SEVERITY	CONSEQUENCE
1. Catastrophic	Death, Complete facility loss
2. Critical	Severe injury or illness, Major property damage > $15,000
3. Moderate	Injury/illness results in medical treatment, moderate property damage < $15,000
4. Marginal	Minor Injury requiring First Aid, Minor property damage <$1,000
5. Negligible	No First Aid, No property damage.

LIKELIHOOD	DESCRIPTION
A. Likely to occur	Expected to occur anytime or has occurred
B. Probable to occur in time	Anticipated to occur
C. Possible to occur in time	May happen in the lifetime of the facility
D. Unlikely to occur	Not expected to occur but has happened at similar facilities
E. Not thought Possible	Not anticipated to occur

SEVERITY	A	B	C	D	E
1	R1	R1	R1	R2	R3
2	R1	R1	R2	R3	R4
3	R1	R2	R3	R4	R4
4	R3	R3	R4	R4	R4
5	R4	R4	R4	R4	R4

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Category:	**Facilities**
Parameter:	**Driveway and Parking Area**
Intention:	**Provide uncontrolled parking for up to 15 vehicles and access to the Observatory**
Deviation	**Causes**
Personal Injury	1. Person is struck by Vehicle 2. Slip and fall on ice
Category:	**Facilities**
Parameter:	**Observation Viewing Area**
Intention:	**A 40' X 40' flat outside area with posts for telescope mounting**

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Deviation	Causes
Personal Injury	3. Exposure to concentrated, intense sunlight; solar filter falls off the end of the telescope. 4. Exit could swing open and hit someone. 5. Child falls when viewing through telescope (when standing on unstable platform). 6. Tripping hazard when several extension cords are being used.
Category:	**Facilities**
Parameter:	**Dome room and stairs to access large, motorized telescope. Telescope is automated.**
Intention:	**Provide access to the dome room. Use large telescope for viewing.**

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Deviation	Causes
Personal Injury	7. Illumination is minimal, crowding around the top of the stairs, and person falls down the stairs.
Category:	**Facilities**
Parameter:	**Dome room and stairs to access large, motorized telescope. Telescope is automated.**
Intention:	**Provide access to the dome room. Use large telescope for viewing.**

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Deviation	Causes
Personal Injury	8.0 Illumination is minimal. Automated telescope moves with counter-weight (head high). Ladder required to access the telescope eye piece. Telescope steel frame has sharp edges and pointed projections. Overhang hazard around the periphery of the room. The dome rotation wheels are exposed.
Category:	**Facilities**
Parameter:	**Warm Room, Basement and Crawl Space**
Intention:	**Warm room houses computers and reference library. Basement holds electrical rack and general storage. Crawl space holds non-potable water tanks, water pump, gas furnace and electric hot water tank**

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Deviation	**Causes**
Injury	9.1 These areas were discussed and determined not to pose any credible hazard scenario.
Category:	**Facilities**
Parameter:	**Class Room**
Intention:	**Provide classroom facility for members and public.**
Deviation	**Causes**
Personal Injury	10.1 Injury during evacuation/exiting from classroom out of north emergency exit - approximately a 2 ft drop to grade level. 10.2. Trip over sill while exiting out of the main door
Category:	**Facilities**
Parameter:	**Class Room**
Intention:	**Provide classroom facility for members and public.**
Deviation	**Causes**
Personal Injury	10.3 Trapped inside building during fire.

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	10.4 Impaired egress due to table, chairs, telescopes unorganized. 10.5 Injury due to mis-use of equipment in class room
Category:	**Facilities**
Parameter:	**Miscellaneous**
Intention:	**Identify other potential safety hazards**
Personal Injury	**Causes**

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Consequence	Severe	Safeguards
1.1 Cuts and bruises - first aid required	4	1.1.1 Vehicle speed is minimal in parking lot
2.1 Broken bones requiring treatment at hospital	3	2.1.1 Same as 1.1.1
2.2 Permanent disability or fatality	1	2.2.1 Building and sidewalk handrails installed. 2..2.2 Sand is stored on site and spread before public tours. 2.2.2.3 Building has rain gutters to direct rainwater runoff away from sidewalks.

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Consequence	Severe	Safeguards
3.1 Permanent vision loss.	2	3.1.1 Filter is a snug fit to the end of the telescope; strict supervision to prevent tampering with the telescope
4.1 Bruising and broken bones.	3	4.1.1 Door stop is used to keep the door open.
5.1 Bruising, cuts, possible broken bones.	3	5.1.1 Telescope supervision.
6.1 Sprained ankle, bruises, cuts, damaged equipment	4	6.1.1 Setting up telescopes as close to the piers as possible.

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Consequence	Severe	Safeguards
7.1 Bruising, cuts, possible broken bones. Back strains also possible if lifting handicap people up the stairs.	3	7.1.1. Walls are painted white in the stairwell, red rope light underneath the handrail.
7.2 Head injury	2	7.1.2. Same as 7.1.1

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Consequence	Severe	Safeguards
8.1. Cuts, bruises.	4	8.1.1. Vigilance of the host operator. Red lights around the periphery of the dome.
8.2 Head injury	2	8.2.1. Same as 8.1.1

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Consequence	Severe	Safeguards
		9.1.1. These are restricted areas, accessible only by volunteer club members.

Consequence	Severe	Safeguards
10.1 Broken bones, bruises, cuts, possible head-injury.	2	10.1.1. No safeguards at this time.
10.2.1. Broken bones, bruises, cuts.	4	10.2.1.1. No safeguards at this time

Consequence	Severe	Safeguards
10.3.1. Smoke-inhalation, burns, loss of life.	1	10.3.1.1. Lighted Exit signs over doors, panic hardware on exit

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10.4.1. Same as 10.3.1	**1**	10.4.1.1. Lighted Exit signs over doors, panic hardware on exit doors, fire extinguishers, supervision by host.
10.5.1 Minor injuries: Cut, scratch, bruise	**4**	10.5.1.1. Equipment is only operated by members. There is more likely to be damage to equipment.
Consequence	**Severe**	**Safeguards**

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Likely	Risk	Recommendations
C	R4	1.1.1.1 Check on adequacy of First Aid Kit and establish a restocking schedule. 1.1.1.2 Post speed limit and caution signage
D	R4	2.1.1.1 Ensure sand is spread over exposed ice patches
E	R3	2.2.1.1 Post emergency phone numbers by phone. 2.2.1.2 Establish Emergency Response procedures. 2.2.1.3 Snow removal needs consideration.

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Likely	Risk	Recommendations
C	R2	3.1.1.1 Devise a way to secure the filter to the end of the telescope. 3.1.1.2 Consider purchasing a dedicated solar telescope.
C	R3	4.1.1.1 Investigate installing door closers and hold open device.
C	R3	5.1.1.1 Purchase 2 - 3 step, step stool with hand holds.
A	R3	6.1.1.1. Set equipment, tables up close to piers. Investigate luminescent tape.

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Likely	Risk	Recommendations
B	R2	7.1.1.1. Install gate with latch - needs design. 7.1.1.2. Consider policy for restricting handicap access. 7.1.1.3. Consider limit to number of occupants in the dome room. 7.1.1.4. Consider a ratio of adult to child (tours) for adequate supervision.
C	R2	7.1.1.5. Same as 7.1.1.3

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Likely	Risk	Recommendations
A	R3	8.1.1.1. Install an aluminum truss to reduce counter-weight. 8.1.1.2. Consider installing padding on the counter-weight, roof over-hangs, and edge protection for telescope edges. 8.1.1.3. Consider luminescent strips or paint for counter-weight. 8.1.1.4 Install grab-handles to ladder for telescope. 8.1.1.5 Make an additional port available on #4-shooter for visual viewing, reducing the need for the ladder. 8.1.1.6. Same as 7.1.1.3. 8.1.1.7. Consider installing continuous guard around the dome rotation track. 8.1.1.8. Consider improving flooring to ensure secure, level surface. 8.1.1.9. Review existing telescope structure, and future design revisions for projection hazards.
C	R2	8.2.1.1. Same as 8.1.1.1, 8.1.1.2, 8.1.1.3.

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Likely	Risk	Recommendations

Likely	Risk	Recommendations
C	R2	10.1.1.1. Follow through on 23042009J-MS. This is a spending proposal to install stairs - consider design review with respect to ramp for wheel chair.
C	R4	10.2.1.1. Follow through with plan to replace existing wooden threshold with aluminum low-profile threshold and grind down cement sidewalk.

Likely	Risk	Recommendations
E	R3	10.3.1.1.1 Presentation checklist for evacuation and muster area for tours. 10.3.1.1.4 Recommend review of smoke and CO detectors.

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		10.3.1.1.5 Recommend to review handicap exit from the building what's required with current code? 10.3.1.1.6 Review Emergency lighting: placement and maintenance. 10.3.1.1.7 Add emergency call numbers by telephones. 10.3.1.1.8 If possible, host will make final sweep of the public areas to ensure visitors are out.
E	**R3**	10.4.1.1 Tour presenters checklist: those that are nearest to the main door exit use it , those on the north side use the north exit. 10.4.1.1.2 -Review and identify "No Storage" areas to ensure egress is not restricted.
D	**R4**	10.5.1.1.1 - Consider a roped off area for telescope storage and/or additional cabinets.

Likely	**Risk**	**Recommendations**

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Responsibility	Intended Completion	Date Completed

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	asap	Done May14 2009

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	asap	Done May14 2009
	asap	Done May14 2009
Responsibility	**Intended Completion**	**Date Completed**

The purpose of this Risk Assessment is to consider the activities and physical assets of the Prince George Observatory to identify hazards and risks to club members, the public, and the facility.

Risk Assessment Participants

18-Apr-09	Al Hendricks	Leader	Club member with experience in leading process hazard analysis and risk assessment.
	Doug Wayland	Participant	Member at Large, with expertise in the outside viewing area
	Wayne Sanders	Participant	Member at Large, expertise with tours and public outreach
	Maurice Sluka	Participant	Vice-President, expertise with tours and building and site design
May 2/09	Al Hendricks	Leader	Club member with experience in leading process hazard analysis and risk assessment.
	Doug Wayland	Participant	Member at Large, with expertise in the outside viewing area
	Wayne Sanders	Participant	Member at Large, expertise with tours and public outreach
	Maurice Sluka	Participant	Vice-President, expertise with tours and building and site design