BUSINESS BAY ACCESS STRATEGY SERVICE ROAD-24

BUSINESS BAY - DUBAI - U.A.E.

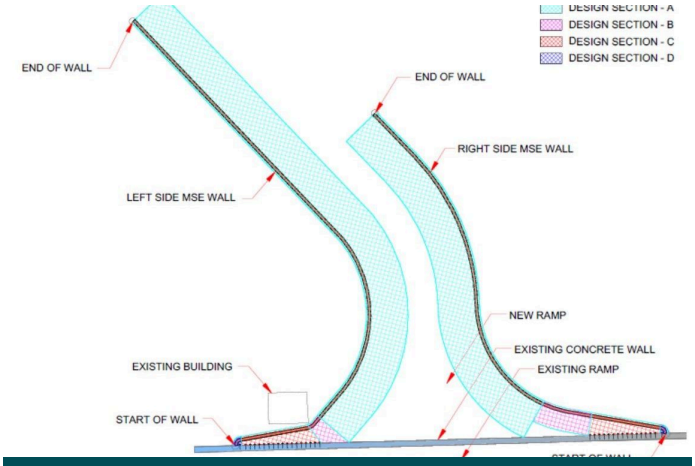
TYPE OF PROJECT	YEAR OF CONSTRUCTION	CLIENT	CONTRACTOR	DESIGNER
Reinforced Soil Walls And Slope Reinforcement	**2021-2022**	**DUBAI PROPERTIES**	**DX CONTRACTING**	**JACOBS**

PROD. RELATED

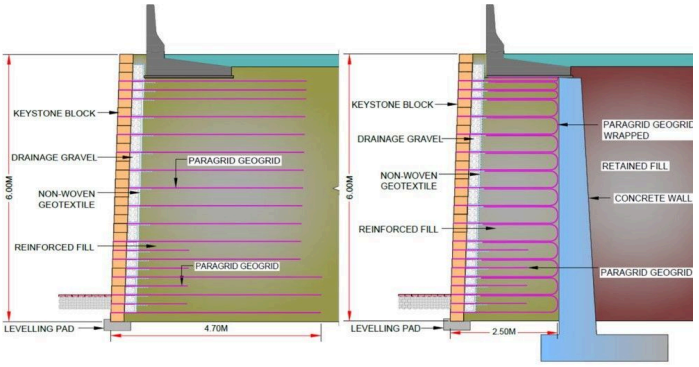
MACWALL (Wall Face Area : 700 M2), MonoAxial GeoGrids (Paragrid Geogrid : 6,500 M2)

Challenge

The project involved constructing a new link road as a diversion at the middle of an existing 6m high ramp made of concrete walls. The new link road's goal is to improve traffic connection within Dubai's Business Bay neighbourhoods. The new ramp will be built with a back-to-back type of Mechanically Stabilized Earth Wall (MSE Wall) that will be joined to the old concrete wall within tight space limitations. This demanded a novel method of attaching the MSE wall's facing to concrete wall anchors, and the challenge was to design and construct an MSE wall system in extreme space constraints



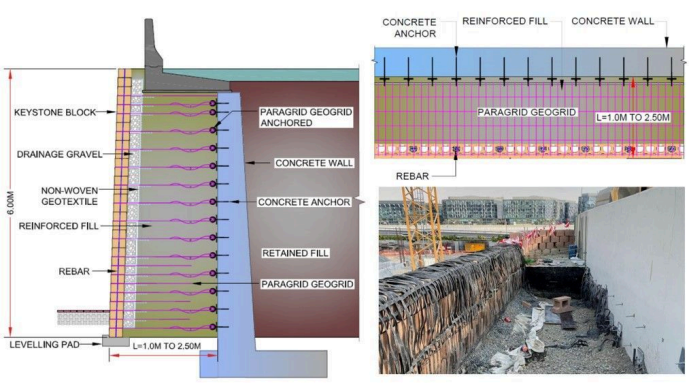
Plan view of MSE wall sections



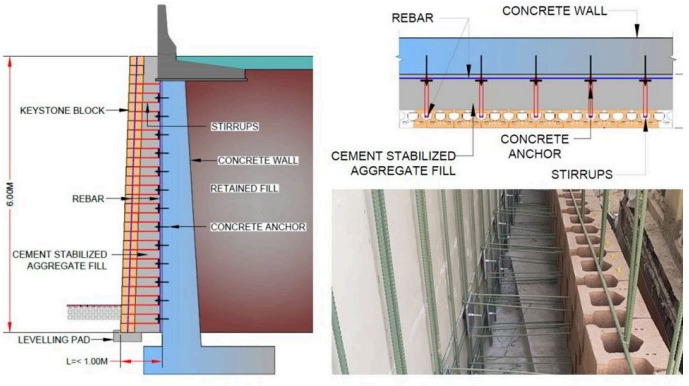
Section A & B details

Solution

Maccaferri's MacWall system was chosen as the preferred MSE Wall type, owing to its techno-commercial and architectural benefits, in addition to its flexibility for adapting to the site space constraints. MacWall system consists of segmental concrete blocks (type Keystone), BBA certified geogrid soil reinforcement (type Paragrid) and mechanical connection by fiberglass pins. In the project, for most of the stretches, it was feasible to consider simple MSE wall (Section A) with geogrid length ≥ 4.2m (70% of the wall height). Sections B, C & D represented the cases where available width was less than 70% of wall height, due to the proximity to the existing concrete wall (refer plan drawing). The widths available for geogrid in Section B ranged from 2.5m to 4.2m. If the design length of geogrid exceeded the available width, it was wrapped inwards (Section B) to dissipate residual stresses within the reinforced fill. For the remaining stretches where available width was further reduced due to the location of concrete wall, it was required to actively connect the narrow MacWall wall to the existing concrete wall (Section C). In this case, the geogrid was connected to the concrete wall through anchors and steel cables at all levels. In Section D case, the available width was ≤ 1m and the MacWall was realized by actively connecting the keystone facing block to concrete anchors using steel stirrups and rebars. Maccaferri Middle East was involved in design, supply and construction assistance for the scope of MacWall MSE wall system in the project.



Section C details



Section D details

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MacWall work in progress

MacWall work in progress

Completed MacWall

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OPEN GOOGLE MAPS

OPEN GOOGLE EARTH

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