CASE HISTORY

Rev:00, Date : 07.11.2025

REINFORCED SOIL WALL USING TECHGRID UNIAXIAL GEOGRID FOR RESIDENTIAL SITE DEVELOPMENT AT AMIRA LAKE ELMO, LAKE ELMO, MN

LAKE ELMO, MN

TECHFAB USA

REINFORCED SOIL WALL

Client:	Products used:
GEOMATERIALS	TECHGRID UNIAXIAL GEOGRID : TGU 60 and 80
Contractors:	
PRECISION HARDSCAPES MN	
Manufacturer & Supplier:	Year of Construction:
TECHFAB USA	2025

Project Brief & Problem Description:

The Amira Lake Elmo project in Lake Elmo, MN, is a high-end residential development designed to create a serene and accessible living environment for active senior living. The site featured varied elevations and uneven terrain, an existing pond on the east portion of the property and utility easements along Hudson Boulevard making land development and grading significant hurdles to complete the project. The challenge for the site developers was maximizing the usable land for the new condominium, amenities, driveways, parking lots and landscaped zones. Numerous wall options were reviewed and the project chose to utilize mechanically stabilized earth (MSE) retaining walls capable of withstanding the variable height and load conditions. Along with functionality, the retaining walls needed to complement the project's architectural aesthetics and blend harmoniously with the surrounding landscape.

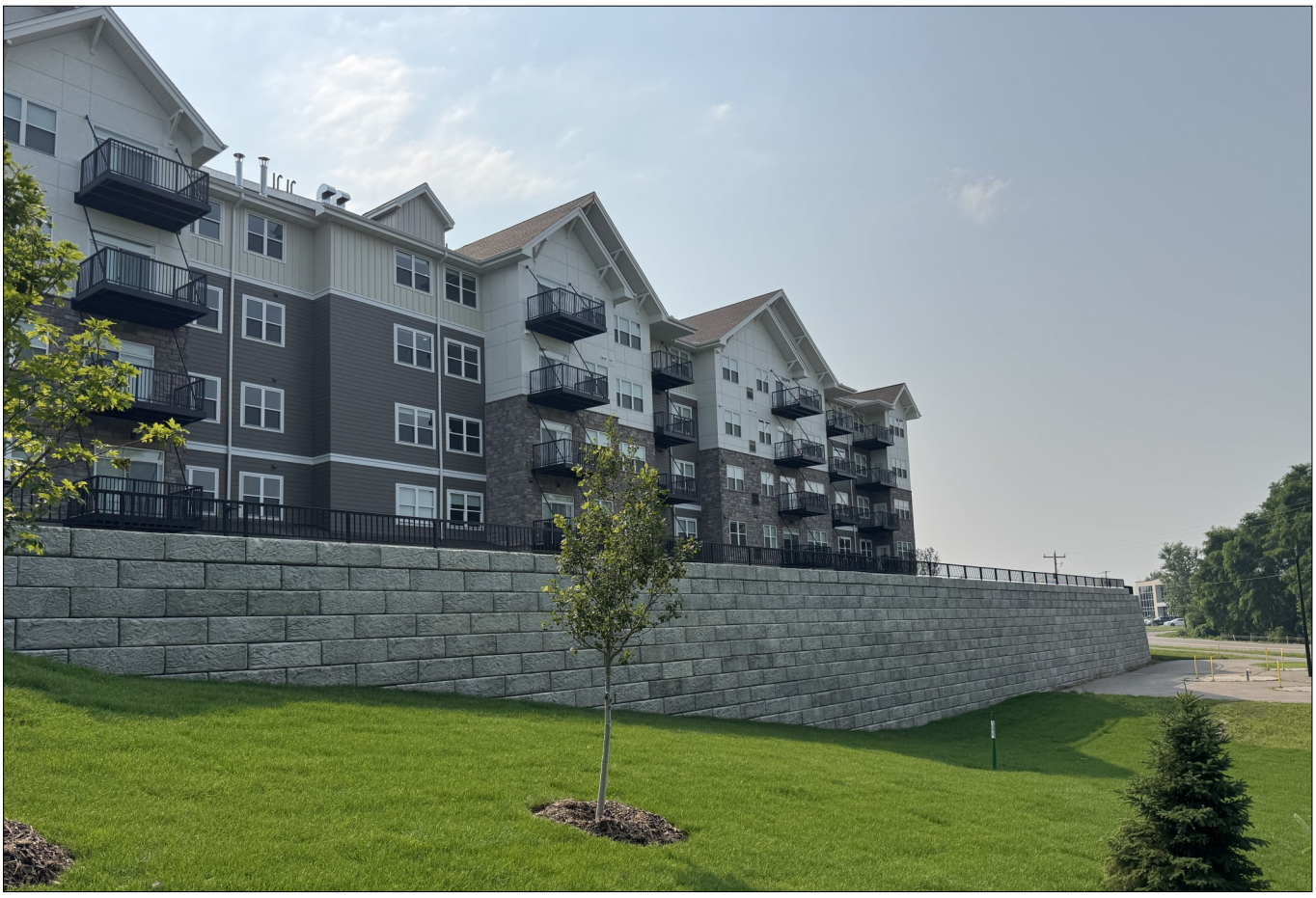


Photo 1 : View of Reinforced Soil Wall

Solution Proposed:

To address the site challenges, two different reinforced soil wall systems were chosen. Recon walls prefabricated 24" concrete block fascia and TechGrid TGU80 for a majority of walls, and dry-cast segmental block walls consisting of Rockwood Classic 8 and TechGrid TGU60. MN. Kyle Huerd of GeoWall Designs commented, "The biggest site challenge was the 18' high retaining wall along Hudson Boulevard as there was no room for a conventional traffic guiderail due to the location of the condominium and fire access drive at the top of the wall. The solution was to design an integrated moment slab with traffic barrier on the Recon wall system, allowing the site to maximize the property usage." TechFab TechGrid were chosen for their excellent tensile capacity, low creep, and superior soil interaction, ensuring overall stability and long-term performance. The precast modular Recon Block fascia allowed for aesthetic flexibility, ease of construction, long-term durability and integration with the vehicular barrier system.. Layers of TechGrid geogrids were placed within engineered backfill to form a composite mass capable of effectively resisting lateral earth pressures and accommodating differential heights. The solution not only achieved structural stability and visual appeal but also delivered a sustainable, low-maintenance retaining system well-suited to the project's residential environment.

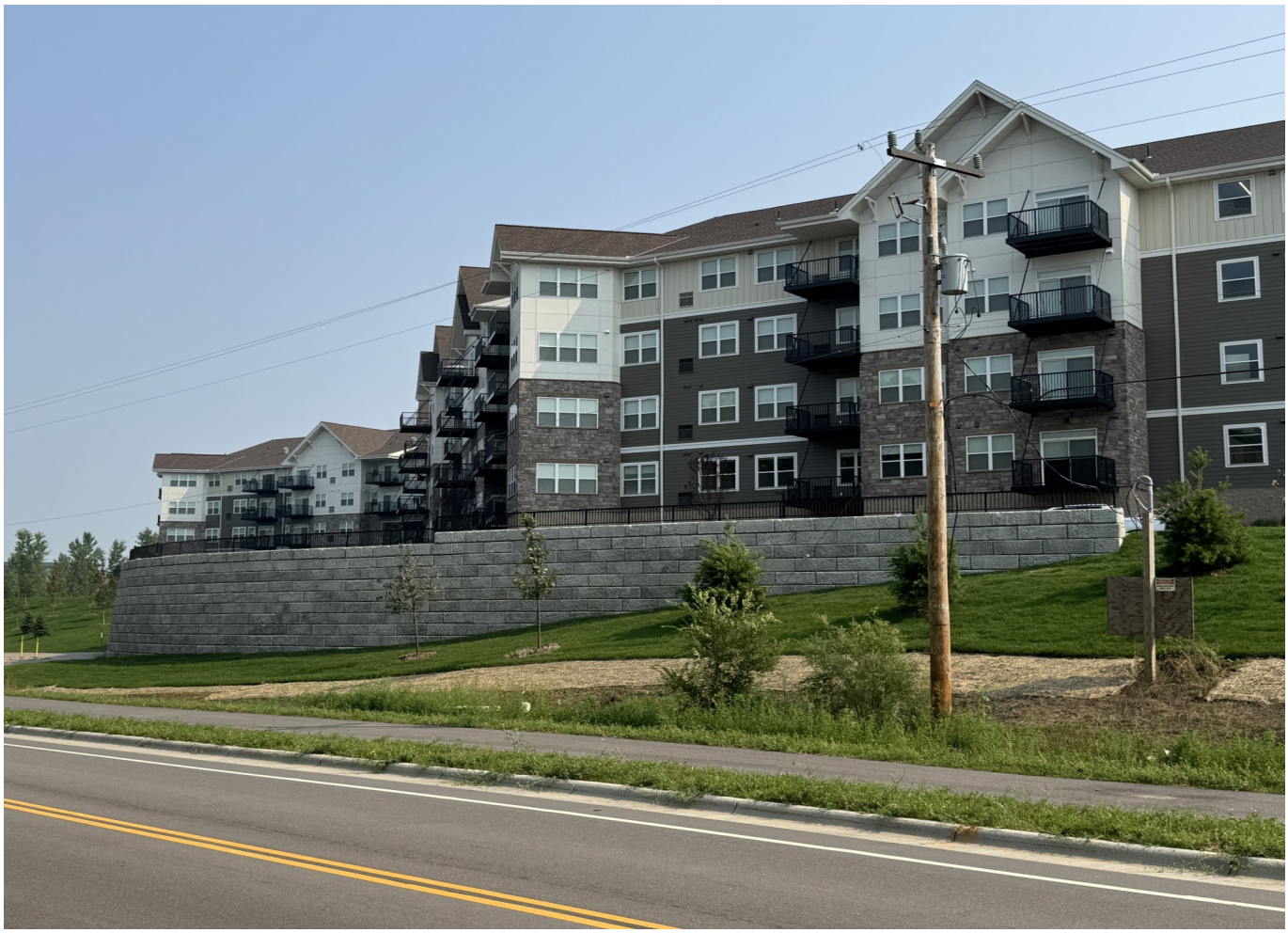
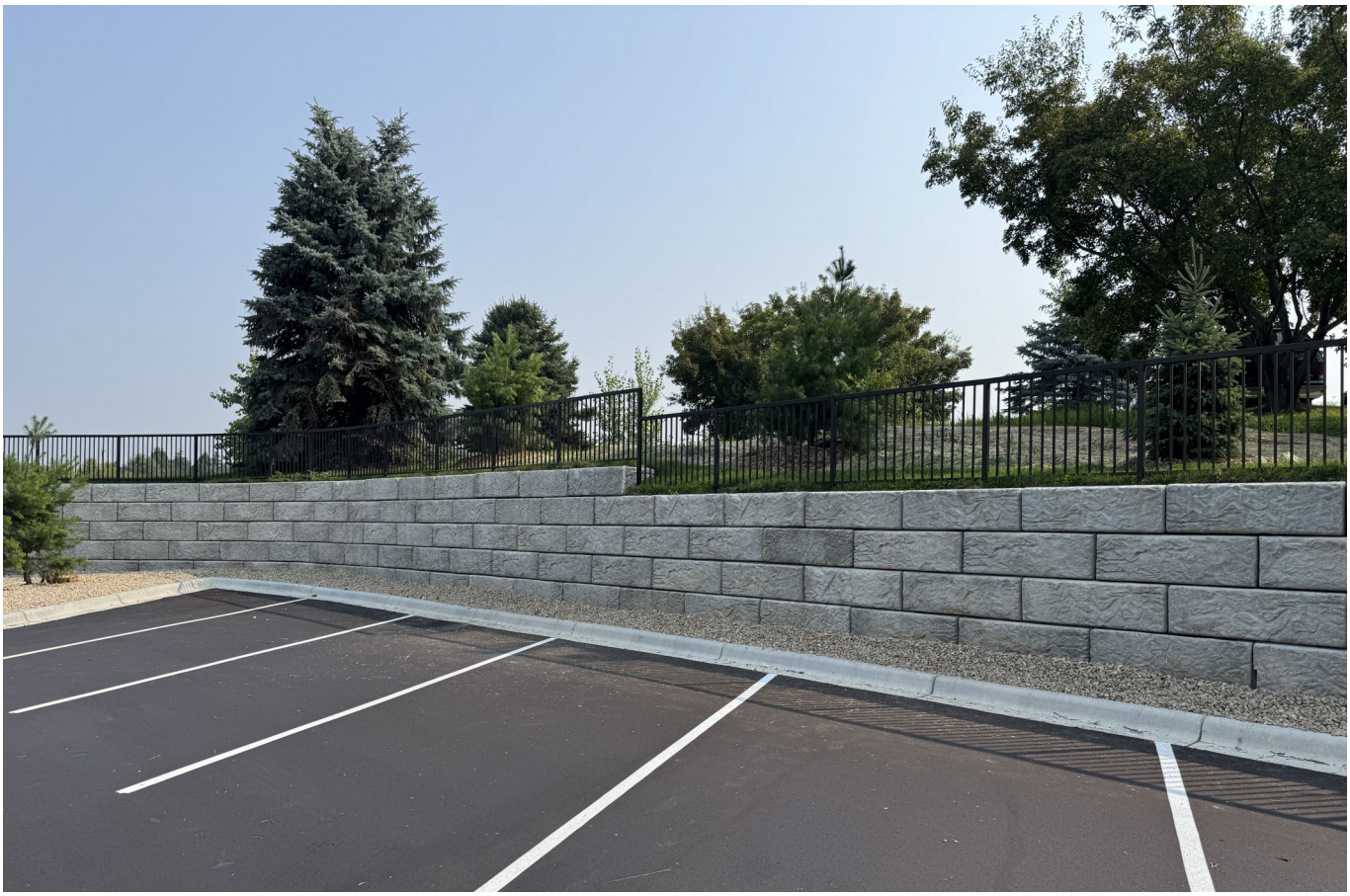


Photo 2 : Reinforced Soil Wall Enhancing Site Stability and Aesthetics



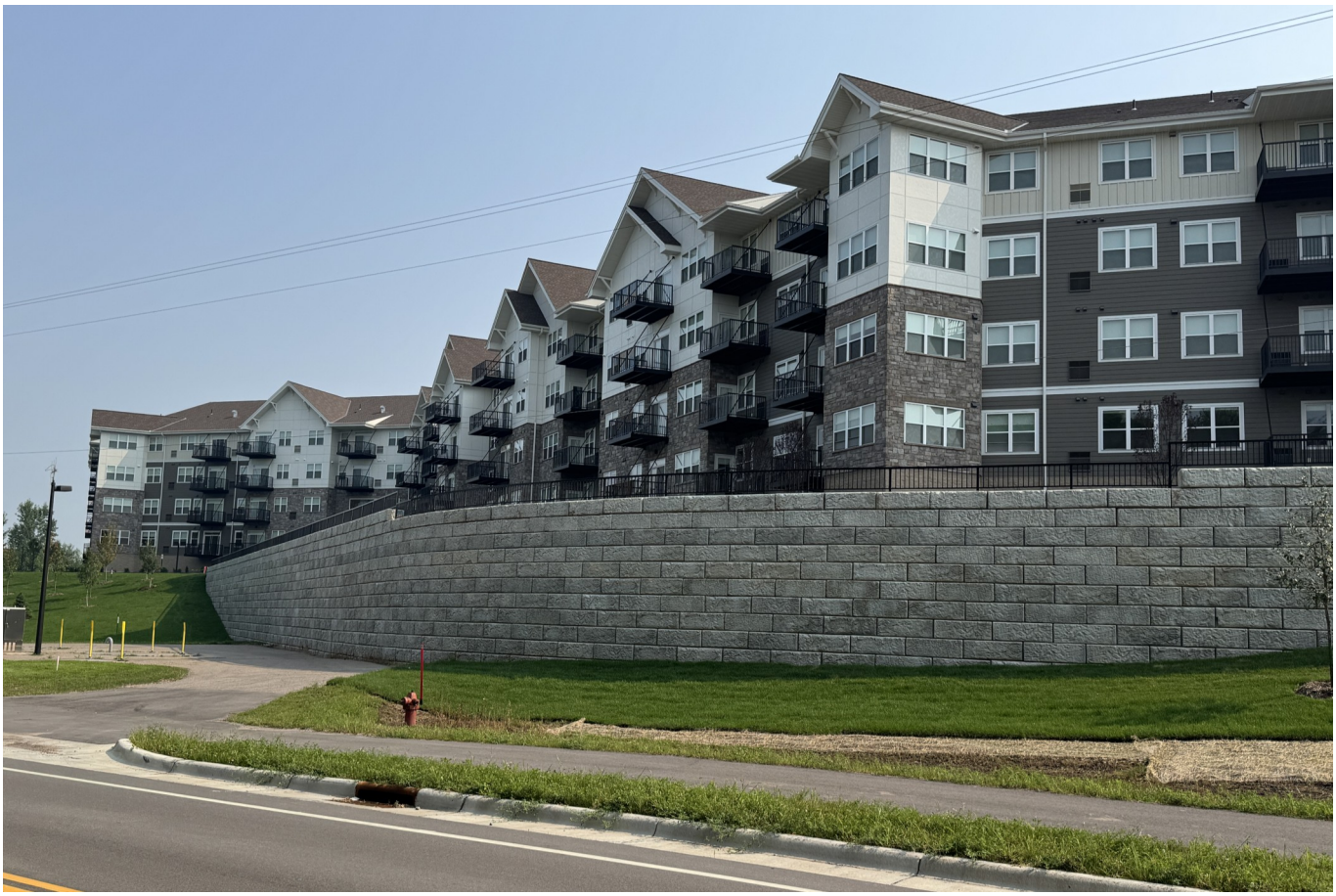


Photo 3 & 4 : Reinforced Soil Wall Supporting Residential Infrastructure

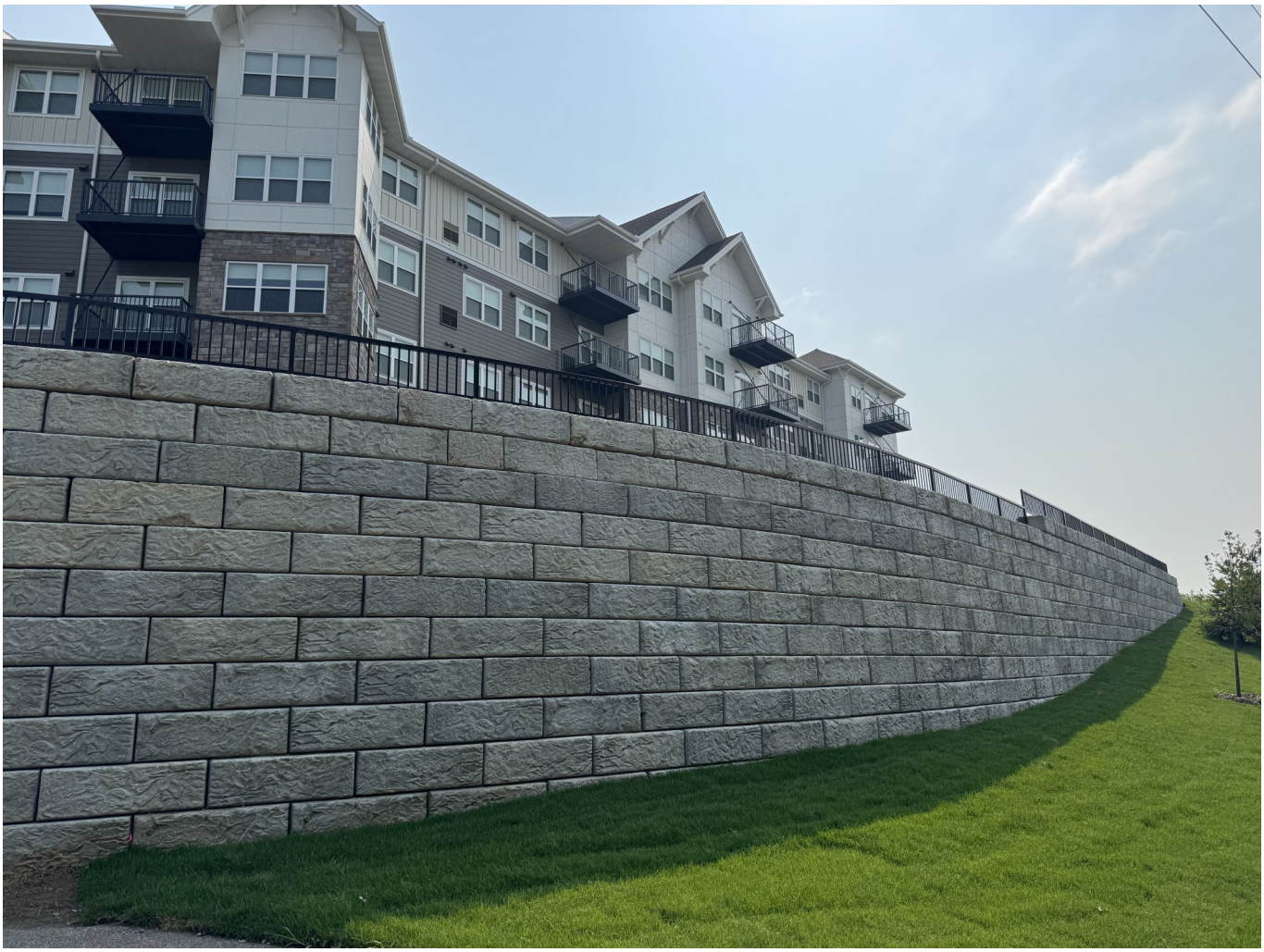


Photo 5 : View of Completed Reinforced Soil Wall

Conclusion:

The reinforced soil wall systems using TechGrid uniaxial geogrid provided a reliable solution for the Amira Lake Elmo residential development. TechFab USA continues to offer proven engineered product solutions for the most challenging projects to meet the demands of today's ever-changing site development design and construction requirements.

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