

**TIM HORTON CHILDREN'S FOUNDATION****4.0 Project Description**

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**4.1 PROJECT SUMMARY**

THCF is proposing to construct and operate a Youth Leadership Camp (the Camp) south of the Town of Pinawa, Manitoba on Sylvia Lake (Figure 1-1). The peak operation of the camp will occur during summertime (end of June to beginning of September), with the hosting of seven 10-day sessions with up to 256 Youth Leadership Program participants at a time. Outside of peak operation, the camp will be used to host 3 to 5 day sessions through the Community Partnership Program (up to 100 participants at a time), but may also include day-use and some shutdowns. Approximately 3,800 participants will attend the Camp each year, 1,800 Leadership Camp attendees and 2,000 Community Partnership Program attendees.

The major components of the Camp include:

- Main lodge: a winterized dining facility (240-person capacity), with a commercial kitchen, food storage, laundry and office.
- Bunkhouses: three winterized, dorm-style bunkhouses (32-person capacity each) with smaller bedrooms, private showers and washrooms.
- Yurts: twenty-two semi-permanent, soft-shelled, three-season sleeping facilities (10-person capacity: 8 participants, 2 counselors) with power, lighting, electric heating, and gathering area.
- Outdoor challenge area: outdoor activity area for non-mechanized recreational pursuits including a 9.1 m (30 ft) climbing tower (Figure 4-6), etc.
- Beach: canoe/kayak racks, fishing and swim docks, and storage sheds.
- Two motorized rescue boats

Construction of the Camp would commence in early 2011, pending regulatory approval. The Camp is anticipated to be constructed by fall 2012, with an opening for camp programming planned for summer 2013.

The following sections provide a detailed description of the proposed Camp.

**4.1.1 Project Site Location**

The Project Site is primarily located in the southeast quarter of Section 3, Township 14, Range 12 East of the Prime Meridian (EPM) on the northwest shore of Sylvia Lake within Whiteshell

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Provincial Park, 95 km northeast of Winnipeg and approximately 600 m south of Pinawa across the Winnipeg River (Figure 1-1).

The Project Site area encompasses a Provincial Park Lease Area of approximately 17.19 ha (171,900 m<sup>2</sup>) of land. The Site is located within the Whiteshell Provincial Park Extensive Recreation Zone (See Section 6.4.5), approximately 22 km west of the Park's only Wilderness Zone which is associated with the Mantario Lake region (Department of Natural Resources, 1983).

**4.1.2 Site Selection**

The Project Site was identified as the preferred site location by the Foundation, with the assistance of Manitoba Conservation.

Factors in the site selection process included proximity to medical support, a major airport, communications, supplies and wilderness trip access points. The ability of the site to accommodate a variety of activities including boating and swimming were also important factors.

**4.1.3 Site Plan**

Figure 4-1 illustrates the site layout of the proposed facilities. A detailed description of the proposed site facilities is provided in Section 4.2.1.

Permanent, year-round facilities include:

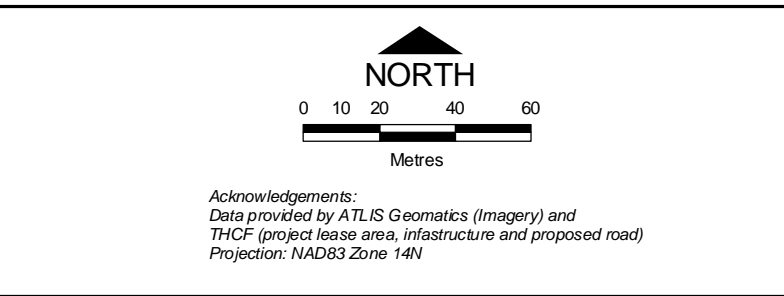
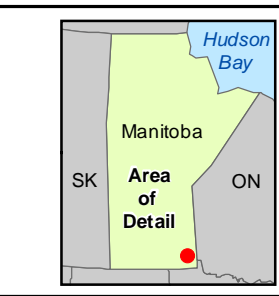
- Main lodge
- Bunkhouses
- Gathering hall
- Wellness centre
- Staff residence
- Maintenance building
- Storage buildings (2) for water sport equipment

Supporting permanent infrastructure includes an on-site water-treatment plant, wastewater treatment system and beds, and a dry fire hydrant.





# Site Plan



### Legend

- - - - - Distribution Line
- ● ● ● ● 100-year Inundation Level
- Lease Area

PREPARED BY			
MAP SCALE		DATA SCALE	
1:3,500		NA	
DATE		PROJECT	
October 6, 2010		1112	
DRAWN		FIGURE NO.	
KM		57005	
CHECKED		4-1	
CA			
APPROVED			
DS			



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Seasonal facilities include temporary docks, semi-permanent yurts, and associated pavilions and washroom/shower houses. The yurts, pavilions and washroom/shower houses are divided into a Male Section and Female Section.

Outdoor facilities include an:

- Outdoor Challenge Area
- Sportsfield (e.g. soccer, basketball, etc.)
- Central Campfire Area
- Beach

**4.1.4 Collateral Developments**

An entry road and electrical distribution line to service the site are proposed (Figure 4-2).

The proposed entry road is an approximately 3.5 km permanent gravel/asphalt access road on a 30.0-m right-of-way (ROW) which would provide access to the Site from Provincial Road (PR) 307 to the south. A gate would be established at the north terminus of entry road, within the Park lease area to control access.



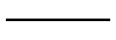

The road alignment was determined by Manitoba Conservation with support from THCF, based on the following considerations:

- Approaches from PR 307 between the existing hydroelectric distribution right of way and the wetland area to the east;
- Achieves setback requirements from existing PR 307 curves, as requested by Manitoba Highways;
- Parallels existing hydroelectric distribution line right-of-way, to minimize additional disturbance to the existing environment;
- Maintains a minimum 100 m setback from Sylvia Lake to minimize disturbance to near-shore habitat;
- Includes curves to control traffic speed and minimize visual line of sight down the alignment from PR 307;
- Minimizes grading and construction requirements (i.e. avoids steep grades, bedrock outcrops, low-lying areas).



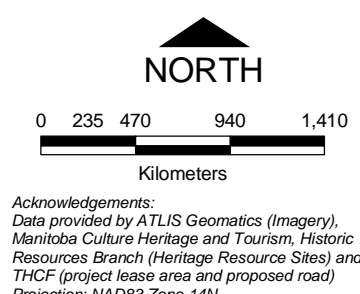



### Legend

-  Elevation Contours
-  Distribution Line
-  Entry Road
-  Lease Area



### Collateral Developments



PREPARED BY		 <b>Stantec</b>	
MAP SCALE		DATA SCALE	
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DATE		PROJECT	
October 6, 2010		1112	
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Culverts will be required to maintain existing site drainage patterns. A typical cross section of the proposed access road is illustrated in Figure 4-3.

In addition, a 2.3 km, 12.47 kV hydroelectric distribution line, to be located within the 30.0 m road right-of-way connecting the Project Site to the adjacent distribution network. A horizontal separation of 7.0 m from the travelled portion of the road and 5.0 m from vegetation will be maintained for the overhead distribution line.

These collateral service corridors are not within the scope of this EIA; however, Stantec was authorized by THCF to collect baseline data (Section 6.1.5 - Soils and Section 6.2 – Terrestrial Environment; Appendix B; Appendix D and Appendix E) of these corridors in support of the overall assessment.

## **4.2 PROJECT COMPONENTS**

### **4.2.1 Site Buildings and Other Facilities**

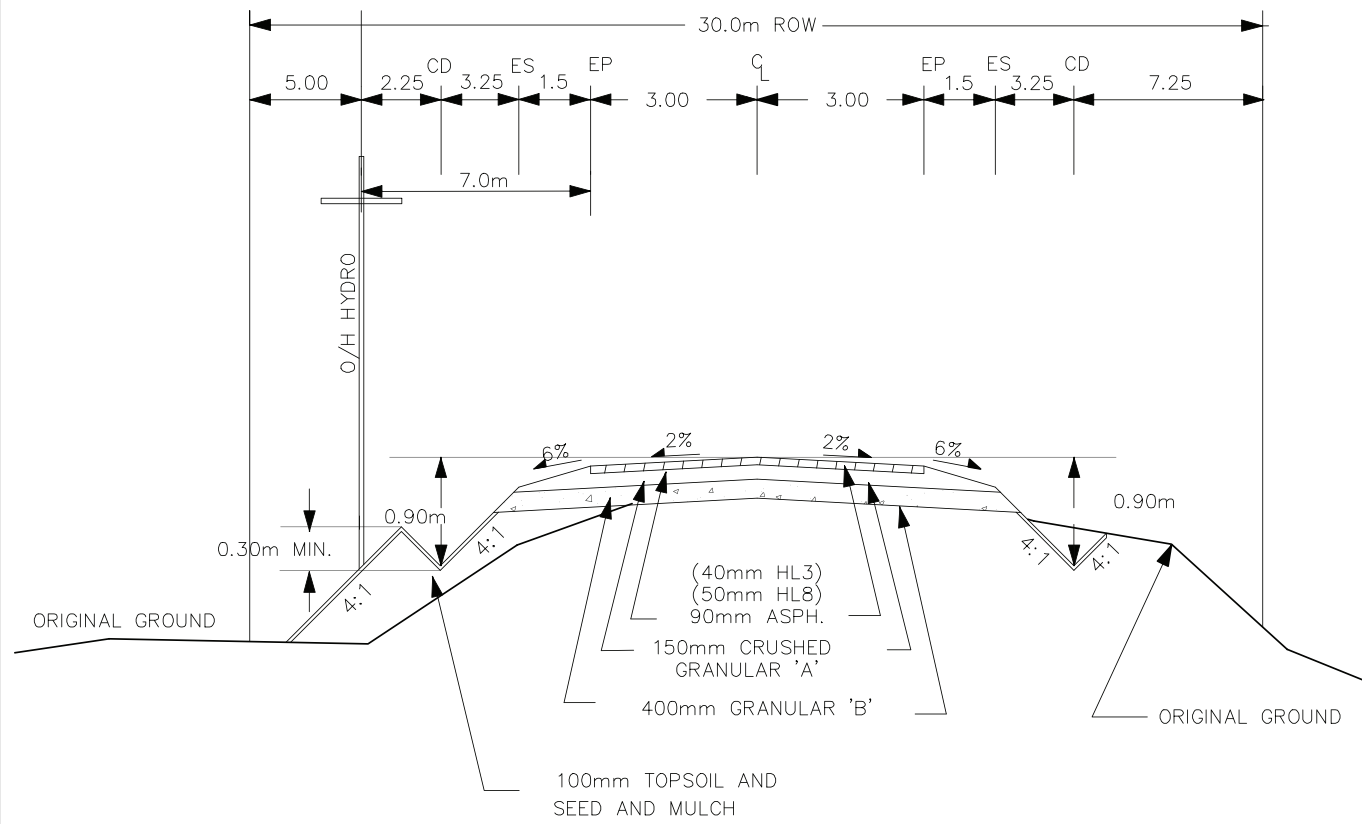
Table 4-1 provides a description of the site buildings and other facilities associated with the Camp. The total footprint of site buildings is approximately 5,000 m<sup>2</sup>. Many of the buildings have associated porches and patios, which occupy an additional 1,100 m<sup>2</sup>. A conceptual representation of the proposed structures is illustrated in Figure 4-4.

It is anticipated that buildings will be wood-framed, on standard strip foundations. All buildings will be single storey with no basement<sup>2</sup>, with the exception of the staff residence which will be two-storey and the Main Lodge which will be one-storey with a small mezzanine and walkout basement. Facility heating and cooking equipment are anticipated to be powered by electricity.

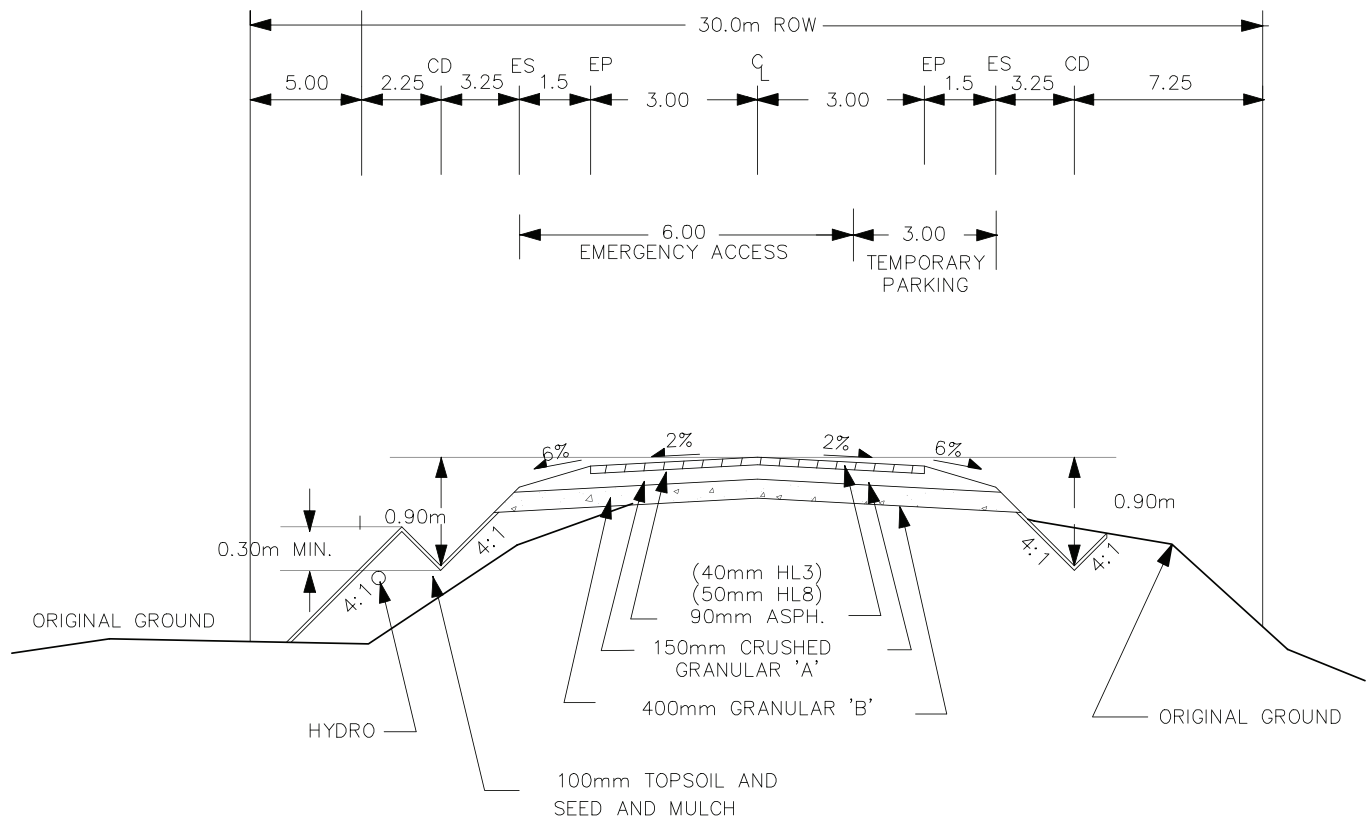
Facilities have been designed as modern, energy efficient buildings to reduce building energy consumption. Design features to reduce generation of wastewater include no-flow (i.e., waterless) urinals and low-flow faucet aerators, showerheads and toilets. Dark sky lighting will be used for external lighting requirements, where possible, to maintain night sky access while ensuring participant safety. Natural building materials are to be utilized throughout much of the facilities, and will be sourced locally (i.e. region/province), where available.

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<sup>2</sup> Some buildings may have crawlspaces, which will be designed with sufficient protection to reduce the risk of radon gas infiltration.

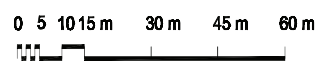


**TYPICAL ENTRANCE ROAD SECTION**  
NTS



**TYPICAL INTERNAL ROAD SECTION**  
NTS

N.T.S.  
SYLVIA LAKE LEADERSHIP CAMP



**LEADERSHIP CAMP**  
SYLVIA LAKE,  
MANITOBA

**TIM HORTON CHILDREN'S FOUNDATION**

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<b>Table 4-1: Description of Buildings, Facilities and Infrastructure, THCF Sylvia Lake Leadership Camp</b>			
<b>Facility</b>	<b>Size<sup>1</sup></b>	<b>Capacity</b>	<b>Description</b>
<b>Year-round Site Buildings</b>			
Main Lodge	1,100 m <sup>2</sup>	240 participants per sitting (dining room); 110 participants (porch)	Year-round, air-conditioned dining facility with full commercial kitchen, food storage, laundry, office, washrooms and screened porch. Walk-out basement with a trip facility with food storage/prep kitchen for participant use, office and library.
Bunkhouses (3)	1,300 m <sup>2</sup> (440 m <sup>2</sup> ea)	32 participants each	Dorm-style bunkhouses which include smaller bedrooms, private showers, washrooms and a gathering area.
Gathering Hall	645 m <sup>2</sup>	200 participants	Heated recreational facility with fireplace, large gathering room, creative arts room and music programming room.
Wellness Centre	450 m <sup>2</sup>	-	A central room, nurse's quarters, and eight rooms with adjoining bathrooms for staff and visitor accommodations.
Maintenance Building	240 m <sup>2</sup>	-	
Staff Accommodation	456 m <sup>2</sup>	-	Common area and staff accommodation rooms, near camp entry.
<b>Seasonal Site Buildings</b>			
Yurts (22; 10 Male Section, 10 Female Section; 2 Resource Staff Quarters)	1,450 m <sup>2</sup> (65 m <sup>2</sup> ea)	8 participants and 2 staff each; Total 10 people each	Semi-permanent, soft shelled Spring / Summer / Fall camper residences include 10 bunk beds with power, lighting, electric heat, storage, gathering area and porch.



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<b>Table 4-1: Description of Buildings, Facilities and Infrastructure, THCF Sylvia Lake Leadership Camp</b>			
<b>Facility</b>	<b>Size<sup>1</sup></b>	<b>Capacity</b>	<b>Description</b>
Pavilions (2)	360 m <sup>2</sup>	150 people each	Seasonal, screened outdoor pavilions in each section with fireplace and power.
Male Washroom / Shower Complex	125 m <sup>2</sup>	12 water closets or urinals and 12 showers	Seasonal washroom / shower facility located in the Male Section.
Female Washroom / Shower Complex	128 m <sup>2</sup>	12 water closets and 12 showers	Seasonal washroom / shower facility located in the Female Section.
<b>Other Facilities</b>			
Central Campfire Area	153 m <sup>2</sup>	150 people	Located in the northeast corner of the site. See Figure 4-5.
Walking Path	903 linear m	-	3-6 m wide lighted walking paths to connect Camp facilities.
Outdoor Challenge Area	406 m <sup>2</sup>	-	Non-mechanized outdoor activity area includes an outdoor climbing tower (9 m), 15 high course elements mounted on telephone poles, 15 low course elements and a climbing equipment storage building <sup>2</sup> . See Figure 4-6.
Outdoor Basketball Court	385 m <sup>2</sup>	-	Located adjacent to the Gathering Hall.
Sportsfield Area	3,261 m <sup>2</sup>	-	Multi-purpose sports field.
Beach Area	175 linear m	-	Canoe/kayak racks, storage sheds, lifeguarding area, docks (fishing, swimming, emergency motor boat storage).



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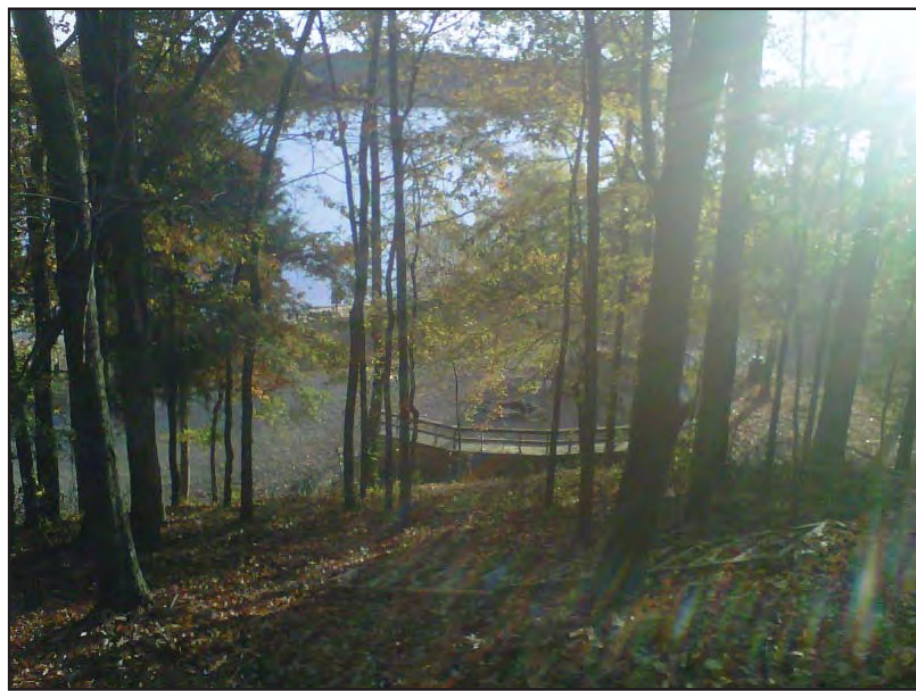
November 5, 2010

<b>Table 4-1: Description of Buildings, Facilities and Infrastructure, THCF Sylvia Lake Leadership Camp</b>			
<b>Facility</b>	<b>Size<sup>1</sup></b>	<b>Capacity</b>	<b>Description</b>
Septic Beds	9,061.3 m <sup>2</sup>	-	See Section 4.2.2. Pressurized Sand Treatment Mound System.
Potable Water Supply and Treatment System	105 m <sup>2</sup>	-	See Section 4.2.3. Water-treatment facility supplied by two supply wells.
Parking Surfaces	1,750 m <sup>2</sup>	70 stalls	A main asphalted parking lot adjacent to the Maintenance/Staff buildings. Smaller satellite asphalt lots adjacent to the Main Lodge, Wellness Centre and Bunkhouses.
Maintenance Yard	1,840 m <sup>2</sup>	-	Maintenance yard, includes maintenance building, large wildlife-resistant garbage container and emergency generator.
Docks (3; 2 boat docks, 1 swimming dock to enclose swimming area)	460 m <sup>2</sup> total; L-shaped docks: 117 m <sup>2</sup> each; U-shaped dock: 225 m <sup>2</sup>	-	Modular Connect-a-Dock® polyethylene molded docks, anchored to land with one 3" galvanized pole/section and anchored in water using Dead Man Collars (weighted chain). See Figure 4-7; Section 4.2.6.
<p><sup>1</sup>Sizes of proposed facilities are considered approximate and are estimated based on the best available information at the time of the assessment. Minor changes to the sizes or proposed facilities may occur; however, these changes are not anticipated to significantly alter the nature of the development or the assessment thereof.</p> <p><sup>2</sup>Constructed by a professional vendor that must be a member of the Association of Challenge Course Technology (ACCT)</p>			





**Conceptual  
Representation  
of the Project**  
Figure 4-4



**Typical Central Campfire Area**  
Figure 4-5





**Typical Outdoor Challenge Area**  
Figure 4-6





**Legend**

 Lease Area

 Habitat Type (DFO 2010)\*

\*Habitat type according to: DFO (2010) Blasting - Fish and Fish Habitat Protection.  
<http://www.nfl.dfo-mpo.gc.ca/e0005460>  
 Accessed September 15, 2010



**East Shoreline and Beach**




NORTH

0 5 10 20 30

Metres

*Acknowledgements:  
 Data provided by ATLAS Geomatics (Imagery) and  
 THCF (project lease area and infrastructure)  
 Projection: NAD83 Zone 14N*

PREPARED BY				
MAP SCALE		1:1,500	DATA SCALE	
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DATE		October 15, 2010	PROJECT	FIGURE NO.
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KM	DW	DW	57005	



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**4.2.2 Wastewater-Treatment System**

The proposed wastewater-treatment system is classified as a Class 2 Development within the meanings of the *Classes of Development Regulation* (MR 164/88) and thus is one of the features of the proposed camp triggering the requirement for this EIA.

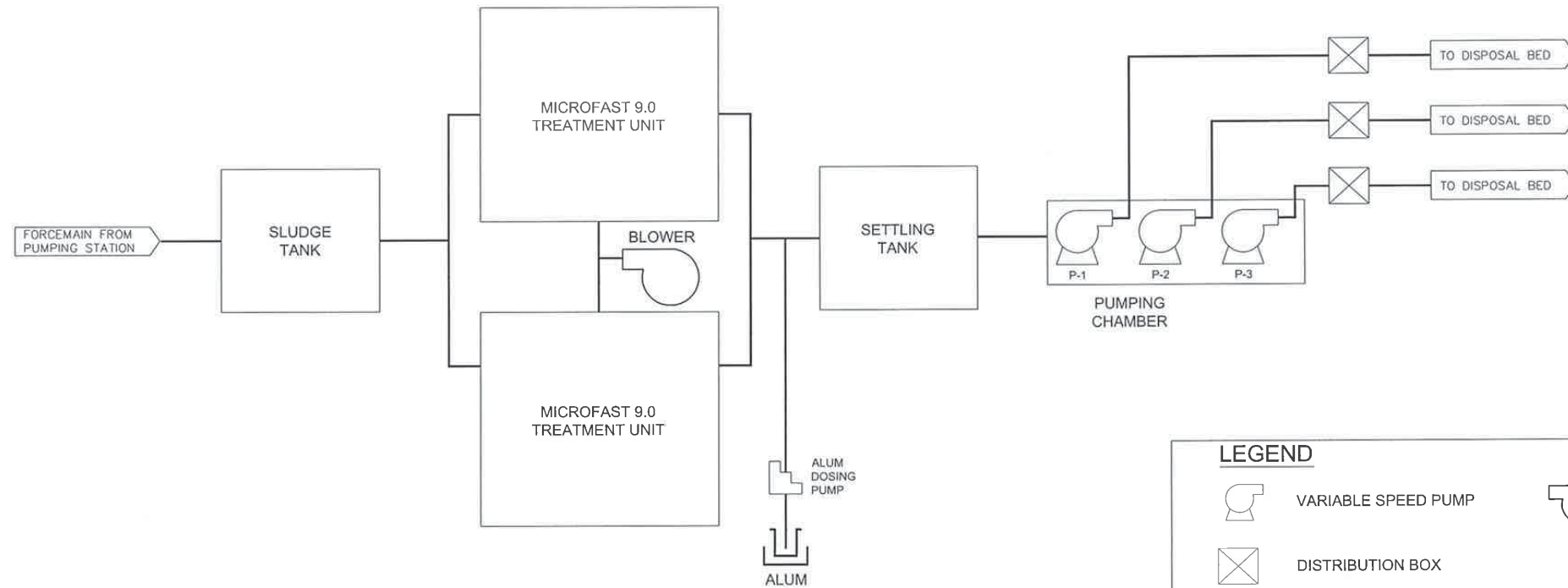
The proposed system is to consist of a Fixed Activated Sludge Treatment (FAST) process and Pressurized Sand Treatment Mound System. A process schematic of the proposed wastewater treatment process is illustrated in Figure 4-8. This combination of treatment technologies is currently in use at other THCF Camps (e.g., Tim Horton Memorial Camp, Parry Sound, Ontario). The system is designed to accommodate a design flow of 65,000 Litres per day (Lpd), based on peak daily water consumption experienced at similar-sized THCF camps. While the daily design flow exceeds the 10,000 Lpd outlined in the *Onsite Wastewater Management Systems Regulation* (MR 83/2003) and associated guidelines, the criteria and guidance contained within these were followed for the proposed system design. All of the proposed wastewater treatment system works conform to the required clearance distances provided in Table 4-2.

<b>Table 4-2: Septic Tank, Treatment System and Distribution Piping Setbacks</b>		
<b>Clearance From</b>	<b>To Septic Tank / Treatment System</b>	<b>To Distribution Piping</b>
Building or Structure without basement	1 m	6 m
Well (drilled and cased to minimum 6 m bgs)	8 m	15 m
Watercourse, excluding ditch	15 m	30 m
Property Line	3 m	8 m
Source: <i>Onsite Wastewater Management Systems Regulation</i> (MR 83/2003)		

Sanitary wastes will be collected and transported via an underground gravity sewer system to a pumping chamber to be located in the vicinity of the Gathering Hall. The chamber will pump the wastewater via a forcemain to one of two septic tanks where solids will settle by gravity.

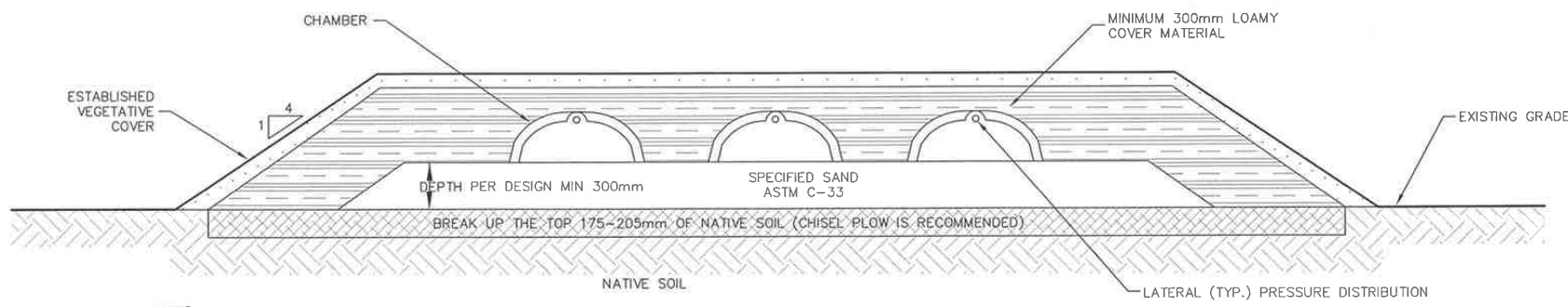
The coarsely clarified wastewater will then flow by gravity to one of the two MicroFAST® 9.0 Treatment Units for secondary treatment. The units provide media for sewage-digesting microorganism attachment. The media also act like a filter, reducing the amount of microbial solids in suspension. Air is pumped into the unit growth by an above-ground blower to promote aerobic bacteria. Two MicroFast 9.0® (Daily Sewage Flow Rate Capacity 34,000 Lpd each) treatment units will be provided to accommodate the design flow. The system is designed to accommodate seasonal variation in flow rate, by allowing one of the two units to be turned off during non-peak seasons.





**LEGEND**

	VARIABLE SPEED PUMP		BLOWER UNIT
	DISTRIBUTION BOX		



**NOTE:** INTENDED FOR 60-100% HEAVY CLAY SOILS. ALL SEPTIC FIELDS MUST BE BERMED WITH SUITABLE MATERIAL

**PRESSURIZED SAND TREATMENT MOUND SYSTEM CHAMBERS**  
N.T.S.



N.T.S. Date: OCT.22/10

**TIM HORTON CHILDREN'S FOUNDATION**  
264 GLEN MORRIS RD. E. ST. GEORGE, ON

**LEADERSHIP CAMP SYLVIA LAKE**  
MANITOBA

**WASTEWATER SYSTEM SCHEMATIC**

**Wastewater Treatment Schematic Flow Diagram**

Figure 4-8

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The resulting effluent is reported to average 95% reduction in contaminants (total solids, *E.coli*, etc.) and 70% reduction in nitrogen. The target effluent concentrations for the treatment system are presented in Table 4-3.

<b>Table 4-3: Expected Effluent Quality From Treatment System</b>	
<b>Parameter</b>	<b>Concentration (mg/L)</b>
BOD <sub>5</sub>	15.0
CBOD <sub>5</sub>	10.0
Total Phosphorus	1.0
Total Suspended Solids	10.0

Downstream of the MicroFAST® treatment units, chemical precipitation will be used to reduce the phosphorus concentration by greater than 90% for a target discharge concentration of 1.0 mg/l for subsurface disposal. Effluent from the treatment system will flow by gravity to a common flow-equalization tank and pumping chamber to be stored until it can be evenly dispersed by the two dosing pumps to one of the nine disposal beds, on a rotational basis. Precipitated phosphorus will be stored and disposed of in the same manner as settled sludge solids in the septic tanks. As part of routine maintenance, septic tanks will require a pump out by a licensed wastewater hauler once every two to three years.

The disposal area consists of a nine-chambered Pressurized Sand Treatment Mound System. Based on a detailed site and soil investigation conducted (Section 6.1.5.2) and interpretive information provided, Manitoba Water Stewardship has provided confirmation (Appendix B) that an effective on-site wastewater-management system could be established within the site, which has been classified as Nutrient Management Zone N2 pursuant to the *Nutrient Management Regulation* (MR 62/2008). The total disposal bed area required was calculated (MTE Consultants Inc., 2010) based on the Soil Texture Classification Triangle used by Manitoba Conservation:

- Total Design Flow = 65,000 Lpd
- Application Rate = 10.76 Lpd/m<sup>2</sup> (per Soil Classification Triangle – Clay Loam)
- Safety Factor = 1.5 (for chamber / aggregate free systems)
- AREA OF FIELD = TOTAL DESIGN FLOW x SAFETY FACTOR / APPLICATION RATE  

$$= (65,000 \text{ Lpd})(1.5)/10.76 \text{ Lpd/m}^2$$

$$= 9,061.3 \text{ m}^2$$



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As shown above, the required area of field was determined to be a minimum of 9,061.3 m<sup>2</sup> to achieve regulatory compliance.

Nine cells (22 m long x 48 m wide) with runs of 25 mm (min) diameter perforated pipe located in distribution chambers at 2.0 m on-centre will be provided to achieve the required effluent dispersal over the design contact area. A common inspection port will be provided at the end of each bed. Each bed will be on a minimum 0.3 m thick layer of American Society for Testing and Materials (ASTM) C-33 sand on top of the native soil. Each chamber will be covered with a minimum 0.3 m thick layer of loamy material. The sides will be graded at 1:4 on all four sides, topsoiled and revegetated.

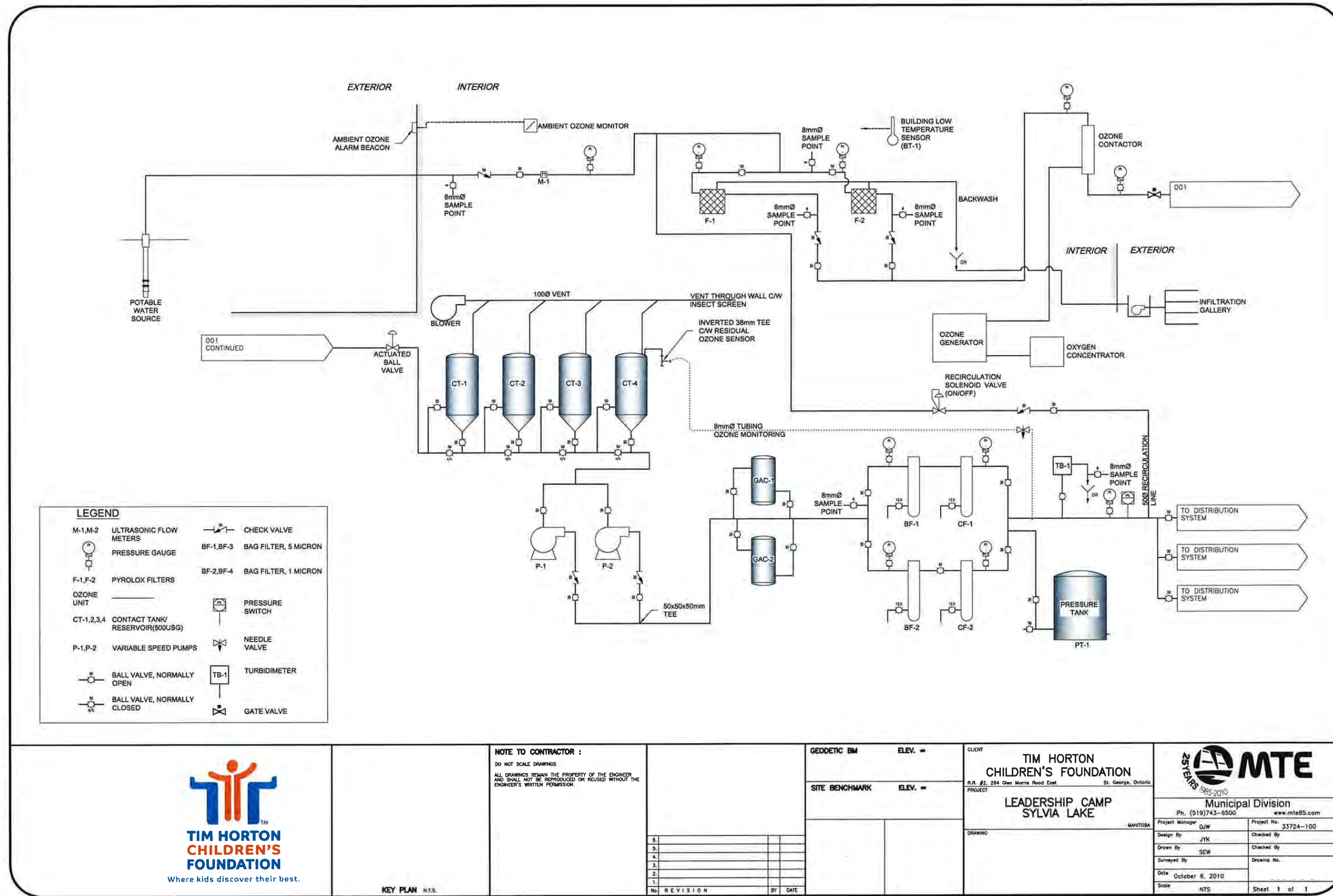
**4.2.3 Potable Water System**

Similar to five of the six existing THCF camps, potable water will be provided by an on-site water-treatment system supplied by the shallow groundwater aquifer. Two supply wells will be drilled and developed between the proposed water-treatment facility and the shoreline. The wells will be completed in the fractured bedrock below the site. If necessary, hydro-fracturing will be used to develop the wells to achieve the required yield. The groundwater will be in direct connection with the lake and this is considered to be of similar quality as the adjacent lake, being influenced by the chemistry of the underlying rock aquifer. The supply wells will not be located directly downstream of the surface water drainage pattern from the effluent disposal beds.

A process schematic of the proposed on-site water treatment facility is illustrated in Figure 4-9. The metered on-site water treatment facility will include filtration and disinfection treatment. Filtration will be achieved using proprietary media to remove turbidity followed by granular activated carbon to improve taste and protect against low levels of surface-water contaminants (any traces of pesticides, herbicides, hydrocarbons, etc.). Final filtration will be achieved via cartridge-series filtration (to 5 and one micron absolute), to remove bacteria, algae and pathogens (*Giardia*, *Cryptosporidium*, etc.). An on-site ozone generation system will provide primary disinfection.

After water-treatment, potable water will be distributed to various camp buildings via a distribution system of 50-mm watermains. The distribution system will be pressurized by redundant variable speed distribution pumps and a small-scale bladder tank located in the treatment plant. The distribution system will typically operate in the pressure range of 45 to 60 pounds per square inch (psi). Point of Entry ultraviolet (UV) disinfection will be provided in each building using UV units certified to US National Standards Federation's (NSF) 55 standard.





Water Treatment Schematic Flow Diagram  
Figure 4-9



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The following buildings will be serviced with potable water:

- Main Lodge
- Bathroom / Shower Complexes
- Bunkhouses
- Gathering Hall
- Maintenance Building
- Wellness Centre
- Staff Residences.

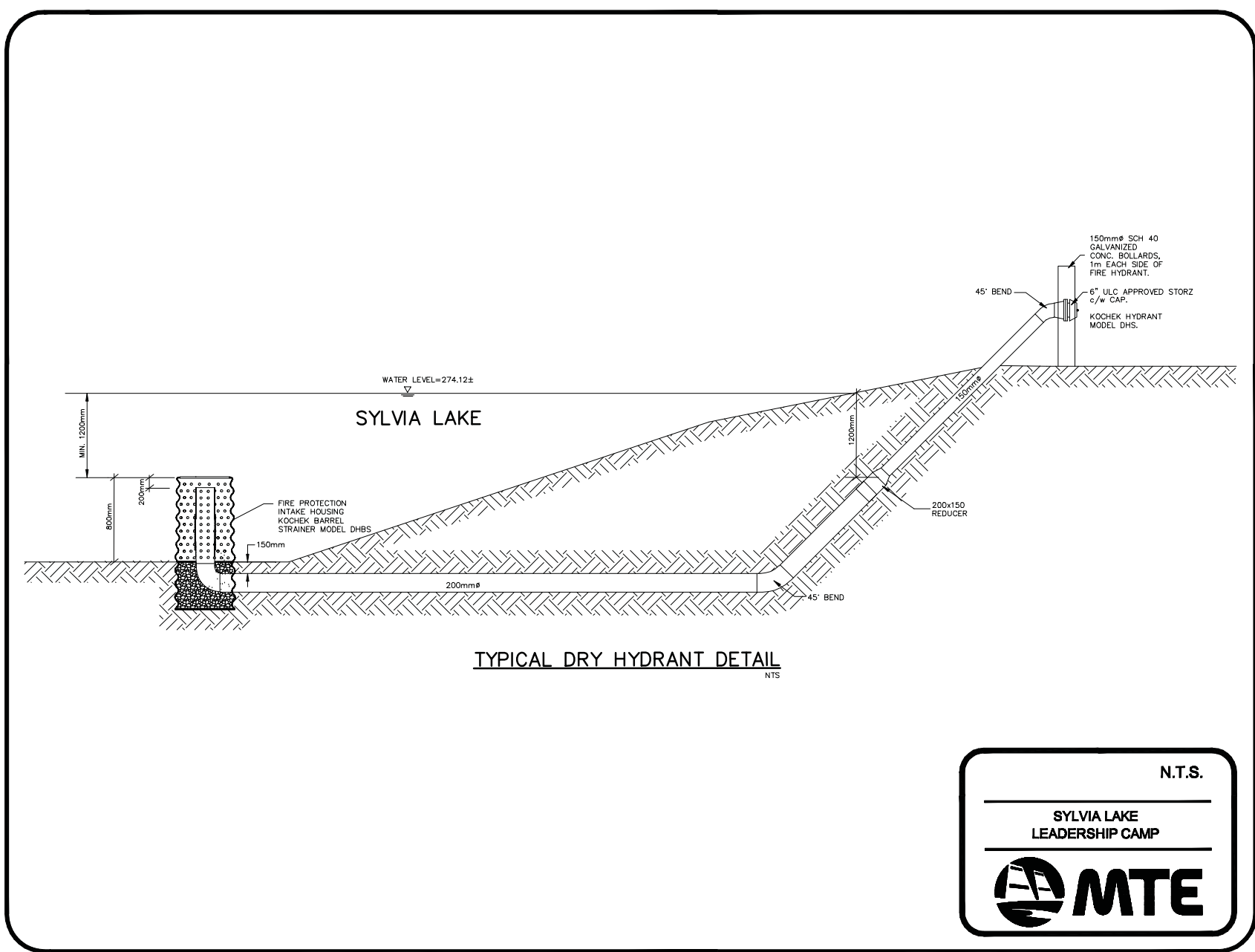
**4.2.4 Dry Fire Hydrant**

Fire water will be provided by a dry fire hydrant located between the bedrock point and the beach as shown in Figure 4-7. A dry hydrant is a permanent, non-pressurized standpipe system that is installed into existing waterbodies and provides a supply of water to fire department pumper trucks. A 150 mm diameter suction line and strainer will be trenched into Sylvia Lake (Figure 4-10). The intake line is to be designed in accordance with the Department of Fisheries and Oceans *Freshwater Intake End-of-Pipe Fish Screen Guideline* (DFO 1995). The intake line will be located at least 1.2 m below the low water elevation to ensure it is below the surface ice level. In shallow water close to the shore and on land, the intake line will be buried to prevent freezing (and rock armoured across the littoral zone/shoreline interface). A single hydrant will have the capacity to provide fire water for the entire site.

**4.2.5 Roads and Associated Components**

An internal asphalted road network, approximately 900 m in length (Figure 4-1), will be developed within the lease area to connect the main lodge, bunkhouses, wellness centre, staff residence and maintenance building to the access road. It is anticipated that asphalt can be transported to the Site via truck and that a temporary asphalt plant will not be required to support asphaltting activities.

Internal roads will be 6.0 m wide with a 30.0 m right-of-way, which allows sufficient access for emergency vehicles, even if a vehicle is temporarily parked on a roadside. A typical cross section of the internal roads is illustrated in Figure 4-3.



N.T.S.

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SYLVIA LAKE  
LEADERSHIP CAMP

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A main asphalt parking area will be located adjacent to the staff house, with smaller parking lots being developed adjacent to the wellness centre and main lodge. Parking areas will occupy approximately 1,750 m<sup>2</sup> and will provide a total of 70 parking spots.

**4.2.6 Docks**

There will be three seasonal Connect-a-Dock® brand floating docks located in the beach area, two “L” shaped docks for boat docking (canoes, kayaks and a motorized rescue boat) and one “U” shaped dock to delineate the 1,177 m<sup>2</sup> (12,672 ft<sup>2</sup>) swimming area.

The polyethylene molded docks are comprised of 1.2 m x 2.4 m (4 ft x 8 ft) modular sections. The docks have a non-slip, non-splintering surface which can be cleaned without the use of chemicals. The docks are anchored to shore using one 7.6 cm (3”) galvanized pole per section connecting to land and anchored in the water using a heavy galvanized weighted chains connected to two anchors. Each anchor is constructed of a 1.2 m x 1.2 m (4 ft x 4 ft) square form, filled with cured concrete. The total footprint of all anchors will be 8.9 m<sup>2</sup> (96 ft<sup>2</sup>).

The boat docks will extend 36.5 m (120’) from shore, with the “L” component of the dock extending 14.6 m (48’) from the end. The swimming dock will extend 31.7 m (104’) from shore on the north side and 26.8 m (88’) from shore on the south side. The swimming area will be 40.2 m (132’) in shoreline length.

The docks (including poles and anchors) will typically be installed prior to Victoria Day Weekend (third week of May) and removed prior to Thanksgiving Weekend (second Monday in October) each year.

**4.2.7 Electrical Distribution System**

An underground electrical distribution system is being considered to connect the overhead hydroelectric servicing line to camp facilities while minimizing the visual effect. If utilized, underground hydroelectric services would primarily be located within the internal camp road network (Figure 4-3).

All buildings and structures, including the seasonal yurts, will be supplied with electricity. The waterfront (boat storage and docks), outdoor challenge area and campfire circle will not be serviced with electricity.