

# Management & Technical Services

Project No. IB 01

Job. No. 27

March 28, 2012

The Summer Village of Itaska Beach  
# 10 Norwood Close  
Wetaskiwin, AB T9A 1K2

Attention: Mayor and Council

It gives me great pleasure to present three shelter conceptual designs for the R3 municipal reserve for your consideration. As per your request, mTs visited the site of the two shelters located at Moonlight Bay to gain a further understanding of the Village's requirements.

After reviewing all the information and comments received for consideration, mTs developed designs that we feel meet the objectives of this project. They are aesthetically pleasing, multi-functional, safe and long lasting.

mTs procured base map information for the village but, unfortunately, conditions onsite prevented us from doing any survey work to determine the exact locations of the existing features such as the garage, tennis court and playground. For the purposes of this report, Google Earth was utilized to determine the approximate locations of these features.

The three concept designs presented - square, rectangle and octagon - are based on readily available dimensional lumber and timber. The maximum lengths of the 2" x 8" rafters are 16' for the square and octagonal structures - an increase in size would affect cost exponentially. Further, the footprints of the concepts are considered the maximum size for the area and intended use - they can, however, be made smaller.

The estimates provided are considered preliminary; mTs has had discussions with contractors, manufacturers and testing agencies - built-in contingencies have been made and are based on "nothing out of the ordinary" happening. Areas that may be of concern are structural engineering where design changes could alter materials and labour cost, and soils testing that may reveal poor soil conditions which would ultimately affect cost as well. Further to our estimates, mTs recommends the village consider an additional 15% contingency over mTs estimates if funding is being applied for.

IB 01 Shelter Concept Cover Letter

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**mTs**  
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### *Preamble:*

The Summer Village council requested mTs to provide three conceptual drawings, with estimated budgets, for gazebo/shelter type structures to be utilized in the R3 municipal reserve. The Village's primary objective is to have a structure that can be utilized for the annual village BBQ. Further, the design is to be aesthetically pleasing – consistent and in-line with residential properties in the surrounding area.

The Village requested mTs to inspect two park shelters located west of the village to gain a better understanding of the Village's requirements. Following, mTs provides three concept designs that have taken into consideration aspects of functionality and safety, as well as short and long-term maintenance costs.

### **Design Attributes and Benefits**

The following factors were considered during the development of gazebo/sunshade designs:

1. Park aesthetics are considered very important due to the close proximity of residences and the abundant vegetation in the area. mTs has utilized a hip-roof design that, we feel, has a modern appearance and is aesthetically pleasing with the location.
2. An "open" concept has been utilized in all three examples to provide unobstructed ground level access for all users – stroller and wheelchair friendly. mTs considers these attributes ideally suited for users of the tennis court and playground.

Solar tubes have been incorporated into each design to provide natural lighting underneath the roof surface – reducing "dark spots", and extending usage times into the evening.

Access to the space is 360<sup>0</sup> - traffic flow is not condensed into specific entry points, reducing unsightly dirty and muddy wear spots in the grass.

Picnic tables can be moved in and out with little difficulty – lawn chairs and other items can be arranged as the user desires. Families and small groups have the option of sitting in or out of the sun, without physical barrier.

The designs have flexibility - walls or shade curtains can be added in addition to electricity, water and gas if, at some point in time, radiant heat is desired. These additions will, of course, increase building maintenance costs.

3. From a safety and liability perspective, the structures' open rafter and open wall design makes the structures very difficult to climb or hang on - reducing

liability. Further, the “open” nature of the facility makes all activities visible, vandalism is deterred (no recesses to “hide in”) – all these factors contribute to user safety and enjoyment.

4. From a cost perspective, the concepts presented are more expensive to construct than the shelters at Moonlight Bay. This is attributed to the utilization of more durable materials, and the requirement for an engineered design to ensure the building can adequately support itself and withstand the natural forces of wind and snow.

When considering cost over time, the mTs concepts would provide the best “bang for the buck”.

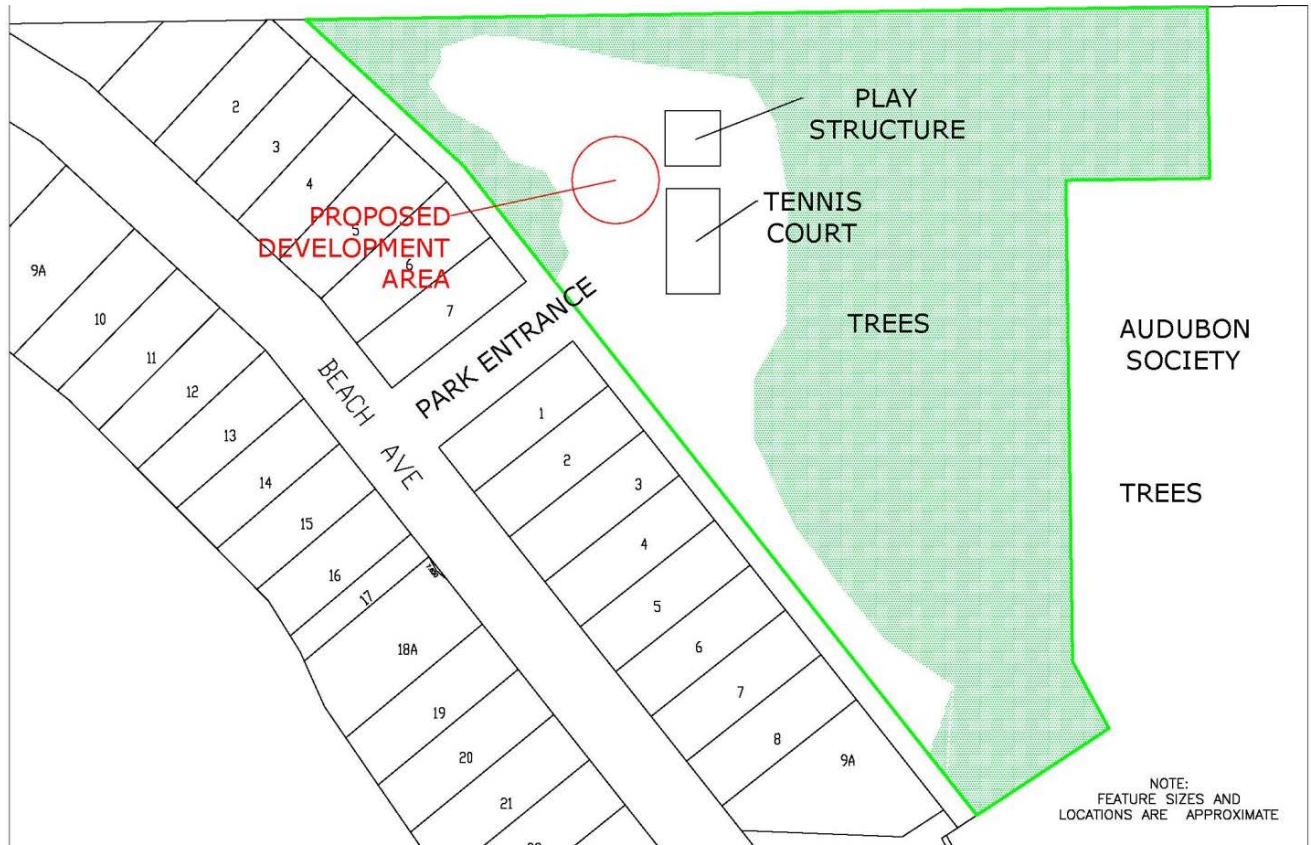
5. The Moonlight structures will require, at minimum, bi-annual staining/sealing, with some significant structural repairs anticipated before the end of their lifespan - approximately 20 years. The mTs concept, on the other hand, will require only the painting of steel surfaces at 4-5 year intervals over its anticipated life of 50 years.
6. Regular maintenance is minimal; the absence of walls will reduce dust, garbage and leaves, and eliminates dark and damp spots that traditionally provide a haven for bugs, rodents, wood rot, mildew and mold.

The extended edges of the concrete or paving stone floor will eliminate grass trimming.

#### **Design Features** (from the bottom up):

1. Screw piles for the roof supports – 2 7/8” pipe with a 12” helix tied into the concrete pad to minimize lift.
2. 6” Reinforced concrete pad setback 12” from eaves line.
3. 6” x 7 ½’ Steel pipe supports (painted).
4. 6” x 6” Pressure treated beam fastened to welded brackets on the support posts.
5. 2” x 8” Rafters and beams secured with joist hangers and brackets.
6. ½” Plywood roof decking covered with tar paper.
7. Commercial grade steel roofing.

8. Solar tube to provide light to the interior of the structure, eliminating dark spots and improving low light conditions.
9. Wheelchair and stroller accessible.



**Figure 1 – Site & Features**

The proposed development area is free of obstruction and is located to provide access for emergency response vehicles such as ambulance and fire trucks; at the same time, providing a central location and focal point for all of the current parks activities.

mTs has procured base map information of the area. However, exact locations and dimensions of existing features such as the BBQ and garage have not been determined. The locations and sizes of the playground and tennis court were made from aerial photographs, and are considered approximate in nature. Further survey and measurements are required. Once this information has been obtained, mTs will be able to provide recommendations for placement of the BBQ, if required, and other enhancements such as picnic bench placement and storage, landscaping, garbage receptacles etc.



**Concept 1 – 562 ft<sup>2</sup> Square Sunshade (23.7 x 23.7 footprint)**

Floor Area - ft <sup>2</sup> / \$ per ft <sup>2</sup>	516	\$ 77				
<b>MATERIALS &amp; LABOUR</b>	<b>Unit</b>	<b>No. Units</b>	<b>Unit Cost</b>	<b>Total</b>	<b>Labour @ 2.5</b>	<b>Grand Totals</b>
Site Preparation	l.s.	1	500.00	\$ 500	\$ 1,250	\$ 1,750
Screw post anchors 20'	l.s.	8	313.00	\$ 2,504		\$ 2,504
6" x7 1/2' Support posts	ea	8	100.00	\$ 800	\$ 2,000	\$ 2,800
Steel-brackets plates and hangers	l.s.	1	800.00	\$ 800	\$ 2,000	\$ 2,800
6" Concrete Slab	yd <sup>2</sup>	10.0	125.00	\$ 1,250	\$ 3,125	\$ 4,375
6" x 6" - Top Beam	ft	80	4.00	\$ 320	\$ 800	\$ 1,120
2" x 8" - Rafters	ft	670	1.30	\$ 871	\$ 2,178	\$ 3,049
Solar Tube	ea	1	950.00	\$ 950	\$ 2,375	\$ 3,325
1/2" sheeting	ea	22	22.00	\$ 484	\$ 1,210	\$ 1,694
Tar Paper	roll	4	35.00	\$ 140	\$ 350	\$ 490
Steel Roofing	ft <sup>2</sup>	562	2.10	\$ 1,180	\$ 2,951	\$ 4,131
Paint	l.s.	1	75.00	\$ 75	\$ 188	\$ 263
<b>CONSTRUCTION TOTALS</b>				<b>\$ 9,874</b>	<b>\$ 18,426</b>	<b>\$ 28,300</b>
<b>ENGINEERING</b>						
Geotechnical (CPT)						\$ 1,500
Structural Engineering						\$ 5,000
Design, Tender & Inspections						\$ 5,000
<b>ENGINEERING TOTALS</b>						<b>\$ 11,500</b>
<b>TOTAL BUDGET ESTIMATE</b>						<b>\$ 39,800</b>
GST						\$ 1,990



**Concept 2 – 686 ft<sup>2</sup> Rectangle Sunshade (28 x 24.5 footprint)**

Floor Area - ft <sup>2</sup> / \$ per ft <sup>2</sup>	<b>631</b>	<b>\$ 72</b>				
<b>MATERIALS &amp; LABOUR</b>	<b>Unit</b>	<b>No. Units</b>	<b>Unit Cost</b>	<b>Total</b>	<b>Labour @ 2.5</b>	<b>Grand Totals</b>
Site Preparation	l.s.	1	500.00	\$ 500	\$ 1,250	\$ 1,750
Screw post anchors 20'	l.s.	10	313.00	\$ 3,130		\$ 3,130
6" x7 1/2' Support posts	ea	10	100.00	\$ 1,000	\$ 2,500	\$ 3,500
Steel - Brackets, Plates & Hangers	l.s.	1	1,000.00	\$ 1,000	\$ 2,500	\$ 3,500
6" Concrete Slab	yd <sup>2</sup>	12.0	125.00	\$ 1,500	\$ 3,750	\$ 5,250
6" x 6" - Top Beam	ft	98	4.00	\$ 392	\$ 980	\$ 1,372
2" x 8" - Rafters	ft	800	1.30	\$ 1,040	\$ 2,600	\$ 3,640
Solar Tube	ea	1	950.00	\$ 950	\$ 2,375	\$ 3,325
1/2" sheeting	ea	26	22.00	\$ 572	\$ 1,430	\$ 2,002
Tar Paper	rolls	5	35.00	\$ 175	\$ 438	\$ 613
Steel Roofing	ft <sup>2</sup>	683	2.25	\$ 1,537	\$ 3,842	\$ 5,379
Paint	l.s.	1	75.00	\$ 75	\$ 188	\$ 263
<b>CONSTRUCTION TOTALS</b>				<b>\$ 11,871</b>	<b>\$ 21,852</b>	<b>\$ 33,723</b>
<b>ENGINEERING</b>						
Geotechnical (CPT)						\$ 1,500
Structural Engineering						\$ 5,000
Design, Tender & Inspections						\$ 5,000
<b>ENGINEERING TOTALS</b>						<b>\$ 11,500</b>
<b>TOTAL BUDGET ESTIMATE</b>						<b>\$ 45,223</b>
GST						\$ 2,261



**Concept 3 – 795 ft<sup>2</sup> Octagon Sunshade (R=16.8' footprint)**

Floor Area - ft <sup>2</sup> / \$ per ft <sup>2</sup>	<b>745</b>	<b>\$ 68</b>				
<b>MATERIALS &amp; LABOUR</b>	<b>Unit</b>	<b>No. Units</b>	<b>Unit Cost</b>	<b>Total</b>	<b>Labour @ 2.5</b>	<b>Grand Totals</b>
Site Preparation	l.s.	1	500.00	\$ 500	\$ 1,250	\$ 1,750
Screw post anchors 20'	l.s.	10	313.00	\$ 3,130		\$ 3,130
6" x7 1/2' Support posts	ea	8	100.00	\$ 800	\$ 2,000	\$ 2,800
Steel - Brackets, Plates & Hangers	l.s.	1	1,500.00	\$ 1,500	\$ 3,750	\$ 5,250
6" Concrete Slab	yd <sup>2</sup>	14.8	125.00	\$ 1,850	\$ 4,625	\$ 6,475
6" x 6" - Top Beam	ft	90	4.00	\$ 360	\$ 900	\$ 1,260
2" x 8" - Rafters	ft	1164	1.30	\$ 1,513	\$ 3,783	\$ 5,296
Solar Tube	ea	1	950.00	\$ 950	\$ 2,375	\$ 3,325
1/2" sheeting	ea	28	22.00	\$ 616	\$ 1,540	\$ 2,156
Tar Paper	rolls	5	35.00	\$ 175	\$ 438	\$ 613
Steel Roofing	ft <sup>2</sup>	795	2.50	\$ 1,988	\$ 4,969	\$ 6,956
Paint	l.s.	1	100.00	\$ 100	\$ 250	\$ 350
<b>CONSTRUCTION TOTALS</b>				<b>\$ 13,482</b>	<b>\$ 25,879</b>	<b>\$ 39,361</b>
<b>ENGINEERING</b>						
Geotechnical (CPT)						\$ 1,500
Structural Engineering						\$ 5,000
Design, Tender & Inspections						\$ 5,000
<b>ENGINEERING TOTALS</b>						<b>\$ 11,500</b>
<b>TOTAL BUDGET ESTIMATE</b>						<b>\$ 50,861</b>
GST						\$ 2,543

Once council has determined the desired structure and identified changes, design/construction drawings will provide a basis for more detailed estimates.

We trust our designs and recommendations meet with your approval. We look forward to proceeding further with this worthwhile project. Should you have any questions, or request our presence at a meeting to discuss the project further, please do not hesitate to contact me.

Yours truly,

A handwritten signature in blue ink, appearing to read 'JT'.

John Tyler, Managing Consultant  
Management & Technical Services

Enclosure: IB 01 – Concepts Report



