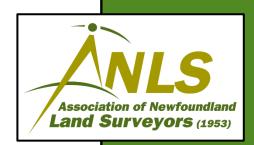
ASSOCIATION OF NEWFOUNDLAND LAND SURVEYORS

- BOARD OF EXAMINERS -

Professional Survey Project Guidelines





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DEFINITIONS

<u>Articling Student</u>:

Any person who has their Terms of Articles set by the ANLS Board of Examiners as approved by ANLS Council.

Articles:

This term summarizes the <u>entire</u> ANLS articleship process commencing on the first day of the *Period of Articles* and ending on last day upon the *Board of Examiners forwarding a recommendation* for Council to issue a Certificate of Registration.

\overline{BOE} :

ANLS Board of Examiners. Also referred to as the Board.

CADD:

Computer Aided Drafting & Design

CADO:

Company and Deeds Online. An online application used in conjunction with the Registry of Deeds.

Candidate:

Any person who has applied for Articles through the ANLS but has yet to have their Terms of Articles set by the Board of Examiners and approved by Council, such that they become an Articling Student.

CBEPS:

Canadian Board of Examiners for Professional Surveyors.



COR:

Certificate of Registration which is issued by the ANLS after an Articling Student meets all requirements of their Articles.

CSRS-PPP:

Canadian Spatial Reference System – Precise Point Positioning is an online application for global navigation satellite systems (GNSS) data post-processing.

GPS-H:

Global Positioning System – Height. GPS ·H is used to convert GNSS ellipsoidal heights (h) that are in either NAD83(CSRS) or ITRF, to orthometric heights (H, heights above mean sea level) by applying a gravimetric or hybrid geoid model.

NAD27:

North America Datum of 1927. This horizontal datum which was the predecessor of NAD83 (original).

NAD83 (original):

The original North American Datum of 1983.

NRCAN:

Natural Resources Canada. This federal government department currently maintains various geodetic processing, transformation and reprojection applications used within the Geomatics industry.

NTv2:

The NTv2 tool provides a national standard for transforming coordinates (geographic, UTM/MTM/stereographic) between the North American Datum of 1927 (NAD27), the Average Terrestrial System of 1977 (ATS77), the North American Datum of 1983 (NAD83(Original)) and NAD83(CSRS) reference systems using binary grid shift files (.GSB format) where available. The transformation is 2D (horizontal), so heights are not required.



Period of Articles:

Different from the *Terms of Articles*. The period of "time" set by the ANLS Board of Examiners whereby the Articling Student must work full-time hours during their on-the-job training at a Cadastral Land Surveying company under the direct mentorship of a Newfoundland Land Surveyor.

Pupil:

Describes the person receiving mentorship from a Newfoundland Land Surveyor. Also referred to as the Articling Student.

ROD:

Registry of Deeds.

SPCKS:

The ANLS Standards of Professional Conduct, Knowledge and Skill.

Sponsor:

Refers to the Newfoundland Land Surveyor who has formally signed an *Articles of Pupil to a Newfoundland Land Surveyor form*, agreeing to mentor their pupil who is an Articling Student.

Terms of Articles:

Includes the Period of Articles. These are the specific details and terms set by the ANLS Board and assigned to the Articling Student. It describes all Board expectations during Articles.

TOC:

Table of Contents.

TRX:

TRX is a coordinate transformation tool that allows you to transform between NAD83(CSRS) and ITRF realizations; convert coordinates between geographic, Cartesian and mapping projections (UTM, MTM, and stereographic); and transform coordinates between epochs using the predicted velocities from the Canadian Velocity Grid.



1 Professional Survey Project Guidelines

This **Professional Survey Project Guidelines** document is designed to provide both guidance and instructions to Articling Students and their respective sponsors when completing the survey project. This document provides information on all expectations which the ANLS Board of Examiners have regarding the completion of the project and will also highlight specific report guidelines which must be followed when constructing the Professional Survey Project report.

<u>NOTE</u>: It is important to note that these guidelines work <u>in conjunction</u> with the information provided within the **ANLS Board of Examiners Articling Student Manual**. Therefore it is imperative that all Articling Students and their respective sponsors be thoroughly familiar and comfortable with the specific content provided both in the Articling Student Manual and these Professional Survey Project Guidelines.



2 Professional Survey Project

The Articling Student must complete a Professional Survey Project in its entirety under the direct supervision of the Newfoundland Land Surveyor who has been assigned as the sponsor. The Board of Examiners must <u>first</u> approve the topic and scope of the Articling Student's Professional Survey Project prior to the articling member commencing in any project activities.

2.1 General Information

The following subsections provides an overview of general information pertaining to the Professional Survey Project.

2.1.1 Professional Survey Project Completion Deadline

After the Period of Articles is complete, the first submission of the Professional Survey Project and report **must** be submitted to the Board <u>not less then 30 days</u> from the scheduled written examination, before the Articling Student be given permission to challenge the written examination. Similarly, after the written examination is successfully completed, the Professional Survey Project and report must also be completed in its entirety, accepted as final by the Board and submitted to the Board <u>not less then 30 days</u> from the scheduled oral examination before the Articling Student be given permission to challenge the oral examination.

An Articling Student must complete all Article requirements, including the Professional Survey Project and report, all within <u>five years</u> from the commencement of Articles.

The BOE will review the Professional Survey Project and report submission and either:

- (i) Advise the candidate of acceptance; or
- (ii) Advise the candidate of rejection and provide recommendations.



2.1.2 Confidentiality-Agreement

Upon the Professional Survey Project being *accepted* as final by the Board, the Articling Student will be asked to sign a **Confidentiality-Agreement for Use of Students Projects**, so that the ANLS administrative office may post the Professional Survey Project on the *ANLS Members Only Webpage* for other students and members to observe.

2.1.3 Professional Survey Project Supervision

In most cases, the Professional Survey Project will be carried out as part of the Articling Student's regular employment duties. However, if no such suitable project is available at their current place of employment, the Articling Student may request for a suitable project under any Newfoundland Land Surveyor provided that approval of this request is granted by the Board of Examiners.

2.1.4 Flagship

Historically, the Professional Survey Project has often been considered the largest obstacle for a Articling Student throughout the entire Articles process. It is for this reason that Articling Students' ensure that a strong emphasis be placed on the Professional Survey Project as it is often referred to as a *flagship*; thus allowing the Articling Student the opportunity to demonstrate their ability to apply academic knowledge and work experience in Cadastral Land Surveying and Geomatics applications.

In completing a Professional Survey Project in its entirety, the Articling Student must demonstrate to the Board that they are "ready" to embark on the challenging career as a Newfoundland Land Surveyor. Therefore it is important that the Articling Student embrace their project as a true reflection of their professional knowledge and abilities to perform as a Newfoundland Land Surveyor within the practice of Cadastral Land Surveying.



2.1.5 Overview of Professional Survey Project Primary Content

The Professional Survey Project itself must:

- Be a legal Cadastral Land Survey involving the re-establishment of property boundaries;
- Cover <u>all aspects</u> and <u>components</u> of the *Boundary Delimitation Process* through the survey services being performed;
- Include Statute, Common, Case, Survey and Real Property Law; and
- Refer to all laws which govern land tenure in Newfoundland & Labrador.

There must also be a sufficient level of *challenge* for the Articling Student as they engulf in collecting and weighing cadastral survey evidence prior to making associated boundary decisions. An element of topographic or engineering surveys in the project may also be included to provide insight into the Articling Student's abilities.

2.1.6 Professional Survey Project Length

In terms of project length, <u>not including</u> the time to complete the *Professional Survey Project report*, the entire Boundary Delimitation Process and generation of associated cadastral survey deliverables through the survey services that the Articling Student provides should be 3 to 5 days.

2.2 Professional Survey Project Proposal

Prior to the Articling Student commencing in any Professional Survey Project activities, a **proposal** <u>must</u> be generated by the Articling Student and than reviewed and supervised by the sponsor <u>prior</u> to its submission to the Board of Examiners for final review and approval.

Prior to <u>any</u> Professional Survey Project proposal submission made by the Articling Student to the BOE, in accordance with directives provided in the Articling Student Manual and under the umbrella of *mentorship*, the **sponsor** must have first:



- (i) **Reviewed the proposal** in its entirety and checked that it is complete;
- (ii) Checked that the **proposal contains appropriate content** in all sections;
- (iii) Checked that the proposal is generated in a **professionally presentable format** as described in this **Professional Survey Project Guidelines** document;
- (iv) Checked that the proposal content does not breach ANLS directives or code of ethics;
- (v) Checked that the proposal format is **free of spelling, grammar** and other report **format or writing errors**;
- (vi) Gained complete knowledge of the **proposed project's content** and general discussion provided by the Articling Student; and
- (vii) **Signed the proposal** thus confirming that the proposal has been thoroughly reviewed and was supervised by the sponsor during its construction.

2.2.1 Proposal Content

The content of the Professional Survey Project proposal must include at a <u>minimum</u>, but not limited to, the following:

- **Summary** of the proposed Professional Survey Project;
- Cadastral Survey Project **Time estimates**;
- Proposed Cadastral Survey Scope of Work;
- Resources, Equipment and Logistics consideration;
- Quality Assurance & Quality Control efforts;
- **Safety** compliances & considerations;
- Reference material(s);
- Estimate for Cadastral Survey Services (ie. time & materials etc.);
- Supervision Arrangements;
- Proposed **Table of Contents** (TOC) of the final report:
 - o Include the <u>naming</u> of all anticipated sections / headings in effort to provide a forecast to the Board of Examiners of the overall flow of the final report's content; and
 - While generating a final report TOC during the proposal stage is clearly a premature product, it is generally accepted by the BOE that the contents of the Articling



Student's TOC at the proposal stage *will* evolve if circumstances change during the progression of the Professional Survey Project.

o Place for signatures from both the Articling Student and sponsor.

2.2.2 Proposal Format Memorandum

For consistency from all Articling Students, the format of the Professional Survey Project proposal must be in the form of a **memorandum** containing all proposal content as outlined above.

An example of the required proposal format, along with details describing textual format (ie. font size, style, effect, spacing, signatures etc.), can be found in Appendix A.

2.3 Professional Survey Project Report

The Professional Survey Project report must be constructed by the Articling Student, include all details of the Professional Survey Project and must be reviewed and supervised by the sponsor.

2.3.1 Project Report Supervision

The content, details, opinions and general discussions which the Articling Student provides in their Professional Survey Project report will naturally have some reflection on the supervision and mentorship received by the sponsor as the Articling Student confidently learns the processes and requirements to perform as a Newfoundland Land Surveyor.

Similar to the project proposal, it is therefore imperative that the sponsor be directly involved in the supervision and mentorship of the Professional Survey Project report as constructed by the Articling Student.

This <u>does not mean</u> that the Newfoundland Land Surveyor contributes to completing any of the Articling Student's required responsibilities in developing a Professional Survey Project report, or that they do any other work which is otherwise required by the Articling Student.



Prior to any Professional Survey Project report submission to the BOE by the Articling Student, in accordance with directives provided in this Articling Student Manual and under the umbrella of *mentorship*, the **sponsor** <u>must have first</u> checked that the report is:

- (i) Complete in its entirety;
- (ii) Based on appropriate content in all sections;
- (iii) Generated in a professionally presentable format as instructed in this document;
- (iv) Free of content that could breach ANLS directives or code of ethics;
- (v) Format is free of spelling, grammar and other report writing errors;
- (vi) Free of any mathematical and / or calculations errors;
- (vii) Constructed such that it provides the sponsor with complete knowledge of the project's content and general discussion provided by the Articling Student; and
- (viii) Populated with signatures thus confirming that the report has been thoroughly reviewed and was supervised by the sponsor during its construction.

2.3.2 Project Report Submission

The first submission of the Professional Survey Project report must be written as if it is the final submission. Therefore it is imperative that Articling Students place an <u>extensive level</u> of effort into the generation of the first submission as supervised by their sponsor. In addition to the requirement that the first submission be reviewed by their sponsor, it is also recommended that these efforts include at least one, or a combination of the following:

- Peer reviewed by friends or colleagues;
- Reviewed by a company or service who specializes in professional report reviews etc.;
- Any other appropriate means to help rectify report mistakes, errors and inaccuracies.

2.3.2.1 Board of Examiners – Not Responsible

It is important to note that the purpose of the Board of Examiners' review of the Professional Survey Project report is <u>not</u>, nor will it ever be, to act as a:



- Proof-reader of any capacity;
- Quality assurance / quality control filter of report content; or
- Resource to provide pre-submission grammar and / or report format checks.

2.3.2.2 Instances of Excessive Report Issues

Instances of excessive report issues in spelling, grammar, report format and / or content or any other indication that report or project standards are not being followed which are noticed by the Board will result in the immediate return of the Professional Survey Project report back to the Articling Student and sponsor for reconstruction and resubmission. During these circumstances, this will result in a all-stop of any further assessment from the Board until the issues are rectified.

2.3.2.3 No Period of Articles Deadline Extensions

Any time delays, as a result of report issues, which may adversely impact the Articling Students' ability to meet the 5-year requirement to complete all deliverables, or any other deliverable deadline, will never result in an Articles deadline extension.

It is the responsibility of the Articling Student to ensure that all project deliverable submissions are always of an acceptable standard, while at the same time, giving appropriate consideration to time management throughout the Articles process. All Articles requirements must be met within <u>5 years</u> from the first day of Articles.

2.3.2.4 Project Report – First Submission Deliverable

Unless otherwise instructed by the Board, the first submission deliverable of the Professional Survey Project report must consist of the following:

1) 4 X Paper Copies:

This includes 4 X binder (or coil bind) paper copies of the report;



- The paper copies of the report must contain labelled tabs which highlight all sections,
 subsections, appendices and any other components of the report; and
- The labelled tabs must contain the section number, followed by the actual summarized name.

2) 1 X PDF Copy (ready-to-print);

- Note that **ready-to-print** implies that if the PDF file was printed, the output printed product would be an <u>exact replica</u> of a paper copy, cover to cover and including all appendices. This also implies that all formatting of the printed product would be the same, all page numbering (including the appendix) would be correct along with inserted details such as survey plans, descriptions, real property reports, surveyors report etc.; and
- o The product of the printed PDF must produce an exact replica of the paper copy.

2.3.2.5 Board of Examiners Feedback on First Submission Deliverable

If required, the Board of Examiners will provide <u>constructive</u> and <u>collective feedback</u> to the Articling Student and sponsor after reviewing the first submission deliverable. The following are some points to consider regarding the Board's comments:

- Board comments are meant to provide the Articling Student with insight towards the board member's train-of-thought when reviewing the details within their Professional Survey Project report such that it may be decided by the Articling Student that further details or clarifications may be required;
- Comments provided by the Board may be presented back to the Articling Student in the form of a **question** in effort to only encourage the Articling Student to think about the topic of interest from a different angle such that they provide additional clarification within their report. When Board comments are presented as a question in this fashion, there is no requirement for the Articling Student to communicate an answer back to the Board;



- Unless the Board has pressing concerns over report content (which would be clearly made known by the Board), all Board comments should be considered as recommendations which the Articling Student may want to action;
- Board comments will sometimes be general in nature, as the Board does not wish to take any
 co-ownership of the Professional Survey Project;
- Report issue with spelling, grammar and overall report layout and format should be minimal
 considering the Board's expectation that all these issues be corrected or removed prior to the
 first submission of the Professional Survey Project report; and
- The Board may require that the Articling Student provide additional submissions of the Professional Survey Project report, subject to further review by the Board.

The Board's feedback comments (per section) may be presented back to the Articling Student and sponsor in one or more of the following formats:

- Added to a spreadsheet and / or document;
- Made directly as review comments to the digital PDF copy;
- Added and presented in the form of an official letter;
- Added and presented in the form of an email from the Board of Examiners;
- Discussed verbally between the Articling Student and any member of the Board of Examiners by phone, virtual meeting or in person; and
- Any other mechanism or routine whereby the Board of Examiners deems acceptable as a successful means of communication.

2.3.2.6 Project Report – Additional Submission Deliverables

If an additional submission of the Articling Student's Professional Survey Project report is required by the Board, the deliverable must consist of the following:

- 1 X PDF Copy (ready-to-print);
 - o Note that **ready-to-print** implies that if the PDF file was printed, the output printed product would be an <u>exact replica</u> of a paper copy, cover to cover and including all appendices. This also implies that all formatting of the printed product would be the same, all page numbering (including the appendix) would be correct along with



inserted details such as survey plans, descriptions, real property reports, surveyors report etc.;

o The product of the printed PDF must produce an exact replica of the paper copy.

<u>Unless explicitly requested</u> by the Board, there is no requirement for Articling Students to generate any paper copies when presenting additional submissions of their Professional Survey Project report for review. However, there may be circumstances whereby the Board may require paper copies. During these circumstances, the Board will communicate this requirement and further instructions to the Articling Student.

2.3.2.7 Project Report – Final Submission and Acceptance by the Board

Once the Board of Examiners are satisfied with all components of the Professional Survey Project report and that there are no concerns, the Board will **accept** the project report as final.

If the Board accepts the project report, then this decision will be communicated back to the Articling Student. At this point, a final **1 X paper copy** and **1 X PDF** copy (as per the conditions outlined above) must be submitted to ANLS Administration as a formal record of the accepted final submission. As indicated in the **Articling Student Manual**, the Articling Student must also bring along a copy of the report final submission to the oral examination.

2.3.3 Project Report Length

There is essentially **no page limit** for the Professional Survey Project report, however there is an expectation by the Board of Examiners that the Articling Student will put in <u>every effort</u> to ensure that the report is written **as concise as possible**; "more" <u>does not</u> automatically mean "better." It is equally important to ensure that all project details are included in the report and that submission expectations are met; regardless to the final project report length.



2.3.4 Project Report Content

<u>In addition</u> to the required content mentioned above in Professional Survey Project proposal, the project report content <u>must</u> also provide detailed discussions and / or documents and examples on the following, but not limited to:

Professional Survey Project Proposal document and Proposal Acceptance:

Correspondence on approval documentation as previously communicated by the BOE;

Contract / Survey Work Order / Scope of Work:

- O Documentation as signed and agreed upon by the client and company / Newfoundland Land Surveyor of whom the Articling Student is working under. Sensitive information in this document(s) should be shaded out or removed if deemed necessary by the company / Newfoundland Land Surveyor and Articling Student;
- In consideration of time and resource management, this also includes pre-survey services estimate (proposed/predicted time & materials);

Cadastral Land Surveying Equipment and Software:

 Breakdown of all survey equipment used, demonstrating sufficient experience in using both GNSS and Total Station (at a minimum) supported by figures and photographs;

Technical Specifications & Information:

 Including accuracy and precision information, of all Cadastral Land Surveying equipment used supported by manufacturer documentation;

• Geodetic Parameters:

 All geodetic parameters used and / or set in all survey instruments and software used in the project thus substantiating the application of ANLS standards and directives;

• Reconnaissance Efforts:

All reconnaissance efforts supported by illustrations and photographs etc.;



• Survey Control Monumentation:

 This includes provincial, federal or self-established custom design control monumentation. This information can provided as a tabulated summary supported by illustrations and photographs etc.;

Field Notes:

O Properly constructed field notes demonstrating all things such as, but not limited to: QA/QC checks, field activities, information about data acquisition, measurement recordings (where applicable), sketches, etc. This information can be provided through scans or photocopies of the field book and associated field notes. This also includes any survey instrument digital field notes if applicable;

• QA/QC Compliance:

 This entails discussions and documented proof through field notes and completed ANLS QA/QC checklists that efforts to embrace quality have occurred;

• Occupational Health & Safety (OH&S):

 Compliance with OH&S legislation, WorkplaceNL, Company or site safety compliances. These compliance efforts can be substantiated through completed Risk Assessment forms, site safety orientation training and logs of all onsite Tool-Box talks;

Pre-Analysis Efforts:

 Ensuring the ability to achieve ANLS standards (ie. accuracy standards, cadastral survey control requirements, survey equipment accuracy capabilities etc.) along with sample calculations;

• Calculation Efforts:

 Performed prior to field work for items such as geodetic coordinate transformations, reprojections, old survey plan reorientations, aerial photographic georeferencing etc. supported by sample calculations and software processing calculation output records;



Research Conducted:

- Details and copies of documents from all sources obtained during research as required under ANLS directives. This information can provided as a tabulated summary supported by scanned documentation and illustrations;
- Note: It is important to only provide pages of relevant information that shows document cover pages, registry information such as registration numbers and volume & folios etc., information on survey plans & descriptions, other described boundary limits and ownership. Avoid providing repetitive pages of useless information from research documents and always be concise. Each page provided must contain useful information;

• Sponsor Contact & Meeting Interactions:

 Summary of correspondences during moments of project mentorship. This can be extracted directly from the Articles Logbook and summarized in a table;

• Client Contact Interactions:

 Summary and correspondence from previous interviews, telephone discussions, text messaging, email correspondence and log kept. This can be summarized in a table;

Fieldwork:

o Discussion on all fieldwork efforts as supported by illustrations and photographs etc.;

Measurement Reductions / Adjustment Calculations:

 Example includes and measurements and calculations related to lot / property closure reports (ie. least squares, Compass Rule etc.) along with sample calculations and software processing results output records;

• Final Boundary Decision-Making Rationale (per leg):

Processes and considerations of weighing evidence supported by found field evidence. This is best illustrated using CAD and by draping field evidence over aerial photographs etc. for purposes of providing explanation clarity. This must be performed for <u>each</u> leg (ie. boundary lines between each turning points);



Cadastral Survey Deliverables:

- Cadastral Survey Deliverables must include all of the following below where applicable and do not need to be original copies:
 - Survey plans;
 - Descriptions;
 - Real Property Reports; and
 - NL Surveyors Report.

• **Final Billing / Invoicing etc.** (if available):

o A summary of final billing and invoicing information if available;

• Final Results Analysis & Numerical Comparisons:

- Quality Assurance / Quality Control:
 - Tabulated summary and discussion on control checks performed on provincial control monuments in support of achieving ANLS accuracy standards, cadastral survey control requirements and in consideration of survey equipment accuracy capabilities along with sample calculations;

Position of Found Evidence Versus Documented Positions:

 This includes a tabulated summary and discussion of evidence found such as found iron pins etc.;

Demarcation Results in Achieving ANLS Standards:

• After demarcation has occurred, this includes a tabulated summary and discussion on whether or not ANLS standards have been met while taking into consideration of all accuracy standards, cadastral survey control requirements and survey equipment accuracy capabilities etc. as substantiated through sample calculations;

Project Time & Resource Management:

 In consideration of time and resource management, this also includes presurvey services estimate (proposed/predicted time & materials) being compared to the post-survey services (actual time & materials);



Discussion on Complexities, Discrepancies and Problems Regarding:

- Found and Documented Evidence:
 - This includes providing rationale used in dealing with these problems, supported by CAD illustrations and photographs etc.;
- o Previous and / or other Cadastral Survey Deliverables:
 - This includes a *professional* and *respectful* discussion on different professional opinions of cadastral survey deliverables of the same area which were encountered, supported by CAD illustrations, photographs etc.;
- All other Final Results, Conclusions and Recommendations
- All other necessary information in accordance with ANLS directives & standards and as
 deemed important by the Articling Student and sponsor.

2.3.5 Required Items Used to Support Required Content

It is important to recognize that the only expert on the details, content and complexities surrounding the Articling Student's Professional Survey Project is the Articling Student and the sponsor themselves. While the Articling Student may be completely confident and in-tune with all details surrounding their project, this material can be difficult for the BOE to follow given their significantly short amount of time to review the project. Therefore, it is important that the Articling Student know their audience. It is important that the Articling Student complete their project deliverables and report in such a way that provides maximum clarity to the BOE.

The following items are <u>required</u> within the Professional Survey Project report so that the details surrounding important content is clearly represented to the Board of Examiners:

- Tables;
- Illustrations / Photographs; and
- Software Screen Grabs.

<u>Note</u>: Always revisit software screen colours (especially CAD screen grabs) before inserting a graphic into a report to <u>prevent</u> part of the graphic from being printed solid black.



2.3.5.1 Tables

Tables <u>must</u> be used as much as necessary to log events, summarize collective numerical results and illustrate numerical comparatives. Some examples include, but are not limited to:

- Logged correspondence with the clients;
- Specific Registry of Deed document registration numbers;
- QA/QC checks and results against provincial control monumentation;
- Coordinated found iron pin location versus documented values;
- Coordinated placed iron pin location with associated uncertainties within ANLS standards;
 and
- Any other that may apply.

2.3.5.2 Illustrations / Photographs

Illustrations and photographs (with pointers and overlaid notes) <u>must</u> be used as much as necessary to graphically assist the reader in following and understanding the discussions surrounding the Professional Survey Project. Some examples include, but are not limited to:

- Reconnaissance efforts;
- Survey area;
- Found field evidence;
- Survey equipment;
- Demarcation;
- Field activities;
- Control monuments;
- Found field evidence overlaid on aerial photography; and
- Any other that may apply.



2.3.5.3 Software Screen Grabs

Software Screen Grabs (with pointers and overlaid notes) <u>must</u> be used as much as necessary to graphically assist the reader in following and understanding the discussions surrounding the Professional Survey Project and demonstrate all survey processing results received. Some examples include, but are not limited to:

- Land parcels plotted and labelled in CAD;
- Google Earth images which illustrate the survey area;
- LandGazette images which illustrate surrounding survey plans and parcel upload results;
- Parcel adjustments / lot closure processing results using various software;
- Georeferencing RMS results using software (ie. Global Mapper, Geomatica, ArcGIS etc.);
- CADO images demonstrating research efforts;
- Survey Mapping Service NL images demonstrating information on control monuments;
- Provincial Land Use Atlas NL images demonstrating crown lands etc.; and
- Any other that may apply.

It is imperative that the Articling Student complies with all copyright laws and uses appropriate APA referencing techniques to avoid plagiarism.

2.3.6 Project Report Format

In effort to maintain a level of consistency and continuity of all Professional Survey Project reports completed by Articling Students, there are specific report format details which must be followed.

2.3.6.1 Project Report Format

Details, samples and examples surrounding the required format used when constructing the Professional Survey Project report can be found in Appendix A.



2.3.6.2 Project Report Cover Page

The project report cover page must contain the following information below. An example of the required format, along with details describing textual format (ie. font size, style, effect, spacing etc.), can be found in Appendix A.

- The project title;
- The location and / or road / community name;
- Name of the Articling Student;
- Company Name (if applicable);
- Date of submission; and
- A coloured graphic / picture / illustration of the property surveyed.

In the essence of constructing a professional report, all items on the page must be equally and neatly spaced throughout on a single page.

2.3.6.3 Project Report Title Page

The project report title page must contain the following information. An example of the required format, along with details describing textual format (ie. font size, style, effect, spacing etc.), can be found in Appendix A.

- The project title;
- The location and / or road / community name;
- Submission statement (see below);
- Name and signature (with credentials) of the Articling Student who prepared and submitted
 the professional survey project and report;
- Name and signature (with credentials) of the Newfoundland Land Surveyor (ie. sponsor) who
 reviewed and supervised the professional survey project and report;
- Name and signature (with credentials) of the Newfoundland Land Surveyor and BOE
 Chairperson who accepted the professional survey project and report on behalf of the ANLS;
- Association of Newfoundland Land Surveyors; and
- The date of submission (in MMMM DD, YYYY format).



In the essence of constructing a professional report, all items on the page must be equally and neatly spaced throughout on a single page.

2.3.6.4 Submission Statement

The Professional Survey Project report cover page must have a submission statement stating the following:

Survey Project & Report submitted in partial fulfillment of requirements for an Articling Student to become a Newfoundland Land Surveyor within the Association of Newfoundland Land Surveyors

2.3.6.5 Report Main Body

The project report's main body <u>must</u> contain the following sections below. An example of the required format, along with details describing textual format (ie. font size, style, effect, spacing etc.), can be found in Appendix B.

- Cover page;
- Title page;
- Abstract;
- Acknowledgements;
- Table of Contents;
- List of Figures;
- List of Tables;
- List of Appendices
- Introduction;
 - o Purpose;
 - Methodology;
 - Client, Representatives and Supervisors;
 - o Project Summary;



- < Multiple Sections & Subsection Names added at Student's Discretion>;
 - o <u>Note</u>: In accordance with the section on *Project Report Content;*
- Conclusions;
- Recommendations;
- References; and
- Appendix.

2.3.6.6 Report Table of Contents

The project report's table of contents must display the following below. An example of the required format, along with details describing textual format (ie. font size, style, effect, spacing etc.), can be found in Appendix A.

- Abstract;
- Acknowledgements;
- Table of Contents;
- List of Figures;
- List of Tables;
- List of Appendices;
- Introduction;
 - o Purpose;
 - Methodology;
 - Client, Representatives and Supervisors;
 - Project Summary;
- <Multiple Sections & Subsection Names added at Student's Discretion>;
 - Note: In accordance with the section on Project Report Content;
- Conclusions and Recommendations;
- References;
- List of Figures;
 - o Report main body figures listed with page numbers;
 - Appendices figures listed with page numbers;



- List of Tables;
 - o Report main body tables listed with page numbers;
 - Appendices tables listed with page numbers; and
- List of Appendices;
 - o All appendices included in the report with page numbers.

2.3.6.7 Appendix Content

The appendix is the location whereby information can be stored. Even though all of the items below may be mentioned within the main body of the report, a copy of the following items <u>must</u> be placed in the appendix with its own appendix number. Articling Students must refer to **Section 2.3.4** of these guidelines to get a detailed explanation of the items listed below:

- Appendix A: Professional Survey Project Proposal & Acceptance Letter
 - This appendix must contain a copy of the proposal which was approved by the BOE,
 along with the acceptance letter provided by the BOE.
- Appendix B: Contract / Survey Work Order / Scope of Work
 - o This appendix must contain the mechanism used by the company whether it be a contract, survey work order, scope of work etc.
- Appendix C: Technical Specifications
 - This appendix must contain any technical specification information for any relevant survey instrumentation.
- Appendix D: Survey Control Monumentation
 - This appendix must include a tabulated summary and details on provincial and / or federal monumentations, self-established custom design monumentations supported by illustrations and photographs etc.
- Appendix E: Field Notes



 This appendix must contain scans or photocopies of the field book and associated field notes. It must also contain any survey instrument digital field notes if applicable.

• Appendix F: QA/QC Checklist

o This appendix must contain a copy of completed QA/QC checklist forms.

• Appendix G: Occupation Health & Safety Compliance

This appendix must contain records and a copies of completed Risk Assessment forms,
 site safety orientation training and logs of all onsite Tool-Box talks.

• Appendix H: Research Conducted

o This appendix must contain a tabulated summary and documentation on the results of all research performed as required under ANLS directives. It is important to <u>only</u> provide pages of relevant information that shows document cover pages, registry information such as registration numbers and volume & folios etc., information on survey plans & descriptions, other described boundary limits and ownership. Avoid providing repetitive pages of useless information from research documents and always be concise. Each page provided must contain useful information.

• Appendix I: Additional Photographs & Illustrations

This appendix must contain any additional photographs, graphics or illustrations be best describe the project (ie. reconnaissance, provincial control, field work etc.) that was not already included in the main body of the report.

• Appendix J: Sponsor & Clinic Meeting Interactions

o This appendix must contain a tabulated summary (ie. date, time, topic) of all sponsor and client interactions during the project. For interactions with the sponsor, this information can be extracted from the Articles Log Book.



- Appendix K: Sample Calculations
 - o This appendix must contain descriptive examples of sample calculations such as:
 - Pre-analysis efforts;
 - Measurement reductions & adjustments (ie. least squares, lot closures etc.);
 - Other calculation efforts (ie. transformations, reprojections, orientations etc.).
- Appendix L: Cadastral Survey Deliverables
 - o This appendix must contain copies of the following where applicable:
 - Survey plans;
 - Descriptions;
 - Real Property Reports (if applicable); and
 - NL Surveyors Report
- Appendix M: Final Billing & Invoicing (if available)
 - o This appendix can contain a summary of final billing information.
 - o If there is no information, Appendix M: Final Billing & Invoicing page must still be provided in the report along with another page stating that the information is not available.
- Appendix N: Final Results Analysis
 - This appendix must contain results on items:
 - QA/QC results in achieving ANLS standards (ie. accuracies, control etc.);
 - Position of found evidence (ie. found iron pins) versus documented positions;
 - Demarcation results in achieving ANLS standards (ie. accuracies etc.);
 - Project time management (predicted versus actual);
 - *Final billing & invoicing* (predicted versus actual) (if applicable).

Additional appendices can be added by the Articling Student in effort to store additional information, beginning with **Appendix O**.



2.3.6.8 Font Type, Size, Style, Effects, Alignment and Line Spacing

The following provides an overview of the textual format required when constructing the Professional Survey Project report. All text and numerical values displayed and labelled on top of a figure, illustration or photography must be **clean**, **sharp-looking** and **readable**.

Font Type: The font type of the entire report must be Times New Roman;

<u>Font Size</u>: The font size will vary between 14, 12, 11 and 10. The font size is dependent on whether it is a main section, subsection, subsection, figure or table labeling etc. and so on.

<u>Font Style</u>: The font style will vary between **bold**, *italic* and <u>underlined</u>. The font style is dependent on whether it is a main section, subsection, subsection, figure or table labeling etc. and so on.

<u>Font Effects</u>: The font effects will vary between CAPITAL letters and lowercase letter. The font effects is dependent on whether it is a main section, subsection, subsection, figure or table labeling, main narrative of the report and so on.

<u>Text Alignment</u>: The text alignment will vary between justified and center. The text alignment is dependent on whether it is a main section, sub-subsection, figure or table labeling, main narrative of the report and so on.

<u>Line Spacing</u>: The line spacing will vary between 1 and 1.5. The line spacing is dependent on whether it is a main section, subsection, subsection, figure or table labeling, main narrative of the report and so on.

<u>Text Colour</u>: All text must be the colour **black**. If the articling student wishes to emphasis or articulate a particular work or small phrase of importance embodied in the report, another colour may be used.

An example of the required format, along with details describing textual format (ie. font size, style, effect, spacing etc.), can be found in Appendix B.



2.3.6.9 Section Numbering Format

The Professional Survey Project Report will contain a series of sections, sub-section, sub-sub-sections and so on. Multiple sub-sections and sub-sub-sections can exist on the same page throughout the report and exist on the same page as the main section. However all main sections must begin at the top of a new page. For example:

Main Section always begins at the top of a new page. Multiple main sections must not exist on the same page.

Enter introduction here. Enter introduction here.

Multiple Sub-Sections and sub-sub-sections can exist on the same page and on the same page as the main section.

Enter introduction here. Enter introduction here.

2.3.6.10 Page Numbering Format

The page numbering format used throughout the Professional Survey Project report must be primarily *numerals*. However, roman numerals (capital letters) must be used beginning at the Abstract page (ie. II) and including up to the last page of the table of contents. No roman numerals will be included on the cover page or the title page. The first page to receive a standardized numeral (ie. which will be page "1") will be **Section 1 - Introduction**.

All page numbers added to the Professional Survey report must be of the same font as the entire report and must be centered and located within the footer.

An example of the required format, along with details describing textual format (ie. font size, style, effect, spacing etc.), can be found in Appendix B.



2.3.6.11 Header and Footer Information

<u>No information</u> is to be contained within the header. The only information to be contained will be within the footer which must have the centered page number as described above. There must be consistent size and spacing of the header and footer sections of each page.

An example of the required format, along with details describing textual format (ie. font size, style, effect, spacing etc.), can be found in Appendix B.

2.3.6.12 Numbering and Naming of Figures and Tables

Within the main body of the Professional Survey Project report, all figures and table are to be numbered in accordance to the section they are within. All figures must be named and titled "under" the figure, while all tables must be named and titled "above" the table.

If the first figure within the main body shows up in section 2 of the report, then the figure must be numbered Figure 2.1 (under figure). If the second table shows up in section 2.7.1 of the report, then the table must be numbered Table 2.2 (above table). If the third figure shows up in section 2.9.1.2 of the report, then the figure must be numbered Figure 2.3 (under figure), and so on.

Within the appendix of the Professional Survey Project report, all figures and table are to be numbered in accordance to the appendix section they are within. Similar as within the main body of the report, all figures must be named and titled "under" the figure, while all tables must be named and titled "above" the table.

If the first figure in the appendix shows up in appendix D of the report, then the figure must be numbered Figure D.1 (under figure). If the second table shows up in appendix D of the report, then the table must be numbered Table D.2 (above table). If the third figure in the appendix shows up in appendix D of the report, then the figure must be numbered Figure D.3 (under figure), and so on.

All figures and tables must be labelled and described underneath figure / table number.

An example of the required format, along with details describing textual format (ie. font size, style, effect, spacing etc.), can be found in Appendix B.



All text and numerical values displayed and labelled on top of a figure, illustration or photography must be **clean**, **sharp-looking** and **readable** without any uncertainty to the reader.

2.3.6.13 Paragraph Spacing

The spacing between subsequent paragraphs, between section names and headers/footers, between paragraphs and the start of a new section, between paragraphs and figures or tables etc. must be *equally spaced* and consistent throughout the entire report.

2.3.6.14 APA Referencing

In order to avoid plagiarism, **APA referencing** must be applied throughout the Professional Survey Project report when discussing content or presenting figures & other products that was <u>not</u> the intellectual ideas of, or created by, the author. In these circumstances, all figures and tables must be referenced in accordance with APA referencing guidelines. APA referencing must be applied to both:

In-text referencing: (ie. (McDonald, 2014) etc.)

Reference List / Page at the end:

Natural Resources Canada (2013a). *Guidelines for RTK/RTN GNSS Surveying in Canada*. Version 1.1. Her Majesty the Queen in Right of Canada, Ontario, Canada.

2.3.7 Tips and Examples of Repetitive Report Feedback

Over the years, the feedback provided by the Board of Examiners after reviewing many Articling Student's Professional Survey Project report continues to be repetitive. Many of the same flagged items highlighted by the Board today, are similar and consistent with the same flagged items found over +10 years ago. In effort to provide Articling Students with additional guidance when completing their Professional Survey Project report, below is a list of tips and persistent flagged items that seem to continuously arise upon the review of the project report's first submission.



Be advised that the list below <u>does not</u> replace the required content that is expected to be provided in the Professional Survey Project report, but rather it simply highlights those items which are reoccurring.

Grammar and Spelling;

o Grammar and spelling continues to be a flagged item which points to the fact that some reports have not been properly proof-read prior to the first submission.

Overall Report Format;

o Items such as a lack of consistency in line and paragraph spacing, font size and style etc. continues to be flagged items which is a result of a lack of attention to detail.

• Tables / CAD Illustrations;

- Use ample tables and CAD illustrations to discuss items such as QA/QC, accuracies and results, evidence comparisons, boundary comparisons, research log of registered documents etc. as discussed earlier;
- Note: Always revisit CAD screen colours before inserting a graphic into a report to prevent part of the graphic from being printed solid black.

• Photographs / Figures / CAD Illustrations;

- Use ample CAD illustration, photographs and figures to articulate all property complexities and to describe decision making rationale;
- Note: Always revisit CAD screen colours before inserting a graphic into a report to prevent part of the graphic from being printed solid black.

Proper Use of Cadastral Land Surveying and Geomatics Terminology;

- Use appropriate Cadastral Land Surveying terminology when describing all aspects of the Professional Survey Project or addressing specific ANLS directives;
- o Examples: hierarchy of evidence, delimitation, demarcation, delineation etc.



Readable Text, Numerical Values;

 All text and numerical values displayed and labelled on top of a figure, illustration or photography must be clean, sharp-looking and readable without any uncertainty to the reader.

• Sufficient Effort to Keep Project Report Concise;

- For example, only extract out and provide the *relevant pages* from a Registry of Deeds document downloaded from CADO rather then providing the entire product. Avoid providing repetitive and multiple copies of irrelevant information;
- o Items such as survey plans & descriptions, other parcel descriptions and sketches that describe the property, boundary limits, ownerships and other names involved in the property transaction, registration numbers / roll / frame / folio etc. <u>must</u> be provided;
- o If a document page is provided, then this page must contain some information that is useful to your project. For examples, providing pages of information on the security details of a Royal Bank mortgage is not useful and <u>must not</u> be provided.



$\label{eq:appendix} \textbf{APPENDIX}\, \textbf{A}$ $\textbf{SAMPLE}\,\, \textbf{PROFESSIONAL}\,\, \textbf{SURVEY}\,\, \textbf{PROJECT}\,\, \textbf{PROPOSAL}\,\, \textbf{FORMAT}$



ENTIRE PROPOSAL FONT TYPE: Times New Roman

Memo

Insert Company Logo (if applicable)

To: ANLS Board of Examiners

From: John Bloggins, C.E.T.

Email: johnnybloggins@email.ca

Company: Iron Pin Surveys Ltd.

CC: Sponsor Name, N.L.S

Date: January 5, 2024

Re. Professional Survey Project Proposal - "Boundary Delimitation for the Diocese

of Western Newfoundland & Labrador: St. Christophers Anglican Church"

Dear Board of Examiners,

Enter what you want to say. Enter what you want to say. Enter what you want to say.

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Enter what you want to say in accordance with required content. Enter what you want to say in accordance with required content.

Enter Heading Name #2

Enter what you want to say in accordance with required content. Enter what you want to say in accordance with required content.

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Enter Heading Name #?

Enter what you want to say in accordance with required content. Enter what you want to say in accordance with required content.

Sincerely,

John Bloggins, C.E.T

Enclosure: Projected Table of Contents (pages 3 to 4)

Survey Project Proposal Reviewed & Supervised By: ______Sponsor Name, N.L.S

Survey Project Proposal Accepted By: ___

Chairperson BOE, N.L.S



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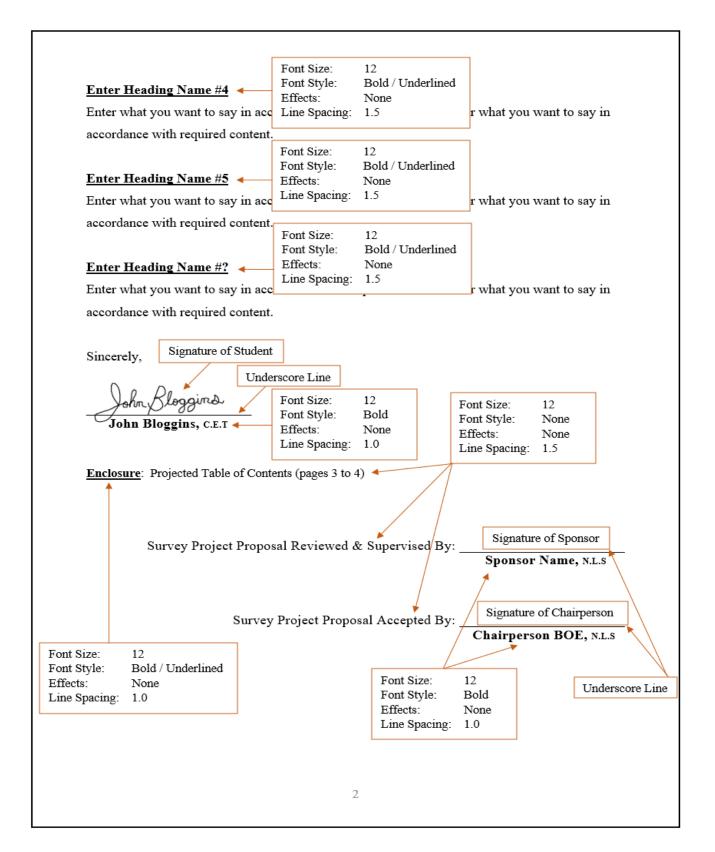
LIST OF FIGURES

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FIGURE A.1: ENTER NAME OF FIRST FIGURE IN APPENDIX A
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TABLE 2.1: ENTER NAME OF FIRST TABLE IN CHAPTER 2
APPENDICES TABLES
TABLE A.1: ENTER NAME OF FIRST TABLE IN APPENDIX A
LIST OF APPENDICES
APPENDIX A: ENTER NAME OF APPENDIX A



ENTIRE PROPOSAL FONT TYPE: Times New Roman Font Size: Insert Company Logo Memo Font Style: Bold Effects: None (if applicable) Line Spacing: 1.0 ANLS Board of Examiners To: From: John Bloggins, C.E.T. Font Size: 12 Font Size: 12 Email: johnnybloggins@email.ca Font Style: Italie Font Style: None Effects: None Effects: None Company: Iron Pin Surveys Ltd. Line Spacing: 1.5 Line Spacing: 1.0 CC: Sponsor Name, N.L.S Date: January 5, 2024 Professional Survey Project Proposal – "Boundary Delim<mark>i</mark>tation for the Diocese of Western Newfoundland & Labrador: St. Christophers Anglican Church" Font Size: 12 Bold Font Style: Underscore Line Dear Board of Examiners. Effects: None Line Spacing: 1.5 Enter what you want to say. Enter v r what you want to say. Font Size: 12 Enter Heading Name #1 Font Style: Bold / Underlined Enter what you want to say in acc Effects: None r what you want to say in Line Spacing: 1.5 accordance with required content Font Size: 12 Enter Heading Name #2 🗻 Font Style: Bold / Underlined Effects: None Enter what you want to say in acc r what you want to say in Line Spacing: 1.5 accordance with required content Font Size: 12 Bold / Underlined Font Style: Enter Heading Name #3 Effects: None Enter what you want to say in acc r what you want to say in Line Spacing: 1.5 accordance with required content. Page Boarder Font Size: 11 Style: Normal line Font Style: None Colour: Black Effects: Centred Width: 1.5 Line Spacing: 1.0 *Throughout all pages







<u>Note</u>: The format of the "proposed TOC" during the proposal submission stage <u>does not</u> need to the follow the same TOC format required for the Professional Survey Project Report.

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${\bf APPENDIX~B}$ ${\bf SAMPLE~PROFESSIONAL~SURVEY~PROJECT~REPORT~FORMAT}$



BOUNDARY DELIMITATION FOR THE DIOCESE OF WESTERN NEWFOUNDLAND & LABRADOR: ST. CHRISTOPHER ANGLICAN CHURCH

Bend Bay, NL

John Bloggins, C.E.T Iron Pin Surveys Ltd.



Date: April 1, 2024



BOUNDARY DELIMITATION FOR THE DIOCESE OF WESTERN NEWFOUNDLAND & LABRADOR: ST. CHRISTOPHER ANGLICAN CHURCH

Bend Bay, NL

Survey Project & Report submitted in partial fulfillment of requirements for an Articling Student to become a Newfoundland Land Surveyor within the Association of Newfoundland Land Surveyors

Survey Project and Report Prepared & Submitted By:	John Sloggind John Bloggins, c.e.t
Survey Project and Report Reviewed & Supervised By:	Sponsor Name, N.L.s
Survey Project and Report Accepted By:	Chairperson BOE, N.L.S

Association of Newfoundland Land Surveyors

April 10, 2024



ABSTRACT
This is where you write your abstract. This is where you write your abstract. This is where you write your abstract.
п
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ACKNOWLEDGEMENTS This is where you write you acknowledgements. This is where you write you acknowledgements. This is where you write you acknowledgements. This is where you write you acknowledgements.

 $\scriptstyle{\mathrm{III}}$



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V



1 INTRODUCTION

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1.1 Purpose

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1.2 Methodology

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1.3 Client, Representatives and Supervisors

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1.4 Project Summary

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? CONCLUSIONS AND RECOMMENDATIONS

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?.? Conclusions

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Figure A.2 Enter Figure Name Here, Location (APA Reference Source Name, Year)



APPENDIX B
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Figure B.1 Enter Figure Name Here, Location (APA Reference Source Name, Year)



Figure B.2 Enter Figure Name Here, Location (APA Reference Source Name, Year)



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BOUNDARY DELIMITATION FOR THE DIOCESE OF WESTERN

NEWFOUNDLAND & LABRADOR:

ST. CHRISTOPHER ANGLICAN CHURCH

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→ Bend Bay, NL John Bloggins, CET

Iron Pin Surveys Ltd.

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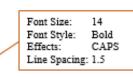
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ST. CHRISTOPHER ANGLICAN CHURCH

Bend Bay, NL

Survey Project & Report submitted in partial fulfillment of requirements for an Articling Student to become a Newfoundland Land Surveyor within the Association of Newfoundland Land Surveyors

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Survey Project and Report Prepared & Submitted By:

John Bloggins, c.E.T

Survey Project and Report Reviewed & Supervised By: _

Sponsor Name, N.L.s

Survey Project and Report Accepted By:

Chairperson BOE, N.L.s

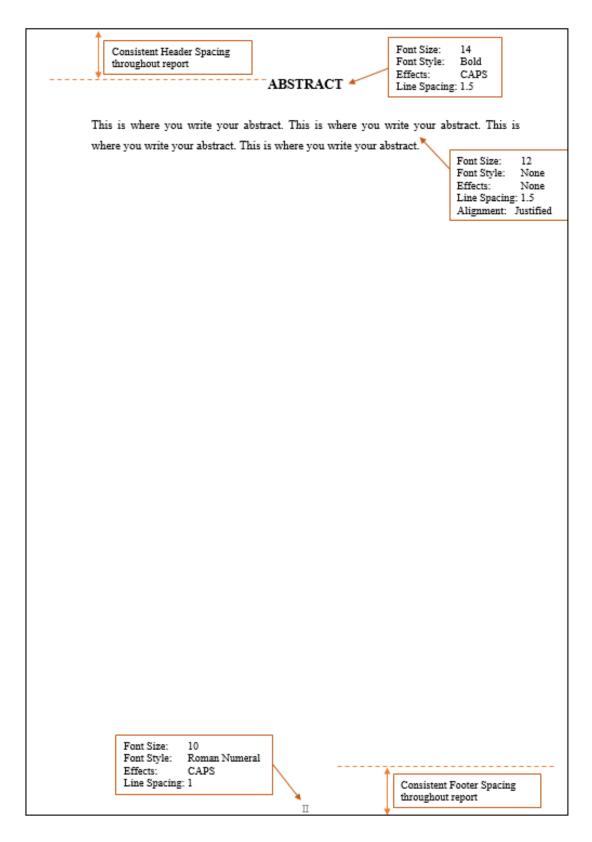
Association of Newfoundland Land Surveyors

April 10, 2024

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ACKNOWLEDGEMENTS *

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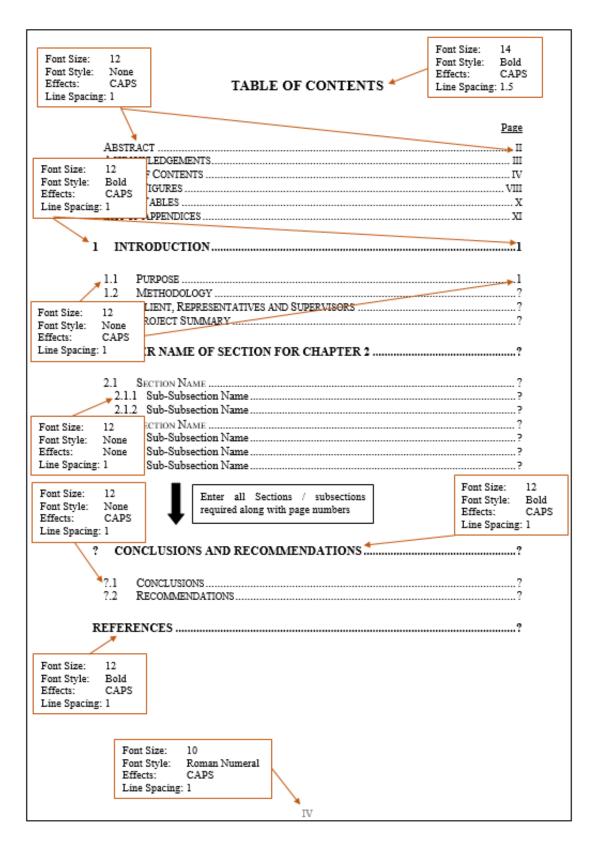
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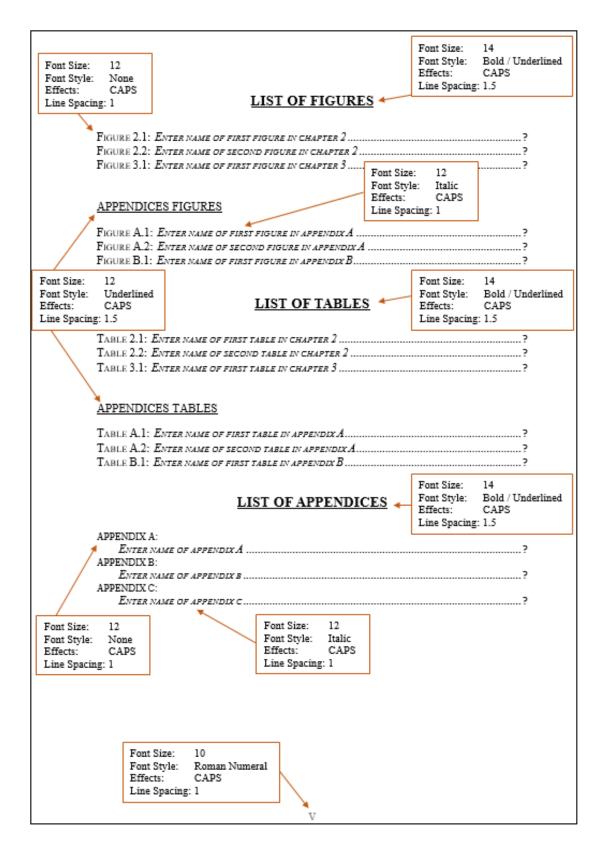
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1 INTRODUCTION ←

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1.2 Methodology←

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1.3 Client, Representatives and Supervisors

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1.4 Project Summary +

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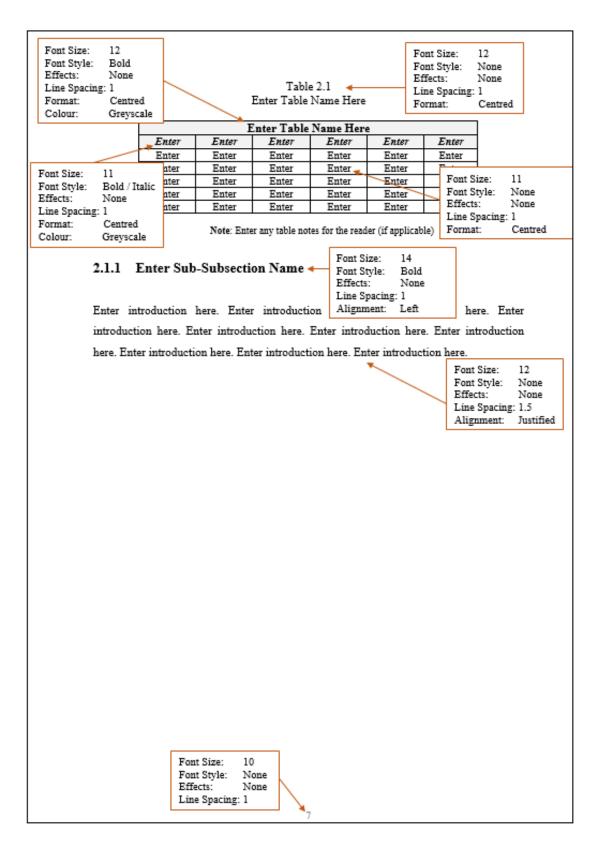
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CONCLUSIONS AND RECOMMENDATIONS

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REFERENCES *

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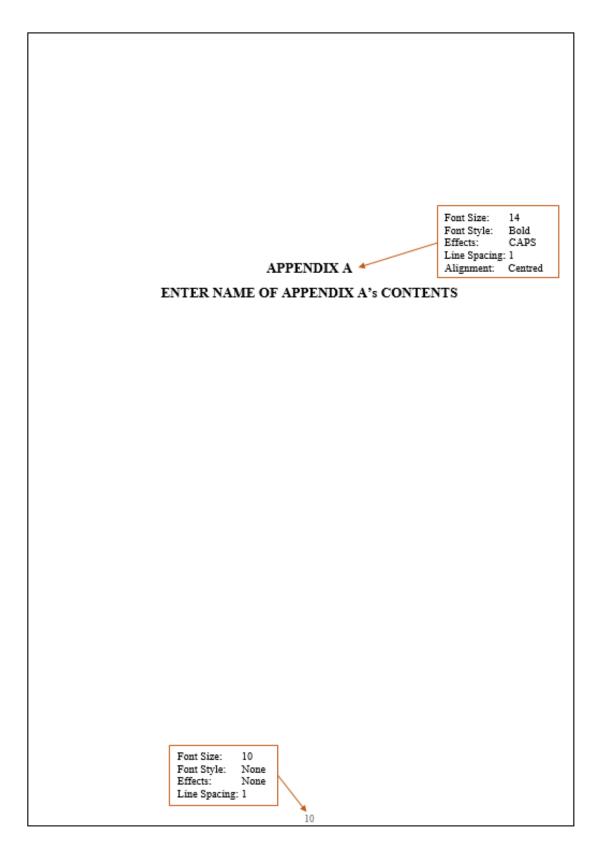
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- A.1
- "A" for appendix A
- "1" being the 1"
figure in appendix A

Figure A.1
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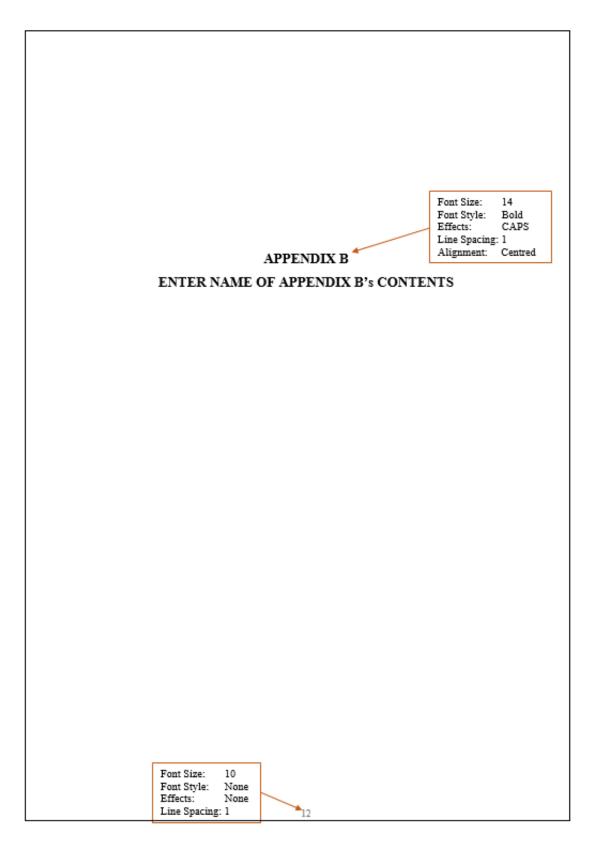


- A.2
- "A" for appendix A
- "2" being the 2"d
figure in appendix A

Figure A.2
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- B.1 - "B" for appendix B - "1" being the 1" figure in appendix B

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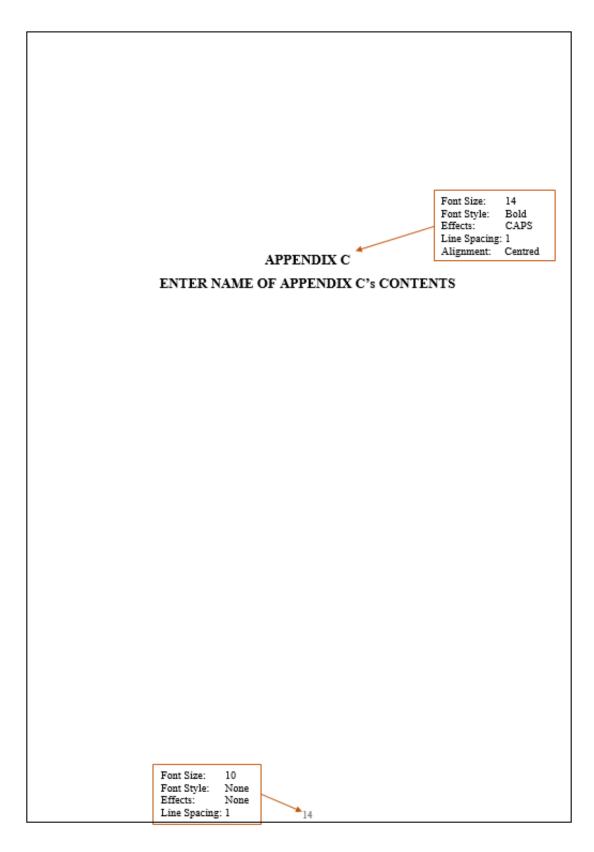
- B.2
- "B" for appendix B
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C.1

- "C" for appendix C - "1" being the 1" table

in appendix C

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- C.2

- "C" for appendix C - "2" being the $2^{\rm nd}$ - "2" being the 2 table in appendix C

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