

Canyon Challenge

A tough ecosystem in a California landfill makes for daunting erosion control job

By Adam L. Dibble

Operating a landfill in a canyon setting is anything but easy. Large swaths of bare soil on steep slopes need to be held in place to prevent airborne dust and soil sediment runoff. Extreme winds, unpredictable rains and spotty sunlight make erosion control and vegetation establishment a tough chore.

This was the situation facing project officials at Sunshine Canyon Landfill in the fall of 2011. One of the largest landfills in the country, Sunshine Canyon in Sylmar, Calif., is the final stop for 8,500 tons of non-hazardous waste generated daily by residents and businesses in Los Angeles County. The landfill rests on a 1,000-plus-acre site that is owned and operated by Republic Services, of which 363 acres have been approved for solid waste disposal.

Nestled in the corridor between Interstate 5 and California Highway 14, the landfill site is under strict regulatory scrutiny because of its proximity to Los Angeles, home to more than 3.8 million residents. The soil stabilization,

erosion control and vegetation project needed to be done correctly the first time and come in on budget.

Project officials chose Profile Products for its number of solutions tailored to the canyon's environment.

"The products selected to hold the bare soil and establish vegetation had to perform under pretty extreme conditions in that canyon," said Kurt Chirbas, regional manager for Profile Products. "Project managers needed to exceed agency requirements, provide documentation to the inspectors to verify product performance and meet public expectations."

In October 2011, landfill operators were faced with a challenge. A large section of the landfill was being excavated for future use. Eighty-four acres of canyon walls—with 400-ft runs at 3:1 slopes—needed to be held in place to minimize dust and prepared to ensure that native seeds germinated and established on the inclines. A customized blend of native seeds was initially hard to obtain because the site

was under the scrutiny and jurisdiction of at least three different local, county and state biology departments, but S&S Seeds, a distributor for Profile Products in Southern California, was able to provide the seeds.

'Its Own Little Ecosphere'

In terms of climate, Sunshine Canyon Landfill might as well be on another planet.

"It's like no other landfill I've seen in my 26-plus years in this business," said David Cieply, general manager of Sunshine Canyon Landfill. "It truly is in its own little ecosphere."

It is not uncommon for the canyon to receive twice as much rainfall as the surrounding area, according to Cieply, and different slopes in the same area can receive different precipitation amounts. The sunshine can be fickle, quickly overheating parts of the canyon while neglecting other areas altogether.

Seed germination was tough because of extremely low precipitation this year in LA County in addition to warmer temperatures.

"The difference in sunlight and precipitation depending on which side of the canyon you are on is pretty drastic," Chirbas said. "Add to that the 60 mph winds, and you find out very quickly [that] it's hard to establish vegetation in this type of environment."

Adding to the difficult germination conditions was the sheer volume of bare soil needing vegetation. Even though waste would not reach the higher parts of the canyon walls for some time, project officials needed vegetation established for multiple reasons. The soil needed to be protected



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from high winds and dry conditions that would produce dust and spread potential odors.

“For this project, we needed to control dust and retain moisture for the soil because of the high winds,” Chirbas said. “Determining the proper slope preparation, soil additives, plant varieties and mulch was critical to the success of the site.”

In addition to the potential dust and odor issues, Cieply said the rainy season that runs from October to March had the potential to send loose soil cascading down the canyon walls.

Holding the Hills

A combination of a bonded fiber matrix (BFM) and stabilized mulch matrix (SMM) was used to stabilize the canyon’s bare slopes.

Profile’s Hydro-Blanket BFM was applied to the steeper-sloped portions of the canyon, which needed year-round protection. The BFM used a combination of thermally refined wood fibers and multi-dimensional tackifiers to increase water-holding capacity, which facilitated a more complete germination and faster vegetation establishment. This also secured the loose soil and prevented sediment from running off the slopes, which reduced the nephelometric turbidity units of the storm water.

On the more moderately sloped areas, which needed only three to six months of protection during the year, Profile’s Terra-Matrix SMM was applied. It is designed for soils on active construction and building sites. The mulch is non-toxic and biodegradable—perfect for a project with a lot of oversight from regulators.

No Rain? No Matter

According to Cieply, both the BFM and SMM have held up well under the circumstances. Aside from a few showers, the rainy season produced only half the amount of expected rainfall. Because the native California seed used on the slopes needs cool soil before germinating, much of the 84 acres lacked vegetation establishment by early spring.

The 12-month functional longevity and water-holding capacity of the BFM held soils in place and kept dust issues at bay even though much of the seed did

not germinate in the dry conditions.

With the slopes being held, it is simply a waiting game until next year’s rainy season begins in October.

“The native seed we used is genetically programmed to sense cool [wet] soil, so once the area gets some rain, the vegetation will come in nicely,” said Robert Sjoquist, distributor for S&S Seeds.

Sunshine Canyon Landfill’s story shows that the right combination of erosion control solutions can protect

any environment, even if rain is late to fall and seeds take a long time to germinate. **SWS**

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