

Mecklenburg County Council

COPE & Climbing

Rocky Face Tether System SOP

Overview

The Rocky Face Mountain Recreation Area is an approved location for natural rock program by the MCC C&C committee. This location offers several advantages including close proximity to Charlotte, NC and ease of access for climbing groups. The location offers easy access to the top of the crag to set top rope belays as well as rappel routes.

BSA NCAP standards require that everyone must be tethered when within 8 feet of an edge where a fall of more than 6 feet could occur (PS-206-C-8). The trail along the top of the crag at Rocky Face parallels the edge. While this trail offers easy access for setting anchors and walking to the top of the rappel route(s), it necessitates a tether system to keep everyone safe. This document details the equipment needed and the procedure to rig a tether system along the top of sections 1 and 2 at Rocky Face.

Keep in mind that this is not the only way to rig the tether system at Rocky Face. Trees may die, vegetation may grow or change. Bolts may be added to the cliff top that can be incorporated to the system. The system may need to be modified at any time for the given environment and available equipment. Use the skills that you have (tools in the toolbox) to rig a system that does the intended job – tether participants and staff so that they cannot fall. Also remember to “Keep it Simple Scout” – don’t over engineer.

The actual rappel rigging is outside the scope of this document. The rappel station(s) are indicated as appropriate, but the actual rigging will be covered separately.

Equipment

The following lists the equipment needed to rig the tether system as detailed below in this document.

- Ropes [Camp Belk COPE/Climbing storage closet]
 - 64m Red static
- Tubular webbing
 - 4 x 15'
 - 1 x 30'
- 6 screw gate locking carabiners
- 9 canvas pads (edge guards)
 - 4 for small to medium trees
 - 4 for large trees
 - 1 for excess rope to lay on ground
- Lobster claws (per set)
 - 15' tubular webbing
 - 1 locking carabiner
 - 2 non-locking or locking carabiners

Note that we use red webbing in the tether system but not in any anchor rigging. This helps us to keep the two systems separate reducing the chance that we might accidentally remove/unclip a personal tether or anchor component at the wrong time.

Pre-Rigging Steps

Before you arrive at Rocky Face there are several things that you can do to make the start easier. The gates open at 8:00am and the scouts will probably arrive shortly thereafter. Save yourself time and stress by accomplishing a few steps before you rig.

The lengths of webbing can be tied in loops using water knots (with appropriate back up knots) ahead of time. This saves time while rigging this system on site but also reduces the work while on top of the crag. The lobster claws can also be pre-tied before the event. Tie as many lobster claws as webbing and carabiners will allow. If using more than one rope, they can be pre-tied together using two double fisherman's knots.

Put everything that you will need in a single haul bag. When you arrive at Rocky Face you can grab this bag and head up the stairs. No need to fish around and sort the gear on site. This will also save precious time during set up. The haul bag will make it much easier for you to carry the gear needed as you work your way down the crag building the tether system. The rope(s) for the tether system should be stacked in a haul bag for easy deployment by allowing it to feed from the top of the bag. The haul bag can be any backpack/day bag that can be used to carry the ropes & gear to the top of the crag. If a haul bag is not available, simply carry the rope, webbing, carabiners, and canvas pads to the top of the crag.

Before you walk up the trail, the stairs on the left side of section 1, put on your harness and helmet. C.H.E.C.K. Even as the trained instructor, you must follow the same safety rules for all participants.

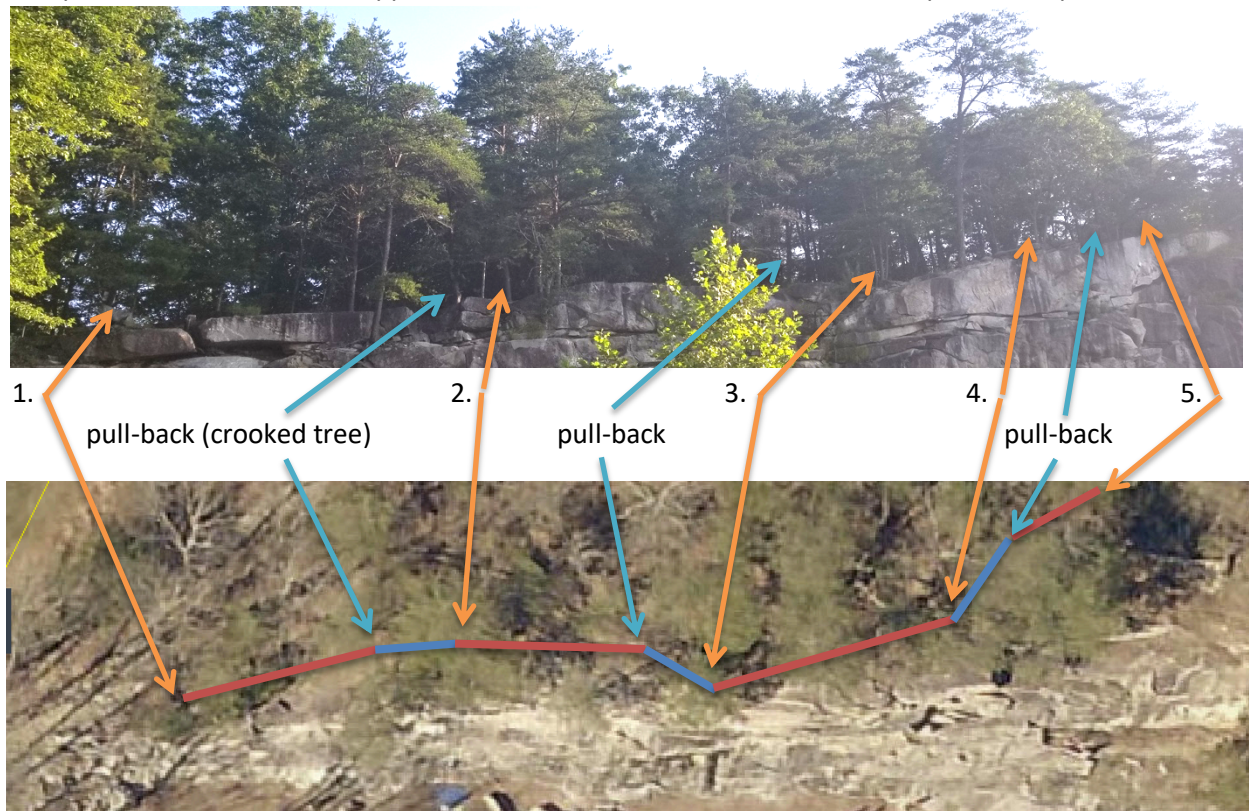
Rigging the Tether System

The tether system is constructed by connecting and tensioning rope(s) to multiple trees at the top of the crag.

1. Tree with warning sign near the top of the trail steps.
2. Large standalone Pine tree about 40' from the starting point. (Above route 7)
3. Set of 3 trees near crag edge about 30' from the Large Pine. (Between routes 12 & 13)
4. Set of 2 trees about 10' past the large dying pine (Above route 16)
5. Cluster of pine trees about 30' up the crag. (Above route 20)

Once the tether system has been secured to the designated anchor points, several “pull-backs” using webbing and carabiners are added to adjust angles and to apply tension to the tether system.

The pictures below show the approximate location of the tether tree anchor points and pull-backs.



- Anchor trees must have a **minimum** diameter of 6" and be healthy and well-rooted.
- Anchor bolts may be used, but avoid using bolts that could limit the use of routes by other climbers.
- Canvas pads and guards must always be used whenever soft goods such as ropes or webbing are placed on trees or over sharp rock edges.
- Water knots should be positioned so they are not against trees/boulders or carabiners.
- Carabiners should be oriented with the gate facing the ground and locked.

IMPORTANT: You should take precaution to use an independent tether/PAS/lobster claw while building the tether system anytime you are within 8 feet of a 6-foot fall.

When you reach the top of the trail steps where the guide cables terminate, you will see a warning sign. This is the access point for the top of section 1.

The tree with the warning sign is also the initial anchor for the tether system. The system should be built such that the participant will clip in to the system before they proceed further, getting any closer to the edge. Additionally, the participant will begin on the backside of the red tether rope providing a visual aid not to approach any closer to the edge. The picture on the right has been taken from the top of the trail steps.



Using the end of the rope, pull out about 10 feet of rope. Position a canvas pad about 3 feet from the ground on the tree with the warning sign, near the branch that faces the crag. Then, tie a bowline to the load end of the rope connecting it to the tree. When tying the bowline, wrap the rope above the branch so the knot does not fall to the ground. Leave about 18-24 inches of tail. Next, using the tail of the rope, backup the bowline by tying a double fisherman's or barrel knot on the load strand of the rope that is passing around the tree.

NOTE: The bowline must be backed up in this manner to be considered "life-safety".



NOTE: If this tree is not available in the future, the tether system can be anchored to the large boulder next to the tree. A 30' length of webbing will be needed to sling the boulder along with a locking carabiner. These are not included in the equipment listing above. In this case, the rope can be tied off with a figure 8 on a bight with a backup knot and clipped to the carabiner that is attached to the boulder anchor.

You can leave the remaining lobster claws at this starting point. There is no need to carry them with you along the crag. There is a convenient limb on this tree above the warning sign that can be used to hang the utility carabiner with the lobster claw tethers.

NOTE: If you do not have a PAS, take one set of lobster claws with you so you can secure yourself while building the remainder of the tether system.



Now that the rope has been secured to the first tree, look further up the crag past the crooked tree. The next anchor tree is a large standalone pine just before the rock clearing.



Standalone Pine

Crooked Tree

Rappel station: Above route #4. There is a ledge where the instructor and participant can easily stand.

Proceed along the crag top bringing the rope and the haul bag with you. Head to this standalone pine tree paying out rope as you go.

When you reach the standalone pine tree, place a large canvas pad all the way around the tree. Pull to tension the rope tightly against the crag side of the tree. Then, wrap the tree four times with the rope keeping the wraps neat and close. This is called a tensionless wrap. The wraps can go either up or down the tree.



From this standalone pine, look further up the crag. The next anchor point will be a set of trees near the edge of the crag.



Proceed toward this set of trees bringing the rope and haul bag with you. Continue to pay out rope as you go.

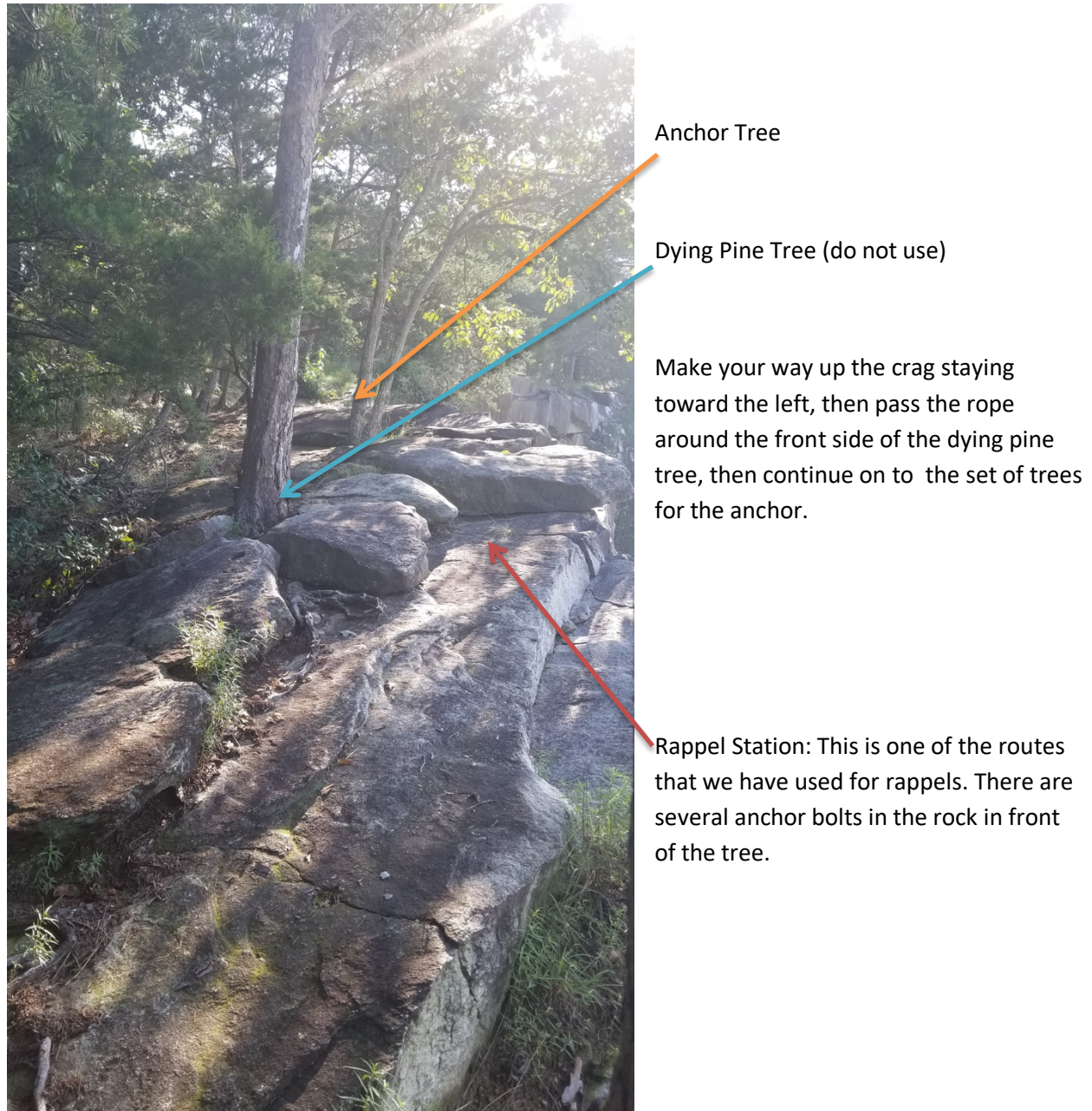
As you approach the set of trees, secure yourself to the middle tree by wrapping the end of your lobster claw/PAS/tether around the tree and clipping onto itself and lock the carabiner.



The larger of these trees will serve as an attachment point for a pass-through redirect for the tether system. For now, we are going to skip this redirect connection and continue up the crag.

Alternatively, this redirect could be connected before continuing up the crag. When there is little tension on the rope, the webbing and tree guard tend to slide down the tree, so it may be easier to add this after the tether system has been secured.

Look further up the top of the crag. You will see a large dying pine tree on the left, and about 10 feet past that will be a set of trees that will be used as the next anchor point of the tether system.





Once at these trees, protect the larger tree with a canvas pad, then make a single wrap around the tree with the rope. Then pull on the rope to apply tension to the tether system. Once the rope has been tensioned, continue wrapping the tree with the rope to create a tensionless wrap with a minimum of 4 wraps.

If this is the intended termination point of the tether system, create the tensionless wrap with at least 6 wraps, then tie a figure 8 on a bight and clip the bight to the rope using a carabiner.

Store the unused rope on a ground cover, canvas pad, or haul bag so it is not sitting directly on the ground.

If continuing the tether further up the crag, create the tensionless wrap with 4 wraps.

NOTE: When applying tension to this segment, the rope does not need to be extremely taut as there will be two pull-backs that will apply more tension to the system. Having too much tension in this segment may make it difficult to apply the pull-backs later.

Looking further up the crag, you will see a cluster of pine trees. The tether system can be terminated on several of these trees. On the left is a leaning pine tree with a growth a few feet above the ground. This leaning tree is the location for the pull-back for this segment.



Anchor tree(s)

Rappel Station: Ledge where instructor and participant can stand. Several anchor bolts are also available to tether the instructor while facilitating the rappel.

Tree for pull-back

Continue up the crag toward the end of section 2 paying out rope as you go.

This segment of the system will terminate on one of the pine trees. First wrap the tree with a canvas pad, then pull the rope and apply tension to the rope. Wrap the rope around the tree to create a tensionless wrap with 6 wraps. Tie a figure 8 on a bight and clip the bight to the rope using a carabiner.

Lay any excess rope on a canvas pad or coil it neatly and let it hang.

Now that the tether system has been secured to the appropriate anchor trees and securely tied off, it is time to add the “pull-backs” in order to fully tension the system and adjust the path of the tether rope.



Place a canvas pad on the leaning pine tree with the growth. Place the tree guard over the growth, then basket hitch a 15' length of webbing, pull the rope toward the tree and attach it using a carabiner. With the webbing and canvas pad placed below the growth on the tree, the webbing will remain in position and not “walk” up the tree.

Clip into the tether system using a set of lobster claws and traverse down the tether system, bringing any remaining lengths of webbing, tree guards, and carabiners with you.

Stop when you get to the set of 3 trees near the edge of the crag. We will now add the redirect to the tether system that was mentioned earlier.



Place a small tree guard completely around the middle tree, then wrap a 15' length of webbing once completely around the tree then connect the ends of the loop to a carabiner and then to the rope. Be sure to adjust the webbing so that both loops are sharing the load.

Continue down the tether system about 5 feet.

On the wooded side of the tether rope, there is a pine tree about 15' back from the tether rope.

This "pull-back" requires 2 carabiners, a 30' length of webbing, and a 15' length of webbing. The 30' length of webbing should be tied in a loop. The 15' length of webbing should be re-tied into a smaller loop that is approximately 5' long and will have long tails.



Begin by placing a canvas pad around the pine tree a couple of feet from the ground, then girth hitch the 30' webbing to the tree. Connect a carabiner to the end of the loop. Connect the 5' loop of webbing to this carabiner as well. Connect the second carabiner to the other end of the 5' loop of webbing.

The desired path for the tether system rope will be near the edge of the grass where the rock becomes visible. If necessary, adjust the length of the smaller loop of webbing by retieing the water knot with longer or shorter tails.

Pull the tether system rope toward the tree and connect the rope to this carabiner.



TIP: You can use your body weight to help pull-back on the tether system rope by attaching it with a carabiner to the belay loop on your harness then walk backwards.



Reconnect to the tether system using the lobster claws and continue traversing down the crag top toward the standalone pine. Pass the standalone pine and make your way to the crooked tree. This is the location of the final “pull-back”.



Place a small canvas pad on the tree, then basket hitch a 15' length of webbing around the tree. Clip a carabiner to the webbing, then pull the rope back, and clip the rope.



A few pictures of the completed tether system.



Lobster Claws

The lobster claws for the participants can be tied ahead of time. This will save time and effort on the day of the event. Each lobster claw requires a 15' length of webbing and three carabiners.

Tie the webbing in a loop using a water knot with appropriate back up knots. Position the water knot so that it is about 8 inches from the middle of the loop. Tie the first overhand limiting knot near the water knot, then tie the second overhand limiting knot about an inch from the first. Next, tie an overhand limiting knot near each end. Attach a locking carabiner between the two limiting knots near the middle of the loop. Participant tethers may use non-locking carabiners for the ends, but must have a locking carabiner for the central harness attachment connection.

Additionally, the tether can be used in an extended mode allowing an instructor a slightly longer reach. When used in this configuration, all 3 carabiners must be locking carabiners. (Shown in the picture on the right).



The locking carabiner will be clipped to the participant's harness when he/she reaches the start of the tether system. This should not be removed from the harness until the participant is on belay at the rappel station or has been transferred to an intermediate tether.



The two carabiners on the loops must be clipped to the rope of the tether system. The two carabiners should be clipped to the tether rope opposite and opposed.



As the participant moves along the tether system one leg of the lobster claws can be removed and clipped around the obstacle (carabiner, tree, knot, etc.). Then the following carabiner can be clipped around the obstacle. One of the lobster claw legs must remain clipped to the tether system at all times. Participants must be instructed in proper use of the lobster claws and the tether system during the safety briefing at the start of the program day.

During the course of the day all of the lobster claws will end up at the end of the tether system near the rappel station. The instructor will need to take a break and bring all of the lobster claws back to the start of the tether system. They can be staged here for the next set of rappel participants. Unit adult leaders can also be tasked with this responsibility.

