

01 HÉROES DEL CHACO BRIDGE APPROACHES

SLOPE REVEGETATION AND EROSION CONTROL — ASUNCIÓN

CASE STUDY • PARAGUAY



Approach slope with established vegetation — the system at work

HM+TRM

HYDRAULIC MULCH +
REINFORCEMENT MAT

100%

VEGETATIVE COVER ON THE
TREATED SLOPES

2 in 1

LANDSCAPE + EROSION CONTROL

The challenge: the embankments and slopes of the ancillary works of the Héroes del Chaco bridge — the new gateway into Asunción — needed protection that would withstand rainfall on freshly shaped soils and also deliver a landscape worthy of a landmark project.

The solution: slope lining with **hydraulic mulch** applied over the shaped soil and **vegetation reinforced with mats** turf reinforcement: immediate protection against erosion, and a permanent green surface that blends into the road works.

The versatile system: where the slope demands more, the reinforcement mat anchors the roots; where the landscape rules, the vegetation takes the lead. A single work front, with Ece crews.



Dense turf on the embankment — the finished result



Hydraulic mulch freshly applied — protection from day one

PROJECT FILE

Project	Ancillary works, Héroes del Chaco Bridge
Location	Asunción, Paraguay
System	Hydraulic mulch + turf reinforcement mat
Scope	Approach slopes and embankments

02 BIOCEANIC HIGHWAY — SECTION 1

SLOPE PROTECTION WITH HYDRAULIC MULCHES — PARAGUAYAN CHACO

CASE STUDY · PARAGUAY



Hydraulic mulch applied over the slope — kilometres of continuous protection

+1,000,000

M² PROTECTED AGAINST EROSION

11 of 21

SECTIONS PROTECTED BY ECE

3

ECOSYSTEMS CROSSED

The challenge: the road linking Carmelo Peralta with Loma Plata crosses three Chaco ecosystems with **highly saline soils**, rainfall concentrated in sharply defined periods and a **wind erosion** constant. Establishing vegetation there is one of the hardest challenges in the region.

The solution: slope protection by means of **hydraulic mulches** applied by Ece, with the formulation tuned to each soil. Over **one million square metres** carried out on 11 of the 21 sections of the works — the largest hydroseeded area applied in Paraguay.

Why it works: the mulch pins the seed and the moisture down against the Chaco wind and sun, and protects the soil from day one, without waiting for the vegetation to come up.



The starting point: cracked saline Chaco soil



Vegetated slope beside the carriageway — the result

PROJECT FILE

Project	Bioceanic Highway, Section 1
Location	Carmelo Peralta – Loma Plata, Chaco
System	Profile hydraulic mulches
Area	Over 1,000,000 m ² (11 of 21 sections)

03 EXPORT CORRIDOR

REVEGETATION OF NEAR-VERTICAL CUT BACK SLOPES

CASE STUDY · PARAGUAY



Fully vegetated back slope — where there used to be bare red soil

~90°

EXTREMELY STEEP CUTS

2

CALIBRATED APPLICATION
CAMPAIGNS

100%

VEGETATIVE COVER ACHIEVED

The challenge: the cut back slopes of the Export Corridor were left almost vertical on the red soil of the east — a surface where water does not stop, conventional seed does not hold, and every rainfall opened new rills.

The solution: a programme of **hydroseeding with hydraulic mulches** tuned through field trials: formulation, rate and timing were calibrated over successive campaigns until the recipe that holds on the cut was found. Today the slopes are fully vegetated.

What this project proves: on slopes where “you cannot seed”, the right combination of fibre, additives and professional application turns the hardest cut into a stable green hillside.



The starting point: an unprotected red-soil cut



Hydraulic mulch applied with the cannon — the green colour marks the coverage

PROJECT FILE

Project	Export Corridor
Location	Eastern Region, Paraguay
System	Hydroseeding + Profile hydraulic mulches
Scope	Steep cut back slopes

04 PILAR COASTAL DEFENCE

CHANNEL AND SLOPE REVEGETATION WITH MULCHES AND MATS

CASE STUDY · PARAGUAY



The full system: revegetated slope above, concrete mattress at the toe

15 km

OF DEFENCE ON THE PARAGUAY RIVER

14 km

OF REVEGETATED DIVERSION CHANNEL

2

SYSTEMS: HYDRAULIC MULCH + MAT

The challenge: Pilar's coastal defence — 15 km along the Paraguay river, with a 14 km diversion channel, drainage channels and gates — needed its embankments and earth channels to withstand rain and water flow without eroding, complementing the concrete mattresses in the most demanding areas.

The solution: **hydraulic mulches** to establish vegetation on embankments and banks, and **turf reinforcement mats** in the channels, where the reinforced grass takes the flow of the floods. Vegetation as engineered lining.

One party responsible: in Pilar, Ece delivered the complete system — concrete mattresses manufactured in the city itself, hydroseeding and turf reinforcement — with the same technical team.



Germination over the mulch — the diversion channel takes



Established vegetation — the channel working with mature turf

PROJECT FILE

Project	Pilar Coastal Defence
Location	Pilar, Ñeembucú
System	Hydraulic mulches + turf reinforcement mats
Scope	Diversion channel, drains and embankments