

LEARNING SERIES

Steel Slag – An Economical & Sustainable Alternative to Crushed Stone and Clean Fill

Steel Slag is a product of the iron and steel recycling process, produced by removing the molten impurities from the surface of electric arc furnace smelting pots. The molten slag is slowly cooled by a water mist until solidified. The slag can then be processed into various gradations for construction use.

The geotechnical properties of steel slag, the low cost of production, and the fact that it is a product of recycling, make it an affordable and sustainable alternative to crushed stone and granular backfill. Several of SESI's Clients have used it as a means to significantly reduce construction material costs during site preparation. Steel slag, in addition to being a low-cost alternative to its quarried-stone counterparts, is readily available at several facilities in New Jersey and Pennsylvania.



The New Jersey Department of Environmental Protection (NJDEP) requires that all clean fill sources be screened and tested in accordance with the Alternative and Clean Fill Guidance Document, dated December 29, 2011. The high cost of sampling and laboratory analyses, which can be a strain on a project's pro-forma, in many cases can be avoided by the use of steel slag. SESI has recommended to our Clients, steel slag from a local slag producer, for use as clean fill to backfill remedial excavations below the water table and elsewhere on their construction sites. Though there are several local slag producers, the NJDEP has pre-approved the slag from TMS International's Sayreville facility for general construction use in New Jersey. It is considered to be clean fill because it meets the NJDEP Non Residential

Direct Contact Soil Remediation Standards, in part, because volatile, semi-volatile, PCB, and pesticide compounds are eliminated by the extremely high temperatures during the smelting process.



The uses of steel slag are diverse, as it can be used for general backfill, ground improvement, road base, foundation and slab support, etc. It can also be processed into various gradations and screened for particular applications. SESI specifies its use for venting layers in landfill gas systems and other similar depressurization systems.

SESI can help you determine if steel slag is a viable alternative fill material for your project. Our LSRPs are well-versed in the current NJDEP Site Remediation Program rules and guidances and together with our geotechnical expertise, we can assist you with all of your environmental and geotechnical needs.

For more information, please contact Justin Protasiewicz at: (973)-808-9050