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Conference

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## War Eagle Shopping Center

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## War Eagle Shopping Center

### Abstract

This senior design project is for the development of the War Eagle Shopping Center in Elmore county, Idaho. The shopping center is a part of the Elmore County comprehensive growth and development plan. The shopping center will be placed on 1,120 acres of land that is located fifteen miles northwest of Mountain Home, west of Interstate 84 and east of Simco Road. Our team will determine the required environmental and building permits, design the access and egress roadways, perform a nutrient pathogen study, design a wastewater treatment system, water supply systems, and a structure that includes two anchor stores, three retail stores, and a restaurant. The final site layout and a storm water management plan will also be completed.

### Disciplines

Engineering

# War Eagle Shopping Center

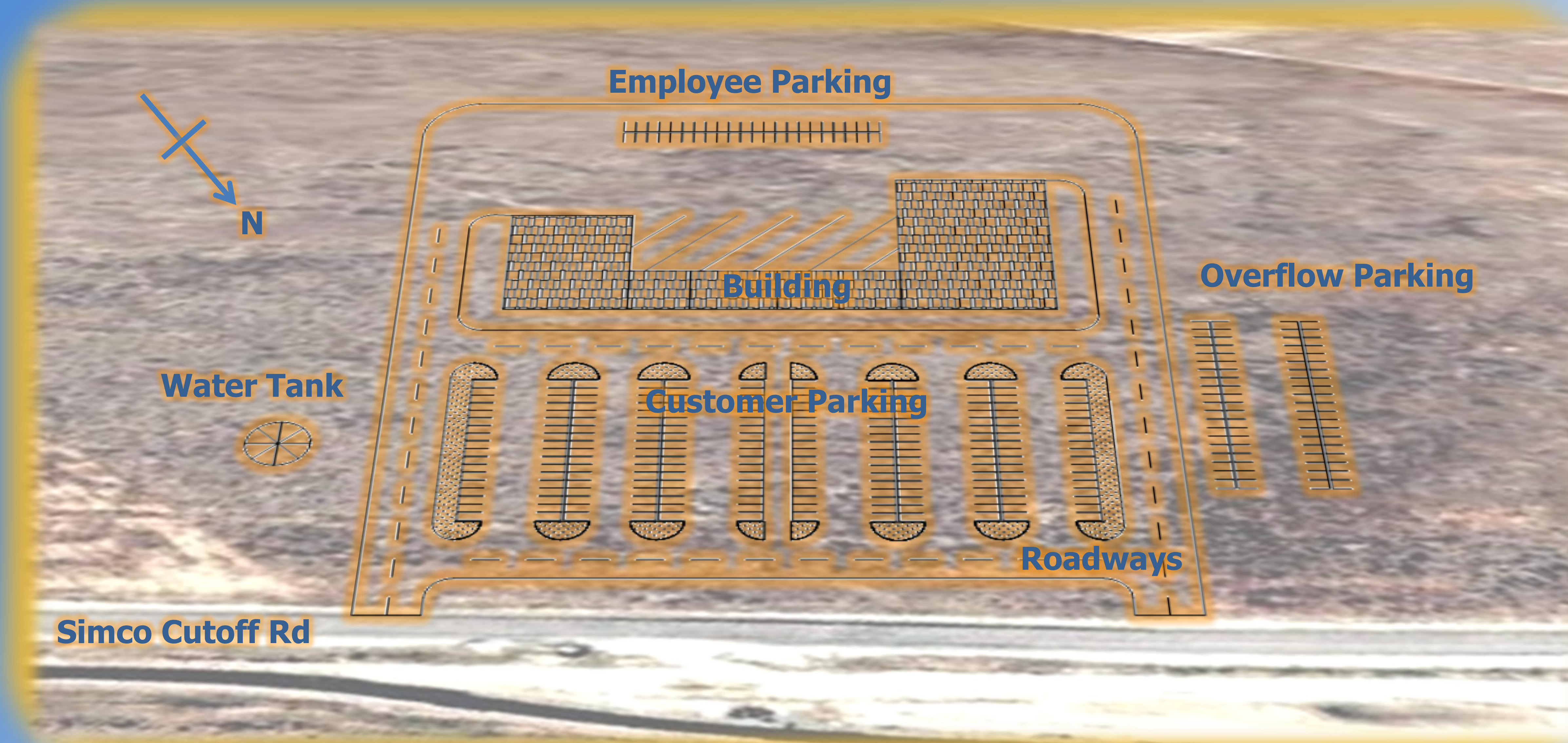
Megan Kautz, Peter McKenzie, David McLenna, Jonathan Rocha, Clemente Salinas  
Civil Engineering Senior Design

## Project Abstract

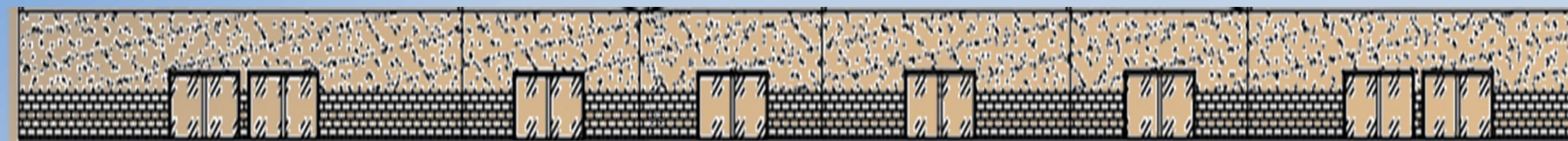
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## Structural Unit

The strip mall will be a steel, eccentrically braced framing, bearing wall system. Steel members will be designed based on loading schemes from the American Society of Civil Engineers and the International Building Code along with the American Institute of Steel Construction. There will be a series of columns spaced 25' on center within the structure which will provide open space for retail purposes.

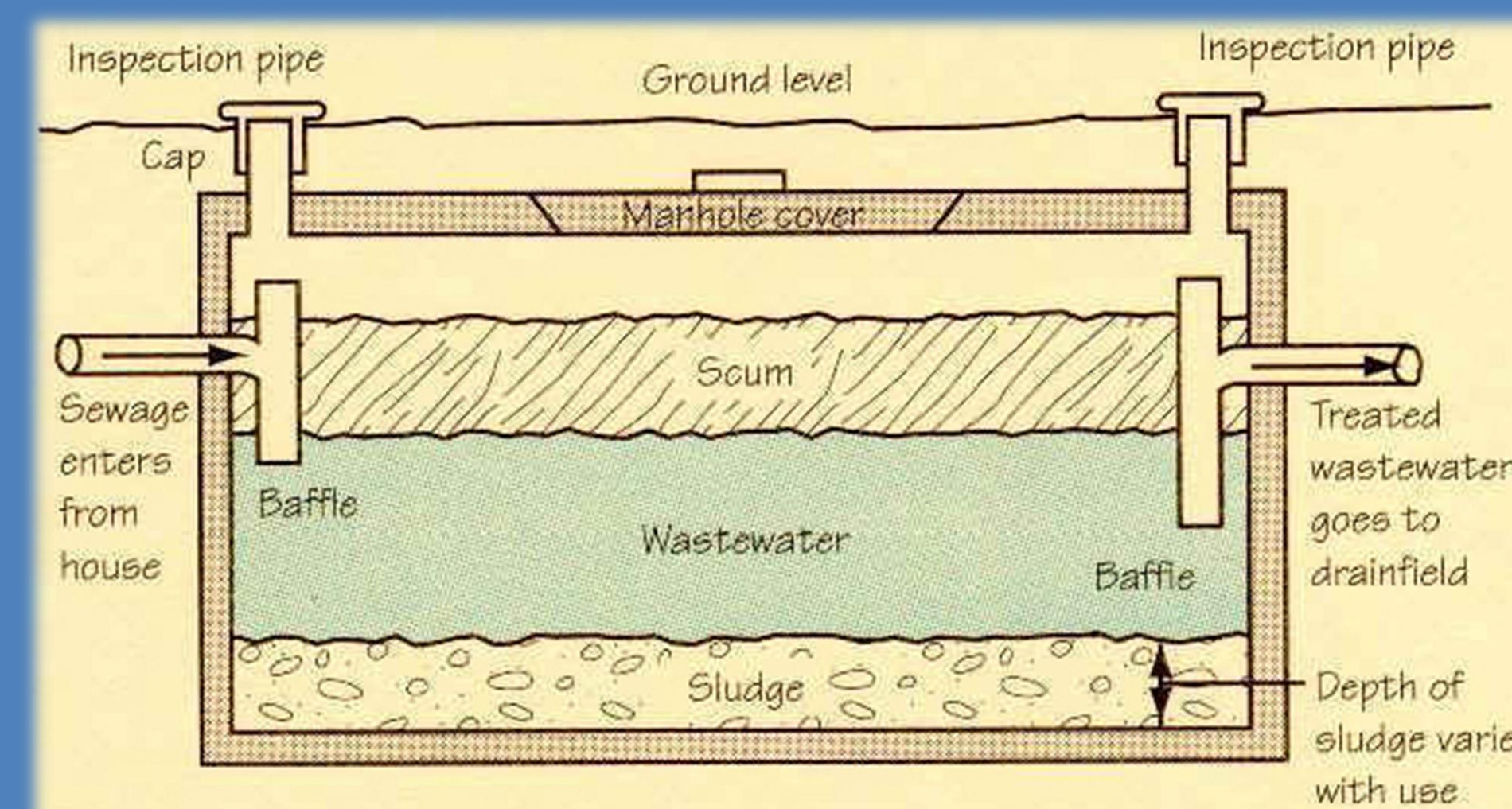


**Anchor Store 1    Retail Store 1 & 2    Restaurant    Retail Store 3    Anchor Store 2**



## Wastewater Treatment System

We will use a septic system design to treat the wastewater produced by the War Eagle Shopping Center. A Nutrient-Pathogen study was completed which showed an increase in nitrate concentration above DEQ regulations. Because of this, our wastewater treatment will include a specially fabricated 5,000 gallon septic tank equipped with nitrate removal technology. All treated wastewater will exit the septic tank into an absorption field. The absorption field will consist of 8 trenches, each 6' by 100' in size.



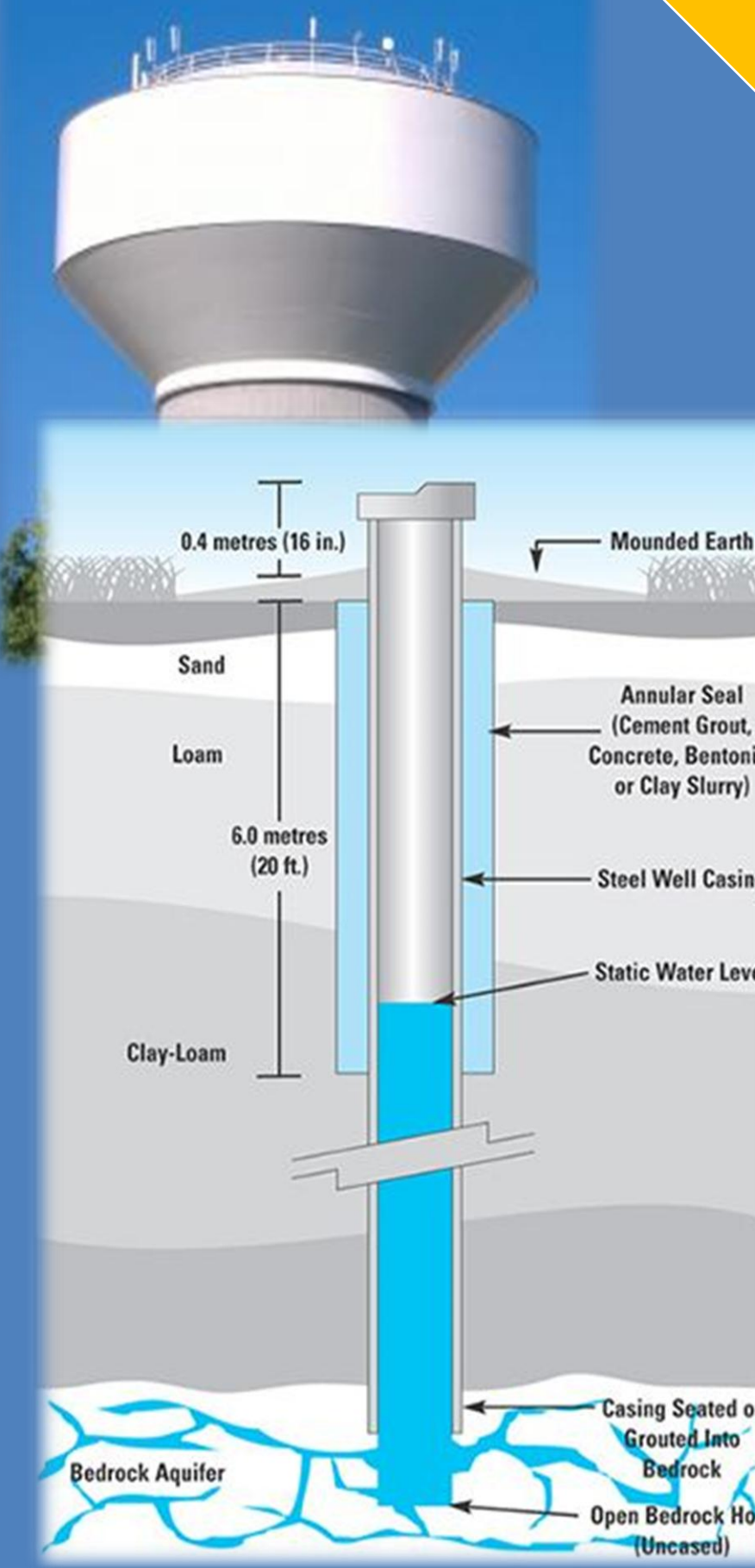
## Transportation & Parking

The parking lot has been laid out to ensure appropriate turning radii for emergency vehicles and delivery trucks. Pavement thicknesses have been designed using geotechnical data and vertical alignment has been calculated to ensure proper run-off of storm water to be collected by curbs and gutters. A traffic analysis was conducted to evaluate the impact of our shopping center on the existing roadways. Intersections have been designed internally and externally to promote safety and adequate traffic flow. Sidewalks and parking facilities are compliant with the American Disabilities Act.



## Water Wells & Storage Tanks

The War Eagle Shopping Center will include two water storage tanks and two wells to supply 590,000 gallons of groundwater necessary for daily operations. The tanks will be elevated and rely on a gravity feed system. The two tank system will provide redundancy in case of internal system failure. Their location will be northeast of the facility and up-gradient from the wastewater treatment system and drain field.



## Project Location

