

DDC WEBSITE CONSIDERATIONS REGARDING ASBESTOS CONTAINING MATERIAL (ACM) AT KANAPUU DRIVE CULVERT EMERGENCY REPAIR SITE

General Asbestos Information

Asbestos and asbestos-containing materials (ACM) are regulated by the Environmental Protection Agency (EPA), an independent executive agency of the United States federal government; more can be learned by reviewing EPA's FAQs https://www.epa.gov/sites/production/files/2019-04/documents/asbestos_final_rule_faq.pdf.

Exposure to ACM in the work environment is regulated by the Occupational Safety and Health Administration (OSHA), an agency of the United States Department of Labor; more can be learned about asbestos by reviewing the OSHA Fact Sheet <https://www.osha.gov/Publications/OSHA3507.pdf>.

Kanapuu Culvert Timeline

On ten (10) days between February 5 through March 4, 2019 and twelve (12) days between January 8 through February 27, 2020: Contractor performed work within existing 144" diameter corrugated metal pipe (CMP) culvert that disturbed a bituminous or tar-like coating on the inside of the pipe. Later this bituminous coating was found to contain small quantities of asbestos. Work within the culvert on those days was not limited to disturbing the bituminous coating. Other activities were performed within the culvert including, welding and placing concrete.

May 8, 2020: Approximate date the contractor exposed the exterior of the 144" CMP culvert during excavation.

June 15, 2020: In preparation for disposal of the damaged section of culvert, the bituminous coating on the inside of the culvert was sampled and delivered to an accredited laboratory for analysis.

June 18, 2020: DDC learned that results of the laboratory analysis identified the asbestos mineral chrysotile in the bituminous material.

July 10, 2020: A bituminous coating on the outside of the culvert was sampled and delivered to an accredited laboratory for analysis.

July 10, 2020: DDC learned that the bituminous coating on the outside of the culvert also contained the asbestos mineral chrysotile.

July 10, 2020: Asbestos abatement contractor began removing the exterior bituminous coating along cut lines so the culvert could be cut into sections then removed from the trench. A third-party air sampling firm was retained by the contractor to collect ambient and employee exposure samples during all disturbance activities. To date all ambient and employee exposure sample results have been below OSHA regulatory limits. Abatement work and monitoring will continue until complete; if monitoring indicates OSHA regulatory limits are exceeded, work will stop.

July 11, 2020: Asbestos abatement contractor began cutting the culvert into sections and removing the sections from the trench. The sections are being wrapped and/or bagged appropriately and disposed of at a licensed landfill.

August 1: Asbestos abatement contractor plans to complete the removal of the portion of culvert that requires replacement.

Frequently Asked Questions

When and how is asbestos a hazard?

See OSHA Fact Sheet <https://www.osha.gov/Publications/OSHA3507.pdf> . Generally, asbestos is a hazard to human health when airborne, when of a specific, very small particle size, and when the exposure is prolonged.

Has DDC consulted with health and safety professionals regarding potential hazards to workers and the public?

Yes, DDC has consulted with and notified the State of Hawai'i Department of Health (HDOH). DDC has also informed and consulted with the State of Hawai'i Department of Labor, Occupational Safety and Health Division (HIOSH).

How will workers and the public be protected during culvert removal?

HDOH-certified asbestos abatement workers will be the only individuals allowed to perform any work involving the disturbance of ACM. All ACM waste material will be double bagged or wrapped and sealed in accordance with EPA guidelines and regulations. Ambient and employee exposure air sampling will be conducted during all disturbance activities. Should any air sample results exceed OSHA exposure standards, all work shall cease immediately and removal methods will change accordingly.

Is there still asbestos on the remaining portion of culvert and is it a hazard?

Yes, the roughly 400-foot-long portion of the culvert not removed has the bituminous coating, an ACM, on both its interior and exterior. Like many ACMs that remain in the environment, the culvert is not considered a hazard for several reasons, including:

- There is no reason to believe that the public will access or disturb the remaining ACM.
- The ACM is not friable (meaning it is not easily crumbled). The ACM is a tar-like material and the tar matrix reduces the likelihood that very fine particles of asbestos would be generated by disturbances.
- The environment within the culvert is generally moist, reducing the likelihood of dust generation should a disturbance occur.

Was asbestos released into the environment and was it or will it be a hazard?

Yes, small quantities of asbestos may have been released into the environment (*i*) as the culvert and its bituminous coating was worn by the flow of water through the culvert over the last 35 years; (*ii*) when the contractor disturbed the interior bituminous coating, an ACM, on ten (10) days in early 2019 and twelve (12) days in early 2020; and (*iii*) when the contractor removed soil from around the exterior of the culvert and in the process disturbed the exterior bituminous coating, an ACM. The presence of this small amount of asbestos is not considered a hazard for several reasons, including:

- The EPA has issued numerous opinions since the 1980s that in situations like the subject bituminous coating, where the binding material is strong enough to prevent the release of

fibers, then certain regulations are not applicable. Further, the EPA has stated that disturbing an ACM like the subject coating in a manner that doesn't result in a high probability of the asbestos fibers becoming crumbled, pulverized, or reduced to powder is not subject to the regulations.

- The wearing off of the ACM by water flow over the last 35 years would result in very small amounts of asbestos being present in the sediment downstream of the culvert; these sediments are wet, have been covered by subsequent layers of sediment, and will not be disturbed in the future in a way that would generate dust containing friable asbestos at a potentially hazardous level.
- The ACM is not friable (it is not easily crumbled and will not generate dust unless it is disturbed in specific ways).
- For those working in the culvert, working at the site, or living nearby when the ACM was disturbed by the contractor, there may have been a very-limited, non-hazardous exposure to asbestos. The exposure is considered limited and non-hazardous because (i) the ACM was not friable and being coated with asphalt it is unlikely that the disturbance generated dust of hazardous size or composition; (ii) the generation of dust during the disturbance was limited by the wet environment inside the drainage culvert; (iii) the disturbance was limited in duration; and (iv) the culvert was being ventilated during the disturbance and potential receptors outside the culvert were in the outdoors.
- While removing the soil from around the exterior of the culvert, only small portions of the culvert exterior were disturbed. The disturbance was via the blunt teeth of the excavator bucket contacting the exterior of the culvert. Such a disturbance of the bituminous coating is extremely unlikely to generate the microscopic pure asbestos particles that are harmful to human health. The small amount of bituminous coating, an ACM, that became incorporated with the soil removed from the excavation does not represent a human health hazard and that soil will be reused as backfill at the project site. This is because (i) the ACM in the soil is likely not of a particle size that would be harmful to human health; (ii) during handling the soil will be managed and handled using construction standards that reduces dust generation; and (iii) the soil, once used as backfill, will be capped by additional soil and the road, reducing the likelihood that it will be disturbed again in the future.

Why is there asbestos on a culvert?

Prior to 1989, incorporating asbestos into building materials was common practice prior to the EPA banning the use of asbestos in materials like spray-on fire proofing, spray applied decorative materials, pre-formed pipe insulation, etc. It is also important to note that not all uses of asbestos are banned in the United States. It is likely that the culvert manufacturer had a layer of asbestos felt embedded in the zinc coating of the corrugated steel pipe (CSP) and then dipped the pipe in asphalt. Culvert manufacturers believed that asbestos felt greatly improved the adhesion of the asphalt coating and protected the pipe, presumably adding to its service life.