Sediment Controls

Mother Nature employs no sediment controls in it's quest to flatten the plant, yet providing for the protection of the environment is essential in any roadway construction project, and sediment controls are one of the many features in the Scioto-823 project that do just that.

Sediment controls are designed to keep eroded soil on a construction site so that it does not wash off and cause pollution to a nearby water source. There are many types of controls that can be used to mitigate flow, including trenches, basins, silt fences, mulching and hydroseeding.

Sediment trenches are ditches, depressions, swales or any other low-lying place that is dug to control runoff from newly excavated hillsides. These trenches may also contain semi-permeable obstructions that are placed directly in front to help filter the runoff; these may include rocks, fencing or other sediment traps. These allow the sediment to settle and the hillside to become more stable as time progresses.

Sediment basins are large holes similar to ponds that are dug into the earth that contain risers and outlet pipes rather than rocks to handle much larger flows. This type of earthwork is primarily used later in development to serve as places for storm water treatment.

Another sediment control can be done through the use of silt fences. These are temporary fences made of porous fabric and are held in place by metal or wooden posts that help to filter out sediment from hillside runoff. These fences are typically placed at the base of a newly disturbed hillside, as they are the most likely to have the largest amount of sediment runoff.

Mulching is the process of applying vegetative residue, tackifiers or other materials on disturbed ground to ensure that the soil remains protected from rain and wind. This process also ensures that the natural seedlings are protected from temperature extremes and are properly hydrated so that they may grow and stabilize the land from erosion.

Hydroseeding is yet another application to provide for sediment control and protect water sources from erosion. Hydroseeding is the combination of seed, fertilizers, lime, moisture retaining polymers and other additives with water to form a mixture that is sprayed on the ground to promote plant growth and control erosion.

Interchanges Under Construction

Aerial View

U.S. 52 Partial Interchange

S.R. 823 exit ramp to U.S. 52 East

S.R. 823 entrance ramp from U.S. 52 West

Lucasville-Minford Road Interchange C.R.-28

Full Interchange Entrance and exit ramps

U.S. 23 Interchange

Full Interchange Entrance and exit ramps

Bridge Construction

Bridge 1b and 2 – Ramp A and B over Ohio River Road

Bridge 13 – S.R. 823 over Morris Lane

Bridge 4, 5, 6 – S.R. 823 over CSX, Slocum Avenue, and Little Scioto River

Bridge 17 and 19 – Ramp B over Fairground Road and Ramp D over NSRR

Bridge 7 – Bridge deck pour, Shumway Hollow Road over CSX

SCHEDULE UPDATE:

Construction for the new S.R. 823 is over halfway complete!

Controlled Blasting – Structural Response

Structure response to blasting and ground vibrations has been studied and researched at length by the United States Department of the Interior and the U.S. Bureau of Mines, and the frequency of the vibrations is key to the response by buildings. The three types of structural responses to ground vibrations include foundation structure response, whole-structure response and mid-wall response

According to the World of Explosives web site, www.explosives.org, "the foundation structure response, or the structure vibration below the ground level, is equal to the incoming ground vibrations. The whole-structure response is the racking motions of the above-ground portion of the building, responding to frequencies of 4 Hertz to 12 Hertz. Third is the mid-wall response, or motions within individual panels or components of the above-ground part of the building responsive to frequencies of 12 Hertz to 20 Hertz."

When examining the whole-structure response, the above-ground portion will move more than the structure's below-ground portion, rather its foundation, which is fixed. The differential motions, which produce a change of motion that is either very slow or very rapid, can cause a racking response between the upper and lower corners of a building. In contrast to structural racking, windows rattling, pictures shifting and other small objects moving are associated with mid-wall responses.

As vibration frequency matches or mirrors the natural frequency (the frequency which an object will vibrate when it's struck), the structure will tend to respond with greater force or energy, and the incoming ground vibrations are magnified in the above-ground portion of the structure. Conversely, when ground vibrations do not match the natural frequency, there is less energy that transfers into the structure and, in turn, little, if any, response.

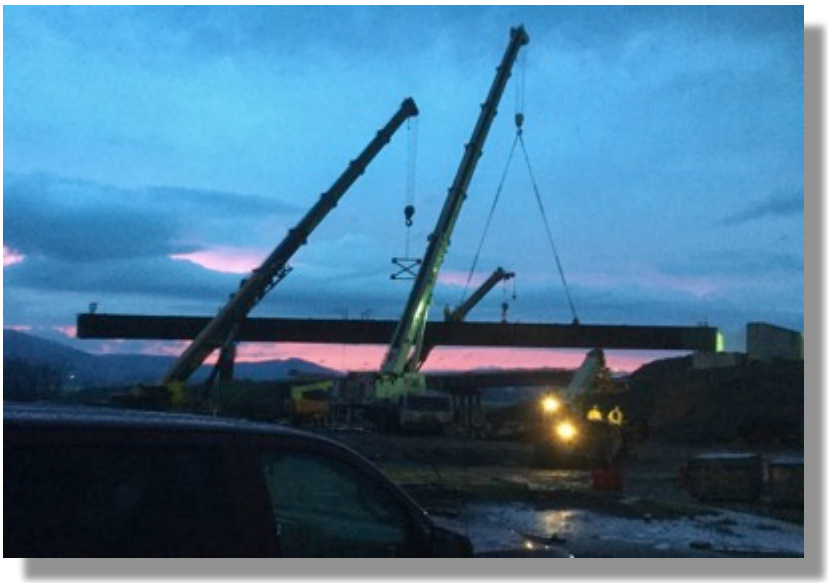
In the construction of the Southern Ohio Veterans Memorial Highway, the limits of the ground vibrations and frequencies are adhered to to ensure the least likelihood of damage to properties in proximity of the project.

Drilling rig drilling blast holes for pre-split blast
Seg 1/2a

Excavation in area of Lucasville-Minford Road
Seg. 2b/3a

Fill placement along the mainline
Seg. 3b

Backfill placement behind MSE wall at bridge 13 S.R. 823 over Morris Lane
Seg. 4



Nighttime bridge beam placement
Bridge 19

Who We Are

HDR, Inc. is an architectural, engineering, and consulting firm based in Omaha, Nebraska. HDR is respected as a global leader, ranking ninth among the world's design firms. The company strives to be led by building on each other's contributions and collaboration with their clients.

The company name, HDR, stands for the initials of its founders, H.H. Henningson, Charles Durham and Willard Richardson. The founding of HDR can be traced back to 1917, when Henning Henningson was taken by the need for better water works, sewer systems and electric plants across the country. Henningson chose to found the Henningson Engineering Company in Omaha.

By the 1950's, the company had expanded its engineering services to include resource management, community planning, transportation and much more. Chuck Durham, one of the company's civil engineers, held an extremely crucial part in the early expansion of the company. Durham was able to successfully expand HDR from a mere 15 employees to more than a thousand.

HDR is held to the standard of partnering with their clients to shape communities and push the boundaries of what's possible. The company's more than 10,000 employees have participated in projects at over 225 locations around the world. 14 of them work here, including subcontractors!

Most Valuable Portsmouth Project Player (MVP3)

PGG congratulates Ken Bosler – the Spring 2017 recipient of the MVP3 award for the hard work he contributes to the project.

Ken Bosler is the Traffic Control Supervisor working for the John R. Jurgensen Company. Ken has worked in the construction industry for 25 years. With 20 of those years spent working in the traffic arena, Ken has worked on multiple highway projects throughout his career.

On any given day Ken can be found working throughout the entire 16-mile corridor of the Southern Ohio Veterans Memorial Highway. The speed and pace of construction of the project as it evolves is something Ken enjoys to watch, in addition to being a part of the first P3 project in Ohio.

Born in Cincinnati, Ken is an Ohio native, and currently he resides in Sardinia with his wife of 26 years, Karla. They have two children, Barbara and Brian, who live in the area as well. When not working on the project, Ken is attending Cincinnati State to receive a degree in construction management, and in his spare time, Ken operates BB&K Automotive, specializing in car tuning and performance cars. Ken is also a weekend warrior who enjoys drag racing.

The Portsmouth Gateway Group recognizes Ken as the Most Valuable Portsmouth Project Players (MVP3) for the spring quarter for his efforts to ensure the construction of S.R. 823 is conducted in accordance with the maintenance of traffic plans and his contribution toward the success of the project. Ken will receive a small token of appreciation for all his efforts.

Big Rigs of the Project

Hitachi 1200

The Hitachi 1200 excavator is a huge hydraulic machine with extraordinary power. Weighing in at a massive 124 tons, the Hitachi 1200 has a maximum dig depth of 30 feet, and with more than 20 million cubic yards of earth to move, the Hitachi1200 is definitely a leading force on the S.R. 823 project.

The earliest recorded "hydraulic shovel" appeared in 1882 and was produced by Sir W.G Armstrong & Co. But it wasn't until 1948 that a prototype placed an excavator on wheels. This company gave up the patent to a French company named SICAM. The company went on to produce the Yumbo, an excavator mounted to a truck. As the appeal for this type of equipment grew, so did the competition of manufacturing a better one.

The continued advancement of excavator technology has led to multiple machines like the Hitachi 1200. With new technologies, better hydraulics, high powered engines, stronger undercarriages, the Hitachi 1200 is a great example of the advances that have been made in fabricating modern-day excavators.

A vast majority of the 20 million cubic yards of rock and earth will be moved by the fleet of six Hitachi 1200s on the project. One ten cubic yard bucket scoop of material will fill a typical sized dump truck. Artic trucks require two and a half scoops to fill their beds.

Project Trivia Fact:

There is over 106,000 linear feet of silt fence measuring over 20 miles in the construction of Southern Ohio Veterans Memorial Highway