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DATE: November 21, 2019

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REVIEWED: Curtis Ehlers, C.E.G
Region 4 Geology Team Leader - Bend

SUBJECT: 19640, US26: Warm Springs Safety Corridor
Warm Springs Highway #053
Jefferson County, Oregon

RE: Material Source Narrative
Prospective Material Source – Geeder Canyon Quarry
ODOT Source #OR-16-015-4, DOGAMI # 16-0018
Warm Springs Highway (#053), M.P. 105.89

Introduction

This memo and attachments should be duplicated and distributed to **all** bidders that inquire about this prospective material source, as per Section 00120.25 of the Oregon Standard Specifications for Construction, 2018 ed. All changes to the development plan or specifications for the material source must receive approval of the Engineer. The material source development plan, cross sections, and Special Provision Sections 00235 and 00335 will be provided in the contract documents.

The prospective material source is an existing Agency owned/controlled quarry known as Geeder Canyon Quarry and is located in the NE¼ Section 31, T.9 S., R.13 E., W.M. This site is located adjacent east of the Warm Springs Highway approximately 1 mile east of Warm Springs. The western portion of the site is BLM owned and Agency controlled through a Material Source Appropriation. The eastern portion of the site is Agency owned.

The Agency maintains a current Department of Geology and Mineral Industries (DOGAMI) Operating Permit and Operating and Reclamation Plan (Attachment 1) and a Conditional Use Permit from Jefferson County (Attachment 2).

The current development plan for this source was prepared based upon the estimate of the current project requiring approximately 45,600 tons (30,500 cubic yards in-place) of produced aggregate products. The excavation area shown on the Prospective Material Source plan sheet in the contract plans contains adequate material necessary to complete the Project with the above proposed quantity.

Source Geology

High plateaus dissected by deep canyons characterize the landscape surrounding the Warm Springs area. The plateaus are primarily composed of Tertiary age, volcanic and sedimentary rock units that generally dip gently to the north. 500 to 1,000 feet deep canyons were carved into the plateaus by the Deschutes River and its tributaries in the general vicinity. Geeder Canyon Quarry is located in a relatively short tributary canyon, locally known as Geeder Canyon, east of the Deschutes River. Numerous landslides have been identified along the walls of the various canyons in the general vicinity, including one on the north side of Geeder Canyon at a distance of approximately 0.25 mile east of the proposed excavation area. Most of these identified landslide deposits are believed to be of Pleistocene age or younger (<1.6 million years). An unnamed creek, located in Geeder Canyon, conveys irrigation water from the farmlands on the surface of the plateaus above the canyon to the Deschutes River. Geology units exposed in the walls of Geeder Canyon, from top to bottom, include the Deschutes Formation (Td) which contains two basalt flows (Tdtb and Tds), two units of the Columbia River Basalt Group (Tcr_2, upper, and Tcr_1, lower), the Simtustus Formation (Ts) between the two Columbia River Basalt flows, and the John Day Formation (Tjd).

The Deschutes Formation is composed primarily of coarse-grained sandstone and conglomerate sedimentary rock types, as well as the two interbedded basalt flows mentioned above, and forms the top 300 to 400 feet of the Geeder Canyon walls. The Tcr_2 and Tcr_1 units of the Columbia River Basalt Group are composed of basalt lava rock and cover a total range of approximately 400 feet in elevation along the middle portion of the canyon walls. In the general area of the quarry and proposed excavation, these two units of basalt are separated by an approximately 50 feet thick interbedded section of the Simtustus Formation, which is typically composed of tuff, mudstone, and cross-bedded sandstone. Exposed in the lower section of the canyon wall is from 0 to 200 vertical feet of the John Day Formation, typically composed of tuff, fine-grained sandstone and mudstone. The exposure of John Day Formation thickens toward the

western end of the quarry due to the southeast-dipping formational contact and west-oriented gradient of the canyon floor [1] [2] [3].

Material Source

The site has approximately 1.0 acres designated for material excavation and 3.5 acres for stockpiling and processing aggregate. The available area for processing and stockpiling is limited due to the confining topography of the canyon walls, relatively narrow canyon floor, and the adjacent unnamed creek bounding the site to the south.

The long-term development strategy for this material source is to develop this site into a multiple bench operation, moving the existing excavation activity to the north and expanding the quarry floor area. The production operation for this project will focus on extending the existing bench that was created from the last aggregate production to the west. Bench locations, elevations, and dimensions are shown on the prospective material source plan and cross section sheets in the contract plans.

The excavation will be established on existing slopes covered by rocky colluvium. The rocky colluvium may be considered for production requiring scalping of finer materials. Minor grubbing of the excavation area and access roads will be required. The access road to the top of the excavation area should be maintained for future expansion to the site.

Future excavations will continue with multiple benches corresponding to existing excavation areas and/or access roads. It is important for the long-term development of this site that the bench shown in the contract plans be constructed and maintained. When the current operation is completed, this site must be left in a stable and safe condition.

Contractors should anticipate materials produced by blasting in the excavation area to be a mixture of shot rock of various dimensions including oversize. Special consideration should be given to the preparation of the bid and the blast plan, taking into account the need to handle or reduce oversize material to a usable size as stated in the contract specifications. Even with a successfully executed blast, special equipment or equipment setup may be necessary for secondary size reduction, or to enable the Contractor to handle the larger material if it is created or exists in the source. All remaining loose material meeting quality requirements remaining on-site should be no larger than 1.0 ft in any dimension except as noted in 00235. Contractors should bid accordingly to handle and reduce oversize material.

Site Operations

Conduct operations within the material source according to Sections 00235 and 00335 of the Project Special Provisions and all applicable State, county, and federal laws including mining and fire laws. Provide, operate and maintain appropriate wildland fire fighting equipment on site at all times for the current fire levels during all site operations.

All vehicles and equipment shall be steam cleaned of all debris (soil, dirt, plant parts, and vegetative matter) prior to being brought to the site.

As addressed in Section 00235 of the Special Provisions, a site specific Erosion Control Plan, and Pollution Control Plan must be prepared by the Contractor for the material source and provided to the Engineer at or prior to conducting the pre-work meeting at the site.

Reestablish the existing water bars on the access road in a manner that allows for high clearance passenger vehicle and equipment passage.

To comply with the Migratory Bird Treaty Act (16 U.S.C. 703-712); the Agency will implement measures to prevent migratory bird nesting on behalf of the Contractor. Notify the Project Manager in writing a minimum of 10 calendar days prior to beginning work that has the potential to affect bird nesting habitat when these activities occur from March 1 through August 31. No blasting may occur between February 1 and July 31 until the Agency Biologist determines presence/absence of Golden Eagle nests and approval is received by the Engineer.

To control dust, apply water to access roads, haul roads, excavations, and processing operations. Water is not available at the site. Drawing water from the unnamed creek within the material source is prohibited.

Provide traffic control related to ingress and egress movements in a manner that allows for a safe work zone and safe passage of vehicles.

Restrict blasting to the hours of 9:00 a.m. to 4:00 p.m. Monday through Friday.

As part of site cleanup, pile and burn all slash and combustible debris resulting from the use and development of the site. During the site vacating phase and prior to the required post-work meeting, remove solid waste and all hazardous material from the site and dispose of properly.

Source Use History

Information concerning the operational history in this source is limited. This material source site was used in 2000 when approximately 52,250 tons of base, paving and shoulder aggregate was produced for the Warm Springs Grade – Kahneeta Junction Section project, which involved grading, paving, and guardrail work on highway US26. The Contractor excavated rock from the face directly above and north of the existing quarry floor (at approximately 1,175 ft elevation) and below and south of the proposed excavation area. No significant issues with flyrock or generation of oversize were recorded during the operation.

The most recent aggregate production removed approximately 39,000 cubic yards (in-place) rock for the FFO – US26: Mill Creek – Warm Springs Grade Sec. project. The removal of this material created the existing bench that is located adjacent north of the stockpiling and processing area at the east end of the quarry.

One drill hole was conducted at the site located east of the excavation area and is shown on the Site Plan Map in the contract plans. A copy of the Drill Hole Log and Core Photos are included in Attachment 3.

Laboratory testing of rock samples collected from the quarry were performed to confirm compliance with ODOT Standard Specifications for HMAC aggregate. All tested samples comply with ODOT specifications. Copies of the test results are included in Attachment 4.

General Information

Bidding Contractors are advised to make an on-site visit to the prospective material source prior to finalizing their bid. As per Oregon Standard Specifications for Construction, Section 00120.15, Contractors shall carefully examine the available information for the prospective material source, and become familiar with the existing conditions, the appearance of the site, and the conditions they expect to encounter prior to bid submittal. As stated in 00235, any proposed development plan changes shall be submitted in writing for approval by the Engineer.

Documentation contained within this Narrative Packet for the Prospective Material Source is for informational purposes only; it is not intended to replace any information supplied in the Bid Packet.

Additional Information

If additional information about the material source is desired, contact the Project Manager's office to schedule an appointment to view the Agency material source files or available soil or core samples. Someone from the Geology staff must be present when the information is being reviewed; this is to assure accuracy and consistency in the distribution of information.

Attachments-(4)

1. DOGAMI Operating Permit, Operating and Reclamation Plan
2. Jefferson County Conditional Use Permit
3. DH12-01 Drill Hole Log and Core Photos
4. Laboratory Reports (5)

[1] Gary A. Smith and Glenn A. Hayman, 1987, Geologic Map of the Eagle Butte and Gateway Quadrangles, Jefferson and Wasco Counties, Oregon: State of Oregon Department of Geology and Mineral Industries, Geological Map Series, Map GMS-43, Scale 1:24,000.

[2] Gary A. Smith, 1987, Geologic Map of the Madras West and Madras East Quadrangles, Jefferson County, Oregon: State of Oregon Department of Geology and Mineral Industries, Geological Map Series, Map GMS-45, Scale 1:24,000.

[3] Mavis D. Kent, 1981, Geology of the Warm Springs-Pelton Area, Association of Engineering Geologists Field Trip Guidebook: Engineering Geology in the Pacific Northwest, p. 59.