



Guidance on Conservation of Milestones & Other Waymark Features

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Guidance on Conservation of Milestones & Other Waymark Features

1. Introduction

This document provides basic guidance to assist members of the Milestone Society involved in the conservation of milestones or the erection of replacement markers. The information given here is based on observations made by members of the Society and advice from those with some experience working with roadside items. *It is given in good faith but not all the contents has been verified or checked by conservation professionals. Individual users must take responsibility for the selection of appropriate techniques or materials for a particular project. The Society does not endorse any of the products or suppliers mentioned here.*

The Society has published a Policy Note on *The Position & Conservation of Milestones* (see web page <http://www.milestone-society.co.uk>)

This Guidance on Conservation & Restoration has four main sections;

- ❖ Planning work on Milestones
- ❖ Practical Conservation & Restoration
- ❖ Suppliers and Sources as an Appendix
- ❖ Generic Risk Assessment as an Appendix.

2. Planning Work on Milestones

There are a number of legal, civic and aesthetic issues to be considered before beginning any practical work. **No work should be undertaken without the knowledge and agreement of the owner of the milestone or marker.** The fact that you adopt an orphan stone does not confer ownership. In most instances the Local Authority (usually the County Council) is the owner and a significant proportion of milestones are listed monuments that have legal protection. There are sanctions in law that will be used against anyone working on an ancient monument without permission. Other stones may have legal protection if they fall within a Conservation Area. Check the Milestone Society National Database or the relevant County database to discover the status and any history of the milestone as a prelude to any detailed planning of work.

As a minimum you must consider the factors in the sections below, relating to the Authorities who will have a legal interest, the local community who have historic or civic interests and the individuals who need to use the road or footpath safely.

2.1 The Authorities

2.1.1 Planning and Highways

Consult the planning department of the Local Authority. Although they may not wish to participate directly in the project, they need to be aware of what is proposed for any milestone and you need their positive agreement for any work on listed milestones. The case may be referred to the District Council's Conservation Officer who can give professional advice, although in many areas it is unlikely that they will have particular experience with milestones. (Advice on finding contacts at Local Government and Parish level is given in Appendix 1)

The County Council Area Highways Engineer will have a view on the practicality and safety of any work beside the road. The law regards the highway to include the road, the verges and the footways. Work under the New Roads & Streetworks Act 1991 can include inspecting, cleaning and adjusting items. If the milestone is immediately adjoining the carriageway you should

anticipate particular attention from the Highways Department regarding safety and potential disruption to traffic. A written risk assessment will be essential (see Appendix 2 for a generic assessment). If chemicals are used a COSHH assessment will be needed. A roadside worker must also have public liability insurance (The Society currently has £5M cover for members; this is sufficient for most Local Authorities).

Do not assume that the various Departments will automatically liaise with each other. You need to positively contact both Planning/Conservation and Highways to be sure that both are aware of plans or actions approved by the other.

In practice it is more likely that the active support for work will come from the Parish Council or local Civic or Historical Society. Their views will be much more focused on the one or two stones in their area and they will be concerned about the setting of the stone. Volunteer labour and effort to find finance or grants is much more probable at this level.

2.1.2 Listed Status

Approximately half of the milestones in England & Wales are listed. Appendix 3 provides some background to the Statutory Framework of Listing. Normally, a listed item cannot be substantially altered or moved. It will generally be acceptable to restore the stone to the condition and place it was when originally listed. The Milestone Society Policy on Position and Conservation is consistent with the principles of the Society for the Protection of Ancient Buildings.

- Ensure that conservation/intervention work should be kept to a minimum, provided a good long-lasting result is achieved
- Use traditional techniques and ‘breathable’ materials in preference to modern plastic or cement-based solutions
- Carry out proper research, so that all decisions affecting the character of a milestone are evidenced and defensible.
- Where research is lacking, to conserve the stone as found and complete with its later overlays. These may reflect interestingly on changes in the way the stone has been used.

Monuments are listed for their historic *interest* and any work should not alter the *character* of the structure. Anything that will maintain or preserve the stone in its present condition will be encouraged. The use of a surface finish, such as limewash or silicate paint on stone or two-part paint on metal, will alter the present appearance of the marker and the coating will “change” the structure. However, if properly applied these coatings will be beneficial and preserve the structure from further erosion. It is worth pointing out that inaction will sometimes mean that there is no original surface left within a few years and no monument will remain within a decade. The change in colour caused by surface treatment may need considering on a case-by-case basis. However, work to recreate what we think was the original form of a stone, before listing, is contrary to the spirit of the listing process and the presumption will be that this should not be done without careful research, formal consideration and the issue of a permit. If there is no evidence of a listed stone being painted, the presumption is that it should remain bare, unless this will demonstrably result in irreversible erosion.

It is the Local Authority who must be convinced of the appropriateness of the work on a Listed monument. The professional judgement of the Local Conservation Officer will ultimately determine what is permitted. Before any work can be done you must complete an “Applications for Listed Buildings Consent, Conservation Area Consent and Variation or Discharge of Conditions Form” obtained from the Local Authority (District Council) Conservation Officer. Be aware that completing this form will be time consuming as one part has to be handwritten

five times, another twice and pictures and plans provided (for each stone!). But there is no alternative.

It may be possible to move a listed structure to a position close to the present location, so long as this is achieved within one day. If it were to be taken to another location for storage or restoration this would be “removal”, which is not normally allowed.

2.1.3 Environmental Issues

Councils may have specific policies for maintaining Biodiversity and protecting sites with locally important flora and fauna. Although Milestones themselves may not be of particular concern the area adjoining the site will be of concern and the Council may have a particular environmental policy on the implications of any work on the verge and adjoining hedges. Special verges will normally be marked and care should be taken to avoid damage to plants in these areas. Work should not be undertaken in sites designated as Sites of Special Scientific Interest (SSSI) without close consultation with the local Authority.

The most likely animal species to be disturbed on a roadside verge are birds and reptiles, though there may be a risk to deer, badgers or dormice at some locations. During work on and around milestones, the risk of disturbance is greatest for nesting birds and a check should be made on adjacent hedges and trees before undertaking any work. The risk is greatest during March to July inclusive and if there is evidence of nesting birds work should be postponed until this period has passed.

2.2 The Neighbours

2.1.1 Being Good neighbours

Consider the setting and context of the stone. If the stone is next to domestic or commercial property, you should at least liaise with the occupant. If a local group is doing the work they will find this easier. Experience in Worcestershire suggests that property owners are sometimes prepared to finance the restoration or provide resources for the work (farmers with tractors and hydraulic lifting gear are particularly useful). Were local people have been involved there will be a greater sense of ownership and the long-term care is more assured.

A milestone maintained in its context is a far more valuable historic monument than one moved into a museum or display area. If a stone is a safety hazard or is in danger, moving it may be the first step in successful conservation but the new location must preserve the historic context as much as possible (i.e. beside the same road at the same distance, orientation unchanged). You may argue that almost all stones that are currently readable were probably moved when the old turnpike was upgraded by tarmac and again in 1940. Nevertheless, one must assume that they were normally returned to roughly their original location. Notwithstanding all this, if the current location makes it inevitable that the stone will suffer damage and that any restoration work will be quickly reversed, finding an appropriate new location should be part of the plan (see the *Milestone Society Policy Note on Position and Restoration of Milestones*)

2.4 Livery and Colours

Paint colouring and style have the potential to divide a project team. Remember that local residents have to live next to the finished work and will certainly have a view on something that might impact on the saleable value of their property. Also bear in mind that milestones are not isolated items; they are normally part of a series set up by a turnpike trust that had responsibility through several parishes. The stone may have residues of the paint that had been used before to give some guidance and the Society has access to several photographic archives that illustrate how stones were painted in the mid-20th century.

In the absence of other factors, black lettering on a lime-white background or black lettering on uncoated stone are the default scheme for milestones in most regions of England, Wales & Scotland. Cast iron mileposts are normally black letters on a white background, with raised edges or lines often painted in black. Be sensitive to the fact that modern white paint using much brighter pigments than old lead paint so it may be wise to choose a *shade* of white. Mileplates are generally painted in a similar fashion to mileposts but there is the additional issue of whether the supporting stone is painted. If there is already paint covering the stone then repainting with masonry paint is advised. If the stone is bare do not change its character. However, where a stone is suffering serious erosion, a protective layer of white masonry paint should be considered. Even where the front of a milestone is painted, do not automatically assume that the back should also be painted; follow the existing pattern on the back.

Many stones have Ordnance Survey Benchmarks carved arbitrarily on the face or sides of the marker. Although these engravings often show evidence of being painted black, it is unlikely that the surveyors painted the marks. In some cases the benchmark affects the lettering of the milestone. Where the mark is in the area of lettering, the default position is not to paint the benchmark black. If it is elsewhere on the stone, a judgement should be made based on whether it has been painted previously and whether attention should be drawn to this historic mark.

2.3 Safe Roadside Working

Working beside the road is a potentially hazardous activity and you must take appropriate actions to minimise the risks. The hazards fall into three broad categories;

- Manual handling & use of materials
- Stepping into the path of vehicles
- Causing vehicles to take dangerous manoeuvres
- Causing environmental harm.

A risk assessment must be made before doing any work beside the road and a written risk assessment prepared as part of any proposed roadside work procedure. A generic risk assessment is provided in Appendix 2. This identifies the general hazards and proposed methods of minimising the risks to an acceptable level. This assessment deals with work on the roadside verge – any work requiring use of the roadway itself (e.g. for lifting or work on the face of the milestone) needs a site-specific assessment of risks and will normally need detailed discussions with the Area Highways Engineer about the appropriate protocols to follow.

Roadside working is covered by Department of Transport regulations and hazard warning signs are an important factor. A booklet “Safety at street works and road works” can be downloaded from the Department web site. Although this does not deal specifically with work on the verge it provides some useful principles. One critical question it poses is “**Will someone coming along the road or footway from any direction understand exactly what is happening and what is expected of them?**” The guidance also introduces the concept of a safe working area, which is bounded by hazard barriers. Where a pedestrian path is obstructed, safe provisions for temporary passage are needed.

A fluorescent waistcoat should be worn whenever working beside the road. This may be sufficient warning for survey work. A common arrangement of signage during painting or restoration work is to have triangular “men at work” warnings upstream of any work – these may have lettering below indicating “Milestone Repairs”. On roads with a speed limit of 50mph and above, two signs, at 100m and 50m may be advisable where there is adequate space. A sign indicating “End” of men at work is not obligatory but may be helpful. The roadside edge of the safe working area in front of the milestone is then defined by cones or a hurdle type of red &

white barrier. On roads with speed limits over 40 mph, the safe working area should be 1.2m wide (from the face to the road edge); it can be 0.5m on roads with limits less than 40mph.

When the milestone is well back from the road edge, signs may be confusing. The distance where a stone may be considered no longer close to the road will vary with site conditions. Signage will probably not be appropriate if the stone is more than 5m away. Bear in mind that a parked vehicle does provide a subsidiary signal of work (provide that it is parked safely without obstructing visibility or free flow of traffic).

3. Overall Principles

When working on mile-markers remember that we are the present custodians of an historic monument. It is vital that the precautionary principle is followed in any work on milestones.

- ❖ If it ain't broke don't fix it.
- ❖ If it is in poor condition do not make it worse.
- ❖ Do not do anything that causes irreversible change to the basic material or structure (except as a last resort).
- ❖ If anything is done, record all evidence of previous work discovered during the present reservation.
- ❖ If a substantial part of the original marker is replaced make this clear on the item.
- ❖ Involve the community around the site, even if you do the practical work yourself.

This topic will be addressed at three levels, beginning with the most straightforward and ending with the most radical solution;

- ❖ Simple Maintenance
- ❖ Repainting, Restoration and Conservation
- ❖ Repair or Replacement

This guidance assumes that a full risk assessment will be made before beginning any work at a particular site (see Appendix 2 for a Generic Risk Assessment covering roadside work on Milestones). It is also assumed that where appropriate, the District Council Planning, Conservation officer and County Council Area Highways engineers have been consulted and their requirements met.

4. Simple Maintenance

Most milestones and mileposts are over 150 years old and have had a succession of custodians. Maintenance methods may not have changed since the stones were first erected and involve;

- Making the stone visible
- Preventing damage by vegetation
- Preventing the stone collapsing
- Stabilising the surface against erosion by water and air.

Before any work is undertaken, careful consideration should be given to the minimum that would be required to achieve an improvement to the condition of the milestone. English Heritage is particularly concerned that the “patina of age” is not needlessly removed from milestones in an effort to restore them to pristine condition.

4.1 Make it visible

The most significant acute risk to modern milestones is the mechanical flail used to cut verges and hedges. Unintentional impact damages both stone and flail so everyone has a vested interest

in making the stones visible. Clearing or cutting vegetation around the milestone is often the simplest means of making a milestone more visible. Tall, white stones set a little back from the roadside, though clear of the hedge, are the safest from accidental damage. Hence clearing, raising and repainting stones will have a double benefit in making them more stable and more visible. The Society has notified some Local Authorities of the exact position of stones so they can advise their contractors. It has been suggested that visibility would be improved by spray painting a line or symbol on the road immediately opposite the stone. However, this must have the active participation of the Local Authority if it is to work and at present is only commonly practiced elsewhere in Europe.

4.2 Clear Vegetation

Local Authorities will generally cut vegetation back to a height of 100mm twice per year for a distance of one metre from the verge edge. A full verge width cut may take place every three years. Thus it is unlikely that milestones will be kept clear of vegetation during routine verge cutting.

Be aware that vegetation gives character to a roadside verge and may provide a habitat for specific animals. **Check the adjoining area for sites where animals may be residing, especially nesting birds or reptiles. Under no circumstances disturb these locations.** There may be roadside sites that contain flora and fauna of particular local interest. Some Authorities designate sections of verge as “Special Verges” and will place markers (or in National Parks there are studs) to designate the areas of particular interest. Very Rarely areas may be Sites of Special Scientific Interest (SSSI) and these have statutory protection against any damage to the plants, animals or soil. In general, if a plant is unusual and not tall and woody, it is wise not to uproot it.

Clearing vegetation from around stones provides temporary relief. Using long handled cutters or secateurs to prune back trees and shrubs will inevitably encourage new shoots. Skimming the grass can leave a niche for tall, rank weeds to grow in profusion around the stone. Ideally keeping an area of short grass around the stone and rooting out brambles and other perennial woody plants will prevent the stone being covered or displaced by large plants. Regular grass cutting with a petrol-powered strimmer or hand-shears, particularly when plant growth is rapid during the Spring, is the simplest and most effective way of keeping a milestone visible and demonstrating that it is “cared for”. An area of verge at least 10m either side the stone generally needs to be regularly cut back to the line of sight to the milestone if it is to stand out from the surrounding vegetation.

Ivy is particularly problematic since the rootlets attach strongly to the stone and may lift off fragments when the shoots are pulled off. Try to pull ivy up by the roots to retard reinvasion. Trees are a major problem since they keep the area shaded, are the source of deposits onto the stone, may undermine the stone and may obscure it eventually. Remove saplings to avoid future problems. Bushes can often be cut down without risk and will improve visibility, thus making subsequent work on the stone itself safer. Although the lower branches can be removed from larger trees, anything other than a sapling will need professional attention.

When dealing with any vegetation, be considerate of the owners of any adjoining property – do not lop hedges around domestic property or make assumptions about how tidy the grass should be in front of someone’s property. If there are neighbours, they are best placed to undertake long-term ground maintenance. Although it may be tempting to lay waste the adjoining vegetation with weed killer, this is generally unacceptable for environmental reasons and pointless in the long term since tougher, ranker weeds will re-grow in the space provided.

4.3 Prevent Collapse

It is inevitable that stones sink into soil (Darwin's first experiments with worms illustrated this). However, most stones and posts are too heavy to be easily moved manually so a sling and hoist will be needed in most cases if a stone is to be moved more than a few feet. This is also likely to involve attendant problems of safe access to the roadside. Lifting gear can be hired but it is better where possible to seek out a cooperative farmer or builder who has a hydraulic system (and adequate insurance). Stones at an angle may be levered back into position with less mechanical help. Carefully excavating the soil on the upward side of the slope to the full depth of the foundation will give a space into which the stone can be gently rocked. Adding large stones into the void as it opens on the downward side will allow one person to ratchet up quite a large stone. All the gaps will then need packing effectively. Medium sized stones can be manoeuvred into adjacent holes using lengths of timber as levers (the wood needs to be at least 350mm square to be strong enough, yet thin enough to get under stone).

Where stones have been raised they have occasionally been reinstated in a well draining medium such as pea gravel (from any builders merchant). This gives some respite from overgrowth by weeds but unless the area covered by pebbles is a very wide, within a season or so plants will have colonised the gravel so it needs constant attention. There are several examples where coarse gravel or aggregate (greater than 10mm) has failed to support the weight of the stone and it has begun to lean as the gravel moves. Gravel will also allow rainwater to run down the face of a stone and will allow free access of air to a buried metal surface. Both these are likely to increase erosion. Soil immediately adjacent to the surface will provide protective buffering and so will counter the affect of acidic water at the base of the stone.

Where stones are set in the pavement, paviors are best used immediately adjacent to the stone rather than tarmacing right up to the monument. This avoids marking the stone and will allow some reworking of the location if necessary (and prevents contaminated water tracking selectively down the edge of the stone). As important is the need to avoid the wicking effect of stone buried into an impermeable barrier. Moisture passing up through the porous stone will carry unwanted salts to the surface. A break around the junction of the stone and the impermeable ground cover is therefore essential.

There are few circumstances where it would be justified to use cement to fix a stone into position – cement fails the precautionary approach since it sets so hard that it cannot be removed without damaging a stone. However, if a marker is not free standing and needs physical support, mortar may be the only option to hold it in place. In these circumstances, a weak lime mortar mix or a ready-prepared bricklaying mortar is preferable to a strong cement mortar or concrete. Bear in mind that this mortar will be used on site so a dry premix, a container of water and a tub to mix in a needed to avoid leaving an unacceptable mark beside the monument. Using dry cement dust to stabilise sandy soil surrounding a stone with a shallow root can be beneficial, yet reversible alternative.

4.4 Prevent Erosion

Keeping milestones clean using a scrubbing brush and water containing a small amount of domestic detergent will serve to protect a stable surface. However, even this should be given a final rinse with clean water. Aggressive materials are thrown up by vehicles, acidic materials are absorbed from the air and some plants produce corrosive substances. However, the water must be applied without abrading the surface and on an uncoated surface the balance between damage and benefit is less clear. Nevertheless, a clean milestone always looks better cared for and this alone may help protect it.

Limewash was the traditional medium for stabilising the surface of stones. True limewash is made by slaking quicklime, getting rid of the lumps and adding sufficient water to give a paste. This is a hazardous operation (the lime is extremely corrosive and will cause serious injury if it contacts unprotected skin or eyes). Ready made formulations can be purchased from specialist supplier (see web site in the Appendix 1). These formulated washes contain additives such as tallow or casein as well. Limewash stabilises the surface, neutralises acidic residues (particularly air pollution) and is porous so it does not promote damage to the surface. It forms calcium carbonate with the carbon dioxide from the air to create a sacrificial layer that repels the worst of the corrosive materials. However, it is slowly dissolved and will need reapplying every year or two. Hence, limewashing is only effective if a commitment can be made to *regular* treatment, before the old layer has been breached. Repeated limewashing can result in an uneven coating with a thick build up of old layers in protected zones and thin coverage on exposed areas.

Other than washing there is little practical advice to offer on maintaining painted metal surfaces.

5. Repainting, Restoration and Conservation

Before repainting a milestone, first satisfy yourself and those with interests in it, that the present covering is undesirable. Some stones have been neglected for so long that they are covered by lichen and moss that may be considered very attractive. However, the exposed surface may erode if left uncovered and the growth of plants on the stone will loosen the surface. Slow growing lichens on a 19th century milestone are unlikely to be unique so their loss is not normally an ecological issue.

When undertaking work to reverse the ravages of exposure, it is important to understand something of the materials from which the marker is made. The most fundamental differences are between stone and metal and these will be treated separately below.

5.1 Stone

5.1.1 Mineral Materials

A number of minerals have been used as carvable material for milestones. In the south and east of England there are few sources of suitable local stone so a milestone is likely to be of imported material. In the north and west of Britain it is probable that the milestone is made of material similar to the local geology. If local stone has been used there may be other examples close by of how these materials have been successfully preserved.

- Limestones and various forms of calcareous, sedimentary rocks have been used extensively for milestones in the UK. In general these stones are porous with a grain structure. They are eroded by acidic substances in the air (pollution from car exhausts) and water (the run off from the road or acid rain in some area). These pollutants will also form salts on the surface, destabilising the carving further. Carbonates will fizz when a weak acid is applied: a drop of Jif lemon juice on an unimportant, dry surface of the stone will confirm that it has significant carbonate content.
- Sandstones are used in some areas for carving and these stones may be particularly porous and suffer from erosion at exposed surfaces. Some of the stones have bedding planes so the stones will delaminate if water is allowed to percolate through the stone over a long period and frosts start to open up the layers. Sandstones held together with a calcareous matrix will loose structure under acidic conditions, as with limestones above
- Other Sedimentary rocks such as mudstones have been used for milestones. These are generally porous and are chemically more stable than the limestones and sandstones. However, they may have bedding planes and faults that are vulnerable to moisture ingress and cracking.

- Slate is used in some areas. It is far less porous and more acid-resistant than the limestones and holds carved letters well. It is susceptible to cleavage along the bedding planes and is brittle so is particularly vulnerable to mechanical damage.
- Granites and other igneous rocks are used for carved stones in the west and as support stones for plates elsewhere (e.g. on the Holyhead Road in the Home Counties). These are difficult to carve but once incised the surface resist both chemical and physical attack.

Professional identification of stone type can be located through the National stone directory or The Geological Society.

5.1.2 Porous Surfaces

All stones will have some porosity and so when set in the ground will draw moisture up from the soil by capillary action. This moisture will evaporate at the exposed surface and the salts carried out of the ground will accumulate. Rainwater will wash some of these residues back to the soil. If the surface coating is uneven or is water impermeable the action of the salts will create tensions in the surface and cause it to break away, particularly during frost.

So, on stone monuments only use porous paints.

Modern domestic oil (gloss) paints, emulsions and lacquers or spray paints form an impermeable dense layer. ***Oil paints and sprays must not be used on milestones***, as they will eventually accelerate long-term erosion of the surface.

The coating must also be stable and well bonded to the underlying stone matrix. Porosity aids adhesion, provided that the paint is not too viscous when applied. Inorganic coatings such as limewash or silicate-based paints will bond effectively with many of the commonly used inorganic stone matrices. Even if a masonry paint claims to be porous or breathes through a silicone layer, it will normally be an organic polymer and so will form a surface film.

It is important that new paint is applied to a stable surface. Hence any dust, lichen, soil, loose flakes of old paint etc are removed before paint is applied. This preliminary cleaning must not however, damage the underlying surface. Old layers of oil-based paint on stone present a problem since they may be crazed but not easily detached. Furthermore the film blocks the pores so that new layers will not bond so well. Currently there is no recommended way of removing these old layers and each stone must be dealt with on a case-by-case basis. If the stone is very stable the paint layer might be removed by quite aggressive means such as a wide metal blade scraper, without risk to the stone. Paint strippers based on chlorinated solvents (not alkaline or acid based strippers) have been used to remove thick layers of oil paint but test the chemical on a secondary part of the stone before attempting any general work. (All Purpose Paint & Varnish Remover from B&Q own brand or Nitromors (green) have proved suitable on most stone types). Chemicals such as this are potentially hazardous to the user and may damage the environment (particularly water courses) so a risk assessment and safety precautions must be undertaken. They should only be used as a last resort but may be the only means of removing oil paint from a porous structure and so allow the new water based paints to gain access. Where the stone is friable consideration might be given to incorporating the old paint into the new treatment, though some means of keying the two layers will be needed (e.g. by scarifying the base layer)

5.1.3 Appropriate Paints

Resistant stones such as slate and crystalline rocks like granite do not need a protective coating. Painting the main surface of these stones is only really needed for aesthetics or visibility. Hence, it may only be necessary to highlight the letters in paint.

Limewash is the surface treatment preferred where possible by English Heritage. This was the traditional method of coating milestones prior to the 20th century. Limewash is most effective on

calcareous stone with which it will react and form a strong coating. The whole surface must be covered if it is to be effective. Its use on other materials may make little difference to the stability, though it will improve visibility. However, it is more hazardous to use than alternatives such as silicate, it requires many thin coats to achieve optimum effect and is only a sacrificial coating so will be lost over time. Lime will attack sandstones that are rich in silicate, so cannot be used as a coating on this category of stone.

Silicate paints will create a well-bonded mineral surface on most forms of stone. However, they are most effective on materials that are destabilised by acid erosion, particularly limestones. To achieve good stabilisation, the whole surface should be coated. The principal ingredient is potassium silicate but these materials are available as proprietary paint mixtures for use on historic stone surfaces

Masonry paints contain some builders or fillers that will add to the surface and may reduce the sharpness of any carving. Hence they should be used sparingly even when only used to paint the lettering. High quality masonry paints might achieve some level of surface protection without interfering with the passage of moisture through the stone; the less porous the stone the less serious will be the problems with masonry paint. However, such paints are unlikely to be stable for prolonged periods in the aggressive environment beside a road.

The Appendix 1 gives details of a specialist masonry paint manufactured by Keim. Keim Granital was recommended to the Dorset group by Conservation staff at Salisbury Cathedral who used it on milestones in Hampshire in 2000. The company literature describes this as a silicate based paint that allows moisture to pass without causing bursting or cracking of the surface. The paint is very durable, prevents fungal or algal growth, does not fade, resists acid attack and will take on most building materials. It is used extensively on historic buildings, particularly on the Continent. There are several prestigious buildings in London and Edinburgh coated with this paint. Keim offer an impressive selection of colours including several light earth and white shades. These paints are only available from the manufacturer (see Appendix 1). The cost of 5 litres each of undercoat, topcoat and thinners, with appropriate algicide, filler and delivery costs £200; this is sufficient for about 10 to 15 typical milestones. This paint must not be used in extremes of weather (i.e. not if it is frosty, wet or extremely hot). It is important to let the first, dilute coat enter the porosity of the stone to achieve a good bond, so old paint must be removed before the new is added.

Masonry Paints such as Sandtex and National Trust Garden Paint for bricks (made by Farrow & Ball) have been used successfully by some organisations who assure us that stones painted several years ago are still on good condition. These masonry paints are available from some DIY centres and comes in a number of shades. However, the Sandtex literature describes it as “creamy” and giving a “waterproof and flexible finish”. This suggests it is not microporous and forms an organic polymer coating. Milestones in Marlborough were repainted with Farrow & Balls National Trust Garden Paint that is a relatively inexpensive water-based acrylic intended for use on stone and brick. Despite being significantly less expensive than silicate paint and lasting longer than limewash, these domestic paints are not the preferred option for most milestones and their use is actively discouraged by some Conservation Officers.

Masonry paints may be considered for the highlighting of letters, particularly if a stable coat of inorganic paint has been applied already. A water-based acrylic (black) was recommended to the Dorset Group – this will be easy to apply in the details. Sandtex black masonry paint is available in small, very convenient sampler cans making it very suitable for lettering. Again, oil based gloss paints are not recommended.

5.2 Metal

Traditionally mileplates and mileposts are cast iron. This is fairly resistant to corrosion but in the presence of water and air it will rust. If there are variations in the cover, there will be accelerated corrosion at the junction so a poor coating of paint may result in deeper and more extensive corrosion than bare metal. In complete contrast to stone, moisture must be excluded from below the surface of the coating. It is therefore essential that metal surfaces are well prepared and completely dry before applying several layers of a very durable, water impermeable coating. The layers must be thick enough to cover the spikes and hollows that are to be expected on old cast metal. Normal domestic oil paints are not sufficiently thick or durable and will begin to crack under the stresses of exposure on a metal surface during normal changes in temperature and humidity.

Whenever paint is being stripped from old mileposts, be aware that the lower layers of old coatings may include toxic lead primer and so adequate personal protection is essential while working on these. Sandblasting or shot blasting will remove old paint and loose rust from the surface but these methods can generally only be used in a workshop so the post will need to be moved. Furthermore these methods are potentially erosive and if the treatment is too aggressive the sharpness of the casting, particularly the letters may be lost. In Kirklees, the Highways workshops have used a pin/needle gun of compressed air alone to clean cast mileplates. They report that there is no damage to the metal, the letter edges remain sharp and there is no problem with oxidation.

Shotblasting removes the old layers of surface oxide patina. Hence the surface has to be painted immediately after shotblasting or left to age (perhaps for several weeks) so that a new layer of stable oxide forms. It may still then be necessary to use a primer. Chemical paint-stripper such as Nitromors has been suggested for removing old paint but it can take many treatments to lift the thick layers.

In general, metal is more durable than stone, and a sharp scraper blade or chisel can be used to remove old layers of paint from cast iron. A sharpened screwdriver, chisel or punch is suitable to clear the residues from around the raised letters and remove areas of old paint and rust from the face. A stiff wire brush will remove remaining loose material. Mild abrasives such as Emery paper and wire wool are convenient for smoothing the final surface where necessary but in most cases wire brushing is an adequate finish.

It is essential the base is stable so residues of old paint need removing where possible and all rust must be removed. The Sussex group feel that those plates that were removed from the support and painted completely have a much more durable coating. This may be because there is no "edge" where corrosion can begin. The surface must also be perfectly dry. The Sussex experience emphasises the need to work paint into the pits that inevitably exist on old iron surfaces; they recommend checking the whole surface immediately after applying the paint and using an unbent paperclip to pop any films that are bridging pits. Making sure that these surface pits are totally dry is crucial, so it is best to paint in the drier summer months than after even a few days of dry weather in the winter.

Even surfaces that appear clean will retain residual rust. It is normal to treat the surface to deal with this before adding paint. David McDougall strongly recommends Fertan as a pre-coat to surfaces from which loosely adhering rust has been removed. This tannic acid formulation is safer than phosphoric acid and very effective at pacifying residual rust before using oil based Farrow & Ball metal paint. Elsewhere, on advice from the District Highways Department, North Yorkshire mileplates are wire brushed and then treated with Owatrol rust inhibitor. This

penetrated well into any pitted surface. The metal is then painted with a zinc phosphate primer, followed by two coats of Johnstone's metal paint.

Some County Councils specify a red oxide base, two layers of undercoat and two topcoats in order to produce a durable cover. Tractor Paint has been used as an alternative but its long-term stability is yet to be demonstrated. When a milepost is close to the road and exposed to high levels of dust, a slow drying paint may give a very poor finished surface and in such extreme circumstances a fast drying paint such as Templas QD90 might be considered.

A good system or two-part epoxy paint is needed to give a durable coating but may only be applied if the milepost is repainted in a workshop. Hammerite (available from most DIY stores) is normally regarded as suitable on metal cleared of old paint and loose surface rust in the field. In North Yorkshire the practice has been to apply three coats of Hammerite in succession over a single day, leaving each coat to just dry before applying the next. If paint has to be left it will begin to cure and so must then be left several days before the next coat is applied. There is concern that Hammerite cannot be removed subsequently and so is not favoured by Conservation Officers.

There are clearly several approaches that are claimed as suitable for mileposts. The method finally recommended by English Heritage is to treat with a proprietary rust converter, wire brush back to bright metal, use one coat of zinc rich primer, followed by one coat of micacious iron oxide paint, finished with two coats of tractor enamel. It is not clear whether this has been evaluated over a long period on mileposts. A number of mileposts have been painted to this specification under the guidance of Scottish Heritage. The advice from their conservation expert is that these posts may need some remedial treatment after 5 years exposure on the roadside.

David McDougall observes that old white lead paint was not as bright as modern enamels and so favours the off-white shades of Farrow & Ball. The most important feature is to make sure that whatever paint is used is a thick layer, multiply coated. Only this is sufficient to build up sufficient protection on letter edges and surface imperfections.

5.3 Painting the Monument in situ

Bear in mind that work will cover several days and paint may take some time to dry. It is unwise to plan work if there is a high probability of heavy rain or frost. Complete renovation of a stone will involve a minimum of 5 visits on separate days so if you have a long journey to reach the site, it is more productive to deal with a group of stones at the same time.

Items & Materials to be available

- a) A camera to record before and after
- b) Mobile phone for emergencies
- c) "Men at work" hazard triangles (2) & cones (3 as a minimum)
- d) Florescent jacket
- e) Secateurs & shears
- f) Spade & trowel
- g) Spirit level
- h) A container of soapy water and a soft bush
- i) A stiff brush
- j) A wire brush and metal bladed scraper
- k) Sealable containers of preparation materials (algicide, repair material, undercoat, diluant)
- l) A sealable containers of top coat
- m) A small sealable container of writing paint (black masonry paint)
- n) A large paint brush (150 mm) and a detail brush (capable of taking a point)

- o) Spatulas and fine edge tool
- p) Clean cloths
- q) A windbreak (optional)
- r) Containers to carry away the brushes
- s) A waste bag
- t) Gloves and an overall
- u) Coverall and dust sheets (if dealing with hazardous material or lead paint removal)

A. GENERAL PREPARATION

- (a) Wear fluorescent waistcoat.
- (b) Place “Men at Work” hazard triangles 50m back from site in 40 mph area and 100m back in open country. Place an End of “Men at Work” sign on the other side of the work area if it is extensive. Check that work can be completed without crossing the edge of road.
- (c) Where work is close to the roadside (i.e. within 2m), define outer edge of work area on the verge with a row of traffic cones or hazard posts, connected with red & white hazard tape (from Screwfix). There must be a safe, defined working area of 1.2m between the stone and the road edge where the road is subject to a speed limit over 40mph. This guidance does not cover work involving access or placing of items onto the carriageway.
- (d) Cut back any vegetation that may obscure the work from passing vehicles (do as much as possible to make the worker visible to approaching cars)
- (e) Make a full record of all details of the stone before beginning work. Take a fresh photograph and note what paints had been used previously.
- (f) Remove any woody vegetation and cut back the grass; carefully skim the surface soil away with a spade
- (g) On those stones that are not vertical, excavate soil from up-gradient side and gently ease stone back to vertical, dropping large stones into the gap on the downside to ratchet the stone forwards; check with spirit level.
- (h) Clear vegetation from 30cm around stone and excavate soil from close to the marker (up to 10cm below normal soil level) to ensure treatment can be undertaken without interference from loose soil or grass.
- (i) If the stone has sunk (or soil has built up around it), it may be possible to skim the soil from around the stone to reach the original soil level. The skim must extend away from the stone, far enough out to merge with the existing verge level without creating a step.
- (j) Use the soapy water to clean off all the dirt.
- (k) If necessary erect the windbreak as a temporary screen to prevent material being thrown up onto the wet paint by vehicles.

B. SPECIFIC PREPARATION & DECORATION

Stone Only -Preparation

- (a) On stones with heavy growth of lichen a small knife blade and stiff brush should be used to remove the plants without detaching the stone below.
- (b) Use the scraper and stiff brush to remove loose surface material. If necessary use a small spatula blade to remove flakes of old paint.
- (c) If there is a stable layer of oil based paint it may be necessary to use paint stripper to lift this and facilitate removal with a scraper. Repeated treatments may be needed to break through thick layers and into engravings filled with old paint. (Note need to test an area first and to deal with the personal and environmental risks of this material).
- (d) The surface must finally be washed with water containing a small quantity of detergent to remove the water-repellent mixture of residual stripped paint.

- (e) Residual lime (often found under parts of oil painted stones) is removed by repeated scrubbing using water containing a small quantity of detergent.
- (f) Finally rinse all previous residues off the stone. It is essential that most of the surface is cleaned back to the original stone so that the new paint can key into this.
- (g) If less aggressive cleaning has been used, treat with algicide, brush applied undiluted and allowed to remain undisturbed for some 3 hours before thoroughly washing off (wear gloves and mask).
- (h) Any cracks or where there is a need to equalise the surface should be filled using a ready-to-use silicate mineral filler, brush or trowel applied to a pre-wetted surface and dressed back to the required level. This will need to be left several hours to dry before rubbing down with sand paper (wear a dust mask during this).

Stone Only -Decoration

- (a) Choose a dry day and a time when the stone is not in direct sunlight and a frost is unlikely.
- (b) Prepare a batch of diluted undercoat. For silicate paint this is diluted with approximately 20% by weight Dilution media. Prepare a batch sufficient for several stones by taking about 800ml of undercoat and adding 160ml of diluant – mix well in a clean sealable container. This diluted mix will settle so needs re-suspending immediately before use.
- (c) Wear suitable hazard vest, protective clothes and gloves
- (d) All surfaces must be thoroughly washed down with clean cold water to remove all surface dirt and dust.
- (e) When all surfaces are clean, sound, wind dry, dust free and free from all surface contaminants, decoration using Mineral Paints may proceed.
- (f) Stir the diluted undercoat and apply first coat according to manufacturer's instructions using a paintbrush and working the paint well into the surface. Note that the paint will soak into the pores so make sure the coating is complete.
- (g) After a minimum period of 12 hours make any minor repairs with Silicate filler, allow this to dry and apply a second coat of the diluted silicate base paint, making sure any porous areas are well covered.
- (h) After a minimum period of a further 12 hours apply a final undiluted topcoat in paint of the chosen colour working it well into the surface. It is advisable to choose a slightly off-white or cream topcoat so that coverage of the white base layer can be confirmed easily.
- (i) When returning to paint the letters, be prepared to add topcoat onto areas where the white undercoat may still show.

Metal only – Preparation & Decoration

- a) Metal surfaces must be wire brushed to remove all rust and soluble salts. Remove as much of the old paint as possible. You may wish to use a proprietary rust removing gel to clean the rust out of all crevices. Follow the maker's instructions and remember it may be difficult to handle this material away from a running water supply. It is potentially harmful and potentially damaging to the environment so must be kept away from water courses (ditches), a supply of douse water must be available and suitable safety equipment worn. Use fine iron wool to remove all the residues of paint and rust from the awkward corners. Sound surfaces once rubbed down can be simply refinished.
- b) Treat with rust inhibitor such Fertan or Owatrol as 50:50 mix in a primer.
- c) Do not attempt to paint if the surface is likely to get wet during the work
- d) Apply a primer layer (or preferably two). Red Lead paint is no longer available to the public, although with adequate precautions it is the best foundation.

- e) Apply an undercoat and topcoat of the background paint (normally white) as recommended by the paint manufacturer. The layers of a two-part paint should be applied as instructed, preferably in quick succession. It may be easier on some raised letters to apply the black lettering before the final layer of white paint

Common Final steps

- a) Check the form and detail of the lettering on other stones in the series to confirm there are no anomalies.
- b) After a period several days pick out the lettering in black following the engraving in the stone as far as is possible. If the engraving is eroded, first outline the letters with a pencil, using a ruler to get a straight edge.
- c) Use black masonry paint for lettering on stone. For incised lettering (normal on stone), cover to the edge of the engraved letter, using the width of the original carving as a guide. Note that on older stones the “strokes” will have different widths. A large size artist’s brush or a child’s stencilling brush with a full charge of paint and bold strokes will give a good edge. Note that stone paints will probably have crazed within the lettering as they dry so ensure the black paint fills the engraving to seal it.
- d) Use a stylus (e.g. a pencil) dipped in paint to get paint into the corners and fine detail of the engraved letters.
- e) Use black acrylic or gloss paint for lettering on metal. Castings commonly have raised letters and the advice from North Yorkshire is to dab black paint onto this initially. The paint pads available from DIY stores are suitable. The edges can then be touched up with a brush. Some Conservation Officers require the edges of raised letters to be painted but this is time consuming and potentially reduced the readability of the letters.
- f) Use topcoat to touch up any faults or missed areas of white on the main stone.
- g) Back-fill the soil around the base of the stone to original level.
- h) Ideally scatter fresh grass seed over the work area. Bare soil leads to mud being splashed up whenever it rains and will allow tall weeds to re-establish so a good lawn of grass will aid future maintenance.
- i) Remove all materials and wastes from site.
- j) Sign and date the work in a discrete place (e.g. on the back)
- k) Photograph the finished work
- l) Inform the “owner” or guardian that the work is complete
- m) Record the event in the Survey Database
- n) Feed back your experience to the Society
- o) Regularly cut the grass to keep the milestone visible and prevent the growth of woody weeds.

6. Repair or Replacement

If a stone is seriously damaged or eroded it may be necessary to do more than repaint the surface. Take note of the issues raised in Section 2 before commencing on any work of this type.

6.1 Repair

6.1.1 Structural

If the broken part of a milestone or post has been recovered, some type of adhesive or cement might be used to replace the piece before further erosion occurs. There may be fissures that allow water to get into the bedding planes and split the stone; these need to be sealed to prevent steady deterioration of the structure.

The use of strong adhesives or cement is likely to contravene the principle of doing nothing that cannot be reversed. A modern two-part adhesive (e.g. Epoxy resins like Araldite or its equivalent) is likely to stick so strongly that it cannot be removed, so careful planning and execution of the repair is essential. There must be sufficient adhesive to coat the faces but not so much it displaces the two sections with a filling of glue. – if in doubt leave it and store the broken part until professional advice is available. Stonemasons sometimes use a thin layer of neat cement to fill cracks or join stone surfaces but this sets very quickly and is a risky option. However, a thin cement slurry may be useful to seal vertical fissures but silicate filler is equally effective in such a non-structural role and is the preferred option.

Some metal posts, particularly the V-section castings, have been re-set with an additional V-section support plate screwed inside the back. Most metal posts are cast iron and cannot be welded by normal techniques. Hartbro Engineering (see Appendix 1) offers a specialist welding service for cast iron involving the slow heating and annealing of the item. Twentieth century steel posts can be welded (though these are more likely to have corroded or bent rather than fractured). Posts that have been broken into several bits can be assembled around/on a supporting framework of metal rods and any gaps filled (e.g. with epoxy resin) to give a flat surface.

At some cost, stone inserts have been put into the sides of badly damaged stones. These tasks definitely need the services of a professional stonemason.

Where large sections of stone need to be re-attached or snapped stones fixed to the old base, a non-corroding metal dowel may be needed to provide a strong bond. The stone base will normally be in-situ so a portable hammer drill will be needed for at least part of this work. Use a card template of the matching faces to position holes of sufficient diameter to accommodate the pin and allow space for the adhesive mixture. The holes must be parallel to the axis of the stone to ensure the pieces mate neatly. It is advisable to use threaded stainless steel (available from Screwfix website) and two-part epoxy resin glue. The holes need to be oversize and the rod should be a minimum of 10mm diameter; two pins are the minimum to provide lateral stability. Ideally the glue should only be in the drilled hole so no unnecessary gap is created at the interface. During subsequent repainting of the stone, the thin gap may be filled with Keim silicate filler.

6.1.2 Surface

Repairing the engraving is the most common issue to be faced in restoration. In limestones the acidic erosion cuts into the stone so the original carving will become shallow and eventually disappear. In many circumstances the original text can be repainted onto the traces of engraving on surface with black lettering but in a few circumstances it may be justifiable to re-carve the stone. If only one or two letters have gone it may be possible to follow the general line of the surviving letters and engrave soft stone or a filled surface with a fine chisel, sufficient to define the letters for painting. A stone mason can sharpen the edges of eroded letters if the stone is thought to be durable but where a significant amount of engraving is lost such work will inevitably be more expensive than repainting.

For new engraving the mason will have to cut into fresh stone. In some cases simply chiselling the letters into the existing stone is enough but if the stone is badly eroded the mason may want to completely reface the stone and engrave on this fresh surface. This was done on the stones on the Bath Road around Heathrow. Modern mason prefer to work in their workshop and so the stone may have to be lifted and taken away if a full reface is needed. Other masons may work on site, at a premium. There will be a charge for re-facing the surface and then a charge per letter

(typical costs are £8 per letter). The cost is likely to be a few hundred pounds for a full restoration.

If a stone is delaminated or is clearly very vulnerable to erosion careful consideration is needed before embarking on such costs. If the face detaches at the first frost or the letters dissolve after no more than a decade, the cost would be difficult to justify. Any re-facing should normally be linked to a plan for coating/painting the new surface to hold the sharp incisions.

6.2 Replacement

6.2.1 New Stone

Making a new stone may be the only option at some sites. A completely new milestone will cost at least £600. About half this cost will be the stone itself (e.g. £350 plus VAT for an average stone) so where possible using a redundant block or a stable structure such as a wall, should be considered. Since the stone to be replaced is likely to be seriously eroded (or lost) it will not be a good pattern for the replacement. Study the series of stones along the adjoining sections of road and consult the Society's archive and database for appropriate design features and dimensions.

Replacement stones have been made from alternative materials. Castings in a stone stimulant such as resin loaded with stone powder have been made successfully in Yorkshire but the cost for one-off items is only slightly less than a carved stone. It can be possible to make multiple copies from the same moulds making these significantly less expensive. It is not known how resilient these materials are when beside the road but where impact damage is a risk, these might be considered a good alternative to stone.

In Wokingham, a wooden template was made based on an existing stone, and a central core of concrete was used to create the basic shape of the stone. A layer of weak mortar was then cast onto this core and the letters engraved into the surface. The surface was then stabilised with masonry paint to give a finished item, indistinguishable from a painted stone.

Some stones have been replaced by simple concrete posts. This may be acceptable where 20th century milestones have been used elsewhere in the series. It is not possible to disguise this material and for the effort involve this approach may be considered a last resort for replacing traditional stones. However, concrete may be an option when the stone merely forms the back support to an ornate iron casting.

6.2.2 Metal Casting

Metal mileposts and mileplates are easier to replace. A number of organisations will cast plates in iron or various alloys (normally aluminium based). (See Appendix 1). Plates can be reproduced for around £60 if the pattern and letter shapes are not unusual. If multiple copies are taken off the same mould, costs can be even less. When new patterns or letter shapes have to be made, the cost will be higher. Cast iron may cost slightly more than alloy and will require more careful painting to keep the surface in good condition. Freshly made plates can be stove enamelled before installation. At a distance most people cannot tell the difference between cast iron and alloy plates and there is more flexibility in casting alloy shapes. However, cast iron corrodes slowly whereas aluminium will rapidly deteriorate once the paint is damaged. **There is a presumption that cast iron should be used where possible to replace historic plates.**

Surviving plates on adjacent stones may be used as templates for replacements. On the Holyhead project, the shape of the letters on surviving plates was digitised so that new names could be formed from suitable letters in moulds for the lost plates. These plates are fairly large and cost about £90 each to recast. A simpler technique is possible when an adjacent plate survives and only the numbers need to be changed. At Weston on the Green, before the detached plate was

reinstated a metal duplicate was cast and the numbers on this then removed with an angle grinder. Plastic numbers were affixed to prepare a mould template from which new plates could be cast for the remaining milestones in this series. Templates can also be made from *in situ* plates (e.g. when the surviving plate cannot be removed from the stone). It has been suggested that silicone casts might be taken but in practice these are difficult to release from a rough surface. In Worcestershire a template has been made successfully by using brass rubbing methods to take an image of the *in situ* plate. This is then scanned by a pattern maker so an aluminium template can be made (Diegrave Ltd, provide this service see Appendix). This template is then used by the foundry to make the iron casting. An alternative used by David McDougall (See Appendix) is to cut a new template and letters in MDF or plywood using a fretsaw. Some of the old letters and numbers for use on castings are still available from Birmingham Pattern Makers' Suppliers, Burn & Co, Stretchford. It is vital that the correct taper is cut on the letters to give a clean casting. This wooden template is then used to make the final casting.

There are only a few suppliers able to cast a full size milepost. In Derby the shattered remains of a post were used to create a mould that was successfully recast but the cost again was several hundred pounds, even with voluntary work. A full size casting is extremely heavy and will need mechanical lifting gear to assist in the installation. Some ornate castings were made in sections (e.g. those used in Yorkshire) and casting of small sections to be joined on site should be considered.

6.2.3 Fixings

Traditionally there were several methods of fixing metal plates to milestones. The study of these fixtures would be an interesting topic for future research and so anything that destroys or significantly alters the original fixing method should be avoided. However, be aware that many plates were removed during the war and so the present bolts may not be original (e.g. round headed bolts are found in holes that were recessed to originally take an old square headed bolt).

Some milestones have boltholes passing all the way through the stone; some had bolts or spigots going only part way into the stone, relying on a hot lead filling to give an invisible fixing. In some cases the channel through which lead was poured is at an angle to the natural line of the bolt. Where a plate is being replaced original boltholes that go through the stone can be re-used, though they may need very thick bolts with very large washers. It is advisable to use some type of secure fitting such as a Rawplug security bolt (from most DIY shops) that has no opening options once tightened, or a resin cartridge bolt (used on the Holyhead Road). Choose bolts of a similar material to the plate and any other fixings so as to avoid electrolytic corrosion at the interface between the two types of metal. The original bolts were often set in lead and so some synthetic packing may be needed. Where the holes only go part way through or parts of the old fixing obscure the hole, a two-part glue may be needed to fix the steel coach-bolts or spigots into the stone. Gluing the plate directly to the supporting stone is not recommended since it breaches the precautionary principle.

7. Recording Repairs and Renovation

Take notes and digital photographs during any significant work on the milestone. Prepare a short report (page at most) stating what was done, the changes made in the restoration and containing pictures of the milestone before and after the work. Note and illustrate with photographs any problems or unusual features noted during the work. The Local Authority and Highways will normally welcome a copy of this for their records. Update the Milestone Society Database record.

It is best practice to mark new or replacement mile-markers with a permanent label indicating who made the replacement and when. This avoids confusion in the future over the authenticity and age of this item and its relative importance compared with other examples in a series. The label may be incorporated into the lettering on the front or may be discretely fitted to a small plate or engraved on the back of the marker. On the Holyhead Road, the casting had the date 2003 discretely added at the top edge of the plate. The new bolts had a date embossed in the head.

Restored milestones are a good focus for publicity so it is worth contacting the local paper with the story.

8. Sources used in preparing this booklet

- Hand out prepared by Terry Keegan for a meeting sponsored by Worcestershire County Council
- Notes from John Tybjerg of the Milestone Society Dorset Group
- Discussion at Milestone Society AGM, May 2003
- The Milestone Society Newsletter Jan 2004.
- Discussions at Milestone Society Meeting on 28th Feb 2004.
- Experience in restoring stones in Vale of White Horse in 2004.
- Advice from Jeremy Milln
- Meeting of Yorkshire MSS – Save the Flockton One – 24th Oct 2004.
- Discussion with Stephen Parry re preparation of English Heritage Guidance Note for Conservation of Milestones, March 2006.
- Society AGM, Burton on Trent, June 2006.
- Visit by Jan Scrine to blacksmith shop at Kirklees Highways – Nov 2007.
- Milestone Society Scottish Meeting, Aberfoyle, 2009.

This version 6.0 prepared by Alan Rosevear, 11th Dec 2009.

Appendix 1 – List of Suppliers & Sources

See separate file

Appendix 2 – Generic Risk Assessment for Roadside Work on Milestones

See separate file

Appendix 3 – Statutory Framework for Listing Monuments

Approximately half the milestones in England & Wales are listed. The great majority of these are listed as historic buildings, although a few are scheduled as ancient monuments. Under the *Planning (listed Buildings and Conservation Areas) Act 1990* a milestone may be listed in its own right if it has been *in situ* since before 1 July 1948. However, stones may also be listed by virtue of being within the "curtilage" (immediate setting or grounds) of a listed building, whether physically fixed to it or not. Milestones may also be protected if they fall within a 'conservation area', responsibility for the declaration and control of which (S.69 of 1990 Act) lies with the local authority. Conservation Area designation introduces control over demolition and provides local authorities with the basis for developing policies to conserve or enhance historic character. The listing of a milestone places a general duty upon its owner to keep in good repair and this is enforceable by local authorities & central government agencies through the Repairs Notice procedure, with owner liable to pay, and - *in extremis* - through Compulsory Purchase Order. The legislation assumes that local authorities and central government agencies, which already own the majority of milestones, will set a good example!

For planning applications adversely affecting listed milestones, such as for new road schemes, local authorities are obliged to refer cases to the Statutory Consultees. These are the Council for British Archaeology, Society for the Protection of Ancient Buildings and, as appropriate, the Georgian Group, Victorian Society, 20th Century Society and Garden History Society. Local authorities also have a duty to refer all cases of proposed removal (demolition) to English Heritage. The maximum fine for removing a listed milestone without consent or in contravention to a condition attached to a consent is £20,000 and owner may (if convicted) be enforced to reinstate at own cost except in the event of an "accident". No limit has been placed on the level of fine for failure to comply with an enforcement notice.

Grants for repairs to milestones under the Act are available from English Heritage only for those graded I and II* at 40% standard rate; almost all milestones are grade II. Full rate of VAT is payable on repairs although for listed milestones this should eventually be zero-rated under European harmonisation.

Advice prepared by Jeremy Milln.