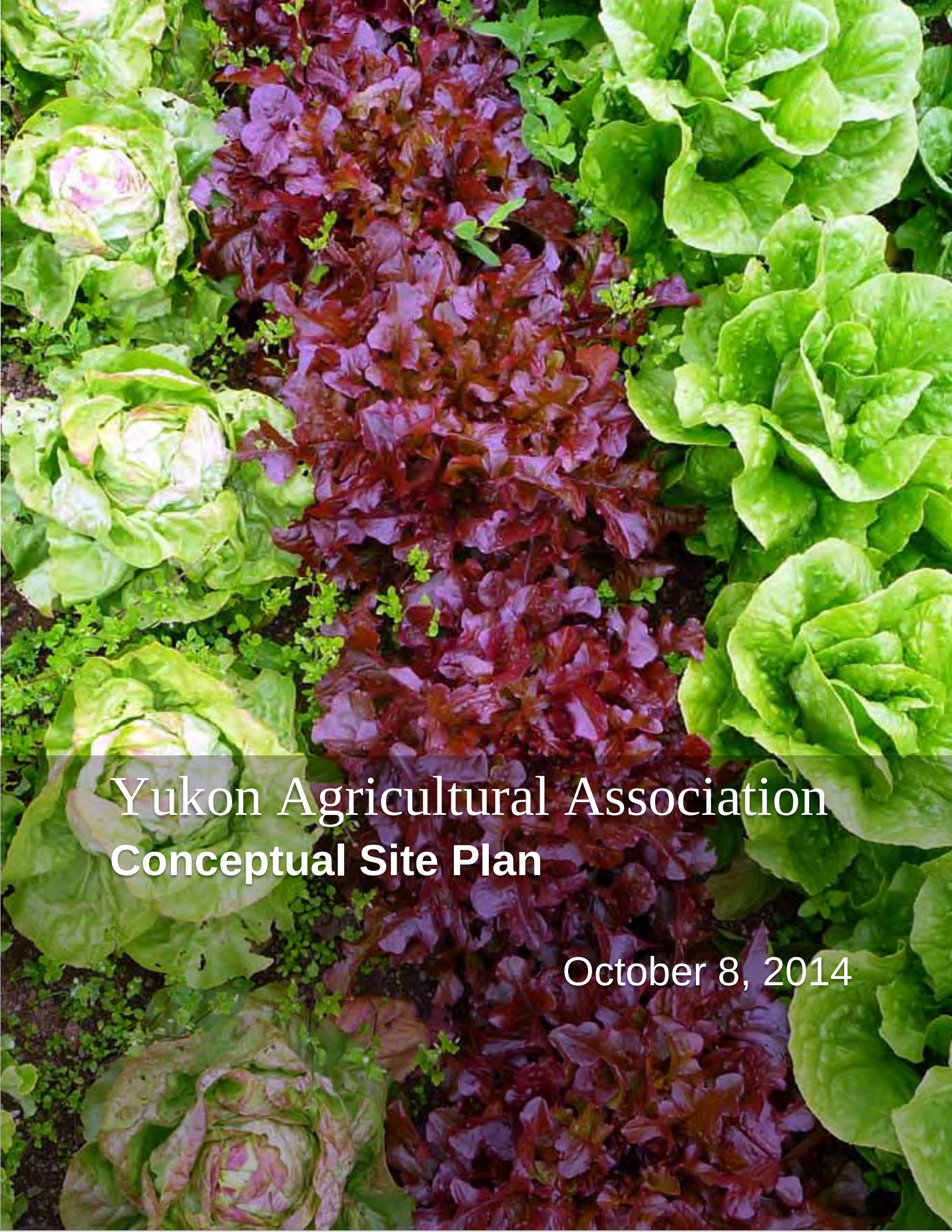

Yukon Agricultural Association

Conceptual Site Plan

October 8, 2014

Acknowledgments

The Yukon Agricultural Association (YAA) would like to thank the following people and groups for their valuable participation in this project:

- The members of the Technical Working Group (Dave Andrew, Cain Vangel, Alan Stannard, Mike Blumenschein, Tiana Zakus, and Bev Buckway);
- YAA Board of Directors and membership;
- Growing Froward 2, for funding the project;
- Tony Hill and Matt Ball, YG Agriculture Branch;
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- The Yukon Horse and Rider Association; and
- The Fireweed Community Market Association, the Growers of Organic Food Yukon, Pot-Luck Food Co-op, Downtown Urban Garden Society, and the Yukon Game Growers Association for participating in stakeholder interviews.

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1. Introduction

Context

The Yukon Agricultural Association (YAA) is a non-profit society with a mandate to support and promote agriculture in Yukon. In 2012, YAA secured a 30-year lease on a 65-hectare parcel of land located near km 204 on the North Klondike Highway (Figure 1).

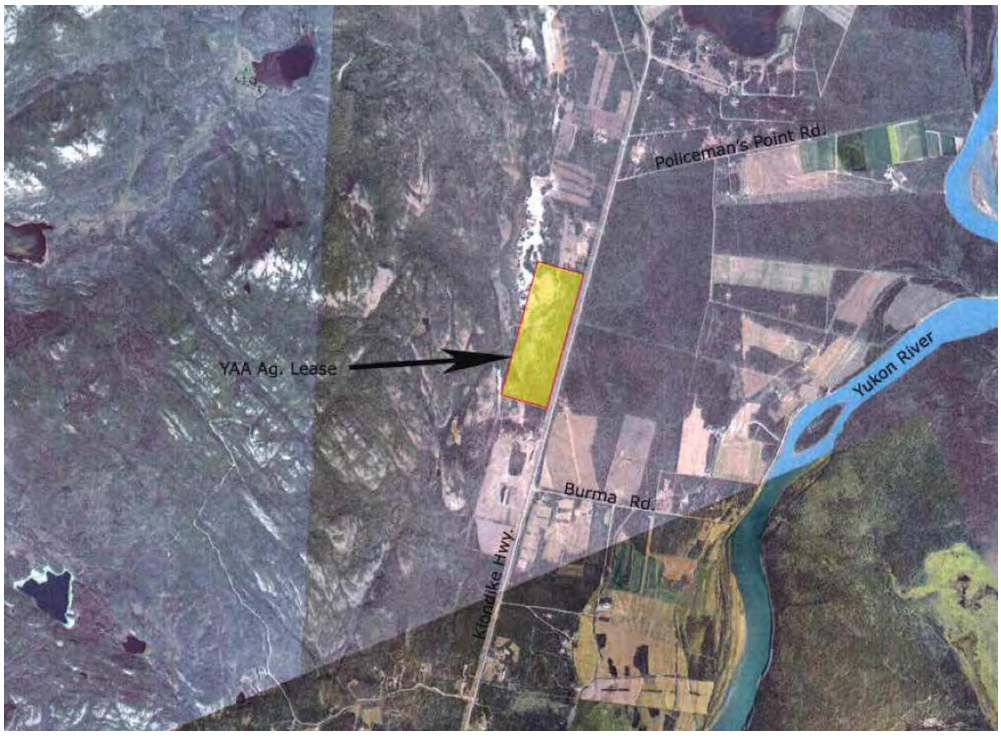
The YAA pursued this lease area in order to have a location to develop infrastructure to support Yukon's agriculture industry. The type of projects that YAA would like to see developed on this parcel are those that will help to grow the local agriculture industry and finding a suitable site has been challenging.

In 2013 the YAA hired Klassen Natural Resources Consulting to work with members and stakeholders to identify short and long term projects that could be developed on the lease area. Based on the findings of the Klassen report and further refinement by the YAA Board of Directors, the following short term priorities for the lease parcel have been identified:

- Building a heated facility to house the mobile abattoir and ancillary facilities;
- Building a harvest fair grounds with community building for exhibits and displays; and
- Hiring a caretaker to manage the lease infrastructure.

In 2013, the property was fenced, a new access road was constructed, and a dug-out (water storage pond) was completed.

Figure 1: Lease Area Location Map



Objectives

The objective of this project is to prepare a conceptual site plan for the YAA lease area. This report summarizes the process undertaken, describes each of the infrastructure elements included, provides justification for the recommended site layout, and outlines the servicing requirements. The final concept plan show the proposed site layout. The concept plans will guide future development of the site, ensuring that infrastructure elements can operate efficiently and that adjacent uses are compatible.

Photo Credit: Zakus Farms

Process

In July 2014 YAA hired Urban Systems to develop a conceptual site plan for their lease parcel. The process was guided by a Technical Working Group that included the YAA Executive Director and representatives from YAA and the YG Agriculture Branch.

The planning process involved the following steps:

July 2014 – A site visit was conducted with the Technical Working Group in order to understand site layout, vegetation, soils, views, and existing infrastructure. A separate site visit was conducted with Myles Plaunt (EBA/TetraTech) to assess the local geotechnical conditions.

Members of the Technical Working Group Conduct a Site Visit, July 2014
Photo Credit: Urban Systems

July 2014 – Background information was combined with information from the geotechnical analysis and site visits, in order to create a site analysis drawing. This drawing was presented to the Technical Working Group and provided a basis for the site planning decisions.

July & August 2014 – Key stakeholders were contacted to explain YAA's project and objectives, to identify potential infrastructure projects for the lease site, and to begin to build partnerships between groups. A results of these interviews were summarized.

August 2014 – Based on work completed to date, two conceptual site plan options were completed.

September 10, 2014 – A public workshop was held to review the conceptual site plan options. The site plan was finalized by the Technical Working Group and was based on input on site plan options gathered at the workshop.

September 2014 – Based on the elements in final conceptual site plan, options for servicing the site were identified.

October 2014 – A draft report and conceptual site plan were prepared.

Public Workshop at Hootalinqua Fire Hall, September 10, 2014
Photo Credit: Urban Systems

2. Site Analysis

Site planning is based on an understanding of the physical characteristics of the site. The characteristics of the lease parcel are summarized below and illustrated on Figure 2.

Existing Conditions

- 65 acre lot, 25 minute drive north of Whitehorse.
- Two access roads running roughly east-west. The southern access road is new and in excellent condition. The northern access road is in poor condition.
- Two-thirds of the land is cleared or open, mainly on the west side of the property.
- A perimeter fence and several internal fences have been recently constructed and are in good condition.

Surrounding Influences

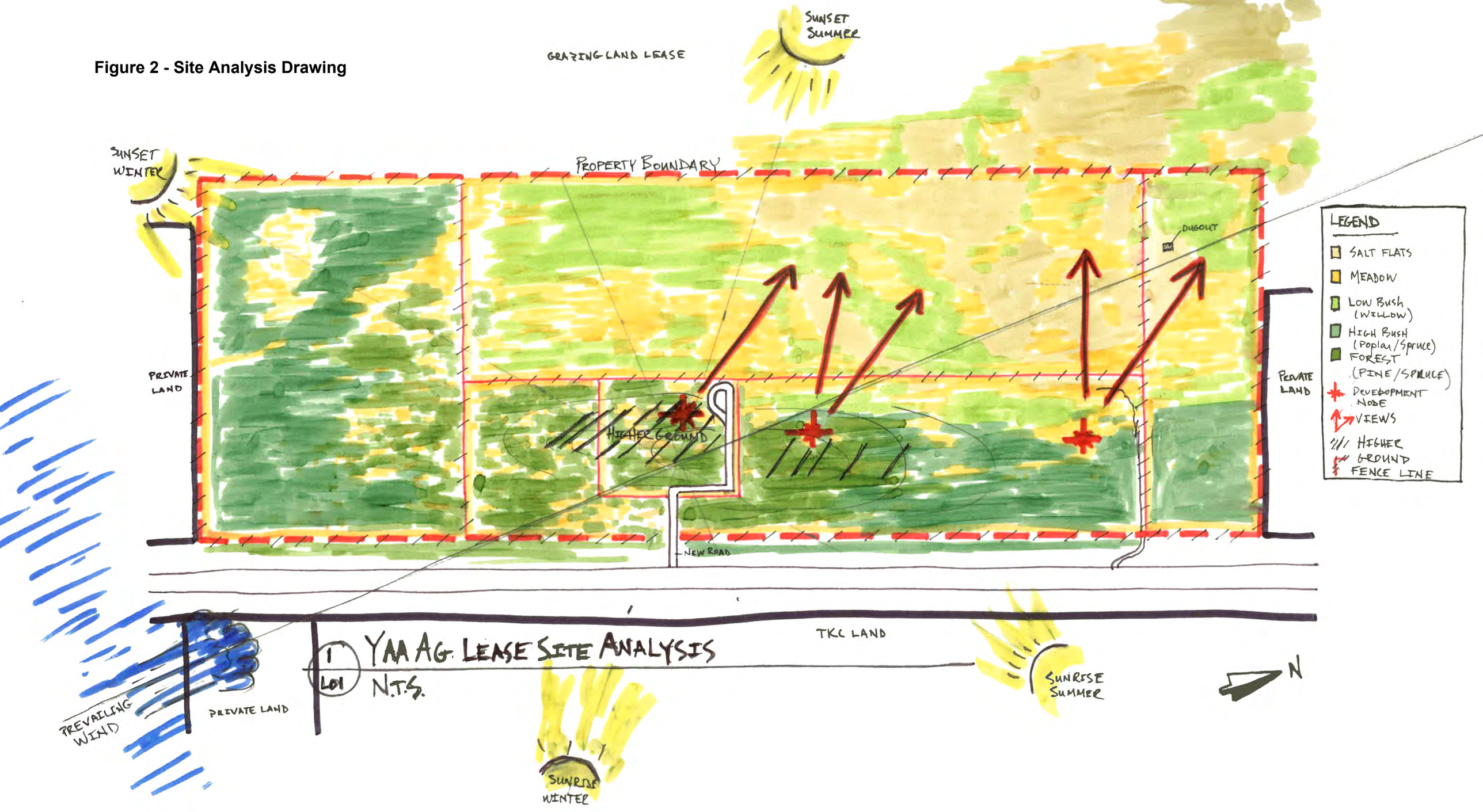
- Excellent western views of surrounding hills.
- Southern prevailing winds that are stronger in open areas.
- Surrounded by agricultural, grazing, and low density rural residential uses.

Environmental Conditions

- Mix of salt flats, open meadow, and pine forest mixed with spruce along with pockets of poplar and willow in wetter, poorly drained areas.
- Moose are moving through the site by jumping over the fences.
- Salicornia Borealis (Arctic Glaswort) is a rare species that YG Environment identified as being found in salt flats in the area.

View to the South West
Photo Credit: Urban Systems

Figure 2 - Site Analysis Drawing



Soils and Topography

- Most of the land is flat with slight undulation in the centre.
- Soils are marginally to poorly-drained.
- Cleared areas and pockets of willow are the most poorly-drained.
- Higher, more well-drained soils are located in pine dominant forested areas.

Utilities and Infrastructure

- Easy access to electricity off Klondike Highway corridor.
- Surrounding properties have reported no issues with access to well water.

Zoning

The zoning for the lease area is shown on Figure 3. Permitted uses are summarized below.

Agriculture Zoning – Zone to accomodate agricultural development and complementary activities. This zone allows for caretaker suite, farm product sales, and storage facilities as accessory uses.

Agriculture Abattoir Zoning – Same as above, but also allows the development of an abattoir.

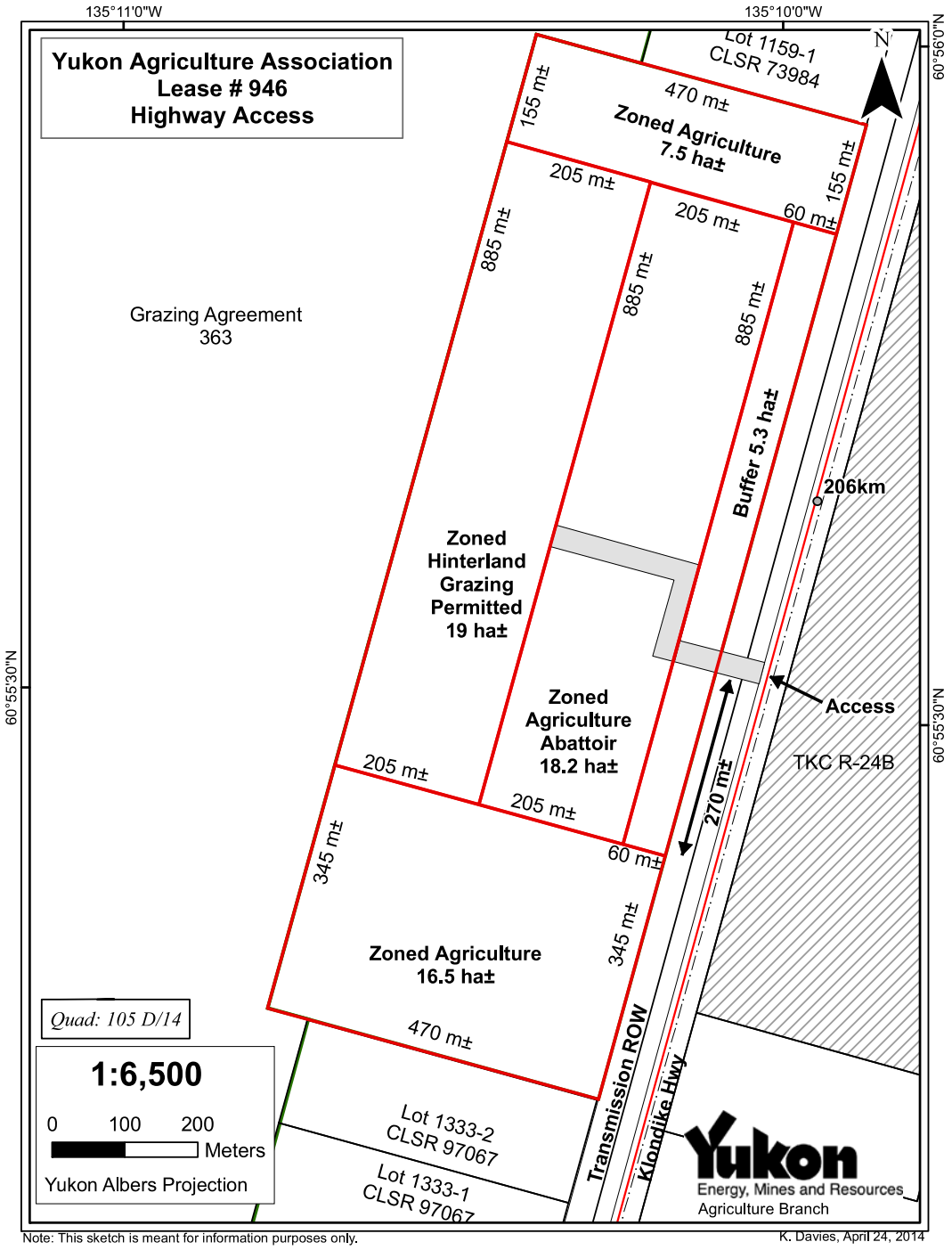
Hinterland Zoning – Zone to conserve areas of vacant public land. Allows grazing, open space recreation, and a range of other low impact uses.

Geotechnical Assessment

Tetratech/EBA completed a geotechnical assessment of the lease area as part of this project. According to this assessment, the area is underlain with glaciolacustrine soils that extend to a significant depth. In some areas, a layer of windblown sand is overlying these fine-grained sediments. The thickness of the sand layer is variable. Areas with thicker sand layers are well drained and areas where the sand layer is thin are more likely to be poorly drained. The full report is in Appendix 1.

Based on this assessment, the biggest challenge to the development of this lease area will be the siting of waste water absorption fields. The areas with the best potential for siting an absorption field are in the central and southern portions of the site where there is potential for a thicker windblown sand layer. Poorly drained areas will also pose a challenge for foundations and other infrastructure.

Figure 3 - Zoning Map



3. Stakeholder Engagement

One of the objectives of the YAA was to reach out to other local agricultural related groups to explain the goals of the lease area development and to identify any additional partnerships or potential infrastructure projects that could help to develop the site.

To this end, interviews were conducted with the Fireweed Community Market Society, the Growers of Organic Food Yukon, Pot Luck Food Coop, Yukon Game Growers Association, Downtown Urban Garden Society, and the Yukon Horse and Rider Association. Contact information for each group and a detailed summary of the interviews are found in Appendices 2 and 3.

Stakeholders Contacted

- Fireweed Community Market Society
- Growers of Organic Food Yukon
- Pot Luck Food Coop
- Yukon Game Growers Association
- Yukon Horse and Rider Association
- Downtown Urban Garden Society

General Comments

- Overall there is support for the development of the lease area in a way that supports local agri-businesses and provides a centre for the agricultural community.
- YAA should not be developing infrastructure that will compete directly with the private sector.
- Before investments are made, groups need to ensure that each facility will be well used and will work for as many groups as possible
- Generally, groups are interested in building partnerships between related organizations.

Specific Comments

- Several organizations believe that a shared vegetable storage facility is needed.
- Many stakeholders support developing a heated building to extend the season for the mobile abattoir and add storage to make operations more efficient.
- There are differing opinions about the harvest fair. Some groups feel that this is an event that has run its course and that the weekly Fireweed Market is taking the place of the harvest fair. Other groups feel like this event would still be popular and are willing to work with others to bring it back.
- There are differing opinions about a test/incubator kitchen. Some think that this is needed to help businesses develop new products and others feel that it would be expensive and would not get enough use to justify construction and maintenance costs.

- Some farmers use the mobile abattoir and then send meat to local butchers for processing. Several interviewees stated that they would not like to see a government-funded meat processing facility that would compete with existing businesses.
- There is general support for a community event space, and a wide range of opinions about what form this would take. It could be a community hall with space for meetings and events, a flat area for erecting a large tent, or any number of options in between these two. A commercial kitchen would be expensive to build and maintain but would make the building useful for a much wider range of activities and events.
- There is concern about how waste (water and solid) from abattoir will be disposed of.
- Need to consider how facilities would overlap/compete with what is at the Indoor Arena at the Jensen Estate.

Yukon Horse and Rider Association

The Horse and Rider Association has been looking for a home for several years. The group has formally requested permission from YAA to locate their facilities (two riding arenas, bleachers, stalls, and more) on the northern-most section of the lease, a 7.5 ha area zoned Agriculture. The YAA has agreed to this in principle, and the two groups are in the process of working out the details. YAA presents a great opportunity to bring more users to the site and create more community. The infrastructure that they are proposing on the site could be used for other purposes. During the development of the site plan, several meetings were held with the Yukon Horse and Rider Association to understand their planned infrastructure in order to be able to integrate it into the overall conceptual site plan.

Photo Credit: Yukon Horse and riders Association © www.yhra.ca

Haskap Yukon Growers Groups

The Haskap Yukon Growers Group is a group of five farms that is pursuing a freezing, storage, and processing building for use by berry growers. They were not interviewed during the stakeholder phase of this project, but came to the public meeting an expressed interest in developing facility on the YAA lease parcel. According to members of this group, there are more than 30 acres of Haskap berries alone coming in to maturity in the next 4 to 5 years.

4. Conceptual Site Plan

Plan Elements

The elements that appear on the conceptual site plan were finalized after reviewing the results of the stakeholder interviews and meeting with YAA's Technical Working Group. In order to develop a useful and flexible site plan, all the potential elements currently under discussion by the YAA have been included.

Elements are at different points in the planning and development process; some have been subject to feasibility studies whereas some are concepts that are in the early stages of development. For most of the elements, there is considerable work (securing funding, identifying management structures, and developing detailed designs) that must be completed before construction can begin.

Development of the Conceptual Site Plan

Based on the site analysis and an understanding of the diverse nature of the elements to be included, the site has been divided into two nodes; one focussed on agricultural operations and one focussed on community uses. For each of these two nodes, two draft concepts were generated.

The draft concepts were presented a stakeholder workshop held at Hootalinqua Fire Hall on the evening of Wednesday September 10, 2014. Approximately 32 people attended the meeting. The draft concepts were presented and then discussed in two smaller groups. The results of these discussions were summarized and are included in Appendix 4. Input from meeting attendees was reviewed with the YAA Technical Working Group and decisions were made about the final site plan.

The lease area is within the traditional territory of the Ta'an Kwäch'än Council. There are also two Ta'an Kwäch'än land parcels across the Klondike Highway from the lease area. A letter explaining the project was sent to the First Nation, and a representative of the Lands, Resources, and Heritage Department attended the workshop.

Photo Credit: Yukon News © www.yukonnews.ca

Overall Description of the Conceptual Site Plan

The Land Use Plan shown in Figure 4 shows the proposed land uses for the site. As noted, the site has been divided into two nodes; one focussed on agricultural operations and one focussed on community uses. The specific location of infrastructure shown in these site plans are based on a balance of operational function, minimization of costs (associated with servicing clearing and materials) and soil considerations.

Agricultural Operations Node

The proposed agricultural operations node has a focus on agriculture operations and is designed to function efficiently. This node is located off the new access road, near the middle of the lease area to provide the largest possible buffers to the surrounding residences. This is also the area with the best soils for the development of a septic system. This node is shown in Figure 5.

Abattoir Docking Facility/Freestanding Abattoir

- The abattoir has been sited in the area that will most likely have the best drained soils on the site. This will enable it to have the most flexibility for foundation types and waste water systems.
- The docking facility is a heated building into which the mobile abattoir can be pulled so that it can be used when temperatures are below freezing. Ancillary facilities include area to hang red and white meat, freezers, and coolers.
- Temporary covered holding pens are located adjacent to the building.
- The site plan is designed to accommodate a freestanding abattoir when demand has increased and/or when the mobile abattoir is no longer viable.

Caretaker Suite

- Located near lot entry to provide good supervision of the entire agricultural operations area.
- Can be either a trailer or a free standing house.

YAA Equipment Storage Area

- Covered pole barn for storing YAA owned equipment. Approximate size, 160 feet by 20 feet. Barn would be designed so that equipment could be pulled in one side of the building and out the other.
- Sea cans for storing smaller equipment.
- Should be sited near main access road close to caretaker's suite for convenience and security.

Commercial Processing Kitchen

- Could be an ATCO kitchen trailer, or a specially designed building.
- This project is being led by the Haskap Yukon Growers group and would include flash freezing, storage, and a processing area.
- This has been located near the abattoir for ease of servicing and parking.
- It should be sited so that there are views from inside the building.

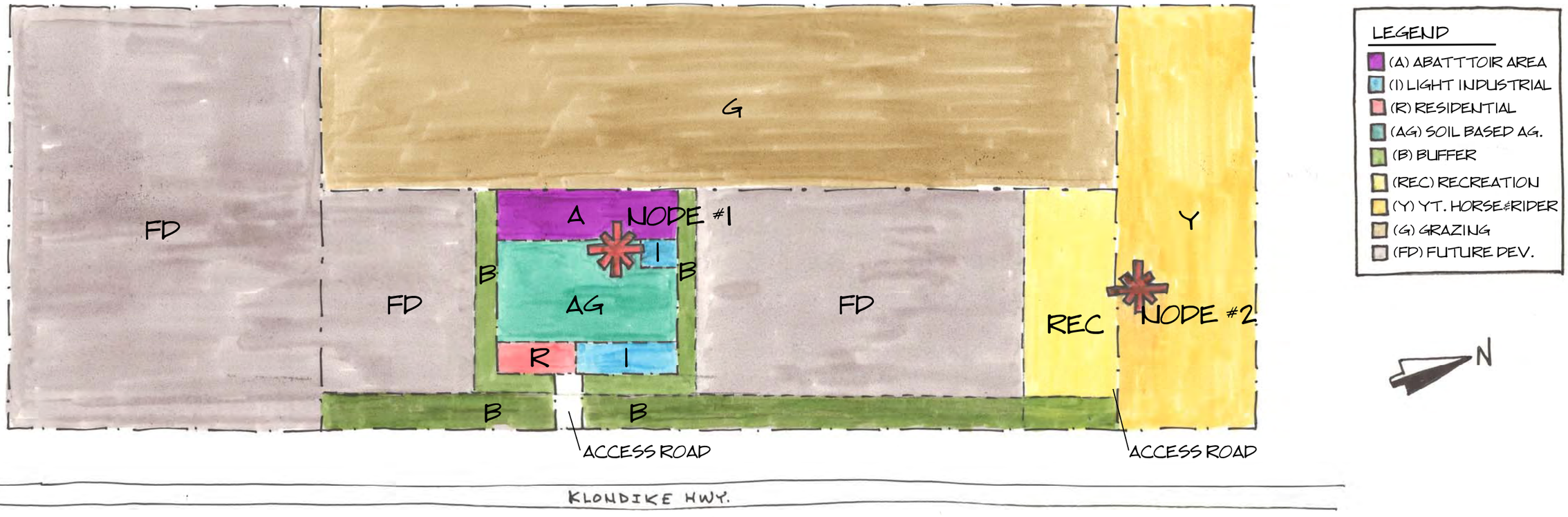


Figure 4 L/01 YAA SITEPLAN - PROPOSED LAND USE
SCALE: NTS

Future Development Space

- This area is designed to accommodate a range of future uses focussed on supporting local agri-business. It is located close to other infrastructure for ease of servicing (e.g. water) and access to machinery/equipment. Uses could transition as needs change. Options include:
  - Starter Farm Plots - 0.5 to 1 acre plots available to young farmers or community groups for larger scale gardening.
  - Greenhouses – Could be run by a non-profit and either cultivated by the group or divided into plots that are allocated to individuals.
  - Research – Research plots for a range of crops could be developed.

Community Use Node

The community use node is located in the northern end of the lease area and will be entered by the northern access road and is shown in Figure 6. This node has two integrated parts; the area that will be used by the Yukon Horse and Rider Association for its facilities and the community event space. This location was selected because it has sufficient separation from the agricultural operations node and is already fenced and zoned as a discrete area. The location of the infrastructure in this area is based on a careful balance of operations for events, avoidance of poorly drained soils, and minimizing areas to be cleared while maximizing views. Parking and road access has been pushed to the outside allowing pedestrian and horse focus activities in the centre.

The area has been sectioned into areas for parking, public gathering space, event space/horse operations and camping. It was important to separate public space with horse operations areas. It was conveyed by YHA that it is important for camping areas to be near horse storage areas.

Yukon Horse and Rider Association Area

The Yukon Horse and Rider Association is working with the YAA to finalize an agreement that will allow the group to use the 7.5 hectare site at the north end of the lease area.

It is understood that the development of this site, and of the parcel overall will be the most successful if areas and facilities can be shared by multiple user groups for a wide range of complimentary activities.

Confirmed Infrastructure

- One 200 foot by 300 foot show arena, with bleachers providing seating for 150
- One 100 foot by 200 foot warm-up arena
- 30 portable pens (each consisting of 12 foot by 12 foot panels)
- 20 back to back show stalls (20 feet by 100 feet)
- 12 fixed horse pens (16 feet by 16 feet)
- Announcer’s booth
- Room for storage of jump standards, poles, and barrels
- Show office
- Parking for approximately 80 cars in two lots (20 car groupings)

- Parking for up to 24 trucks and horse trailers
- Space for camping (both RVs and tents)
- Concession stands and picnic area
- Cross country trail

Public Area

This includes the bleachers, concessions, picnic area, and event building. There will be clear segregation between this public area and the horse operations through signage or fencing.

- Focus details behind bleacher area. For instance consider covering back of bleachers with slat siding or banners, etc. so that it doesn't feel like dead space. Give attention to the ground cover to avoid it becoming muddy.
- Consider other uses for this area. For example concerts, dog shows, motor cross, etc.
- The picnic area has been sited in an area that has views of the show ring, but is removed from the main thorough fare. Fencing this area off might be considered to avoid the public from going over to the horse operations area.

Camping Area

The camping area is also located in area that is quiet, with good views, exposure to prevailing winds to mitigate bugs, while in close proximity to horse operations. This will also be used as trailer parking. Tent camping could be anywhere around this site but a specific area has been shown to the west side of the campground. Picnic tables could be set out the south of the area along with a campfire for a communal gathering area.

- Paying attention to the details of the campground and ensuring that it is nice will lead to increased use of the site.
- Aspects that will make it more appealing are: retention of existing trees, adequate and clean bathroom facilities, unique and inspiring fire pit design, clean edges between gravel and grasses (avoid spill-over of gravel into fields).
- The soils around the campground have been identified as poorly drained. It is recommended that sub-soils be pre-graded to avoid low spots prior to adding gravel. Final slopes should be graded so water flows off the site.
- Leave existing vegetation to act as a buffer between sites. This concept has been designed so that two RV's park between each buffer.

Tree Clearing

The infrastructure has been located in areas that surround the open grasslands in order to create a feeling of openness and provide views of the surrounding hills. They have been located as close as possible to those locations to avoid unnecessary clearing while not locating on the open areas as these locations have the most poorly drained soils.

- Retain islands of trees: This will provide more interesting views, create some shelter, create more interest for riding, and create the feel of classic rural equestrian centre.

- Select these islands based on tree size and interesting vegetation features.
- Select what will be removed and protected prior to construction.
- Retain vegetation around parking lots and in bulbs breaking up rows of cars. This will hide the cars and create a more rural feel.
- Use existing trees and vegetation to create divides between show ring and warm up arena.
- Keep existing trees relatively close to show ring to keep a more rural feel.
- Consider transplanting smaller trees when clearing for use in areas that need more buffer. (E.g. Show ring – warm up area, campground, etc.).

Cross Country Trails

Cross country trails have been identified through the site. These have been designed to have three loops allowing a variety of route options. Future consideration may be given to allowing trails to extend into the grazing lands.

Horse Pens

Horse Pens are located near the camping area for so that horses are nearby. This area can vary in regards to the layout of the pens, however consider keeping them in smaller sections, instead of one long configuration. This will allow for better access and flow through the site.

Community Event Space

Across the agriculture community, there has been a significant discussion about the need for a community event space. Specific uses could include (but is not limited to) harvest fairs, livestock shows, competitions, markets, agriculture-related classes, barn dances, and activities for youth. If an indoor space is developed, it could also be rented out to groups or individuals for meetings, activities, weddings, or other functions.

There is a range of forms that this community event space could take. It could be as simple as a flat area for pitching a tent or it could be a year-round community centre.

The future location of the community event space is also still under discussion. For this reason, we have identified two potential locations on the conceptual site plan; one where the event space is integrated in to the Yukon Horse and Rider infrastructure, and one where the event space is separated.

Integrating the event space with the Yukon Horse and Rider infrastructure would make this area more useful to a wider range of users, provide indoor meeting space and classrooms, and house the announcer's booth during events.

Keeping the event space as a separate facility would be simpler in terms of management and jurisdiction. As well, the separation would mean that multiple events could take place at the same time, which would be beneficial on busy summer weekends.

Photo Credit: Yukon Agricultural Association © www.yukonag.ca

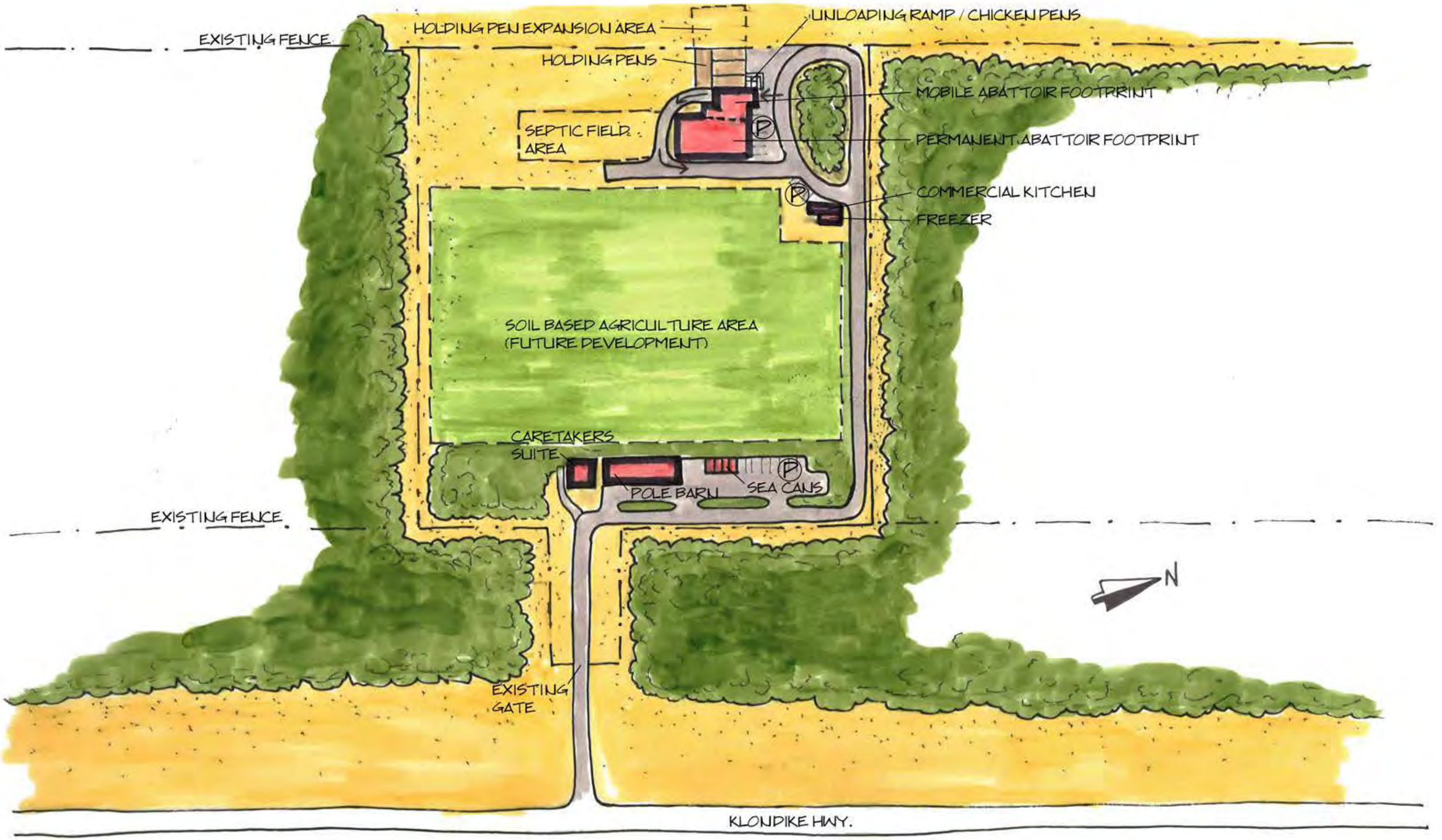


Figure 5

L 02 YAA SITEPLAN - NODE #1 FINAL CONCEPT
SCALE: 1500

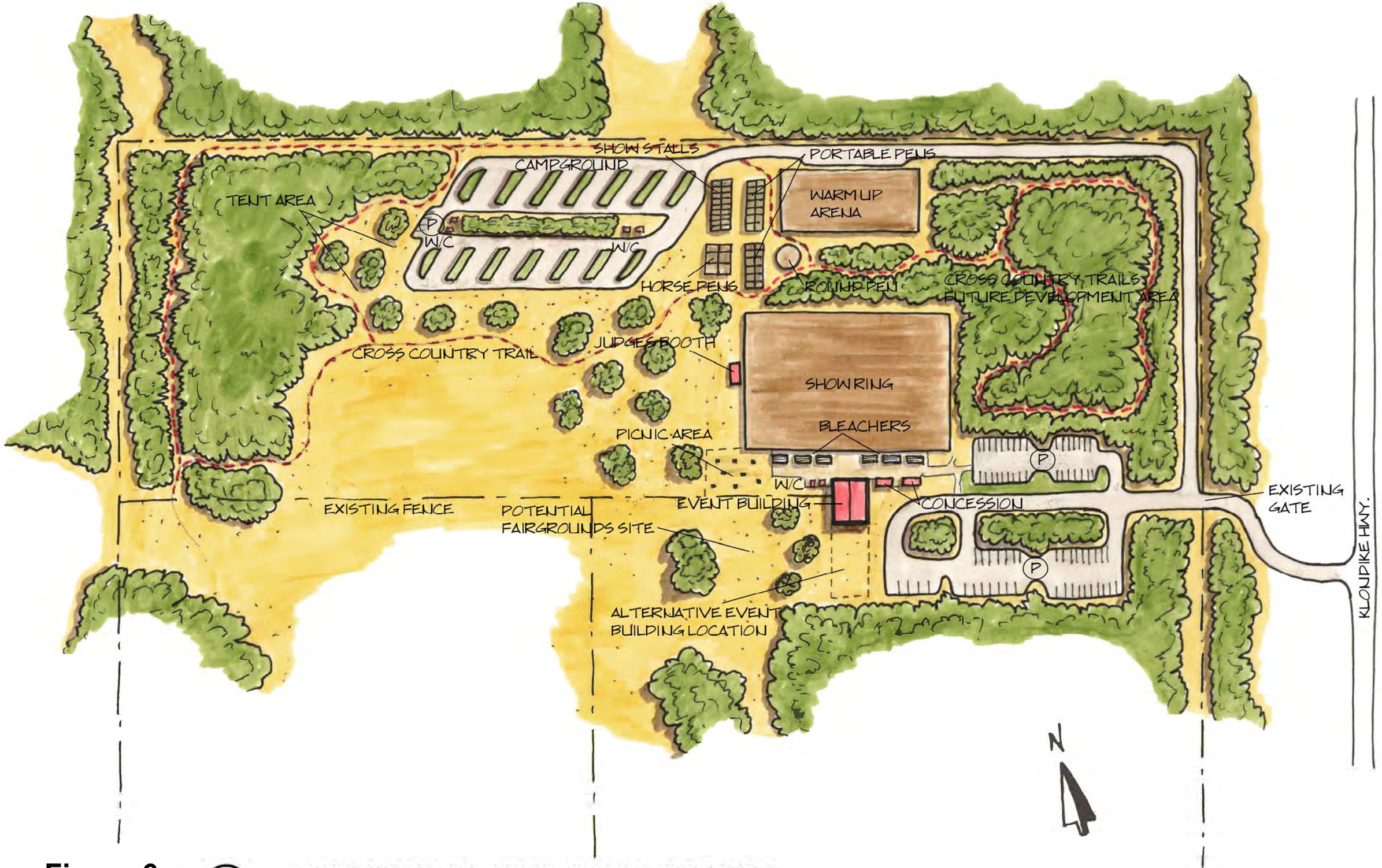


Figure 6

L 03 YAA SITEPLAN - NODE#2 FINAL CONCEPT
SCALE- 1:1500

5. Servicing Analysis

The commentary provided in this section is preliminary in nature and has been developed solely for conceptual level planning purposes.

The engineering considerations provided in this report were identified with limited information and do not include detailed geotechnical, hydrogeological, environmental, transportation or legal and encumbrance considerations. The information is based upon discussions with YAA and our past experience working on other similar projects. A number of assumptions were made to develop meaningful infrastructure commentary.

Estimated Water Demands

A summary of the estimated populations and demands are included in **Table 1**. A detailed breakdown is included in Appendix 5.

Table 1 – Estimated Water Demands

Description	Unit	Litre/Unit/day	Litre/day
Caretakers House	4 people	200	800
Greenhouse	1008 m^2	6	6,048
Horses	25 horses	49	1,225
Horse and Rider RV area	50 sites	200	10,000
Event Building	100 people	90	9,000
Community Center	100 people	90	9,000
Food Processing	1 tonne	250	250
Starter Farm Plots	4050 m^2	121	5,327
Abattoir (beef)	6 per day	2300	13,000

Access

There are two road accesses from the Klondike Highway. The south access leads to the proposed abattoir site and the north access leads to the proposed Horse & Rider area.

The roads shown on the site plan must accommodate traffic in two directions, pedestrian movement and larger farm equipment. The turning radii must accommodate the mobile abattoir and other farm equipment

Suggested Road Section

The typical road cross section for the development access road is based on City of Whitehorse standard drawing C7.0 (8.0m Rural Local Street Section).

- The minimum horizontal curve radius for a local road with a design speed of 50 km/hr is 100m.
- The minimum curb return radius at residential street intersections is 10m.
- The roadway shall have a 7m wide gravel travelling surface.

- There will be a 0.5m wide gravel shoulder on both sides of the road.
- The crown of the road shall be sloped at a minimum of 4%.
- The road cut/fill slopes shall be determined by the geotechnical investigation.
- The proposed road structure shall be provided in the geotechnical investigation and report.

Drainage

The site is relatively flat and soil drainage is relatively poor, so drainage must be considered to prevent the surface water from ponding and creating undesirable effects.

- Roadside ditching shall connect to the ditching fronting the site, or detention ponds shall be provided to handle the runoff during a rain event.
- Roof run-off could be collected and reused for irrigation purposes.
- Building/s shall be positioned on structural fill above the existing ground and sloped to allow the surface water to flow away from the building.

Water Servicing Considerations

The site does not contain a water source or infrastructure at this time. Given the location of the property, connecting to an existing system is not possible. It is assumed that well/s will be drilled to provide the domestic water supply. It is unknown at this time whether additional water treatment would be required for the well/s.

In order to assess the full water demand for the proposed site plan, the requirements for each user were considered. A detailed breakdown of the estimated water demands are included in Appendix 5.

It is assumed that fire protection will not be required from the water system demands. The buildings could contain dry sprinkler systems if fire protection was required, however fires originating outside would not have adequate fire flows.

It is assumed that future irrigation of the agricultural fields would be considered at another time. The water demand depends on crop root depth and would vary for different crops. The starter plots have been included in the assessment.

It is recommended that all buildings be outfitted with a water cistern and pump housed within the facility. The cistern, balancing tank and pump would provide the system pressure for the building. This would allow the cisterns to be filled during non-peak times for the well.

Table 2 is a summary of the estimated water demands directly from the well (assuming no cistern). If each facility had a 1000 gal cistern, and the water treatment processes had no residual, then at a minimum, the well would need to supply 1L/s to fill the cisterns, assuming all cisterns could be filled during low demand. Given that it is likely that the well will be in use during peak seasons, it is recommended that the well be capable of producing at least 2L/s, and preferably 3L/s.

Design Criteria

- The well shall be constructed and registered in accordance with the Yukon Water Well Registry.
- The water shall be treated to meet the Canadian Drinking Water Quality Guidelines.
- The water system should be looped where possible, to allow multiple users to access water with less interference from another user.
- The water mains shall be placed beneath the influence of freezing, or shall be insulated. The geotechnical investigation and report would provide the depth below ground.
- The water main/s shall be sized to accommodate present and future users.
- All standpipes, hose bibs etc. shall be self-draining to prevent freezing during the winter months
- All cisterns should be approved for holding drinking water and be compliant with NSF/ANSI Standard 61: Drinking Water System Components

Table 2 – Estimated Water Demands – Seasonal Litres/Seconds Summary (Assuming Directly from Well)

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
CARETAKERS HOUSE	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38	3.38
GREEN HOUSE				0.84	0.84	0.84	0.84	0.84	0.84			
HORSES						0.17	0.17	0.17				
RIDERS						0.23	0.23	0.23				
COMM. CENTER	0.13	0.13	0.13	0.13	0.13	1.25	1.25	1.25	0.13	0.13	0.13	0.13
EVENT BUILDING	0.13	0.13	0.13	0.13	0.13	1.25	1.25	1.25	0.13	0.13	0.13	0.13
BERRY PROSS.							0.03	0.03				
STARTER FARM						0.74	0.74	0.74				
PRECIP.	Snow	Snow	Snow	Snow	-0.02	-0.02	-0.02	-0.02	-0.02	Snow	Snow	Snow
ABATTOIR								2.17	2.17			
Litre/sec	4.00	4.00	4.00	5.00	5.00	8.00	8.00	11.00	7.00	4.00	4.00	4.00

High Season

Low season

Negative Numbers

Wastewater Servicing Considerations

Wastewater is generated from several different sources and needs to be handled differently for each of the sources. The site soil conditions appear to be constrained for managing wastewater. The soils across the site are poorly drained and the groundwater table appears to be relatively high over much of the site which does not allow for inground treatment and disposal. The most probable area for inground treatment and disposal is near the proposed abattoir site. A geotechnical investigation would confirm whether inground treatment and disposal is a viable option to handle wastewater from the conventional human waste. Inground disposal is not a recommended option for managing the liquid waste from either the mobile or permanent abattoir.

Conventional Wastewater

Conventional wastewater is typical residential waste from the caretaker, community and event buildings, washrooms and domestic sinks. The septic area shown on the site plan may be suitable for conventional types of waste. During our walkabout with the geotechnical engineer, the septic area was identified as the most permeable soil on the site. A geotechnical investigation would be able to confirm the suitability of the soil conditions in this area. It is recommended that a professional design the wastewater system/s.

Abattoir Waste

The abattoir waste consists of solids and liquids. The solids include things like fur, fat, hooves, bones etc. and are expected to be disposed of off-site in a manner that meets the regulatory requirements. The liquid waste includes blood, washdown water with cleaning agents etc. It is not recommended to dispose of the liquid waste through an inground disposal field because of the nature of the blood products. There is a relatively small amount of dilution so there is a concern that the blood will congeal and forms a barrier preventing inground disposal. Given that the abattoir is expected to operate for a few weeks in the fall, with relatively low volumes, it may be more cost effective to consider holding tanks and trucked pump outs for the liquid waste. It is recommended that approval from the receiver be sought in advance of pursuing this option. The truck pump out schedule would be based on the size of the holding tank, however, it should be pumped out at the end of each season even if it is not full.

Animal Waste

Having any animals on site will create waste and there are many options for handling this waste. Animal waste is expected to be generated from the horse events and from the animals waiting in the pens beside the abattoir. Typically the waste is stored above ground with possible reuse by local gardeners or farmers. There is expected to be some liquid waste however, the amount is expected to be small. Containment of the leachate is required for animal waste. Typically the storage facility would contain a concrete slab with earthen berm walls on three sides to contain the waste. A floor drain connected to a holding tank would collect the leachate. The leachate could be reused for gardening, however, it would require a submersible pump to pump the liquid from the holding tank, or it could be pumped out and hauled off-site. Odor would likely be an issue in reusing the leachate.

Utility Considerations

There are power lines fronting the site along the Klondike Highway, however, the lines would need to be extended into the site along the local access roads. A transformer would need to be installed on the line into the site. Care should be taken to locate the poles off the edge of the road to facilitate the movement of farm equipment. The specific routing for the power lines will be determined during the detailed design phase and in consultation with Yukon Energy.

6. Next Steps

The following are the recommended next steps for developing this site.

- Finalize agreement with YHRA, ensuring that the potential liability to which the association is exposed is minimized. As the primary lease holder, work with the YHRA to get discretionary use approval from YG Lands Branch for their site.
- Perform further in-depth geotechnical investigation to identify bearing capacities for the buildings, road structure including densities, percolation test and test pits for inground disposal options at site specific locations.
- Drill a well or wells and determine the location, quantity and quality of the groundwater supply.
- Based on well location and geotechnical investigation, revise (if required) building location (well location and site specific geotechnical investigation may cause the need to alter infrastructure locations).
- Design mobile abattoir docking station and waste water system. Ensure design can be integrated into a fixed abattoir facility.
- Determine which elements of the site will require a YESAB approval and submit applications.
- Ensure the access roads have adequate turning radii to facilitate farm equipment and trucks.
- Determine the power demand for all facilities; this will determine type of systems required to avoid having to upgrade for future use.
- Consider a feasibility study on berry operations.

Appendix 1
Geotechnical Assessment

TETRA TECH EBA

July 29, 2014

ISSUED FOR USE
FILE: W14103440-01
Via Email: name@company.com

Urban Systems
15 – 114 Front Street
Whitehorse, YT Y1A 1A3

Attention: Mr. Jeff Barrett, MSc, MLA

Subject: Feasibility Level Geotechnical Assessment
Yukon Agricultural Association Lease 946
km 204 – North Klondike Highway

1.0 INTRODUCTION

At the request of Mr. Jeff Barrett, MSc, MLA of Urban Systems, Tetra Tech EBA Inc. (Tetra Tech EBA) has completed a feasibility level geotechnical assessment of Yukon Agricultural Association Lease 946 located along the North Klondike Highway at km 204.

The work was completed in accordance with Tetra Tech EBA's May 20, 2014 proposal.

1.1 Background

Subsequent to the 2012 acquisition of the 65 hectare parcel of land (Yukon Agricultural Association Lease Lot 946; Quad 105 D/14) and in accordance to the Board's prioritized land use list (from the list presented in Appendix 2 of the 2013 *Planning For The Development Of The Yukon Agriculture Association Agriculture Lease*, prepared by Klassen Natural Resources Consulting), conceptual level geotechnical input is presented in support of:

- A heated abattoir facility with ancillary facilities;
- A fairgrounds with a community center structure for exhibits and displays; and
- Cold storage structures.

2.0 SCOPE OF SERVICES

Services provided by Tetra Tech EBA support the preparation of the Phase 1 Situational Analysis. Tasks completed include:

- The collection and review of in-house information describing terrain, surficial geology, depositional history and geotechnical conditions throughout the study area. To complete this task, Tetra Tech EBA's testhole and project databases were utilized to collect and review in-house reports and testhole logs from previously completed projects in the vicinity. Surficial geology maps (1982 – Southern Lakes Series – Morison, Klassen, Davies 1991 *Surficial Geology Mapping*); the 2008 *Whitehorse Bedrock Geology Map*; and various publications, including *ECOREGIONS of the Yukon Territory* (PARC Technical Bulletin 04-01) and Jeffery D. Bond's paper on the *Late Wisconsinan McConnell Glaciation of the Whitehorse Area* – 2004) were studied and reviewed to establish depositional history.

CONSULTING ENGINEERS & SCIENTISTS www.eba.ca

Tetra Tech EBA Inc.
61 Wasson Place
Whitehorse, YT Y1A 0H7 CANADA
Tel 867.668.3068 Fax 867.668.4349

7.0 PROTECTION OF EXPOSED GROUND

Excavation and construction operations expose geological materials to climatic elements (freeze/thaw, wet/dry) and/or mechanical disturbance which can cause severe deterioration. Unless otherwise specifically indicated in this report, the walls and floors of excavations must be protected from the elements, particularly moisture, desiccation, frost action and construction traffic.

8.0 SUPPORT OF ADJACENT GROUND AND STRUCTURES

Unless otherwise specifically advised, support of ground and structures adjacent to the anticipated construction and preservation of adjacent ground and structures from the adverse impact of construction activity is required.

9.0 INFLUENCE OF CONSTRUCTION ACTIVITY

There is a direct correlation between construction activity and structural performance of adjacent buildings and other installations. The influence of all anticipated construction activities should be considered by the contractor, owner, architect and prime engineer in consultation with a geotechnical engineer when the final design and construction techniques are known.

10.0 OBSERVATIONS DURING CONSTRUCTION

Because of the nature of geological deposits, the judgmental nature of geotechnical engineering, as well as the potential of adverse circumstances arising from construction activity, observations during site preparation, excavation and construction should be carried out by a geotechnical engineer. These observations may then serve as the basis for confirmation and/or alteration of geotechnical recommendations or design guidelines presented herein.

11.0 DRAINAGE SYSTEMS

Where temporary or permanent drainage systems are installed within or around a structure, the systems which will be installed must protect the structure from loss of ground due to internal erosion and must be designed so as to assure continued performance of the drains. Specific design detail of such systems should be developed or reviewed by the geotechnical engineer. Unless otherwise specified, it is a condition of this report that effective temporary and permanent drainage systems are required and that they must be considered in relation to project purpose and function.

12.0 BEARING CAPACITY

Design bearing capacities, loads and allowable stresses quoted in this report relate to a specific soil or rock type and condition. Construction activity and environmental circumstances can materially change the condition of soil or rock. The elevation at which a soil or rock type occurs is variable. It is a requirement of this report that structural elements be founded in and/or upon geological materials of the type and in the condition assumed. Sufficient observations should be made by qualified geotechnical personnel during construction to assure that the soil and/or rock conditions assumed in this report in fact exist at the site.

13.0 SAMPLES

Tetra Tech EBA will retain all soil and rock samples for 30 days after this report is issued. Further storage or transfer of samples can be made at the Client's expense upon written request, otherwise samples will be discarded.

14.0 INFORMATION PROVIDED TO TETRA TECH EBA BY OTHERS

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3.3 Site Reconnaissance

Observations made during the July 18, 2014 site reconnaissance included:

- The south half of the site appears to be better drained than the north half of the site. It is anticipated that the thickness of eolian sand increases towards the south end of the site. There are some micro terrain features throughout the south end as well, which may be an indication of sandy soil deposition;
- The access road constructed into the central portion of the site was constructed of what appeared to be 150 mm of pit run gravel over a prepared subgrade. As constructed, it is likely prone to subgrade softening during spring thaw and periods of heavy rain; and
- The north end of the site appears to be poorly drained. As can be seen in Photo 1 below, the area is very flat; the underlying soils are moist to wet and soft; there is minimal eolian sand overlying the glaciolacustrine silt; and as noted during site reconnaissance, the glaciolacustrine silt is impervious (the water trough excavated has been in place for some time and is holding water).

Photo 1
YAA Lease 946 – North End (July 18, 2014)

3.4 Hydrogeological (Water Well) Information

There are numerous wells along the Mayo Road in fairly close proximity to the study area. Information on file along with anecdotal information suggests that there is good potential for water wells in this area; however, the cost to drill and develop a well will depend on:

- The presence of sand and gravel lenses within the overburden that carry adequate volumes of water;
- The depth to bedrock and the presence of water bearing granular soils at the bedrock interface; and
- If water bearing granular soils are very thin or not encountered during drilling, the drilling of deep wells into bedrock has proven successful. Information gathered suggests that the water from deep wells in bedrock is usually harder and the yield is not as high, but with the added storage within the well, satisfactory volumes are available for use.

4.0 DEVELOPMENT CHALLENGES

During the site reconnaissance, the approximate proposed locations of the abattoir and fairgrounds/community centre sites were discussed. The abattoir site is to be located in the south central portion of the lease, while the fairgrounds/community centre site is to be located in the north central portion of the lease (as defined on the development sketch presented as Appendix 1 in the RFP). Development challenges associated with the two sites will include:

4.1 Abattoir Site

4.1.1 Building Foundations

Typical foundation construction will be possible at the proposed site. Foundation systems that can be considered include: thickened monolithic slab-on-grade foundation or a strip and spread footing foundation system with foundation walls and an interior slab-on-grade. Main advantages to each are:

- A thickened monolithic slab-on-grade foundation would be constructed on engineered fill comprising of imported non-frost susceptible granular fill. This will allow site grading to ensure positive drainage (surface and roof runoff) away from the structure. Any movement related to this foundation system is usually distributed throughout the entire structure, minimizing potential for damage to interior finishes;
- Strip and spread footings can be founded at depth. This will minimize the amount of perimeter insulation required to protect the building from frost heave. However, separate concrete pours would be required to construct the footings, foundation walls and finally, the interior slab portion of the foundation. For this foundation system, less imported gravel would be required but slightly more concrete is typical;
- For heated structures, Tetra Tech EBA protects the footing areas to an equivalent depth of 2.5 m. What this means is that if the footings are constructed at 2.5 m, no additional perimeter insulation would be required; if the footings are constructed at 1.2 m, there will be 1.2 m of soil cover to protect the footings and an additional 100 mm of rigid, moisture resistant perimeter insulation would provide protection to an equivalent of 2.5 m. For a thickened monolithic slab-on-grade foundation constructed on an engineered fill thickness of 1.0 m, 125 mm of rigid, moisture resistant would be required to ensure proper protection form frost heave. Site and building specific perimeter insulation details (additional insulation at all corners and distance out from the edge of the foundation wall) will be presented in pre-design and/or design level geotechnical reporting; and

- As mentioned above, control of roof runoff and surface water is very important. For frost heave to occur there must be cold temperatures, frost susceptible soils, and excessive moisture contributing to the formation of ice lenses in the soils supporting the foundation system. The Yukon definitely has cold temperatures and there is likely frost-susceptible glaciolacustrine silt underlying the area. Therefore, controlling the roof and surface water runoff allows us to eliminate one of the three factors that must be present to promote frost heave.

4.1.2 On-Site Wastewater Disposal

The siting of an on-site wastewater disposal system will likely be the biggest development challenge. However, there is better potential for siting an absorption field throughout the south/central portion of the site where there is potential for a thicker eolian sand veneer (*Environmental Health Guidelines* stipulate that at least 1.2 m of separation exist between the bottom of the drain rock layer and an impervious surface.

The March 31, 2013 report entitled *Liquid Waste Disposal for Commercial Abattoir Operations* prepared by N.A. Jacobsen, Civil Engineering Consultant has been reviewed and found to be relevant to the study area. It is important to note that sizing for this type of waste disposal requires an absorption field size that is 1.5 times larger than a conventional septic system.

4.2 Fairgrounds/Community Centre

The building foundation challenges and solutions for structures constructed at the fairgrounds site will mirror the challenge and solutions suggested for the abattoir site. As with the abattoir structure, proper perimeter insulation and control of surface water and roof runoff will be critical to the protection of the foundation system chosen.

The presence of glaciolacustrine silts at, or near, existing site elevations throughout the north/central portion of the lease will minimize the potential for siting an absorption field for on-site sewage disposal. If an area where there is adequate thicknesses of sand overlying the glaciolacustrine silt cannot be identified, privies or a holding tank and pump-out system may be the only options.

4.3 Cold Storage Area

The siting and construction of a cold storage area (it is assumed that sea cans will be the structure of choice) should not be a challenge, but the entire site should have adequate granular structure to ensure stable and clean access to the storage areas. If stick-frame construction is being considered for the cold storage structures, the same foundation suggested for the other structures will apply.

4.4 Access Road/Parking Area Construction

Road structure for low volume roads and driveways is usually contingent upon budgetary constraints. For paved Whitehorse city streets, Tetra Tech EBA always recommends at least 1.7 m of granular structure to carry vehicle loads and more importantly, to resist frost heave. However, this is a very expensive option and is not considered appropriate for the subject site. As a minimum, it is recommended that at least 200 mm of pit run sub-base and 100 mm of gran A basecourse gravel over a prepared subgrade comprise the structure for all access roads and parking areas. This amount of structure should be enough to create a well-defined embankment and if proper ditching is completed along the roadways (with culverts as required); surface water should not contribute to the formation of soft spots and frost heave. With this amount of roadway and parking area structure, subgrade softening will likely occur every spring; therefore, if possible, the amount of heavy truck traffic should be minimized at this time of year.

5.0 DESIGN PHASE GEOTECHNICAL INPUT

It is hoped that the information presented above reinforces that there is good potential for YAA to realize the site development objectives stated in the RFP. Moving forward towards pre-design and final design, additional geotechnical field work should be completed to address the following:

- The siting of the absorption field for the abattoir's wastewater facility is critical. It is suggested that this task be performed in advance of choosing an abattoir site. Testpitting should confirm adequate thicknesses of accepting soils and proper separation above the impermeable glaciolacustrine soils. While testpitting, percolation testing should be performed in order to establish soil percolation rates for system sizing calculations;
- Once the locations of the abattoir and community center have been selected, additional testholes should be advanced in order to provide the structural design team with the bearing resistances, seismic site classification and perimeter insulation requirements required to complete a foundation design; and
- Additional testpits are suggested for access roads and parking areas. Testing of the subgrade samples collected will establish frost-susceptibility and the natural moisture profile will establish the potential for rutting or frost heave, allowing the opportunity to increase the amount of granular structure in areas with soft subgrade soils.

6.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of Urban Systems and the Yukon Agriculture Association. Tetra Tech EBA Inc. does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than those listed above, or for any Project other than the proposed development throughout the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this report is subject to the terms and conditions stated in the Tetra Tech EBA Inc. General Conditions presented in Appendix A of this report.

The information and recommendations presented herein are based on current and historical geotechnical information from investigations conducted throughout the North Klondike Highway area. The conditions presented herein are believed to be representative for the site. However, if conditions differ from those presented in this report are encountered during subsequent phases of development, we request that Tetra Tech EBA be notified so that conditions encountered can be re-evaluated in light of new findings.

7.0 CLOSURE

We trust this report meets your present requirements. Should you have any questions or comments, or clarification of any of the recommendations presented is required, please contact the undersigned at your convenience.

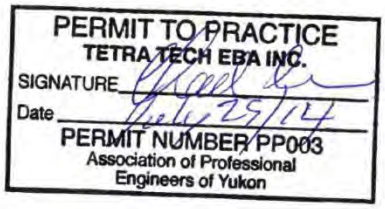
Sincerely,
Tetra Tech EBA Inc.

Myles Plaunt, CET
Engineering Technologist, Arctic Region
Direct Line: 867.668.9217
Myles.Plaunt@tetratech.com

Chad Cowan, P.Eng.
Project Director – Yukon, Arctic Region
Direct Line: 867.668.9214
Chad.Cowan@tetratech.com

/chr

Attachment: Tetra Tech EBA's General Conditions - Geotechnical



APPENDIX A
TETRA TECH EBA'S GENERAL CONDITIONS

GENERAL CONDITIONS

GEOTECHNICAL REPORT

This report incorporates and is subject to these "General Conditions".

1.0 USE OF REPORT AND OWNERSHIP

This geotechnical report pertains to a specific site, a specific development and a specific scope of work. It is not applicable to any other sites nor should it be relied upon for types of development other than that to which it refers. Any variation from the site or development would necessitate a supplementary geotechnical assessment.

This report and the recommendations contained in it are intended for the sole use of Tetra Tech EBA's Client. Tetra Tech EBA does not accept any responsibility for the accuracy of any of the data, the analyses or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than Tetra Tech EBA's Client unless otherwise authorized in writing by Tetra Tech EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of Tetra Tech EBA. Additional copies of the report, if required, may be obtained upon request.

2.0 ALTERNATE REPORT FORMAT

Where Tetra Tech EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed Tetra Tech EBA's instruments of professional service), only the signed and/or sealed versions shall be considered final and legally binding. The original signed and/or sealed version archived by Tetra Tech EBA shall be deemed to be the original for the Project.

Both electronic file and hard copy versions of Tetra Tech EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except Tetra Tech EBA. Tetra Tech EBA's instruments of professional service will be used only and exactly as submitted by Tetra Tech EBA.

Electronic files submitted by Tetra Tech EBA have been prepared and submitted using specific software and hardware systems. Tetra Tech EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

3.0 ENVIRONMENTAL AND REGULATORY ISSUES

Unless stipulated in the report, Tetra Tech EBA has not been retained to investigate, address or consider and has not investigated, addressed or considered any environmental or regulatory issues associated with development on the subject site.

4.0 NATURE AND EXACTNESS OF SOIL AND ROCK DESCRIPTIONS

Classification and identification of soils and rocks are based upon commonly accepted systems and methods employed in professional geotechnical practice. This report contains descriptions of the systems and methods used. Where deviations from the system or method prevail, they are specifically mentioned.

Classification and identification of geological units are judgmental in nature as to both type and condition. Tetra Tech EBA does not warrant conditions represented herein as exact, but infers accuracy only to the extent that is common in practice.

Where subsurface conditions encountered during development are different from those described in this report, qualified geotechnical personnel should revisit the site and review recommendations in light of the actual conditions encountered.

5.0 LOGS OF TESTHOLES

The testhole logs are a compilation of conditions and classification of soils and rocks as obtained from field observations and laboratory testing of selected samples. Soil and rock zones have been interpreted. Change from one geological zone to the other, indicated on the logs as a distinct line, can be, in fact, transitional. The extent of transition is interpretive. Any circumstance which requires precise definition of soil or rock zone transition elevations may require further investigation and review.

6.0 STRATIGRAPHIC AND GEOLOGICAL INFORMATION

The stratigraphic and geological information indicated on drawings contained in this report are inferred from logs of test holes and/or soil/rock exposures. Stratigraphy is known only at the locations of the test hole or exposure. Actual geology and stratigraphy between test holes and/or exposures may vary from that shown on these drawings. Natural variations in geological conditions are inherent and are a function of the historic environment. Tetra Tech EBA does not represent the conditions illustrated as exact but recognizes that variations will exist. Where knowledge of more precise locations of geological units is necessary, additional investigation and review may be necessary.

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11.0 DRAINAGE SYSTEMS

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Appendix 2
Stakeholder Contact Information

Yukon Agricultural Association Stakeholder Contacts - July, 2014

Organization	Name	Position	Contact
Growers of Organic Food Yukon	Brian Lendrum	President	lendrumross@northwestel.net 633-4201
Fireweed Market	Colin O'Neill	Executive Director	oneill.ce@gmail.com 393-2255
Pot-luck Food Co-op	Janet Patterson Karin Voodg	Board Member Staff	info@potluckcoop.com 336-4663
Yukon Game Growers Association	Wayne Grove	President	eldorado@northwestel.net 393-1942
Yukon Horse and Rider Association	Judy Linton	A/President	jmlinton@northwestel.net 334-2584
Downtown Urban Garden Society	Kathryn MacDonald	Contact	dugsyukon@hotmail.com
Former Klondike Harvest Fair	Rosie Drury	Former Member	pixiepansy@hotmail.com 456-7012
Abattoir Contractor	Tom Rudge	Contractor	auroramountain@yahoo.ca 393-4628

Appendix 3
Notes from Stakeholder Meetings

Growers of Organic Food Yukon Association

Growers of Organic Food Yukon is an association that promotes organic agricultural practices and provides support, education, and advocacy about organic growing and processing. Most members are growing food for sale, but some members grow food just for themselves. There are approximately 15 to 18 active members. Activities include promoting organic farming practices and public education.

Mandate/Vision

To promote organic practices and provide support, education, and advocacy about organic growing and processing.

YAA Lease Comments

- This group would like to see the lease area used for activities and infrastructure that support local organic farming practices.
- Some members of the group feel that the Harvest Fair has run its course and that the Fireweed Market has taken its place.
- Members want to see an increase in education related to organic practices.
- Food produced for sale must be processed in an approved commercial kitchen. A commercial kitchen/processing area might be useful to members who make jams/chutney/salad dressing as they could rent a space for several days and do big batches of processing. (Dairy must be processed in a dedicated facility.)
- There is some concern about how water will be provided and how waste water from the abattoir will be disposed of.
- Need to consider how the mobile abattoir is connected to the surrounding facilities. Difficult to move large animals from inside rails to outside rails. Need to ensure that carcasses can be moved and still meet all inspection codes. Bison has been too big to process in the mobile abattoir.

Fireweed Market Society Association

The Fireweed Market Society provides venues to sell local food, products, and crafts. This includes the two weekly markets in Shipyards Park, the Twelve Days of Christmas sale, and the Yukon Made store. The group has been operating for 15 years. Estimated that 2,500 people visit the market on busy Thursdays.

YAA Lease Comments

- Fireweed Market Society would be interested in working with other groups to get the harvest fair going again. This could involve vegetable displays and contests, baking, animal demonstrations, and other special events. A large pole barn could be a good venue. Adequate parking would be needed.
- A space for community agriculture event would be useful.
- There are some problems with commercial processing kitchen concept. It is unclear how much use it would get, and it would need to be very affordable or people will not use it.
- A cold storage for vegetables may be helpful to members as it would allow farmers to store vegetables and extend availability into the fall and winter.

Pot Luck Food Coop Association

The Pot Luck Food Coop operates as a for-profit business that works to bring as many organic and sustainably grown food products from local and regional suppliers as possible. It has been operating since November 2013 and has an online store where members can order local, regional, and sustainable products from various producers.

Mandate/Vision

To promote the production and consumption of local and sustainably grown products and to help to grow the local agricultural economy.

YAA Lease Comments

- The lease should be used for projects that help to grow the local industry so that there are more local food products available year round.
- Based on a meeting with local farmers in spring 2014, local producers see a need for a cold storage facility for vegetables.
- Currently local beef, elk, pork, and turkey are advertised on the website, but must be picked up directly from the farm. It would be more efficient if meat could be sold directly through the website, but under currently inspection and processing situation, this is not allowed.

Yukon Game Growers Association
Association

The Yukon Game Growers Association advocates for the local growers of elk and bison. The group includes two elk farmers, and several members.

Mandate/Vision

To support local game growers.

YAA Lease Comments

- Lease development should be focussed on what the agricultural community needs.
- Should consider a vegetable storage facility.
- YAA site should include space for the rodeo grounds.
- Need to consider how development on the YAA would overlap/mesh/compete with facilities at the Indoor Arena at Sharon Jansen's estate.
- Currently elk farmers use mobile abattoir and then send meat to local butchers for processing. Mobile abattoir would be more useful if accompanied with processing space.
- Do not want to see public funding for facilities that would compete with local business.
- Should consider how similar community facilities in other places are run and what makes them successful.

Downtown Urban Gardeners Society Association

The Downtown Urban Gardeners Society provides accessible space in the downtown core where community members can grow their own food.

YAA Lease Comments

- Although they think that having garden plots on the YAA site is a good idea, they do not think that their members will be interested in driving out of town to care for their garden. Maybe people who live closer, or organized groups might be able to use space.

Yukon Horse and Rider Association Association

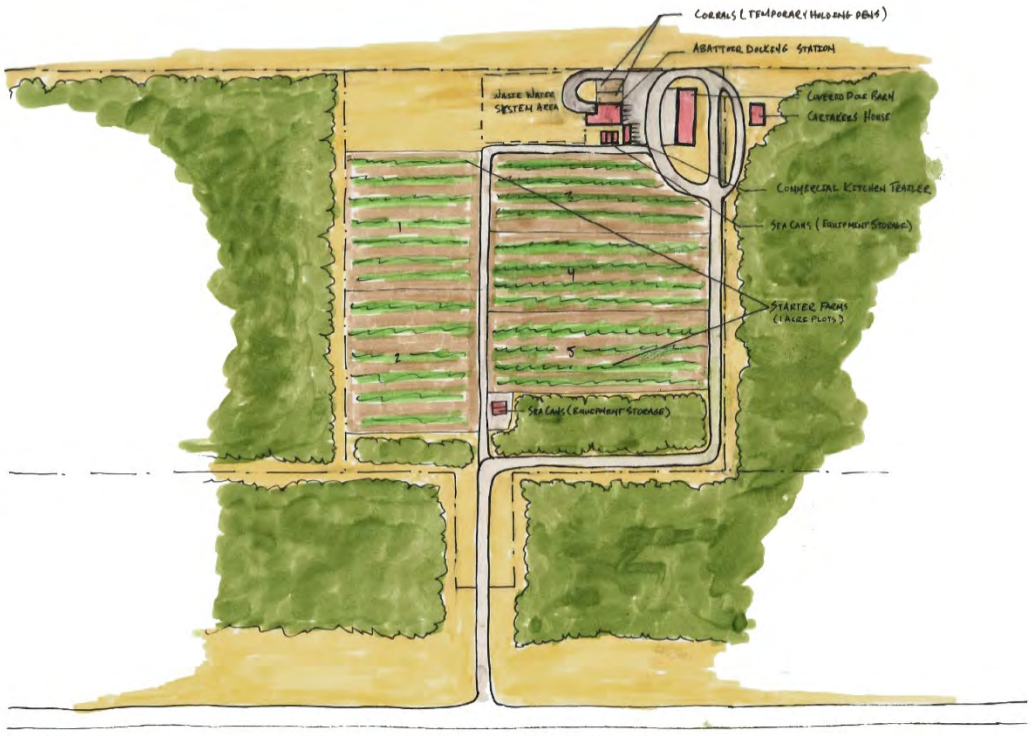
The Horse and Rider Association (YHRA) is a community organization dedicated to promoting equine activities in the Yukon. The YHRA aims to promote the health and welfare of horses, safety of horses and riders, horsemanship, and equestrian competition.

YAA Lease Comments

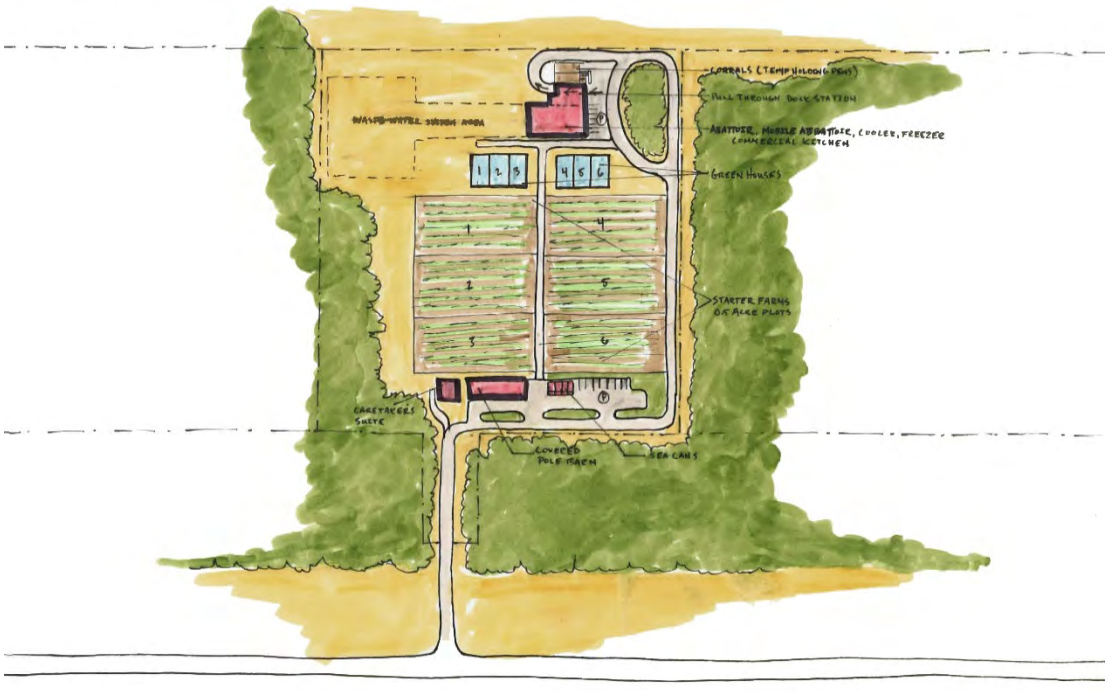
- YHRA has asked the YAA to allow them to set up their infrastructure on the lease site. YHRA has produced a document describing their current infrastructure, the proposed phasing, and the elements on their wish list. YAA has agreed to this in principle, but the two groups do not yet have an official agreement.
- YHRA has already moved their equipment to the site for storage and is working with YAA to get approval to begin setting up the site in 2015.

Appendix 4

Summary of Public Meeting Sept 10, 2014



Agricultural Operations: Concept #1

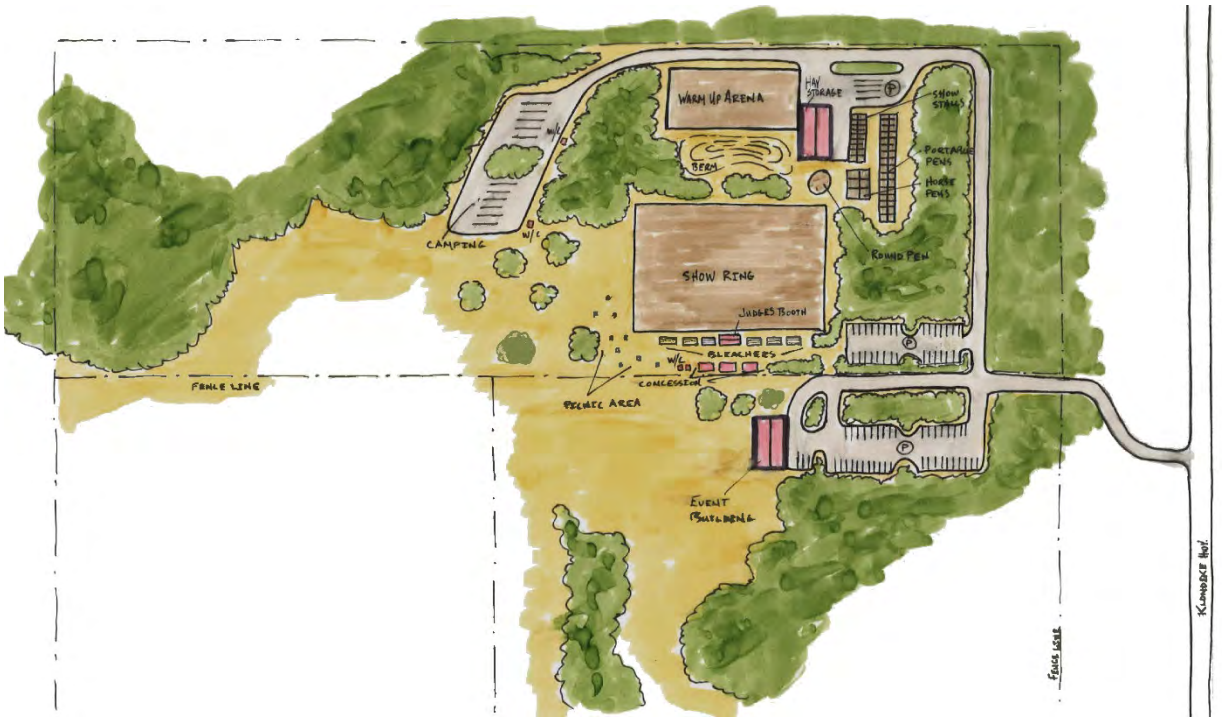


Agricultural Operations: Concept #2

Comments about Node 1 – Agriculture Operations

- Overall Concept 2 is preferred.
- Plan should be flexible and should be able to handle growth in a range of directions in the future.
- Planning should focus on elements that are achievable in the long term.
- Concepts should lead to sustainable business model for infrastructure.
- Plan should include priorities for how development of the site is phased.
- The location of the pole barn and caretaker suite are better on Concept #2, as they are closer to the site entrance.
- Lots of questions about how starter farm plots are developed: Who pays? How are they allocated? What equipment and services are available? How big are they? How long is the tenure?
- In the future, starter farm plots could be transitioned into other uses as space is needed.
- The greenhouses don't need to be located adjacent to the abattoir, but could be moved along the edge of the garden plots.
- Commercial processing kitchen should be shown on the site plan in this area; should not be part of event space. This would include a processing area, flash freeze unit and commercial storage for berries. This is a priority for the Haskap Yukon Growers Group.
- Space needed to expand abattoir operation from mobile to freestanding. Mobile abattoir has a limited life span and eventually more capacity will be needed to meet the needs of the growing businesses.
- Need space for more pens near abattoir in the future.
- Farmers want to take cattle to abattoir and then have meat go directly to market. This will require pens to hold cattle before slaughter.
- Animal handling facilities need to be designed so that animals are stress-free before slaughtering.
- Consider contacting stores to find out what kind of meat they will take and when in order to be able to plan storage and freezer space accordingly.
- Need to put together a good plan for the waste and start educating people about the project.
- Plan should include cooling and freezing space to increase the efficiency of the mobile abattoir.

Community Uses: Concept #1



Community Uses: Concept #2

Comments about Node 2 – Community Uses

- Overall Concept 2 is preferred.
- Consider sun angle (especially in mid to late afternoon) when placing bleachers.
- Final plan should include a riding trail.
- Horse pens should be near the camping area so people can keep an eye on their horses.
- Bad drainage in grassy areas. (YHRA folks got stuck on their site last week).
- If there is a community building, separation could be good because it would allow for simultaneous events on busy summer weekends, offer more flexibility.
- Integrating the community event space with YHRA will have benefits. Will raise the profile of YHRA and bring more people to the site.
- Need to provide a route for horses to move from show ring to warm up ring.
- Should consider lay-out similar to what YHRA proposed in the first place. Scale was off, but basic layout was sound.
- Don't need hay storage building.
- Consider traffic flow around the arenas; roads should not be too close to the arenas, especially the show arena.
- Need to build in flexibility so that YHRA facilities can be used by as many different user groups as possible.

Appendix 5
Estimated Water Demands

Estimated Population and Demands				NOTES
Care Takers House				
Persons	L/person/day	Persons	days	
4 Persons	200	4	365	
Green House				6 month growing year
Crop	L/m²/day	m²	days	
Tomatoes	5		180	700-800 L/m²/year
Cucumber	5		180	http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/opp4580
Pepper	6	1008	180	confirmed with food and agricultural organization of UN
Horses				Taken from Ontario ministry of agriculture water requirements of livestock
size	L/horse/day	# of Horses	days	http://www.omafra.gov.on.ca/english/engineer/facts/07-023.htm#4
Small (500lb)	16.5	0		BC Ministry of agriculture (45 L/day)
Meduim (1000lb)	32.5	0		Assume all large Horses for events
Large (1500lb)	49	25	90	
Horse and Rider RV area				As per Yukon Sewage design guidelines
L per site/day	Sites	days		
200	50	90		
Event Building				
	L/capita/Day	People	days	Includes allowance for the following
High Season	180	100	90	Mens, womens, family washroom (office buidling 90 l/day/employee as per YK septic guide)
Low Season	180	10	275	Industrial Kitchen (tavern from YK septic guide) 90L/day/seat
				3000 ft² area
Community Center				
	L/capita/Day	People	days	Same notes as event building
High Season	180	100	90	3000 ft² area
Low Season	180	10	275	
Food Processing				Estimate based on similar crop processing, 5 tonne per acre estimate for blueberries (berrygrape.org)
Crop	m³/tonne	m²	tonne	Processing season 50 days in Aug, July,
Berries	3	4050	5	Assume 1 tonne
Starter Farm Plots				Soil conditions taken from Yukon Governement site http://www.emr.gov.yk.ca/agriculture/soils_geography.html
Crop	L/m²/season	m²		Crop selection base on differnet root depths, and historical agricultural crops in the yukon
Potatoes	121	4050		mm irrigation requirment based on root depth, soil texture, and availability coefficent, estimated from Ft Nelson numbers
Cereals	92	4050		Based on 3 month irrigation period
Alfalfa	39	4050		