

GRAND UNION CANAL, WEMBLEY

Sheet piling and bespoke precast capping

DSM / ST GEORGE / 2019-2020 / WORKS ORDER 1131

Canal-side retaining works at Grand Union Wembley, combining permanent sheet piling, tailored concrete capping beams and detailed planning for work beside the water.

444 PILES

Specified in the piling method

6.5-9m

Lengths in the permanent design

100 YEARS

Permanent wall design life



Completed canal-side sheet pile wall and concrete capping. Photograph from the company project archive.



Precast capping beam during manufacture. Bespoke units were developed to suit the surveyed wall alignment.

THE ENGINEERING CHALLENGE

The retaining wall had to follow the canal alignment through variable ground, including made ground, alluvium and London Clay. Canal-bed levels, buried services and access constraints informed both the permanent design and the construction sequence.

OUR PROJECT CONTRIBUTION

Delivered through Ale Piling, the scheme brought together steel sheet piling and precast reinforced-concrete capping. The planned installation combined a Movax side-grip piling system with impact driving where required.

Survey information and as-built pile layouts fed into capping-beam fabrication drawings. Standard and bespoke units, tapered ends and expansion joints allowed the capping to follow changes in direction, reducing the need for canal-side shuttering.

Historical project delivered through Ale Piling, now part of the Daace operation.

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PLANNING FOR SAFE DELIVERY

Coordinating the wall design, lifting operations and canal-side working method.

01 WORKING BESIDE WATER

The capping method specified a secured floating platform with edge protection, lifejackets, lifebuoys, emergency ladder access and a second banksman.

02 LIFTING AND PLANT STABILITY

Planned crane and excavator lifts were supported by a prepared, plate-tested working platform, controlled lifting areas and coordinated beam placement.

03 SERVICES AND VIBRATION

Design correspondence addressed buried high-voltage services. The piling method proposed vibration monitoring with a defined trigger to stop and review operations.

04 PROTECTING THE CANAL

The sequence addressed silt control, temporary water exclusion and puddling-clay reinstatement. Hot-work permits, fire precautions and exclusion zones formed part of the method.

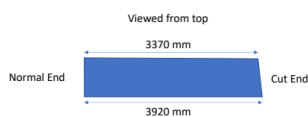
FROM DESIGN REVIEW TO FABRICATION

A traceable project record connects site constraints, design decisions and the proposed construction controls.

Bespoke Capping Beams, Wembley

Beam 1

11/12/19 C Adams



Notes:
All measurements taken from "normal end" unless otherwise indicated.
Steel to be cut and fabricated to suit casting dimensions allowing for 10mm cover on "cut end".
"Cut end" indicates end which to be cast short or tapered to suit site requirements.
Do not scale.
To be read in conjunction with ALE/Neuman Associates drawing 2019-015-01-0
Lifting Eyes
Beams 10m - See long, lifting eyes/eyes to be @ 1740mm from normal end and 1740mm from cut end.
Beams Below 10m - Lifting eyes/eyes to be @ 1440mm from normal end and 1440mm from cut end.

Beam is to be cut with a small taper (left to right) to the cut end to allow butting against adjoining beam which changes direction on site.



PERMANENT WORKS DESIGN

Report WO1131.01, July 2019: ground model, wall sections, loading, corrosion allowance and design risk register.

REVIEW AND COORDINATION

Client queries, survey information and as-built pile layouts informed capping geometry and fabrication review.

TASK-SPECIFIC METHODS

Revised piling/puddling and capping RAMS addressed sequencing, access, lifting, briefings and emergency arrangements.

Original bespoke capping-beam detail, 11 December 2019.

Tapered ends accommodated changes in wall alignment.

Historical fabrication detail; not for construction.

Source record: WO1131 design report; piling/puddling method Rev05 (19 September 2019); capping method Rev03 (5 March 2020); project correspondence and fabrication records. Safety measures summarised here are the documented project requirements.

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