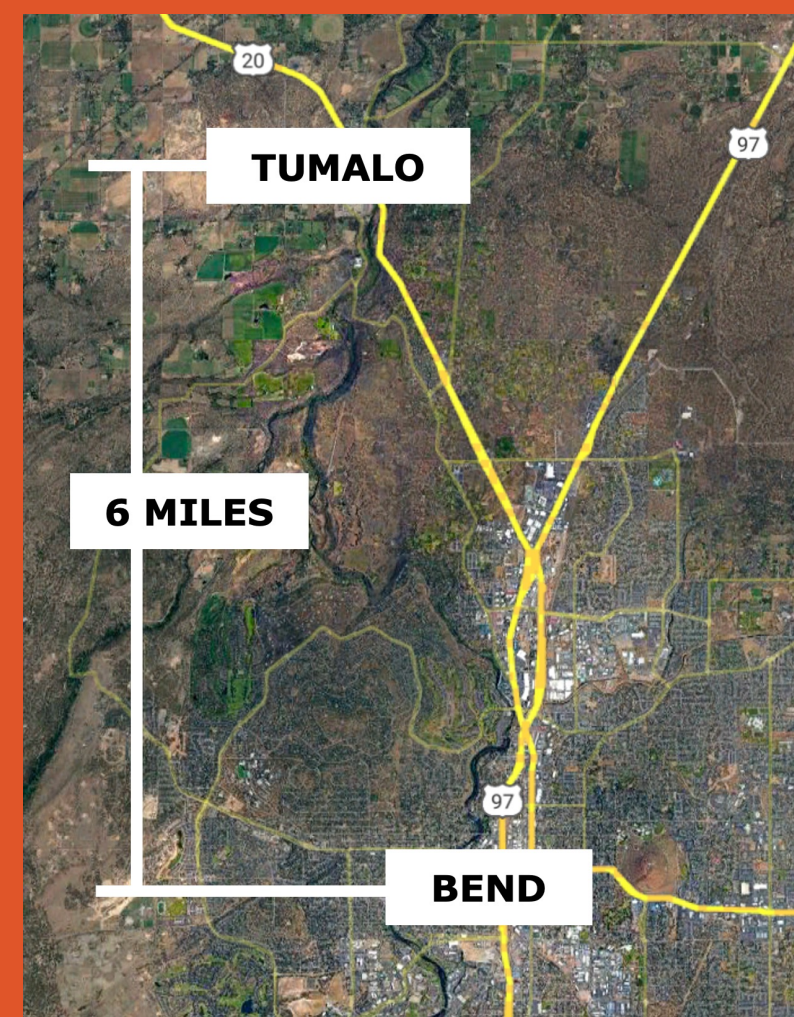
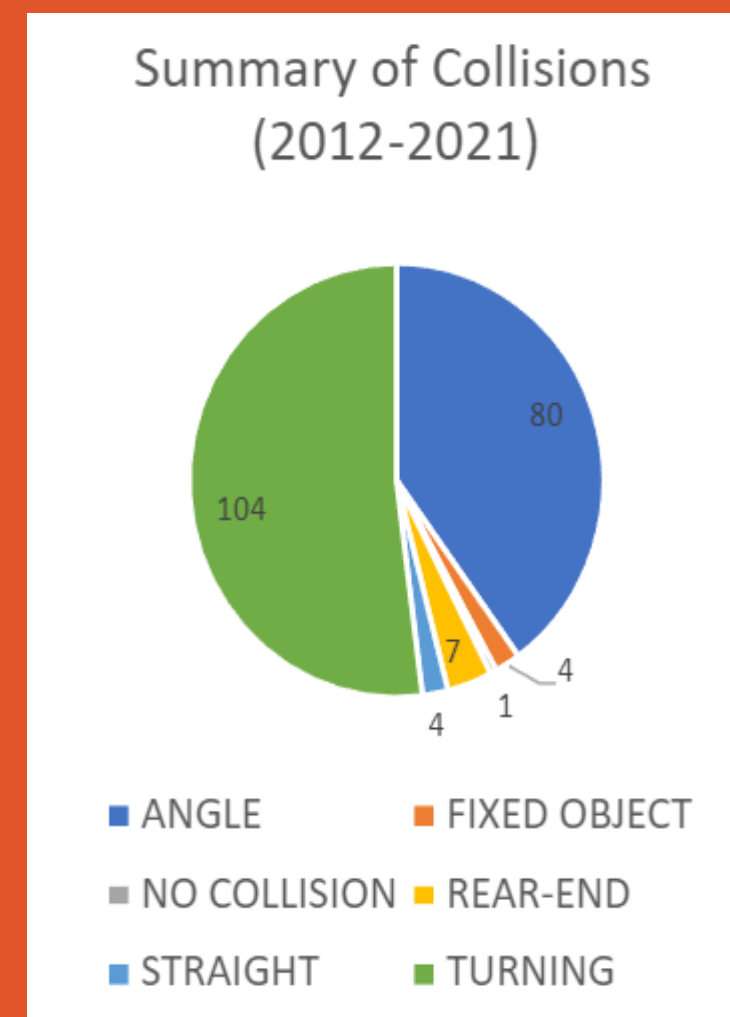


EXISTING CONDITIONS

- An unsignalized intersection between the residential road Riley-Cook Avenue and the highway US-20
- Deteriorating pavement
- Flooding on nearby streets
- US-20 is a major trucking route
- High crash rates, primarily related to turning movements



Aerial view of surrounding area



Summary of Collisions in the intersection (ODOT)

OBJECTIVES

This project set out with the intention to:

- Decrease quantity and severity of crashes;
- Decrease the queuing time for vehicles;
- Renew the failing pavement;
- Improve the connectivity for pedestrians and bicycles between the two sides of Tumalo, OR

SCOPE

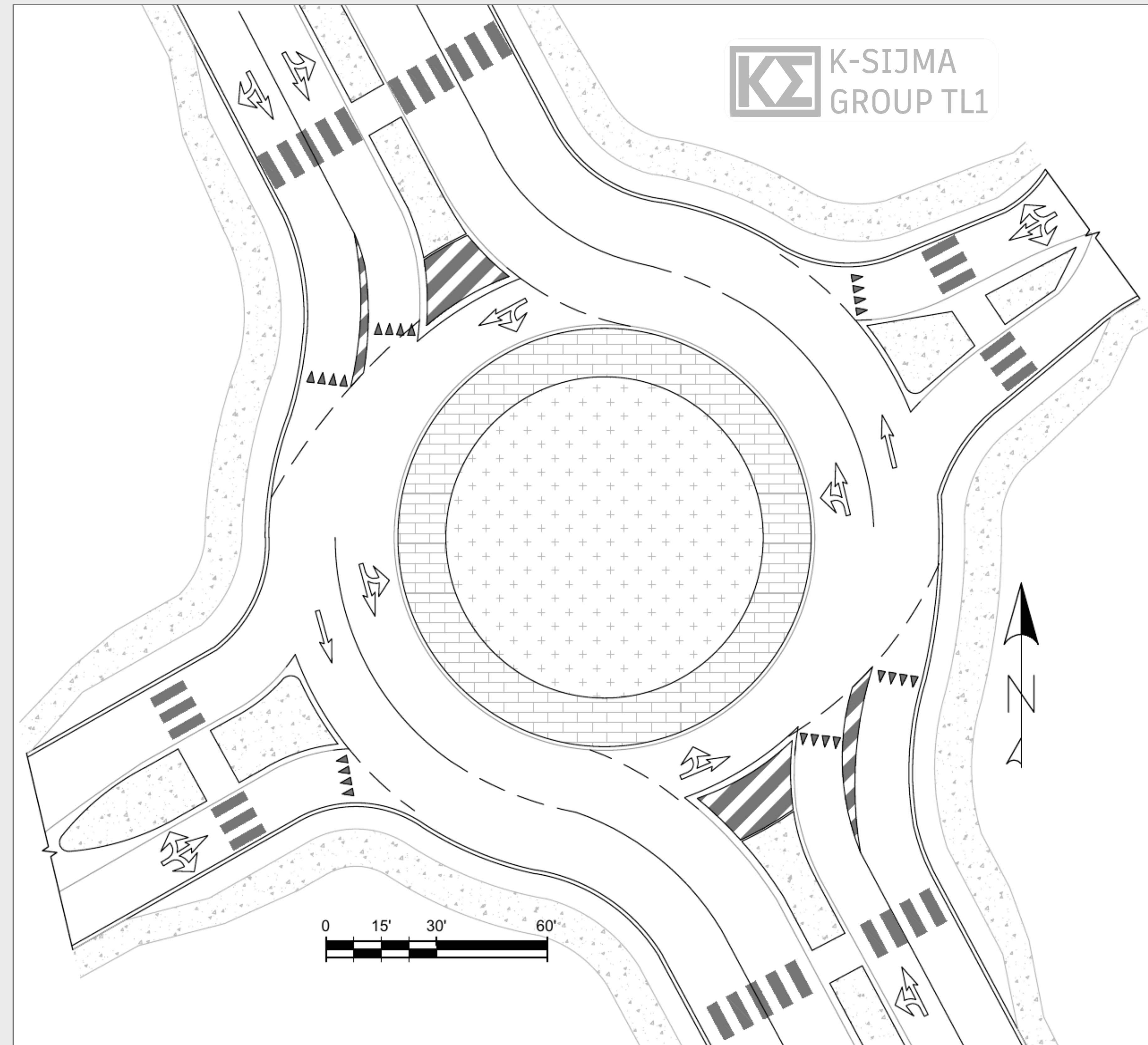
The engineers' responsibilities included the:

- Traffic design geometry;
- Traffic flows within and around the intersection;
- Pavement in and around the intersection;
- Movement and processing of storm runoff produced by the intersection



TUMALO INTERSECTION

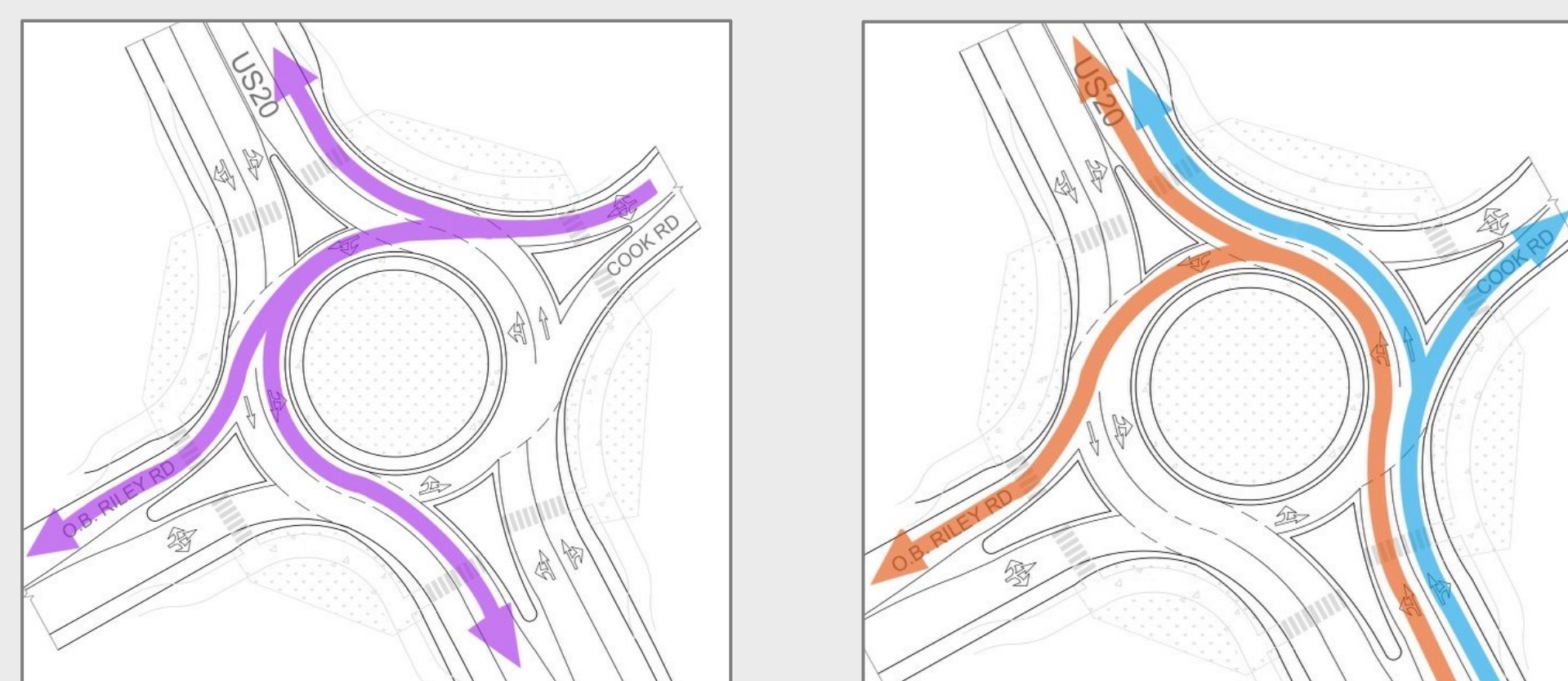
US20 HIGHWAY AND O.B. RILEY- COOK AVE.



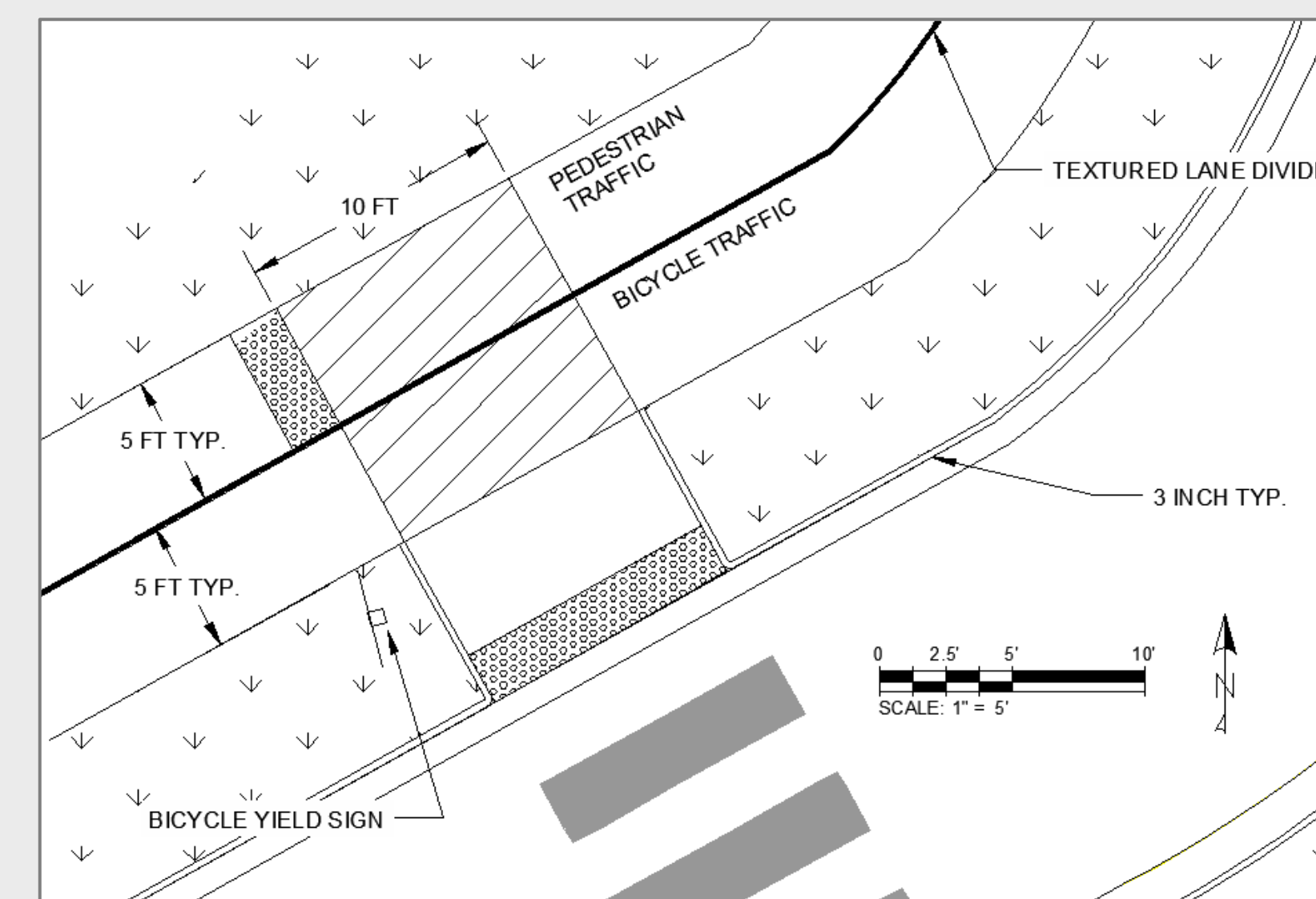
Roundabout shape and striping design

TRANSPORTATION

- Final design was a multi-lane roundabout to allow for the different amounts of traffic in the different directions
- Hybrid design with two lanes of traffic travelling along US-20 highway but only one lane going east and west along Riley-Cook Ave
- 16-foot lanes, a 13-foot truck apron, additional lane space marked as no driving zones for smaller vehicles allows large vehicles to more easily navigate through



Turns available for vehicles entering intersection

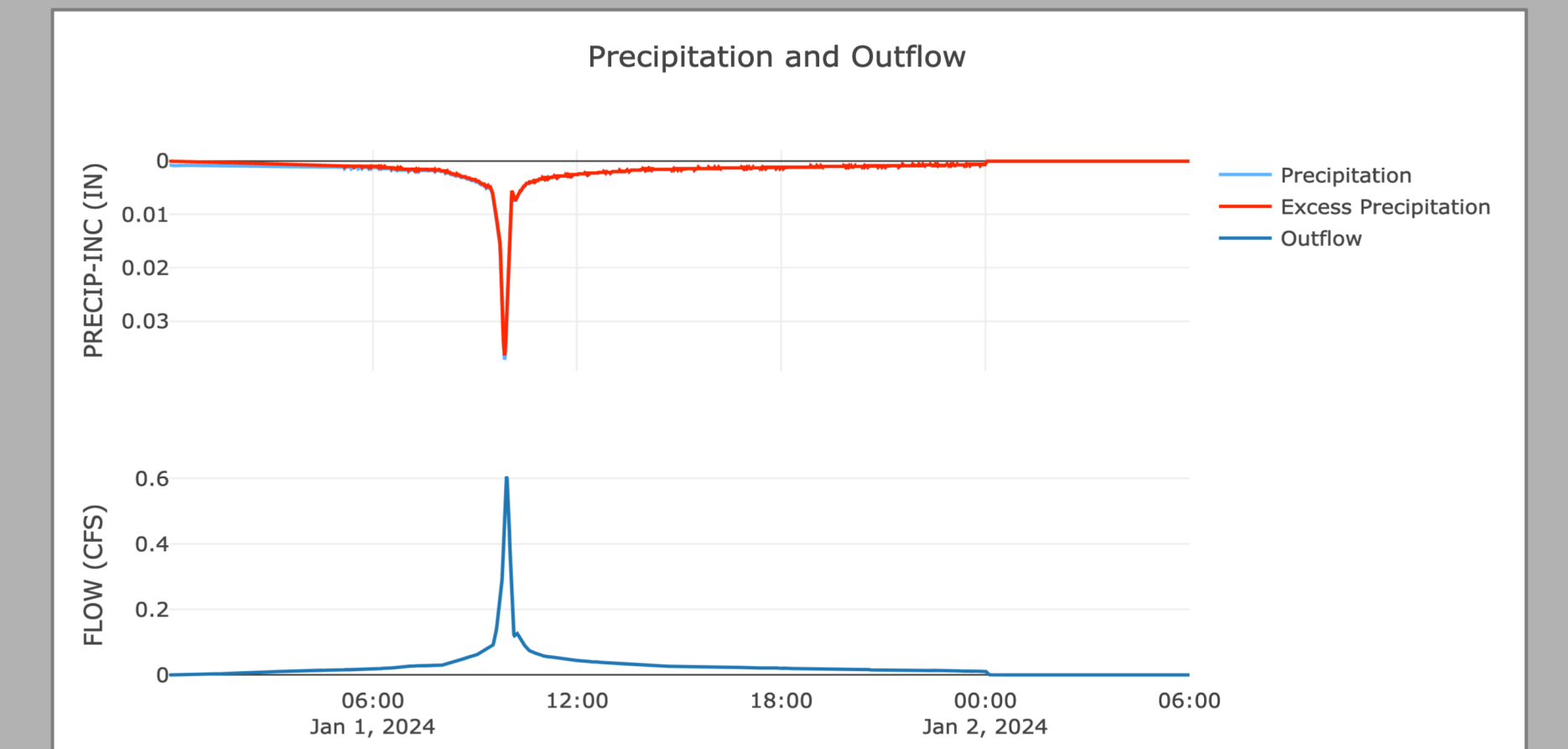


Crosswalk and accessibility details

- Each approach features a pedestrian refuge island to allow safer use of crosswalks
- A multi-use path implement along the outside of the roundabout to allow for easy pedestrian and cyclist access

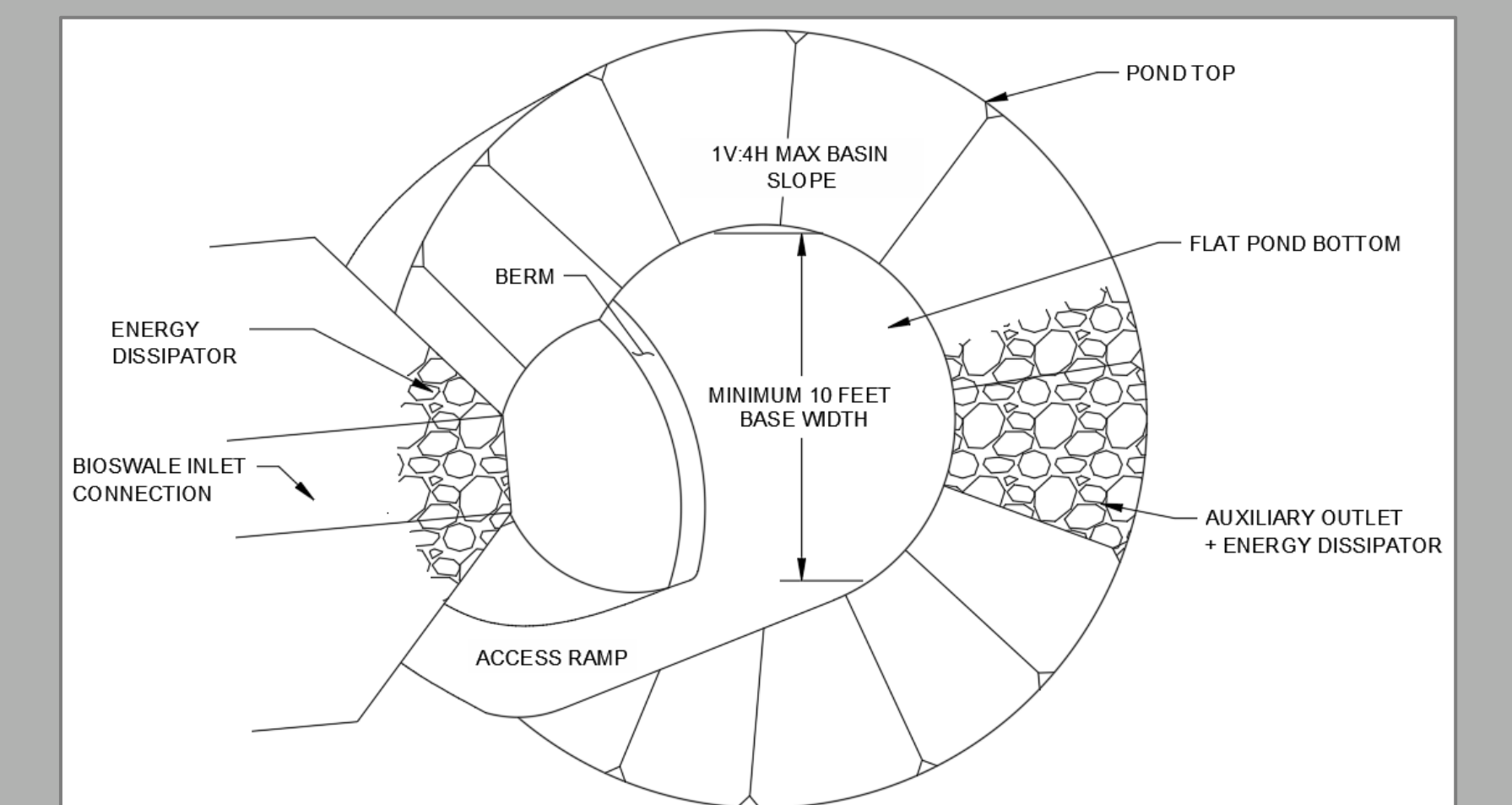
WATER RESOURCES

- Stormwater facilities designed to manage a 2-year water quality storm and a 100-year check storm, with a focus on Low Impact Development approaches.

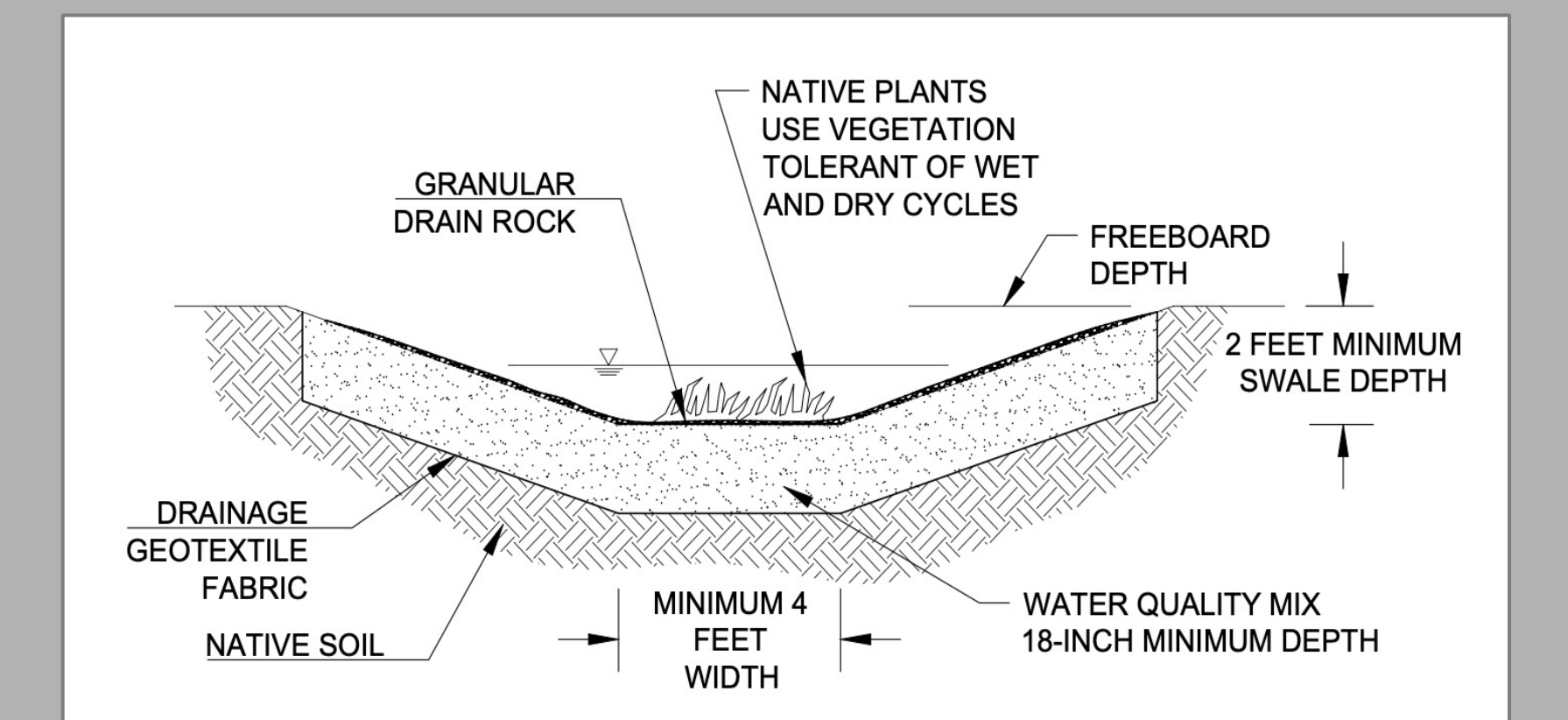


A 2-year storm event hydrograph, showing precipitation and outflow

- Excess site runoff is managed by a combination of bioslopes, bioswales, and bioretention basins.



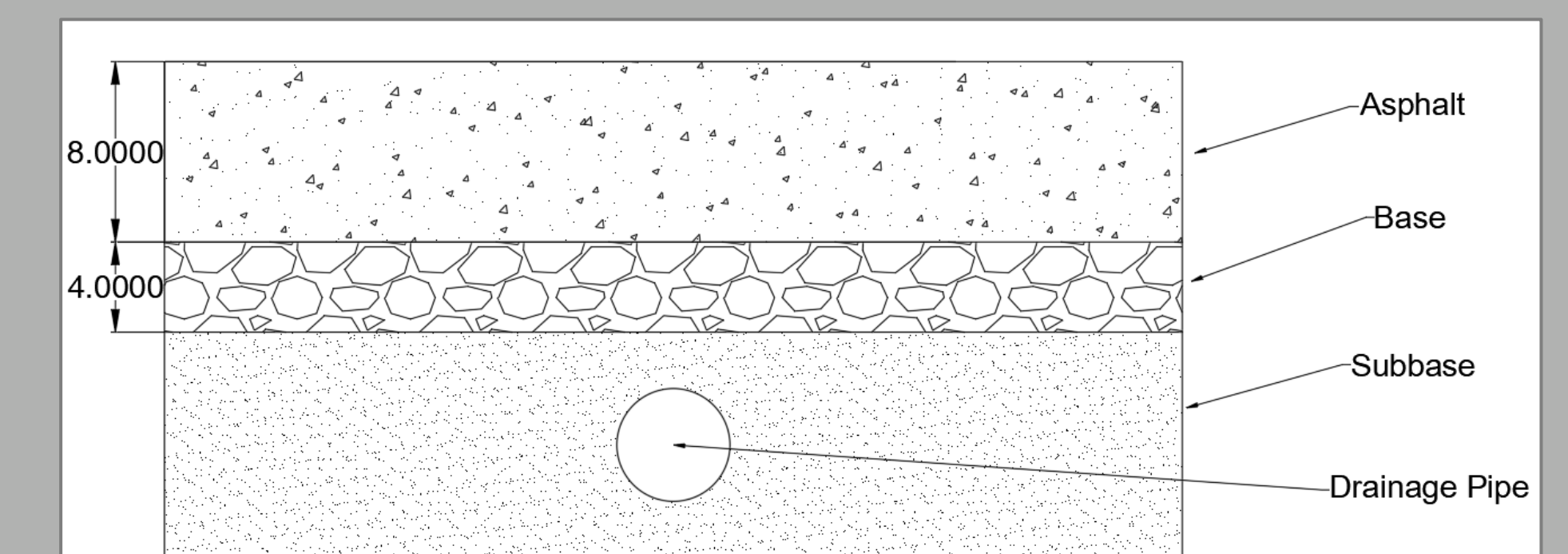
Bioretention Basin Plan View



Bioswale Cross Section

GEOTECHNICAL

- Asphalt pavement
- Designed for a 20-year life span
- 1/2 inch dense gradation
- Recycled asphalt
- Low carbon foot-print



Base layers for roadway