

## Zipline - SOP

### Last Review:

This SOP was last reviewed on 30 October 2020.

### Activity Summary

The CYC Waihola Zipline is a **high risk adventure activity** that involves participants being harnessed and attached to a pulley to fly across a large gully on-site at CYC Waihola.

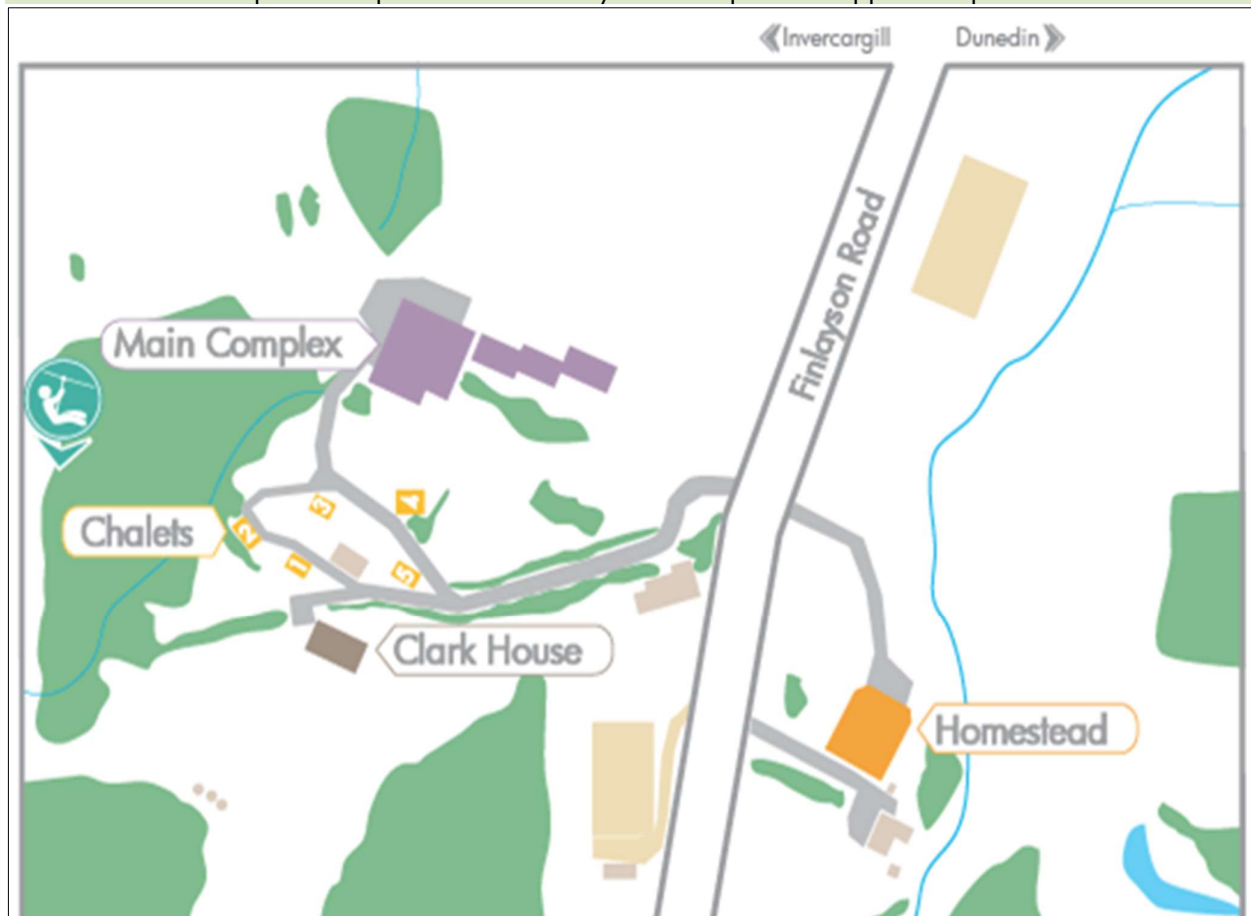
This activity is deemed to be an Adventure Activity under New Zealand law<sup>105</sup>.

### Activity Name Notes

This activity is called a Zipline as per legalisation<sup>106</sup> however CYC Waihola has historically referred to this activity as the Flying Fox.

### Location

The CYC Waihola Zipline is a permanent activity at the top of the upper camp-site.



### Requirements for activity

#### **Activity Leader**

An activity leader is required for this activity:

- ▶ Only one person will be deemed to be the Activity Leader for each session

<sup>105</sup>Refer to Health and Safety at Work (Adventure Activities) Regulations 2016

<sup>106</sup>Refer to Health and Safety at Work (Adventure Activities) Regulations 2016

- ▶ The activity leader must have a current *CYC Waihola Zipline Supervisor* certification<sup>107</sup>.

### Qualifications

All activity leaders must have at least the following certification:

- ▶ *CYC Waihola Zipline Supervisor*

### Supervision Ratios

The Zipline activity **must have** at the bottom end a competent adult<sup>108</sup> that has received clear and concise instructions from the Activity Leader on how to disembark participants.

When children<sup>109</sup> are present:

- ▶ the high risk ratio of 1 competent adult to 5 children applies
- ▶ there is a 3 competent adult minimum (this minimum includes the Activity Leader)
- ▶ the adult at the bottom end of the zipline can count towards the supervision ratios however there must be two adults present at all time at the launch platform to stop distractions for the Activity Leader sending participants across

When children are not present:

- ▶ the requirement remains for one Activity Leader at the launch end and one adult at the bottom end that has received instructions from the Activity Leader on how to disembark participants

### Activity Restrictions<sup>110</sup>

The following participants cannot participate in the zipline activity:

- ▶ Pregnant Women
- ▶ Persons with heart conditions
- ▶ Children under the age of 5
- ▶ Persons over the weight of 100kg or with a height greater than 185cm.
- ▶ Persons that are unable to follow simple instructions in the event of a mid-line rescue
- ▶ Participants that have had a head injury (including concussion) in the previous 3 weeks are not permitted to participate in this activity due to the danger of Secondary Impact Syndrome<sup>111</sup>.

### Activity Sign-off

As part of completing the daily log-book for this activity the Activity Sign-off Sheet must be completed every time this activity runs.

### Activity Equipment

There is a Zipline Launch platform permanently installed. This structure is to have a sign installed on it with the Zipline rules as follows:

- 1 Zipline participant restrictions:
  - must be over 5 years old
  - must be under 100kgs and under 185cm high
  - must not have heart conditions, be pregnant or had a head injury (including concussion) within the last 3 weeks
- 2 Stay out of loading area until given permission
- 3 Participants must wear harness and helmet
- 4 Participants must remain upright and hold lanyard with both hands while flying.

This launch platform is to have on it:

- ▶ a defined demarcation line defining the working area from the waiting area

<sup>107</sup>A person with a current *CYC Waihola Flying Fox Assistant* certification can take on the role of Activity Leader if they are under the direct supervision of a person with at least a current *CYC Waihola Zipline Supervisor* certification.

<sup>108</sup>Refer to Appendix 1.1 Glossary of Terms

<sup>109</sup>Refer to Appendix 1.1 Glossary of Terms

<sup>110</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 45)

<sup>111</sup>Refer to Appendix 1.1 Glossary of Terms



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- ▶ a lockable gate to prevent falls before participant launches
- ▶ a safely secured tether point for the Activity Leader to secure their harness against falls from the platform

There is a lockable equipment box is located on the Zipline Platform:

- ▶ It is to be secured to the platform so that it cannot be removed.
- ▶ It is to be locked at all times when not in use.
- ▶ The equipment in the equipment box is to be stored in the activity storeroom during long periods of non-use such as the winter months to prevent the deterioration of the equipment in the cold damp environment.

This equipment box will contain:

- ▶ Activity Logbook containing:
  - ▷ these current instructions
  - ▷ the current Activity RAMS
  - ▷ a daily Activity Sign-off Sheet including daily pre-check sheet
- ▶ several harnesses of different sizes each with the following:
  - ▷ attached double<sup>112</sup> red/blue cows-tail lanyard with two safety karabiners on the top and two Maillon Rapide "D" connectors attaching lanyard to the harnesses
  - ▷ an "Edge" kits bag with 16+ metres of cord for mid-line rescue and webbing loop for taking weight to prevent suspension trauma
- ▶ a staff harness with
  - ▷ a rear attached safety lanyard for attachment to safety tether point rail
  - ▷ a front attached double<sup>113</sup> red/blue short cows-tail lanyard with two safety karabiners on the top and two Maillon Rapide "D" connectors attaching lanyard to the harnesses for use in mid-line rescues
- ▶ several velocity brand pulleys
- ▶ several climbing helmets of various sizes
- ▶ a karabiner attached to a length of rescue rope
- ▶ pens and pencils for recording in logbook
- ▶ basic first aid kit<sup>114</sup>
- ▶ A whistle and a radio.
- ▶ Pre-activity check-list.

The landing platform is to have a separate equipment box that contains:

- ▶ a bottom end adult harness with
  - ▷ a rear attached safety lanyard for attachment to safety tether point
- ▶ A climbing helmet for bottom end adult to wear
- ▶ A mid-line rescue kit (red bag) containing:
  - ▷ a HaulerBiner Compact Rescue Kit
  - ▷ 40m of static climbing rope with attached karabiners
- ▶ A red "vege crate" for standing on to disembark shorter participants
- ▶ A whistle and a radio.

The landing platform is to have:

- ▶ a safely secured tether point for the bottom end adult to secure their harness against falls from the platform

**No 3<sup>rd</sup> party equipment is permitted for this activity.**

### **Ancillary Services**

No ancillary services are required for this activity.

### **Key reasons to postpone activity**

This activity should not be run or Activity Leaders should stop the activity for the following reasons:

<sup>112</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 20)

<sup>113</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 20)

<sup>114</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 27)



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- ▶ Any major safety concern that could cause harm to participants, spectators, and/or staff
- ▶ Inadequate competent supervision
- ▶ Unsuitable weather either predicted by the current weather forecast or changing during the activity
- ▶ Wind that is higher than 5 on the Beaufort Scale<sup>115</sup>

## **Operating Procedures**

### **Structural Connector Component Checks**

All structural connector components that form part of the main wire rope are to be paint marked to ensure no movement has occurred.

- ▶ Visual inspection of these paint marks will form part of the daily pre-checks
- ▶ Closer inspection of these paint marks along with torque checks will form part of the operational checks.

### **Maintenance Logs**

This activity requires maintenance logs to be kept of all repairs using [Zipline – Maintenance Log Record](#)

Major repairs must have engineers inspection performed again<sup>116</sup>

### **2 Yearly Review**

The Operations Manager (in conjunction with the other Technical Advisers) must review and this SOP every 2 years under the requirements of the [Safety Audit Standard for Adventure Activities \[version 1.1:2017\]](#).

This review will be done using the [Flowchart of Risk Management Processes](#), [Zipline – Risk Analysis](#) and [Zipline – 3 Monthly Operational Checks](#) as a basis to identify any new significant hazards, review any additional risk management and sign off on the safety of the activity.

- ▶ Any safety concerns from the 2 yearly review will result in the activity being out of action until the safety concern is remedied.

### **Adventure Activity Reviews**

This activity is required to be audited by an external auditor every 3 years (e.g. an OutdoorsMark approved auditor) under the [Health and Safety at Work \(Adventure Activities\) Regulations 2016](#)

- ▶ At least once between audits this activity must be reviewed by a competent external reviewer<sup>117</sup>
- ▶ In other years a comprehensive internal <sup>118</sup> is to occur.

### **Regular Operational Checks<sup>119</sup>**

A paid staff member that holds a *CYC Waihola Zipline Instructor* certificate must inspect the activity at the start of the accommodation season (i.e. generally October) and then at least at 3 month intervals after this using the [Zipline – 3 Monthly Operational Checks](#) form to sign off on the comprehensive safety of the activity

- ▶ During the winter season checks can be delayed if the Zipline is not to be used in the forthcoming month but Operational Check must have occurred within 1 month of use again.
- ▶ Records of the monthly Operational checks will be stored in the appropriate section of the Activity Inspections Folder in the CYC Office.
- ▶ Any safety concerns from the Operational Check will result in the activity being out of action until the safety concern is remedied.

<sup>115</sup>Refer to Appendix 1.2 Beaufort Scale

<sup>116</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 23)

<sup>117</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 86)

<sup>118</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 81)

<sup>119</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 24)



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## Day of Activity Pre-check<sup>120</sup>

The following are to be completed before this activity is permitted to commence each day:

- ▶ Visual inspection of the structure, staff PPE and participant equipment.
  - ▷ Any failed checks must be remedied before the activity can begin.
  - ▷ Failed equipment checks (i.e. a participant harness or karabiner) means the failed item must be removed from use until repaired.
  - ▷ Failed structural checks means the Zipline is closed until repaired. A full operational check must occur before activity is able to be used again in this instance.
- ▶ Assessment of the hazards involved in running the activity and if they can be safely managed to an acceptable level.
  - ▷ The Activity Leader must check wind conditions - if wind is creating a falling branch hazard in Douglas Fir Plantation then Zipline activity cannot be run.
- ▶ Records of these daily pre-check must be completed by the Activity Leader using the [Zipline – Activity Sign-off Sheet](#) located in the Zipline logbook.

The daily pre-check can be done immediately before the first use of the day provided it is completed in full and not rushed by any waiting participants.

## Activity Set-up

Prior to departure to activity location the Activity Leader should ensure that everyone has been told:

- ▶ to wear or take warm clothing<sup>121</sup>
- ▶ put on suitable footwear

The Activity Leader must take a competent adult to the bottom end of zipline (the “bottom end adult”) and show/give them the following instructions :

- ▶ The Bottom End Adult must wear
  - ▷ an helmet at all times
  - ▷ an staff harness tethered to the safety tether point
- ▶ Stopping procedures:
  - ▷ Three stopping tyres are to be used for all participants unless directed by the Activity Leader at the launch end via visual hand signals that have been explained.
  - ▷ All braking tyres is to be completely past the middle upright of the landing platform safety barrier (i.e. towards the launch end).
  - ▷ Bottom End Adult will be instructed to not try to catch participants until they have slowed using the stopping tyres – only when they have slowed then stop them from rebounding
  - ▷ Retrieve participants using their retrieval rope to pull participants the rest of the way if they don't reach the end
  - ▷ Unhook pulley from wire rope leaving karabiners on lanyards
  - ▷ Instruct participant to return to launch platform leaving harness on and carrying lanyards and pulley in hands so that it doesn't get dirty
  - ▷ Reset the tyres
  - ▷ Indicate your readiness to receive the next flyer by communicating using hand signals
  - ▷ If there are any issues then use the crossed arms signal to indicate to the Activity Leader that there is a problem.

Whilst the Activity Leader is at the bottom end it is appropriate to do the bottom end pre-checks at that point.

The Activity Leader must then proceed to the launch platform and set up the activity by doing the following:

- ▶ Complete the launch area pre-checks.
- ▶ Put on the Activity Leader harness<sup>122</sup> and attach the safety line to the fall arrest rail and unlock the departure gate.

<sup>120</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 24)

<sup>121</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 31)

<sup>122</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 27)



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### **With Each New Group of Participants:**

Once all the participants are ready to begin the activity, then an introductory talk will be given to all participants by the Activity Leader.

The introductory talk will cover the following:

- ▶ Safety rules:
  - ▷ Participants must weigh less than 100kg and under 185cm (if appropriate then point out pregnant and/or persons with heart conditions / concussion are not permitted to ride the zipline).
  - ▷ The risk will be disclosed to participants that the equipment is suited for those who are under those weight and height. Therefore those over the weight and height restrictions will be refused and will not be able to undergo the activity.
  - ▷ Only one participant in the working area past the demarcation line on the launch platform at a time and only when given permission by the Activity Leader
  - ▷ Participant is to hold on to the lanyard the entire way across and not perform stunts such as hanging upside down (i.e. no "superman's")
  - ▷ Participants must wear enclosed footwear on zipline
- ▶ What to do for rest of group whilst waiting
  - ▷ Eye Spy is good game
  - ▷ Search out goats on hill side
- ▶ A demonstration of how a harness is put on and taken off correctly
- ▶ Explain what the bottom end procedures are for each participant
- ▶ Point out what happens if they don't make it to the end of the line and when to use the retrieval rope bag.

Activity Leader will continually identify and manage risk levels during activity and with each new group of participants.

### **For each participant:**

If Activity Leader is unsure of the participants weight and suspects that they might be close to the weight limit then they must ask the person their actual weight to clarify they are under the weight limit mentioned during the safety briefing. A height stick will be at the zipline to determine that participants sit under the maximum height allowed.

Ensure harness and helmet is correctly fitted to each participant:

- ▶ All harnesses are to be pulled tight enough for the 'fist-check' where an open hand is placed through a strap and once formed into a fist cannot be retracted.
- ▶ Harnesses may be put on by other participants or other adults but must be checked by Activity Leader on launch platform before sending across.
- ▶ Helmet straps must be tight and chin strap done up to prevent helmet falling off

Each participant must be attached to flying fox line using the following procedure **in order**:

- 1** Pulley is fitted over top of wire rope and both main karabiner on red lanyard and secondary karabiner on blue lanyard are connected to pulley. Check that the "karabiner gates" are locked shut
- 2** Check retrieval rope bag is secured on harness to left side of persons hip.
- 3** Activity Leader does final "sanity" check of harness attachment to zipline pulley and correct fit of harness
- 4** Activity Leader will use the hand signals to indicate to the catching adult how many tyres to use based on participants weight and build. Activity Leader must wait until they receive a confirmation from catching adult.
- 5** Gate is opened for participant to fly and gate is latched immediately after they depart

### **After the activity is finished:**

At the end of the activity the Activity Leader must:

- ▶ Place all equipment back into the Zipline equipment box



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- ▷ If the Activity Leader is leaving the Zipline launching area for any length of time (i.e. morning tea at Main Lodge between groups) then the equipment box must be locked<sup>123</sup>
- ▶ The launch platform gate is to be locked.
- ▶ Complete the Activity Logbook

## **Emergency and Incident Preparedness**

### **First Aid Kits**

The Flying Fox equipment box must contain a First Aid Kit at all times.

*Refer to First Aid Kits*

### **Emergency Training<sup>124</sup>**

All CYC Flying Fox Instructors & Supervisors will be trained at least every two years:

- ▶ in the emergency situations below via scenarios.
- ▶ mid-rescue training at least every two years.

Any rescue training will be recorded within the flying fox section of the Activity Inspections ring binder

### **General Incident Procedures**

The process for general incidents is outlined in [Step by Step Management of Incidents](#)

### **Circumstantial Change**

#### Environmental

- ▶ If weather issues dictate running of activity, activity must then be halted.
- ▶ All gates and equipment boxes must be locked.
- ▶ Staff to oversee supervising adults to evacuate participants away from activity area and into a safe zone, until such a time activity can be resumed if applicable.

#### People

- ▶ If a staff member or someone helping run the activity becomes incapacitated the activity will immediately halt, one staff member to oversee supervising adults to remove participants from area.
- ▶ All gates and equipment boxes must be locked.
- ▶ Follow all first aid procedures if applicable.
- ▶ Activity can resume once adequate help and supervision is maintained if applicable.

### **Head / Spinal Injury**

The following procedures will be followed in the event of a participant falling from the flying fox wire:

- ▶ Send an adult to:
  - ▷ firstly call ambulance on camp phone (or cellphone if reception is available)
  - ▷ secondly retrieve the most qualified medical person on site to make assessment and treat further.
- ▶ Immediately check patient for breathing and pulse:
  - ▷ if no pulse is found:
    - start CPR and continue as long as possible until help arrives
  - ▷ if patient is breathing and has pulse then:
    - assume a head or spinal injury has occurred due to mechanism of injury so do not move patient unless in immediate further danger
    - Get other adults present to move other participants away from the scene
    - Treat other injuries (bleeding, etc.) without moving the patient
    - Keep patient warm

<sup>123</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 25)

<sup>124</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 15)



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## Mid-line rescue

The following procedures will be followed **in order** in the event of a participant not reaching the far end of the zipline or bouncing back:

- ▶ Participant will be instructed to throw retrieval bag to bottom end adult for pulling them back to the bottom end

If participant either cannot throw the rescue line (i.e. has a fear-related episode or medical issue) OR if the participant's pulley is jammed:

- ▶ bottom end adult is to indicate a problem to the Activity Leader using the crossed arms signal.
- ▶ Activity Leader is to take pulley, karabiner and retrieval line and connect it to the wire at launch end without load. Using path below the the zipline walk the pulley along until it meets the participant's pulley. Gently pull the participants pulley using the second pulley to the bottom end if possible.
- ▶ Activity Leader must then give instructions to participant to stand in webbing loop periodically to take weight off harness straps.
- ▶ If pulley is jammed, pull harder along the horizontal plane of the wire if possible from the bottom end

If pulley is fully jammed then a full mid-line rescue must occur as follows:

- ▶ No persons are to be located immediately under a mid-line rescue in case of dropped equipment from above.
- ▶ Assemble the all the adults present (wearing helmets) at the bottom end of the zipline below the stuck participant.
- ▶ Activity Leader with Activity Leader harness on is to be connected to a Velocity trolley using a short double cows-tail lanyard attached to their front attachment point. Attached to their rear attachment point will be the following:
  - ▷ 40m static rope with double figure 8 knot
- ▶ Attached to the activity leaders velocity trolley main karabiner
  - ▷ will be the blue lanyard
  - ▷ the 6:1 end of the HaulerBiner
- ▶ Wearing rigging gloves, the other adults must slowly lower the the Activity Leader down the line towards the stuck participant.
- ▶ Upon reaching the participant the Activity Leader must attach to the front attachment point of the participant:
  - ▷ the 7:1 end of the HaulerBiner
- ▶ Using the HaulerBiner the Activity Leader must take the weight of the participant off the stuck pulley.
- ▶ The Activity Leader will then disconnect and reattach the participants **primary red lanyard karabiner** onto the Activity Leaders **primary red lanyard karabiner** pulley karabiner
- ▶ The Activity Leader will then disconnect and reattach the participants **secondary blue lanyard** onto the Activity Leaders **secondary blue lanyard karabiner**
- ▶ The adults on the ground will then pull the Activity Leader and participant back to the bottom end.

If any concerns arise during the rescue of the participant then an adult must immediately call the police and notify that a person is stuck on a zipline 14m high and rescue attempts have failed.

## Fatigue Risk Assessment<sup>125</sup>

### Activity Risk Assessment

This activity is deemed to have a **high risk factor** (very high level of harm with a medium likelihood of occurrence) for impairment of Activity Leaders as a result of fatigue.

<sup>125</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 44)



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## **Risk Management for this Activity**

CYC Waihola has a comprehensive site-wide fatigue policy ([Staff](#)) which is to be followed at all times during the operation of this activity.

- ▶ Activity Leaders are not to be involved in supervising this activity if they are fatigued.

## **Drug and Alcohol Risk Assessment**<sup>126</sup>

### **Activity Risk Assessment**

This activity is deemed to have a **high risk factor** (very high level of harm and **medium** likelihood of occurrence) for serious harm from impairment of supervising adults as a result of alcohol and/or drugs.

### **Organisational Risk**

CYC Waihola has a comprehensive site-wide drug and alcohol policy (Drug and Alcohol Policy) which is to be followed at all times during the operation of this activity.

- ▶ Activity Leaders are not to be involved in supervising this activity if they are under the influence of alcohol and/or drugs.

### **Post Major Incident Testing**

All staff involved in the running of the Zipline activity resulting in a major accident/incident will be required to undertake post incident drug and alcohol test.

## **Specific Legislation relating to this activity**

### **Acts and Regulations**

- ▶ [Health and Safety at Work \(Adventure Activities\) Regulations 2016](#)
- ▶ [Health and Safety at Work Act \(HSWA\) 2015](#)

### **Activity Safety Guidelines**

- ▶ [Activity Safety Guideline \(Highwire and Swings\) \[version 3:2018\]](#) (referenced throughout footnotes)

### **Good Practise Guidelines**

- ▶ [Good Practise Guide for Organised Outdoor Activities \[version 1:2018\]](#)
- ▶ [Good Practise Guide for Overarching Managing Risk Management \[Version 2:2019\]](#)

### **Standards**

- ▶ [Safety Audit Standard for Adventure Activities \[version 1.1:2017\]](#)

### **Technical Advisers for this Activity**

- ▶ CYC Waihola Operations Manager
- ▶ Technical Advisor / Expert:
  - ▷ Karl Boielle of Dynamic Access & Adventure

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<sup>126</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 15)



## Zipline – Risk Analysis<sup>127</sup>

- ▶ The following table represents the hazards and risks associated with this activity as per Hazard and Risk Management Processes
- ▶ **Items highlighted in red indicate significant hazards within this activity**

Risk and Hazard Analysis				Risk Controls	
Hazard	Risk	Risk Rating	Serious risk	Control	Instructions
<b>People:</b> Incorrect use of Flying Fox	<b>Fall from Height</b>	Critical	✓	<b>Administrative</b>	▶ All Activity Leaders must remain currently trained
<b>People:</b> Harness not correctly fitted		Critical	✓		
<b>Equipment:</b> Harness or attachment failing		High	✓	<b>Administrative</b>	▶ Harness checks will be part of daily pre-check
<b>Equipment:</b> Pulley Failure		High	✓	<b>Administrative</b>	▶ Pulley checks will be part of daily pre-check
<b>Equipment:</b> Wire rope breaking		Moderate	✓	<b>Administrative</b>	▶ Wire rope and connector checks will be part of daily pre-check
<b>People:</b> Falling off the platform		Moderate	✓	<b>Isolate</b>	▶ Platform gate will be shut when flyer not departing ▶ Platform gate will be locked when flying fox not in use
				<b>PPE</b>	▶ Staff working in active areas will wear harness and tethered to safety rail.
<b>People:</b> Collision with adult catcher	<b>Head Injury</b>	Moderate	✓	<b>Engineering</b>	▶ Correct number of tyres will slow participants ▶ Adult at bottom end is to stand clear of arriving participants
<b>People:</b> Collision with other participants		Moderate		<b>Eliminate</b>	▶ Only one participant on the Zipline at a time unless a rescue is being performed
<b>Equipment:</b> Collision with tyres		Moderate		<b>PPE</b>	▶ Participants will wear helmets
<b>Equipment:</b> Pulley dropped on head		Moderate		<b>Isolate</b>	▶ Activity Leader, catcher and all participants will wear helmets
<b>Environment:</b> Wind blown branches		Low		<b>Eliminate</b>	▶ Wire will be checked prior to participant departure
<b>Equipment:</b> Participant not reaching end		<b>Suspension Trauma</b>	Moderate		<b>PPE</b>
<b>People:</b> Impairment of Activity Leaders	<b>Fatigue</b>	High	✓	<b>Administrative</b>	▶ Fatigue control applies to this activity as per policy
	<b>Alcohol / Drugs</b>	High		<b>Administrative</b>	▶ Full alcohol / drug prohibition applies to this activity as per policy

Risk and Hazard Analysis Last Updated: 17 November 2021

<sup>127</sup>Refer to Activity Safety Guideline (Highwire and Swings) [version 3:2018] (page 17)



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