

## Work Plan and Job Safety Analysis (JSA)

Project Name		Date Prepared	
Client		Start Date	
Location Description		Finish Date	
Client Facility Manager		Phone/Email	
Client Facility Operator		Phone/Email	

## Personnel

Position	Name (sign only after reading)	Contact Phone/Email	Training Current	Emer. Form on location
Prepared by			<input type="checkbox"/> Y <input type="checkbox"/> N Level:	<input type="checkbox"/> Y <input type="checkbox"/> N
Safety Supervisor			<input type="checkbox"/> Y <input type="checkbox"/> N Level:	<input type="checkbox"/> Y <input type="checkbox"/> N
Worker			<input type="checkbox"/> Y <input type="checkbox"/> N Level:	<input type="checkbox"/> Y <input type="checkbox"/> N
Worker			<input type="checkbox"/> Y <input type="checkbox"/> N Level:	<input type="checkbox"/> Y <input type="checkbox"/> N
Worker			<input type="checkbox"/> Y <input type="checkbox"/> N Level:	<input type="checkbox"/> Y <input type="checkbox"/> N
Worker			<input type="checkbox"/> Y <input type="checkbox"/> N Level:	<input type="checkbox"/> Y <input type="checkbox"/> N
Worker			<input type="checkbox"/> Y <input type="checkbox"/> N Level:	<input type="checkbox"/> Y <input type="checkbox"/> N
Other			<input type="checkbox"/> Y <input type="checkbox"/> N Level:	<input type="checkbox"/> Y <input type="checkbox"/> N
Other			<input type="checkbox"/> Y <input type="checkbox"/> N Level:	<input type="checkbox"/> Y <input type="checkbox"/> N

## Emergency Information

EMS Phone		Police Phone	
Fire/Rescue Phone		Company Contact Name & Phone	
Emergency Access to Site	Where and how will EMS reach the worksite?		
Communication:	<input type="checkbox"/> Cell Phone (Check service on site <input type="checkbox"/> Y <input type="checkbox"/> N ) <input type="checkbox"/> Radio (Channel:_____) <input type="checkbox"/> Phone (Note phone number, location, special dialing, other contacts, etc)		

All Tower One employees and contractors will comply fully with this work plan and job safety analysis, all client safety programs, all site safety programs, and any other safety program deemed appropriate to Tower One Inc.

Full personnel protective equipment (PPE) will be required as deemed necessary by the site safety plan. This is to include helmet, appropriate footwear (steel or carbon toe as required), hearing protection, eye protection, and gloves if required.

By signing this document, the signee has agreed to these terms.

Description of work			
Work Methods	<input type="checkbox"/> Standard practices outlined in Guidelines for Tower Work <input type="checkbox"/> Standard practices outlined in Guidelines for Rope Access Work		
Individual Equipment	<input type="checkbox"/> Helmet <input type="checkbox"/> Harness <input type="checkbox"/> Eye Protection <input type="checkbox"/> Foot Protection <input type="checkbox"/> Gloves <input type="checkbox"/> Anchor Straps	<input type="checkbox"/> Connectors <input type="checkbox"/> Descender <input type="checkbox"/> Lanyards <input type="checkbox"/> Pulleys <input type="checkbox"/> Belay Device <input type="checkbox"/> Backup Device	<input type="checkbox"/> Protective Clothing <input type="checkbox"/> Hearing Protection <input type="checkbox"/> Reflective Clothing <input type="checkbox"/> Respiratory Protection <input type="checkbox"/> Rope Grabs <input type="checkbox"/> Cable Grab <input type="checkbox"/> Headlamp <input type="checkbox"/> Mutli-tool <input type="checkbox"/> Other
Group Equipment	<input type="checkbox"/> Ropes ( <input type="checkbox"/> 11mm / <input type="checkbox"/> 12.5mm ) (Number, lengths)		<input type="checkbox"/> Connectors <input type="checkbox"/> Rigging Straps <input type="checkbox"/> Edge Protection <input type="checkbox"/> Other
Team Communication	<input type="checkbox"/> Visual (Hand Signals) <input type="checkbox"/> Verbal <input type="checkbox"/> Radio (Note channel)		
Machinery Lockout/tagout	Do machinery valves, gates, or motors need to be locked out? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Machinery locked out/tagged out of service <input type="checkbox"/> Hold order visually checked by work supervisor Hold order number _____ Work Supervisor _____		
Equipment/tool Management	<input type="checkbox"/> Squids <input type="checkbox"/> Other (describe and attach other pages if necessary)		
Access zone	Describe access zone and method to mark and secure entry		
Hazard zone	Describe hazard zone and method to mark and secure entry		
Anchors	<input type="checkbox"/> Certified Anchor Straps <input type="checkbox"/> Cable Loops <input type="checkbox"/> Certified Anchor Bolts <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Webbing		

Rescue and Retrieval Methods			
Rescue kit	<input type="checkbox"/> First Aid Kit <input type="checkbox"/> Pulleys <input type="checkbox"/> Rope Grabs	<input type="checkbox"/> Connectors <input type="checkbox"/> Descenders <input type="checkbox"/> Patient Packaging	<input type="checkbox"/> Other

	Condition	Description of Hazards		Control Measures
<input type="checkbox"/>	<b>Falling</b>	<ul style="list-style-type: none"> <li>Gravity induced injury or death</li> </ul>	<input type="checkbox"/>  <input type="checkbox"/>	Always use appropriate fall-protection or rope-access equipment when 6 feet from unprotected edge with a fall potential of 6 feet or more All personnel must be properly trained
<input type="checkbox"/>	<b>Human Error</b>	<ul style="list-style-type: none"> <li>Rigging Errors</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Use 2 rope system when working line is primary means of support Use independent anchorages Always do 4 point check: Ropes (including anchors), Hardware, Harness, Helmet
<input type="checkbox"/>	<b>Communication Difficulty</b>	<ul style="list-style-type: none"> <li>Loud ambient noise (traffic, machinery, running water, wind, etc)</li> <li>Malfunctioning or dropped radios</li> <li>Conditions change</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Agree upon and use standardized communication signals Check communication system Designate alternate communication system in case conditions change or technical difficulties arise Review hand signals
<input type="checkbox"/>	<b>Sharp/abrasive Surfaces</b>	<ul style="list-style-type: none"> <li>Rope or anchor damage and/or failure</li> <li>Abrasions or cuts to hands</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Use proper edge protection and padding Use re-direct or intermediate anchors as needed Wear gloves and proper clothing
<input type="checkbox"/>	<b>Electrical Lines</b>	<ul style="list-style-type: none"> <li>Inadvertent contact with energized lines</li> <li>Burns or electrocution from contact</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Examine lines that might be contacted by wind-blown ropes Get appropriate clearances Follow lockout/tagout procedure
<input type="checkbox"/>	<b>Machinery</b>	<ul style="list-style-type: none"> <li>Inadvertent operation of machinery</li> <li>Injury sustained from machinery</li> <li>Hazardous condition created (release of water)</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Get appropriate clearances Follow lockout/tagout procedures Confirm lockout/tagout
<input type="checkbox"/>	<b>Injury from tools</b>	<ul style="list-style-type: none"> <li>Hazards depend on tools used</li> <li>Damage to rope-access or fall-protection system</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	Follow all manufacturer's instructions and keep all protective guards in place Separate suspension rope may be required for tools greater than 25lbs
<input type="checkbox"/>	<b>Dropped tools or Materials</b>	<ul style="list-style-type: none"> <li>Possible injury to personnel and public</li> <li>Loss of important tools for work or egress</li> <li>Damage to structures or equipment</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Clearly mark and barricade Hazard Zone Helmets or hard hats must be worn in hazard zone Keep a clean and orderly worksite All tools and devices must be tethered or secured Avoid working or standing below other workers

## Job Safety/Hazard Analysis (continued...)

<input type="checkbox"/>	<b>Rock fall or Loose detritus</b>	<ul style="list-style-type: none"> <li>• Possible injury to personnel and public</li> <li>• Damage to structures or equipment</li> <li>• Severed ropes or anchors</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Careful scaling or clearing of slope prior to work Loose materials or rock may need to be secured (either temporarily or permanently) Manage ropes carefully to avoid dislodging loose materials
<input type="checkbox"/>	<b>Rain/wet Conditions</b>	<ul style="list-style-type: none"> <li>• Insulating qualities of wet clothing decreases</li> <li>• Possible hypothermia (dangerously low body temperature)</li> <li>• Wet surfaces can be slippery</li> <li>• Decreased friction on descent and rope grab devices</li> <li>• Danger of stay current near improperly insulated and grounded equipment</li> <li>• Decreased visibility</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stop work if conditions become dangerous Wear proper footwear and clothing waterproof rain gear should be available Be aware of slippery conditions Electrical equipment must be adequately grounded and equipped with GFCI's
<input type="checkbox"/>	<b>Snow/Ice</b>	<ul style="list-style-type: none"> <li>• Insulating qualities of wet clothing decreases</li> <li>• Possible hypothermia (dangerously low body temperature)</li> <li>• Loss of dexterity in extremities</li> <li>• Wet and icy surfaces can be slippery</li> <li>• Decreased friction on descent and rope grab devices</li> <li>• Danger of stay current near improperly insulated and grounded equipment</li> <li>• Decreased visibility</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stop work if conditions become dangerous Wear proper footwear and clothing, including gloves and hat Waterproof raingear should be available Be aware of slippery conditions Use appropriate equipment for conditions Electrical equipment must be adequately grounded and equipped with GFCI's Hand warmers should be available in case of emergency
<input type="checkbox"/>	<b>Water</b>	<ul style="list-style-type: none"> <li>• Wet surfaces can be slippery</li> <li>• Potential for drowning</li> <li>• Trapped in current while tied off (drowning hazard)</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stop work if conditions become dangerous Rescue boat shall be readily available if working directly over water, especially if descent is a viable method of egress Fall protection or rope access equipment must now allow worker to fall into water (especially moving water) Personal flotation devices not required if proper fall protection is in place
<input type="checkbox"/>	<b>Sun/heat</b>	<ul style="list-style-type: none"> <li>• Possible dehydration, heat exhaustion, or heat stroke</li> <li>• Burns from tools, equipment, and structural steel</li> <li>• Adhesives and first-aid supplies may be degraded by heat</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stop work If conditions become dangerous Ample water and/or electrolytes must be on hand for workers Schedule proper breaks and work in morning or evening to avoid peak temperatures Wear gloves and proper clothing to protect hands from hot surfaces Use and frequently re-apply adequate sunscreen
<input type="checkbox"/>	<b>Wind</b>	<ul style="list-style-type: none"> <li>• Possible increased cooling or hypothermia risk, increased dehydration risk in dry humidity</li> <li>• Decrease in efficiency, hindrance to communications between team members</li> <li>• Danger of unsecured equipment or material being blown into the access zone</li> <li>• Difficulty communicating</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Stop work if conditions become dangerous Wear proper footwear and clothing, including gloves and hat Secure loose materials at work site Be wary of wind developing slack in ropes where they may be blown in to areas making retrieval difficult
<input type="checkbox"/>	<b>Lightning</b>	<ul style="list-style-type: none"> <li>• Possible electrocution due to lightning strike, loss of consciousness or life</li> <li>• Rope access equipment may provide a pathway to the operative for electrical strikes</li> </ul>	<input type="checkbox"/>	Stop work when lighting threatens

### Job Safety/Hazard Analysis (continued...)

<input type="checkbox"/>	<b>Dimly lit or Night work</b>	<ul style="list-style-type: none"> <li>Sharp or protruding objects (metal, nails, bolts, etc.) may not be visible to moving operatives, drowsiness of employees</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	Provide adequate lighting: area lighting and/or head and hand lamps Provide spare batteries, light sources, and bulbs
<input type="checkbox"/>	<b>Dust</b>	<ul style="list-style-type: none"> <li>Difficulty in breathing, possible allergic reaction</li> <li>Possible long-term exposure hazard</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	Provide adequate engineering controls Provide PPE where engineering controls not possible or impractical
<input type="checkbox"/>	<b>Chemical Exposure</b>	<ul style="list-style-type: none"> <li>Difficulty in breathing, dizziness, unconsciousness</li> <li>Chemical burns to skin, eyes, internal organs</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Workers must have MSDS on site for all chemicals used in work Proper PPE and engineering controls must be in place Respirators must be the correct type for the exposure
<input type="checkbox"/>	<b>Confined space entry</b>	<ul style="list-style-type: none"> <li>Work areas may contain toxic gases or insufficient oxygen levels for work</li> <li>Space may have restricted entry/exit making access difficult</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	Follow confined space procedures Toxic rescue plan required and in force prior to entry
<input type="checkbox"/>	<b>High noise area</b>	<ul style="list-style-type: none"> <li>Permanent or temporary damage to hearing</li> <li>Difficult communications</li> <li>High-noise levels may mask warning buzzers or other alert sounds</li> </ul>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Hearing protection required, in extremely loud environments (+120 dBA), multiple types of protection may be necessary Agree on hand signals before work starts Workers may be equipped with sound-isolating hearing protection for radios
<input type="checkbox"/>	<b>Insect or animal bites or stings</b>	<ul style="list-style-type: none"> <li>Possible injury or incapacitation of personnel depending on severity of bite or venom</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	Careful access into areas where spiders, snakes, scorpions, or other creatures may reside Use of gloves at all times, equip first aid kit with medical supplies appropriate for bites and stings
<input type="checkbox"/>	<b>Vehicular traffic</b>	<ul style="list-style-type: none"> <li>Possible impact or crushing injury</li> </ul>	<input type="checkbox"/> <input type="checkbox"/>	Careful demarcation of access and hazard zones, use flags, signs, flag persons, lighting as needed Provide high-visibility clothing for personnel
<input type="checkbox"/>	<b>Bird/animal feces</b>	<ul style="list-style-type: none"> <li>Possible inhalation of disease carried by feces</li> </ul>	<input type="checkbox"/>	Workers may need to wear protective gloves or respirators