

# REACHING HORIZON 2030: An Environmental Outlook for North American Cooperation

Expert Panel on Earth Observation Technologies and Other GIS  
Tools and Climate Change

**Steve DeRoy, MSc**

the  
firelight  
group



INDIGENOUS MAPPING  
WORKSHOP



**Steve DeRoy**

Chief Executive Officer

**The Firelight Group**



# Agenda

- 1 Introduction
- 2 Indigenous-led studies
- 3 Indigenous Mapping Collective
- 4 Questions

# **1. Introduction:**

**Firelight is an Indigenous-owned consulting firm**



# SERVICES THAT FOCUS ON INDIGENOUS VALUES



# FIRELIGHT SERVICES

## RESEARCH



INDIGENOUS  
KNOWLEDGE  
RESEARCH



SOCIO-  
ECONOMIC



HEALTH

## ADVISORY

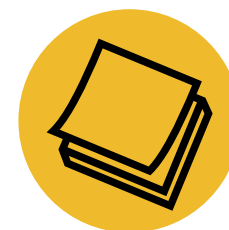


IBA  
NEGOTIATION



PLANNING  
AND  
IMPLEMENTATION

## TECHNICAL SUPPORT



IMPACT  
ASSESSMENT



ECOLOGY



MAPPING  
AND  
GIS

# OUR CLIENTS

The relationships we have with our clients is critical to the work that we do.



# FIRELIGHT TRAINS INDIGENOUS PEOPLE TO CARRY OUT RESEARCH





## **2. Indigenous-led studies: Funding, data principles, engagement and re-storying place and space**



# Why are Indigenous-led processes important?



Protect and implement **treaty** and **Indigenous rights**



Protect **land and water**, and **community values** associated with the use of those resources



Protect community member **use and access**, and the needs of **future generations**



**Identify** and **resolve** potential **conflicts** between competing uses



Enhance the **benefits** of development, **contain the negative** impacts of development



**Steer development** toward appropriate locations (contain any negative impacts)



**Enhance certainty** for industrial developers and government



# Consultation and Accommodation Policy

- Define the responsibilities
  - The Nation(s)
  - The Crown (federal, provincial, municipal)
  - Third-Party (corporations)
- Set the minimum standards for the consultation workflow
- Identify key contacts
- Define what information is required
- Communicate how information will be evaluated
- Communicate types of responses and timelines
- Provide consultation service fee costs

# Costing Calculator

- Track the true costs for engagement – Indigenous Nations should not be engaging for free
- Separate Costing Calculators required for:
  - Federal processes and studies
  - Provincial processes and studies
  - Municipal processes and studies
  - Industry-related processes and studies
- If studies are going to be used in multiple processes, their cost per process may be lower and more palatable to funders
- Getting out in front of this is key

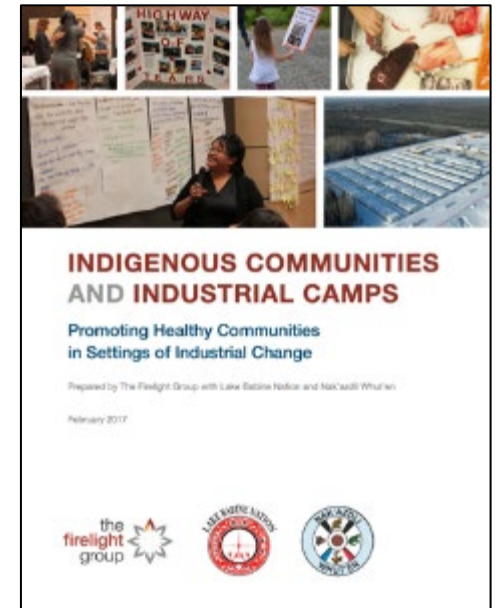
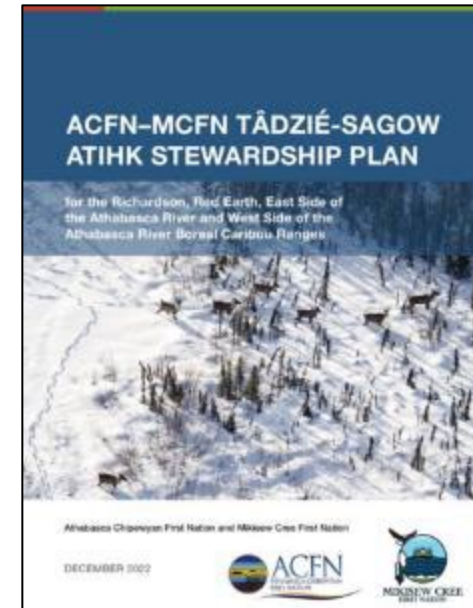
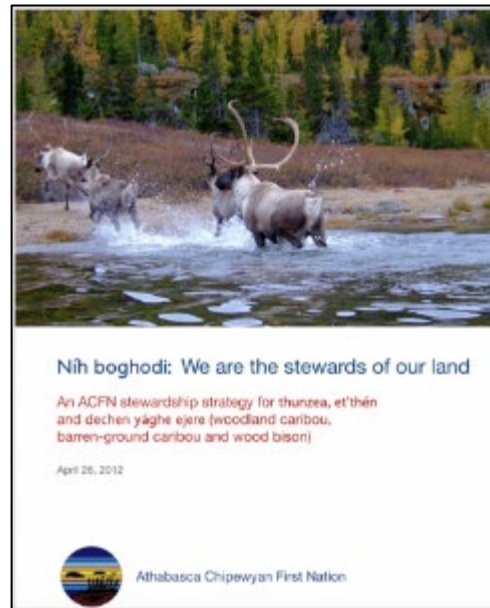
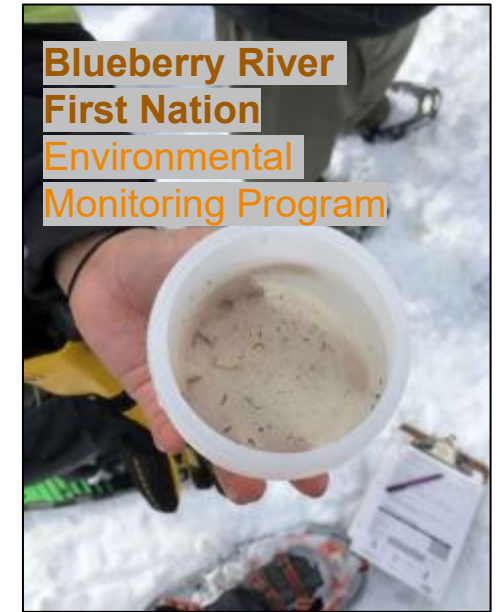
# Costs

For your Nation to truly understand what the proposed project is and how it may affect your rights and interests, develop a full picture of what it would cost your Nation to engage in EA processes.

- 1 Wages for staff and administration
- 2 Community meeting costs
- 3 Honoraria
- 4 Travel expenses for meetings
- 5 Professional fees (lawyers, accountants, etc.)
- 6 Consultant fees (third party technical reviews, baseline studies)
- 7 Equipment and office materials
- 8 Any other costs that could be incurred


# Indigenous-led studies

Some examples of studies you may want to carry out to better understand the impacts and effects of proposed developments.



# DATA PRINCIPLE 1: FPIC

## Free Prior Informed Consent



The consent is free, given voluntarily and without coercion, intimidation or manipulation. A process that is self-directed by the community from whom consent is being sought, unencumbered by coercion, expectations or timelines that are externally imposed.

The consent is sought sufficiently in advance of any authorization or commencement of activities.

The engagement and type of information that should be provided prior to seeking consent and also as part of the ongoing consent process.

A collective decision made by the right holders and reached through a customary decision-making processes of the communities.

# CONSENT..IN A DIFFERENT CONTEXT





# APPLYING FPIC

1



## Introduce and Explain

Explain the who, what, where, when, why, and how your initiative is being captured and used by everyone involved.

2



## Confidentiality and Usage Protocols

Use and enforce confidentiality and usage protocols for outputs. Who will or will not have access to your data?

3



## Data Management from the Outset

Plan for data management from the beginning by developing data libraries, information management structures, and well-defined definitions of data.

4



## Backup and Secure your Data

Backup your data regularly and secure the backups. Storage solutions should follow the 3-2-1 rule: 3 total copies of your data, 2 of which are local but on different mediums, and at least 1 copy offsite.



# DATA PRINCIPLE 2: OCAP

**OCAP** (Ownership, Control, Access, and Possession):

- **Ownership:** First Nations community or group owns information collectively in the same way that an individual owns his or her personal information
- **Control:** First Nations are within their rights in seeking to control all aspects of research and information management processes that impact them. First Nations control of research can include all stages of a particular research project – from start to finish
- **Access:** First Nations must have access to information and data about themselves and their communities regardless of where it is held
- **Possession:** Possession is the mechanism by which data ownership can be asserted and protected



# DATA PRINCIPLE 3: GOVERNANCE

## DEVELOP A DATA GOVERNANCE STRATEGY

- **VISION:** Clearly define your Nations role as governor and protector of all data and information relating to culture, social, commercial, legal, financial, health, educational, environmental, and any other information
- **PRINCIPLES:** Establish guiding principles for information and its rights, values and goals, owners, controls and distribution
- **ROLES AND RESPONSIBILITIES:** Develop clearly defined roles for who will take on key responsibilities to uphold and implement the data governance strategy
- **CLASSIFICATION:** Identify how information will be categorized based on confidentiality, security, value, and useability



# Considerations for engagement

Language

Participatory

Inclusive

Collaborative

Verification-focused

Transparent

Community-based  
and community  
driven

Innovative

# COMMUNITY BUY-IN

- It is critical for any initiative to gain recognition of the process and spark interest
- It must be tailored to fit the needs and resources of the community
- It must be led by the community
- Leadership and members should be engaged and informed
- Need to create specific and measurable outcomes
- Hire and mentor community-based champions



# CONSENT FORM

## [COMMUNITY] Knowledge and Use Study of the [PROJECT NAME]

Declaration of Informed Consent and Permission to Use Information

I (name) \_\_\_\_\_ on this day (complete date)

\_\_\_\_\_ give permission for The Firelight Group to interview me for the [Community] Knowledge and Use Study of the proposed [Company and Project Name].

By signing below, I indicate that I understand the following:

- (a) I understand that the study is being conducted by [Community]. The purpose of the study is to document the rights and interests of [Community] in the area of the proposed [Company and Project Name].
- (b) I am free to not respond to questions that may be asked and I am free to end the interview at any time I wish.
- (c) I maintain intellectual property rights over my information and recordings collected through my participation.
- (d) The [Community] will ask permission from me or my descendants before using my information for purposes not indicated below (under *Information Use*).

### Information Use

- (e) I consent to the [Community] using the information I provide through my participation to defend and communicate the rights, interests, and titles of its members. This includes, but is not limited to, sharing information for the purposes of negotiation or participation in regulatory or court proceedings in relation to (select all that apply):

- This project—the [Community] Knowledge and Use Study of the proposed [Company and Project Name].
- Other [Community] projects, initiatives, and/or studies that may include but are not limited to ...

### Recording

- (f) I consent to having my words and responses recorded on maps, in notes, and using audio and video recording equipment.
  - YES, I consent to being recorded.

## [COMMUNITY] Knowledge and Use Study of the [PROJECT NAME]

Declaration of Informed Consent and Permission to Use Information

- NO, I do not consent to being recorded.

### Information Storage

- (g) I consent to having the information I provide through my participation stored securely:
  - Until the completion of the [Community] Knowledge and Use Study of the proposed [Company and Project Name].
  - For an indefinite period of time, by the [Community].
  - Does not apply; I do not consent to being recorded.

### Identification and Anonymity

- (h) I understand that the [Community] will take all reasonable measures to protect my identity and maintain my anonymity around my participation. However (select all that apply):
  - I consent to being quoted in reports and other deliverables.
  - I consent to the use of my name in reports and other deliverables.

For more information, please contact [Name, Position, Phone Number].

Signature of participant

Witness

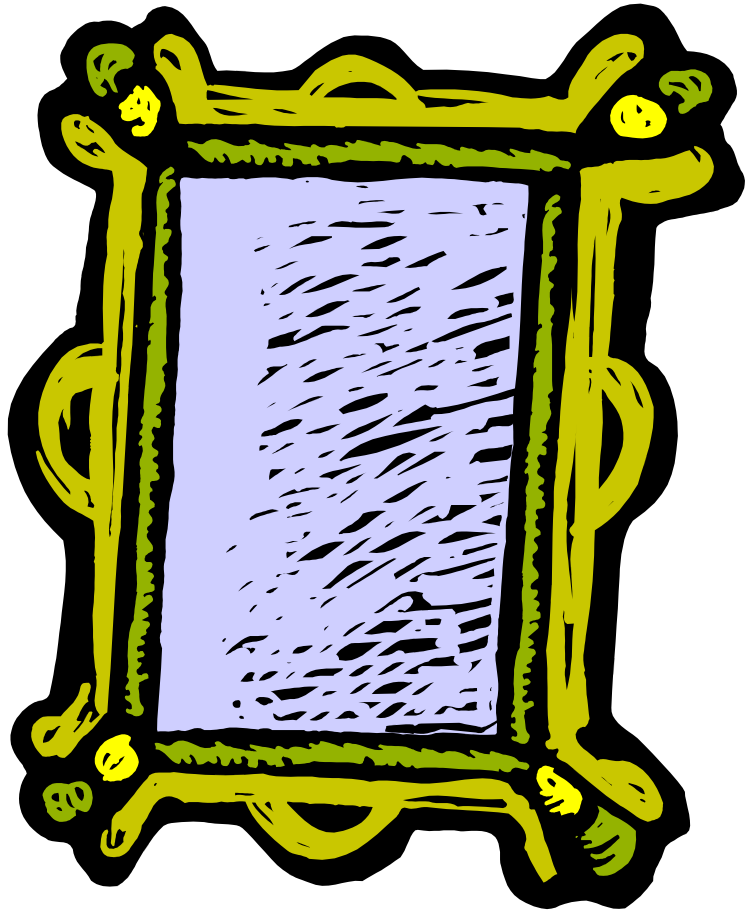
\_\_\_\_\_

# ENGAGEMENT

- Involve all aspects of the community (children, youth, adults, elders, men and women)
- Create committees (elders, family representatives) who are actively engaged in activities
- Identify community priorities (goals to actions)



# RECORDING INDIGENOUS KNOWLEDGE



...IK, TK, TUS, UOM, AIUS, TLU, ATK, IK, TEK, TEKMS...

- Many names, common roots:
  - Systematic and evidence-based
  - Indigenous knowledge and social science
  - Describe rights and interests of a community
- Analogy:
  - Painting a picture of 'how' and 'why' the land is important to you.



# RE-STORYING SPACE AND PLACE



THE FIRELIGHT GROUP

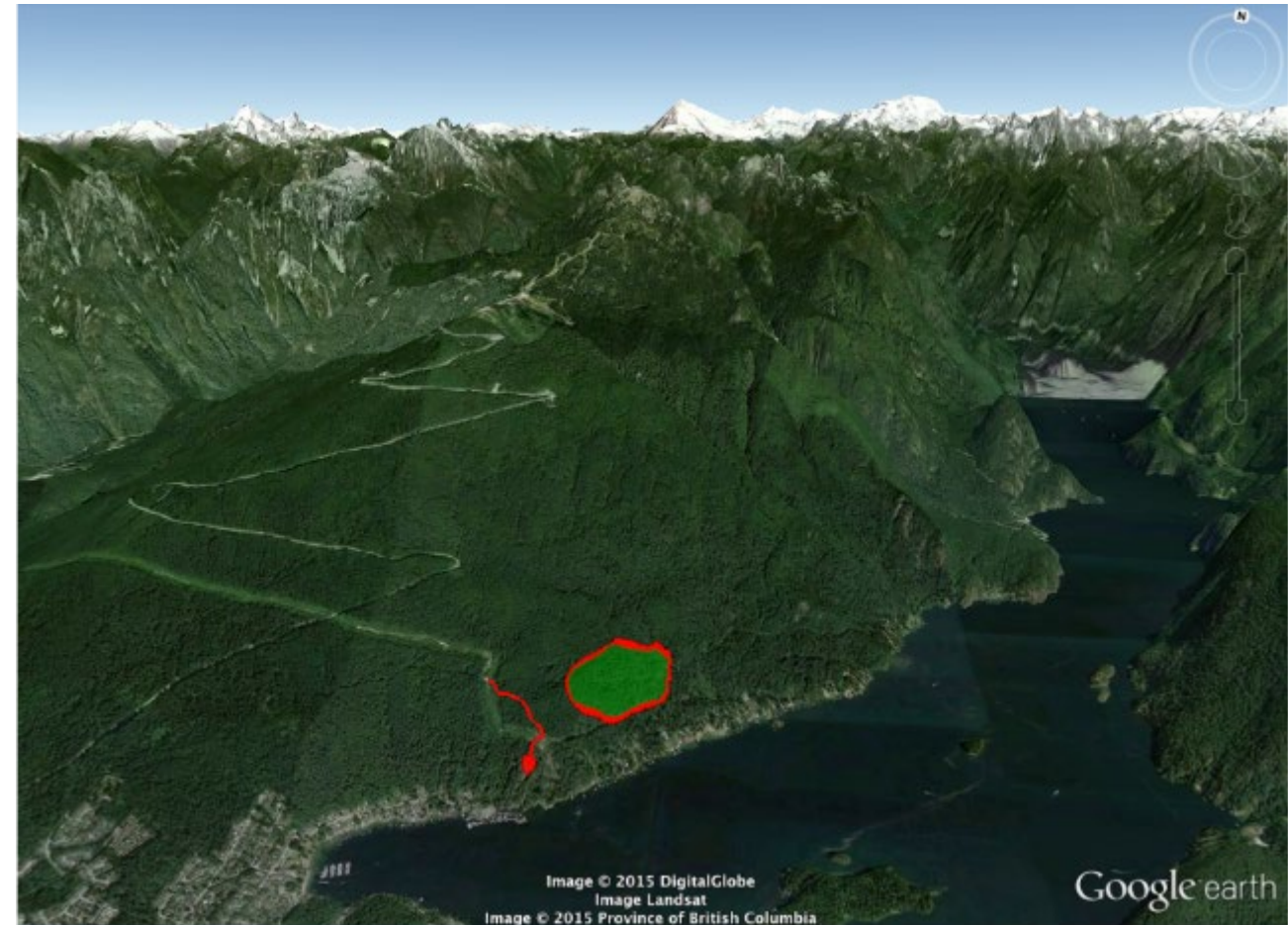


**A long history of paper mapping**

# FIRELIGHT PIONEERED THE DIRECT-TO-DIGITAL MAPPING METHOD



# DIRECT-TO-DIGITAL MAPPING WITH GOOGLE EARTH



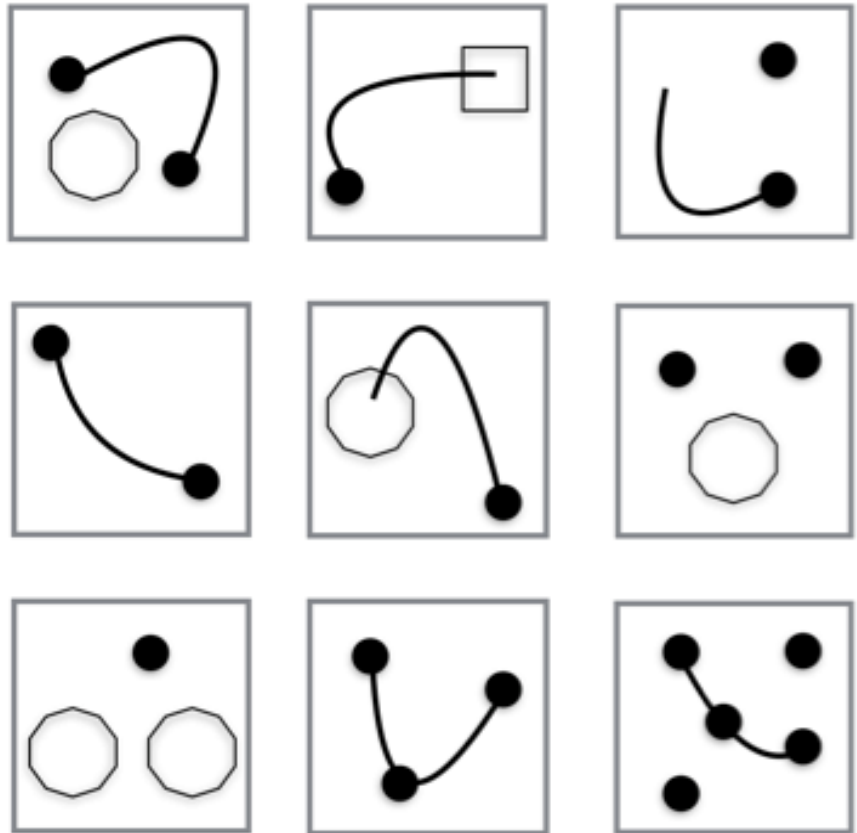


# INTERVIEW QUESTIONS

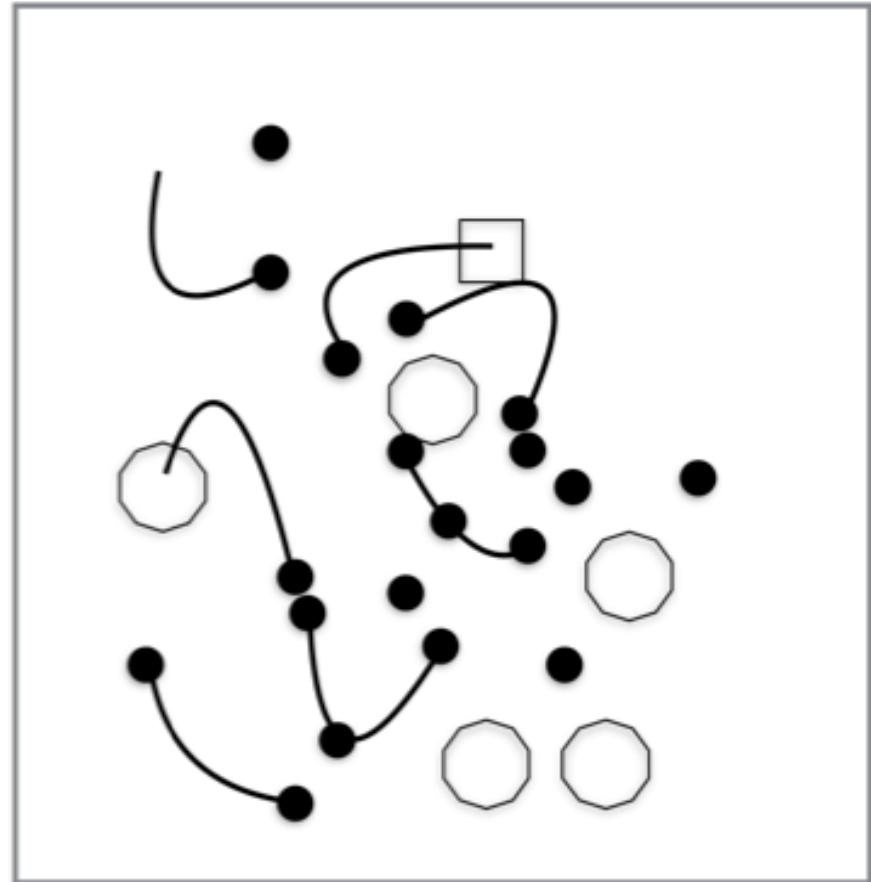
- Background and experience
- Habitation – *campsites, cabins on the land*
- Transportation – *travel routes, portages*
- Subsistence – *fishing areas, hunting sites, plant/berry picking areas*
- Cultural – *spiritual areas, gathering places*
- Environmental – *calving / spawning areas, sensitive habitats*
- How have you used the Project area?
- What do you think will impact your use of the land and water?
- What might affect you and/or future generations use of the land and water?

# EVERYONE'S EXPERIENCE AND KNOWLEDGE MATTERS

INDIVIDUAL MAPPING INTERVIEWS



COLLECTIVE MAPPING DATA



# RESEARCH OUTPUTS

An individual interview may produce 2 distinct outputs of information

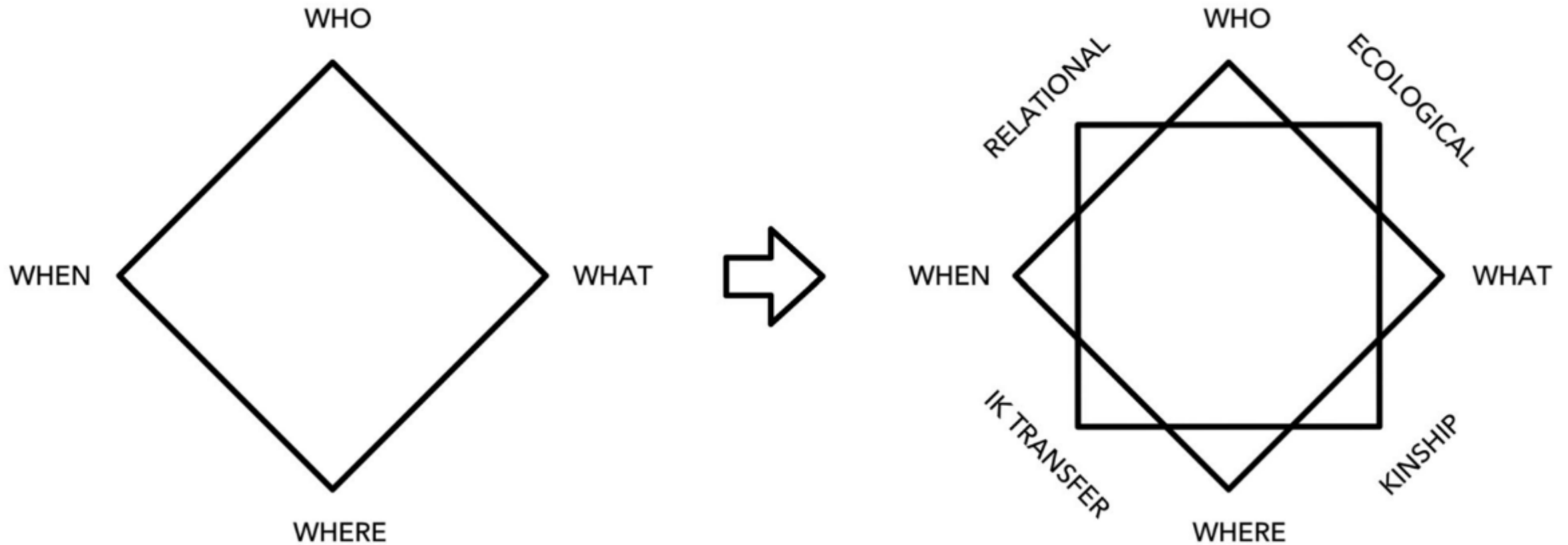
Site-specific map data



Qualitative data



# ADVANCED INDIGENOUS SPATIAL DATA QUALITY METRICS





# WHAT GETS PRODUCED



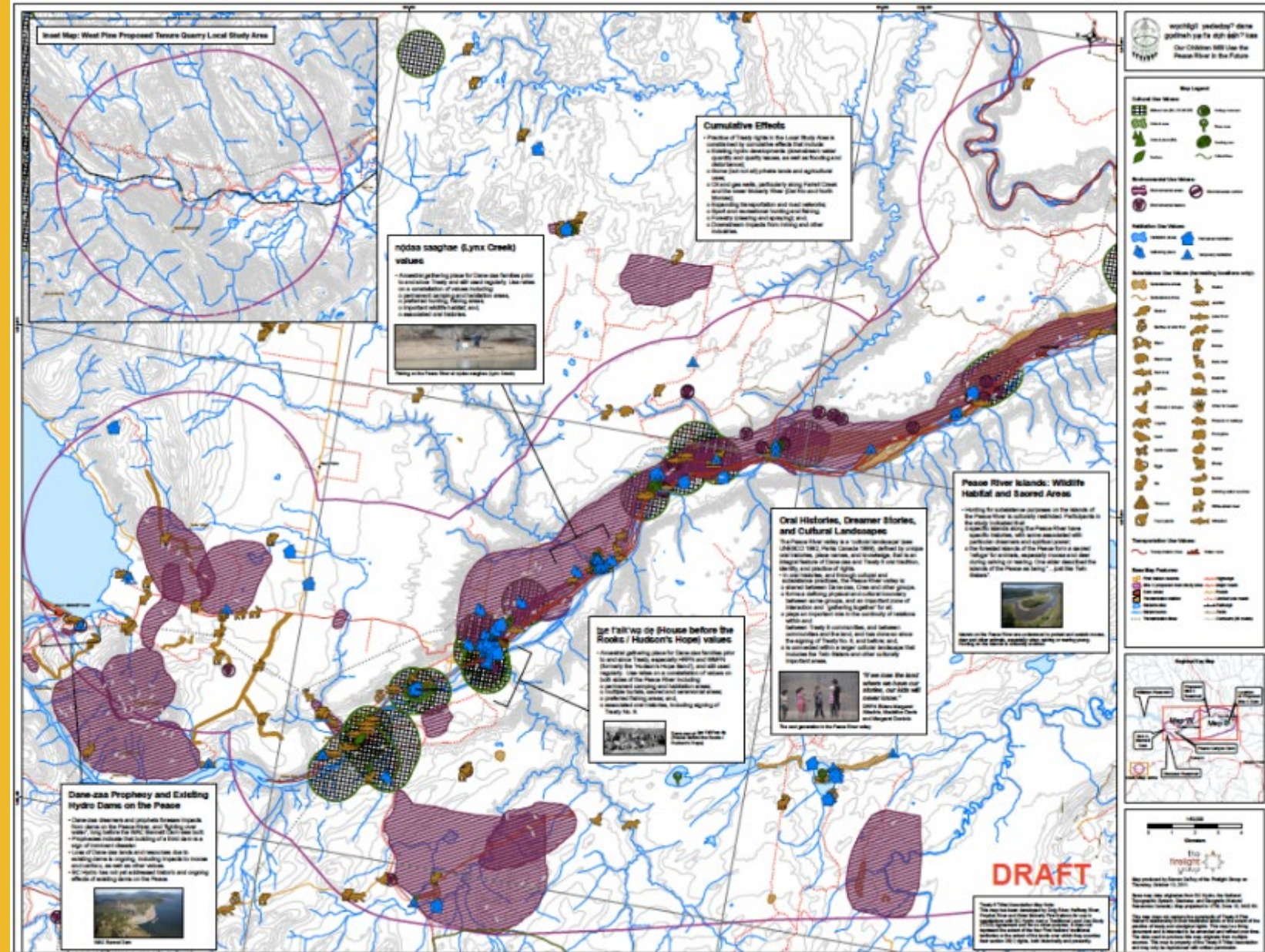
Internal, **confidential** version  
containing all raw results



External, **non-confidential**  
version containing community-  
approved results

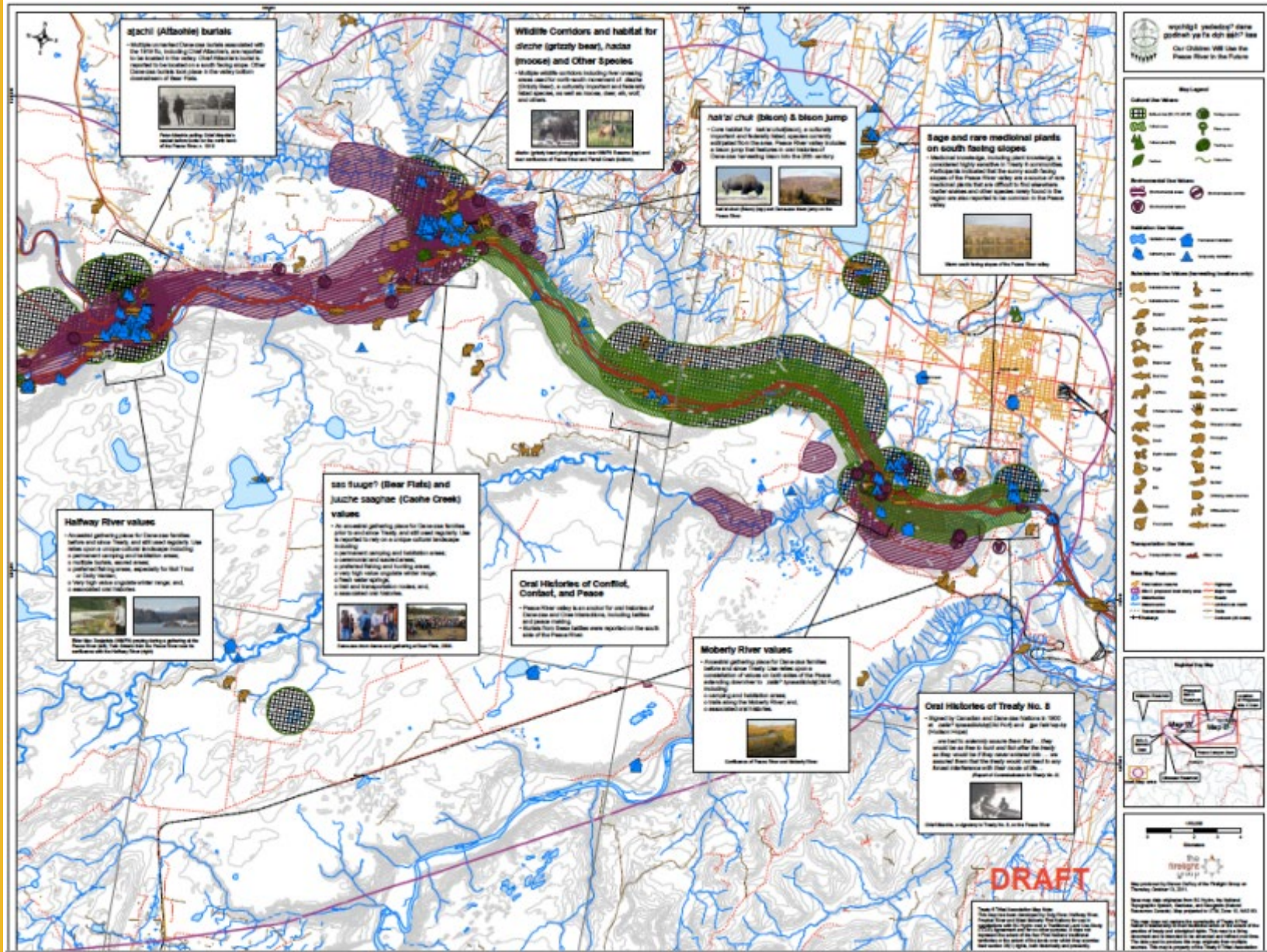
# Treaty 8 First Nations

Example Output Map

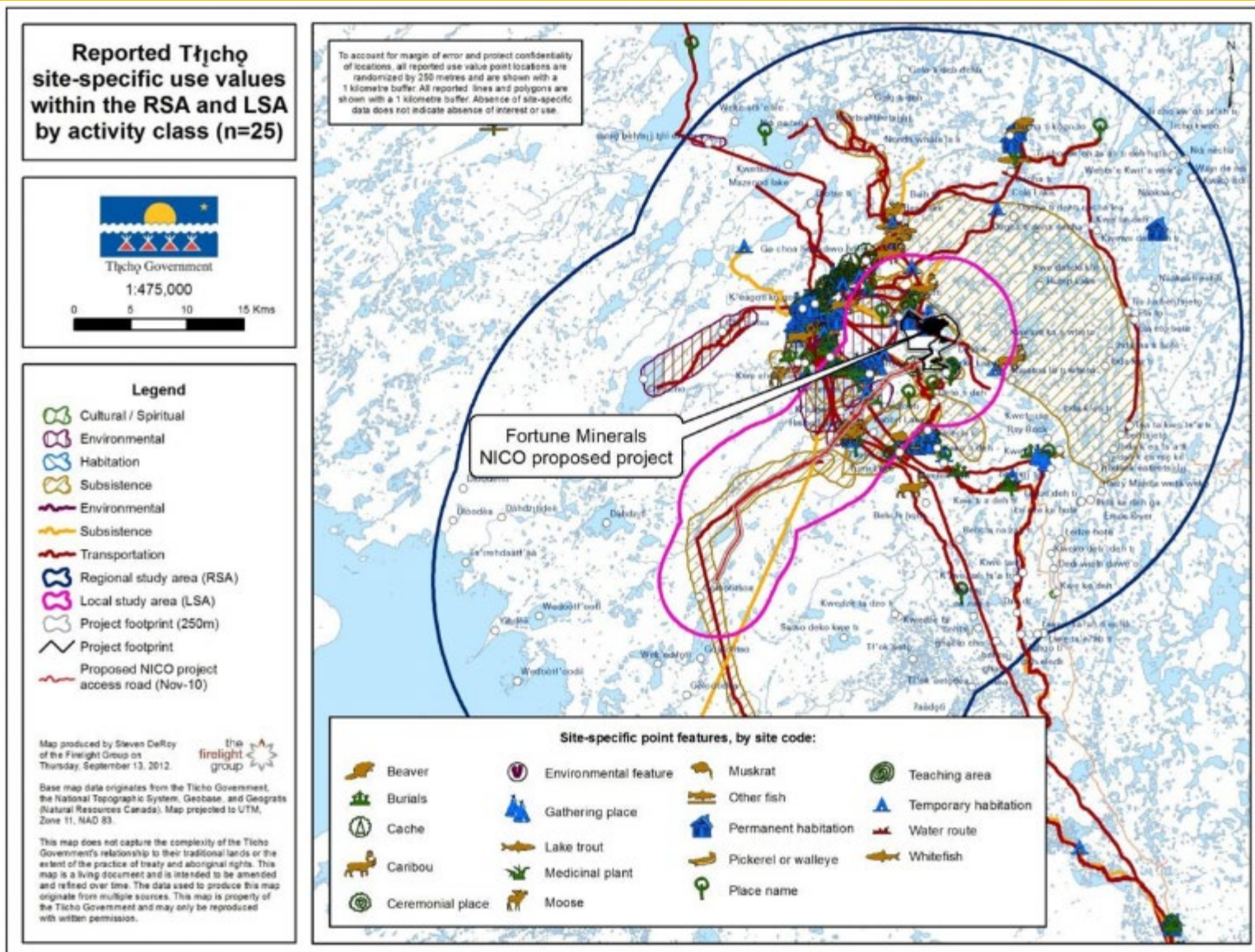


# Treaty 8 First Nations

Example Map



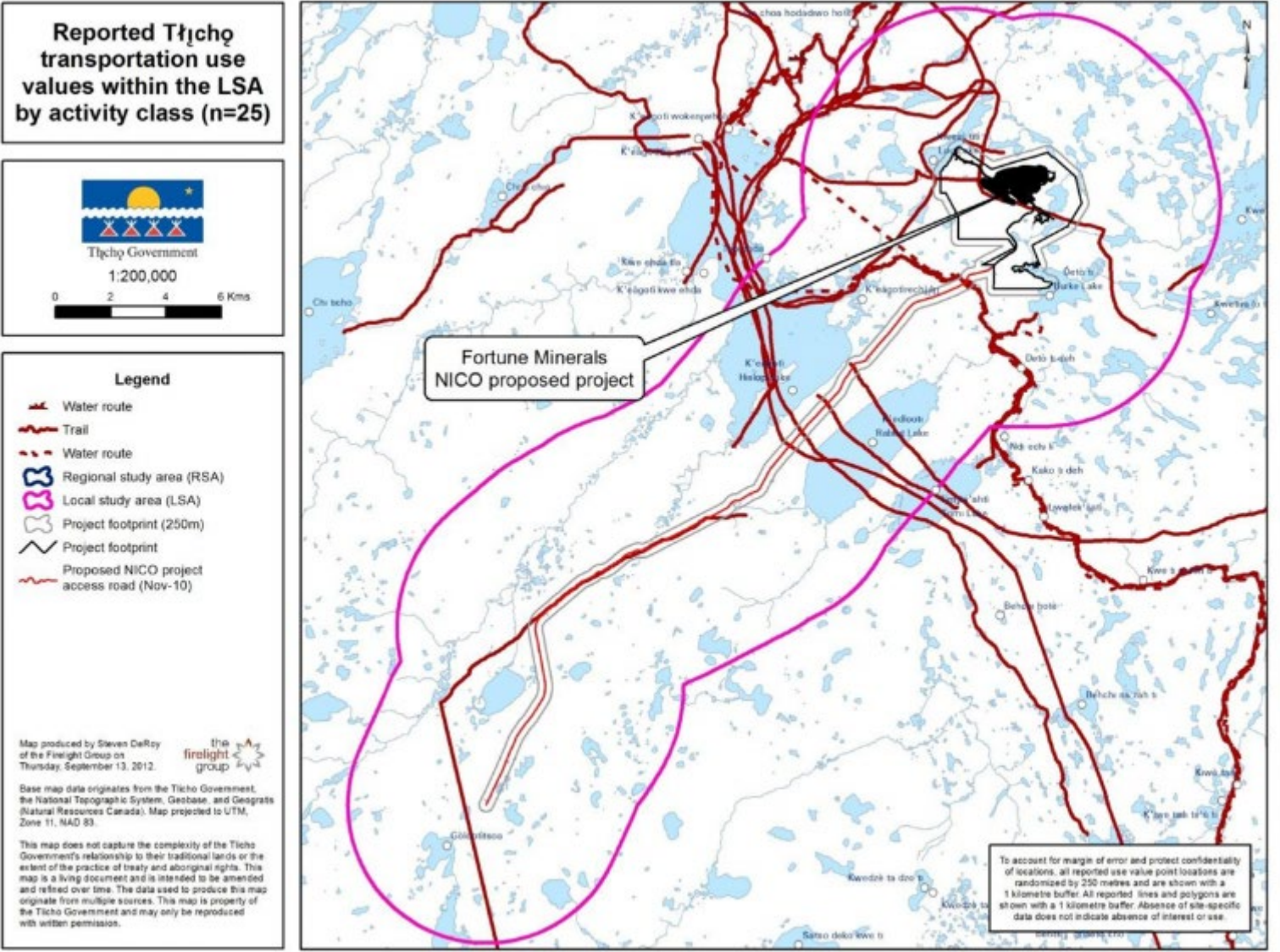
# Tlicho Nation Traditional Knowledge and Use Study



- Fortune Minerals proposed to develop a poly-metallic mine called the NICO Project.
- Situated in Tlicho territory near Yellowknife, Whati and Gameti in the Northwest Territories
- 31 mapping interviews were carried out with elders and land users from the four Tlicho communities.

Source: [https://firelight.ca/wp-content/uploads/2016/05/EA0809-004-Traditional\\_Knowledge\\_and\\_Use\\_Study\\_Tlicho\\_Government.pdf](https://firelight.ca/wp-content/uploads/2016/05/EA0809-004-Traditional_Knowledge_and_Use_Study_Tlicho_Government.pdf)

# Tlicho Nation Traditional Knowledge and Use Study



- The main water transportation corridor is known as the Idaa trail
- Multiple accounts of critical travel routes and critical mode of accessing surrounding lands
- Trapline areas would be affected by proposed mining

Source: [https://firelight.ca/wp-content/uploads/2016/05/EA0809-004-Traditional\\_Knowledge\\_and\\_Use\\_Study\\_Tlicho\\_Government.pdf](https://firelight.ca/wp-content/uploads/2016/05/EA0809-004-Traditional_Knowledge_and_Use_Study_Tlicho_Government.pdf)

# **3. Indigenous Mapping**

**Collective:**

**Building a global community of  
Indigenous mappers**



**“FOR TOO LONG, INDIGENOUS PEOPLES  
HAVE BEEN EXCLUDED FROM THE MAP.  
WE’RE CHANGING THAT.”**



**INDIGENOUS MAPPING  
COLLECTIVE**

# THE RAPID CHANGE OF GEOGRAPHIC INFORMATION SCIENCES



Paper mapping



Desktop  
computing



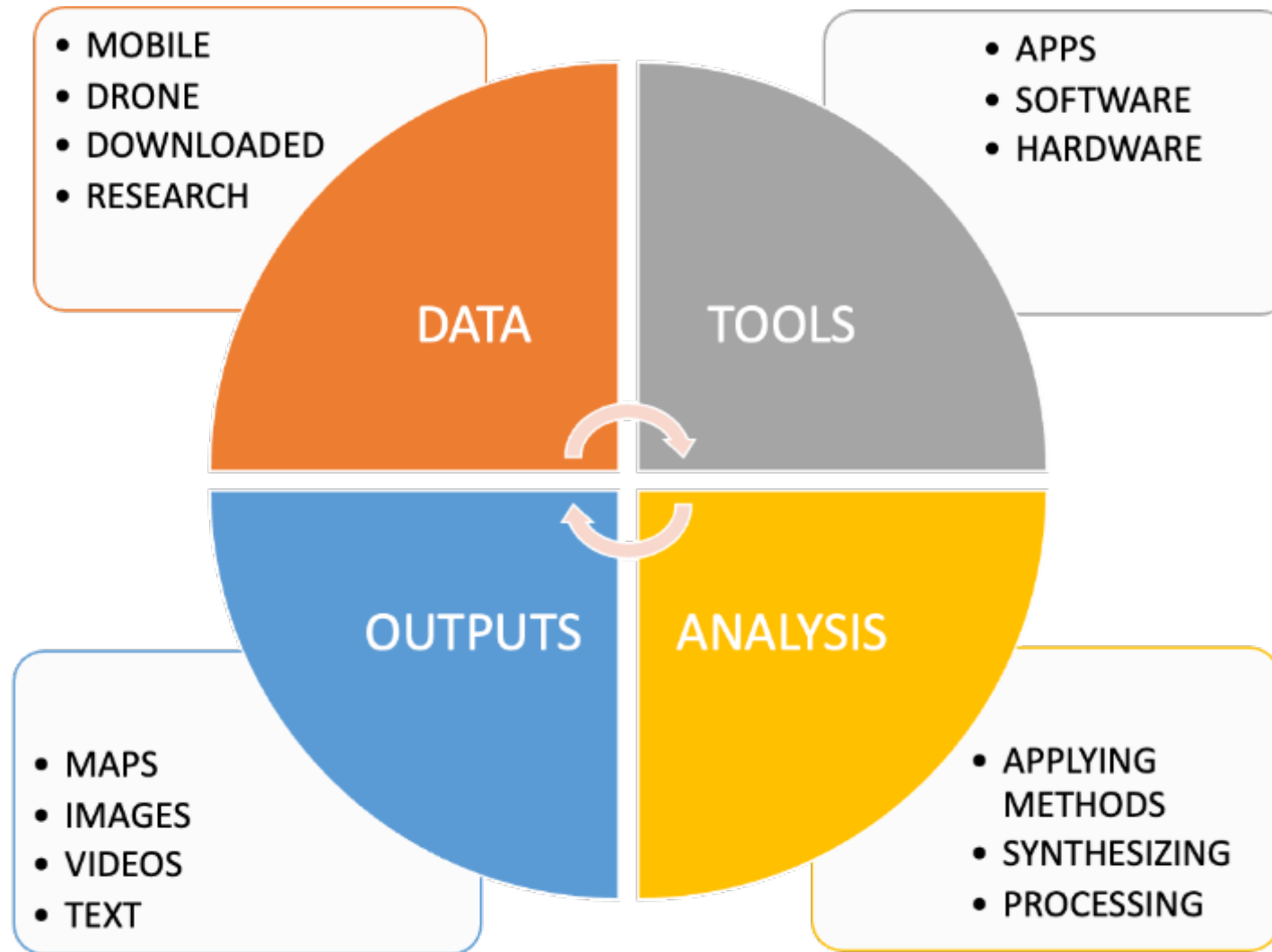
Mobile mapping



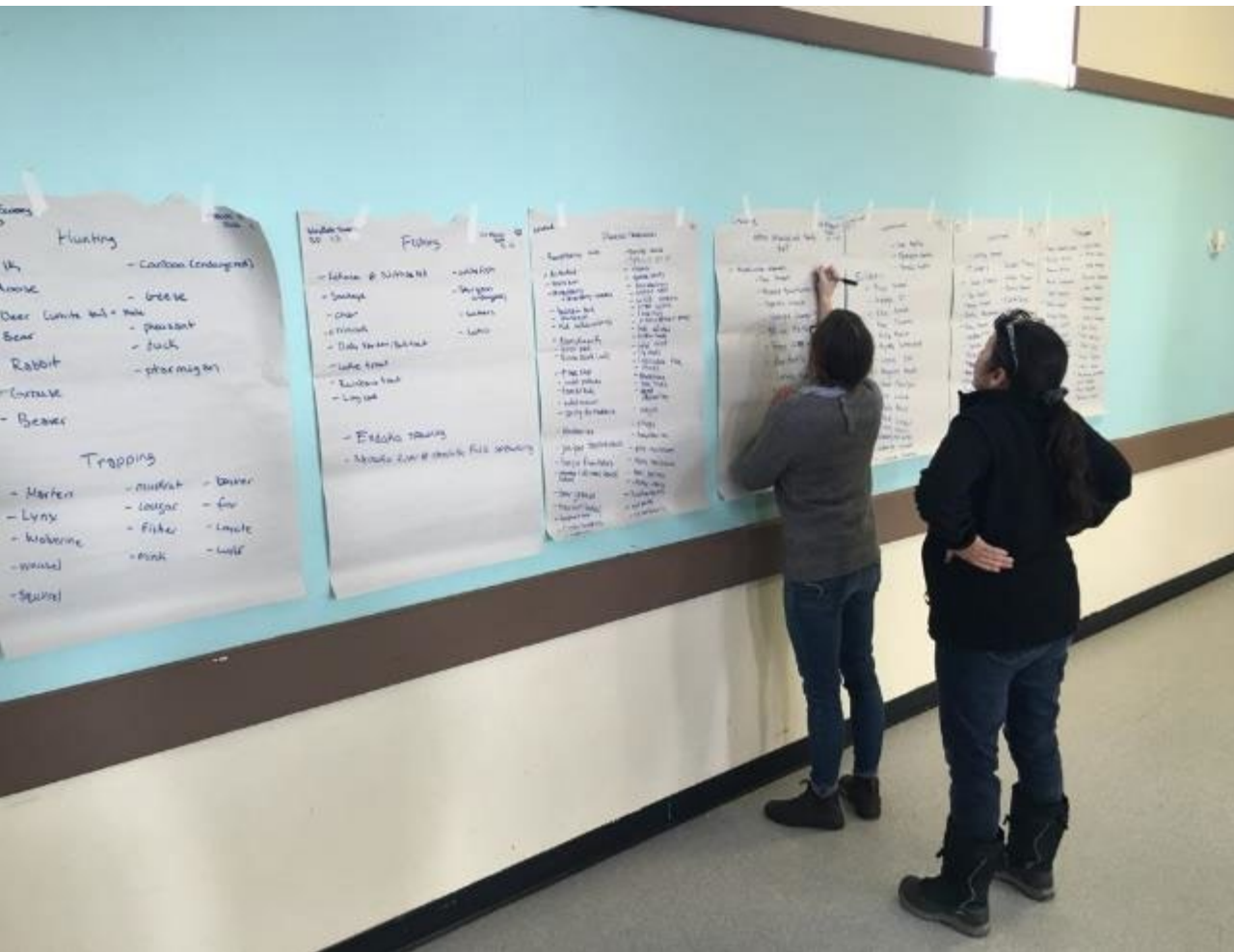
Cloud-based GIS



# WHAT IS INDIGENOUS MAPPING?



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# GOALS FOR THE INDIGENOUS MAPPING WORKSHOP

Create	A safe space for indigenous people to talk and share stories of the use of maps, data and technologies
Increase	Spatial literacy by providing access to culturally relevant training
Expose	Indigenous peoples to the wide variety of geospatial technologies and techniques
Advance	Indigenous pedagogy's of mapping and research methodologies
Build	A global community of Indigenous mappers

# COMMUNITY PARTNERS



UNION OF BC INDIAN CHIEFS  
OUR LAND IS OUR FUTURE



## TECHNOLOGY PARTNERS



Google Earth Outreach



## EDUCATION PARTNERS

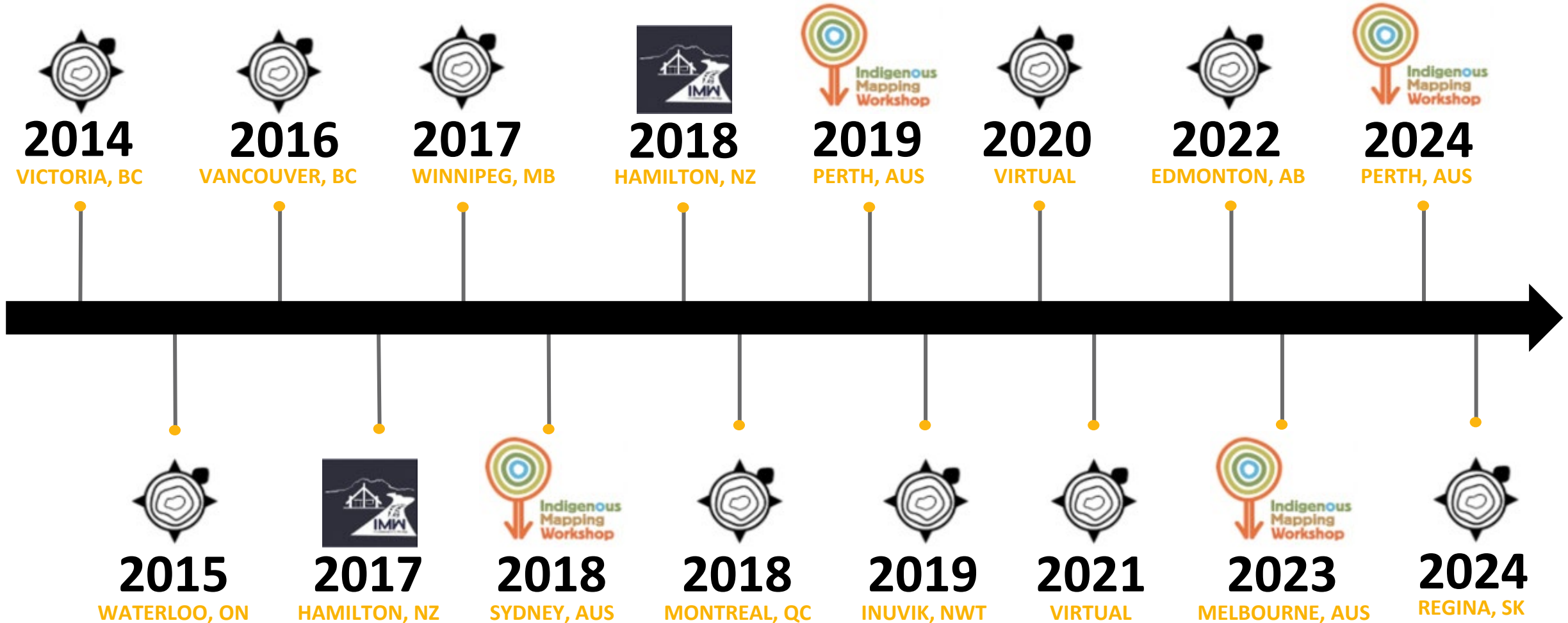


## GOVERNMENT PARTNERS





# 10 YEARS OF GEOSPATIAL TRAINING



# IMW OFFERS MICROCREDENTIALS



## INDIGENOUS CONTINUING EDUCATION CENTRE



The First Nations University of Canada (FNUniv) established the Indigenous Continuing Education Centre (ICEC) to strengthen connections, communities and economies through sharing Indigenous knowledge and providing professional development and lifelong learning opportunities.

# LEARN MORE AT INDIGENOUSMAPS.COM



# Gitchi miigwetch!

## Connect with us



**(778) 980-4547**



**steve@firelight.ca**