



## CASE STUDY

### Infrastructure, Planning Design and Delivery

#### Project

Strategic Infrastructure Design for Residential Development

#### Client

Taylor Wimpey (East London)

#### Location

Limebrook East, Maldon, Essex

Ardent was initially commissioned to support a hybrid application for a development of 600 units with supporting infrastructure. The vision was to deliver a high-quality landscape-led garden suburb to protect and enhance the area's environmental qualities. Following the successful application, we supported further reserved matters applications and delivered detailed design of the strategic infrastructure and working drawing packages for the development parcels.

The greenfield site included sections of the nearby main rivers and experienced significant areas of fluvial flooding from these and an overland surface water flow route; it was also at risk of tidal flooding. We created an exemplar SuDS strategy, which complemented the development's open space and green corridors with wet and dry basins to suit the environment. The scheme also included adoptable culverts over the main rivers, extensive flood modelling and S278 works, including a new three-arm roundabout, strategic foul pumping station and detailed earthworks models.

## Our Role

- Engaged with statutory consultees, stakeholders and the design team at an early stage to develop concept strategies
- Worked closely with the landscape architect to maximise the efficiency of the proposed SuDS, and its integration with landscaping, while delivering the four pillars of SuDS
- Provided iterative cut and fill appraisals, with regular updates as the project progressed
- Undertook fluvial, tidal and pluvial hydraulic modelling to quantify and mitigate flood risk
- Ensured schemes were critically reviewed at key stages by Ardent's senior team to provide value engineering, safer or more sustainable solutions, and future maintenance regimes

## Client Benefits

- Renegotiated discharge rates with the lead local flood authority (LLFA), significantly reduced size of the basins and maximised developable area
- Delivered major cost savings by agreeing with LLFA the provision of suitable enhanced features within the basins/ponds which allow for below ground SuDS (previously agreed strategy) to be omitted
- Identified changes to development levels at an early stage to balance the cut and fill, avoiding the need for any import/export of subsoil
- Re-negotiated with Anglian Water (on the basis of the proposed changes to the Ofwat charging regime - April 2018) that a connection to the adjacent foul sewer would be acceptable without the offsite upgrades agreed previously
- Delivered significant savings through hydraulic modelling that justified box culverts rather than clear span bridges