CASE STUDY

LOAD SUPPORT

Rigid pavement slab-on-grade foundation

Corpex Construction

Ford Dealership Building, Peace River, AB

A new Ford dealership in Peace River, Alberta required a grade supported slab in the base of their building to support heavy vehicular load. With the building frame already constructed, work was to begin on the interior foundation. The high water table in the area presented a poor and water-logged subgrade that would not adequately support a concrete slab.

The client approached Paradox Access Solutions after seeing the results of a previously-known Paradox project involving a parking lot built over similarly soft and saturated subgrade. As these same conditions were evident inside the Ford building, Paradox was engaged to provide a solution.

Paradox proposed a Tough Cell® reinforcement design, which would provide the needed stability and strength to support the concrete foundation.

PERFORMANCE RESULTS:

Utilizing Paradox Access Solutions' Tough Cell® (formerly PRS-Neoweb) design, the construction of the Peace River Ford dealership building proceeded without delay through the winter months. This innovative construction method realized a 30% cost savings for the client, and sufficiently stabilized the existing soil to support the planned concrete foundation. To date, Peace River Ford has experienced none of the issues previously expected from regional ground conditions.

PROJECT AT A GLANCE

APPLICATION:
Rigid pavement foundation

LOCATION
Alberta, Canada

DATE OF INSTALL:
February-March, 2015

CLIENT:
Corpex Construction/OML

OML is an Edmonton-based construction company serving commercial, light industrial, and multi-family residential construction projects across Western Canada.

CONSTRUCTION:
Paradox Access Solutions

The authorized Tough Cell® Master Distributor in North America, specializing in the supply and installation of high quality access solutions and services to customers in the pipeline, utility, municipal, general construction and oil & gas industries.

ENGINEERING DESIGN
Stratum Logics Inc.

Global geotechnical engineering design specialists exceptionally proficient in the deployment of cutting-edge geosynthetics for civil engineering across North America in all types of challenging soils and climates.

Project Highlights

Rigid pavement slab-on-grade foundation for new commercial building interior

THE CHALLENGE

A commercial building was being erected over a saturated clay subgrade which proved unsuitable for supporting a solid foundation. The conventional proposal would have seen a 4m depth of existing soil removed and replaced with engineered fill. As the project faced the oncoming winter season, this option was not only costly but unfeasible.

Condition of existing subgrade during winter excavation

Partial removal of subgrade for Tough Cell® installation

THE SOLUTION

Paradox Access Solutions proposed to install Tough Cell® (formerly PRS-Neoweb) NPA geocells indoors at the Peace River Ford dealership during construction. Project scope began with site grading and subgrade preparation which included compaction of the exiting subgrade soil to minimize differential heaving. With the prepared subgrade, the geocell layer was installed overtop a separation layer of woven geotextile to minimize ongoing water infiltration. The cells were then filled with 200mm of 40mm engineered aggregate fill.

Total area: 2000m^2

Product(s): 330-150 Type D Tough Cell® Geocell; woven geotextiles

Infill: 200mm of 40mm gravel fill

Completion: Capped with concrete slab-on-grade

Tough Cell® installed over woven geotextile

Tough Cell® being infilled indoors

THE BENEFITS

The Tough Cell® Geocell solution will evenly distribute the expected vehicular loading and control differential settlement of the subbase. This in turn will minimize future potential cracking of the concrete slab. The project owners benefited from a 30% cost savings over the conventional construction alternative. In addition, the Tough Cell® solution allowed the project to proceed through the winter months whereas conventional methods would have significantly delayed construction.

Surface prepped for concrete slab

Completed building façade

PARADOX ACCESS SOLUTIONS

An industry leader in innovative access solutions, Paradox Access Solutions has provided industrial access and ground reinforcement for the oil and gas, pipeline, utility, municipal and construction industries since 2004. We are COR, CQN, PICS, ISN, ACSA, ARHCA, AVETTA and ComplyWorks qualified, and employ the highest safety standards.

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