

PROJECT SHEET

HOLENDRECHT - MAARSEN, THE NETHERLANDS
RECONSTRUCTION OF A2 MOTORWAY

INTRODUCTION

Boskalis was the lead contractor on the 'Reconstruction of A2 Motorway Holendrecht-Maarssen' project, a part of the integral upgrading of the A2 between Amsterdam and Utrecht. The A2 is one of the country's busiest motorways. Rijkswaterstaat has redesigned the road over this entire section to prevent future gridlock. Every day, 180,000 cars pass here. The traffic problems between the Holendrecht and Oudenrijn intersections are now a thing of the past.

ASSIGNMENT

A seventeen-kilometer-long section of the A2 motorway between Holendrecht and Maarssen needed to be widened from 3 or 4 lanes to 5 or 6 lanes in both directions. The problems for drivers associated with the work had to be kept to a minimum. It was decided to build a new motorway alongside the existing one first. Once the new road had been completed, work started on the transformation of the old motorway. Boskalis adopted this approach in response to the public-driven network management that is a goal of the client. Six twin viaducts, seven bridges for agricultural traffic, two intersecting tunnels and one bicycle bridge were built above and below the new motorway. Changes were also made to the access roads, and the entrances and exits at Vinkeveen, Abcoude and Breukelen. The assignment included the construction of a new Dynamic Traffic Management system consisting of traffic signal systems, ice

FEATURES

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| Client | Rijkswaterstaat (Dutch Directorate General for Public Works and Water Management), Infrastructure Department |
| Location | A2 Motorway, Utrecht – Amsterdam |
| Period | October 2006 – mid-2012 |
| Contractor | A2HoMa consortium (Boskalis, KWS, Mourik) |
| Sub-contractor | Van Hattum en Blankevoort (engineering structures), Vialis (DVM), Holland Scherm (noise barriers) |
| Type of contract | Design & Construct |



A One part of the work

B Aerial photo from 2007





monitoring, Basic Information Monitoring Points, a camera system, links to the Traffic Management Center and signposting. Dynamic Public Lighting was also installed on the A2, and on entrance and exit roads. Noise-suppression facilities were installed over a distance of 4.5 kilometers. Alterations were also made to the water management system, including the construction of 13 large culverts. Work on this section also included drainage installation and the positioning of 45 kilometers of crash barrier.

SCHEDULE

The five lanes between Holendrecht and Maarssen were opened in March 2011. The work at Abcoude, Vinkeveen and Breukelen was completed in mid-2011.

CONTRACTING CONSORTIUM

The A2HoMa consortium, that included Boskalis, KWS and Mourik, executed the work for Rijkswaterstaat under a Design & Construct contract. The twin viaducts were built by sub-contractor Van Hattum en Blankevoort. The Dynamic Traffic Management systems, including Dynamic Public Lighting and Traffic Regulation Installations, were the responsibility of sub-contractor Vialis.

QUANTITIES

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| Length: | 17 kilometers |
| Sand deliveries: | 2,500,000 m ³ |
| Asphalt: | 690,000 tonnes |
| Crash barrier: | 45 kilometers |
| Engineering structures: | 22 structures |
| Noise barrier: | 4.5 kilometers |

C The work in full swing. The A2 motorway was completed in December 2010 and opened in March 2011. The underlying road network was completed in December 2011 and opened in mid-2012.

ROLE OF BOSKALIS NEDERLAND

As the lead contractor, Boskalis was responsible for integral process and project management, and we were responsible for the day-to-day management of the work. Our role included risk, quality and financial management, managing any amendments, and location management. Design and execution design were based on functional specifications in line with the Systems Engineering approach.

UNUSUAL TECHNIQUES AND CHALLENGES

During the building of the new motorway, Boskalis created a sand bank on the surface alongside the existing road. A complicating factor here was that the ground largely consists of a peat-meadow area with a layer of approximately 7 meters of peat on top of the underlying Pleistocene sand. Boskalis' in-house engineering company Hydronamic executed this complex geo-engineering design. The sand for this assignment was taken from the North Sea Canal and transported by ship to Loenen, where an earth-pumping unit pumped it through a pipeline to the site.

LOCATION MANAGEMENT

Boskalis completed the preparations for the required permits and managed the applications. Special flora and fauna had to be taken into account during this process. The work was executed under guidance of ecological advisers in areas that were home to loach, bats and bank swallows. Boskalis was responsible for traffic management during the work and took extensive measures to maintain the required traffic flows on the A2 motorway and intersecting local roads.