



## Accessways to the western Entrance to the “Dos Valiras” tunnel

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### Summary

The “Dos Valiras” Tunnel connects the valley of the river Valira del Nord (Northern Valira) with that of the river Valira de Orient (Eastern Valira). At its western extreme it reaches into the Valira del Nord which it crosses by means of two bridges. These bridges give on to a large roundabout which is in great part significantly raised due to its hilly terrain. This has been achieved by means of a structure of pre-stressed concrete divided into six stretches joined by hinges. It is a public work of the greatest import, the most important ever undertaken in Andorra- leaving aside the large tunnels constructed recently

**Keywords:** cable-stayed bridge, concrete structure, single tower, raised roundabout, successive cantilever construction.

### 1. Introduction

The structures which form the subject of this report are to be found in La Massana, Andorra at the western end of the “Dos Valiras” Tunnel. The “Dos Valiras” Tunnel connects the valley of the river Valira del Nord (Northern Valira) with that of the river Valira de Orient (Eastern Valira) creating a transport nexus for travel across the country. The two tunnels themselves are independent and separated which necessitated the construction of two parallel cable-stayed bridges which are joined in their final stretch leading to a roundabout of 90m in diameter which is in great significantly raised above the immediate ground level. This has led to the great part of the roundabout being formed of a pre-stressed concrete structure.



*Fig. 1. View of the Structure 1*

The roundabout is situated on the road from Escaldes to La Massana and one of the conditions laid down for the construction was that traffic should not be interrupted. This necessitated the construction of structure 6 at the beginning so, as the traffic was diverted by it the initial road was demolished, permitting the construction of the other structures which form the roundabout.

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### 2. Description of the structures

This work has been achieved by means of a pre-tensed concrete structure divided in six stretches, five of which are joined by means of hinges and the sixth is independent.

As has been indicated, the roundabout is in great part elevated, which has been achieved using a series of prestressed concrete structures. The structures which form the roundabout are structures 2,