

## Port Gravina Quarry Project Description

The Chugach Alaska Corporation (CAC) is pursuing permits to start work on a long-term commercial hard rock quarry project and associated infrastructure located in Secret Cove in Port Gravina. CAC intends to phase the construction of the project site based on the expansion of the quarry. The project site is approximately 30 miles south of Valdez and 16 miles west/northwest of Cordova. The project lies in the Copper River Meridian, Township 13 South, Range 5 West, Sections 28, 29, 32, and 33. The majority of the surface estate is held by the U.S. Forest Service and the subsurface mineral estate by CAC; however, CAC owns both surface and subsurface in a portion of the project area (Section 33).

If developed, Port Gravina will be a multiphase project that will provide material for infrastructure development, construction, and repair projects throughout Alaska and the Pacific Northwest for approximately 20 years. Two operating quarry sites are planned within the project area, referred to as West Quarry and East Quarry. The quarries and additional project components including roads, docks, and work pads are described below.

### **Temporary Barge Dock**

The Temporary Dock will be constructed by placing 3,000 cubic yards of fill material above High Tide Line (HTL) to avoid impacts to tidelands. Of this total fill, approximately 1,000 cubic yards will be armor rock for erosion protection. The top of the temporary dock landing and associated work pad between the dock face and the beach will be at an elevation of +20 feet Mean Lower Low Water (MLLW). A modular pile supported steel trestle will be connected to the pad and extended out into the water approximately 216 feet to achieve the required water depth for the barge. The trestle will be supported by a total of (18) 24-inch diameter driven steel pipe piles. Two breasting dolphins will support a lifting frame to handle an 83-ft ramp. The dolphins will be constructed of a 36" diameter king pile and 2-18" diameter batter piles each. The hinged ramp will allow for operation through the tidal cycle. A preconstruction survey will be performed so that baseline elevations can be established for future use in removing the Temporary Dock and re-establishing the area to its original state, should it be necessary to remove the Temporary Dock prior to the construction of the Permanent Dock.

Following the receipt of a state tideland lease and expiration of the tideland permit, the (18) 24-inch diameter trestle piles and the piles for the two dolphins will be removed, and the landing will be incorporated into the permanent dock as shown in the drawings. Armor rock will be salvaged, but the remainder of the fill for the temporary dock will be encompassed by the permanent structure.

**Lay Down Pad**

Above the Mean High Water (MHW), adjacent to the Temporary Dock, a lay down pad will be constructed of rock and soils excavated during construction of the Quarry. Construction of the Lay Down Pad will potentially impact 4.5 acres of wetlands.

**Camp Access Road & Pad**

The Camp Access Road will consist of a 30-foot wide road between the Main Work Pad to the east onto CAC property. The road will then widen to 40 feet along a straight stretch heading south towards the Camp Facilities' Pad. The road is approximately 3,320 feet in length and will require placement of 70,800 cubic yards of material. This road also crosses an unnamed stream that runs between the Main Work Pad and East Quarry, and will require a single span bridge that will span approximately 40 feet. The camp access road is also oriented to allow the road to double as an airstrip in the future; however, plans for the airstrip would be submitted at a later time. The Camp Pad (400 feet x 200 feet) will consist of approximately 63,300 cubic yards of fill over an area of approximately 4.0 acres. The camp itself will consist of an ATCO trailer (or similar) camp consisting of multiple attached structures that will be easily removable upon completion of the work.

**Dock Access Road**

The Dock Access Road will consist of a 30-foot wide switchback roadway that connects the Main Work Pad and the Lay Down Pad. It traverses a steep area, moving from the uplands down to the beach. The Dock Access Road will be approximately 800 feet in length and will require placement of approximately 13,000 cubic yards of fill material and a small amount of excavation in order to build into the steep hillside. The road will cover an area of approximately 3.2 acres. Excavated material will be used to construct the Lay Down Pad and/or the Main Work Pad. The drivable roadway surface is 30 feet in width graded for drainage and has a maximum gradient of 10 percent. Along the cut slope side(s) of the road a ditch will be constructed to collect stormwater runoff and rock fall from the cut slope(s). A 4-foot tall berm will be constructed on the fill side of the roadway per Mine Safety and Health Administration (MSHA) requirements, and a runaway truck ramp is proposed towards the bottom of the road to prevent haul trucks from having to maneuver the sharp turn at the bottom in the case of failing brakes. The distance from MHW to the blasting will vary between 50 and 600 feet along the roadway. The distance from non-anadromous streams to blasting areas will be approximately 500 feet.

**Quarry & Main Work Pad**

The quarry will consist of two sections, the East Quarry and the West Quarry. These sites will be operated and expanded over an estimated timespan of 20 years with the full 20-year extents shown in the drawings. The quarries' amounts and locations will be developed based on production needs in order to minimize impacts to the existing site. Both quarry sections will eventually be mined down to the elevation of the proposed work pad (approximately 100 feet MLLW). Materials recovered from quarry operations will be sold or used onsite for



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construction purposes. Any overburden will be stored on site for later use and reclamation. Locations for overburden storage will vary. A designated spot is located directly to the southeast of the main settling pond above the Camp Access Road. Other locations will be within the quarry footprint once the area is quarried, and to the south of the pad. As work progresses, the overburden may have to be relocated within the project footprint as the quarry is expanded. Additionally, overburden will be placed on benches for reclamation once quarrying in a specific area is complete. This will decrease the overall quantity of overburden storage required during the life of the project.

The Main Work Pad is divided by an unnamed stream that runs from south to north adjacent to the East Quarry. Its close proximity to the eastern quarry operations would make operations difficult, and potentially create issues while blasting and maneuvering around the site. To counter this, the stream would be permanently diverted to the west, equidistant between the two quarries, allowing more room to maneuver and creating a greater distance from the operations. The diverted stream would be a constructed channel with habitat features, consisting of large boulders and material replicating the contents of the natural channel, a few pools, and some riffles. This reconstruction would introduce more habitat than the existing channel in this area, as the existing channel is extremely shallow and wide with no undercut banks. The new channel banks will consist of vegetation, root wads and riprap in some areas that may be prone to erosion. A 30-foot bridge will be constructed over the full width of the stream to allow traffic between the East Quarry and West Quarry sites and either side of the Main Work Pad. Diversion of this unnamed stream will be postponed until absolutely necessary, and will be completed during a period of low flow and following all Alaska Department of Fish & Game's Fish Habitat Permit stipulations.

Sediment settling ponds will be constructed adjacent to the quarry sites. The ponds will be designed to collect stormwater runoff from the quarry area and from the quarry work pad. The Main Work Pad will be graded in such a way to direct surface runoff into drainage ditches or towards the main settling pond at the north end of the site. The East Quarry and associated work pad will be graded/benched to drain to the northeast (away from the unnamed stream) into another settling pond. The ponds will be sized to accommodate a maximum water depth of 4 feet and maximum impoundment meeting all ADEC requirements. The distance from the bottom of the pond to the top of the berm will be no higher than 8 feet.

Quarry operations will be performed by a qualified contractor who will be responsible for obtaining the applicable local, state, and federal permits. Operations and timelines will be market driven and begin following receipt of applicable infrastructure permits.

**Quarry Operations**

The quarry buildings will staff fewer than 20 people during normal mining operations. Surface water will be pumped from an undiscovered water source or from a drilled well. All domestic wastewater will either be collected in a holding tank and removed off site via barge to an approved Alaska Department of Environmental Conservation (ADEC) disposal site or will be discharged into an onsite secondary treatment system. Permits will be submitted to ADEC as the final design is generated and quarry operations begin.

**Permanent Barge Dock**

Development activities for the quarry include constructing a barge dock and ramp structure along the shore of Secret Cove. The proposed fill dock is a sheet pile bulkhead with Non-Frost-Susceptible (NFS) fill with a face width of approximately 500 feet, and a length of approximately 400 feet out into the cove. The barge dock and ramp will consist of approximately 6.5 acres (including the 0.3 acre area filled by the Temporary Dock footprint) and 150,000 cubic yards of fill materials below the HTL (including 3,000 cubic yards of fill that makes up the Temporary Dock). The toe of the sheet pile bulkhead is -25 feet MLLW. The fill dock will handle barge mooring and loading for quarried rock transport. Once the permanent barge dock is constructed, full-scale quarry operations can begin.

Safety of the general public is of primary concern along the shoreline and within the boundaries of Secret Cove, though the proposed development and operations will have minimal impact on public access. Access along the gravel beach will still be allowed except during activities that could impact the safety of the public. Public access to water within Secret Cove will only be restricted during times of vessel maneuvering.

**Tidelands Lease**

The project is not requesting to limit the public's use of the waters of the cove except for the area of the actual improvements (i.e. the dock or the beach landing area when it is being used). In addition, for public safety purposes only, the project may exclude the public from the waters needed for a barge or other craft to maneuver to and from the dock. Any exclusion will be for the minimum time and area necessary to protect public safety and operations of the ship or barge.

An area of approximately 15 acres is proposed for the tidelands lease boundary area. The tidelands boundary is sized to accommodate the Permanent Barge Dock and moorage of a 100-foot by 400-foot barge and tug boat.

Barge traffic at the dock will vary depending on market demands. With an estimated volume of 250,000 tons per year and two quarry supply barges per month, there could potentially be 39 barges per year or 3.25 barges per month calling at the dock.

**Quarry**

Sediment settling ponds will be constructed adjacent to the quarry site. The ponds will be designed to collect stormwater runoff from the quarry area and from the quarry work pad. They will be sized to accommodate a maximum water depth of 4 feet and maximum impoundment of 40 acre-feet. The distance from the bottom of the pond to the top of the berm will be no higher than 8 feet.

Quarry operations will be performed by a qualified contractor who will be responsible for obtaining the applicable local, state, and federal permits. Operations and timelines will be market driven and begin following receipt of applicable infrastructure permits.

**Proposed Project Timeline**

The planned construction start for the proposed project is summer 2016. Construction of the main work pad and quarry will be phased over a 20-year period. In order to meet the proposed construction start date, permitting agencies were contacted informally in February of 2015 in an effort to identify any activities that might hold up permitting the project.

**Noise**

During construction of the roads from the beach to the quarry area, it is likely that some of the blasts may be audible in close proximity such as to Port Gravina recreational users. During regular quarry operations, which will be mainly market driven, blasting noise will be limited and likely not an issue for nearby recreational users. Weather, topography, direction of blasting, and many other factors affect audible range, which makes it difficult to give definitive distances and decibel levels at this point in the permitting process.

**Dust**

The nature of the land (mostly solid granite and generally moist) doesn't lend itself to significant potential for dust pollution. Mine Safety and Health Administration (MSHA) and the Occupational Safety and Health Administration (OSHA) both have guidelines for dust control to protect employees and the public. The Environmental Protection Agency (EPA) and the Alaska Department of Environmental Conservation (ADEC) have clean air and water regulations aimed at protecting the environment, which CAC and all subcontractors will be following. Best Management Practices will be followed to limit dust or any potential negative effects on the community, lands, or environment generated by the quarry project.

**Reclamation**

Following completion of the project, current Best Management Practices for quarry closeout will be followed. Due to the long-term nature of the project, it is difficult at this time to estimate the exact procedures that will be taken. At a minimum for safety, a fence and signage will be installed to prevent inadvertent entry from the rock face, the face will have steps to limit rockfall hazards, and signs will be posted to prevent entry without knowledge of the terrain. The area, including all road and pad footprints, will be restored to a look

similar to the local surroundings using re-vegetation (with native seed mixes and plant stocks if available), addition of topsoil, and will occur in such a way, to the best extent feasible, that the area will return to a natural look within a reasonable amount of time.

### **Construction Sequence**

A possible construction sequence for this project is as follows:

1. Survey and stake clearing limits.
2. Clear and grub quarry sites.
3. Clear vegetation and overburden at Lay Down Pad site adjacent to the shoreline and along the shoreline roadways.
4. Mine material for infrastructure.
5. Construct Dock Access Road.
6. Construct Main Work Pad, Camp Access Road and Pad.
7. Construct Temporary Dock.
8. Construct drainage swales and sediment/settling pond to collect stormwater runoff from quarry and quarry work pad.
9. Begin quarry operations.
10. Construct Permanent Dock (dependent on tidelands lease).

Permitting and contractor preferences may dictate a different development plan from that described above.

**Port Gravina Quarry  
Quantities**

|  | Total        |           | Below HTL            |                            |                     |                           | Below MHW            |                            |                     |                           | In Wetlands          |                            |
|--|--------------|-----------|----------------------|----------------------------|---------------------|---------------------------|----------------------|----------------------------|---------------------|---------------------------|----------------------|----------------------------|
|  | Area (acres) | Fill (cy) | Area of fill (acres) | Area of Excavation (acres) | Volume of fill (cy) | Volume of Excavation (cy) | Area of fill (acres) | Area of Excavation (acres) | Volume of fill (cy) | Volume of Excavation (cy) | Area of Fill (acres) | Area of Excavation (acres) |
| Temporary Dock                                 | 0.3          | 3,000     | 0                    | 0                          | 0                   | 0                         | 0                    | 0                          | 0                   | 0                         | 0.3                  | 0                          |
| Permanent Fill Dock (not including temp. dock) | 6.5          | 274,000   | 5.35                 | 0                          | 150,000             | 0                         | 4.95                 | 0                          | 141,800             | 0                         | 6.5                  | 0                          |
| Dock Access Road (800' length)                 | 3.2          | 13,000    | 0                    | 0                          | 0                   | 0                         | 0                    | 0                          | 0                   | 0                         | 2.3                  | 0.9                        |
| Camp Access Road (3,320' length)               | 6.8          | 70,800    | 0                    | 0                          | 0                   | 0                         | 0                    | 0                          | 0                   | 0                         | 6.8                  | 0                          |
| Camp Pad                                       | 4.0          | 63,300    | 0                    | 0                          | 0                   | 0                         | 0                    | 0                          | 0                   | 0                         | 4.0                  | 0                          |
| West Quarry Site                               | 27.0         | 0         | 0                    | 0                          | 0                   | 0                         | 0                    | 0                          | 0                   | 0                         | 0                    | 25.8                       |
| East Quarry Site                               | 18.0         | 0         | 0                    | 0                          | 0                   | 0                         | 0                    | 0                          | 0                   | 0                         | 0                    | 18.0                       |
| West Work Pad                                  | 19.5         | 333,000   | 0                    | 0                          | 0                   | 0                         | 0                    | 0                          | 0                   | 0                         | 19.5                 | 2.5                        |
| East Work Pad                                  | 10.0         | 232,000   | 0                    | 0                          | 0                   | 0                         | 0                    | 0                          | 0                   | 0                         | 9.0                  | 1.0                        |
| Lay Down Pad                                   | 4.5          | 2,400     | 0                    | 0                          | 0                   | 0                         | 0                    | 0                          | 0                   | 0                         | 3.0                  | 1.5                        |
| TOTAL  | 99.8         | 989,600   | 5.35                 | 0                          | 150,000             | 0                         | 4.95                 | 0                          | 141,800             | 0                         | 51.4                 | 49.7                       |

**Quantities in Chugach National Forest**

|  | Total        |           | In Wetlands          |                            |
|--|--------------|-----------|----------------------|----------------------------|
|  | Area (acres) | Fill (cy) | Area of Fill (acres) | Area of Excavation (acres) |
| Temporary Dock                                 | 0.3          | 3,000     | 0.3                  | 0                          |
| Permanent Fill Dock (not including temp. dock) | 0.5          | 10,500    | 0.5                  | 0                          |
| Dock Access Road (800' length)                 | 3.2          | 13,000    | 2.3                  | 0.9                        |
| Camp Access Road (675' length)                 | 1.5          | 15,000    | 1.5                  | 0                          |
| Camp Pad                                       | 0            | 0         | 0                    | 0                          |
| West Quarry Site                               | 27.0         | 0         | 0                    | 25.8                       |
| East Quarry Site                               | 16.0         | 0         | 0                    | 12.8                       |
| West Work Pad                                  | 19.5         | 333,000   | 19.5                 | 2.5                        |
| East Quarry Work Pad                           | 10.0         | 232,000   | 9.0                  | 1.0                        |
| Lay Down Pad                                   | 4.5          | 2,400     | 3.0                  | 1.5                        |
| TOTAL  | 82.5         | 607,000   | 36.1                 | 44.5                       |