August 3, 2023

Brandon S. McNeal, P.E.

Stantec Consulting Services

RE: Landslide Repair Project BEL-147-24.65/25.88, PID 118147

BEL-147-25.88 - Proposed Drilled Shaft Wall Design

Brandon,

I’m providing the following preliminary wall design for BEL-147-25.88. Please note that I have assumed a guardrail offset and based my wall offset on this. If the final guardrail location requires the wall to be offset further, I will provide a check on the wall design to determine if any changes need to be made.

**Preliminary Design:**

|  |  |
| --- | --- |
| Wall type | Drilled Shaft/Plug Pile |
| Wall Length/Limits | 280’ minimum: sta. 1365+80± to 1368+60± |
| King Diameter | 24” |
| Shaft Spacing | 4’ |
| King Offset | 20’ |
| Beam Size | W-16x40 |
| Plugs | 30” diameter, 10’ deep, 18.75’ offset |
| Rock Socket | 10’ minimum |
| Beam Length | Varies. Top-of-rock to be provided @ stage 1 review |

\*Other acceptable beam sizes: W-16x45, W-16x50, W-14x53. In the steel beam plan note provide these as secondary options due to beam availability issues.

**Wall Layout**

Diagram

Description automatically generated

**Wall limits and connection**

The end of the wall where we’re butting up to the existing soldier pile wall will control the shaft locations. Here’s an example of a plug pile wall that was installed adjacent to a soldier pile and lagging wall for your reference:

Diagram, engineering drawing

Description automatically generated

**Guardrail clearance**

As stated above, I assumed a guardrail offset (14’) which will control the wall offset. We need a minimum of 18” clear distance between the inside of the plugs and the guardrail posts. The proximity of the wall to the rail will require half-post spacing. The beginning of the wall will need flared to match the change in guardrail offset, my wall design has taken this into account.

**Top of rock**

I’ve assumed a sloped bedrock surface between the boring locations and the wall offset. After stage 1 is submitted, I’ll draft the top-of-rock profile onto the wall profile.

**Wall and Pavement drainage**

We won’t be installing any porous backfill and drain directly behind the wall. Instead, install a 4” underdrain under the edge of pavement.

If you have any questions or need additional details, please let me know.

Respectfully,



Christopher (Cody) Notz, P.E.

ODOT District Geotechnical Engineer

Ph.: 330-308-6936

Email: cody.notz@dot.ohio.gov