Porsche Experience Centre, Silverstone

Project Profile

Client: Porsche Cars

Circuit Designer: Apex

Civil Designer: Peter Brett

Value: £3.4m

We have recently completed construction of a handling circuit for Porsche Cars 'experience centre' at the Silverstone Grands Prix motor racing circuit. The contract start and end date were dictated by the Client with the start date coinciding with the January winter shutdown of the existing experience facility and the end date being imposed by the date of the British Grand Prix. On completion of our works the race track circuit prepares this part of the site for use as a Heliport for the British Grand Prix during which it is the busiest Airport in the UK

The Design & Construct scheme was completed in 2 phases due to client timing constraints;

- Phase 1 had to be completed during 4 intense weeks in January 2014 whilst the existing experience facility was closed and comprised a new link road from the existing track facility and included capping, surfacing, drainage, white lining and amendments to the 4x4 off road course involving the construction of 3 new steep concrete ramps.

- Phase 2 involved the construction of the main part of the facility involving;
  - ◊ An 870m long handling circuit with 274m acceleration/ braking zone & 274m long straight (15,000m^2)
  - ◊ A Dynamics area (4,650m2)
  - ◊ 1500m^2 car park
  - ◊ 10 Helicopter landing pads (640m2 total)
  - ◊ Surface water drainage (SUDS designed) including; 170m of drainage channel, 1700m of infiltration drainage and 1100m of carrier pipes up to 450mm dia
  - ◊ 500m^3 attenuation tank and outfall headwall
  - ◊ 750m of Armco Safety barriers & 740m of tensioned wire rope safety barriers
  - ◊ 300m of earth retaining wall
  - ◊ 40,000m^2 Landscaping & planting including maintenance
  - ◊ 770m of perimeter fencing, 800m newt fencing & 800m of rabbit fencing
  - ◊ 500m of service ducting for future lighting and water supply requirements
  - ◊ Extensive cut and fill earthworks
  - ◊ Importing over 37,000 tonnes of type 1 aggregate
  - ◊ Removing more than 11,000m^3 of surplus spoil from site.
  - ◊ The surfacing to the handing circuit is a specialist race track product – Prixmat – supplied and laid by Aggregate Industries.

Porsche Experience Centre, Silverstone (Cont'd)

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The area of the site that on which the new facility has been constructed was mainly an area of mixed clay fills deposited from previous works on the site with uncertain compaction. Due to the early January start date we proposed to lime stabilise all formations and haul roads to a minimum 5% CBR in order to ensure the earthworks and road construction work could be completed during the winter period. This proposal, although an additional cost, was carried out purely a temporary works measure to allow continuous plant operation and placement of capping and sub-base throughout the winter period and was accepted by the client as a key risk mitigation measure to ensure the already tight programme could be delivered on time.

The system proved very successful and ensured continuous working through what turned out to be an exceptionally wet winter period and kept the project on programme.

Based on the variable and poor quality soils at and below formation on which the circuit was to be built the pavement design incorporated 450mm of type 1 sub-base with 2 layers of Tensar Triax 160 geogrid to reinforce and stabilise the sub-base construction. This ensured the required tolerances and onerous testing requirements were met at any location on the site and also 'future proofing' the circuit so that any settlements in the formation soils will be mitigated through the geo-synthetic materials.

Due to the volume of Type 1 stone required, the location of the site and possible daily supply restrictions (both stone supply and transport) during March/April due to expected demand that were being advised by industry sources, we decided to import all type 1 during late January & February and stockpile the material on site adjacent to the work to ensure we would not experience delays or price increases. Stockpiling also allowed us to accommodate articulated vehicle deliveries that would not have been possible for material delivered & reverse tipped at the worksite.