In a legal survey, monuments define boundaries – not measurements.

5. The ratio of the error of closure to the length of the traverse (e.g. 1:5,000) has traditionally been used to determine the accuracy of legal survey work. This ratio has limitations for very large surveys and surveys involving very short lines. For a very long survey traverse, the allowable error may be misleading and, in some cases, may conceal a blunder. For a 100 m measurement it can be difficult to meet a 1:5000 error of closure specification.

6. The ratio has been useful in indicating the existence of some blunders and has been an indication of the accuracy of the traverse. However there is no guarantee that all measurements are free from blunders or the geometry of the traverse is such that all stations are within a desired relative accuracy to each other.

7. Development of land related information systems and geographic information systems has made it necessary to re-evaluate how we deal with legal survey information. Legal surveys are an integral part of land related information systems. When information from several data sets are integrated, the need to know positional accuracy is necessary. It is no longer sufficient to assess accuracy of a legal survey in terms of the ratio of the error of closure to the length of the traverse. The trend is to integrate legal surveys with geodetic control and to rate accuracy in terms of qualified position.

8. New technology such as the Global Positioning System (GPS), and evolving surveying methodology, often provides more redundant observations than in the past. The traditional survey traverse provides only two degrees of freedom, whereas GPS and radial surveying techniques readily allow additional observations to strengthen and increase the reliability of surveys.

Development of Accuracy Standard for legal surveys of Canada Lands

9. The accuracy standard used for control surveys is defined by the ellipse showing the 95% confidence region of one station relative to another in the network. This accuracy standard is also used for legal surveys on Canada Lands. The semi-major axis (*r*) of this ellipse must be less than *C(d+x)* where:

- *r* is expressed in centimetres;
- *C* is assigned a value depending on the accuracy requirement;
- *d* is the distance in kilometres to any station; and
- *x* is a constant.

10. Two cases are considered: surveys using the surveyor's own measurements, and surveys using the surveyor's own measurements combined with the measurements of previous surveys.

Case 1: Surveys involving only the surveyor's own measurements

11. An empirical approach was used to determine *C* and *x*. Using normal legal survey instrumentation and methods, 2.0 cm was chosen as an upper limit for an allowable error for a distance of 10 m, and 10.0 cm was chosen as a limit for a distance of 1000 m. Solving for *C* and the constant *x*, the formula, $r = C(d+x)$, is solved simultaneously:

Equation 1 $2.0 = C(0.01 + x)$
Equation 2 $10.0 = C(1.00 + x)$

After rounding, $C = 8$ and $x = 0.25$. Therefore $r = 8(d+0.25)$.

12. The following table illustrates how various distances affects the semi-major axis of the 95% confidence region of one station with respect to another in parts per million (ppm) and the accuracy ratio for $r = 8(d+0.25)$;

d (km)	r (cm)	ppm	ratio
0.01	2.1	2100	1/480
0.03	2.2	733	1/1360
0.10	2.8	280	1/3570
0.50	6.0	120	1/8033
1.00	10.0	100	1/10000

Case 2: Surveys combining the surveyor's own measurements with previous measurements

13. An empirical approach was also used to determine *C* and *x*; 3.5 cm was chosen as an upper limit for an allowable error for a distance of 10 m and 18.0 cm was chosen as a limit for a distance of 1000 m. Again the formula, $r = C(d+x)$, is solved for *C* and constant *x*.

Equation 1 $3.5 = C(0.01 + x)$
Equation 2 $18.0 = C(1.00 + x)$

After rounding, $C = 15$ and $x = 0.25$. Therefore $r = 15(d+0.25)$.

14. The following table illustrates how various distances affects the semi-major axis of the 95% confidence region of one station with respect to another in parts per million (ppm) and the accuracy ratio for $r = 15(d+0.25)$.

d (km)	r (cm)	ppm	ratio
0.01	3.9	3900	1/260
0.03	4.2	1400	1/710
0.10	5.3	530	1/1890
0.50	11.3	225	1/4420
1.00	18.8	190	1/5320

Application

15. The ppm or ratios shown in the tables above may be used as a guide to assess accuracy in the same manner as the previous ratio was used and will be an indication if the accuracy standard is being met. The surveyor must note that the connection used in any determination of accuracy is between all monuments and all traverses stations. The geometry of the survey assumes a greater degree of importance using the confidence region approach. Two examples are given.

Example 1: Placing a monument C on a boundary between two monuments A and B. It is assumed that one can not directly observe along the line AB (see figure E4–1).

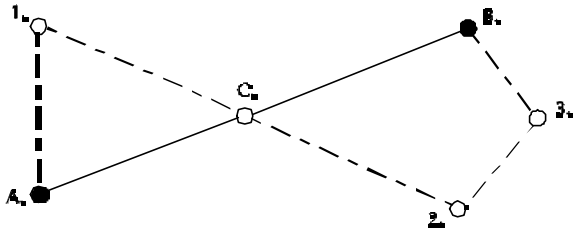


Figure E4–1

The connection used for the determination of accuracy of the boundary survey is the distances AC and BC .

Example 2: A closed traverse where two stations are close together but have not had a direct survey tie made between them (see figure E4–2).

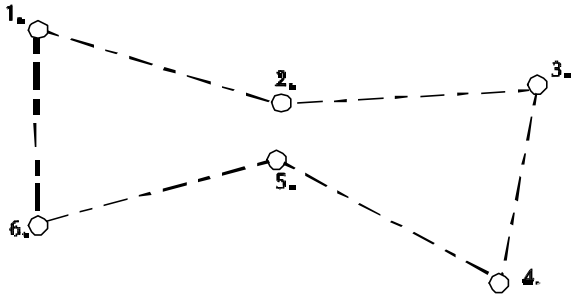


Figure E4–2

The connection 2 to 5 must also meet the accuracy requirements.