

## Major Projects- Chelmsford City Centre Infrastructure Improvements

Over the course of two years Henderson & Taylor undertook Highways Infrastructure improvements across the Highway network in Chelmsford. The works were funded through a combination of S278 funds from the Beaulieu Park Development and Essex CC.

Works commenced in July 2018 to widen Colchester Road, change the road layout, and install upgraded traffic signals, drainage, and services diversions. This project had multiple challenges including High Pressure gas services not identified within the original design, a separate S278 scheme for Anderson Group for the Starbucks and KFC (that was added into the build mid construction), and the roadway being one of the major arteries for road traffic into Chelmsford. The site was a short walk from Essex Highways head office, facilitating quick liaison with the Development Control team at Essex Highways throughout the contract.

The next phases were Lawn Lane and Chelmer Valley Road. These two junction improvements bookended a road widening scheme for Essex CC. The works comprised widening the Lawn Lane Roundabout and bus lanes, installing new drainage systems and fencing, and machine surfacing. The works were completed during the Covid lockdown and access to the Ambulance Station had to be maintained 24/7. The widening of Chelmer Valley Road involved the addition of a full bus lane for the 2.7km route, installation of new SUDS systems and diversion of multiple major services. The new road was constructed in asphalt layers, and the entire roadway resurfaced using surface dressing laid by Eurovia and then line marked upon completion. The last phase was outside the University to widen the roadway into the City Centre and improve access to the University.

All works were completed by the H&T major projects team. This self-delivery approach provides best value to the client. From pre-construction of the project risk registers, managing the Highways permits, undertaking public liaison and stakeholder management, then producing the MS projects programme and working this through programme and associated risks with the Client, to ordering long lead materials and key supply chain subcontract orders. The following work was delivered in house; Traffic Management, site clearance, drainage, earthworks, asphalt surfacing (excluding Surface Dressing), kerbs and footways, signs, structures, and soft landscaping. We used our PAS 91 certified supply chain to deliver the street lighting, vehicle restraint systems and line marking.

The works were delivered with zero SHEQ incidents or accidents. 100% of arisings were recycled from the projects at a combination of our Highways facility in Essex and local asphalt plants.

## Chelmsford City Centre Infrastructure Improvements - Phase 1 Colchester Road

**SITE-** Colchester Road, Chelmsford

**SIZE-** 7,000m<sup>2</sup>

**SPECIALIST PRODUCTS USED-** MMA High friction Surfacing

**CLIENT-** Home Group

**VALUE-** £2,000,000.00



Running from July 2018 to September 2019, the project saw the widening of existing Colchester Road to create an additional traffic lane and a combined cycleway/footway. This required widening construction, realignment of drainage, new street lighting, installation of a new signalised pedestrian crossing, numerous service diversions and protection works, full resurfacing of the carriageway, and all associated road marking and traffic signs.

Works were carried out by 2 4-man gangs, using a combination of day and night works to cause minimal disruption. Stakeholder collaboration was vital to ensure access for residents/local business. Narrow Lane Traffic Management was used to ensure that access was maintained whilst preserving the welfare of the site team.



## Chelmsford City Centre Infrastructure Improvements - Phase 2 Lawn Lane

**SITE-** Rectory Road, Chelmsford

**SIZE-** 3,000m<sup>2</sup> of surfacing

**SPECIALIST PRODUCTS USED-** Asphalt reinforcing membrane

**CLIENT-** Home Group

**VALUE-** £600,000.00



The Lawn Lane/Channels project saw Henderson & Taylor creating an additional lane to ease traffic flow at the junction of Rectory Road with Chelmer Valley Road. The project involved planing out, embankment stabilisation, drainage, kerbing, utilities management, and surfacing, as well as building a tobermore retaining wall to widen the road without disturbing the adjacent cemetery.

Works were completed over 9 weeks, finishing 3 weeks ahead of programme. We operated mainly during normal working hours, with night closures scheduled for the surfacing shifts. Different gangs were used who specialised in their own aspects of the job.



## Chelmsford City Centre Infrastructure Improvements - Phase 3 Chelmer Valley

**SITE-** Chelmer Valley Road, Chelmsford

**SIZE-** 3km

**SPECIALIST PRODUCTS USED-** None

**CLIENT-** Essex County Council

**VALUE-** £1,700,000.00



The works involved the widening of the A1016, Chelmer Valley Road between the Anglia Ruskin University entrance and the Ambulance Station Roundabout to create a dedicated bus lane. The existing road was widened to create the Bus Lane with associated lighting and street furniture. The additional lane was required to offset the increased traffic flows by moving the bus traffic into a dedicated lane. The project looked to eliminate pinch points or sections of congestion by widening the existing carriageway to create additional running lanes.

The phasing and programme for the project were designed by H&T to ensure minimal disruption to road users, the local community, and stakeholders. As Chelmer Valley Road is a major arterial route, the management of traffic flows was imperative. Our Traffic Management Plan was developed during the tender and finalised prior to mobilisation. The scheme narrowed the existing lanes to maintain traffic flows whilst providing a safety zone for the works.

A program of pre-planned communications was agreed with Essex County Council and put in place for communicating with the businesses and residents affected during the works phases.

A key element of the works was the installation of filter drain, gullies, drainage runs, chambers and attenuation tanks to the South East, West, and North Verges to manage the water levels within the area which was known for its significant flood risk potential.

Embankment excavation and construction of Gabion Walls were also used to enable the widening within the existing land boundaries

The road construction included excavation to 750mm depth, preparation of the formation and laying of terram geotextile. Placement of 420mm of sub-base in layers, then following sign off from the client in accordance with the Inspection & Test Plan, our in-house surfacing team laid 230mm of AC32 Base course, 60mm of binder course and 40mm of surface course.

Surfacing works were carried out on night shift closures to enable the joint between the existing and new surfaces to be correctly constructed and fully compacted in accordance with the specification.

Ducting and preparatory work for Statutory Authorities, as well as traffic light and street light installation were also undertaken as part of the contract.

### **Challenges:**

Following initial ecological surveys at the commencement of the works signs of reptile activity were detected which required us to take measures to protect their population and resulted in the instruction by the client to construct reptile hibernaculas as part of the works.

The client also instructed the construction of additional drainage attenuation in the form of ponds to further manage the high-water levels experienced due to the existence of a level 3 flood zone which forms part of the river Chelmer flood plain adjacent to the road.

The initial attenuation tank design by the principal designer failed to make allowance for the curvature (vertical and horizontal) of the road alignment and would therefore have resulted in the attenuation tank protruding through the earthworks profile.

Henderson & Taylor re-designed the tank to split it into two tanks connected with a central manhole so that it could better follow the bend in the existing carriageway. This solution was adopted by the client and successfully installed.

Another attenuation tank on the contract was also re-designed by Henderson & Taylor to avoid clashes with existing HV & BT services by making the tank longer and thinner. Again this solution was adopted, avoiding costly static diversions and delays to the works.

The new attenuation tanks required significant excavation adjacent to live carriageways which were managed through comprehensive temporary works planning and traffic management phasing.

