June 12, 2025 Via email

Pete Cott
Manager, Habitat and Environmental Assessment
Wildlife Management Division
GNWT- Environment and Climate Change
Yellowknife, NT

Jennifer Carpenter
Superintendent
Nahanni National Park Reserve
10005-100 St, PO Box 348, Fort Simpson NT X0E 0N0

Re: Canadian Zinc - Phase 1 (Winter Road) Wildlife Management and Monitoring Plan 2024 Annual Report, Prairie Creek, Northwest Territories

Please find attached the Phase 1 Wildlife Management and Monitoring Plan 2024 Annual Report (WMMP Annual Report). This WMMP Annual Report is being submitted to address the approved Phase 1 WMMP annual reporting requirement.

If you have any further questions, please do not hesitate to contact myself or Lynn Boettger, Permitting Manager, Lynn.Boettger@norzinc.com.

Sincerely,

Claudine Lee
VP Corporate Social Responsibility

Cc
Dr. James Hodson, GNWT-ECC
Heather Sayine-Crawford, GNWT-ECC
Audrey Steedman, Parks Canada

Attachment

NORZINC
A PREMIUM MINE DEVELOPER

Prairie Creek Mine All Season Road Phase 1

Wildlife Management & Monitoring Plan

2024 Annual Report

June 2025

Table of Contents

List of Abbreviations

ASR	All Season Road
AVC	Animal Vehicle Collision
ARU	Acoustic Recording Unit
CZN	Canadian Zinc Corp.
DFN	Dehcho First Nations
DM	Dene Monitor
ECCC	Environment and Climate Change Canada
ENR/ECC	Environment and Natural Resources *Note: ENR is currently ECC or Environment and Climate Change. There will be some references to ENR in this Annual Report when referring to past approvals or similar.*
KM	Kilometre Marker
LKFN	Łíídlıį Kų́ę́ First Nation
m	Metres
NDDB	Nah?a Dehé Dene Band
NNPR	Nahanni National Park Reserve
WR	Phase 1 Winter Road *Note: The acronym for the Phase 1 Winter Road has also been presented in various documents as PWR and there are some references that use this acronym when referring to past approvals or similar within this Annual Report.*
QEP	Qualified Environmental Professional
REA	Report of Environmental Assessment
ROC	Road Oversight Committee
WMMP	Wildlife Management and Monitoring Plan

1.0 Introduction and Background

Canadian Zinc Corporation (CZN) is planning to operate the Prairie Creek Mine (the Mine) located at approximately 61° 33' north latitude and 124° 48' west longitude adjacent to Prairie Creek, a tributary of the South Nahanni River, in the southwest corner of the Northwest Territories (see Appendix A for Overview Map). The Mine is 100% owned by CZN, a wholly owned subsidiary of NorZinc Ltd.

To access the Mine, a 170 kilometre All Season Road (ASR) is necessary to support the transport of concentrates produced at the Mine as well as the delivery of operating supplies to the Mine. The ASR will connect the Mine to the Liard Highway via a 10 kilometre section of the already established Nahanni Butte Access Road.

The ASR route spans three land tenure jurisdictions: Territorial (non-Federal) lands, federal Indian Affairs Branch Lands, and Parks Canada for the portion of the ASR located in the Nahanni National Park Reserve (NNPR). The ASR route passes through a variety of terrain from low-lying floodplains, mountain foothills, river valleys, plateaus, mountainous stream valleys, and mountain passes. The road geometry is intended to support a haul speed of 40 kilometres per hour where terrain conditions permit. In general, the ASR will have a 5-metre wide running surface (wider at curves, turns and pullouts) and the right-of-way will be cleared 15-30 metres depending on conditions along the alignment. Camps are currently anticipated to be required at multiple locations along the route during construction. Fuel will be stored in suitable tanks with containments proximal to construction locations. The route crosses the Liard River near Nahanni Butte and will utilize a conventional barge during non-winter operations and an ice bridge during winter operations.

The ASR will be built in two phases. Phase 1[1] consisted of the construction of a temporary road (Phase 1 Winter Road (WR); the Project), that was intended to provide seasonal access, for one winter, to complete geotechnical and geophysical investigations for Phase 2. Phase 2[2] includes all activities to support the construction of the ASR including the construction and operation of winter roads and ASR construction.

The Phase 1 Wildlife Management and Monitoring Plan (WMMP; the Plan) was prepared for CZN by Tetra Tech Canada Inc. (Tetra Tech) in 2022. This management plan outlined the mitigation, monitoring, and adaptive management responses that were to be employed during Phase 1 construction of the Prairie Creek Winter Road (WR). Under the *NWT Wildlife Act* and the

[1] Defined in the authorizations as "Phase 1 – activities to support the Construction of the All Season Road in Phase 2, including the Construction and operation of the Winter Road to conduct Geotechnical Investigation and transport equipment and materials to Prairie Creek Mine."

[2] Phase 2 is defined in the Project authorizations as "the activities to support the Construction of the All Season Road including the Construction and operation of the Winter Road and All Season Road Construction."

Canadian National Parks Act, the Plan is binding and enforceable, once approved by the Minister of Environment and Natural Resources (ENR) and Parks Canada Agency (Parks Canada), respectively. The Plan was approved by ENR on October 14, 2022 (Version 5) and by Parks Canada on October 31, 2022 (Version 6). There is currently not an approved version of a WMMP for Phase 2 (Construction) of the ASR.

1.1 Phase 1 Winter Road

Construction of Phase 1 was completed in the winter season of 2022/2023. Phase 1 included a mulched trail followed by typical and non-typical winter road construction. It is important to note that the WR was constructed differently than originally planned. There was very limited access beyond the Grainger Gap area, the WR was only connected for a short period (approximately one month) before deactivation began, and only one camp was built (which was located at Kilometre Marker (KM) 178). Phase 1 has since been deactivated.

1.2 Activities in 2024

In 2024, post-construction monitoring continued as per the authorizations, approved Phase 1 management plans, and deactivation plan(s). No construction activities occurred; Phase 2, Construction of the ASR, was not started.

1.3 Annual Report Structure

To satisfy the reporting requirements outlined within the Phase 1 WMMP, an Annual Report must be provided to regulators and local Indigenous groups to solicit review of the effectiveness of mitigation measures and, following discussion in Road Oversight Committee (ROC) meetings, to suggest modifications to mitigation and monitoring plans, as necessary. This report is intended to fulfill CZN's Annual Reporting requirements for the WR (Section 10.0, Item 5 of WMMP). It is inclusive of the timeframe from January 1, 2024 to December 31, 2024. This is hereinafter referred to as the "reporting period".

The following reporting requirements from Section 10.0 (Reporting), Item 5 (Annual Report) of the Prairie Creek All Season Road: Phase 1 Winter Road Wildlife Management and Monitoring Plan (October 2022) stipulate that the Annual report will be provided to Parks Canada, ECC, ECCC, Nah?a Dehé Dene Band (NDDB), Łíídlıį Kų́ę́ First Nation (LKFN), and Dene First Nation (DFN). The annual report is to include, but is not limited to:

a) Project review including the footprint spatial data, post-construction of the WR (refer to Section 7.3 of the Phase 1 WMMP).

b) Issues of non-compliance, wildlife incidences, and mortalities (including wildlife collisions involving project-related vehicles on the WR and NWT highways).

c) Mitigations implemented including locations of wildlife caution zone signage to inform more permanent management options.

d) Summary of activities conducted under, and results of, the monitoring programs including action level exceedances and adaptive management response to inform subsequent Project phases.

e) Effectiveness of mitigation and adaptative management, as well as any unforeseen issues and applicable advice from regulators, any changes implemented, and how Dene Knowledge informed these changes.

f) Updated species observation maps and models. Updates to the grizzly den habitat suitability model (as required) based on the habitat characteristics at newly detected dens, as well as maps to include new wildlife trails and observations of caribou, Dall's Sheep, large carnivores (bears, wolverine, wolves), moose, and bison to inform subsequent Project activities.

g) Approved updates to the WMMP, including the monitoring procedures, those informed by Dene Knowledge, Species at Risk status updates (i.e., Table 2 updates and camp Species at Risk posters), and mitigations (e.g., ENR's Woodland Caribou Best Management Practices for Industrial and Commercial Activities (as applicable)).

h) Effects monitoring schedule for the next reporting period.

i) Wildlife Observation Logs in a tabular format that includes coordinates or road KMs for submission to ENR's Wildlife Management Information System and to Parks Canada. Also submit the Wildlife Observation Logs to ENR's Wildlife Management Information System (WMISTeam@gov.nt.ca).

j) The Wildlife Harvest dataset for submission to Parks Canada.

These requirements of the Annual Report are addressed in the following.

2.0 Reporting

a) Project review including the footprint spatial data, post-construction of the WR (refer to Section 7.3 of the Phase 1 WMMP).

As mentioned, no construction activities occurred within the reporting period. Post-construction monitoring occurred in line with the conditions of permits, the approved management plans and/or similar. CZN staff followed the approved management plan(s), project authorization conditions, restricted access permit conditions (required within the NNPR), and general best practices when conducting post construction monitoring. This includes adhering to such conditions as no littering, no approaching or feeding wildlife, and responsible use of the helicopter.

There were three programs related to wildlife effects monitoring conducted in the reporting period. These programs were the continuation of the northern mountain and boreal caribou collaring, and the deployment/retrieval of bird recorders. These programs are discussed further under section d below.

b) Issues of non-compliance, wildlife incidences, and mortalities (including wildlife collisions involving project-related vehicles on the PWR and NWT highways).

There were no issues of non-compliance, wildlife incidences, and mortalities to report. The exception to this being the natural mortalities of the caribou that had been previously collared.

These natural mortalities are discussed further under section d.

c) Mitigations implemented including locations of wildlife caution zone signage to inform more permanent management options.

Since no construction activities occurred, there were no new mitigation measures implemented in the reporting period. Mitigation measures that have already been implemented were reported on previously for the Phase 1 WR. For reference, this list can be found in Appendix B of the 2023 Phase 1 Annual Wildlife Management and Monitoring Report.

d) Summary of activities conducted under, and results of, the monitoring programs including action level exceedances and adaptive management response to inform subsequent Project phases.

Bird Acoustic Monitoring

The objective of the Bird Acoustic Monitoring program is to identify changes to the bird community and to select bird species along the road alignment over time. As planned in the WMMP, Autonomous Recording Units (ARUs) were installed after WR construction to monitor the bird community and select bird species. In the reporting period:

- Data from the 24 ARUs deployed in 2023 were analyzed in 2024, focusing on the human-listening component and power analysis (refer to Appendix B). This data will be included in the Phase 2 WMMP. Similarly, data from three ARUs provided by Parks Canada near the road alignment area were also analysed, along with data from one ARU that was missing in the field since 2017.
- An additional 40 recorders were deployed between May 22 and June 1, 2024 along the road alignment (between KM 4 and 142) and left to operate through the bird breeding period. Most were retrieved in August and September, leaving 11 recorders in the field. The units left over the winter will be maintained as needed during the 2025 ARU installation and programmed for reuse. The data collected will also be retrieved and analyzed with the other 2024 ARU data.

Boreal Caribou

In discussion with regulators after the Phase 1 WR, CZN collaborated with ECC to initiate a collaring program for boreal caribou. This program replaces the boreal caribou winter track survey conducted in 2023, which found no caribou tracks and very few moose and wolves along the road alignment.

In the first year of the program (2024), five (5) cows were collared by ECC. The details of the collaring are as follows:

- All five collars were deployed between February 21 and 25, 2024 northeast of Grainger Gap, approximately 20 and 40 km from the Phase 1 WR. The size of the groups from which a cow was collared is unreported.
- An additional ten collars were deployed in 2025, outside this reporting period.

Northern Mountain Caribou

This program started in the fall of 2022 and was discussed in the Phase 1 Annual Wildlife Management and Monitoring Report. Effort to collar additional mountain caribou continued from January 31 to February 3, 2024 (during the reporting period) when three (3) additional cows were collared on the last field day. These captures were located approximately 11 km southwest of KM 1 and 20 km north of KM 7.

To date, a total of 16 mountain caribou have been collared. During the capture, the size of the groups from which a cow was collared ranged from as few as 5 to at least 50 individuals. An interim summary of the mountain caribou collar data to May 14, 2025 is provided as a separate document in Appendix C. The document is in html format and can be viewed in any modern browser after uncompressing to a local folder. The interim summary includes both static and dynamic maps. A connection to the internet is required to view the dynamic maps.

The document includes a summary of deployment dates and duration, maps of collar locations and estimates of space use, predicted road crossing locations, and predictions of possible calving locations. The collar data collected to date indicates that caribou may be found near the road (within 5 km) in any season. To date, two of the 16 collared caribou crossed the road east of Sundog Creek, between about KP 39 and 45. Possible calving locations are all at higher elevation. The closest predicted calving location is approximately 1.5 km north of KP 16.

CARIBOU MORTALITIES

As indicated, the boreal caribou live collar data is delivered directly from Telonics (the collar manufacturer) to ECC, whereas the mountain caribou collar data is provided via the Movebank data repository, operated by Tetra Tech and shared directly with ECC, Parks Canada, and CZN. Table 1 summarizes the four mortality flags received in 2024 from the mountain caribou collars and the single boreal caribou mortality flag reported by ECC. ECC may have received additional mortality flags from the collared boreal caribou.

Table 1 - Caribou Mortality Summary

Date of Mortality Flag	Ecotype	Date of Collar Retrieval	Mortality investigation results	Investigation Status
January 6, 2024 (note discussed briefly on page 18 of the 2023 report)	Mountain	September 1, 2024	Occurred at the bottom of a steep valley with thick woodland tree and shrub cover, approximately 8 km southwest of KM 1. Predation is the suspected cause of death.	Closed
April 26, 2024	Boreal	Unknown	Mortality site unreported. ECC suspected predation as the cause of death.	Closed
April 29, 2024	Mountain	August 31, 2024	Occurred in the Prairie Creek valley, approximately 3 km north of KM 7. The investigation could not determine the cause of death.	Closed
September 3, 2024	Mountain	September 29, 2024 (retrieved by Parks Canada)	Occurred in the Ram River valley, approximately 15 km north of KM 20. Cause of death unreported.	Closed
December 12, 2024	Mountain	Not applicable	Occurred approximately 100 km northwest of the mine camp.	Open

			Collar retrieval and the mortality investigation have not yet been completed.	

e) Effectiveness of mitigation and adaptative management, as well as any unforeseen issues and applicable advice from regulators, any changes implemented, and how Dene Knowledge informed these changes.

Construction activities did not occur during the reporting period, resulting in no changes to the project footprint or risks to wildlife and their habitats (e.g., no risk of spills, harm, or disturbance to wildlife or their residences). Similarly, access remained unchanged due to the deactivated WR.

Post-construction monitoring was conducted according to the conditions of permits, approved management plans, and general best practices. Staff adhered to guidelines, including no littering, no approaching or feeding wildlife, and responsible helicopter use during monitoring activities.

Since staff diligently followed the approved management plans and project authorization conditions, no unforeseen issues arose. As a result, no additional advice from regulators or from Dene Knowledge was necessary during this reporting period.

f) Updated species observation maps and models, including the grizzly bear den habitat suitability model (as required).

The incorporation of new wildlife observations into the wildlife mapping is ongoing. The latest version of the mapping was provided in the draft Phase 2 WMMP.

g) Maps with new wildlife trails and observations of caribou, Dall's sheep, large carnivores (bears, wolverine, wolves), moose, and bison to inform subsequent Project activities.

See the comments under section f above.

h) Approved updates to the WMMP.

Updates to the approved WMMP were not required during the reporting period.

i) Effects monitoring schedule for the next reporting period.

For Phase 2[3], CZN proposes to build the ASR in three years which would see construction occur during three winter and two summer seasons. The ASR is expected to be operational for 15 years (to coincide with the projected mine life), followed by 2 to 3 years of reclamation.

The current project schedule is reflective of what was presented in the Environmental Assessment information package submitted to regulators in 2019[4]. The exact start of Phase 2 is not known as it will be dependent upon having all the required regulatory approvals in place as well as project funding and resourcing determined. Further details on scheduling will be known once the feasibility study has been updated and reviewed. The exact end to Phase 2 is not known either as it depends on the start date of the construction. However, a reasonable expectation would be that Phase 2 is occurring during the calendar years of 2026-2028. The ASR route is planned to be advanced via sections, starting at each end (the Mine and KM 170), and working towards a connecting location. Phase 3 (operation) will occur following construction.

It is anticipated that wildlife baseline and effects monitoring will continue in preparation for the start of Phase 2 (Construction of the ASR). This includes the deployment/retrieval/analysis of bird ARUs, western toad breeding pond, pika, bats and cave baseline, and den and nest surveys, as well as the continued collection of mountain and boreal caribou collar data. Parks Canada and ECC are also undertaking wolverine, grizzly bear, and Dall's sheep surveys in advance of Phase 2 construction.

The next annual reporting period is anticipated either under the approved Phase 1 WMMP, which will comprise no new construction activities similar to this reporting period, or under Phase 2 WMMP depending on the Project schedule described above. The Phase 2 WMMP integrates several changes based on lessons learned during Phase 1. Examples of these adaptations include:

- Implementing snow storage solutions outside the pika exclusion area and improving the visibility of exclusion zone markers.
- Based on input from Parks Canada and results of the northern mountain caribou collaring program, it was determined that a pellet count survey program was not necessary.
- Based on input from Parks Canada and ECC, the winter track survey program was replaced with a boreal caribou collar program.

[3] Defined in the authorizations as "**Phase 2** – activities to support the Construction of the All Season Road including the Construction and operation of the Winter Road and of All Season Road Construction."

[4] See any of the authorizations on the MVLWB online public registry for the document titled "POST EA INFORMATION PACKAGE INCLUDING AN UPDATED PROJECT DESCRIPTION ALL SEASON ROAD TO PRAIRIE CREEK MINE" (2019 Post EA Information Package) dated February 2019.

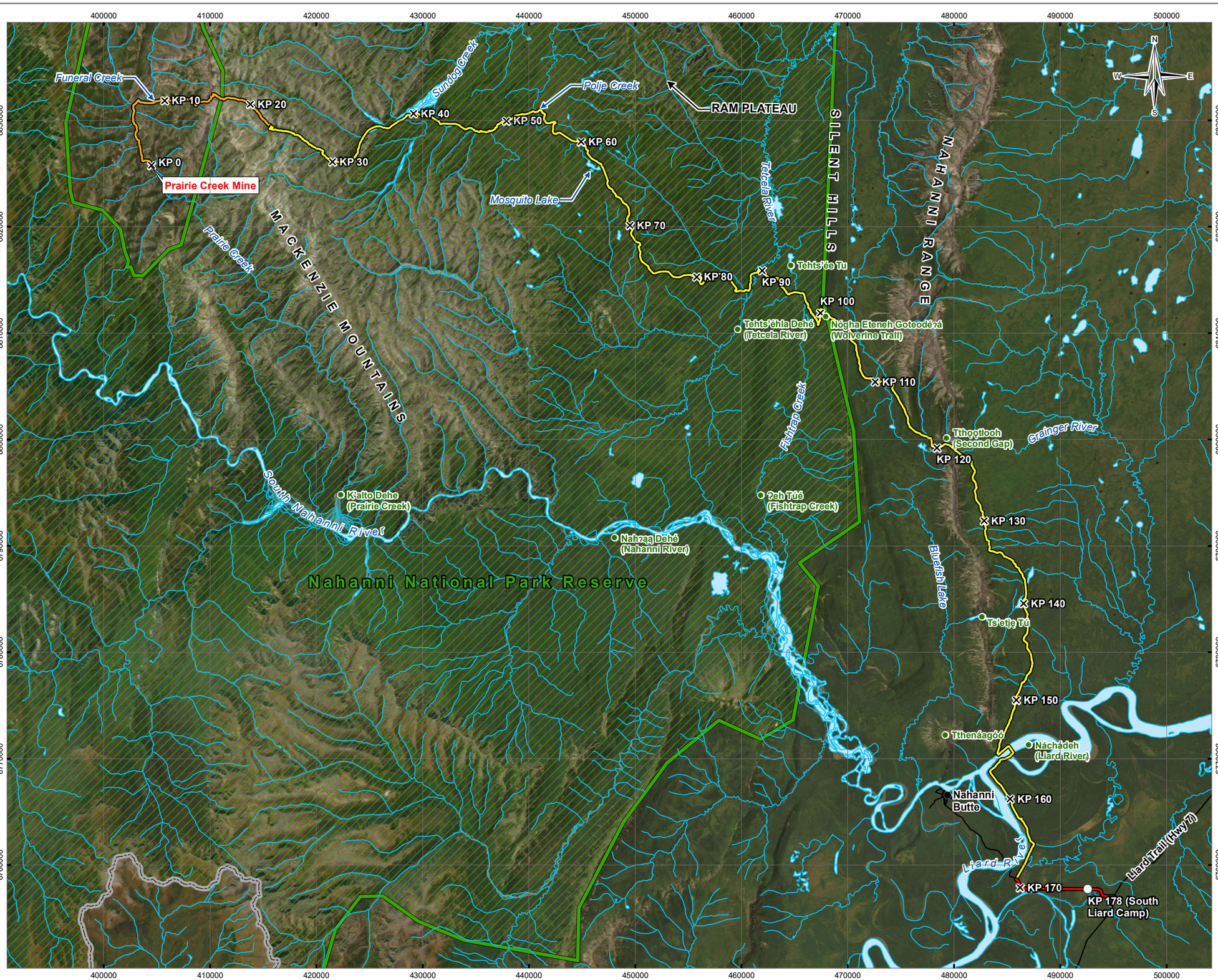
j) Wildlife Observation Logs in a tabular format.

See Appendix D for this information.

k) The Wildlife Harvest dataset for submission to Parks Canada.

Given that the Phase 1 WR was deactivated and there were no Phase 2 activities in 2024, the checkpoint station did not operate to collect wildlife harvest data.

Appendix A - Overview Mapping



LEGEND

- Proposed Camp Location
- Kilometre Marker
- Proposed Winter Road (Phase 1)
- Existing Mine Access Road to be used for Winter Road (Phase 1)
- Existing Nahanni Butte Access Road to be used for Winter Road (Phase 1)

Base Data

- Community
- Traditional Location
- Existing Road
- Watercourse
- Waterbody
- Nahanni National Park Reserve Boundary
- Yukon / NWT Border

NOTES

Base data source:
2019 Kilometre Marker and 2021 Winter Road alignment from AllNorth.
Existing roads from CanVec (1:50,000)
Watercourses from CanVec (1:250,000)
Imagery from ESRI; Maxar

STATUS
ISSUED FOR REVIEW

PRAIRIE CREEK MINE
ALL SEASON ROAD PHASE 1

Overview Map

PROJECTION	DATUM	CLIENT
UTM Zone 10	NAD83	CANADIAN ZINC CORPORATION

Scale: 1:350,000
5 2.5 0 5
Kilometres

TETRA TECH

FILE NO.				
EARC03266-02_WMMP_Phase1Rd.mxd				
OFFICE	DWN	CKD	APVD	REV
Tt-VANC	SL	YL	RH	0
DATE	PROJECT NO.			
April 4, 2024	ENG.EARC03145-03			

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Appendix B - 2024 Bird ARU Field Record and Summary of 2023 Bird Data Technical Memo

TETRA TECH

TECHNICAL MEMO

ISSUED FOR USE

To:	Claudine Lee, VP Corporate Social Responsibility	**Date:**	June 11, 2025
		Memo No.:	001
From:	Karla Langlois and Jeff Matheson	**File:**	704-ENW.BIOS03144-01

Subject: 2024 Bird Autonomous Recording Unit Field Record and Summary of 2023 Bird Data
Prairie Creek Mine All Season Road Alignment

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by Canadian Zinc Corporation (CZN) to administer the deployment and retrieval of autonomous recording units (ARUs) to record bird song along the planned Prairie Creek Mine All Season Road (ASR). The ASR will link the Prairie Creek Mine to the Nahanni Butte Access Road and cross through the Nahanni National Park Reserve (NNPR), Northwest Territories. The objective of the ARU field program is to monitor the road's impact on birds over time, as described in CZN's Phase 1 Winter Road (WR) Wildlife Management and Monitoring Plan (WMMP). The monitoring program is a continuation of the bird baseline conducted in 2017 and 2023 along the planned 170-kilometre ASR.

This memo reports on the following:

- Summary of the deployment and retrieval of ARUs during the 2024 migratory bird breeding season.
- Summary of the 2023 bird data, which was analyzed in 2024.
- Recommendations on the monitoring design (specifically on the number of locations for monitoring) based on power analysis of existing and simulated bird data over time.

2.0 ARU DEPLOYMENT IN 2024

CZN's ARUs[1] recorded bird vocalizations at pre-selected stations along the cleared access road. From a pool of 80 locations surveyed in 2017, a total of 56 stations (including 16 alternate stations) were selected for the 2024 deployment. The original station locations, chosen in 2017, were at least 600 metres apart and categorized into three broad habitat types: 1) Mountain (Kilometre Point (KP) 0-39), 2) High Boreal (KP 40-99), and 3) Low Boreal (KP 100-170) and treated as strata. For the 2023 survey, the stations were randomly selected from each habitat category, proportionate to the number of available stations in 2017. In 2024, most stations from 2023 were reused, except for alternative locations selected between KP 112 and 142, where helicopter access was available.

CZN staff installed and retrieved the ARUs in 2024. While setting up and retrieving the recorders, the team reduced helicopter use by combining several necessary work tasks, such as post-construction monitoring, water sampling, and the deployment/collection of dustfall canisters on the same flights. The surveyors also hiked to multiple sites at once while the helicopter shut down on standby. During the install, the ARUs were mounted to a tree with a screw and were programmed to record wildlife vocalizations at pre-determined intervals each day until: 1) ARUs were

[1] ARU models: Wildlife Acoustics Songmeter SM4, SM3, and Micro units

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retrieved; 2) batteries expired; and/or 3) memory cards were full. Units were programmed to record in 10-minute increments at the following times:

- Every hour starting one hour before sunset until one hour before sunrise (to detect bird species that may be active at night).
- Every hour starting one hour before sunrise until five hours after sunrise (to detect bird species that may be active in the morning).
- At 3 p.m. (to detect birds that may be active during the daytime).

CZN installed 40 ARUs before June 2, 2024 (Table 1; Figure 1) between KP 4 and 142. Among these, 10 were located in the mountains, 14 in the high boreal, and 16 in the low boreal zone. One ARU was installed approximately 200 m from its intended location, as indicated by an asterisk in Table 1; however, CZN maintained the minimum spacing of 600 m between ARUs. With one exception, neighbouring ARUs CZN-047-076 and CZN-048-077 were separated by approximately 560 m.

CZN retrieved the ARUs in August and September, leaving 11 units in the field (Table 1). These units will be maintained as needed during the 2025 ARU installation and programmed for reuse. Of the units retrieved, two ARUs installed at CZN-95-153 and CZN-123-198 were damaged by bears and a third ARU at CZN-012-020 experienced a technical malfunction, resulting in the loss of data.

While installing and retrieving the bird recording units, CZN reported incidental bird and other wildlife observations. Multiple pairs of Trumpeter Swans (*Cygnus buccinator*) were observed in the spring immediately west and northwest of Grainger Gap (approximately KP 120) and in the Fishtrap Creek valley. More pairs were sighted in ponds on the north side of the South Nahanni River, west of the Nahanni Butte. A Violet-Green Swallow (*Tachycineta thalassina*) was photographed at the Mine site on June 3, 2024 (Photo 1). Incidentally, three American Dippers (*Cinclus mexicanus*) were also observed on Prairie Creek, between approximately KP 7.5 and 9.5, in November 2024. Neither of these two species were recorded in the 2017 baseline bird surveys.

Additionally, CZN observed a Grizzly Bear (*Ursus arctos*) in the Prairie Creek canyon, approximately 10 to 15 km south of the mine site, and also documented Grizzly Bear tracks in the Silent Hills while installing the ARUs.

Table 1: Record of Bird ARU Installation and Retrieval, 2024

Station Count	ARU Station	Broad Habitat Zone	GPS Location of ARU (Latitude; Longitude)	2024 Date Installed	2024 Date Retrieved
1	CZN-004-007*	Mountain	61.57544; -124.82453*	June 1	Sept 27
2	CZN-006-010	Mountain	61.59455; -124.83238	June 1	Sept 24
3	CZN-008-014	Mountain	61.6061; -124.8098	June 1	Sept 24
4	CZN-009-015	Mountain	61.60622; -124.7983	June 1	Sept 24
5	CZN-012-020	Mountain	61.6107; -124.74327	June 1	Sept 24
6	CZN-017-027	Mountain	61.61240; -124.68005	May 22	Sept 1
7	CZN-019-031	Mountain	61.61064; -124.63772	May 22	Sept 1
8	CZN-020-032	Mountain	61.60776; -124.62685	May 22	Sept 1
9	CZN-023-037	Mountain	61.58877; -124.58718	May 22	Aug 30
10	CZN-025-040	Mountain	61.58484; -124.55383	May 22	Aug 31
11	CZN-043-070	High Boreal	61.59465; -124.28363	May 22	Left in Field
12	CZN-047-076	High Boreal	61.58844; -124.22023	May 22	Left in Field
13	CZN-048-077	High Boreal	61.58833; -124.20958	May 22	Left in Field
14	CZN-048-078	High Boreal	61.58951; -124.19888	May 23	Left in Field
15	CZN-050-080	High Boreal	61.59578; -124.18132	May 23	Left in Field
16	CZN-051-082	High Boreal	61.59951; -124.16201	May 23	Left in Field
17	CZN-057-092	High Boreal	61.59135; -124.08771	May 23	Left in Field
18	CZN-058-094	High Boreal	61.58754; -124.07103	May 23	Left in Field
19	CZN-086-139	High Boreal	61.46109; -123.76222	May 24	Left in Field
20	CZN-086-140	High Boreal	61.45703; -123.75607	May 24	Left in Field
21	CZN-088-142	High Boreal	61.45914; -123.73541	May 23	Left in Field
22	CZN-090-146	High Boreal	61.47523; -123.71786	May 23	Aug 29
23	CZN-095-153	High Boreal	61.45636; -123.65859	May 24	Aug 28
24	CZN-095-154	High Boreal	61.45636; -123.64883	May 24	Aug 28
25	CZN-100-161	Low Boreal	61.43464; -123.61146	May 25	Sep 29
26	CZN-100-162	Low Boreal	61.43999; -123.61139	May 25	Sep 29
27	CZN-101-163	Low Boreal	61.43784; -123.60208	May 25	Sep 29
28	CZN-112-180**	Low Boreal	61.38347; -123.48822**	May 28	Sep 30
29	CZN-112-181**	Low Boreal	61.37932; -123.48151**	May 28	Sep 30
30	CZN-118-190	Low Boreal	61.33899; -123.43679	May 26	Sep 30
31	CZN-118-191	Low Boreal	61.33636; -123.426741	May 26	Sep 30
32	CZN-119-192	Low Boreal	61.33446; -123.41751	May 26	Sep 30
33	CZN-122-196	Low Boreal	61.32893; -123.38589	May 26	Aug 28
34	CZN-123-198**	Low Boreal	61.32107; -123.36711**	May 28	Sep 28
35	CZN-129-208	Low Boreal	61.27795; -123.32712	May 28	Sep 28
36	CZN-131-211**	Low Boreal	61.26248; -123.31964**	May 28	Sep 28
37	CZN-131-212	Low Boreal	61.25702; -123.31818	May 28	Sep 28
38	CZN-132-213	Low Boreal	61.25193; -123.3173	May 28	Sep 28
39	CZN-132-214	Low Boreal	61.24717; -123.31137	May 28	Sep 28
40	CZN-142-229**	Low Boreal	61.18411; -123.24386**	May 28	Sep 28

* ARU installed approximately 200 m from its intended location; Table 1 includes the location installed.

** ARU is an alternative location with better helicopter access; Table 1 includes the location installed.

Photo 1: A Violet-green Swallow observed at the Prairie Creek Mine camp on June 3, 2024.

3.0 SUMMARY OF 2023 BIRD DETECTIONS

In 2023, CZN deployed bird monitoring ARUs at 24 locations, all situated west of the Silent Hills (KP 101), mainly within the mountain and high boreal zones. Parks Canada provided ARU data for three additional ARUs located near the ASR, making a total of 27 locations monitored in 2023. The 2023 data was processed and summarized in 2024. Alberta Biodiversity Monitoring Institute's Bioacoustic Unit processed the ARU sound files using human listening using WildTrax (www.wildtrax.ca), an online platform to manage, store, process, and share environmental sensor data. Eight three-minute recordings per location were randomly selected from the pool of all recordings at each location that were between 4:00 a.m. and 8:00 a.m. and 10:00 pm to midnight on three different days. During the human listening, all vocalizations were recorded to species with estimate of number. The Bioacoustic Unit will continue analyzing the full 2023 recordings with machine learning software to detect additional species not identified by human-listeners, including uncommon birds and those that vocalize infrequently.

Fifty-five bird species were detected during the human listening of the recordings at the 27 monitoring locations (Table 2). New species detected in 2023 that were not detected in 2017 were:

- Golden-crowned Kinglet
- Gray-crowned Rosy-Finch
- Golden-crowned Sparrow
- Lesser Yellowlegs
- Northern Hawk Owl

Table 2: Bird Species Detected in 2023

Species Code	Common Name	Scientific Name	COSEWIC	SARA	NWT Species at Risk	Total Detections	Number of Locations
ALFL	Alder Flycatcher	*Empidonax alnorum*	-	-	NA	12	4
AMBI	American Bittern	*Botaurus lentiginosus*	-	-	NA	1	1
AMRE	American Redstart	*Setophaga ruticilla*	-	-	NA	1	1
AMRO	American Robin	*Turdus migratorius*	-	-	NA	30	14
BAWW	Black-and-white Warbler	*Mniotilta varia*	-	-	NA	1	1
BBWA	Bay-breasted Warbler	*Setophaga castanea*	-	-	NA	5	3
BOCH	Boreal Chickadee	*Poecile hudsonicus*	-	-	NA	3	3
BOWA	Bohemian Waxwing	*Bombycilla garrulus*	-	-	NA	4	1
CAJA	Canada Jay	*Perisoreus canadensis*	-	-	NA	32	15
CANG	Canada Goose	*Branta canadensis*	-	-	NA	1	1
CEDW	Cedar Waxwing	*Bombycilla cedrorum*	-	-	NA	1	1
CHSP	Chipping Sparrow	*Spizella passerina*	-	-	NA	40	13
CMWA	Cape May Warbler	*Setophaga tigrina*	-	-	NA	1	1
CONI	Common Nighthawk	*Chordeiles minor*	Special Concern	Special Concern	NA	4	2
DEJU	Dark-eyed Junco	*Junco hyemalis*	-	-	NA	56	18
EVGR	Evening Grosbeak	*Coccothraustes vespertinus*	Special Concern	Special Concern	NA	2	2
FOSP	Fox Sparrow	*Passerella iliaca*	-	-	NA	4	3
GCKI	Golden-crowned Kinglet	*Regulus satrapa*	-	-	NA	1	1
GCRF	Gray-crowned Rosy-Finch	*Leucosticte tephrocotis*	-	-	NA	6	1
GCSP	Golden-crowned Sparrow	*Zonotrichia atricapilla*	-	-	NA	3	2
GCTH	Gray-cheeked Thrush	*Catharus minimus*	-	-	NA	1	1
HAWO	Hairy Woodpecker	*Dryobates villosus*	-	-	NA	1	1
HETH	Hermit Thrush	*Catharus guttatus*	-	-	NA	94	15
LEFL	Least Flycatcher	*Empidonax minimus*	-	-	NA	2	2
LEYE	Lesser Yellowlegs	*Tringa flavipes*	Threatened	Under Consideration	NA	1	1
LISP	Lincoln's Sparrow	*Melospiza lincolnii*	-	-	NA	34	9

Species Code	Common Name	Scientific Name	COSEWIC	SARA	NWT Species at Risk	Total Detections	Number of Locations
MAWA	Magnolia Warbler	*Setophaga magnolia*	-	-	NA	5	4
NHOW	Northern Hawk Owl	*Surnia ulula*	-	-	NA	3	2
NOFL	Northern Flicker	*Colaptes auratus*	-	-	NA	1	1
NOWA	Northern Waterthrush	*Parkesia noveboracensis*	-	-	NA	1	1
OCWA	Orange-crowned Warbler	*Leiothlypis celata*	-	-	NA	3	2
OSFL	Olive-sided Flycatcher	*Contopus cooperi*	Special Concern	Special Concern	NA	6	3
OVEN	Ovenbird	*Seiurus aurocapilla*	-	-	NA	22	4
PAWA	Palm Warbler	*Setophaga palmarum*	-	-	NA	6	4
PISI	Pine Siskin	*Spinus pinus*	-	-	NA	6	6
RCKI	Ruby-crowned Kinglet	*Corthylio calendula*	-	-	NA	9	5
RECR	Red Crossbill	*Loxia curvirostra*	-	-	NA	1	1
REVI	Red-eyed Vireo	*Vireo olivaceus*	-	-	NA	8	4
SAPH	Say's Phoebe	*Sayornis saya*	-	-	NA	1	1
SOSA	Solitary Sandpiper	*Tringa solitaria*	-	-	NA	3	2
SPSA	Spotted Sandpiper	*Actitis macularius*	-	-	NA	2	2
SWSP	Swamp Sparrow	*Melospiza georgiana*	-	-	NA	10	6
SWTH	Swainson's Thrush	*Catharus ustulatus*	-	-	NA	138	20
TEWA	Tennessee Warbler	*Leiothlypis peregrina*	-	-	NA	65	15
TOSO	Townsend's Solitaire	*Myadestes townsendi*	-	-	NA	4	3
TRUS	Trumpeter Swan	*Cygnus buccinator*	-	-	NA	1	1
VATH	Varied Thrush	*Ixoreus naevius*	-	-	NA	10	4
WCSP	White-crowned Sparrow	*Zonotrichia leucophrys*	-	-	NA	31	7
WEWP	Western Wood-Pewee	*Contopus sordidulus*	-	-	NA	3	1
WISN	Wilson's Snipe	*Gallinago delicata*	-	-	NA	2	1
WIWA	Wilson's Warbler	*Cardellina pusilla*	-	-	NA	4	4
WTSP	White-throated Sparrow	*Zonotrichia albicollis*	-	-	NA	109	14
WWCR	White-winged Crossbill	*Loxia leucoptera*	-	-	NA	17	10
YBFL	Yellow-bellied Flycatcher	*Empidonax flaviventris*	-	-	NA	4	4
YRWA	Yellow-rumped Warbler	*Setophaga coronata*	-	-	NA	55	17

Fewer locations were monitored in 2023 compared to 2017, so fewer detected species would be expected. One notable species that was not detected in 2023 by human-listeners that was detected in 2017 is Canada Warbler. Three of the 2023 monitoring locations coincided with sites where Canada Warblers were detected in 2017, either through human-listening or a computer-automated species recognizer. Ongoing analysis of the 2023 data using machine learning software will focus on detecting Canada Warblers in areas not identified by human-listeners.

4.0 REVIEW OF MONITORING DESIGN

CZN's commitment for bird monitoring is to survey birds at approximately 80 locations for five years once the ASR is operating, with adjustment to the monitoring effort based on review of the data as it is collected. The number of monitoring locations and the duration (number of years) was based on power analysis using the 2017 data and simulated data for five subsequent years to provide the best estimate possible given the available data at that time. The results of this analysis were provided in the birds baseline report[1].

Bird monitoring continued in 2023 and 2024 though at only a subset of the planned 80 locations (24 locations in 2023 and 40 locations in 2024) because the ASR has not yet been constructed. While the data collected in these two years is at fewer locations than planned for when the ASR is constructed, it still contributes to the pool of data that can be used to identify trends in bird species richness, abundance, and density of focal species over time. It is premature to analyze the data to identify trends, however the data can be used to review the appropriateness of the monitoring effort in subsequent years using the same power analysis approach as completed earlier.

The general aim of power analysis is to predict the power of an experimental design and associated sample size that is required to achieve an acceptable level of power to detect an effect (power of 80% is conventionally deemed adequate). Power depends on sample size, effect size (rate of change), the variability in the response variable and significance level (alpha). Monte Carlo simulation of power is an approach that can be used to predict the power of an experimental design by simulating data that has not yet been collected (in our case, for future monitoring years) based on data that has been collected. This approach can also accommodate a wide variety of modeling approaches (Johnson *et al.* 2015[2]; Green and McLeod 2016[3]), such as the generalized linear mixed models (GLMM) that will be used to identify bird trends over time. The R package 'simr' (version 1.0.5; Green and McLeod 2016) provides functions to simulate power across varying levels of sample size using existing data and was used here. The simulation of power was conducted using an effect size of -20% change from one monitoring year to the next. Significance level (alpha) was set at 0.1 instead of the often used 0.05. The lower significance threshold is a conservative approach in that it assumes it would be preferable to risk concluding that there is a change when there really is not (false positive) and minimize the potential of concluding there is no decline when there really is one (false negative).

Two years of data is currently available for the power analysis: 2017 and 2023. Since the 2023 monitoring was for only a subset of the locations intended for monitoring when the ASR is constructed, it does not represent the planned sampling design of 80 locations per monitoring year. While power analysis can still be completed for this unbalanced design, it does not allow for a comparison with the previously completed power analysis to determine if the design and sampling effort when fully implemented is still appropriate. To create a balanced design (i.e., approximately 80 locations per year), simulated data was generated for locations not surveyed in 2023 based on the data that has been collected to date. This created a dataset comprised of both actual data and realistic simulated data for locations not surveyed to allow for the best estimates given the data available at present.

[1] Tetra Tech Canada. 2022. Prairie Creek Mine All-Season Road: Birds Baseline. Prepared for Canadian Zinc Corporation.

[2] Johnson P.C.D., Barry S.J.E., Ferguson H.M., Müller P. 2015. Power analysis for generalized linear mixed models in ecology and evolution. Methods in Ecology and Evolution 6(2):133–42.

[3] Green P., Macleod C.J. 2016. SIMR: An R package for power analysis of generalized linear mixed models by simulation. Nakagawa S, editor. Methods in Ecology and Evolution 7(4):493–8.

The power analysis was conducted for select monitoring metrics: (1) change in mean survey species richness, (2) change in mean survey total abundance, and (3) change in mean density of focal species. The focal species are Canada Warbler, Olive-sided Flycatcher, Ovenbird, Red-eyed Vireo, White-winged Crossbill, Ruby-crowned Kinglet, Swamp Sparrow, Common Yellowthroat, Alder Flycatcher, White-crowned Sparrow. The results of the power analysis are illustrated in Figures 1 and 2.

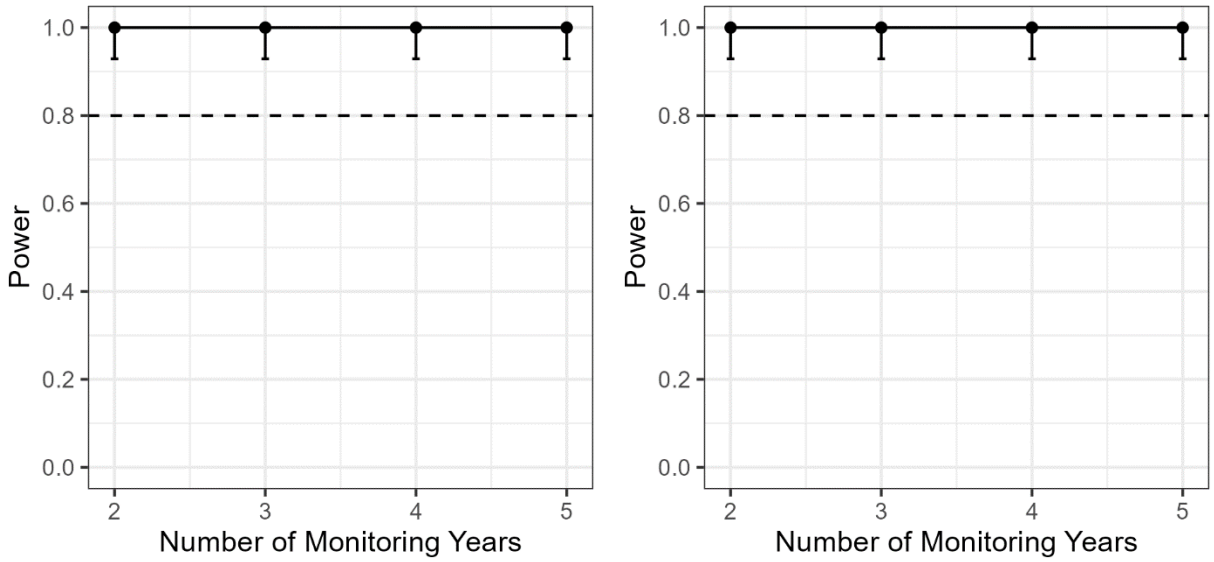

Figure 1: Predicted Power to Detect -20% Change in Mean Species Richness (left) and Mean Abundance (right) Over Time

With 80 monitoring locations per year, a -20% change in both mean species richness and mean abundance is predicted to be detected after two years of data collection with over 80% power (Figure 1). This indicates that the monitoring design of approximately 80 locations for five years is more than sufficient.

For the focal species (Figure 2), a -20% change in mean density is predicted to be detected with at least 80% power after five years (or less) of data collection for nine of the ten focal species (Figure 2). Based on the data collected to date, it may take longer to detect a -20% change for White-winged Crossbill.

At present, the current monitoring design is generally sufficient to achieve the monitoring objectives and no adjustment in effort is warranted. The analysis will be completed again once the 2024 data is processed and will pay particular attention to White-winged Crossbill.

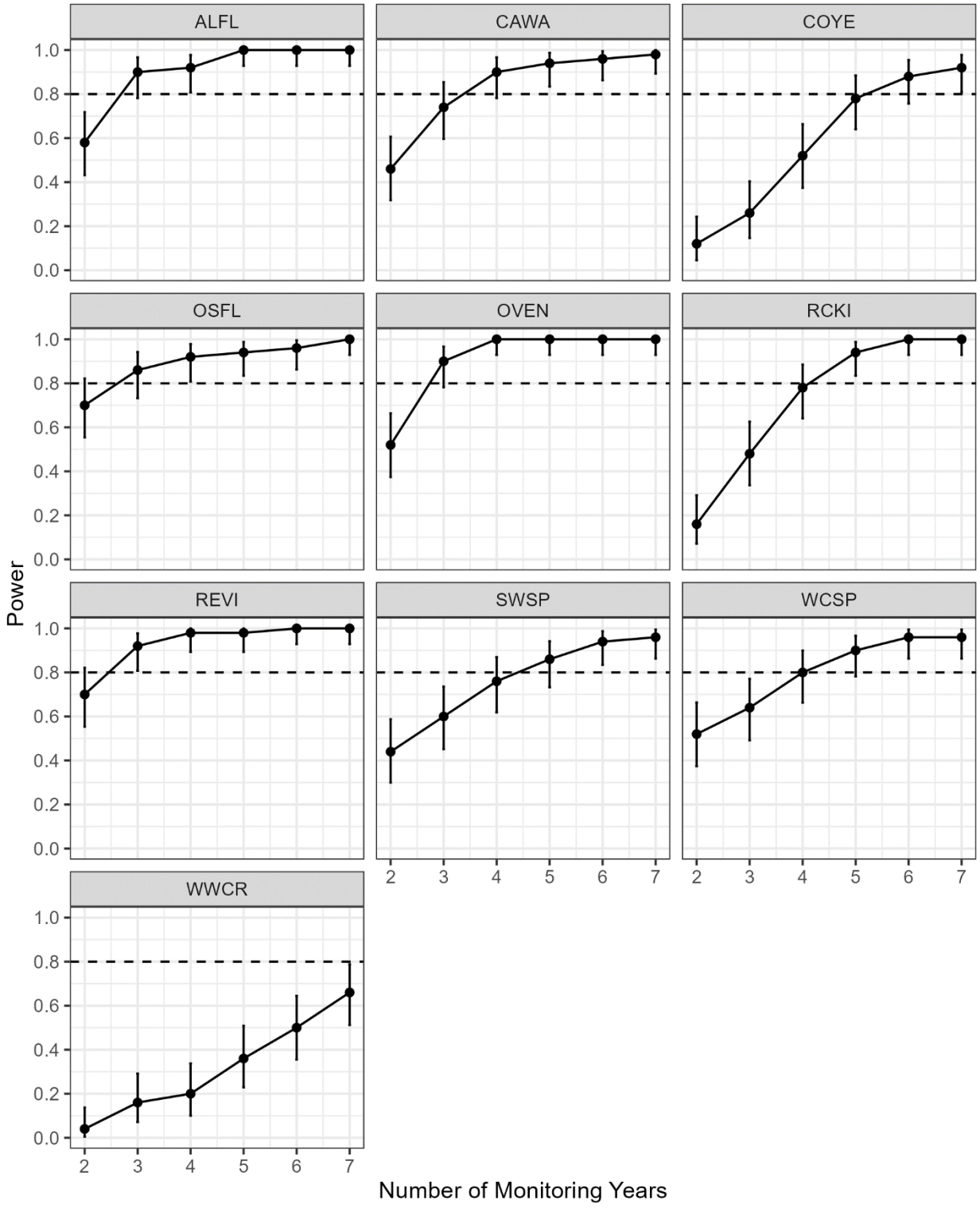

Figure 2: Power to Detect -20% Change in Density of Focal Species Over Time. Species codes are provided in Table 2

5.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Tetra Tech Canada Inc.

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Attachments: Figure 1: 2024 ARU Station Locations
Appendix A: Tetra Tech's Limitations on the Use of this Document

FIGURE

400000 405000 410000 415000 420000 425000 430000

6840000 6835000 6830000 6825000 6820000

CZN-008-014
KP 10
CZN-009-015
Funeral Creek
CZN-012-020
Mountain Pass (Camp 16)
KP 15
CZN-017-027
CZN-019-031
CZN-020-032
KP 20
CZN-006-010
KP 5
CZN-004-007*
KP 0
CZN-023-037
KP 25
CZN-025-040
KP 30
KP 35
Cat Camp (Camp 42)
KP 40
CZN-043-070
Sundog Creek
Prairie Creek
NAHANNI NATIONAL PARK RESERVE

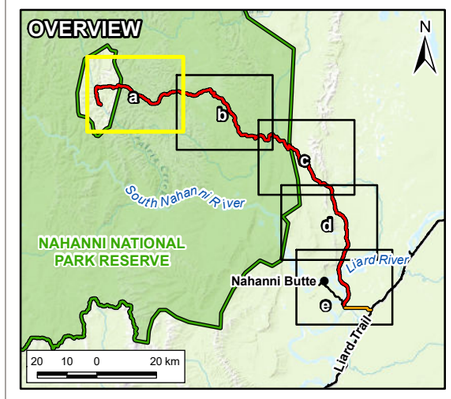
N W E S

LEGEND

- 2024 Bird Survey Station
- Potential Helipad (new)
- Proposed Camp Location (Nov 2023)
- All Season Road Kilometre Marker (Aug 2023)
- Proposed All Season Road (Aug 2023)
- Proposed Winter Road (Nov 2022)

Base Features

- Existing Road
- Watercourse
- Waterbody
- Nahanni National Park Reserve Boundary



NOTES
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Potential borrow and camp locations from Celtic (Nov 2023).
Existing roads and water from CanVec (1:50,000).
ArcticDEM multidirectional hillshade provided by ESRI.

STATUS
ISSUED FOR USE

PRAIRIE CREEK MINE ALL SEASON ROAD

2024 Bird Survey Stations

PROJECTION UTM Zone 10		**DATUM** NAD83			**CLIENT** CANADIAN ZINC CORPORATION
Scale: 1:100,000 2 1 0 2 Kilometres					TETRA TECH
FILE NO. BIOS03144-01_Fig01_2024_ARUs.mxd					
OFFICE Tt-VANC	**DWN** SL	**CKD** MRB	**APVD** KL	**REV** 0	Figure 1a
DATE June 11, 2025	**PROJECT NO.** ENV.BIOS03144-01				

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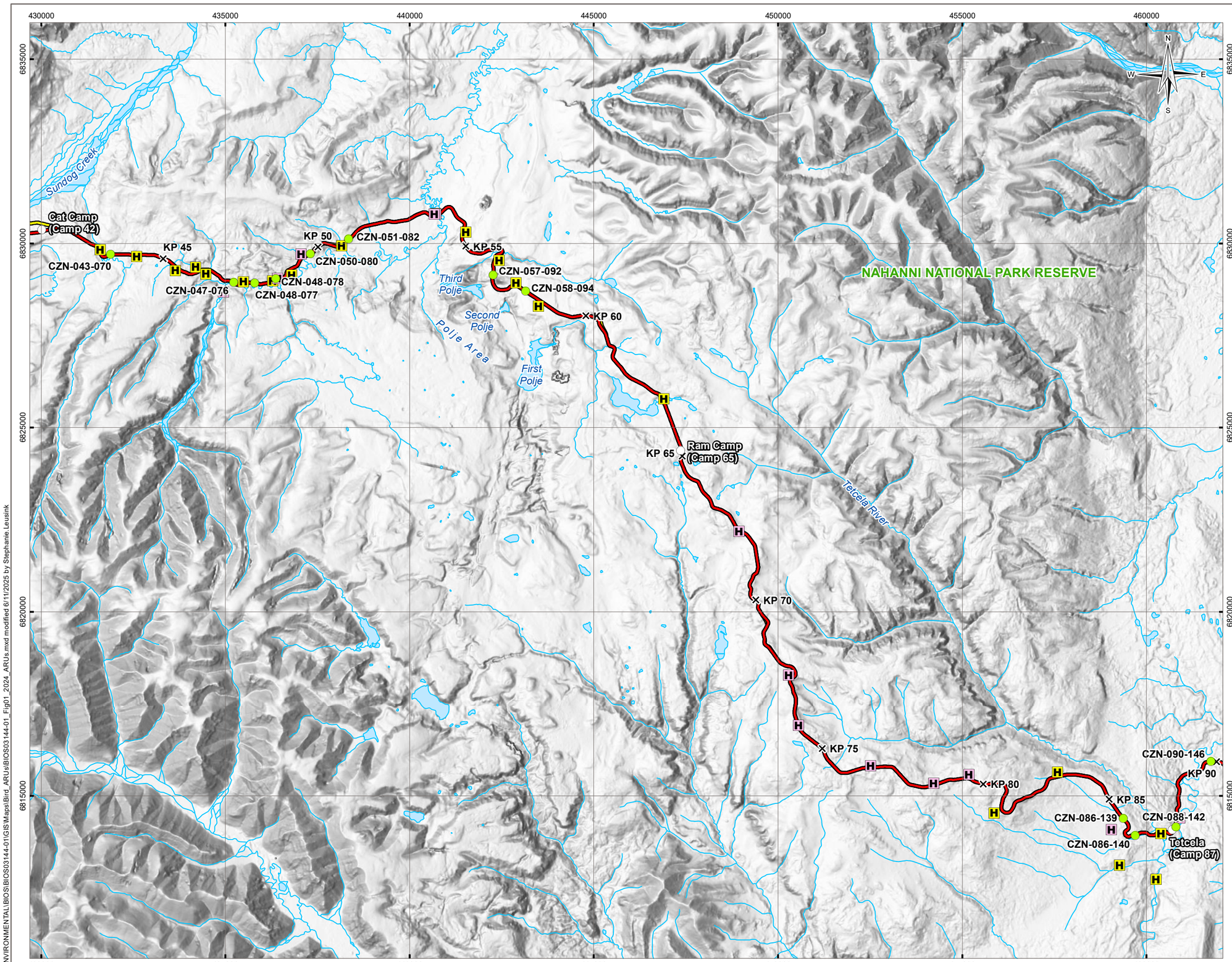
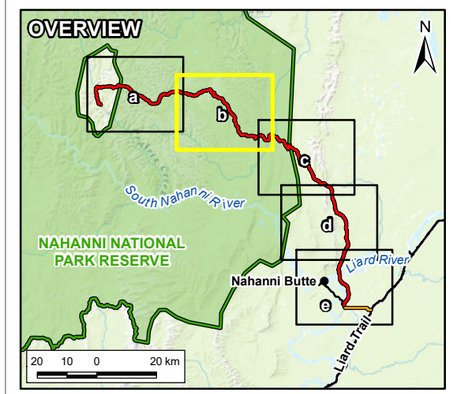


LEGEND

- 2024 Bird Survey Station
- Potential Helipad (former)
- Potential Helipad (new)
- Proposed Camp Location (Nov 2023)
- All Season Road Kilometre Marker (Aug 2023)
- Proposed All Season Road (Aug 2023)
- Proposed Winter Road (Nov 2022)

Base Features

- Existing Road
- Watercourse
- Waterbody
- Nahanni National Park Reserve Boundary



NOTES

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ArcticDEM multidirectional hillshade provided by ESRI.

STATUS
ISSUED FOR USE

PRAIRIE CREEK MINE
ALL SEASON ROAD

2024 Bird Survey Stations

PROJECTION UTM Zone 10	**DATUM** NAD83	**CLIENT** CANADIAN ZINC CORPORATION
Scale: 1:100,000 (2 1 0 2 Kilometres)		TETRA TECH
FILE NO. BIOS03144-01_Fig01_2024_ARUs.mxd		
OFFICE Tt-VANC	**DWN** SL / **CKD** MRB / **APVD** KL / **REV** 0	**Figure 1b**
DATE June 11, 2025	**PROJECT NO.** ENW.BIOS03144-01	

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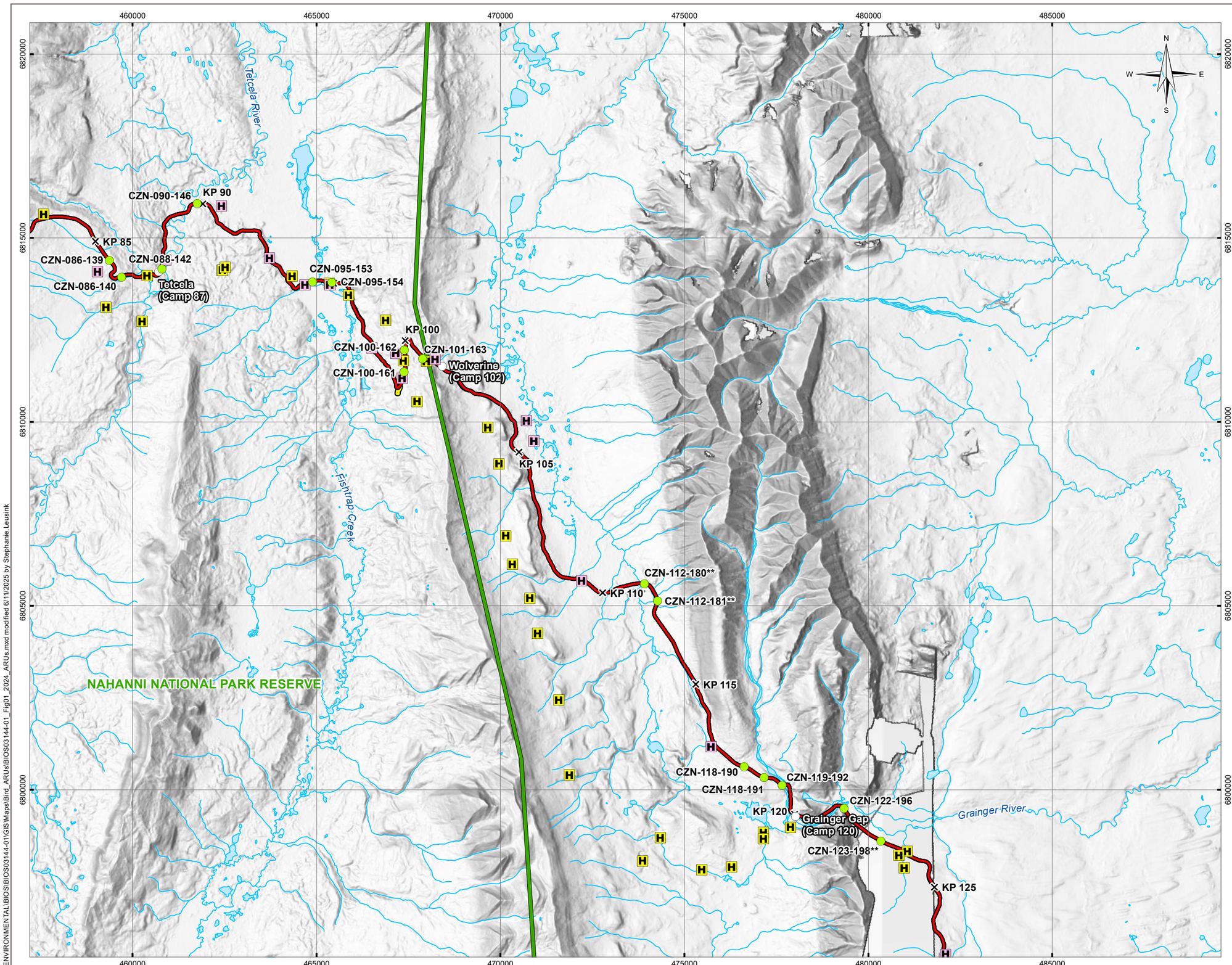
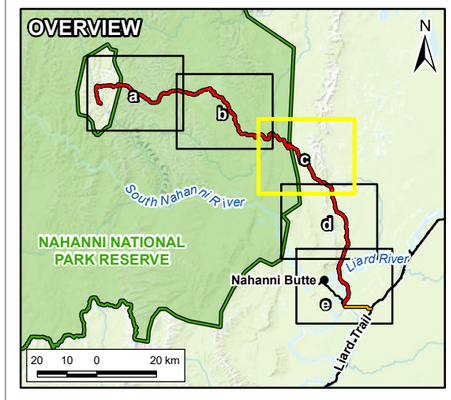


LEGEND

- 2024 Bird Survey Station
- Potential Helipad (former)
- Potential Helipad (new)
- Proposed Camp Location (Nov 2023)
- All Season Road Kilometre Marker (Aug 2023)
- Proposed All Season Road (Aug 2023)
- Proposed Winter Road (Nov 2022)

Base Features

- Existing Road
- Watercourse
- Waterbody
- Nahanni National Park Reserve Boundary



NOTES

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Potential borrow and camp locations from Celtic (Nov 2023).
Existing roads and water from CanVec (1:50,000).
ArcticDEM multidirectional hillshade provided by ESRI.

STATUS
ISSUED FOR USE

PRAIRIE CREEK MINE ALL SEASON ROAD

2024 Bird Survey Stations

PROJECTION UTM Zone 10		**DATUM** NAD83		**CLIENT** CANADIAN ZINC CORPORATION
Scale: 1:100,000 2 1 0 2 Kilometres				TETRA TECH
FILE NO. BIOS03144-01_Fig01_2024_ARUs.mxd				
OFFICE Tt-VANC	**DWN** SL	**CKD** MRB	**APVD** KL	**REV** 0
DATE June 11, 2025	**PROJECT NO.** ENW.BIOS03144-01			**Figure 1c**

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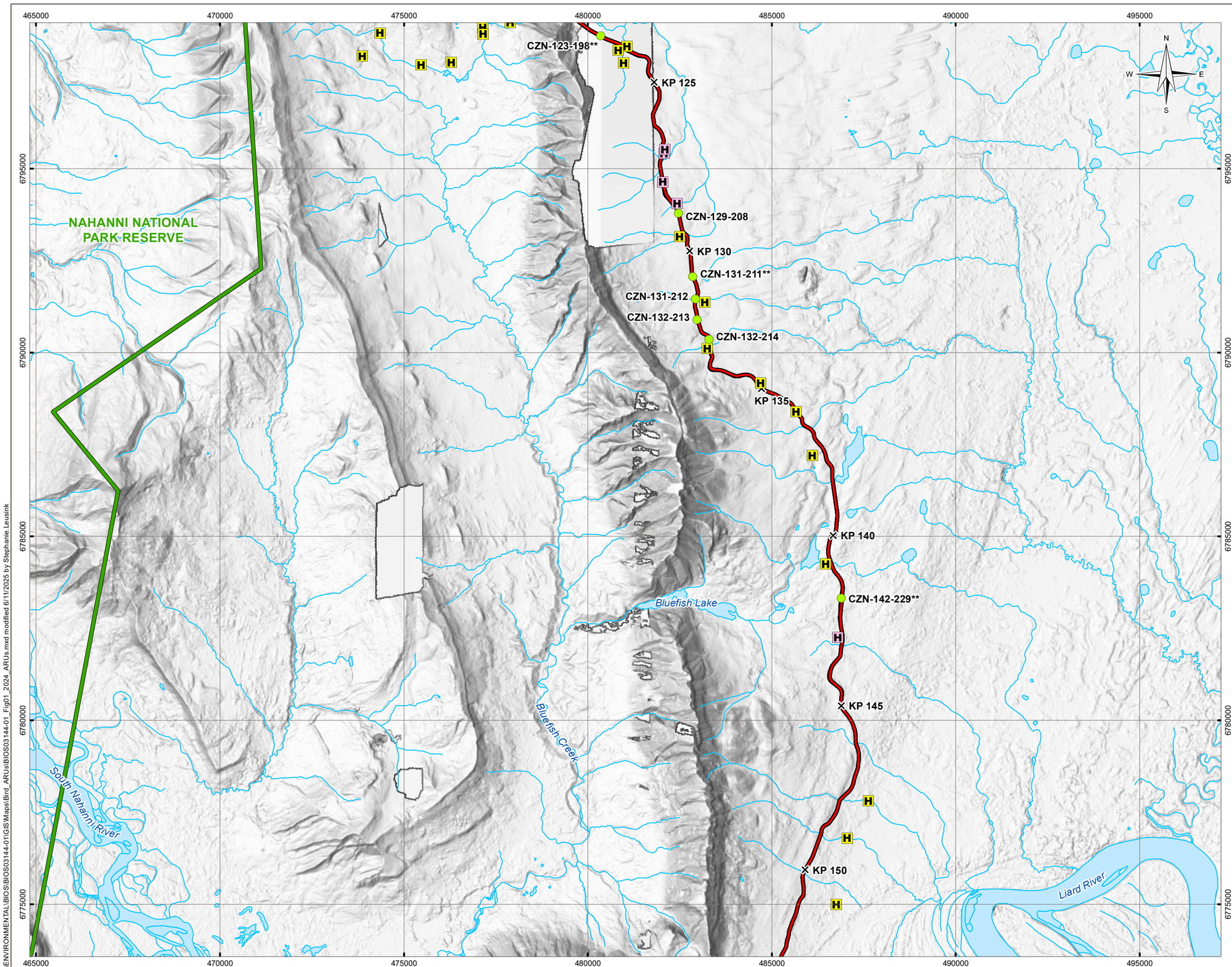
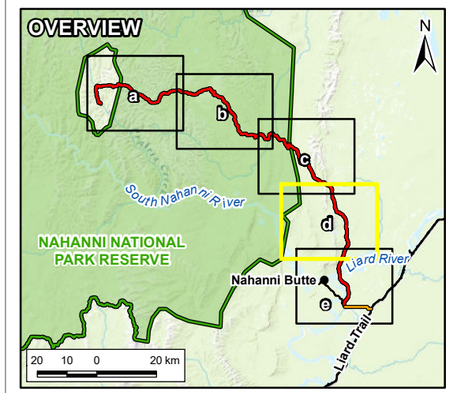


LEGEND

- 2024 Bird Survey Station
- Potential Helipad (former)
- Potential Helipad (new)
- All Season Road Kilometre Marker (Aug 2023)
- Proposed All Season Road (Aug 2023)
- Proposed Winter Road (Nov 2022)

Base Features

- Existing Road
- Watercourse
- Waterbody
- Nahanni National Park Reserve Boundary



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ArcticDEM multidirectional hillshade provided by ESRI.

STATUS
ISSUED FOR USE

PRAIRIE CREEK MINE ALL SEASON ROAD

2024 Bird Survey Stations

PROJECTION UTM Zone 10		**DATUM** NAD83		**CLIENT** CANADIAN ZINC CORPORATION
Scale: 1:100,000 2 1 0 2 Kilometres				TETRA TECH
FILE NO. BIOS03144-01_Fig01_2024_ARUs.mxd				
OFFICE Tt-VANC	**DWN** SL	**CKD** MRB	**APVD** KL	**REV** 0
DATE June 11, 2025	**PROJECT NO.** ENW.BIOS03144-01			**Figure 1d**

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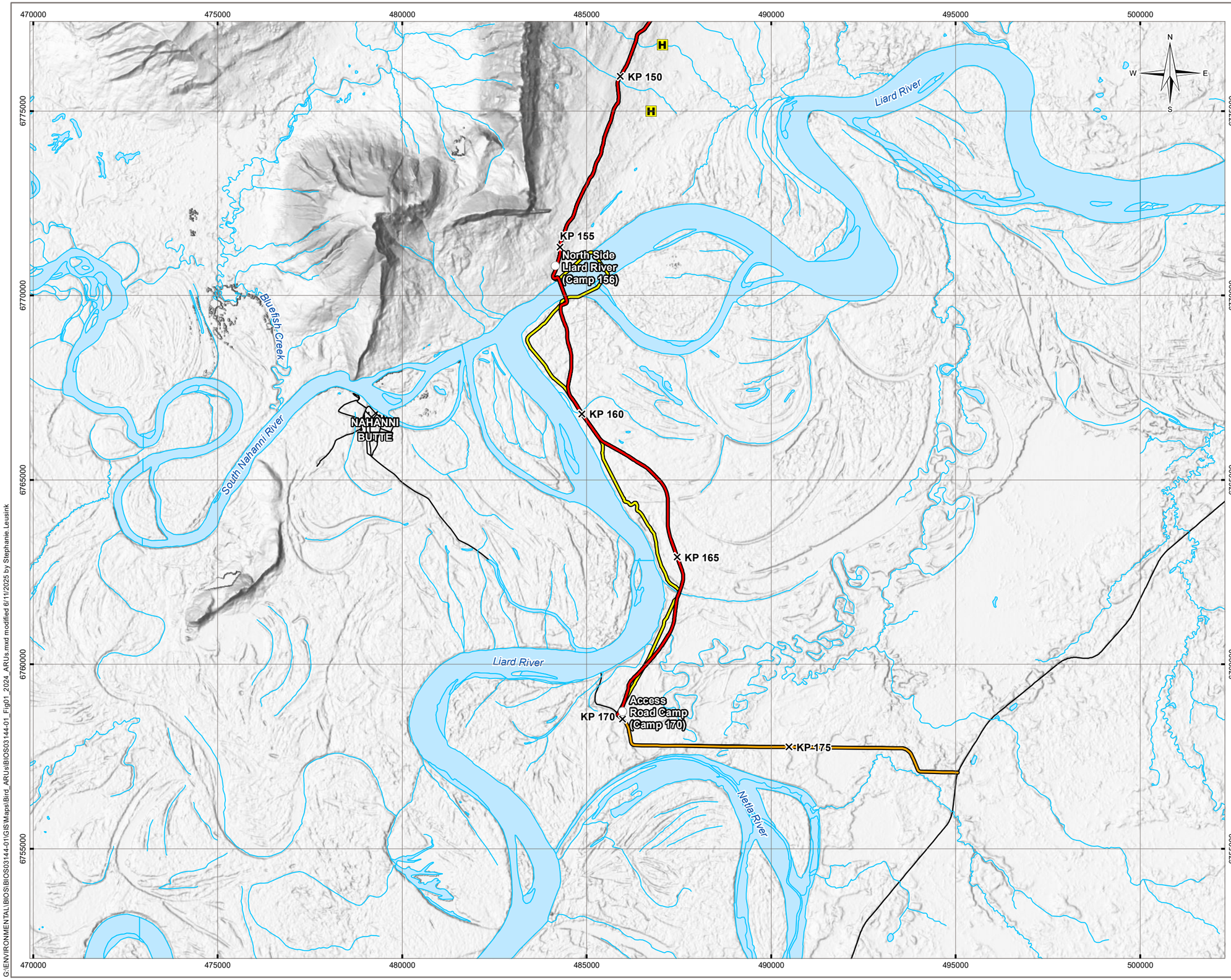
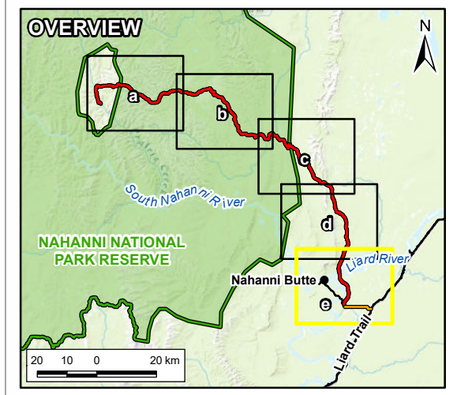


LEGEND

- Potential Helipad (new)
- Proposed Camp Location (Nov 2023)
- All Season Road Kilometre Marker (Aug 2023)
- Proposed All Season Road (Aug 2023)
- Existing Nahanni Butte Access Road to be used for All Season Road
- Proposed Winter Road (Nov 2022)

Base Features

- Existing Road
- Watercourse
- Waterbody



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ArcticDEM multidirectional hillshade provided by ESRI.

STATUS
ISSUED FOR USE

PRAIRIE CREEK MINE ALL SEASON ROAD

2024 Bird Survey Stations

PROJECTION UTM Zone 10	**DATUM** NAD83	**CLIENT** CANADIAN ZINC CORPORATION
Scale: 1:100,000 2 1 0 2 Kilometres		TETRA TECH
FILE NO. BIOS03144-01_Fig01_2024_ARUs.mxd		
OFFICE Tt-VANC	**DWN** SL / **CKD** MRB / **APVD** KL / **REV** 0	**Figure 1e**
DATE June 11, 2025	**PROJECT NO.** ENW.BIOS03144-01	

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APPENDIX A

TETRA TECH'S LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

NATURAL SCIENCES

1.1 USE OF DOCUMENT AND OWNERSHIP

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1.7 ENVIRONMENTAL ISSUES

The ability to rely upon and generalize from environmental baseline data is dependent on data collection activities occurring within biologically relevant survey windows.

It is incumbent upon the Client and any Authorized Party, to be knowledgeable of the level of risk that has been incorporated into the project design or scope, in consideration of the level of the environmental baseline information that was reasonably acquired to facilitate completion of the scope.

1.8 NOTIFICATION OF AUTHORITIES

TETRA TECH professionals are bound by their ethical commitments to act within the bounds of all pertinent regulations. In certain instances, observations by TETRA TECH of regulatory contravention may require that regulatory agencies and other persons be informed. The client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.

Appendix C - Canadian Zinc Northern Mountain Caribou Collar Program: Interim Data Summary

The interim data summary is provided as a separate html file to be viewed in any web browser.

Appendix C is provided as a compressed file (zip file) and must be extracted to its own folder for the linked pages to work. A connection to the internet is required.

Appendix D - Wildlife Observation Logs

NorZinc Wildlife Observation Log (PC and PWR April to Nov 2024)(Note: Sheep are so common in camp that they are usually not noted)

Date	Location	Time	Species	Number	Observer	Type of sighting	Dene Knowledge and/or other notes
N/A	South end Airstrip	Unknown	Golden Eagle	1	AH	V	Landing and taking off from cliffs southwest of airstrip
4/22/2024	Camp	Unknown	Sheep	1	AH	V	First sheep of the year
5/26/2024	Just West of Grainger Gap	10:49	Swan	2	AH	V	One pair on lake
5/26/2024	Camp	14:00	Sheep	9	AH	V	First lambs of the year in camp, 5 ewes and 4 lambs.
6/8/2024	Reagent Pad to KP10	9:20 to 15:15	Sheep	42	AH	V	Lambing survey, 23 ewes, 17 lambs, 2 juv
6/8/2024	kp5	16:00	Moose	1	AH	V	Bull
6/8/2024	PC weather station	9:00	Kestrel	1	AH	V	
6/17/2024	Water Treatment	11:00	Grizzly	3	GJ	V	
6/19/2024	Main Building	12:00	Grizzly	3	TS	V	
6/19/2024	Airstrip	4:40	Grizzly	1	ST	V	
6/20/2024	Main Water Storage Pond	4:50	Porcupine	1	ST	V	
6/22/2024	Water Treatment	9:15	Grizzly	1	GJ	V	
6/23/2024	KP16.5	10:00	Pika	1	ST	V	
6/24/2024	Main Water Storage Pond	4:30	Porcupine	1	ST	V	
6/26/2024	Airstrip	4:30	Moose	1	ST	V	Cow
6/27/2024	KP5.5	4:20	Merganser	4	ST	V	2 pairs
6/28/2024	KP63.5	PM	Moose	5	AH	V	swimming in big lake, cows and bulls.
6/29/2024	Airstrip	8:30	Snowshoe Hare	1	Amy H	V	
6/29/2024	Airstrip road into camp	11:00	Grizzly	2	AH	V	2 older cubs
7/1/2024	KP9 and KP11	PM	Porcupine	2	AH	V	
7/1/2024	Core Shack	17:40	Grizzly	2	AH	V	sow and cub
7/1/2024	Main Building	PM	Vole	1	AH	V	Removed from building and released outside
7/3/2024	Yard	AM	Grizzly	2	RG	V	2 older cubs
7/7/2024	Yard	8pm	Grizzly	2	RG	V	2 older cubs
7/9/2024	Road to pond	3pm	Grizzly	3	L	V	sow and 2 cubs
7/11/2024	Camp	1pm	Gull	1	M	V	IDK
7/12/2024	Airstrip	1pm	Caribou	2	M	Tracks	Cow and calf
7/19/2024	Main Building	7:00	Grizzly	3	Troy	V	walking around WTP
7/20/2024	Airstrip	5:30	Porcupine	1	ST	V	
7/21/2024	Camp	PM	Showshoe Hare	1	JK	V	baby bunny hopping around
7/22/2024	KP6	5:30	Moose	1	ST	V	by folded mountain (~KP7)
7/22/2024	Camp	PM	Grizzly	2	AH	V	sow and cub
7/23/2024	Reagent Pad Road	8:00	Showshoe Hare	1	Amy H	V	Running, looked healthy
7/23/2024	Main Building	13:00	Grizzly	3	Amy H	V	Sow and 2 older cubs
7/23/2024	Camp	13:45	Grizzly	2	AH	V	sow and cub
7/24/2024	Airstrip	AM	Grizzly	1	ST	V	
7/26/2024	Kp6	5:10	Moose	1	ST	V	
7/26/2024	Airstrip	5:05	Ground Squirrel	1	ST	V	
7/28/2024	Rock face behind Mill	8:30	Grizzly	2	Amy H	V	sow and older cub
8/7/2024	on slope of rock face	9:00	Grizzly	2	No initials provided	V	
8/11/2024	1km down stream of camp	14:30	Black Bear	2	SS	V	sow and cub crossing creek
8/13/2024	kp140	13:00	Moose	2	ST	V	Cow and calf

8/13/2024	Kp170	14:00	Black Bear	2	ST	V	
8/24/2024	Reagent Pad	5:00	Showshoe Hare	3	ST	V	
8/25/2024	Reagent Pad	5:00	Showshoe Hare	2	ST	V	
8/26/2024	South end Airstrip	5L30	Porcupine	1	ST	V	
8/26/2024	Smoking area	4:30	Showshoe Hare	1	L	V	it was cute and eating raspberries
8/27/2024	Airstrip	10:30	Raven	2	AH	V	
8/28/2024	Kp96	PM	Swan	8	AH	V	2 pairs with 2 young each.
8/28/2024	KP64	PM	Moose	3	AH	V	swimming cow with two calfs on shoreline
8/28/2024	Camp	all day	Kestrel	?	AH	V	Small groups of kestrals seen between 24th and 28th.
8/29/2024	Camp	14:00	Grizzly	2	AH	V	Sow and cub
8/30/2024	KP25.5	11:00	Sheep	2	AH	V	Ewe and lamb
8/30/2024	KP23	11:30	Sheep	2	AH	V	Ewe and lamb
8/31/2024	KP7 up to kill site on PC	10:30	Grizzly	3	AH	V	Three separate bears between KP7 and 1st Caribou kill site
8/31/2024	1km east of 2nd kill site	11:30	Caribou	1	AH	V	Cow or imature bull spotted from helicopter ~1km east of 2nd Caribou kill site
8/31/2024	KP5	15:45	Kingfisher	1	AH	V	
8/31/2024	KP7	15:30	Grizzly	2	AH	V	The twins
9/6/2024	Camp	10:00	Grizzly	2	JK	V	sow and cub
9/18/2024	Airstrip	13:00	Golden Eagle	2	AH	V	Circling airstrip at southeast end
9/19/2024	Main Water Storage Pond	5:10	Porcupine	1	ST	V	baby
9/24/2024	kp12	15:00	Moose	1	LB	V	Bull
9/24/2024	Airstrip	15:30	Moose	1	KL/TB	V	Bull
9/24/2024	Smoking area	4:00	Bushy Tailed Wood Rat	1	RG	V	
9/27/2024	Tank Farm	4:30	Showshoe Hare	1	RG	V	
9/28/2024	KP143	12:00	Porcupine	1	AH	V	
9/28/2024	KP130	13:00	Moose	1	AH	V	Bull
9/28/2024	Ridge West of KP132	14:00	Sheep	6	AH	V	Ewes and lambs
9/28/2024	Near KP96	15:00	Swan	4	AH	V	1 pair with 2 young
9/30/2024	KP123	12:25	Moose	2	AH	V	Cow and calf
9/30/2024	KP130	AM	Grouse	3	AH	V	Not sure of species
9/30/2024	KP118	PM	Grouse	2	AH	V	Not sure of species
10/1/2024	Airstrip	13:00	Golden Eagle	2	AH	V	
10/9/2024	Harrison Creek Bridge	14:00	Grizzly	2	ST/MV	V	Sow and large cub
10/13/2024	Smoking area	6:45	Weasel	1	RG	V	Weasel carrying dead mouse
10/15/2024	Airstrip	5:30	Porcupine	1	ST	V	Huge
10/21/2024	Everywhere	5:00	Showshoe Hare	10	ST	V	Grey, Black and White
10/22/2024	Casket Creek	4:30	Grizzly	1	ST	Tracks	Large tracks from one bear
10/22/2024	Water Treatment	unknown	Sheep	1	K	V	
10/23/2024	Weather Station	PM	Wolf	2	AH	Tracks	
10/28/2024	Water Treatment	13:00	Sheep	5	AH	V	2 ewes and 3 lambs
11/1/2024	KP3.5	PM	Sheep	1	AH	Tracks	One ram
11/3/2024	Camp	unknown	Fox	?	AH	Tracks	Several sets of tracks around camp from KP3 to the reagent pad
11/4/2024	Water Treatment	16:00	Sheep	2	AH	V	Ewe and lamb
11/7/2024	Camp	12:00	Sheep	7	AH	V	Ewes and lambs
11/9/2024	~Kp9.5	11:00	Wolverine	1	AH	Tracks	Walking along road
11/11/2024	Kp2.7	13:15	Wolverine	1	AH	Tracks	Crossed road then PC
11/11/2024	Kp14.4 to Kp15.4	13:45	Sheep	~4	AH	Tracks	come onto road at ~Kp14.8 and walking up the road at least as far as Kp15.4
11/11/2024	Kp7.4 to Kp9.4	14:30	Dipper	3	AH	V	one at Kp7.4, one at Kp9.4, and one in between.