

## INTRODUCTION

The City of Bryan, Ohio has planned a new subdivision built with the name of The Meadowbrook Subdivision. This project will create affordable housing in the area and meet the growing housing demand while creating a friendly and inviting neighborhood for the Community.

The project includes the design and layout of residential lots, along with roads, pipe systems, stormwater management, and the use of green space to enhance the community's aesthetic value.



## DATA COLLECTION

Our project involved stages of data collection, which consisted of a topographic analysis, as well as a soil assessment. Our team took 270 survey points and created an original topography map of our project area. The team also used the USDA website to determine that our site is consistent with loamy clay across the entire site.



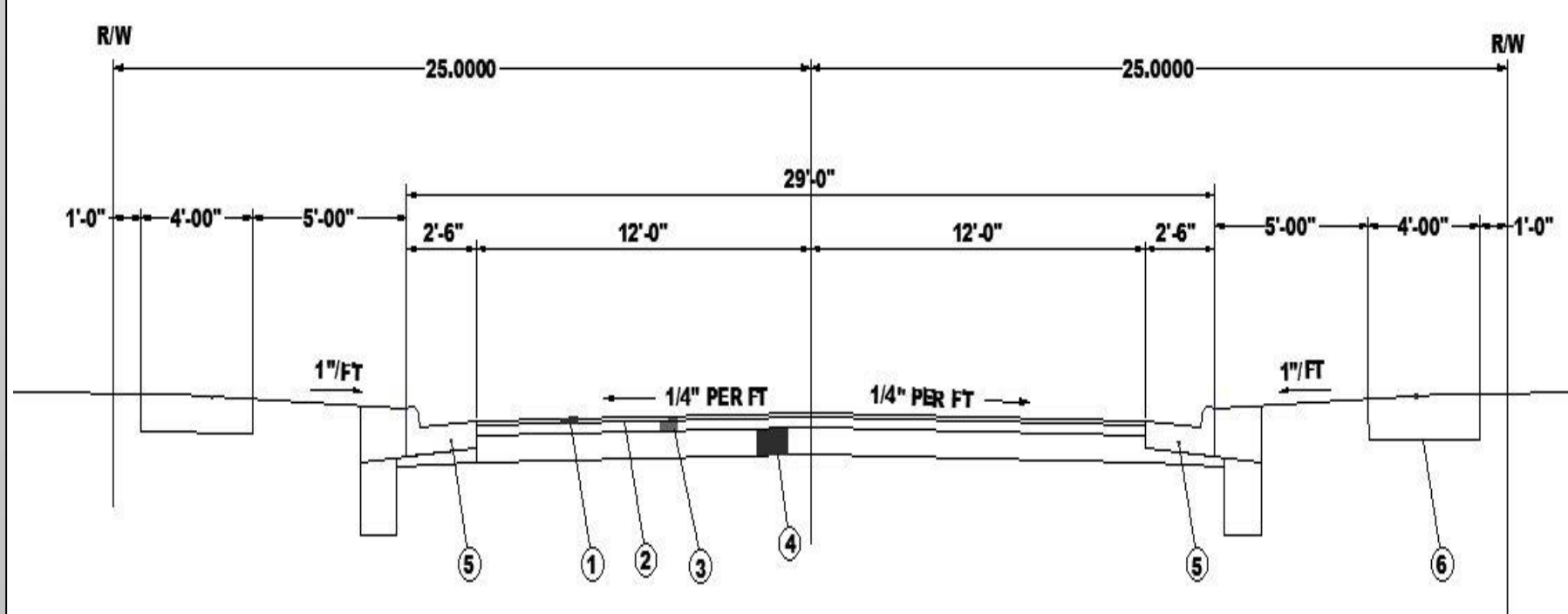
## SITE DESIGN

Our team used the program Civil 3D to make our layout. We first started with a basic road layout, and after that, our team designed the lot layouts. We used Civil 3D to our advantage and optimized the amount of lots we could put in our project area to maximize housing density. Our initial design was a 60-foot frontage but was then transitioned into a 70-foot frontage per the client's request.



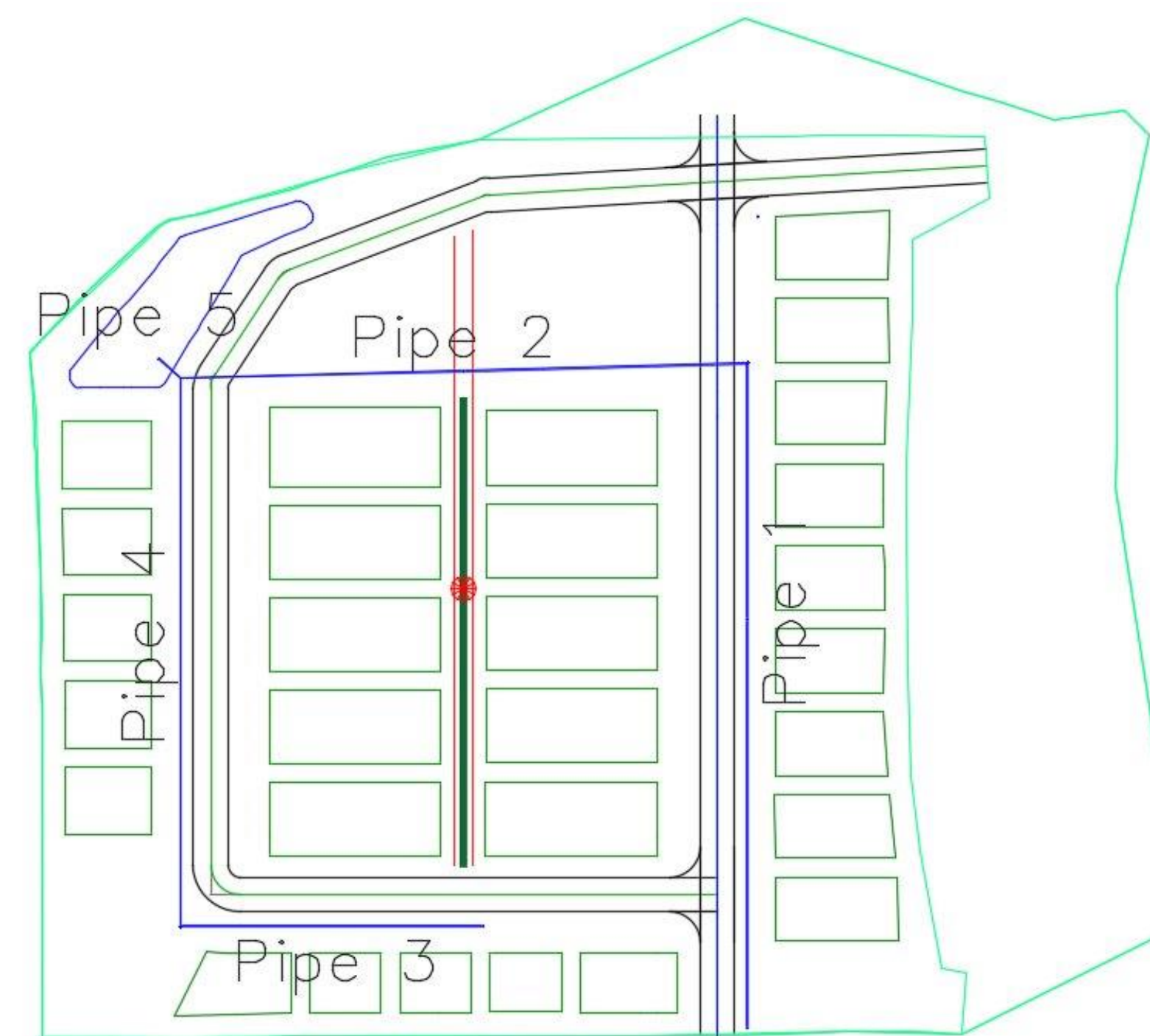
## ROAD DESIGN

KAD Inc. designed a minimum pavement section based on the ODOT standards. This pavement section consisted of a 1.5" HMA surface, a 3" HMA Intermediate, and a 5" aggregate base. We got this minimum pavement section by estimating our ESALs and then using the 1993 AASHTO method to check our design.

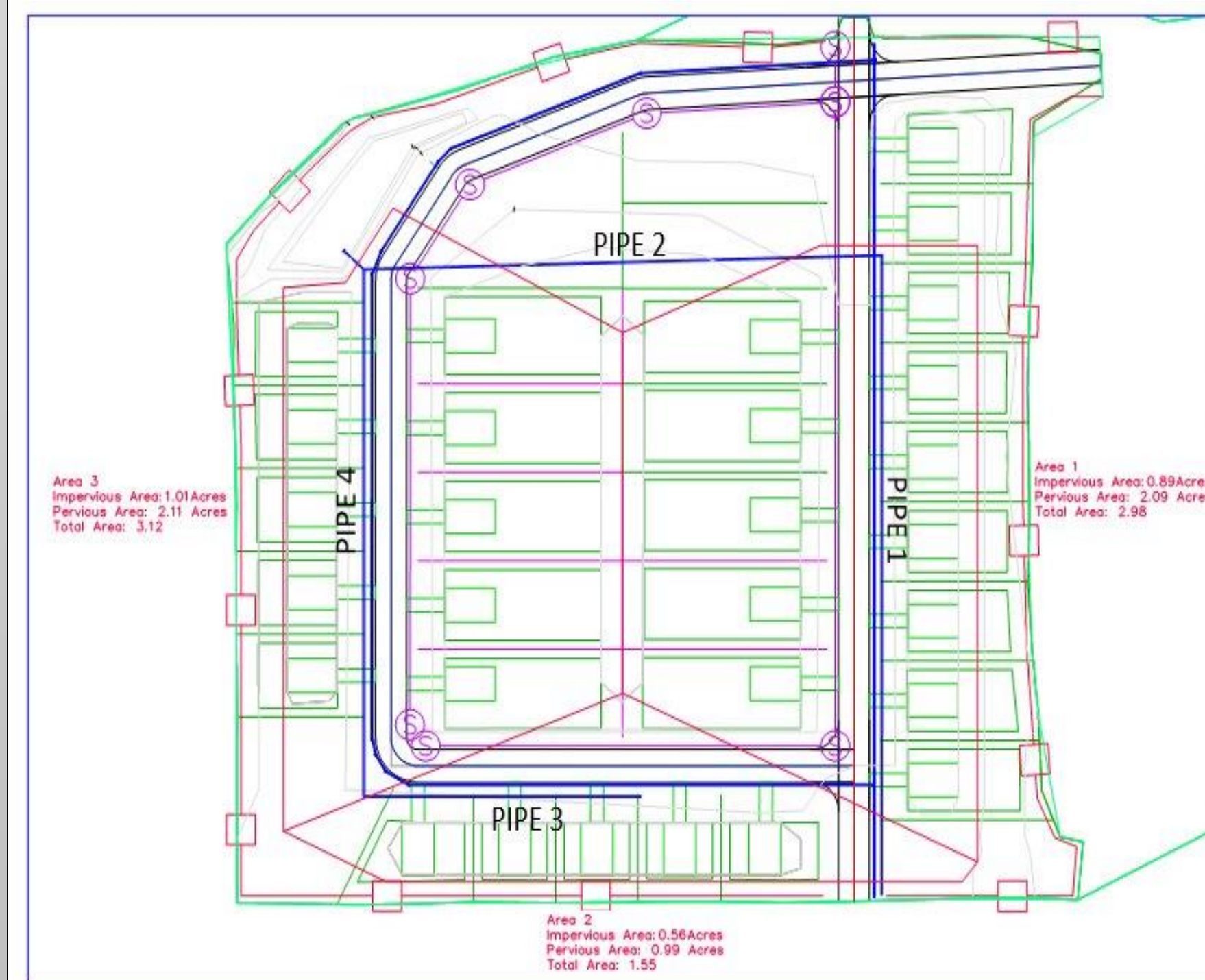


## STORMWATER MANAGEMENT

Our stormwater management plan consists of 5 different stormwater pipes and well as a detention pond to hold the neighborhood stormwater. Our site was designed to efficiently get stormwater into our pipes and to our pond. Additionally, our detention pond is sized to hold double the amount required for future expansion, also having an outflow pipe into a neighboring stream.

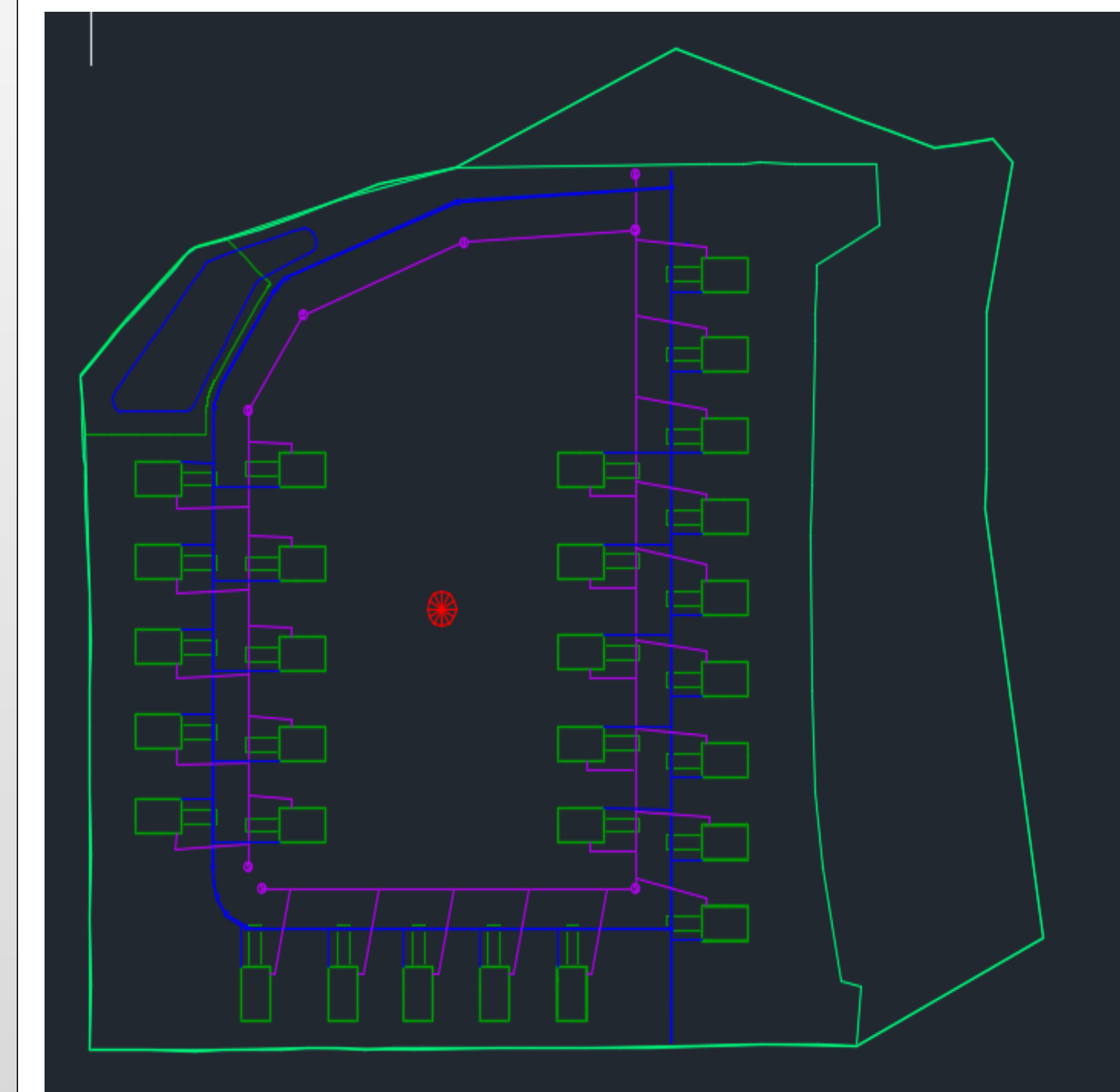


Our Project area consisted of 3 different delineated areas, one in the East, one in the South, and one in the West. We did not include a delineated area in the North end due to that water flowing into the Northern subdivision's inlets. Each delineated area contains 2 inlets for stormwater to make a total of 6 inlets.



## WATER & SANITARY DESIGN

KAD Inc. tapped into an existing utility to the North of the site where a previous neighborhood left connection points. We used a 12" PVC for our pressurized water system to match the neighborhood to the North and made a loop circuit throughout our project area. For our sanitary system, we used an 8" PVC pipe and had a consistent 0.4% slope to ensure the sewage was getting where it needed to go. Our team designed the pipes to have a 4' cover from the surface to ensure no damage will be done during construction.



## FINAL COST ESTIMATE

### RS Means Construction Cost Estimation

	Cost
Road	\$346,099.02
Sidewalk And Driveway	\$193,176.62
Porous Walkway	\$62,579.53
Water	\$344,536.50
Fire Hydrants	\$21,900.00
Sanitary Sewer	\$210,716.00
Stormwater	\$181,918.00
Gas Line	\$79,716.60
Earthwork	\$87,957.72
Silt Fence	\$10,770.00
Construction Entrance	\$2,994.45
<b>Total Cost</b>	<b>\$1,542,364.44</b>