

A12 Chelmsford to A120 widening scheme TR010060

6.5 First Iteration Environmental Management Plan Appendix G: Energy and Resource Use Management Plan

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Appendix G Energy and Resource Use Management Plan

G.1 Background to the plan

- G.1.1 The proposed scheme comprises improvements to the A12 between junction 19 (Boreham interchange) and junction 25 (Marks Tey interchange), a distance of approximately 24km, or 15 miles. The proposed scheme involves widening the A12 to three lanes throughout (where it is not already three lanes) with a bypass between junctions 22 and 23 and a second bypass between junctions 24 and 25. It also includes safety improvements, including closing off existing private and local direct accesses onto the main carriageway, and providing alternative provision for walkers, cyclists and horse riders (WCH) to existing routes along the A12, which would be removed. A detailed description of the proposed scheme can be found in Chapter 2 of the Environmental Statement [TR010060/APP/6.1].
- G.1.2 This Energy and Resource Use Management Plan, in outline, sets out the measures that will be used by the Principal Contractor (PC) during construction of the proposed scheme with the aim of reducing the use of energy and resources.
- G.1.3 This management plan will be updated by the PC and included within the second iteration Environmental Management Plan (EMP), as appropriate and necessary, prior to commencement of works in accordance with the relevant Requirements in Schedule 2 of the draft Development Consent Order (DCO) [TR010060/APP/3.1] and the requirements of the first iteration EMP [TR010060/APP/6.5].

G.2 Responsibilities

- G.2.1 In relation to the control and management of energy and resource use, the PC would establish the appropriate roles and responsibilities for site staff in accordance with the roles and responsibilities set out in Chapter 2 of the EMP.
- G.2.2 All beneficial reuse of materials, as well as resources saving measures and associated cost reductions onsite, would be recorded and monitored.

G.3 Energy and resource efficiency

- G.3.1 Opportunities exist to implement measures into the construction of the proposed scheme to provide more efficient and cost-effective uses of energy and resources, and thereby reduce carbon and water footprints.
- G.3.2 The following measures and techniques would be investigated and evaluated by the PC and, where appropriate and feasible, be incorporated into the design

and management of construction compounds and working areas on the proposed scheme:

- Investigating arrangements to set-up the compounds in the most resource efficient way such that electric (mains), hydrogen, hybrid, or any other low carbon options such as alternative fuels, for example Hydrotreated Vegetable Oil (HVO), are implemented where reasonably practical.
- The use of green energy tariffs, such as Renewable Energy Guarantee of Origin certificate (REGO) tariffs, for the main site compounds.
- The use of alternative energy sources for certain appliances, such as solar power for the site accommodation, task and security lighting and hot water, to reduce energy consumption.
- The use of double-glazed windows and efficient insulation within site offices and welfare units to reduce heat loss.
- Conducting regular site audits to identify opportunities for energy savings and to check that lighting, equipment and facilities are running efficiently.
- The control of lighting through passive infrared sensors to reduce energy consumption.
- The control of heating and cooling units individually, allowing areas not in frequent use to be turned down or off when required, to reduce energy consumption.
- The use of 'switch off' labels on electrical switches, lighting and appliances to encourage users to turn apparatus off when not in use.
- The use of rainwater harvesting equipment and greywater recycling equipment to recycle water resources and reduce reliance on mains water supplies.
- The specification of low-energy or energy star rated appliances and equipment.
- The deployment of toolbox talks to all site operatives to encourage them to switch off construction plant, equipment and machinery, to reduce fuel and energy consumption.
- Undertaking lifecycle costing for construction plant, equipment and machinery, and accommodation hire, specifying low energy, battery powered and hybrid powered equipment where feasible.
- Installing sub-metering and regularly recording and reporting onsite energy use to identify areas of high consumption and potential efficiencies.
- Developing and implementing a Sustainable Procurement Plan setting out a clear framework to increase the procurement and use of sustainably and responsibly sourced construction materials and products.

- The sustainable use of soil and aggregate materials won from excavation and demolition activities, to minimise greenhouse gas emissions associated with the importation of materials to site and embodied carbon associated with additional materials.

G.4 Water efficiency

G.4.1 Water minimisation techniques would be implemented and managed during construction through the application of the water hierarchy. The water hierarchy sets out the priority order that should be considered when managing water. Where practicable the PC would use the hierarchy as a guide to eliminate water use and to identify techniques and measures to reduce water use, with disposal being a last resort. Water management would target techniques and measures at the top of the hierarchy. Where this is not feasible, a combination of options from within the hierarchy would be applied:

- **Eliminate:** eliminate water use by identifying if the water-using process or activity is really necessary and/or if there is a cost-effective alternative to using water.
- **Substitute:** identify and use alternative non-potable sources and eliminate inappropriate use of drinking (potable) water and assess whether rainwater or greywater can be used for the activity or process.
- **Reduce:** explore options that improve efficiency, for example by regular maintenance of water using equipment to ensure it is working to maximum efficiency, metering and monitoring supplies, and the updating of fittings and/or processes.
- **Reuse:** identify whether water, including greywater, can be treated or filtered for reuse in a process or activity – for example wheel washing.
- **Recycle:** identify if and where water can be recycled for use offsite.
- **Disposal:** dispose of excess water legally and responsibly such that there is no flooding, pollution or inconvenience to stakeholders.

G.4.2 The following water conservation measures, selected to minimise potable water use would be investigated and evaluated by the PC and, where appropriate and feasible, be incorporated into the design and management of construction compounds and working areas on the proposed scheme:

- Connections to mains water to be metered to determine consumption levels
- Construction of attenuation ponds/tanks as early as practicable to capture runoff for reuse
- Utilisation of non-potable water

- Circulation and treatment of water used for any piling and drilling operations
- Utilisation of push taps, waterless urinals and other water-saving devices within welfare facilities
- Capturing and reuse of rainwater
- A closed loop wheel wash to reuse the water for the wheel wash process. Waterless systems are another innovative option that use angled steel grids to clean debris from tyres