Site A: Historic Quarry Derrick
Coordinates: Lat. 45.5342273 Long. -94.2145618

This 1913 derrick, known as the Liberty Derrick was imported from the former Granite Company site, just north of Quarry Park. The derrick was used by Liberty Granite for unloading granite to the processor area. The 90 ft. high derrick was erected on this site in August of 2006. It will be in an operational status by the fall of 2007. This derrick was fabricated by American Hoist and Derrick out of St. Paul and is the typical model used for American Hoist and Derrick during the early 20th century. This model has been refurbished with two 4,000 lb. timbers which replaced the mast and boom of the derrick. Before the derrick is fully operational further maintenance is needed on the gear house. Before the derrick is fully operational further maintenance is needed on the gear house. At one time two massive bedrock shelves collided here. Molten basalt seeped up into a lateral facture in the shelves and created the basalt dike that is now visible. Notice the displacement in the basalt dike; this is the location of the fault. The two granite shelves that collided here shifted horizontally. The basalt dike and the granite bedrock which it is imbedded in slid several inches. This slippage can be measured using both the basalt dike and the glacial striations in the bedrock.

Site B: Quarry 13 Basalt Dikes
Coordinates: Lat. 45.5338698 Long. -94.24148065

Quarry 13 is a long narrow quarry that runs roughly northeast to southwest. The deepest point in this quarry is 19 ft. This quarry is an excellent place to witness the predominant rock in the Park, St. Cloud Red Granite. This granite is pink to red in color, interacting with the dark black basalt. Walking up the trail just a short distance to the right and you can witness several basalt dikes with glacial striations. The basalt dikes were formed by molten basalt magma ooze up through fractures in the red granite. Glacial Striations are the result of large rocks imbedded in the moving glacial ice moving over the bedrock under extremely high pressure. Some rocks are quite weathered and have scalloped edges. This phenomenon is known as glacial polish. The degree to which the rocks are polished is more extreme in the granite than the basalt because the granite is physically harder and less easily weathered away than the basalt, which crumbles and scratches more easily.

Site C: Quarry 10 Snails and Glacial Polish
Coordinates: Lat. 45.531398 Long. -94.21958393

Quarry 10 is one of the smallest and shallowest of all the quarries in the park with a maximum depth of 20 ft. This quarry may have been the location of the most recent quarrying within the park, occurring several decades ago. On the edge of the submerged bedrock there are hundreds of snails. Snails belong to an ancient group of animals called mollusks. These snails, which belong to the class Gastropoda, move by secreting a film of mucous that they use to glide over with their muscular arm. The coiled shell that you see is a living part of the animal and provides protection from the outside environment and predators alike. Snails are herbivores and eat by scraping plant matter into their mouthparts with antennae. Snails are among the oldest and most abundant species, with over 80,000 species and dating back 500 million years. This site is also an excellent place to view glacial polish.

Site D: Quarry 9 Reverse Fault
Coordinates: Lat. 45.53077344 Long. -94.23674151

The most noteworthy rock feature that can be seen at quarry nine is a fault located on the west wall. The best place to observe this feature is from the east side. The fault runs almost horizontally through the west wall of the quarry, and has a slight curvature to the crack. Often times the crack is leaking groundwater, which explains the richness of vegetation growing out of the fracture. On the top side of the fracture is Friarary foggy granite and below is the St. Cloud Red Granite. This fault is unique to the park because it runs north to south, which is why it is seen as a reverse fault.

Site E: Prickly Pear Cactus Outcrop
Coordinates: Lat. 45.53029895 Long. -94.2364673

This site is one of the most unique plants that can be found in the park. The bright Prickly Pear Cactus (Opuntia fragilis) grows abundantly here. The soil on this outcrop is very thin. Accordingly, plants must evolve to survive here. This Prickly Pear Cactus is perfectly suited for such an environment. It has a shallow root system and succulent waxy stems which help to create a water reservoir and tolerate the temperature fluctuations of the spring and fall. A comparable perennial plant Farncele will also be found on the outcrop. Farncele’s succulent tubular leaves and short taproot help it tolerate such a dry environment. Both plants perform a process known as Crassulacean acid metabolism (CAM). This process is a specialized form of photosynthesis in which plants reverse the order of opening their pores. This process helps plants to conserve water.

Site F: Quarry 8 Overlook
Coordinates: Lat. 45.531605 Long. -94.233286

This overlook is the highest point in the park and offers a great panoramic view of the park. Looking north you can view the large central granite outcrop at the foot of the overlook on the north, east, and south side you can view a wetland. Duckweed, a floating aquatic plant, is abundant in this manmade wetland. This plant produces the smallest flower. Walking up the trail just a short distance to the right and you can witness several basalt dikes with glacial striations. The basalt dikes were formed by molten basalt magma ooze up through fractures in the red granite. Glacial Striations are the result of large rocks imbedded in the moving glacial ice moving over the bedrock under extremely high pressure. Some rocks are quite weathered and have scalloped edges. This phenomenon is known as glacial polish. The degree to which the rocks are polished is more extreme in the granite than the basalt because the granite is physically harder and less easily weathered away than the basalt, which crumbles and scratches more easily.

Site G: Prairie Overlook
Coordinates: Lat. 45.5346983 Long. -94.22349879

Located just south of quarry two, the fault on this site is known as a strike-slip fault. At one time two massive bedrock shelves collided here. Molten basalt seeped up into a lateral facture in the shelves and created the basalt dike that is now visible. Notice the displacement in the basalt dike; this is the location of the fault. The two granite shelves that collided here shifted horizontally. The basalt dike and the granite bedrock which it is imbedded in slid several inches. This slippage can be measured using both the basalt dike and the glacial striations in the bedrock.

Site H: Bearberry
Coordinates: Lat. 45.53537777 Long. -94.23465777

Bearberry (Arctostaphylos uva-ursi), which gets its name from the edible fruit that is a favorite of bears, grows here on the largest of the rock outcrops in the park. It is an evergreen shrub which is more commonly found in northern evergreen conifer forests. Native Americans referred to this plant as kinnickinic and used it for tea as well as a treatment for urinary disorders. However this is not advisable because the plant contains the toxic chemical arbutin.

Site J: Fault
Coordinates: Lat. 45.53456983 Long. -94.22346513

This Quarry named Melrose Deep Seven was mined exclusively for St. Cloud Körting Granite. It is the deepest and largest of all the quarries with a maximum depth of 116 ft. On the southeastern side of the quarry you can see where red granite was mined until rock removal halted where the thick black basalt intrusive zone reached the granite. Basalt dikes are common at the edges of this quarry. This tree which prefers cool moist environments suggests the presence of springs which feed this quarry. On this outcrop are the remains of what the American Hoist and Derrick out of St. Paul and is the typical model used in the early 20th century. This model has been refurbished with two 4,000 lb. timbers which replaced the mast and boom of the derrick. Before the derrick is fully operational further maintenance is needed on the gear house. When the restoration is completed the derrick will be able to lift a 36 ton granite stone from the pit, which is roughly the size of a midsize car. Also on this site is a 11.5 ft. diameter saw blade that was used for cutting granite in the processing plants. This blade would have had diamond tipped teeth welded on and was capable of cutting massive stone blocks into thin usable sheets. Another artifact on the site is the original drum hoist that controlled this derrick.

Site K: Swimming Quarry
Coordinates: Lat. 45.53831149 Long. -94.23366513

This Quarry named Melrose Deep Seven was mined exclusively for St. Cloud Körting Granite. It is the deepest and largest of all the quarries with a maximum depth of 116 ft. On the southeastern side of the quarry you can see where red granite was mined until rock removal halted where the thick black basalt intrusive zone reached the granite. Basalt dikes are common at the edges of this quarry. This tree which prefers cool moist environments suggests the presence of springs which feed this quarry. On this outcrop are the remains of what the American Hoist and Derrick out of St. Paul and is the typical model used in the early 20th century. This model has been refurbished with two 4,000 lb. timbers which replaced the mast and boom of the derrick. Before the derrick is fully operational further maintenance is needed on the gear house. When the restoration is completed the derrick will be able to lift a 36 ton granite stone from the pit, which is roughly the size of a midsize car. Also on this site is an 11.5 ft. diameter saw blade that was used for cutting granite in the processing plants. This blade would have had diamond tipped teeth welded on and was capable of cutting massive stone blocks into thin usable sheets. Another artifact on the site is the original drum hoist that controlled this derrick.

Site L: Wetland and Boardwalk
Coordinates: Lat. 45.53539293 Long. -94.23696831

The wetland that this floating boardwalk traverses stretches from the northern edge of the western part of the prairie all the way through the northern boundary of the park. The wetland has a strongly linear shape from north-east to south-west and remains flooded because of the presence of rich clay soils which work like a bowl to hold in water and prevent it from intruding through the underlying bedrock. This wetland is home to several species of Orchids, including the beautiful purple fringed orchid and the rare tubercled rein orchid. The tubercled rein orchid is uncommon, however under appropriate conditions it grows near the margins of the wetland. In this wetland are examples of six of the eight possible wetland types. These wetland types range from only seasonally wet to yearly submerged, to wetland shrub swamps. On the north side of the boardwalk you can observe several shrub species predominantly willow and red-olier dogwood.

ALL COORDINATES ARE IN WGS 84 REFERENCE SYSTEM

Prepared by: Sean Leary, Intern 9/06
Eco-Walks at Quarry Park

Eco-Walks are self-guided walking tours that explore the natural history of Quarry Park, the largest public park in the Stearns County Parks System. Quarry Park & Nature Preserve is an exceptional location to explore and discover natural and human history, together evolving before your eyes. A quick survey of the park reveals scenic woodlands, open prairie, diverse wetlands, and both quarried and un-quarried granite bedrock. A deeper look tells a story of how Central Minnesota became one of the largest producers of granite in the country.

The Eco-Walk tour has twelve sites which exhibit the park’s unique natural features. At a relaxing pace the tour takes about two hours from beginning to end. You will cover 2.6 miles. This walk is designed to be done with a GPS unit and traverses rough terrain.

A county vehicle-parking permit is required at Quarry Park and Nature Preserve. Revenues generated from the fees are used for park facility maintenance. For more info on Quarry Park and Nature Preserve or to purchase an annual permit online go to www.co.stearns.mn.us