

Purley On Thames Site Visit Report

Flood Attenuation

Mapledurham Drive, Purley

Peter Brett Associates have produced a flood report, in great depth, which together with my initial survey of the water meadows, has helped considerably in proposing flood attenuation for a 1 in 20 year flood event.

The measures proposed have limitations, given that the area in question is a flood plain, with underlying river gravels. The construction of the causeway has exacerbated flooding considerably across the flood plain. The current state of the adjacent water course with the Thames, from a flood discharge perspective, is poor. Tree branches are almost down to bed level in places and emergent vegetation is preventing lamina flows. In flood conditions this state will cause the river to overflow the bank.

I have spoken with the Environment Agency on two occasions regarding maintenance and they have agreed to clear the tree branches to bank height and vegetation, as a 'one off'. Thereafter, maintenance will be the responsibility of the Parish.

Proposed Flood Attenuation

The causeway should be lowered gradually down to the water meadow level, over a length of 15m. The horizontal centre section should be 4m in length (refer to the enclosed detail cross section). Alternatively, box section culverts, positioned in the causeway, may be employed.

My preferred option is for a section of lowered causeway. Culverts become fouled by brushwood and detritus, the removal of which is unsafe in a flood situation. The discharge of the culverts must be checked regularly.

The lowest 4m section, plus 1m either side, should be armoured with inter-locking concrete blocks laid as an 80kn woven geotextile, which runs up the excavated slope. The geotextile is to be covered by type two graded stone and compacted (refer to detail).

The Armourloc blocks are to be blinded with 2mm-25mm angular gravel to achieve the required friction interlocks. Further, a compacted clay bund, below the Recreation Ground, should be considered, once a trial pit is excavated to determine the efficacy of a clay cut off, through the underlying river gravels.

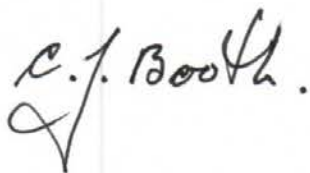
Given the length of bund required, the cost will be considerable. The Parish Council may wish to consider further flood discharge by re-grading and extending the existing 1400AD mill channel, to outfall into the River Thames adjacent to the Island, all of which depends on suitable levels.

Re-grading of the existing banks and invert is required. The invert should be in the order of 3.5m width, with side slopes no steeper than 1:3.

All worked areas should be seeded with the following seeds:

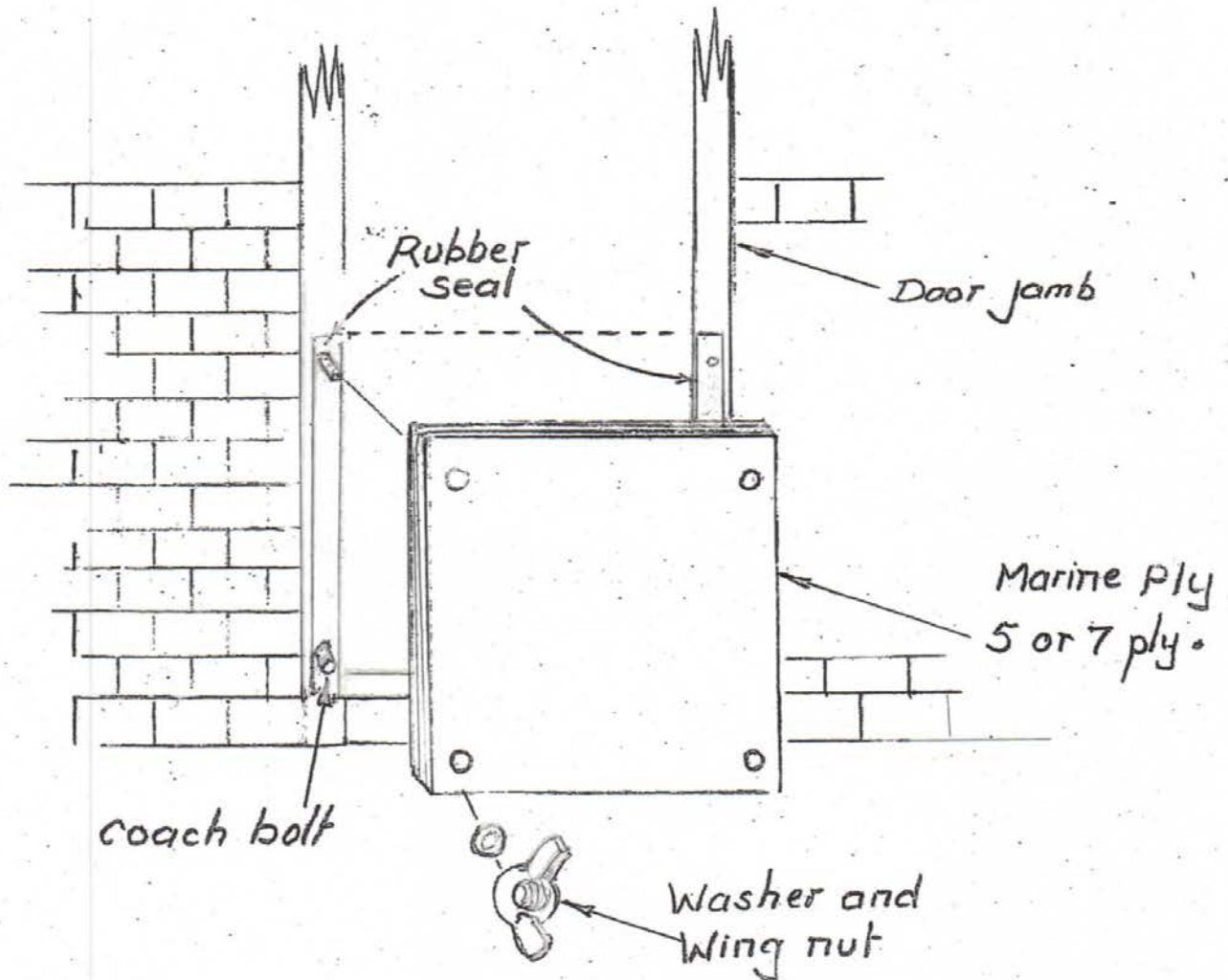
5%	Flattened Meadow Grass
15%	Timothy
15%	Browntop Bent Grass
15%	Smooth Stalked Meadow Grass
35%	Strong Creeping Red Fescue
15%	Creeping Bent Grass
100%	

If a quick establishment is required, the Strong Creeping Red Fescue may be reduced by 10% and substituted by 10% Perennial Rye Grass.

A handwritten signature in black ink that reads "C.J. Booth." The signature is written in a cursive style with a large, stylized initial "C" and "J".

C J Booth
Riparian Revetments
December 2015

FLOOD DEFENCE - MARINE PLY BOARD

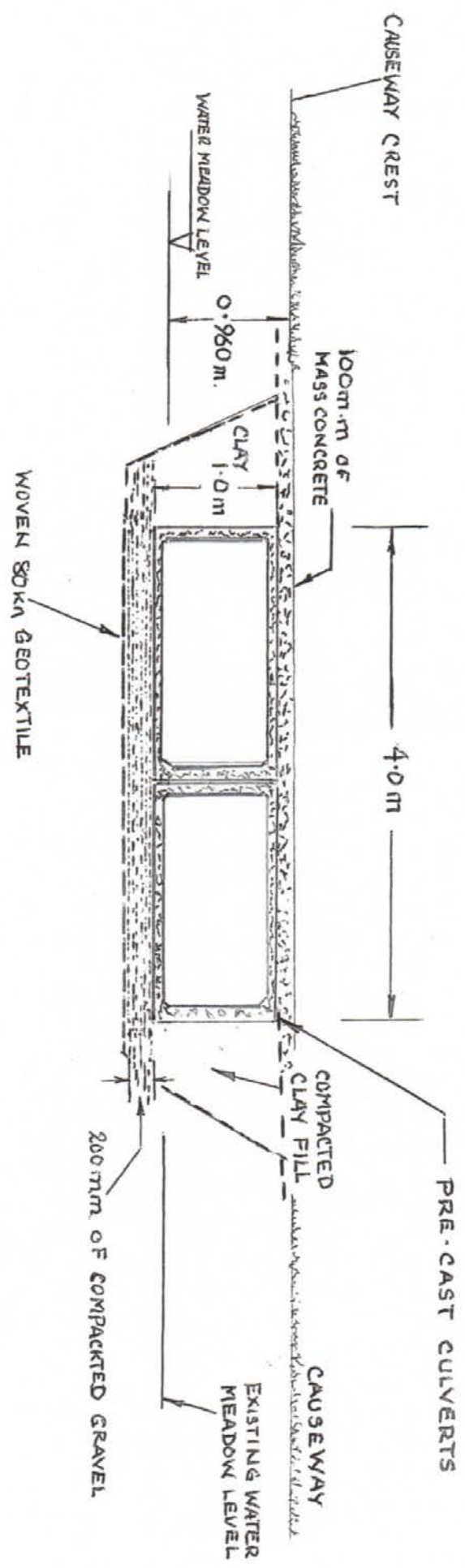


N.T.S.

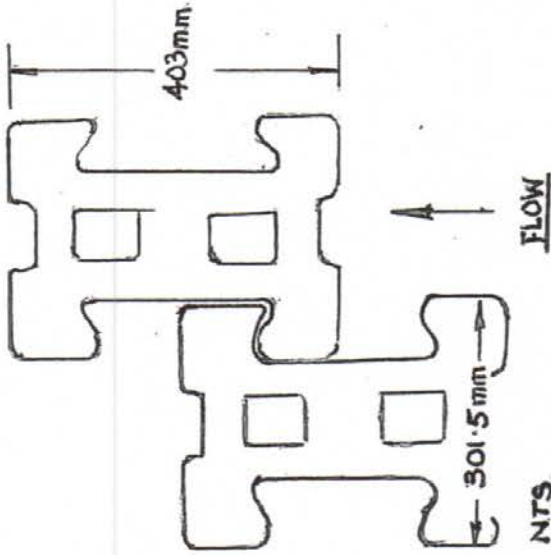
NOTE

The seal may be adhered to the marine ply or placed loose and clamped between the marine ply and door jamb.

The same technique is used for Air bricks.
The seal should cover the whole Air brick.



ARMORLOC ORIENTATION



THE ARMORLOC BLOCKS, ONCE BLINDED WITH GRAVEL, ARE TO BE COVERED WITH FRIABLE TOP SOIL AND SEEDED.

INTERLOCKING ARMORLOC REVETMENT BLOCKS, TO BE BLINDED WITH 25mm TO 2.5m.m ANGULAR GRAVEL.

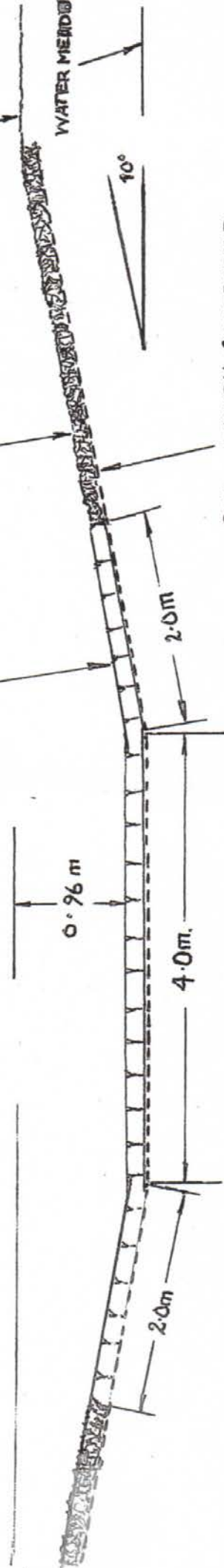
150 m.m. OF COMPACTED TYP 1

EXISTING CAUSEWAY LEVEL

WATER MENDE

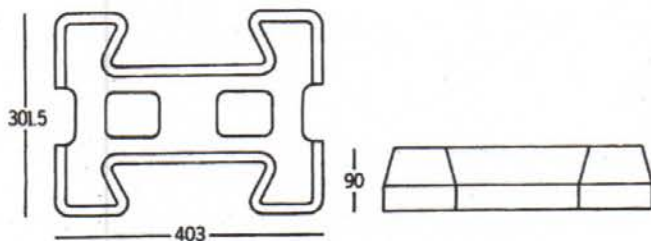
10°

80 KN. WOVEN GEOTEXTILE



Description:

Armorloc is a non-tied fully interlocking precast concrete revetment system. The Armorloc blocks have been developed from the Armorflex system and are recommended for use in situations where the installation of Armorflex would be impractical. Armorloc has a unique locking facility in that when placed and filled with a gravel material it has been shown to be highly resistant to vandalism and high velocity flow. Independent tests have been carried out on these blocks at model scale at the University of Salford. The blocks can be hand laid by unskilled labour on a prepared formation. The use of a geotextile filter fabric is recommended in most situations. On steep slopes the revetment may be pinned by means of wooden or steel pegs. The open cells in the blocks may be soiled and seeded.

Product data:

Concrete Specification	
Compressive strength:	50N/mm ²
Density:	2200Kg/m ³
Water absorption:	< 6%
Sulphate resistance:	BRE Digest 250, Table 1, Class 1
Freeze/Thaw test:	No visible effect
Armorloc Data	
Gross area/block:	0.09m ²
Weight/block:	12.8Kg
Weight/area:	150Kg/m ²
Open area:	20%

Weight:	150 kg/m ²
Open area at surface:	43%
Open area at base:	25%

Design of reinforced grass waterways



ARMORLOC REVEGETMENT BEING COVERED WITH SOIL

ARMORLOC SPILLWAY PRIOR TO TOP SOIL AND SEED



ALL REVEGETMENT VEGETATED

ARMORFLEX 140, COTSWOLD W.P.



