

Appendix 1

The Monument:

- Conditions report [3 elements]
- Land Registry documents



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Building Conservation

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Burrard-Neale Monument Lymington

Condition Survey and Cleaning Trials



PART 1 - INTRODUCTION

BRIEF

The brief was to carry out cleaning trials and a condition survey of the Burrard Neale Monument, Walhampton.

SHORT DESCRIPTION OF MONUMENT

The Burrard Neale Monument was erected in Walhampton, Hampshire between 1840 and 1842 in memory of Sir Harry Burrard Neale (photo 1). The monument, a 22 m tall Egyptionate obelisk, consists of a 17 m tall granite needle sitting on a stepped square plinth topped with an Egyptian cornice. The monument is constructed of large Dartmoor Blue Granite blocks from the Foggintor Quarry. Raised stone tablets with cast iron plaques are placed centrally on each of the faces of the plinth; each plaque provides information about Sir Harry's life (photo 2). A scarab has been carved into each face of the needle just below the pyramidal top. The base of the monument is surrounded by Purbeck limestone paving bounded by granite kerbs containing the stubs of the original railings which were removed during World War II. The railings surrounded the monument on four sides with tall corner posts terminating in a trident, one of which has survived in an adjoining garden (photo 39).

The monument lies in the New Forest National Park and is listed Grade II*.

KEY PLAN, ORIENTATION AND PHOTOGRAPHS

This report should be read in conjunction with drawings S1 and S3 which are appended. A series of photographs are appended and referred to in the text.

DATE OF INSPECTION

The cleaning trials and condition survey were carried out on 14 September 2015. The weather conditions were cool, windy and dry although there had been rainfall in the previous 24 hours.

PERSONS PRESENT

Two representatives from DBR Southern Ltd were present to conduct the cleaning trials: Kieran Govender, who operated the DOFF and JOS machines, and mason, Cary Wadey. The powered access lift was operated by Joshua Collis of Urban Access. The condition survey was carried out by Jennie Schillig, of Columba Cook Ltd, assisted by Cary Wadey. Donald Mackenzie, Peter Stone and Mark Lanigan from the Burrard Neale Steering Committee visited during the course of the trials

LIMITATIONS OF SURVEY/CLEANING TRIALS

The inspection of the monument was visual and such that could be made from the powered access lift positioned on the level ground to the southeast of the monument. It was not possible to inspect the west face of the monument at close quarters. The maximum height reached was six stones below the pyramidal top; approximately 14 m from ground level. The car park and lay-by along Monument Lane were completely occupied on the day of the trials hindering access to the monument. Invasive investigations and opening up of the structure were beyond the scope of the survey.

COPIES OF THIS REPORT

Copies of this report are being sent to:

Ms Caroline Godfrey, Town Clerk, Lymington and Pennington Town Council

Mr Frank Green, New Forest National Park Authority

Mr Peter Stone and Dr Donald Mackenzie, Burrard Neale 250 Steering Committee

Mr Steven Lugg, East Dorset District Council

PART 2 - DETAILS OF INSPECTION

A: CLEANING TRIALS

1. The purpose of the cleaning trials was to determine the most appropriate method for cleaning the monument and set the parameters to be used in specifying the conservation works. Cleaning should always commence with the least invasive method and progress until a satisfactory result is obtained.
2. DBR Ltd were approached to carry out the cleaning trials on the basis of their experience gained from cleaning and conserving Nelson's Column which was also constructed between 1840 and 1843 of Foggintor granite.
3. Following consultation with DBR Ltd, it was agreed to proceed with trials of superheated water and vortex type abrasive cleaning. The superheated water cleaning system, ThermaTech, was proposed to remove the general soiling while the vortex abrasive system, JOS, could be used to touch up areas with heavier staining or white deposits. For most of the trials the ThermaTech machine was set at 120°C. The JOS system was set at 4 bars using Calcite 140 abrasive. Calcite, the softest abrasive, has a hardness of 3 on the Mohs scale and is much softer than the granite which has an overall hardness of 6 to 7; the numbers increase with hardness of the mineral.
4. The following trials were carried out:
 - A. 0.3 x 1 m trial to step on east elevation of stone plinth using the ThermaTech at 100°C (photo 3 and 4).
 - B. 0.3 x 0.2 m trial below southern corner of cast iron plaque on west elevation using the ThermaTech at 120°C (photo 5 and 6).
 - C. 0.3 x 0.2 m trial to top step of west elevation of base using the ThermaTech at 120°C (photo 7 and 8).
 - D. 0.3 x 0.2 m trial below northern corner of cast iron plaque on west elevation using the ThermaTech at 120°C and JOS calcite abrasive at 4 bars.
 - E. 0.3 x 0.2 m trial to top step of west elevation of base using the ThermaTech at 120°C and JOS calcite abrasive at 4 bars (photo 9 and 10).
 - F. 0.3 x 0.2 m trial to dark staining on lowest blocks of east elevation of obelisk using the ThermaTech at 120°C and JOS calcite abrasive at 4 bars (photo 11 and 12).
 - G. 0.2 x 0.5 m trial to white precipitate on northeastern corner of the base of obelisk using the ThermaTech at 120°C and JOS calcite abrasive at 4 bars (photo 13 and 14).
 - H. Nitromors All Purpose paint stripper (formulation containing dichloromethane) to western corner of plaque on north elevation. Dwell time approximately 1 hour (photo 15 and 16).
 - I. Langlow Safer Paint and Varnish stripper to eastern corner of plaque on north elevation. Dwell time approximately 1 hour (photo 17 and 18).
 - J. The ThermaTech at 120°C to the western corner of plaque on north elevation (photo 16).
5. The ThermaTech system quickly removed the general soiling on the face of the granite in trials A, B, C, D, E, and F. A temperature of 120°C was recommended to prevent biological growths from re-establishing quickly. This system also removed the majority of the white precipitate in cleaning trial G.

6. The ThermaTech system did not entirely remove the dark stains from sheltered areas or the rust staining at the base of the plaques (photos 6 and 8) in trial B and C. A further trial using the ThermaTech system followed by JOS was tried on similar staining in trial D and E.
7. The JOS system was effective at removing surface staining like the remnants of the dark staining on the western elevation, trial D, and the eastern elevation, trial F (photos 10 and 12). This method of cleaning also removed the remaining white precipitate in trial G (photo 14). It was not effective at removing penetrating stains like the rust stains below the cast iron plaques.
8. Nitromors, trial H, was applied with a brush and allowed to dwell on the metal for approximately one hour. At the end of the trial the residue was removed using a paint scraper and then washed with the ThermaTech to remove any residual paint stripper. The trial resulted in the removal of the paint to bare metal (photo 16).
9. Langlow Safer Paint and Varnish stripper, trial I, was applied in the same manner as trial H. The stripper softened the paint layers but did not result in the removal of the paint back to the bare metal.
10. An additional trial, J, was made using the ThermaTech system to soften the paint layers on the metal surface. Some of paint layers were removed using this system and it could be used effectively in conjunction with Nitromors.
11. It should be noted that the Nitromors formulation containing dichloromethane is no longer commercially available for use outside of industrial applications. Further trials may be necessary to establish the best method for removing the paint.

C: CONDITION GENERALLY

1. The granite blocks are generally in very good condition with sharp arrises and smooth even faces exhibiting very little evidence of pitting or erosion. The blocks appear to have been bedded on a soft lime mortar with a higher aggregate to lime ratio. Once the blocks were bedded, the bedding mortar was raked back from the face of the stone and the joints pointed with a more durable mix richer in lime binder. A paper held in the RIBA archives by the Architect, George Draper, from 1843 stated that
"... executed in solid blocks of granite ... cramped together with strong copper cramps and at the same time to prevent the granite from flushing, 6lb lead is introduced at each angle and under all vertical joints set back ¾ inch from the face of the work."
2. Dartmoor Blue Granite, also known as quarry granite, is a moderately coarse grained stone composed of quartz, white feldspar and white and black mica. There are isolated large crystals of perthitic orthoclase within the granite matrix (photo 19). As stated above, granite has a hardness of 6/7 out of 10 on the Mohs hardness scale. The minerals contained in granite are much more resistant to weathering than those in limestone which has a comparative hardness of 3 on the Mohs scale.
3. There are isolated, minor signs of erosion and mechanical damage to the granite such as chipped arrises probably occurred when the blocks were originally lifted into place. There are few pits in the surface of the stone where large feldspar crystals may have come away.

during the original shaping process or eroded preferentially at a later date (photo 20). This damage is superficial and does not require any action.

4. The pointing at all levels is in poor condition. Water running through the core of the needle has leached the lime binder from the bedding mortar and re-deposited it at the surface of the joints and on the face of the stones. At lower level, in the stone plinth, the joints are either completely empty or contain only thin, superficial pointing. A hacksaw blade can be easily inserted in the joints up to its full depth.
5. There is black staining centrally on the north, east and west elevations of the monuments. The staining is greatest on the sheltered north and east elevations. This staining appears to be associated with rainwater emerging through the joints from the core of the needle.
6. Two separate structural engineer's reports have confirmed that the monument and its foundation do not show any sign of large scale movement or structural instability. There has been isolated movement of stones related to plant growth in the Egyptian cornice at the junction between the plinth and the needle.
7. Landscape Answers have prepared a tree survey and landscape plan based on a site plan provided by the local authority. No works to the three large trees, T1 T2 and T3, on the mound adjacent to the monument were recommended as they are mature trees which are not expected to encroach further on the monument. When checked, it was found that neither the location nor dimensions of these trees is plotted accurately on the tree survey.
8. When plotted accurately, drawing S1, it can be seen that it is likely that the roots of all three trees are impinging on the brick foundations. It is recommended that further investigations into the impact of the trees of the foundations are carried out.

D: WEST ELEVATION

1. A close inspection of the west elevation of the monument was not possible with the powered access lift. Observations of the condition of the west elevation have been made from the ground and obliquely from the access lift.
2. The west elevation, along with the south, is affected most by the prevailing south-westerly winds. There is a large area of dark staining down the centre of the needle starting approximately half way up its height. This carried down over the centre of the stepped base of the needle. There is a minor accumulation of the white deposit at the base of the needle.
3. The cap to the central pediment has been pushed forward and should be lifted off and re-bedded (photo 21).
4. There is a rectangular piece repair in the centre of the lowest granite block of the needle which was probably carried out during the original construction (photo 22).

E: SOUTH ELEVATION

1. There was less black staining on the south elevation which receives more sunlight and windblown rain than the other three elevations.

2. Many of the stone joints are either open or show signs of secondary deposition of lime from the bedding mortar (photo 24). There was evidence of water running out of the joints approximately half way up the face of the needle (photo 23). During the inspection, a strong gust of wind pushed water out of the joint of the base of the blocks at this level indicating that wind driven rain penetrates through the core of the monument.
3. The stone cap to the pediment is missing and a corner of the cornice has been broken off (photo 25). These stone pieces are being stored safely in the council's yard and can be reinstated as part of the repairs.
4. There is a thick white and orange deposit on the southwest corner at the base of the needle. This material is quite soft under a hard crust and is easily removed. The stone under the deposit may be damaged and an allowance should be made for a repair (photo 26).

F: EAST ELEVATION

1. There is a higher proportion of open joints on the north and east elevations of the needle. This may be the result of windblown precipitation being forced out through the joints on the leeward side.
2. The thick white deposit along the base of the needle was removed easily during the cleaning trials. When tested, this material dissolved in acid indicating that it consists of calcium carbonate leached out of the bedding and pointing mortars.
3. A buddleia growing out of a joint in the cornice on the southern side of the central stone tablet has opened up the joint and shifted the central section of the cornice forward (photos 27 and 28). The open joint allows water to run behind the stones which in turn can cause further damage. The buddleia should be treated with a systemic weed killer and, once the plant has died back, its roots removed and the joint made good.
4. There is a bronze medallion fixed centrally above the cornice (photo 29). Sir Harry Burrard Neale was a Knight Grand Cross of the Order of the Bath. The medallion consists of the arms of the Burrard-Neale family encircled by the motto of the Order of the Bath, *Tria Juncta In Uno (Three Joined in One)*, held between two laurel branches. The branches emerge from scroll work at the base of the medallion bearing the motto *Ich Dien (I Serve)* for the Military Division.
5. The medallion is fixed into stone with non-ferrous fixings caulked with lead. A section of laurel branch is missing and there is some damage to the left hand scroll (photo 30). The medallion may have originally been decorated with the colours of the Order.

G: NORTH ELEVATION

1. The condition of the pointing and stonework of the north elevation is much the same as that of the east elevation. There are a number of open joints as indicated on drawing S3.

H: CAST IRON PLAQUES

1. The plaques are not bronze, as stated in the RIBA paper, but cast iron. They are in good condition and do not show any signs deterioration from rust. The raised lettering has been obscured somewhat by the accumulation of successive paint layers (photos 31 – 34). It is

recommended that existing paint layers are removed before the plaques are redecorated. This work can be done in situ.

2. Early photographs show that the plaques were originally a stone coloured to match the granite with the lettering picked out in black. This could be replicated to improve the legibility of the text.

I: STONE PAVING

1. The Purbeck stone paving around the base of the monument is in poor condition (photo 35). The monument sits on a brick foundation in line with the stone faces of the plinth. The granite kerbs around the monument are laid on a shallow brick foundation with the Purbeck paving stones bedded on sand in between. Water collecting around the base of the monument has washed away the sand bedding material under the slabs causing them to sink and expose the brick foundation (photo 36).
2. The paving stones will need to be carefully lifted and good stones set aside for reuse. A new foundation incorporating new drainage should be laid prior to relaying the paving. The paving should be laid with a fall to the east to take runoff into new drainage on that side of the monument. An allowance should be made for replacing at least 50% of the Purbeck paving stones.

J: DRAINAGE

1. Drainage is effected through two holes through the brick foundation of the kerb on each side (photo 37 and 38). The drainage relies on water being taken away from the base of the monument and into the gravel fill which characterises the mound on which the monument sits. These drainage channels have silted up (drawing S1).
2. New drainage should run to a shallow crate style soakaway under the path from the car park. The soakaway will need to be positioned outside of the root protection areas of trees T1, T2 and T3.

PART 3 – SUMMARY OF RECOMMENDATIONS

1. Further investigations into the impact of trees T1, T2 and T3 on the brick foundations of the monument should be put in hand.
2. It is recommended that all elevations of the monument are cleaned with using DOFF/ThermaTech steam cleaning. This should be followed with JOS cleaning to areas of heavy soiling.
3. It is recommended that a further cleaning trial using a proprietary poultice such as PROSOCO Rust Stain Remover or PROSOCO Ferrous Stain Remover should be carried out on an area of rust staining.
4. It is recommended that all joints are raked out and assessed. Where there is evidence that the bedding mortar has failed the joints should be stopped with clay and grouted. The joints should be re-pointed using an appropriate NHL 5 hydraulic lime mortar.
5. The missing stonework should be re-fixed in its original positions and the stone cap to the pediment of the west elevation should be lifted and rebidged.
6. The buddleia should be treated with a systemic weed killer and, once the plant has died back, its roots removed and the joint deep packed and pointed.
7. The cast iron plaques should be cleaned using the DOFF system to remove as much of the paint as possible. Any remaining paint layers should be removed using a proprietary paint stripper. The plaques should be decorated immediately, before rust can set in, using a three coat single pack alkyd system.
8. The bronze medallion should be carefully removed, straightened and the missing sections replaced before re-fixing in its original position.
9. It is recommended that new drainage, in the form of a shallow crate style soakaway, should be installed to the east of the monument.

PHOTOGRAPHS

Photo 1



Burrard Neal Monument

Photo 2



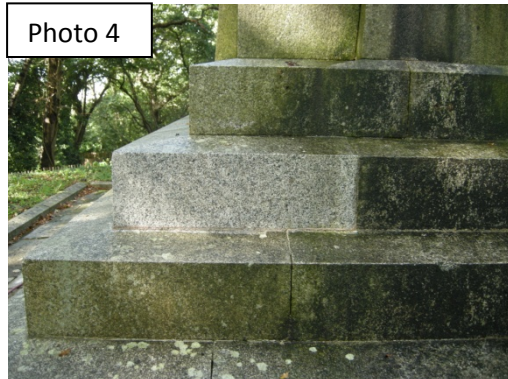
Cast iron plaque on west elevation

Photo 3



Cleaning trial 'A' – before

Photo 4



Cleaning trial 'A' - after

Photo 5

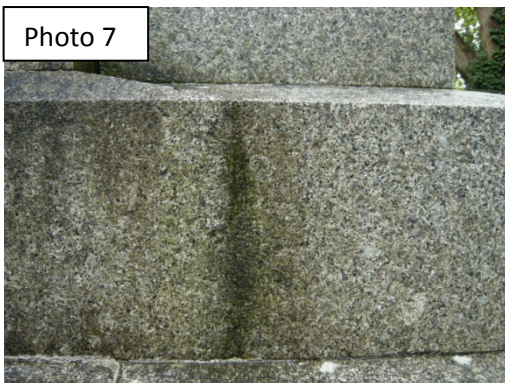


Cleaning trial 'B' – before

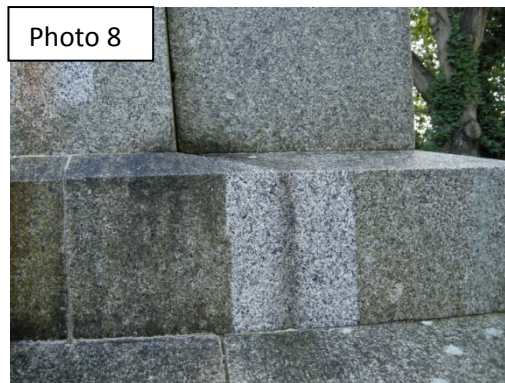
Photo 6



Cleaning trial 'B' – after



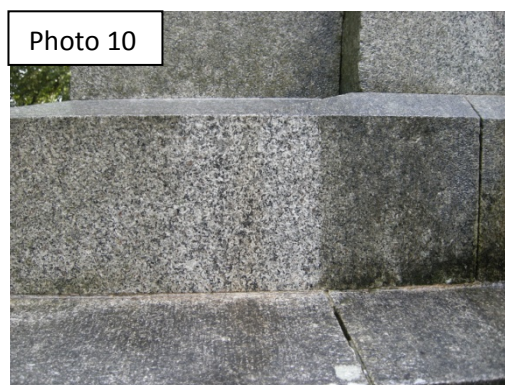
Cleaning trial 'C' – before



Cleaning trial 'C' – after



Cleaning trial 'E' – after Thermatech



Cleaning trial 'E' – after Thermatech and JOS



Cleaning trial 'F' – before



Cleaning trial 'F' – after



Cleaning trial 'G' – before



Cleaning trial 'G' – after



Cleaning trial 'H' – Nitromors applied



Cleaning trials 'H' and 'J' – after



Cleaning trial 'I' – Langlow Safer Stripper applied



Cleaning trial 'I' – after



Granite matrix with orthoclase megacryst



Superficial damage to stone arris



Displaced cap to pediment on west elevation



White precipitate and piece repair to west elevation



Photo 23
Water running from the joints of the south elevation



Photo 24
Open joints in south elevation



Photo 25
Damaged cornice and missing cap to south elevation



Photo 26
Thick white and orange deposit on southwest corner of south elevation



Photo 27
Buddleia displacing stonework on east elevation



Photo 28
Movement of cornice below buddleia



Photo 29
Bronze medallion with Order of the Bath motto on east elevation – note missing detail to laurel wreath



Photo 30
Damage to base of medallion and moisture leaching out from stonework



Plaque on east elevation



Plaque on south elevation



Plaque on west elevation



Plaque on north elevation



Broken and missing paving stones



Brick foundation exposed by subsidence of limestone paving

Photo 37



Brick foundation to granite kerb and drainage chanel under paving stones

Photo 38

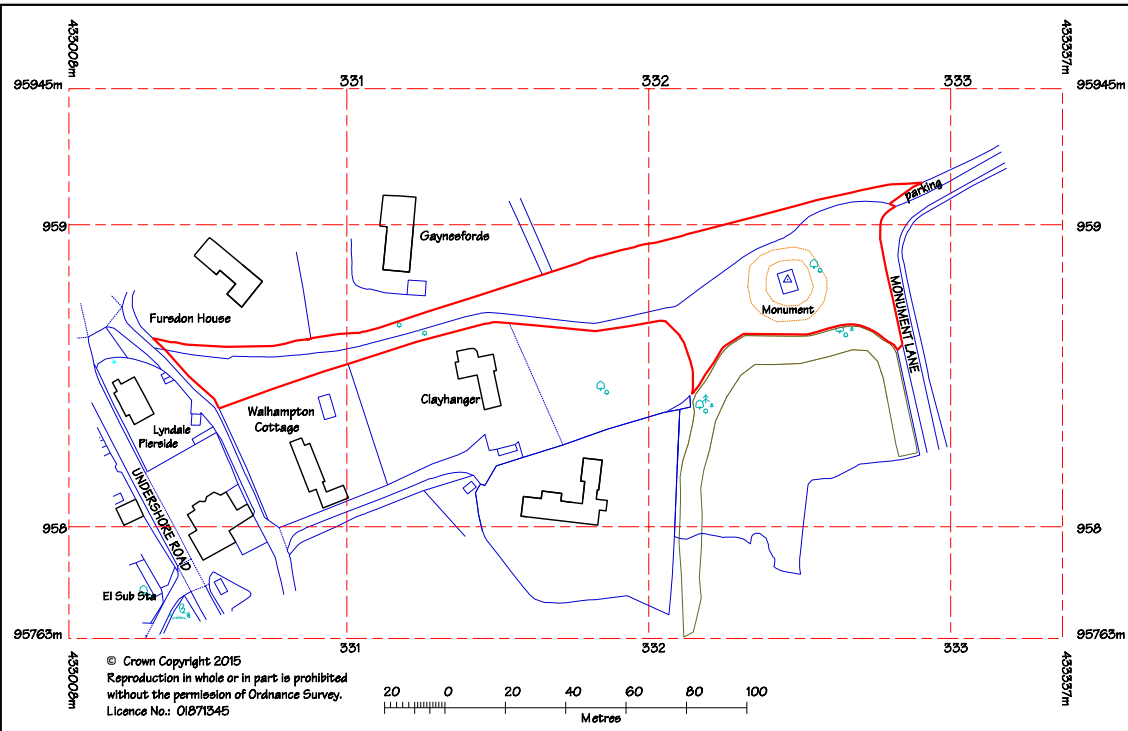


Drainage chanel exterior to monument

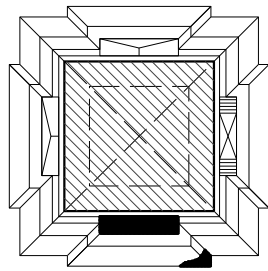
Photo 39



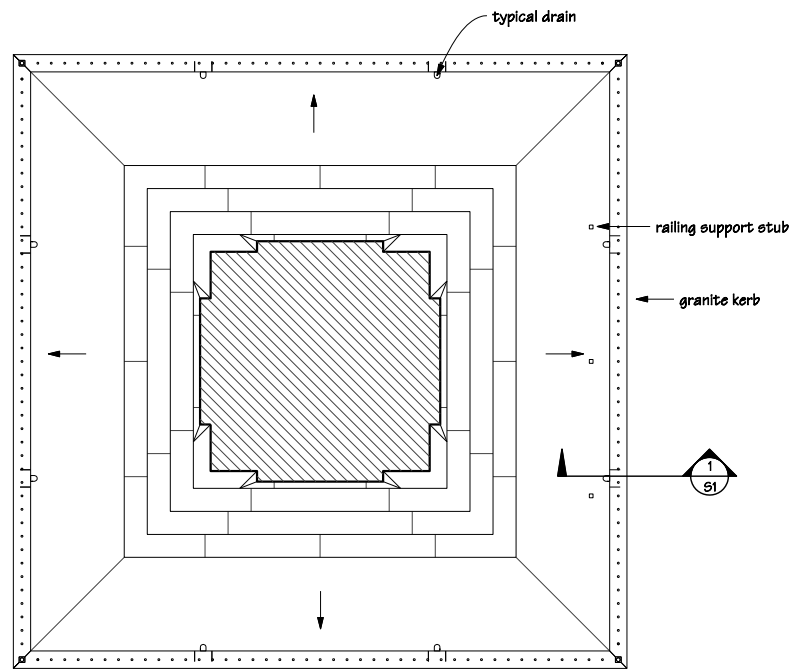
Surviving trident corner post



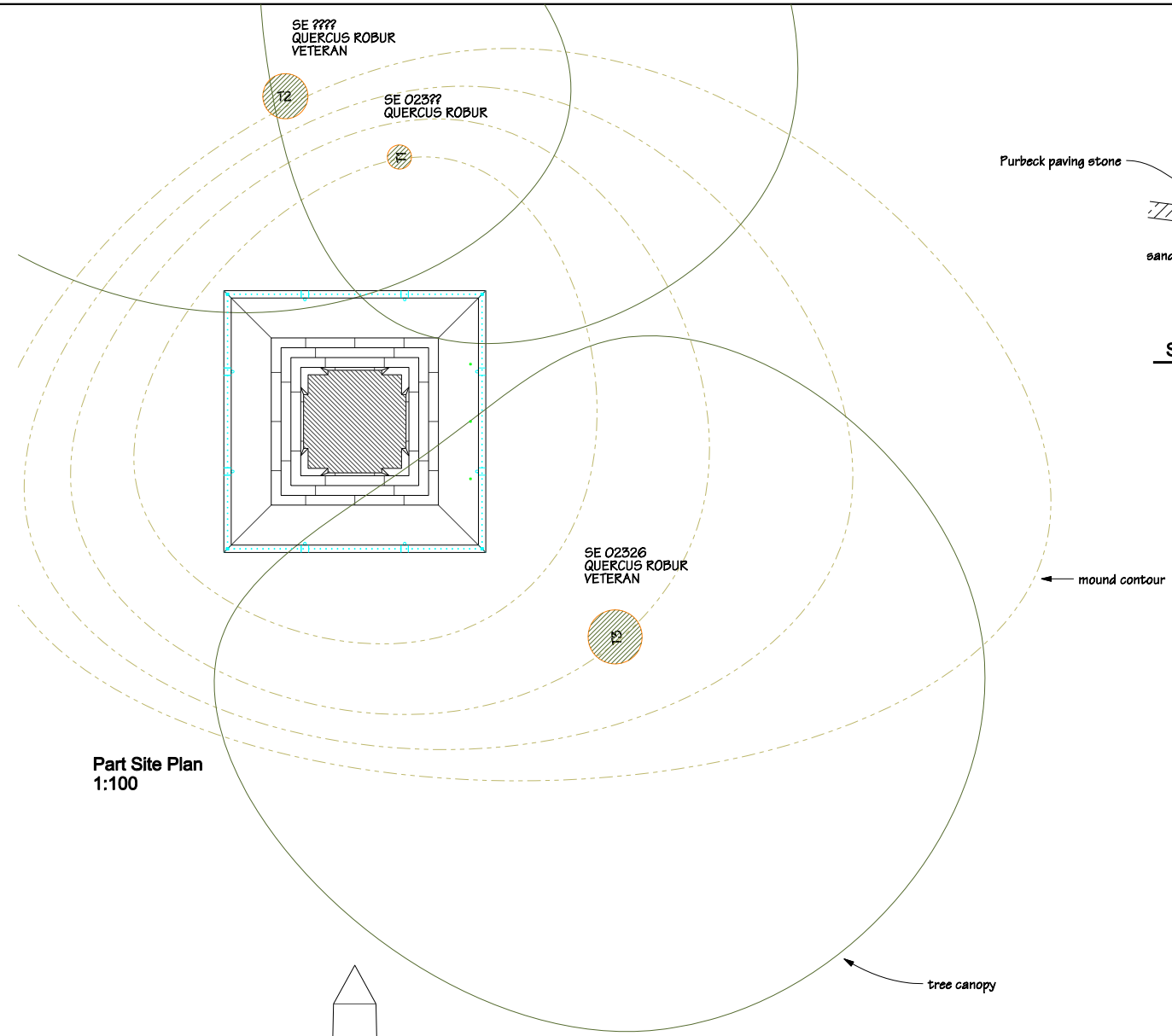
Location Plan
1:1250



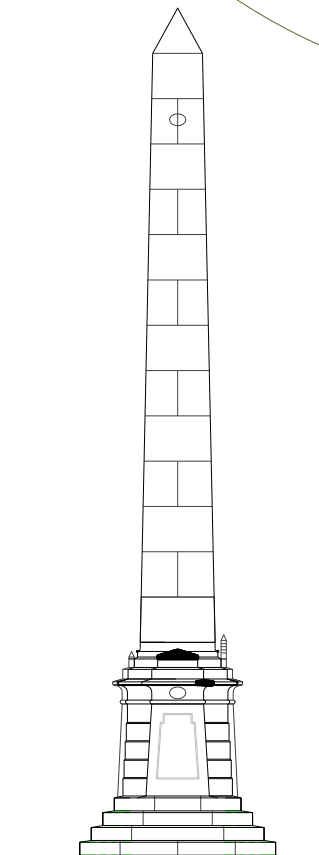
Plan at cornice
1:50



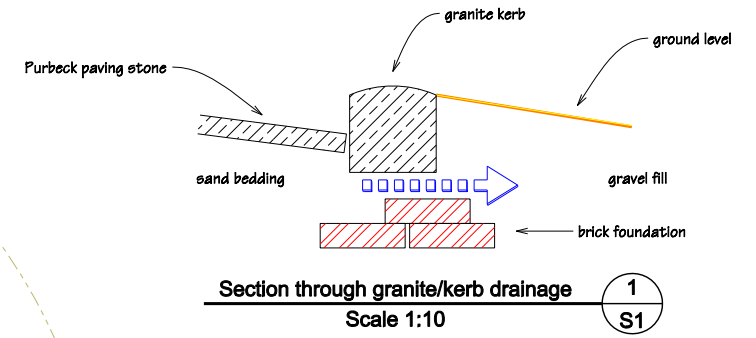
Plan of base of monument
1:50



Part Site Plan
1:100



Part Site Section
1:100



Section through granite/kerb drainage
Scale 1:10

preliminary

Revisions: 01.10.15 Section 1 added

■ Architecture	■ Liturgical Design	■ Building Conservation
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Project:

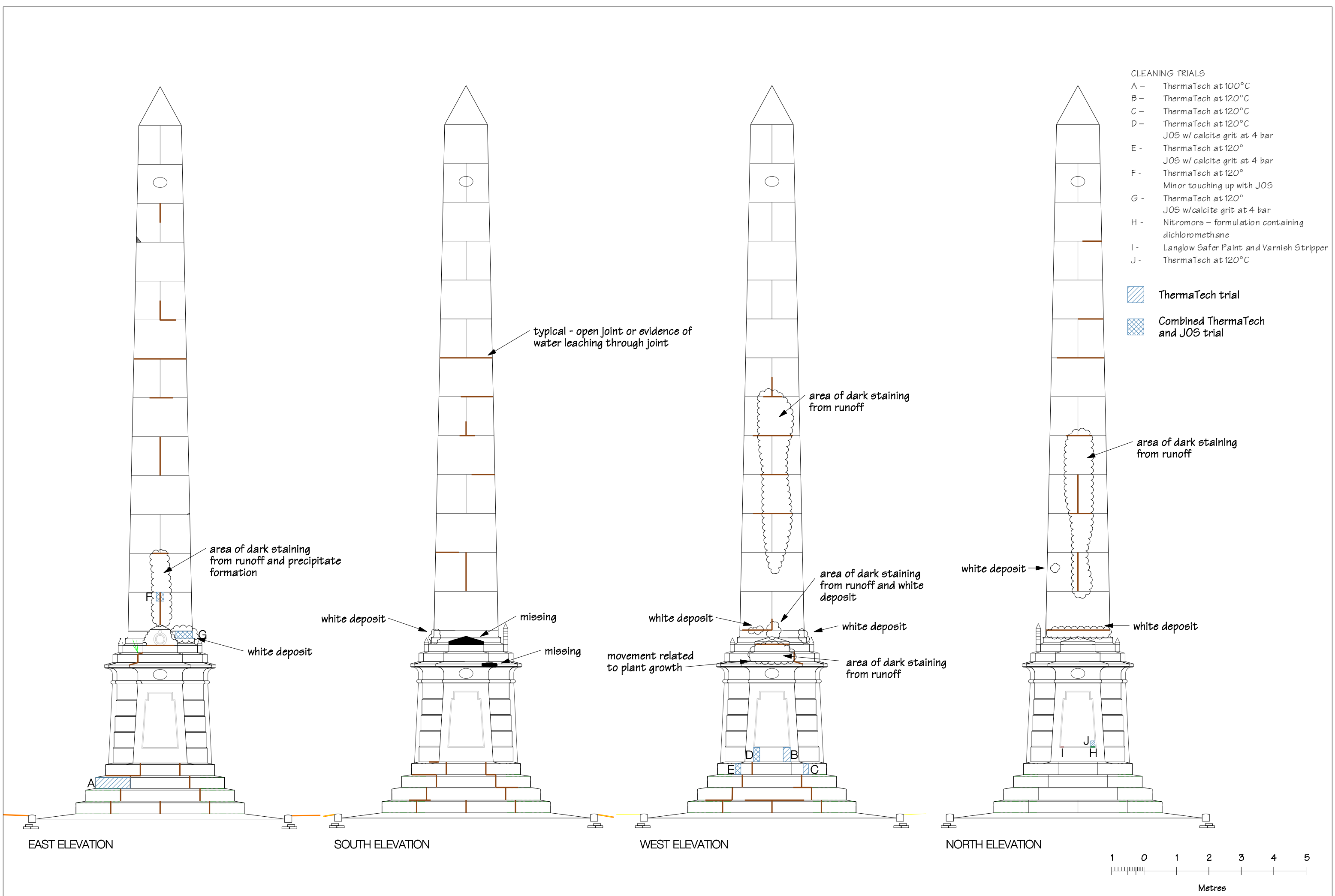
**Repair and Conservation
of the
Burrard Neale Monument
Lymington**

Drawing title:



**Location Plan
Part Site Plan
Part Site Section
Monument Plans**

Scale:	Size:
Shown at A1	A1
Date:	Job no:
07/15	0559
Status:	Revision:
Preliminary	
Drawing no:	

S1 A



- CLEANING TRIALS
- A - ThermaTech at 100°C
 - B - ThermaTech at 120°C
 - C - ThermaTech at 120°C
 - D - ThermaTech at 120°C
 - E - ThermaTech at 120°C
 - F - ThermaTech at 120°C
 - G - ThermaTech at 120°C
 - H - Nitromors - formulation containing dichloromethane
 - I - Langlow Safer Paint and Varnish Stripper
 - J - ThermaTech at 120°C

-  ThermaTech trial
-  Combined ThermaTech and JOS trial

Dated 11th June. 1892

James Henry Lloyd
Esquire

to

The Mayor, Aldermen
and Burgesses of the Borough
of Lymington in the
County of Southampton

Corporation

in fee

of a Piece of Land with the
Wharves thereon in the
Parish of Boldre in the
County of Southampton



the Monument thereon containing three rods and nine paces or thereabouts and delineated with the abutts thereof on the Plan drawn in the margin of these Presents and therein coloured Green to be held [subject as hereinafore is mentioned] by the said Corporation as Public Ground for the purposes of the Recreation Grounds Act 1859 **21st W** the said Corporation hereby Covenant with the said Francis Henry Brojer that the said Corporation will so long as the said Monument exists keep in good repair and condition the Inscriptions upon it And also will at all times hereafter keep in good repair and condition the iron fences hedges and grounds in, or about or belonging to the said Premises **21st W** whereof the said Francis Henry Brojer hath hereto set his hand and Seal and the said Corporation have hereto caused their Common Seal to be affixed the day and year first above written

Signed, Sealed and Delivered }
by the above named Francis
Henry Brojer in the presence of }

J. H. Cooper

John Fellowes Dallop
Esq. of Exeter House North Devon.
Gentleman.

The Common Seal of the before
named Mayor Aldermen and
Burgesses of the Borough of
Exington was hereunto
affixed at a Meeting of the
Town Council of the said Borough
on Thursday the fourteenth
day of April One thousand
eight hundred and ninety
two by William Robinson
Will Esquire (Mayor) in the
presence of

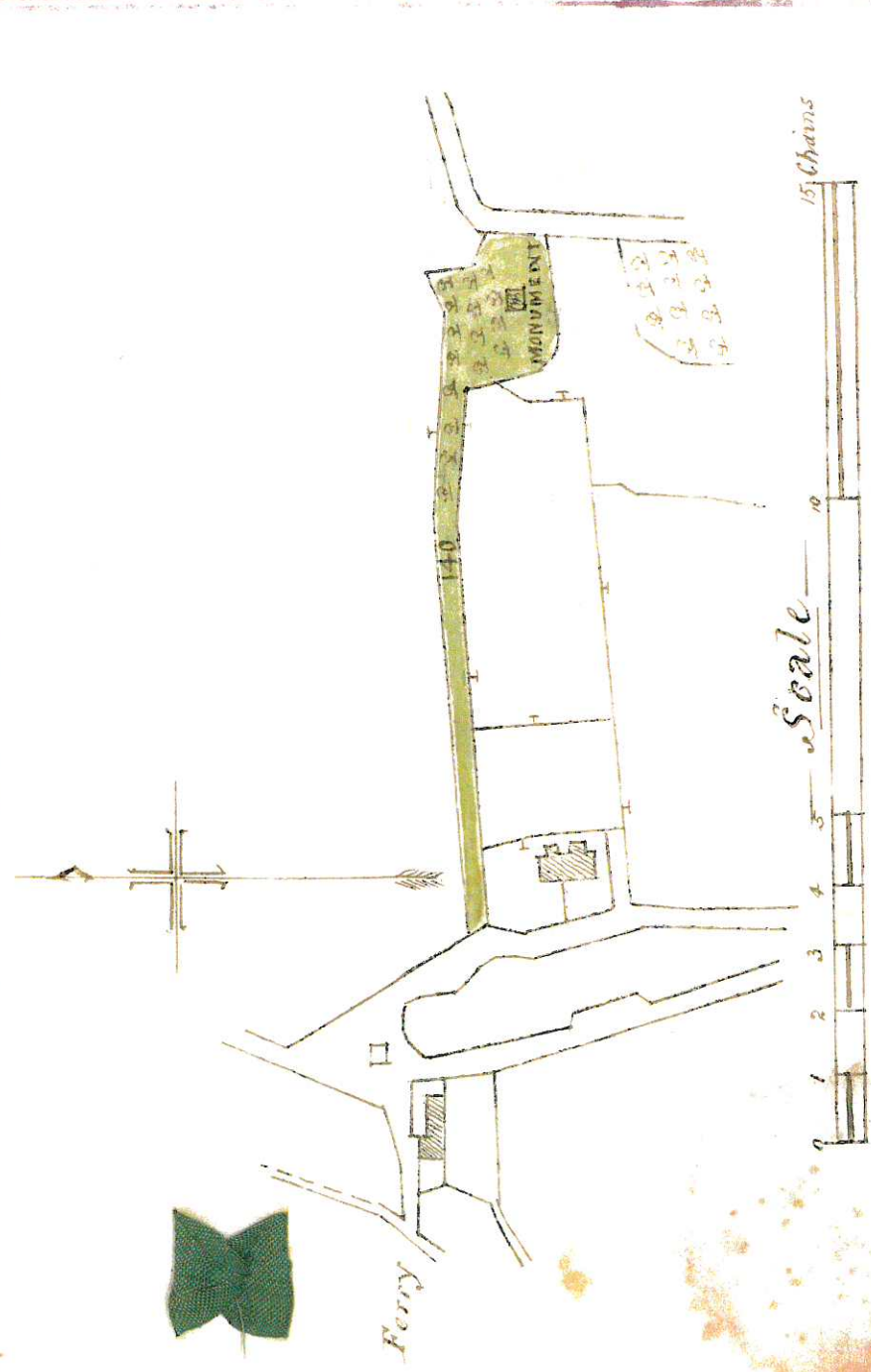
Edw. R. A. M.
Town Clerk



W. R. Hill. Mayor.



This Indenture made the fourteenth
day of April - One
thousand eight hundred and Ninety two
Between Francis Henry Crozier of Delaware
County of Southampton Square of the one part and
The Mayor Aldermen and Burgesses of the Borough
of Wilmington in the same County
hereinafter called the said
"Corporation" of the other part Whereas
the said Francis Henry Crozier is seized in fee simple
of the piece of land with the
Monument thereon hereinafter conveyed
subject so far as the same
may be affected thereby to an Indenture
dated the fourteenth day
of February One thousand eight hundred
and forty two and being



grant of the said Piece of Land with the Movement thereon to the said Corporation for the purposes of the Recreation Grounds Act 1859 accompanied with the sum of One Hundred Pounds the yearly income of which it is anticipated will cover the necessary expenditure undertaken by the said Corporation in relation thereto as hereinafter mentioned and such sum has accordingly been paid to the said Corporation **in the sum of £100.00.00** that for effectuating such his desire the said Francis Henry Coquer doth hereby **CONVEY** and **GRANT** to the said Corporation as Trustees for Public Ground for the parish of Symington in the said Borough of Symington **All** that piece of Land situate in the ~~parish~~ parish of Boldre in the said County of Southampton with