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6.0 TRADITIONAL AND ECOLOGICAL KNOWLEDGE (TEK)

6.1 General

Traditional Ecological Knowledge (TEK) is the knowledge base acquired by aboriginal peoples over many hundreds of years through their direct contact and relationship with the land. This knowledge includes an intimate and detailed knowledge of plants, animals and natural phenomena, the development and use of appropriate technologies for hunting, fishing, trapping, agriculture and forestry, and a holistic knowledge, or “world view”. (Newsletter – Centre for Traditional Knowledge, Canadian Museum of Nature). Promises to keep (2004).

Traditional Ecological Knowledge is not confined to an understanding of physical and biological elements. It includes cultural and spiritual aspects as well as ecological and embraces language and other forms of expression where science, arts and culture form an inherent unity.

Aboriginal TEK is an important component of the Environmental Assessment of the Provincial Road 304 to Berens River. It was determined at the outset of the project that information from community members was required to enhance the existing knowledge pertaining to current traditional land use, culturally sensitive areas, as well as gathering comments regarding the effects that the Project might have on both. In addition to obtaining traditional ecological knowledge from the local community members within the Project study area, conducting the TEK study is also a way to inform community members about the Project and to seek opinions and comments.

Reflecting the population of the First Nations and NAC communities, the TEK Study was inclusive of all aboriginal people within the study area communities, including First Nations, Métis and non-status First Nations. As described in the methodology below, the selection of interviewees was not based on particular status, although all respondents were aboriginal.

As described in Section 1.3, the Project study area encompasses the east side of Lake Winnipeg to the Manitoba/Ontario border and from Hollow Water First Nation to the Poplar River and the northern limit of the traditional lands of the Pauingassi First Nation. The study area incorporates the traditional lands of a number of First Nations (Hollow Water, Bloodvein, Berens River, Poplar River, Pauingassi, and Little Grand Rapids). The majority of the residents within the study area live in FN and NAC communities. The total population of the study area is approximately 4,000 persons.

The TEK Study conducted for this Project included the following community areas:

- Poplar River area
- Berens River area
- Bloodvein area
- Little Grand Rapids area
- Pauingassi area
- Hollow Water/Manigotagan area

Figure 6-1 shows the location of the communities and their associated traditional land areas within the study area ⁽¹⁾

This Section of the EIA provides a summary description of the TEK Study performed. A complete analysis of the data collected and the perceived impacts of the proposed all-season road on the traditional use of land within the study area can be found in Appendix 4.

TEK collected during this study was considered for the description of the study area, evaluation of potential environmental effects and suggested Mitigation measures were incorporated into sections 7 and 8.

The information collected through surveys and interviews is considered confidential, is owned by the communities within which the interviewees reside, and can only be used for the purposes of preparation of this EIA. "Information obtained" from individuals cannot be published and information compiled into aggregated form, as in this EIA, can only be published with the permission of the community leaders.

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Note: (1) the delineation of any traditional use areas for the Metis that may be present in or adjacent to the Study Area were unavailable at time of writing

Figure 6 - 1: First Nation Communities within the Study Area

6.2 Principles and Procedures

The Canadian Environmental Assessment Act (CEAA), Section 16.1, gives Responsible Authorities conducting environmental impact assessments (EIAs) the discretion to consider aboriginal traditional knowledge. In order to provide general assistance on the consideration of TEK in the EA, CEAA established the “Interim Principles”¹ to provide the following guidance:

- Work with the community.
- Seek prior informed consent from the communities.
- Access TEK with the support of the community. TEK is a privilege and must be respected.
- Respect intellectual property rights. Intellectual property includes inventions, literary and artistic works, symbols, names, images and designs.
- Collect TEK in collaboration with the community.
- Bring TEK and western knowledge together to complement each other.

The PR 304 to Berens River All-Season Road Project is part of the East Side Planning Initiative of Manitoba which was born out of the Consultation on Sustainable Development Implementation (COSDI) undertaken between 1997 and 1999. The COSDI Report² outlines the basic framework for such a planning process including the use of TEK, the development of protocols to guide community engagement with Aboriginal peoples and the development and use of capacity-building mechanisms to enable meaningful public participation.

To obtain broad input and establish consistency with the COSDI report recommendations, the East Side Road Authority has developed an engagement program to involve local residents in the details of all-season road planning and design, as described in Section 5.0. TEK is a logical extension of the community engagement program in respect of aboriginal community engagement, providing local Aboriginal community members an opportunity to provide detailed input on culture and the traditional use of lands.

The Traditional Knowledge study conducted for this Project attempts to address the following COSDI principles:

- Sustainable development processes, including planning tools and other documents, must recognize and respect Aboriginal and treaty rights and interests.

¹ Canadian Environmental Assessment Agency, Policy and Guidance – Considering Aboriginal traditional knowledge in environmental assessments conducted under the Canadian Environmental Assessment Act – Interim Principles. <http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=4A795E76-1>.

² Report on the Consultation on Sustainable Development Implementation (COSDI), June 1999, Government of Manitoba, Sustainable Resource and Policy Management, <http://www.gov.mb.ca/conservation/susresmb/pub/cosdireport.html>

- Sustainable development processes must recognize the importance of the culture, knowledge, traditions, cultural and spiritual values of Aboriginal peoples.
- Capacity-building mechanisms should be developed to enable the meaningful participation of Aboriginal peoples in sustainable development processes (including education and awareness, appropriate timelines for notification and responses, access to information, possible funding approaches).
- Local knowledge (Traditional Ecological Knowledge), special naturalized, and community-based knowledge should be recognized and considered in sustainable development processes.
- Meaningful consultation with Aboriginal peoples should occur where resource use planning, significant resource allocation, development review processes and regulatory mechanisms, including effects assessment, is likely to affect Aboriginal or treaty rights or interests.
- Where Aboriginal or treaty rights or interests are likely to be affected, fact-finding, technical and decision-making mechanisms for sustainable development require meaningful Aboriginal representation.

6.3 Methodology

In accordance with the COSDI principles, TEK has been used in the current Project to collect information on traditional activities conducted by members of the Aboriginal communities within the study area, including the following:

- Trapping;
- Moose and caribou hunting;
- Moose and caribou calving and migration patterns;
- Waterfowl hunting;
- Fishing and fish spawning areas;
- Small game hunting;
- Berry picking and other gathering;
- Burial/spiritual areas; and
- Cultural areas.

The key objectives of the TEK Study are as follows:

- Provide current environmental baseline information;
- Identify traditional uses which may fall under treaty or aboriginal rights;
- Identify local information pertinent to the delineation of VECs; and

- Inform the assessment of potential effects and the need for specific mitigation measures.

In order to gain valuable TEK information, it was important to engage the community and bring awareness about the major components of the project to the community. This required rigorous planning to initiate and facilitate the community meetings. The first set of meetings took place from March 2009 to June 2009, to introduce the project, including the need and purpose, describe the EA process, and TEK study program. The second set of community meetings will take place following submittal of the EIA to describe the results of the TEK data, impact assessment analysis (albeit negative or positive effects) of the preferred route option and identification of mitigation measure or agreements to address any adverse environmental and social effects as a result of the project.

Details of the methodology for the TEK study are provided in sections 6.3.1 to 6.3.5 below.

The purpose of the local TEK Survey was to update the existing baseline data for the EIA study area and to solicit input from the respondents regarding their use of land for traditional activities; areas considered spiritually and culturally important; and to obtain input on their perception of the potential impacts of development and operation of the PR 304 to Berens River All-season Road on traditional uses of lands within the study area, as well as other cultural activities.

The steps followed to perform the TEK Survey are the following:

- Identification of Traditional Land boundaries
- Development of a Survey / Interview Questionnaire and Maps
- Identification of Local Coordinators
- Establishment of a Confidentiality and TEK Ownership Agreement
- Analysis of TEK Information

6.3.1 Identification of Traditional Land Boundaries

Traditional land boundaries for the communities within the study area were obtained from *Promises to Keep*, East Side Planning Initiative (ESPI), 2004/ National Topographic Data Base (NTDB) 1:50,000, Government of Canada, Natural Resources Canada. Centre for Topographic Information 2003/ Manitoba Land Information (MLI) 2009. The Map is intended for illustrative purposes only, to help analysts determine the extent of potential impacts and to define the study area for the Project. These are not legally constituted boundaries. Community traditional land boundaries are shown on Figure 6-1.

A review of trapping information maintained by the Province indicated that the trapline sections generally corresponds with areas defined as the traditional lands for the each of the First Nation communities, obtained subsequently from the TEK Survey information.

6.3.2 Development of an Interview/Survey Format and Maps

The interview form / questionnaire, as well as the maps prepared for geographic depiction of the information, were developed by SNC-Lavalin using prior TEK studies for guidance. Templates of the survey form are provided in Appendix 6.2. The map was a basic topographic map of the area at a scale appropriate to demonstrate the full extent of the community's traditional lands.

Each community received a map of the area of the project surrounding their area in order to show the limits of the different activities performed in the community.

6.3.3 Identification of a Local Coordinator

A local TK Coordinator was identified in each community within the study area. The specific role of the Coordinators is described in Appendix 6.2. In summary, the TK Coordinators responsibilities were the following:

- To identify leaders from within the community were considered holders of the community's traditional knowledge (elders, trappers, hunters, etc.) for personal interviews. The Elders were to be recognized by the community for his/her significant knowledge of traditional lands and community culture. In addition, the Elder have been deemed to be a significant user of traditional lands and recognized as a leader by community members for retaining this knowledge. All aboriginal people in the community were eligible for survey, including status First Nations, Métis and non-status First Nations. Respondents were not asked to declare their status.
- TK Coordinator was to conduct interviews with the identified community leaders/elders, using a survey form and prepared maps to record answers and comments. In most communities, approximately 25 to 30 interviewees were selected for an interview.
- Upon completion of interviews, TK Coordinators were responsible for the shipment of surveys and maps to SLI. TK data was expected to be recorded on the surveys and maps. TK Coordinators were then responsible for shipment of surveys to SLI for processing and analysis.

6.3.4 Establishment of a Confidentiality and TEK Ownership Agreement

Aboriginal Communities own the intellectual property rights to their traditional knowledge, despite it being recorded in any way. As such, a confidentiality agreement was created for each of the respondents to sign. This agreement is between ESRA, TK Coordinator along with the participants of the study. Each respondent signed a confidentiality Agreement. It is acknowledged that any information provided by the respondent may include proprietary and confidential information, including, but not limited to, local or community historic knowledge, ideas, perspectives, comments and opinions, traditions, practices, values or belief systems, not previously disclosed to the general public. As such, the information provided by the respondents will strictly be

kept confidential and held by ESRA, its officers, employees and agents, and the TK Coordinator in confidence to ensure that such information will not be published, revealed or disclosed to any other person. Personal data or copies of the completed surveys will not be released. When referring to certain respondents and using their quotes as examples, they will be identified by a respondent code so as to not reveal who is making the comments. A copy of the Confidentiality Agreement is attached to Appendix 6.2.

6.3.5 Analysis of TEK Information

The information obtained from the questionnaires of the Survey was organized in tables by community and according to the performed activity including:

- Trapping Activity,
- Moose Hunting
- Caribou Hunting
- Small Game Hunting,
- Waterfowl and Bird Hunting,
- Fishing And Fish Spawning Areas,
- Berry Picking and Other Gathering Areas,
- Cultural Areas

The tables show the number of people responding to each question of the survey, the percentage of answers from each community, and the opinion of each community regarding the traditional activities.

The analysis of the results and information obtained through the survey/interview process is presented in this Section of the study. A detailed description of the results is provided in Appendix 6.2.

6.4 Analysis of TEK Information

6.4.1 Trapping

Figure 6.2 shows areas used for trapping activities. The map shows the aggregation of the geographic information regarding the location of trapping activities provided by all respondents. Maps showing the aggregation of geographic data by community are presented in Appendix 4.

Hollow Water area respondents indicated that community trapping activity occurs within the study area near the communities of Hollow Water and Aghaming, Seymourville and Black Island, and along the existing Rice River road from east of Manigotagan to north of Sanders Creek. Trapping activity decreases to the east of English Lake and Shallow Lake.

Bloodvein area respondents indicated that most trapping activity occurs within the study area near the community, and along the Bloodvein and Leyond Rivers. Trapping activity decreases to the east, further from the community.

Respondents from the Berens River area indicated moderate trapping activity near the community with most activity occurring in the Seventeen Mile Lake area and in some areas along the Berens River.

Respondents from the Poplar River area indicated that most trapping activity occurs close to the community, decreasing towards the east along the Poplar and North Poplar Rivers, moving away from the community. There is also trapping activity within the eastern region of the community's traditional lands that extend beyond the Project Study area.

The majority of Little Grand Rapids area and Pauingassi area respondents indicated most trapping activity occurs in the area of Family Lake and along the Pigeon River south of the community, within the Atikaki Provincial Park. Community members also trap in areas around Kamaskawak and the Berens River First Nation, demonstrating overlap in community traditional lands. Traditional lands of this First Nation extend into the Province of Ontario.

The survey indicates that most of the respondents who answered questions regarding trapping (93 of 194 or 48 %) did not think that the PR 304 to Berens River All-season Road project would have an impact on their trapping activities, 53 (27%) did not comment on this issue. 6 (11 %) felt that there may be an impact or they were not sure and 37 (19 %) said that trapping activity could be affected. Table 6.1 presents a summary of these opinions provided by respondents from Poplar River, Berens River, Bloodvein, Hollow Water, Little Grand Rapids and Pauingassi areas.

Table 6 - 1: Respondent Opinion on the Potential Impact of the All-Season Road on Trapping Activity

Community Area	Total Number of Respondents	No. that Actively Trap	Do you think that the road will affect trapping activity?							
			No	%	NR ¹	%	Not sure/ Not know	%	Yes	%
POPLAR RIVER	43	35	31	72	2	5	3	7	7	16
BERENS RIVER	37	12	3	8	29	78	4	11	1	3
BLOODVEIN	31	14	20	65	5	16	2	6	4	13
LITTLE GRAND RAPIDS	33	27	15	46	9	27	1	3	8	24
PAUINGASSI	20	14	14	70	1	5	1	5	4	20
HOLLOW WATER	30	22	10	33	7	24	0	0	13	43
TOTAL	194	124	93	48	53	27	11	6	37	19

1. Resp = Respondents 2. NR = No response

Although approximately 64 % of respondents either did not respond (53%) or were not sure (11%), more respondents (48%) from all communities are of the opinion that the proposed all-season road will not affect trapping activity than those who believe it will (19%). Respondents that gave reasons as to why the Project will not affect their trapping activity indicated it is because the road is not in the vicinity of their trapline. Those who were of the opinion that the Project could have an impact on trapping cited reduction of habitat to be the main cause by creating more noise, scaring animals and causing them to leave the area. Others also indicated that increased access and traffic in the area will allow non-aboriginal people from outside the local communities to access the traditional lands and disturb trapping activity.

In addition to providing their input and their concerns, respondents were asked to provide input on impacts they think may affect trapping activities as shown on Table 6 -2.

Table 6 - 2: Potential Effects that Respondents are of the opinion could be caused to Trapping Activity by the All-Season Road

Potential Effect	Number supporting answers ⁽¹⁾
Less animals to trap	56
More animals to trap	17
Disrupted migration of animals leading to less amount of animals to trap	61
Habitat destruction leading to less animals to trap	56
Loss of traditional practices and language due to less trapping	47
New access to traplines for others to use	59
New trapping areas for the community to explore	53
New or more animals resulting in more animals to trap	16
Increased accidents between road users and animals resulting in less animals to trap	42
Increased participation/interest in trapping	35

(1) Note: Respondents often selected a number of choices, so the number of supporting answers may exceed the number of respondents

Table 6 - 3 presents mitigation measures suggested by respondents.

Table 6 - 3: Respondent Suggestions for Mitigation Measures to Reduce Impacts to Trapping Activity

Suggested Mitigation	Number of supporting answers
Provide road patrols	67
Control road users by establishing control point offices along the road way	58
Implement local and provincial legislation with bans road use to those other than community members	47
Provide road blocks to prevent access to traplines	51
Ensure road construction and operation is implemented in an environmentally responsible manner	94

Note: Respondents often selected a number of choices, so the number of supporting answers may exceed the number of respondents

Figure 6 - 2: TEK Trapping Areas

6.4.2 Large and Small Game Hunting

Figures 6.3, 6.4, and 6.5 show areas identified by all respondents as important areas for moose, caribou and small game hunting throughout the study area. Maps for each community are provided in Appendix 4.

Hollow Water area respondents identified that moose hunting occurs on Black Island; east of the existing Rice River road to the area south of Kapeemeekek Lake and north of Mahigan lake; and along the Rice River up to Sanders Creek. Caribou hunting is limited in this area. Only one respondent reported caribou hunting in the area, north of English Lake. Small game is hunted primarily in easily accessible areas, such as along PR 304 and the Rice River Road; and in areas along the rivers and around the communities.

Bloodvein area respondents indicated that moose hunting occurs primarily to the south and southeast of the community, along the existing Rice River Road and winter road corridors (up to Round Lake), and along the Leyond River. Caribou hunting is reported to occur in similar areas to moose hunting, although not along the Rice River Road corridor. Small game hunting tends to be focused on areas close to the community.

Berens River area respondents indicated that moose hunting occurs along the Pigeon River, Berens River and Etomami River. Caribou hunting is not common to respondents in Berens River, although several respondents identified lands along the winter road east and north of the community as having the best potential; with some caribou found along the Berens and Leyond Rivers.

Poplar River area respondents indicated that the principal area for hunting moose is along the Poplar River up to Weaver Lake, although a number of respondents reported hunting activity throughout the Poplar River traditional lands. Interestingly, more hunters reported caribou hunting throughout their traditional lands than respondents in the communities to the south. Caribou hunting areas occur in the central area of the community's traditional lands, north of Poplar River. Most small game is hunted near the community and around Weaver Lake to the east of the community.

Respondents from the Little Grand Rapids area and Pauingassi area identified moose hunting occurring throughout the communities' traditional lands, primarily east of the winter road, and to the south around Family Lake and up the Dogskin River. Some respondents also reported moose hunting along the Berens River to the west of the communities. Although respondents indicated that caribou hunting is not prevalent in the area, some activity occurs in similar although less extensive areas as moose hunting. Respondents indicated that small game hunting is practiced primarily in close proximity to the communities, although will be carried out pretty much anywhere within the communities' traditional lands.

Figure 6 - 3: TEK Moose Hunting Results

Figure 6 - 4: TEK Caribou Hunting Results

Figure 6 - 5: TEK Small Game Hunting Results

Interviews were conducted between May and July 2009. A total of 143 respondents provided information on hunting activity. As shown on Table 6.4, although 29% of respondents did not comment, and 4% were unsure, a majority (87 or 45 %) of respondents indicated they are not of the opinion that development and operation of the proposed all-season road will affect moose hunting activities, compared to 43 (22%) respondents who indicated they believe the road could affect moose hunting activity by effects outlined in Table 6.5.

Although 22 (11%) respondents indicated that development and operation of the proposed all-season road could have a negative effect on caribou hunting activity, 65% did not comment on this issue, 44 (23 %) respondents were of the opinion that this activity will not likely be affected. 2 (1%) respondents were not sure or did not know whether the road would affect caribou hunting or not.

Concerning small game hunting activity, 65 (34 %) of respondents indicated that the all-season road is not likely to have a negative effect on small game hunting activity and 43% did not provide comments. However, 42 (22%) respondents believe the road could negatively affect small game hunting activity. 3 respondents (1%) were not sure or did not know if the all-season road would affect small game hunting or not.

Some of the perceived potential effects indicated by the respondents were:

- Clearing will cause the reduction of habitat and therefore will reduce the number of animals within the study area;
- Noise from the construction and operation of the road will scare the animals away from the area;
- Contamination due to oil leaks and garbage from the activities associated with the road will cause animals to move to other areas, or could cause negative health effects resulting in reduced animal populations;

In addition to indicating whether or not the proposed all-season road will affect moose, caribou or small game hunting, respondents provided opinions as to the types of effects the all-season road could have on hunting. Results are shown on Table 6.5.

Table 6 - 4: Respondent Opinion on the Potential Impact of the All-Season Road on Large and Small Hunting Activity

Community Area	Total Number of Resp ⁽¹⁾	Respondents Actively Hunting	Do you think that the route will affect the large and small game hunting activity?																							
			Moose								Caribou								Small Game							
			No	%	NR ²	%	Not sure/Do Not know	%	Yes	%	No	%	NR ¹	%	Not sure/Do Not know	%	Yes	%	No	%	NR ¹	%	Not sure/Do Not know	%	Yes	%
POPLAR RIVER	43	40	32	74	3	7	3	7	5	12	13	30	28	65	0	0	2	5	30	70	6	14	1	2	6	14
BERENS RIVER	37	15	9	24	26	70	1	3	1	2	1	3	36	97	0	0	0	0	1	3	35	94	0	0	1	3
BLOODVEIN	31	22	13	42	8	26	3	10	7	22	6		21		2	6.5	2	6.5	10	32	11	36	2	6	8	26
LITTLE GRAND RAPIDS	33	29	18	55	7	21	0	0	8	24	16	48.5	16	48.5	0	0	1	3	10	30	17	52	0	0	6	18
PAUINGASSI	20	Majority ³	5	25	1	5	0	0	14	70	5	25	3	15	0	0	12	60	6	30	0	0	0	0	14	70
HOLLOW WATER	30	22	10	33	12	40	0	0	8	27	3	10	22	73	0	0	5	17	8	27	15	50	0	0	7	23
TOTAL	194	143*	87	45	57	29	7	4	43	22	44	23	126	65	2	1	22	11	65	34	84	43	3	1	42	22

- Notes:
1. Resp = Respondents
 2. NR = No response
 3. The number of Pauingassi respondents actively hunting was estimated to be 15 people

* Total including estimated respondents from Paunguassi

Table 6 - 5: Potential Effects that Respondents are of the Opinion could be caused to Large and Small Game Hunting Activity by the All-Season Road

Potential effect	Number of supporting answers
Less animals to hunt	58
More animals to hunt	10
Disrupted migration of animals leading to reduced numbers of animals to hunt	55
Habitat destruction leading to less animals to hunt	44
Loss of traditional practices and language due to less hunting	31
New access to hunting areas by outsiders	67
Access to new hunting areas for community members	59
More animals in the area resulting in more animals to hunt	9
Increased accidents between road users and animals resulting in less animals to hunt	38
Increased participation/interest in hunting	32

Note: Respondents often selected a number of choices

Respondents also provided suggestions as to the types of mitigation measures that could be considered to reduce potential effects, as shown on Table 6.6.

Table 6 - 6: Respondent Suggestions for Mitigation Measures to Reduce Impacts to Large and Small Game Hunting Activity

Suggested Mitigation	Number of supporting answers
Provide road patrols	79
Control road use by establishing control point offices along the road way	62
Implement local and provincial legislation with bans on road use to those other than community members	49
Provide road blocks to restrict access to hunting areas	58
Ensure road construction and operation is implemented in an environmentally responsible manner	101

Note: Respondents often selected a number of choices

6.4.3 Waterfowl Hunting

Based on the number of responses waterfowl hunting is a popular activity among the respondents of the survey.

Figure 6.6 shows waterfowl hunting areas identified by all respondents throughout the study area. Maps showing areas used by specific communities are presented in Appendix 4.

Respondents from the Hollow Water area indicated that most of waterfowl hunting occurs near the communities and throughout the Rice River and Sanders Creek watersheds, intensifying near Lake Winnipeg and along the existing Rice River Road.

Bloodvein area respondents indicated there is a concentrated area of waterfowl hunting activity along the Bloodvein and Leyond Rivers and the winter road, with highest concentration within close proximity to Lake Winnipeg. Berens River area respondents indicated that the main areas for waterfowl hunting are near the mouth of the Pigeon River surrounding the community and along the Berens River, the Etomami River, and the North Etomami River. A lot of waterfowl are also concentrated near Lake Winnipeg.

Poplar River area respondents indicated that waterfowl hunting is concentrated around the community and along the Poplar River towards Weaver Lake, with the highest concentration being at the mouth of the Poplar River at Lake Winnipeg. Little Grand Rapids area and Pauingassi area respondents indicated a concentration of waterfowl hunting activity along the Berens River and around the various small lakes in the area, including Family Lake and Fishing Lake. Less concentrated hunting activity occurs around the communities and in the area north of Atikaki Provincial Park.

Results of the survey show that, although 56 (29%) respondents had no answer, 103 (53 %) respondents indicated they do not believe the proposed all-season road will cause any potential negative effects on their bird hunting activities, compared to 35 (18%) respondents who indicated the road could negatively affect bird hunting activity. Table 6.7 presents a summary of respondents' opinions on how development and operation of the proposed all-season road could affect waterfowl hunting. As shown, many people are of the opinion that the Project will provide access to areas not previously accessible, which could reduce the number of birds available to local hunters. Respondents were also concerned that road noise, dust and other disturbances could chase birds away, again causing a reduced number of birds available to hunt.

Table 6 - 7: Respondent Opinion on the Potential Impact of the All-Season Road on Waterfowl Hunting Activity

Community Area	Total Number of Respondents	Respondents Actively Hunting Birds	Do you think that the route will affect the Bird hunting activity?							
			No	%	NR	%	Not sure/ Not know	%	Yes	%
POPLAR RIVER	43	42	37	86	1	2	0	0	5	12
BERENS RIVER	37	10	6	16	31	84	0	0	0	0
BLOODVEIN	31	29	18	58	6	20	0	0	7	22
LITTLE GRAND RAPIDS	33	42	22	67	7	21	0	0	4	12
PAUINGASSI	20	19	8	40	2	10	0	0	10	50
HOLLOW WATER	30	18	12	40	9	30	0	0	9	30
TOTAL	194	160	103	53	56	29	0	0	35	18

Note: **NR** = No response

Table 6.8 provides a summary of respondent opinions on the potential effects of all-season road development and operation on waterfowl hunting activities. As shown, respondent comments identified issues such as increased noise levels, causing animals to avoid the area (less animals available for hunting) and potential for changes in migration patterns; potential for reduction of wildlife habitat due to clear cutting; outsiders entering the area (causing over-hunting), potential traffic safety concerns; and the potential for contamination of the environment due to the activities associated with construction and maintenance of the road (e.g. localized erosion, sediment control issues, and discharges due to spills of any deleterious substances).

Table 6 - 8: Potential Effects that Respondents are of the Opinion could be Caused to Waterfowl Hunting Activity by the All-Season Road

Potential Effect	Number of supporting answers
Reduced number of birds and waterfowl to hunt	41
Increased number of birds and waterfowl to hunt	11
Disrupted migration of birds and waterfowl leading to reduced numbers of waterfowl in the area	37
Habitat destruction leading to reduced numbers of birds and waterfowl in the area	31
Loss of traditional practices and language due to reduced bird and waterfowl hunting	23
New access to hunting areas for outsiders	54
Access to new hunting areas for community members	46
In-migration of new or more birds and waterfowl resulting in more animals to hunt	10
Increased accidents between road users and birds and waterfowl resulting in reduced number of birds and waterfowl to hunt	20
Increased community participation/interest in hunting	24

Note: Respondents often selected a number of choices

Table 6.9 provides a summary of some mitigation measures suggested by respondents to minimize negative impacts to waterfowl hunting.

Table 6 - 9: Respondent Suggestions for Mitigation Measures to Reduce Impacts to Waterfowl Hunting Activity

Suggested Mitigation	Number of supporting answers
Provide road patrols	55
Control road use by establishing control point offices along the road way	45
Implement local and provincial legislation with bans on road use to those other than community members	33
Provide road blocks to restrict access to waterfowl/bird hunting areas associated with temporary quarry borrow site used during construction	51
Ensure road construction and operation is implemented in an environmentally responsible manner	89

Note: Respondents often selected a number of choices

Figure 6 - 6: TEK Waterfowl Hunting Results

6.4.4 Fishing

Fishing appears to be the most popular activity among the respondents of the TEK survey conducted between February and July 2009.

Figure 6.7 shows the areas indicated by all respondents that are used for fishing. Maps showing areas used on a community basis are presented in Appendix 4.

Hollow Water area respondents indicated a concentration of community fishing around Black Island, along the Red Pine proposed Ecological Reserve, and generally up the Lake Winnipeg shoreline within easy access of the Rice River Road from Aghaming to Sanders Creek.

Bloodvein area respondents indicated the highest concentration of fishing activity along the Bloodvein River, decreasing with increased distance from the community.

Berens River area respondents indicated a concentration of fishing activity along the Pigeon River and Berens River within close proximity to the communities, decreasing with distance from the communities.

The Poplar River area respondents indicated concentrated fishing activity surrounding the community and along the Poplar River, decreasing with distance from the community. There is also a concentration of activity surrounding Weaver Lake.

The Little Grand Rapids area and Pauingassi area fishing activity are concentrated all around the communities, up the Berens River and small creeks, and around the numerous small lakes. Fishing activity extends as far as areas north of the Atikaki Provincial Park extending to the Viking River and Viking Lake in the West, to Kamaskawak in the North.

Results of the survey show that 66% of respondents either gave no response or were unsure as to the potential effect of the Project on fishing activities. Of those that responded, 47 (24 %) respondents indicated that they do not anticipate any potential negative effects on their fishing activities due to the construction and operation compared to 34 (18%) respondents indicated they are of the opinion that the road may have a negative affect on fishing activity, while 8 (16%) respondents were unsure or did not know.

Table 6.10 presents a summary of opinions on the potential effect of the all-season road on fishing activities.

Table 6 - 10: Respondent Opinion on the Potential Impact of the All-Season Road on Fishing Activity

Community Area	Total Number of Respondents	Respondents Actively Fishing	Do you think that the route will affect the Fishing activity?							
			No	%	NR	%	Not sure/ Not know	%	Yes	%
POPLAR RIVER	43	39	28	65	3	7	9	21	3	7
BERENS RIVER	37	28	2	5	35	95	0	0	0	0
BLOODVEIN	31	28	8	26	20	64	2	7	1	3
LITTLE GRAND RAPIDS	33	39	5	15	21	64	2	6	5	15
PAUINGASSI	20	19	0	0	3	15	1	5	16	80
HOLLOW WATER	30	21	4	13	15	50	2	7	9	30
TOTAL	194	174	47	24	97	50	16	8	34	18

Note: **NR** = No response

Results of the survey show that 47 respondents (24 %) do not believe the all-season road will have a negative effect on fishing. Some of the effects that 18 % of respondents feel will affect fishing are summarized in Table 6.11.

Table 6 - 11: Potential Effects that Respondents are of the Opinion could be caused to Fishing Activity by the All-Season Road

Potential effect	Number of supporting answers
Reduced numbers of fish	43
Increased numbers of fish	5
Disrupted migration of animals preying on fish which leads to larger amounts of fish for fishing activity	38
Habitat destruction leading to reduced numbers of fish and reduced fish species	35
Loss of traditional practices and language due to less fishing	30
New access to fishing areas for outsiders	67
Access to new fishing areas for community members	59
In-migration of new animals resulting in less fish	10

Potential effect	Number of supporting answers
Potentially contaminated water sources killing fish and poisoning other animals.	46
Increased community participation/interest in fishing	21

Note: Respondents often selected a number of choices

Respondents also provided opinions on suggested mitigation as outlined in Table 6.12.

Table 6 - 12: Respondent Suggestions for Mitigation Measures to Reduce Impacts to Fishing Activity

Suggested Mitigation	Number of supporting answers
Provide road patrols	68
Control road use by establishing control point offices along the road way	52
Implement local and provincial legislation with bans on road use to those other than community members	45
Provide road blocks to restrict access to fishing areas	55
Ensure road construction and operation is implemented in an environmentally responsible manner	105

Note: Respondents often selected a number of choices

Figure 6 - 7: TEK Fishing Results

6.4.5 Harvest of Other Wildlife

The harvesting of other animals includes lynx, wolves, bears and other predatory species.

No comments on the geographic location of harvest areas for other wildlife species were received (no mapping available).

According to the survey, 66 (34 %) respondents indicated they do not expect that development or operation of the proposed all-season road will result in any negative potential effects on the harvest of other wildlife and 33% did not comment on this issue. 49 (25 %) respondents indicated development and operation of the road could have a negative effect, while 15 (8%) of respondents were unsure or did not know.

Table 6.13 presents a summary of the opinions of respondents on the potential for the all-season road to affect the harvest of other wildlife species.

Table 6 - 13: Respondent Opinion on the Potential Impact of the All-Season Road on the Harvest of Other Wildlife

Community Area	Total Number of Respondents	Do you think that the route will affect the harvest of other wildlife species?							
		No	%	NR	%	Not sure/ Not know	%	Yes	%
POPLAR RIVER	43	27	63	3	7	7	16	6	14
BERENS RIVER	37	5	14	32	86	0	0	0	0
BLOODVEIN	31	15	48	1	3	5	17	10	32
LITTLE GRAND RAPIDS	33	8	24	22	67	2	6	1	3
PAUINGASSI	20	0	0	1	5	1	5	18	90
HOLLOW WATER	30	11	37	5	17	0	0	14	46
TOTAL	194	66	34	64	33	15	8	49	25

Note: **NR** = No Response

The majority of respondents 66 (34%) were not concerned that the proposed all-season road would affect predator activity within the study area. Comments included:

- The road will not affect predators
- It is not natural to have lynx in the community
- Wolves in the bush and open areas will survive.
- Bears will survive anywhere

The few residents showing some concern with the road indicated that increased human activities and human presence could result in a decrease in the presence of other species due to noise, cleared areas and other changes to the environment caused by road development as discussed for trapping and hunting of small and large game.

6.4.6 Cultural Activities

Cultural activity included comments on burial or spiritual areas, gathering and berry picking activities.

Figures 6.8, 6.9 and 6.10 show areas known to contain burial and other spiritual areas, special gathering areas (primarily traditional medicines) and areas used for berry picking. As with other maps presented in this section, the maps shown present the aggregation of comments received from all respondents. Maps showing areas accessed by individual communities are presented in Appendix 4.

Hollow Water area respondents indicated that the areas with burial and spiritual sites are located on Black Island and along the Rice River. The concentration of these areas decreases towards the north and east past Shallow Lake, away from the communities. Areas used for special gathering show a similar pattern, although important areas were identified throughout Black Island and the area surrounding Shallow Lake, with concentration decreasing towards the shoreline area of Lake Winnipeg. Berry picking activity is practiced in highest concentration on Black Island and to a lesser extent along the Rice River Road.

Bloodvein area respondents indicated a concentration of burial and spiritual areas on Black Island and along the Bloodvein River, primarily at the mouth of the River near Lake Winnipeg. Special gathering areas and berry picking areas are concentrated primarily near the community with decreasing concentration away from the community to the south and east along the Bloodvein River.

Berens River area respondents identified a concentration of burial/spiritual areas extending along the Berens River, decreasing with distance from the community. Special gathering areas and berry picking areas have been identified in and around the Berens River community and Asinkaanumevatt area.

Poplar River area burial/spiritual areas, special gathering areas and berry picking areas have been identified primarily surrounding the community, along the Poplar River and surrounding Weaver Lake.

Little Grand Rapids area and Pauingassi area respondents indicated that burial/spiritual areas are concentrated around the communities, extending out in decreasing concentration towards Family Lake. Special gathering areas and berry picking areas are concentrated around the communities, Family Lake and the northern sector of Atikaki Provincial Park.

As shown on Table 6.14, results of the survey indicate that 69 (36 %) respondents indicated that they do not perceive any potential negative effect on these cultural areas as a result of development and operation of the proposed all-season road and 46 (23%) respondents did not provide comments on this issue. 61 (32%) respondents indicated

they believe the road may have some effect on cultural areas while 18 (9%) were unsure or did not know.

Table 6 - 14: Respondent Opinion on the Potential Impact of the All-Season Road on Cultural Areas and Activities

Community Area	Total Number of Respondents	Do you think that the road will affect Cultural areas or activities?							
		No	%	NR	%	Not sure/ Not know	%	Yes	%
POPLAR RIVER	43	25	58	3	7	5	12	10	23
BERENS RIVER	37	8	22	25	67	0	0	4	11
BLOODVEIN	31	17	55	2	6	0	0	12	39
LITTLE GRAND RAPIDS	33	8	24	7	21.5	3	9	15	45.5
PAUINGASSI	20	3	15	2	10	9	45	6	30
HOLLOW WATER	30	8	27	7	23	1	3	14	47
TOTAL	194	69	36	46	23	18	9	61	32

Note: **NR** = No Response

Respondents with concerns about the all-season road identified such issues as:

- increased traffic (noise, dust, etc.);
- outsiders gaining access to cultural/spiritual areas;
- increased drug and alcohol abuse;
- loss of language;
- increased gang activity;
- increased flooding, from disrupting beavers and dams;
- increased forest fires;
- loss of traditional medicine knowledge.

Many respondents were of the opinion that the road will result in positive effects. Those that indicated there could be positive effects cited such examples as:

- Transportation costs will go down
- Easier access to other communities
- Cost of living will go down
- Young people live in the future, so the road will be a benefit.

Figure 6 - 8: TEK Burial and Spiritual Results

Figure 6 - 9: TEK Special Gathering Areas Results

Figure 6 - 10: TEK Berry Picking Areas Results

6.5 Summary of Cultural and Traditional Land Use Implications

The following sections provide an overview summary of the information received through the TEK studies conducted for the Project, plus some general conclusions as to how the TEK information has been incorporated.

6.5.1 Incorporation of TEK into Impact Assessment

Consistent with the Interim Principles established by CEAA (referenced above), the input of TEK into the EIA process adds significant value to the process by:

- Including aboriginal peoples and communities into the EIA process in a meaningful manner;
- Providing relevant biophysical information, including historical information, that may otherwise have been unavailable;
- Helping to identify potential environmental effects;
- Leading to improved project design;
- Strengthening mitigation measures;
- Contributing to the building of enhanced long-term relationships between proponents, aboriginal groups, and/or Responsible Authorities;
- Leading to more informed Project decisions; and
- Contributing to the building of EIA and TEK capacity within aboriginal communities and building an awareness of, and appreciation for, TEK in non-aboriginal communities.

To be most effective, it is important that TEK is brought into the EIA process early, prior to completion of the environmental effects analysis. TEK was incorporated at an early stage in the current EIA process, and was used in the following steps:

- Collection/confirmation of environmental baseline (existing environment) information;
- Assessment of the environmental effects of the project;
- Determination of the significance of environmental effects;
- Identification of mitigation measures;
- Design of the all-season road; and
- Design of Project implementation procedures, including monitoring.

6.5.2 Implications of All-Season Road Development and Operation for Traditional Land use

TEK survey respondents openly expressed their opinions and concerns about the potential effect that development and operation of the proposed all-season road could have on the traditional use of their lands as well as their culture.

Through the course of interviews, it became clear that all local Aboriginal community members value the land and their relationship to the land, very highly. There is an understanding that the protection of habitat quality requires a balance, and that upsetting this balance can result in negative changes which can affect Aboriginal members traditional use of the land, in a similar way for all traditional activities. All respondents share the same concerns regarding the protection of animals and their habitats, even though opinions may vary as to the extent of change that the all-season road might cause. Protecting habitat quality will, in general, protect the quantity and quality of resources available for traditional activities.

Based on the responses received to the TEK survey, it can be generalized that local Aboriginal community members place a very high value on the traditional activities of hunting (all game), trapping and fishing, and the majority of TEK survey respondents are active participants in all of these activities.

Respondents indicated that hunting and fishing are important as they serve as a highly valuable source of food. Although not typically reported as 'income' in the modern wage economy, the survey information indicates that hunting and fishing are as valuable or more valuable than cash, as a subsistence activity for a number of respondents, .

Trapping is somewhat different since these pursuits are practiced in parallel with other activities. For example, a trapper out on his trapline will fish for food, and hunt as situations arise. Typically trapping has been important as a source of cash income; however, trapping incomes have dropped significantly in recent years due to a global drop in demand for fur pelts and a corresponding drop in prices. This has affected the level of income that can be derived from the pursuit, and hence a drop in participation rates. As can be seen from the TEK survey response, a lot of the trapping conducted today is occurring close to the communities, as an opportunistic, almost hobby level activity. This is a stark contrast from previous generations when trapping activities were considered a full-time job, and would lead community members far from the community along the family trapline, for extended periods. Although not practiced the same way today, most communities are actively supporting trappers and encouraging trapping activities in recognition of its importance to Aboriginal culture and to preserve the skill set.

Although the majority of all respondents stated they are of the opinion that the road will not cause significant effects to trapping, hunting or fishing activities, there is a general consensus that development of the proposed all-season road will likely result in some changes, including a reduction in the number of animals in the area, thereby reducing the number of animals available to trap and hunt. Respondents cited a number of road characteristics that could potentially cause this effect, including:

- Disturbances to animal habitat causing the animals to migrate elsewhere (e.g., construction noise, traffic noise, clearing, etc.);

- Accidents between animals and vehicles on the road resulting in animal fatalities;
- Contamination of soils and water, causing animals to become sick and/or to migrate elsewhere; and
- Improved access to the community's traditional lands by outsiders, increasing hunting and trapping pressure, and reducing the number of animals available to Aboriginal community members.

Respondents expressed concerns for the protection of water quality, fearing there could be contamination during the construction phase, such as oil and fuel spills during construction; dust from the heavy machinery during construction; and litter and uncontrolled dumping during operation. Contamination of the water, even soils, can cause the poisoning of fish, or cause them to migrate to other areas, thus reducing the number and availability of fish for harvest. Further, respondents identified concerns about potential effects to fish spawning areas. Respondents indicated that fish tend to spawn near rapids and waterfalls, and that the construction of bridges and culverts over creeks and rivers could negatively affect spawning areas if not controlled.

These concerns indicate best management practices, site-specific mitigation measures, environmental inspection/supervision, and environmental monitoring will be important during construction and operation of the road.

In addition to the stated concerns about reduced numbers of animals (due to a variety of potential causes) and increased access to traditional harvest areas by non-aboriginal people, a couple of very interesting general comments were received from a number of respondents.

- An all-season road could lead to an increase in traditional activity participation rates due to improved access to new harvest areas;
- A drop in traditional activities could have a negative effect on the language

It is interesting that respondents identified that the all-season road could lead to increased participation rates, which in turn would be considered an enhancement of traditional culture, yet at the same time, if there is a corresponding drop in the quantity of resources, participation rates could drop, and with it the traditional connection to the land, and connection to the language.

This indicates that it is important in designing impact mitigation strategies for the construction and operation phases, that preservation of habitat quality, and the protection of resource quantities is very important, as the road itself could provide other benefits to the traditional culture, such as increased participation in traditional activities.

Mitigation measures identified by respondents, that should be considered include:

- Providing roadway patrols as a way to restrict unauthorized access to traditional hunting, trapping and fishing areas;
- Establish control points (similar to weigh stations) along the road to be used for the enforcement of fish and game laws (e.g. ensuring harvest limits for non-aboriginal road users, are respected);
- Provide physical barriers, such as barricades at potential land access points such as logging roads, to reduce unauthorized access to traditional lands
- Construct and operate the road in an environmentally responsible manner to avoid soil and water contamination and excessive noise and dust during construction; and
- Provide communities with the ability to review and even approve resource and land development proposals to ensure some control over the use of their traditional lands.

These issues are similar for gathering, such as medicines and berry-picking. However, being more stationery, the impacts of an all-season road can be more effectively reduced by avoiding areas of prime potential or more concentrated traditional use. Access by outsiders could still be a concern, but not likely as significant an issue as it is for hunting, trapping and fishing. It is expected that the preservation of areas with high potential for medicine and/or berries will remain a focus, through design and even into construction, ensuring maximum avoidance of these important community resources.

The input provided by the TEK Surveys, the community engagement program, and the technical studies undertaken in support of the environmental assessment clearly indicate that appropriate consideration and application of Environmental Protection Guidelines (EPGs), Best Management Practices (BMPs), site-specific mitigation measures, and will be important during detailed design and tendering of construction contracts. In addition the application of these measures, with appropriate levels of environmental supervision will be required during the construction, operation, and future maintenance of the road.

(see Appendix 7.1 for the Environmental Protection Guidelines and Appendix 7.2 for the Best Management Practices).

6.5.3 Traditional Culture

Preserving traditional culture while providing the modern benefits of an all-season road connection into previously isolated/remote communities is a challenge facing any Project like the PR304 to Berens River All-season Road. There is a perception among some Aboriginal community members that remoteness and isolation serve to preserve and protect traditional culture and cultural values.

Some TEK survey respondents identified specific concerns:

- Loss of language;
- Reduced participation in traditional activities such as trapping, hunting, fishing and gathering;
- Loss of traditional knowledge such as knowledge of traditional medicine and other traditional skills;
- Youth losing their sense of culture and tradition;
- Drug and alcohol abuse;
- Increased access to urban areas (for lower living costs, skills training and employment), could reduce the on-reserve population and community dynamics;
- Gang activities and increased crime rates;
- Non-aboriginal access to traditional lands;
- Potential for an increase in resource and land development pressure; and
- Loss of or disturbance to traditional artefacts (such as burial sites).

Although some of the issues raised can be mitigated, many are opinions and perceptions that do not lend themselves as easily to specific mitigation, but rather are lifestyle choices.

In contrast to the potential negative effects, many respondents (a majority) identified some positive aspects of an all-season road, such as:

- Greater access to Winnipeg and other urban communities linked to the Manitoba highway system, resulting in increased access to goods and services;
- Greater access to previously difficult areas to access for hunting, trapping, fishing, gathering, etc., could result in an increased participation rate in traditional activities, providing a strengthening of traditional culture and values;
- Greater access to other communities providing increased community and family ties and improved social interaction;
- Decreased transportation and freight costs resulting in lower costs for food and other goods within the community, leading to a decreased cost of living;
- Improved access to health care services and facilities at a lower cost (driving versus air fares);
- Improved access to education and skills training;
- Improved access to markets for the sale of goods and services;

- Increased opportunities for economic development, potentially resulting in an increase in the retention of skilled community members; and
- Increased flexibility in general travel (reduced reliance on air, barge or ferry services).

Based on the analysis of the TEK it would appear that the majority of respondents do not have significant concerns that are not appropriately considered in the EIA (Section 8.0) and can not be effectively addressed through detailed (functional design) and environmental mitigation and monitoring during construction, operation, and future road maintenance (see Sections 9 and 10, and Appendix 7.1 and 7.2).

The community engagement program (described in Section 5.0 of this EIA) will continue as the Project advances through the approvals and design process. The opportunity for community members to participate in discussions about the all-season road, and provide input into design and plans for implementation/operation, will continue to be an important forum for these debates amongst Aboriginal communities. Consultation activities, to be undertaken by Crown agency representatives, will also provide a forum for discussion and input into the process.