

Saskatchewan Historic Cemetery Preservation Guide

Prepared by
Saskatchewan Genealogical Society

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Michigan Historic Cemeteries Preservation Guide

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Preface

There are hundreds of historic cemeteries in the province of Saskatchewan. However, until the publication of this guide, anyone wishing to undertake conservation and preservation of these pioneer cemeteries had to search through numerous and often conflicting sources for information. This guide provides a comprehensive source outlining sound conservation and preservation practices.

This guide outlines the preservation and conservation process in a step by step manner. It facilitates the process by offering chapters on organizing efforts, surveying and documenting, and conservation of the cemetery and the repair of headstones.. An extensive appendix offers documentation forms; useful links, and a glossary of terms that will help add to the body of knowledge of conservators, and community officials and guide them in their efforts.

Introduction

Excerpt from

So you want to restore a cemetery....?, www.cityofcapegirardeau.org/.../Cemetery-Preservation-Manual.pdf

Cemeteries are among the most valuable of historic resources. They are a reminder of various settlement patterns, such as villages, rural communities, urban centers and ghost towns. Cemeteries can reveal information about historic events, religion, lifestyles and genealogy. Cemeteries and graveyards, often visited as parks and historic sites, are places to honor and commemorate the dead, and to reflect on the past. Established in large part for the benefit of the living, cemeteries perpetuate the memories of the deceased, who bequeathed to their communities the amenities that give a place character and definition.

Until recently, burial sites were not recognized as important historic sites within the cultural landscape. If valued at all, they were seen as a collection of stones whose significance lay in recording genealogical data and denoting the final resting place of prominent individuals. In the last two decades, increased public interest and concern for our threatened burial sites has resulted in the development of this new area of historic preservation. Finding written information and locating professionals knowledgeable about the preservation of historic burial sites can be difficult. In communities that have a strong sense of history, people are more likely to protect and maintain their cemeteries. Unfortunately, historic cemeteries do not necessarily remain permanent reminders of our heritage. They are subject to long term deterioration from natural forces such as weathering and uncontrolled vegetation, and often times needing restoration due to criminal vandalism. Neglect accelerates and compounds the process.

Many pioneer cemeteries in rural and urban areas throughout Saskatchewan are in need of urgent care.

“Old cemeteries are irreplaceable historical resources, subject to abandonment, apathy, encroachment, environmental factors, vandalism, and theft (Trippe-Dillon n.d.). Key threats include technological advances; lack of care in maintaining these resources, including use of modern machines and chemicals that often damages markers; pollution, which causes more rapid weathering of stones; theft of markers and decorative features; and lack of respect for the markers, resulting in vandalism.”¹

This guide is intended to assist individuals, community groups, service groups, historical societies, genealogists or any other interested parties in the proper methods of conservation and maintenance of these small cemeteries. It will serve as a readily accessible guide to resources and methods that will enable communities and others to document, preserve, and maintain their historic burying grounds. It is not, however, meant for those wishing to conserve large cemetery sculpture or architecture, work that is best left to trained and experienced professionals. Varying levels of skills are required to perform

¹ www.cityofcapegirardeau.org/.../Cemetery-Preservation-Manual.pdf

cleaning, repair and documentation of a cemetery. The following three skill levels will be used throughout the manual to make it apparent who can be called upon to perform indicated tasks.

LEVEL ONE	LEVEL TWO	LEVEL THREE
some training (workshops, on-site training, or under the guidance of trained personnel)	experienced trained personnel	professional

The practices set forth in this guide are acceptable anywhere and follow sound preservation theory.

For the purpose of this manual the term cemetery/cemeteries refers to all burial sites, from a single burial to larger community cemeteries.

As well for the purpose of this guide we shall call these cemeteries *historic cemeteries*. Other terms such as *rural*, *country* and *pioneer* are inadequate and misleading, even though many of these cemeteries are found in rural settings. Some of these small historic cemeteries may exist within urban boundaries. No single term exists that completely describes these small historic cemeteries, but they are readily recognizable as an important part of Saskatchewan's history.

Although each historic cemetery is unique in character, these cemeteries have many commonalities.

- They are usually quite small, from single burials to those often less than one hectare.
- Often they began as a family burying place and expanded over time.
- Frequently the land was set aside by some of the earliest settlers either by donation or direct purchase.
- Many are associated with small churches or communities.
- If there are historic buildings or structures associated with them, they are typically small in scale and of simple construction.

As conscientious members of society it is our responsibility to care for these burial sites of our respected dead. Benjamin Franklin said, "Show me your burial grounds and I'll show you a measure of the civility of a community." Accepting this responsibility we help to preserve a resource that will benefit not only us but future generations.

Historic cemeteries are important cultural, architectural and archaeological resources. They provide us with information on our community's history. Often a cemetery is the only remnant left from early settlements and as such is a vital link with the past. They are an invaluable educational tool whether we seek to research genealogy, educate our youth or delve into local history. They provide quiet places to commemorate the deceased, whether it is of a most personal nature, or on a local, regional, provincial or even national scale.

“... these fragile resources can tell us much about the lives of earlier generations; their attitudes about death, family, and religion; and family relationships. Oftentimes, grave markers are the only source of information about many individuals, and loss of these markers represents information that can never be retrieved. If cared for or restored, however, markers may survive for many decades (Trippe-Dillon n.d.)”²

Old cemeteries provide valuable information to those interested in their family histories, information that may not be available elsewhere. Early graveyards remind us of the fragility of life in earlier times and of how the area’s pioneers and settlers created lives for themselves against tremendous odds. Sometimes they provide us with more than the bare facts of birth and death; they provide us with tender, tragic or humorous glimpses into the lives of earlier generations. They tell us about the struggle to survive childhood diseases, childbirth, wars and epidemics. But most of all they tell us about the recurring cycle of birth, life, and death and how we are all a part of that cycle.

Originally located in agricultural areas there may have been one, two or more within a section of land; these cemeteries may be associated with a church, ethnic group, community or family. Buildings, fencing and other ancillary features are artefacts that demonstrate historic stylistic trends and construction methods.

Archaeological excavations in cemeteries, whether they are First Nations, Euro-Canadian, or any other ethnic cemetery, are extremely controversial. They should only be undertaken if the cemetery is being formally vacated and the interments moved to other burial locations and **NEVER** without necessary permits and appropriate consultation with descendants of those interred. Simple abandonment of a cemetery does not make it an appropriate venue for archaeological study. These important places may provide us with some of the earliest written local history.

Cemeteries are integral parts of the cultural landscape. School children and other members of a community may use them as outdoor museums dedicated to an area’s history and cultural traditions. Site visits enable visitors to observe first hand important community artefacts. Volunteers trained in maintenance and conservation techniques can learn while providing an important local service. They can assist in the conservation and preservation of cultural artefacts for the education of future generations. An area’s architectural history is evident in its cemeteries. Churches that are associated with historic cemeteries and small buildings such as chapels, mausoleums, and storage sheds all reflect the taste, architectural styles and ethnicity common in the community at the time of their construction. They reflect the architectural preferences of their time and can show a greater connection to the tastes of the nation.

While major repair and rehabilitation of mausoleums and other buildings are beyond the scope of this guide and should be left to professionals, we include a section on repointing masonry. Documentation and repair of artefacts such as monuments, fencing and gates are an important focus of this work. Often

² *So you want to restore a cemetery...?*, www.cityofcapegirardeau.org/.../Cemetery-Preservation-Manual.pdf

these valuable cultural artefacts are in great jeopardy from weathering, environmental damage, vandalism, and neglect. They are in urgent need of conservation and preservation and provide communities, service organizations, and others a tremendous opportunity to become involved in the “monumental” effort of cemetery preservation.

This guide takes a multi-topic approach to preservation and conservation efforts. While we use the term “preservation” to mean maintaining the historic integrity of a cemetery’s site, we use the term “conservation” to refer to those processes used in caring for damaged gravestones and artefacts.

The following is a paraphrase of *The Cemeteries Act, 1999* as it relates to the care and maintenance of cemeteries in Saskatchewan. Although the Act focuses on active cemeteries and/or cemeteries operated as a business, and those registered with the Saskatchewan Cemeteries Registry, there are references to the care and maintenance of abandoned and/or neglected cemeteries.

Information for Operators of Cemeteries

The Cemeteries Act, 1999 requires any new cemeteries or those being enlarged or relocated to be registered. Cemeteries include land used for columbariums and mausoleums. Owners of cemeteries are required to maintain cemetery to an acceptable community standard. There are offences and penalties for violations of the legislation.

- requires approval by the registrar for the establishment or expansion or relocation, not interior layout changes of cemeteries, mausolea and columbaria;
- requires owners to maintain cemeteries in a manner that ensures public safety and is compatible with community standards, rather than setting out specific requirements;
- requires an owner of a commercial cemetery to establish trust funds for ongoing care and maintenance of the cemetery and use only the interest to pay for maintenance, and requires new cemeteries (other than municipal cemeteries) to create care and maintenance funds;
- allows municipalities to assume responsibility for abandoned cemeteries and, in the case of neglected cemeteries, to require the owner to maintain it. If an owner fails to maintain the cemetery, the Act provides that the municipality may undertake maintenance and recover the cost from the owner;
- requires cemetery owners to make itemized price lists of their goods and services available to the public;
- requires licensing of commercial cemeteries and trusting of consumer funds, and provides prepaid contract cancellation rights for buyers;
- prohibits certain sales practices, such as solicitations in nursing homes and hospitals, solicitations that appear to be harassment and false representations that goods or services are required by law when they are not.

For more information, contact:

Registrar
Consumer Protection Division, Financial and Consumer Affairs Authority
Suite 500, 1919 Saskatchewan Dr.
Regina, SK S4P 4H2
Phone: (306) 787-5550 Fax: (306) 787-9779
Toll-free in Saskatchewan: 1-877-880-5550
E-mail: consumerprotection@gov.sk.ca

Chapter 1

ORGANIZING EFFORTS

Organizing efforts for the care and maintenance of cemeteries should be a step by step process. The process will vary with each cemetery depending on the availability of funds and manpower to perform the necessary tasks. Those undertaking the care and maintenance that have limited funding should choose to complete Plan A (below), which will stabilize the historic cemetery, and then develop a plan to implement actions as funds become available.

Plan A would serve a community volunteer group or private individual with limited resources. This plan provides only the basics to stabilize and document the cemetery.

- Establish ownership and get permission to act. (Chapter 1)
- Reconnaissance level survey (with a sketch map and documentary photography to determine needs). (Chapter 2)
- Basic cleaning and stabilization of grounds and stones. (Chapter 3)
- Mortars and Grouts (Chapter 4)
- Routine maintenance. (Chapter 5)

Plan B would serve the individual or community that has some funding and trained volunteers.

- Establish ownership and get permission to act.
- Reconnaissance level survey followed by setting short and long-term goals. (Chapter 2)
- Cleaning and stabilization of grounds and stones. (Chapter 3)
- Document cemetery features with a detailed map and photographs. (Chapter 2)
- Research the cemetery's history. (Chapter 1)
- Plan for and implement complete repairs of all headstones, fences, roads, and other features. (Chapter 3)
- In addition to routine maintenance, make long-term plans for preservation of landscape features.

Plan C is the ideal and would serve an individual or municipality with plentiful resources and access to trained professionals.

- Establish ownership and get permission to act.
- Reconnaissance level survey followed by setting short and long-term goals. Clean and stabilize grounds and stones.
- Form a citizen's group to help with fund raising, educating the public, and other goals.
- Detailed mapping, photography, cleaning of stones, and some maintenance.

- Repair all artifacts.
- Restore landscape (ponds, roads, vegetation).
- Plan for and implement long term maintenance goals.
- Put in place cemetery-related programs such as tours, nature talks, genealogy, etc. (Chapter 4)
- List cemetery under *The Heritage Property Act* as a Site of a Special Nature. (Chapter 1)

All three plans contain some of the following steps. The first two steps, establishing ownership and knowing the legal parameters, however, are steps that everyone must complete before beginning any work in the cemetery (Appendix A). Other steps can often be undertaken simultaneously and do not necessarily demand completion of one step before the commencement of the next. Those undertaking the care and maintenance of historic cemeteries should exercise caution that initial enthusiasm for clean-up and repair does not precipitate unwise preservation actions. Reign in enthusiasm until suggested actions can be reviewed to make sure that actions do not harm the cemetery.

ESTABLISH OWNERSHIP

Before undertaking fieldwork in a historic cemetery care and maintenance project it is important to establish the ownership of the cemetery. Many cemeteries are located adjacent to churches, however, many of the church buildings may no longer physically be there. The cemetery, however, may still be owned by the original denomination. It may be necessary to contact church archives, church presbyteries, or dioceses to establish ownership. Some cemeteries may be associated with ethnic groups, specific villages, town and communities. Some abandoned cemeteries are under the care of the rural municipality in which they are located. Further inquiries can be made at the village, town or rural municipal office, or from Information Services Corporation (ISC), Saskatchewan's land registry corporation. ISC will provide a legal description of the property and name of current owner. The Saskatchewan Genealogical Society cemetery index website can provide location information, including location and owner/contact (where available) of all cemeteries recorded by the Society. Many of these cemeteries may not be recorded in the ISC land registry or registered with the Cemetery Registrar. Those cemeteries registered with the Cemetery Registrar and ISC are indicated on the SGS cemetery index website with associated reference numbers. See useful links for website addresses.

KNOW THE LAWS AND REGULATIONS

Once ownership is established, the next step is to become aware of any existing laws or regulations that might relate to the cemetery and the project. Cemetery associations or committees may have regulations that are in effect. If the cemetery is under the jurisdiction of the rural municipality contact the local office to request their regulations.

Most of the Saskatchewan laws and regulations relating to cemeteries are contained in *The Cemeteries Act, 1999*. To review the Act see the following website:

<http://www.qp.gov.sk.ca/documents/english/statutes/historical/1930-CH-102.pdf>

AWARENESS AND TEAM BUILDING

Having established ownership and verified the land description, the next step is to build community awareness of the importance of the resource and the need for its preservation. (See Introduction for suggestions for wording of any presentation.) Conduct a tour for interested citizens; if the cemetery is municipally owned be sure to include city/community/municipal officials. Be armed with reasons why this project is worthwhile and necessary for the community. Cite the problems that exist in the cemetery. Point out specific areas needing attention. To get people to support a project they must be convinced there is a need. Some suggestions for raising awareness are:

- Publicize your effort through local newspapers
- Get the local cable TV station interested in the project
- Establish a web site with photographs of the cemetery in need of attention
- Partner with local schools, scouting, and other organizations to make as many people as possible aware of the project
- Appeal to local church groups and community clubs
- Garner support from historical and genealogical societies
- Demonstrate to local officials that there is something in the project for them

The last point is especially important because, if there is a local government body responsible for the upkeep of a cemetery, they are often not overly enthusiastic to expend funds on a restoration project. A cemetery is often a non-revenue generating property and funds for maintenance and upkeep can be scarce in tight budgets. If a proposed project offers a more diverse use of the property and a chance to build civic pride it will more readily gain the support of local officials. Municipal support can go a long way towards a continued maintenance program and may even increase resource allotment. Municipalities may be willing to provide 'in kind' resources and services, ie. equipment use.

Initially the response may be slow but with persistent effort the project will gain momentum. A wide range of skills is needed in the effort to conserve a historic cemetery. Establishing a broad base of support, expertise and labour is necessary to achieve success.

Step 1: Get Permission

With enthusiasm and a team ready, it is time to approach the owner and request permission to conduct a reconnaissance level survey. **It is extremely important that no work of any kind be conducted in the cemetery without first obtaining permission from the owner.** Be prepared to demonstrate that the resources and manpower are available to conduct such a survey. The sample form in Appendix A can be used or adapted to obtain written permission from the owner/governing authority. **It is important to keep this form on file.**

Step 2: Conduct a Reconnaissance Survey

With permission granted, it is time to begin the initial reconnaissance survey. A reconnaissance survey is a quick look at the property and requires little documentation. This survey will provide an overview of existing conditions, features, and landscape elements. It is essential before any repair or replacement work is undertaken. The survey will aid in setting goals and determining funding needs. The reconnaissance level survey includes the following items:

- **A sketch map that contains the location of:**
 - present boundaries
 - fencing
 - gates
 - buildings
 - roads and pathways
 - water features
 - vegetation such as trees, flowers, shrubs
 - family plots

- An assessment of damaged artefacts and problems with landscape features, such as erosion and fallen branches
- Photography that records each of the above elements
- Global Positioning System coordinates

During this survey, disturb nothing. Something as simple as moving rocks could alter the historic integrity of the cemetery. Mowing could destroy historic plant material. What at first appears to be debris could later prove to be of significance. Along with the reconnaissance site survey it is important to research all former repair, restoration, and documentary projects. This will save duplicating efforts and help in accessing what should be done or undone. Perhaps a prior effort has documented inscriptions on stones. Check with the Saskatchewan Genealogical Society to determine if the cemetery has been recorded. Roads, pathways, and access gates might have been altered or relocated to accommodate modern vehicles and equipment. New plantings, removal of downed trees and other historic plantings, new fencing or expansions of the cemetery's boundaries are often documented. Cemeteries maintained by local governmental bodies, cemetery associations, and by religious organizations might have records of prior efforts that can be used to determine how the cemetery changed over time.

Step 3: Prepare an Action Plan

With the completion of the reconnaissance survey and research, the team is ready to prepare a plan of action. This plan should include setting goals, recruiting volunteers, finding funding, and establishing safeguards and security measures for resources and workers.

Setting Goals

Perhaps the most important first step in preparing the action plan is to determine goals. In the process of setting goals, address the following questions. What are the project's priorities? What type of workforce is needed? Can volunteers provide some of the work? What is the minimum that needs to be done to stabilize the cemetery? Will a preservation planner be helpful? After answering these initial questions determine short and long term goals.

These are examples of short-term goals that might be included in an action plan:

1. Form a "Cemetery Friends" group
2. Make a Master Plan.
3. Identify funding sources.
4. Identify a volunteer co-ordinator or hire a coordinator if needed.
5. Create safety guidelines for both workers and material artefacts.
6. Clarify legal considerations to determine liability for both volunteers and visitors (see Appendix A for sample of Liability Waiver).
7. Address security, vandalism, and theft issues.
8. Retain the original form and fabric.
9. Analyze current conditions. Follow up by emergency stabilization of markers and landscape. Once features that may be unsafe have been uncovered, such as loose headstones or deteriorated roads, incorporate these items as priorities in the master plan.
10. Determine which professionals will be needed and at approximately what stages.
11. Conduct an intensive level survey of the site using photography, mapping, and forms to document markers, buildings, and landscape. At this point plan to delve into the history of the site to uncover cultural traditions, changes over time, and site features such as historic plant material or buildings.
12. Undertake initial clean-up of the cemetery.
13. Expand public awareness.

Examples of long-term goals:

1. Clean and conserve all markers.
2. Evaluate and repair ancillary features.
3. Prepare a plan for landscape preservation and future maintenance using appropriate materials and techniques.
4. Continue research.
5. Provide educational tools such as tours, lectures, brochures, a newsletter, information posted on the community web site, and documentation of findings in the local library.
6. Prepare regulations concerning site management.
7. Designate the property as an historic site.

Step 4: Establish Funding

After determining goals, begin the search for funding sources. First, solicit support from the owner/governing body of the cemetery. Perhaps the governing body will agree to channel the needed funds into the project; however, it will usually be necessary to supplement any small amount provided by an owner or municipality. When no association or municipality will be responsible for managing funds it is important to create an organization or committee that can serve this purpose. To help with both plans and funding, there are several organizational options to be considered:

- Establish an organizational hierarchy with well-defined responsibilities.
- Establish the group as a non-profit cemetery association or committee.
- Become a tax exempt entity. (Revenue Canada, <http://www.cra-arc.gc.ca/tx/nnprft/menu-eng.html>)
- Open a checking account.
- Obtain a GST ID number. (Revenue Canada, <http://www.cra-arc.gc.ca/tx/nnprft/menu-eng.html>)
- Consider establishing an endowment account to fund ongoing conservation and preservation efforts.

For a project to reach its potential a budget must be prepared and maintained. Designate a responsible person or entity to handle finances. By operating in a business-like manner those wishing to donate can do so with the assurance that there is a stable process in place for the allocation of donated funds. As an established non-profit organization it can issue donation income tax receipts. Note: It may be possible to arrange for the local rural/urban municipality to accept donations and issue donation income tax receipts.

There are many ways to raise both large and small amounts of money for a project. Having the support of the local authorities or historical society is beneficial. Fund raising, enlisting workers and raising awareness are related components of the total project. From the beginning establish “partnerships” with local groups and organizations for potential sources of money, expertise and hands on labour. Some partnership suggestions are:

- The local historical society.
- Programs such as “Adopt a Cemetery” or “Adopt a Statue” where one or more groups become responsible for continued care or a financial commitment.
- A regional college may have programs in historic preservation, landscape architecture, archaeology, or history that could provide advice and students for work projects. (Note: contact regional college and ask if they can provide a class or workshop.)
- Approach local businesses and corporations for funding and ‘in-kind’ donations of products.
- Enlist local youth groups to volunteer for projects to earn community service badges.
- Groups such as local genealogy societies, historical societies, archeological societies and veterans may be interested in volunteering.
- Local school groups.
- Pro bono contributions from lawyers, CPAs and other professionals.
- Families of those buried in the cemetery.

In addition to the above, seek large benefactors. Appealing to local business owners, corporations or a civic-minded philanthropist could provide for on-going financial assistance. Having non-profit status issued by Revenue Canada is a must for raising money from corporations and foundations as it allows them to use the contribution as a tax deduction. Groups can find the application for non-profit charitable organization at Revenue Canada, <http://www.cra-arc.gc.ca/E/pbg/tf/t2050/>. If you are unable or do not wish to form a non-profit entity, there may be other established non-profit charitable organizations that can accommodate the receipt of monies on the entities behalf. The Saskatchewan Genealogical Society, under their Saskatchewan Cemeteries Care and Maintenance Program can accept donation for the care of specific cemeteries, or for the general SCCMP funds. When seeking funding, grants are another avenue to pursue. Most granting agencies will want assurance that the organization is able to raise money locally, some may require matching funds. Be sure to target those funding agencies that have an interest in the type of project proposed and that sponsor projects in the local area.

Step 5: The Work Force

Well-trained volunteers bring both enthusiasm and hands-on assistance to the venture; however, as the process advances beyond the preliminary effort, it is recommended that a coordinator, preferably volunteer with expertise in cemetery care and maintenance or a paid position, lead the effort. It is a large undertaking to see that the formal preservation plan unfolds smoothly while coordinating funding, volunteers, and professionals. An organizational person is necessary to set timetables, train volunteers, follow up on various projects, and in general keep everything on track. This person can also coordinate volunteers and their efforts in the cemetery. (See Appendix C)

Before anyone is allowed to work in the cemetery it is a good idea to have written, specific rules and regulations, along with a liability waiver to be signed by all volunteers (Appendix 1, Form SCCMP-4). Specifying “dos and don’ts” protects workers, the project coordinator and the historic property. Some guidelines for volunteers are:

- Never go into the cemetery alone. There is always the possibility of a falling limb or other unforeseen accident.
- Bring a first aid kit and cell phone, and tell the person in charge what project will be done and when it will be done.
- Wear long pants, a long sleeve shirt, gloves, and sturdy shoes to prevent harmful plants, insects and other wildlife from harming you. Bring insect repellent and put anti-bee sting medication in the first aid kit.
- Be on guard for broken glass, sharp stones, and rusty metal. In the case of any injury that breaks the skin, a tetanus shot needs to be updated if the last one was over five years ago.
- If possible point out any known toxic plants in the cemetery. Poison ivy and oak especially like to grow on fences and trees. An awareness of what they look like and protective clothing are helpful.
- Avoid working during the hottest part of the day, wear sunscreen, and have water available.
- Pay attention to the area traversed. A sunken grave, wet stones or vegetation in the path might precipitate a fall.

- Use proper lifting techniques when working with stones. For heavy stones use a tripod with heavy-duty chain, winch and straps.

Volunteers

Volunteers can be used for the initial clean-up of the cemetery. Clean-up is often the activity that has the greatest attendance and is best publicized. It is also where a significant amount of damage can be done to the landscape by well-intentioned volunteers and staff members, who fail to appreciate the historic context and burial practices of the past.

In the initial clean-up, the first important consideration is to protect and preserve that which has survived on the site. A very conservative approach should be taken. Something as simple as the removal or reuse of rocks found in a cemetery could alter the integrity of a particular area. Rocks, like plants, were often used as markers of loved ones' gravesites. Sometimes a large stone would be placed at the head of a grave with a smaller one at the foot. In other instances fieldstones were used to outline the grave. During the initial clean-up only removal of litter such as large branches and trash (broken bottles, cans, and paper) should be done. **Do not mow the grass, or remove plants, broken headstones or any type of marker.**

All volunteers should receive some training before working in the cemetery. Training volunteers through workshops, or an extended workshop, is recommended. Documenting gravestones by photography, mapping, surveying, and the completion of a form for each grave requires patience and precision. It would be helpful to check with the rural/urban municipalities/or owners to determine if there is an existing map of the cemetery. Probing for and cleaning gravestones takes special knowledge and requires specialized skills. In the long run, money will be saved if volunteers have an in-depth orientation to each task. If the community does not provide workshops, there are organizations that offer them: the Western Canadian Cemeteries Association, for example. With education, the volunteers will gain enough information to discern which tasks can be accomplished and those which must be left to a professional.

Hiring Professionals

Depending on the size of the cemetery, the extent of the damage, and the need for restoration, professional help may be required in addition to volunteers. A historic preservation consultant with planning experience may be the first professional that is needed in order to give a condition assessment, formulate a plan, set priorities, and protect the historical integrity of the site. Other professionals that might be considered are horticulturalists, archeologists, landscape historians, historic site engineers, structural engineers, architectural conservators, restoration artisans, monument dealers, and if the cemetery is within a municipality that cares for burial grounds, the Rural Municipality Office may have experts employed and available for general guidance. Saskatchewan Heritage Foundation <http://www.pcs.gov.sk.ca/SHF> may be able to offer assistance as well in locating professionals with appropriate expertise for the project.

Points to consider when selecting a conservator:

- Inquire about qualifications, types of insurance, experience with similar cemetery conservation projects.
- Ask about the size of their firm, length of time in business, employee training and experience, and supervision of employees.
- Be sure that the professional is willing to provide documentation of the work being done. Ask that photographs be taken before, during, and after the work. Be sure that all of the products used are specified in written work orders and estimates.
- Develop a timeframe for the project and get it in writing. Discuss with the professional what will happen if the project takes longer than anticipated or if there are cost overruns.
- Discuss any concerns the professional might have, such as overnight site security, questions about utilities or permits.
- Ask if the conservator is willing to train others involved in the project, such as cemetery staff or volunteers. Are they willing to return for routine maintenance? What sort of actions will be taken in the event of a repair failure?
- Indicate that it will be necessary to use appropriate safety equipment to minimize the risk of accident or injury.
- Inform a contractor that because of the fragile nature of the landscape in which preserving old plants, buildings and markers is a priority, the work in a historic cemetery is handled differently than a residential account.
- Let contractors know that it may be necessary to delay conservation or maintenance in the event of a funeral or burial.

The quality of work that is received from the contractor is directly related to the concerns discussed before the work begins. Be certain to indicate the standards that will be used to judge the completed work, and in most cases the extra effort will be worthwhile. Getting a bid from more than one professional is a good idea.

Step 6: Registering a Cemetery as a Protected Heritage Site

Key Provisions for Protecting Heritage Sites

All provinces and territories have enacted legislation to protect, manage and develop heritage sites. Key protection provisions under *The Heritage Property Act* include:

Heritage Property Designation and Protection (PART III and IV)

A heritage property may be formally designated by a municipality in whose jurisdiction the property is located, or by the Province. Provincial or Municipal Heritage Property designation not only affords the property public recognition, it also affords the property legal protection by requiring the heritage interest to be registered on the land title and to "run" with the property. The designating authority may also regulate alterations to a designated property in order to safeguard those character-defining elements that embody its essential heritage value (e.g.

sections 23, 44 and 50).

Covenants and Easements (s.59)

The Province, or any municipality, or any approved heritage organization may enter into a formal easement or covenant with any landowner for the explicit purpose of protecting heritage property. Any such easement or covenant will be registered on the land title and will continue to run with the property.

Crown Ownership (s.66)

Archaeological and palaeontological objects found in Saskatchewan are regarded as a public resource whose inherent scientific and humanistic value will benefit all people of Saskatchewan and Canada. Accordingly, the Provincial Crown, in the public trust, claims ownership of all Saskatchewan archaeological and palaeontological objects and prohibits their unauthorized sale or removal from the province.

Sites of a Special Nature

A certain category of Saskatchewan's archaeological heritage, referred to as "sites of a special nature" (SSNs), are afforded explicit protection; no person may remove, excavate or alter an SSN except as authorized by a subsisting permit. SSNs, including ancient rock paintings and carvings, human burial places, boulder effigies, and "medicine wheels," are generally considered sacred by contemporary First Nations and Métis peoples and are often directly associated with their ongoing traditional cultural practices and beliefs. Many SSNs are also some of Saskatchewan's most outstanding archaeological monuments.

Impact Assessment and Mitigation (s.63)

Any person whose development operation or activity is likely to disturb or damage heritage property may be required to carry out an impact assessment study, submit an assessment report, and undertake any further salvage, preservation measure, or other action deemed appropriate. Furthermore, any municipality or other authority may be required to suspend or withhold its permit authorizing the activity until the required impact assessment or other action has been satisfactorily completed.

Temporary Stop Order (s.4)

Both the Province and local governments may issue any person engaged in an activity that may disturb or damage heritage property a temporary stop order requiring that person to cease the activity for up to 60 days. During that period, alternatives to destruction (such as systematic data recovery or salvage, or formal heritage property designation) will be investigated and acted upon.

Investigation Permits (s.67)

An investigation permit is required for any heritage research or resource management activity, such as carrying out a survey, making collections, or conducting excavations that may disturb or dislocate archaeological and palaeontological objects. Permits are issued by the responsible Minister under any terms and conditions deemed appropriate.

Penalties

Any person who contravenes any provision of *The Heritage Property Act* is guilty of an offence and liable on summary conviction to a fine of up to \$250,000.00 (in the case of a corporation), or (in the case of an individual) to a fine of up to \$5,000.00 or imprisonment up to 6 months, or both.

To see *The Heritage Property Act* in full please visit:

<http://www.qp.gov.sk.ca/documents/English/Statutes/Statutes/H2-2.pdf>

Chapter 2

SURVEY METHODOLOGY AND DOCUMENTATION

SURVEY AND DOCUMENTATION (Levels 1 and 2)

There are two types of surveys. A **reconnaissance survey** is a quick overview of the site, done simply to note significant features on a map and to get a general understanding of the cemetery's design or layout. The reconnaissance survey serves as the foundation for the second type of survey, the more in-depth, **intensive level survey**. An intensive level survey (based on the reconnaissance survey) requires researching the site and documenting individual features. A survey is comprised of two elements: research and fieldwork. Fieldwork entails taking a thorough look at the cemetery as it presently exists, noting and recording on maps and through photographs all pertinent features within its boundaries. Research requires gathering historical and present data to document the cemetery's history, its landscape, and its artefacts.

The survey process consists of:

- Research and compiling data
- Mapping (Note: check for existing maps to save duplicating work)
- Photographing
- Recording information on survey forms

Research and compiling data

Research consists of investigating a variety of sources of historic data:

- Microfilm copies of old newspapers and other data at local libraries and historical societies; check online newspaper archives (see Useful Links)
- Land Title records (Information Services Corporation) (see Useful Links)
- Local and county histories, atlases and maps, and genealogy information
- Records of the cemetery association and/or a church associated with the Cemetery
- Cemetery records held by the Saskatchewan Genealogical Society

Surveying the Cemetery's Features

Looking at a landscape through the eyes of both a historian and a horticulturist will help put together the pieces of the cemetery story. Ask the following questions:

- Was the site originally located in a small village, in a rural area, part of a crossroads hamlet, on a homestead, settled by a particular ethnic group, or part of a religious site?
- Where is the cemetery sited? On a rolling countryside? On flat prairie? Woodlands? Is the site plain and sparsely planted, or is it covered by a canopy of mature trees?

- Is it a designed landscape?
- When was the cemetery established?
- What are the dates of additions?

Often the organization or agency in charge of the cemetery's maintenance will have maps showing the existing boundaries and plan. If early maps exist, they may help with the analysis of the cemetery's development.

By recording the features, a picture of the cemetery, changed over time, will evolve. The most basic and useful forms of documentation are photographs, survey data forms and a map of all features showing their location. Interpretation of the site and plans for future use should be based on this information. .

DOCUMENTING THE VEGETATION

With the initial research complete and after defining the site perimeter, one of the first priorities is assessing and documenting vegetation. Preserving plant life is a **very** important part of cemetery conservation. Looking at some of the plantings through “modern” eyes may cause you to overlook old species that are indeed heirloom varieties. Look beyond the plantings that you recognize. Since most species were introduced during a specific time period, looking at garden books featuring historic plants or old and new seed catalogs may help to document “changes over time” in the cemetery. These old varieties can be very different from today's hybrids. It is also important to remember that some of these plant memorials were symbolic. For example, the lily is associated with purity, the rose with love, and ivy with immortality and fidelity. Trees were associated with meaning, too. The cedar tree was associated with strong faith, evergreen trees with immortality and the willow tree with grief and death. These plantings were part of memorializing those that are interred in the cemetery and should be preserved. In order to preserve historic plant material, documentation should be done before any clean-up or routine maintenance is performed, or before professionals begin work.

During the reconnaissance survey, the examiner may have noted plantings near gravestones or along the fence line where historic plants have spread and survived because the lawnmower couldn't reach them. A more intensive survey and documentation of plant life needs to be undertaken over three seasons, spring, summer, and fall, to make sure both early and late bloomers are found. Look around gravestones, along both the inside and outside of fence lines, beneath shrubs, in compost/refuse piles, and at the base of trees for historic plants. Record their location on a site map.

A plant historian, master gardener, or plant biologist may be helpful at this point. If a historic cultivar is found, it would be worth having a horticulture specialist identify it to preserve both its historical integrity and biological diversity in the cultural landscape. A local college or university may have a horticulture-related staff member or students who would be willing to donate time and expertise. Nature Saskatchewan may be able to provide some expertise in identifying historic plantings. Record each plant type found in the cemetery with photograph and survey form. Modern plants should also be documented.

It is important to identify historical significance (symbolism, family significance or planted to represent an event), evaluate the integrity and significance. Is the plant rare or an old variety? Was the tree planted to commemorate an important event in the community? Does the plant material have an ethnic or symbolic relationship? Was the person buried in the plot once the owner of a local nursery?

While a cemetery may not be the work of a famous landscape architect or master gardener, its horticulture can give important clues to its history and culture, and is a way of honouring the deceased. If there is significant and/or historical vegetable in the cemetery perhaps a plant palette of plants common to area cemeteries could be made. Knowing what species of trees are planted will also help plan for the future development of the cemetery. For example, the presence of acidic trees, such as pine and oak, can be detrimental to marble and limestone markers. Some cemetery associations may wish to develop a policy of pre-approval of plant material and its location in order to keep roots from interfering with the graves.

EVALUATION OF THE MONUMENT

Evaluation of the monument is a four part process that requires the documentation of the material used, the form of the stone, carvings and the inscriptions. This evaluation produces information regarding the age of the stone. It may also reveal whether or not the stone was carved by hand or whether mechanical techniques were used. Research may also disclose the cultural preferences of the area and era in which the monuments were erected.





1. Materials

Many early settlers of Saskatchewan brought their cultural traditions with them. These traditions greatly influenced Saskatchewan's early burial practices.

Stone monument tradition was brought by the early pioneers of Saskatchewan. Prior to the arrival of stone masons and cutters, burials were often marked with a wooden cross or a field stone, or other appropriate object.

The earliest stone monuments were often limestone. This material was relatively soft and easily carved by hand. However it deteriorated easily, and in an effort to use a more durable material marble became popular.

Headstones are commonly made of common field stones, slate, limestone, slate, granite, marble, bronze and sandstone. Wood was used, but was unlikely to last more than 100 years. The softer the material, the easier it is to carve, however, they tend to decay more quickly.

- **Granite** is one of the most common and traditional materials for gravestone construction. An igneous rock, granite has very high density, hardness and durability over time. Because granite is extremely hard, tools are often used in manufacturing granite gravestones. The color of granite is typically either gray or pink, with different grains and shades available. Granite is often used for gravestones, tombs and monuments.³
- **Slate** is a hard yet brittle material typically dark blue, gray or black in color. This smooth stone has a typically finer grain than granite when used for gravestone construction. Slate is relatively easy to work with, and holds inscriptions and carvings with clarity. However, slate has a tendency to fade over time, and the brittleness of the stone means that a slate gravestone may be relatively fragile.⁴
- **Marble** is another relatively common material for gravestone construction. Like granite, marble is a hard and dense kind of stone. Marble may become discolored or soiled over time and its color may change from white to shades of gray through soiling. The stone also has a tendency to become increasingly yellow with time. Commercial marble material is defined as any form of lime carbonate that can be polished; limestone is technically defined as a form of commercial marble. Marble was a popular choice for gravestones manufactured in the 19th century, according to the Association for Gravestone Studies.⁵
- **Sandstone** is used because the stone is soft and easy to carve. Sandstone contains fine grains within the rock, allowing finer carving details. Brownstone, which is a type of sandstone, is also

³ http://www.ehow.com/list_7562076_materials-used-gravestone-production.html

⁴ ibid

⁵ ibid

used because of the stone's variance in color. Brownstone can be a creamy yellow to a dark brown.⁶

- **Limestone** is calcite, and ranges from pure white to brown. One of the best known structures made of limestone, are the pyramids. It is a soft material, and can degrade quickly in harsh weather conditions, especially acid rain and the like. Marine organisms provide most of the calcite in limestone, so, you can often see fossils of shells or coral.⁷
- **Concrete** is made from cement mixed with granite or limestone gravel, sand, water and various other chemicals. It's commonly used in building. It's not commonly used for cemetery monuments, but, as you can tell from the picture, the tombstone has crumbled significantly. Concrete is not a common material used for grave markers.⁸
- Sand-cast zinc was used for a 40-year period. Customers could pick from a variety of panel designs, which were cast, and then bolted together. The handy thing about these were that panels could easily be replaced, so that more names could be easily added to the monument. These tombstones were inexpensive (about 1/4 of the cost of marble), but, fell out of favor, as they were considered "tacky." These markers have, however, proven the test of time better than most of their marble contemporaries, as many have remained as legible as the moment they were cast. Zinc can become brittle, and, as the monuments are hollow, are especially susceptible to being crushed under fallen tree limbs.⁹
- **Bronze** is an alloy made of a mixture of different metals, mostly copper, with additives such as tin and zinc. Bronze is an incredibly sturdy metal. In the last two centuries, it has gained extensive popularity, because of its ability to withstand the elements, as a material for headstones. Bronze is also well known as a very versatile material that is typically poured, in its liquid state, into a mold that is of any shape or size that the artisan needs or desires.¹⁰

⁶ http://www.ehow.com/list_7602251_rock-types-gravestones.html

⁷ <http://www.colorado-cemeteries.com/tombstone-materials.html>

⁸ <http://www.colorado-cemeteries.com/tombstone-materials.html>

⁹ <http://www.colorado-cemeteries.com/tombstone-materials.html>

¹⁰ <http://www.memorials.com/Headstones-Materials-information.php>

QUICK GUIDE TO MONUMENT TYPES



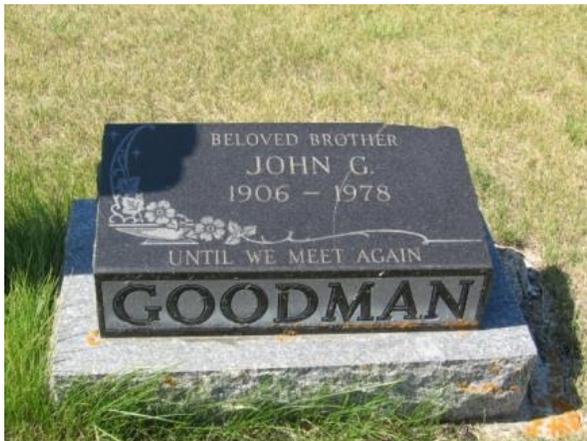
Headstone
Headstone is placed into ground



Die on Base



Die in Socket



Raised Top



Govt Issue General Type



Pulpit Marker



Obelisk



Lawn-Type Marker



Pedestal Tomb – Vaulted



Pedestal Tomb - Urn

INSCRIPTIONS AND EPITAPHS

Documenting

An inscription includes all the words and numbers on a headstone, whereas the epitaph is usually a religious or literary phrase or saying that commemorates the deceased. *Incised* inscriptions are carved into the surface of the stone. *Relief* carving is raised or projects forward from the surface of the stone. The example to the right shows an encased literary phrase.

Different styles of lettering were popular at various times. *Roman* lettering went in and out of fashion. *Roman* lettering fell (sic) out of favour during the early 19th century, when italic lettering became the choice for inscriptions. Due to the ease in reading *Roman*-style lettering, even after weathering, it came back into fashion around the mid-1860s. Both *Roman* and italic lettering from the 19th century was inscribed or cut into the stone. By the 20th century, more raised lettering appeared due to technological advancements in stone carving.



The inscriptions on early stone markers were often minimal, usually the name or just the initials of the deceased, his/her age, and year of death.

Later inscriptions were more likely to include the full name, with the month, day, and year of death. Soon inscriptions included epitaphs that often were Latin phrases such as *Memento Mori* (Remember that you must die). (Duval and Rigby, Introduction, p.viii).



4. Iconography/decorative carvings

Carved stones became common and more elaborate throughout the 20th century. With today's computer design and lazer carving technology a person's life story can be carved into a headstone. Not only does this allow for very personalized designs including transferred photographs, symbols of hobbies or interests of the deceased, and other biographical information, it also allows for unusually shaped headstones. In the twenty-first century we can now implant a digital recording of an individual's history, a barcode can be scanned by a smart phone and the individual comes alive in the telling of their story.



Documenting the Headstone

Documenting the four elements of each headstone is a critical part of the survey process. It forms the basis of the conservation/preservation master plan, and will serve as ongoing documentation of all work performed on each headstone. The information recorded is a permanent record. It is the documentation of the exact condition of the stone at a particular point in time, which will be useful in case of future theft, deterioration, or vandalism. Repairs made in the future will also be recorded on the survey form and thus it will serve as a working document for the monument. A headstone survey form can be found in Appendix B.

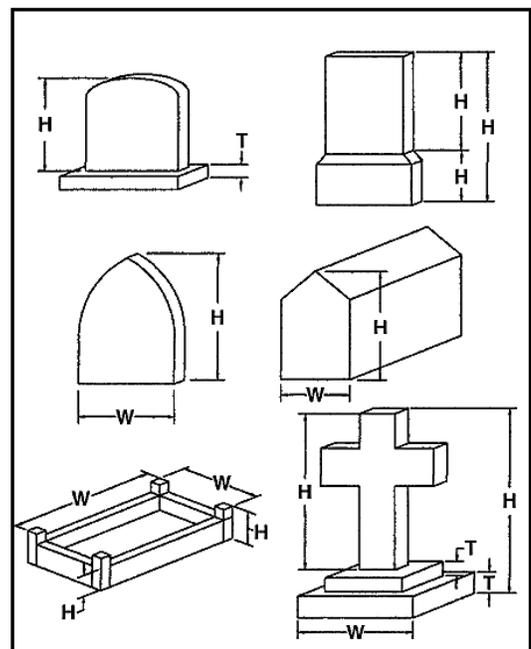
With training it is possible to utilize volunteers to conduct the monument survey. Prior to beginning fieldwork the volunteers need to be educated about the following:

- the proper method of photographing monuments
- how to use the monument documentation form
- how to identify monument shapes
- how to identify stone types
- describing headstone condition using common terminology
- how to document previous repairs
- techniques for reading inscriptions

When doing survey work it is both more efficient and easier to work with another person- one person to record and one person to photograph, measure, etc. The use of a clipboard and copies of the Saskatchewan Individual Headstone Documentation survey form (Appendix B) will also speed the process. Using a pencil facilitates making changes and pencils will function well in cold weather.

Measuring Monuments

It is impossible to determine the measurements of a headstone from a photograph; therefore, it is necessary to measure the height, width and thickness of each stone when doing the marker survey. For more complex monuments measure in several places, the drawing to the right has been adapted from the Chicora Foundation to show information needed to accurately measure monuments.



Full and accurate measurements are necessary information. Standardized criteria must be consistently used throughout the process. In this illustration several types of stones and the points of measurement are identified.

CONDITION

Carefully documenting the condition of each stone is important as this forms the basis of the conservation plan. Note all forms of deterioration, as well as all previous repairs. Employ the following vocabulary of common terms used in cemetery conservation when completing the headstone survey form. (These terms were culled from numerous sources e.g., *Grave Concerns, a Preservation Manual for Historic Cemeteries in Arkansas* and *Landscapes of Memories: a Guide for Conserving Historic Cemeteries, Repairing Tombstones*):

In Situ

A stone that is in its original location.

Displaced

A stone or part of a stone that has been moved from its original location.

Soundness

Condition of a marker that, after reasonable inspection, shows no sign of damage, no improper previous repairs and no excessive deterioration.

Cracks

Narrow fissures or fractures in the stone. Each occurrence should be identified and documented.

Delamination

A condition that occurs when a stone breaks or separates along bedding planes usually resulting in breakage of those areas. This is most prevalent on slate and sandstone, markers not commonly found in Michigan.

Scaling

The peeling away of the outer layer of stone.

Erosion

Gradual wearing away of the surface, resulting in rounded, blurred edges, and damage to carved details. Erosion is caused by the natural abrasion of wind and wind blown particles, and also by dissolution of the surface by acidic rainfall.

Sugaring

A granular, sometimes powdery, condition that is characteristic of some stone, particularly fine-grained marbles and limestone. Sugaring indicates gradual surface disintegration.

Gypsum Crust

Common to marble and limestone. Decay caused by the acidic gases in the air. It is a black crust that, when removed, exposes the softer stone underlayment.

Efflorescence/Sub-florescence

Deposits of white salts on the surface of stone. It is an encrustation of soluble salts that could be caused by the use of fertilizers and weed-killers, air or water pollution, use of gray Portland cement in concrete and mortars, and some cleaning compounds. These salt deposits are called "efflorescence" when they occur on the surface of the stone and "sub-florescence" when beneath the surface. Efflorescence is a critical sign that the stone is endangered.

Fallen

Stones that have fallen are susceptible to accelerated damage and deterioration and should be righted.

Tilted/sunken

The extent to which a stone is sunken or tilted will determine the priority it will be given for resetting.

Fragments

Small pieces of broken stone.

Discolored/stained

Discoloration of the stone caused by vegetation, fungus, pollution or chemical reaction should be noted and any indication of the cause of staining should be noted. Different stains require different approaches to cleaning.

Mower Scars

Abrasions caused by grass cutting equipment, usually near the bottom of the stone.

TRANSCRIBING HEADSTONE INSCRIPTIONS

Include the inscription on the headstone survey form. **The inscription should be transcribed exactly as it exists on the headstone.**

LAST NAME	FIRST NAME/INITIALS	YRS	MTH	DA.
PLOT #	DOB	DOD		
ROW	MISC.			
GRAVE				

If the actual inscription is known from documented sources, this can also be noted. **In cases where the inscription cannot be read or read only partially, no assumption as to what was carved should be**

made. Recording the inscription as it reads at the time of the survey may help to gauge the rate of deterioration of the inscription in the future. When the inscription is difficult to read, try shining a strong flashlight across the stone from the side to highlight the carving or use a mirror to reflect the sunlight. Another method of reading illegible inscriptions is to peer through a tube about 2 inches in diameter and 12 to 16 inches long. Holding the tube at an angle, place one end of the tube almost onto the stone and let the sunlight enter through the other end. This will help to accentuate the lettering. With extremely difficult inscriptions, have a second team read them and compare the results.

Iconography/Decorative Carving

Many gravestones have decorative carving, known as iconography, that should be documented on the survey form using both written description and photography. If the detail is not sufficiently clear in a photograph, a close-up of the design should be taken. Several photographs may be necessary when the designs are elaborate.

A written description of the carving can be as simple as: “praying hands with fingertips pointing upward” or “a willow tree.” A more elaborate description might read: “an open book with flower and fruit garlands cascading around the book and down the sides of the headstone.” Having both the photograph and the written description will assure thorough documentation of the headstone carving.



The willow and the lamb were common designs in the 1840s. These photos show a well-preserved carving on a memorial and a close-up of the top of the memorial.

Carver/Manufacturer

The name of the local carver, and sometimes the village or city where he/she was located, often appears at the bottom of the headstone. Sometimes the gravestone base will also include the name of the carver or manufacturer. All information should be recorded.

HISTORIC FENCING AND ENCLOSURES

Many small cemeteries are unfenced but it is not uncommon to find historic fencing, gates and entry signs in Saskatchewan cemeteries. Historic fencing materials include wood, woven wire, fieldstone, concrete block, brick and ornate ironwork fencing, generally cast iron. Where historic fencing exists efforts should be made to repair and maintain it as it is an important historic element of the cemetery. It should be documented along with other ancillary elements and the documentation kept with other cemetery survey data.

When documenting a cemetery's features try to determine the manufacturer of any ornamental metal work; a plaque on gates or posts that will indicate the manufacturer. Check carefully for any markings on fencing elements. Checking local city directories for the late nineteenth century, a time when many of the country's manufacturers of decorative iron work were active, may lead to information about a local company. Fence catalogs ranged from nationally known companies such as Sears Roebuck and Company and the Eaton's Catalogue.

OTHER BUILDINGS AND STRUCTURES

Chapels, mausoleums, and storage sheds are some of the buildings and structures located within and associated with historic cemeteries. Although worthy of preservation, they are beyond the scope of this guide. Anyone considering repairs and conservation of these elements and structures, other than repointing, should contact appropriate professionals. All structures and their locations should, however, be well documented and noted on any survey form, plan or map prepared for the cemetery.

MAPPING

Mapping is vital to any cemetery plan. Not only does it give a clear picture of existing conditions: a good map will help to document boundary changes over time. The result will be a working document that will be useful in implementing a restoration plan. Before beginning a mapping project gather any existing

maps that may already be available. Check with rural and/or urban municipalities and known owner for previous maps.

When preliminary research is completed, it is time to prepare a working map. This is a relatively easy project that can be accomplished using a group of dedicated volunteers. A hand drawn map is the simplest method, and untrained workers can manage this task. The required tools should be gathered before beginning. Little more is needed other than time, a ruler, a pencil, a pad of graph paper, and something to measure with. While a three hundred foot measuring tape should be adequate to the task, an excellent alternative is a measuring wheel, available at home centers or rental companies. The measuring wheel is mounted to a handle and clicks off the measurement as the operator walks behind.

Begin by identifying the parcel using its legal description, making sure that the legal description and the present boundaries coincide; record on the map. Indicate where changes to these boundaries have occurred over time. Unmarked graves may exist outside of current lines. Recording the GPS coordinates of the cemetery will be very useful as well, for identifying exact location.

Beginning with the accurate boundary map, divide the property into grids. Ten metres by ten metres makes a good workable unit for the grid. Each grid should be represented on a separate piece of graph paper. One approach to mapping these grids is to draw a centerline through the cemetery and draw the grids from this line. If the fence or other perimeter demarcation is adequate, use that edge as a beginning point. Where the size or configuration of the cemetery renders one base line inadequate, several may be drawn. In using this method take precautions to accurately number and identify grids so that confusion does not arise later.

Check with the rural municipality or urban municipality to see if aerial maps of the cemetery are available. Cemeteries relatively clear of excessive vegetation can be viewed well from above. Although this sort of accuracy is not necessary, an aerial photograph can be a valuable aid in creating a map. Google Earth is also a valuable tool for accurately mapping a cemetery in its environment. GPS coordinates can be determined with the use of this tool.

All maps must include:

- cemetery name
- city, town, village, rural municipality, province
- north arrow
- date completed
- name of person who created the map
- key

As a guide in preparing a map, the following method is quoted from *Landscapes of Memory; a Guide for Conserving Historic Cemeteries*, published by the Management Board Secretariat Publications, Ontario.

Scale:

Determining the scale of a plan depends upon the size of the cemetery and the number of grave markers to be recorded. The most suitable scales are either one $1/8" = 1'$ or $1/16" = 1'$. Larger scales are better where there are a large number of markers, particularly if they are close together.

Equipment Required:

- Tape measures: Two 100-foot tapes (preferably fiberglass) and one 16-foot hand-held metal tape
- Small hatchet (or hammer and handsaw) for cutting and placing wooden stakes
- A measuring compass
- A hand level: for sloped sites only to keep tapes horizontal for accurate measurement
- Wooden stakes: from 1" x 2" stock, approximately 24 inches long, cut on an angle at one end only
- Nails: 1-1/2"-2" common nails
- Waxed twine
- Cardboard or similar numbering tags (for grave markers)

- Permanent ink felt-tip marker
- Drafting tape
- Drafting paper or film (e.g. Mylar)
- Drafting pencils and sharpener
- Grid (graph paper) paper to use as underlay for sketches
- Drawing surface (e.g. clip-board for small field sketches, or a smooth-faced sheet of plywood)
- Drafting scale

Method

- Select an area free from obstructions.
- Lay down a base line using a 100-foot tape.
- Line up the tape in a straight line and mark the baseline with wooden stakes driven into the ground at even intervals (e.g. every 25 to 30 feet). Subsequent measurements will be greatly simplified if this base line is laid parallel to the majority of the grave markers.

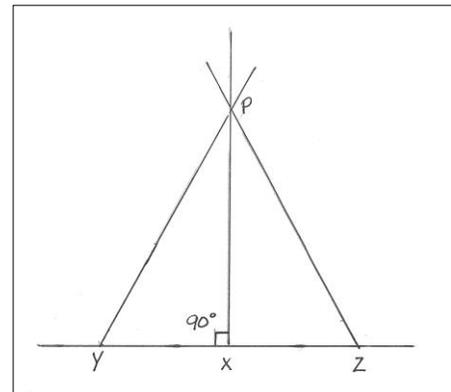


Figure 1 Construction of the Perpendicular.
 X = the point from which a 90° offset is required
 Y,Z = points equidistant from X on a straight line.
 P = a point at which two measuring tapes attached to Y and Z cross the same length.

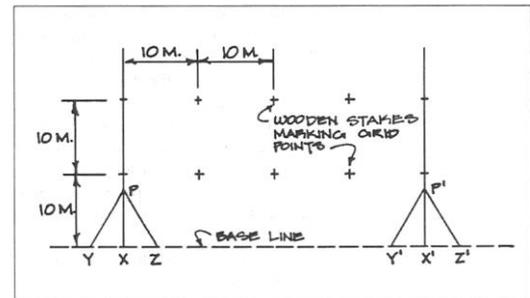


Figure 2
 Constructing the Grid. Drawing courtesy of Ontario Ministry of Citizenship, Culture and Recreation.

- Attach string to nails driven into the tops of the stakes, to mark the base-line.
- Lay off lines at 90 degrees to this base line, at regular intervals along it (e.g. every 25 to 30 feet). (figure 1)
- Complete the grid by laying off lines at right angles to one another at regular intervals (e.g. 25 to 30 feet), marked by wooden stakes (figure 2)
- Number the wooden stakes, beginning in one corner of the graveyard as shown (figure 3). Mark the numbers on the stakes. Draw the stakes on the graveyard plan, with their numbers. Each square on the grid is identified by the number of the stake. The stake in the lower left-hand corner then identifies each square on the grid.
- Take a compass reading along the base line, and/or measurements from the base line to a permanent feature such as a fence, to record the position of the base-line that was used for the survey.

Measure and Record the Grave Markers and Other Features

Marking the graveyard off with a grid allows different teams to record different squares.

Starting at one corner of the cemetery (e.g., A1), record the features in each square, as follows:

- Secure lengths of string along two opposite sides of the grid square, fastened to nails in the top of the wooden grid stakes.
- Lay a measuring tape across the square at 90 degrees to the strings, and at about the same distance along both sides from the grid line. Position the tape as close as practical to a row of grave markers and where it will not touch any markers, bases, fences, etc. Fasten the measuring tape into position on wooden stakes
- Measure the position of the grave markers relative to this tape. Measure along the tape in one direction. Ensure that the hand tape is 90 degrees to the measuring tape on the wooden stakes. Measure to both corners for headstones or footstones, and to all four corners for markers such as box tombs, cairns, or slabs flat on the ground. Also measure the plan dimensions of markers at this time. Show curbstones, walls, fences, trees and other major plantings, as well as grave markers.
- Record the locations and measurements on a sketch plan, drawn in pencil. Show the number of each grave marker. It also helps to show the family name from the marker on this sketch plan, to avoid confusion. Draw the footprint of the marker in the plan. For markers that lie on the ground, the plan view will show the individual shape.
-

- Be sure to show the distance of the tape from the grid line—otherwise, the measurements taken do not relate to anything. (*Landscapes of Memory: A Guide for Conserving Historic Cemeteries, Repairing Tombstone*, p. 46-48)

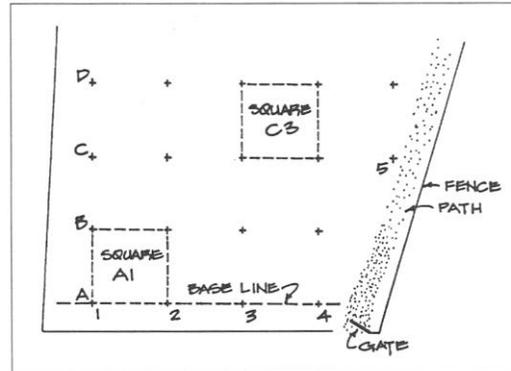


Figure 3: Numbering the Grid. Drawing courtesy of Ontario Ministry of Citizenship, Culture and Recreation.

Whether using the above “Ontario Method” or any other to prepare the map, the second step is to identify all the elements of the cemetery. Each marker, ancillary feature, building, and landscape feature, including fencing, signs, family plots, roadways and paths, within the confines of the boundary should be identified on the map. Using the prepared grids, assign each feature a number within the grid, and record it on the map. This number can then be used as that feature’s identification number for all survey forms and for referencing a particular item. Include a key with the map that explains the numbering system so that others can readily understand the system. Maps should be generated in such a manner, perhaps using overlays, that adding or deleting items is easily accomplished. For example, being able to remove items such as vegetation, and leaving only markers allows the map to be used for varying purposes. Planning in advance for various uses saves time later on, when the map is used for specific purposes. Using overlays will make it easy to record earlier boundaries and any other changes that may have occurred over time.

IDENTIFYING VOIDS AND VACANT SPACES

A clear picture of the cemetery emerges when the survey and mapping are completed. Often this completed map will show areas where no headstones exist (voids) or where the ground appears to have depressions among existing gravestones. When this is evident, probing (subsurface investigation using specified tools) is called for. See **Probing** below. If probing indicates unmarked graves these too should be identified on the map.

In order to have an accurate survey, it should be determined whether or not voids are actually “vacant” spaces. There are many reasons for open areas in a cemetery:

- A plot may have been purchased and never used
- Headstones may have fallen over and subsequently become overgrown

- Headstones may have been vandalized or stolen
- Some graves may not have been marked with a headstone
- Some plots may not have been sold

Begin by consulting the records of the rural/urban municipality. If they cannot provide or do not have the information, probing can be used. The identification of unmarked graves begins with looking for rectangular depressions in the soil that follow the line of existing headstones. Most historic cemetery burials have followed an east to west orientation, which is a reflection of the belief that on judgment day the dead will rise to face the rising sun. Though the east/west orientation is the “norm,” it in no way precludes the possibility of a north/south orientation.

Probing

A simple and economical way to locate a grave without any visible depression is to use a probe. Probing is also an excellent way to locate sunken headstones and headstones that have fallen over (or been broken) and become overgrown. Before beginning to probe ask the local utility companies to mark any electrical or gas lines within the cemetery border. Probing can safely be done by volunteers that have been trained in the practice.



By using a probe like this young volunteer is using, previously broken or covered stones can be found and replaced to their original position.

Plumbing supply stores sell a device called a “smart stick” which is useful for probing. The smart stick is a rod of metal or fiberglass, about three to four feet long, with a handle mounted at one end to form a “T.” The rod itself is a one-fourth inch to three-eighths inch dowel. Some commercially available probes have replaceable tips and are available at environmental companies such as Ben Meadows (Appendix B). It is important to remember that the length of the probe should not exceed four feet because older graves are often less than six feet deep and it is necessary to prevent the probe from entering the burial chamber. In addition a probe that is four feet long will afford the greatest “feel.” Before beginning, probe marked graves and known open areas in order to tell the difference between undisturbed soil and softer less compacted soil.

When probing for lost stones or graves a methodical approach must be employed. Use the same grid system that was created when mapping the cemetery. Begin probing any suspected voids or depressions in a systematic way, starting at one corner of the grid. Insert the probe into the ground every eight to twelve inches, noting any variances in the resistance. When the probe hits biological material it will produce a duller feel than when contacting a headstone, which produces a higher pitched “tink.” Indicate any soft spots with a marking flag, and then continue probing, attempting to delineate the shape of the softer area. Large rectangular shaped areas will often be graves; smaller rectangular areas may be submerged headstones or graves of children. Smaller or rounded areas could be animal burrows or rotted trees. Carefully note the location of newly identified graves or headstones on both the survey form and the cemetery map. Move along one side of the grid and continue probing until all of the area has been investigated.

A more advanced method for locating lost headstones, and one that requires professional training or is done under the direct supervision of a professional, is the use of a Soil Compaction Tester (penetrometer). This device measures the density of the soil. It should be inserted into the ground no more than 6 inches. A gauge or digital readout on the handle indicates the compaction level in psi (pounds per square inch). The shaft has measurements so that one can monitor and record the different changes in compaction levels. As with a probe begin by examining known graves so that the normal density of existing graves is determined.

A third method of discovering lost graves, requiring professional experts and equipment, is to use ground penetrating radar imagery (GPR). This method is non-invasive and produces a cross sectional profile of subsurface features. It operates by sending pulses of ultra-high frequency radio waves into the ground as the GPR unit is pulled over the surface. The radio waves are reflected from various buried objects. The reflected signals return to the GPS unit where they are received by a digital control unit. The signals are plotted on the ground penetrating radar profile as different color bands by the unit. In some instances a three-dimensional image can be made to better define the area where graves are located. Although the cost of a GPR investigation can be expensive, because it requires a trained professional, a great deal of land can be covered in a short period of time. An internet search on “grave locating ground penetrating

radar” identifies companies that will perform the survey as well as information on past investigations by agencies such as the National Park Service.

PHOTOGRAPHY

All features in the cemetery, including general views, will need to be photographed. The two types of photographs needed to document a cemetery are:

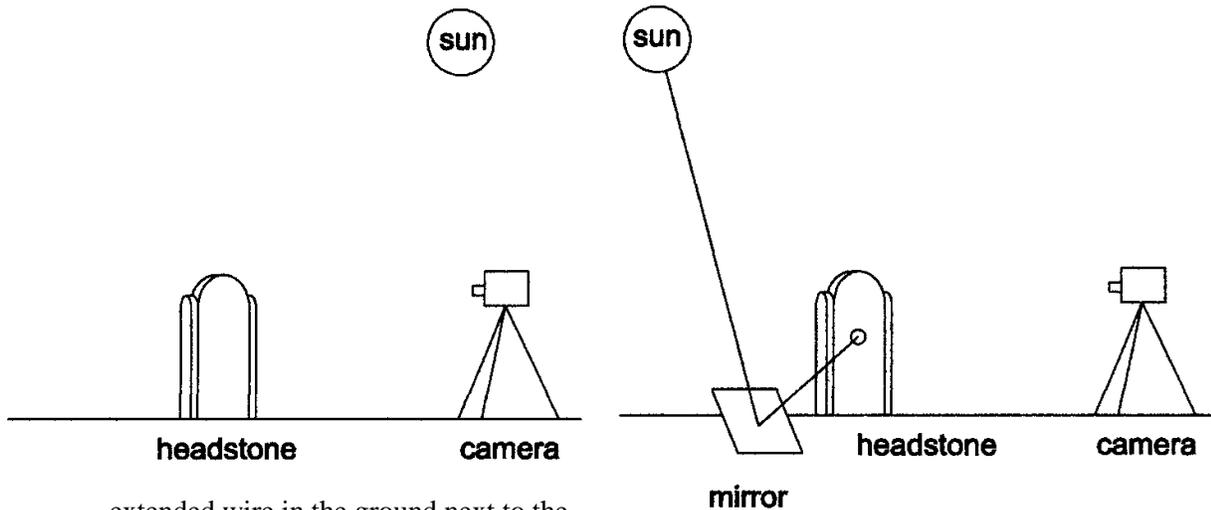
1. Photographs of individual features such as monuments, plantings, gates, fencing, ponds, roads, and buildings. These features should be depicted with individual photographs that clearly show important details.
2. General views that show how the individual features interrelate in the landscape. Enough views should be taken to give a good sense of the look and feel of the cemetery’s significant features.

These photographs can be documented on a master survey database and/or inventory form, and number-coordinated with the map.

The Association for Gravestone Studies leaflet entitled “Recording Cemetery Data” includes the following suggestions for photographing gravestones such as:

- Know when to photograph. Bright sunlight is best for gravestones. The sun should pass across the face of the stone from side to top at an angle no more than thirty degrees.
- A framed mirror as big as the gravestone can be used when the sun is not bright. Place the mirror in a spot of bright sunlight 100 feet or less from the marker. Try to work with the sunlight behind the stone. Experiment to get the best position. The reflected rays will light up the stone enough to get an accurate photographic record.
- A 1/4 inch piece of plywood painted gray and placed behind the stone will prevent the stone from competing with the background of the cemetery.
- Snow on the ground prevents good photographs.
- Clean the stone with a soft natural-bristle brush and water to remove dirt before you photograph.
- Place a stick with the pointed end facing north on one side of the stone to indicate direction.
- A digital camera works well. If using a digital camera, have prints made by a professional who uses archival paper.
- Identify each stone by inserting a numbered marker into the ground beside the stone to be photographed. Renumber the marker for each stone. Do not place the marker on or in front of the stone.

- Tape a coat hanger to a yard stick with some of the wire extending a few inches beyond the length of the yard stick. Put the



extended wire in the ground next to the stone so that the yard stick will indicate stone size in the photograph.

Bright direct sunlight is necessary to photograph monuments. Light shining across the marker at a 30° angle produces shadowing that highlights the markings very well. When direct sunlight is difficult to achieve, a mirror can redirect the light to highlight the inscription.

The survey product

When the survey and map are completed they should be duplicated and stored in several locations in the area. The local historical museum, historical society, and library are all appropriate places for this documentation. Send one copy of the information to the State Historic Preservation Office and another to the Association for Gravestone Studies where it will be stored in their databases and be accessible nationwide.

Mapping, photography, and transcribed records will form the foundation for a cemetery conservation and maintenance plan. In case of theft, vandalism, accident, or as the result of damaging acts of nature, a detailed record will exist for reference. Continuing to update this documentation with any changes will facilitate future efforts.

Chapter 3

CONSERVATION OF THE CEMETERY

ADAPTED FROM: *Landscapes of Memories, A Guide for Conserving Historic Cemeteries, Repairing Tombstones*, compiled and edited by Tamara Anson-Cartwright. *Michigan Historic Cemeteries Preservation Guide*, King, Gregg, G. Reproduced with permission.

In cemetery conservation there are four major areas to be addressed: landscape, gravestones, ancillary features, and buildings and structures. This manual is intended to provide a guide to conservation of all elements except buildings and structures, which are beyond the scope of this manual. Using the analysis already prepared, set goals to prioritize conservation efforts. Initial stabilization of all areas should be accomplished before any conservation measures are undertaken. Keep in mind these principals:

- Do no harm
- All actions should respect the original fabric of the cemetery
- Use the gentlest and least invasive means possible
- Attempt to do that which can be reversed
- Quick or easy fixes may not always be a reasonable choice
- When in doubt, consult a professional

Pathways and Roads

The preservation and maintenance of pathways and road is important in maintaining the historic design of the cemetery. Early nineteenth century burial sites typically had paths of dirt or gravel. Some roadways and entrances may now be of asphalt or like material. When conserving roads and pathways, consideration should be given to historic appropriateness as well as cost and maintenance. Before undertaking any road or access repair be sure to contact owners. Many of these may be on private land. Also insure that the rural/urban municipality authorities are consulted.

Ancillary Features (metalwork, gates, signage, family enclosures, walls and fencing)

Metalwork, including wrought iron, cast iron and zinc (often referred to as white bronze) is frequently found as an ornamental element in cemeteries, and to a lesser extent in grave markers and monuments. The care and maintenance of these materials is an important part of any conservation and maintenance

plan for an historic cemetery. Special care and treatment is required if good preservation practices are to be followed.

Due to environmental concerns and the hazardous materials required, very little can be accomplished in the field or by unskilled volunteers and untrained workers. There may be few of these types of ancillary features in Saskatchewan historic cemeteries, but should they exist it would be wise to contact an experienced professional to deal with the repairs or replacement.

is marked so that the reassembly process can be done in the reverse order. Where items are to be removed and stored while awaiting repair, proper storage, away from dampness and potential damage is required. Leaving gates or fence sections leaning in a corner of the cemetery awaiting conservation invites problems with exposure to the elements, thieves and vandals.

CLEANING HEADSTONES AND MONUMENTS

In planning for a cemetery's conservation, the care and maintenance of headstones is extremely important. It must first be decided whether or not to clean the monument. Do not attempt to return the stone to its original brightness, which would involve removing all patina. Often people mistake the patina of age for *dirt*. They want marble stones, for example, to be as white as when originally purchased – and this is a tragic mistake. Not only does such aggressive cleaning cause irreparable damage, but it destroys the stone's patina – and history – making it look like the stone was placed in the cemetery only yesterday. (Chicora Foundation web site) A monument that is located in constant shade may be prone to biological growth. Cleaning the monument may remove the growth, but it will soon return, thus starting a cycle of frequent cleaning. Each cleaning has the potential to harm the stone and therefore it may be better not to start the cleaning process. (Chicora web site) Certain plants and biological growth have the potential to harm a headstone and thus should be removed. This section of the manual provides information on the type of damage inflicted on headstones. It will also provide information on the appropriate technique, equipment and agents for cleaning monuments.

Damage to headstones falls into three classifications:

1. Environmental:
 - carbon-based deposits from industrial and vehicle emissions
 - improper cleaning and/or repair methods
 - air pollution/acid rain
2. Natural sources:
 - aging and weathering of stone
 - settling of the stone
 - organic growths, including lichen, algae, and fungi
 - climbing plants and vines
3. Human-inflicted:
 - neglect
 - vandalism

- improper use of maintenance equipment such as mowers and weed whackers

All three types of damage will most likely be encountered. The following guidelines will help in determining what can and should be done. Some of the tasks require an experienced conservator and should be handled accordingly. Before beginning any cleaning program, become familiar with the following important principles. These principles have been compiled from a variety of sources such as *Grave Concerns, A Preservation Manual for Historic Cemeteries in Arkansas; Landscapes of Memories: A Guide for Conserving Historic Cemeteries, Repairing Tombstones*; the Chicora Foundation, and the National Center for Preservation Training and Technology.

Before you begin:

- A condition survey should be completed on the stone prior to cleaning. Photograph the stone before starting, and again when the cleaning is complete and the stone is dry.
- Keep a record of the cleaning date, the methods and chemicals used, and any immediate change that was noted. Photography is also recommended to record the critical cleaning steps and results. These records should be stored with other cemetery documentation.

Cleaning parameters:

- Do not attempt to return the stone to its original brightness, which would involve removing all patina.
- Do not clean any stone if there is a possibility of freezing temperatures within the next seventy-two hours.
- When possible, clean stones on a cool, overcast day so that evaporation and drying will occur more slowly.
- Limit cleaning of stones to not more than once every four to six years. Cleaning may result in some wearing away of the surface of the stone.

Guidelines for Cleaning Monuments:

1. **Evaluate the general condition of the monument. Only a sound stone should be cleaned.** Carefully sound (gently tapping the surface with a knuckle) the stone to determine if there are any underlying hollow areas, as evidenced by a hollow tone. If hollow areas are detected, do not continue with cleaning or handling; an **experienced conservator** should be consulted.

2. **Do not attempt to clean the monument if any cracks, flaking or scaling, or eroding granular surfaces** are present. Again, any attempt to clean a stone that is less than fully stable should be left to an **experienced conservator**.

3. **Determine the type of soiling** in order to select the most effective manner of removal. Types of soiling include:

- carbon or soot
- ordinary dirt
- organic (algae, fungi, lichens, mosses)
- climbing plants

- efflorescence (salts)

4. **Always start with the gentlest effective method for cleaning headstones.** Often a simple rinse with water and a natural bristle brush is all that is needed. If rinsing with water is not sufficient, carefully proceed with a recommended cleaning agent.

5. **Test the entire cleaning process in an inconspicuous area** on the monument before applying it to the total monument. Allow to dry for several days and check for adverse reaction.

6. **A good supply of water is mandatory when cleaning stones, and when using any type of cleaning agent.** Running water from a garden-type hose is preferred, but spray bottles will suffice for small jobs. Clean, *unused* garden sprayers that hold one gallon or more of water are convenient.

**Note: Potable water is the ideal (but not absolutely necessary) because this implies that the water is free from objectionable amounts of chemical, minerals and impurities which could possibly harm the headstones. (John Spaulding, AGS Research Clearinghouse Coordinator)*

7. **Do not allow cleaning solutions to dry on a monument.** Keep the agent wet during the cleaning process. If allowed to dry, residue from chemical cleaning solutions can create a blotchy appearance, provide a medium for future bacterial action, resulting in more staining and accelerated deterioration.

8. **A cleaning procedure that is recommended for one specific application is not applicable for all situations.**

Equipment needed for cleaning monuments:

- A variety of sizes and shapes of high quality natural bristle brushes. Use only brushes without dyes in the bristle. A variety of sizes and bristle stiffness is recommended. Brushes with colored handles are **not** recommended because inadvertent contact with the monument may leave a colored streak on the stone.
- Protective eye glasses or goggles, and rubber gloves
- Toothbrushes for intricate carvings
- Wooden craft sticks or shims for scraping debris or growth off stones
- Clean sponges (closed cell, cosmetic-type sponge only; this avoids remnants of the sponge remaining on the stone)
- White rags
- Plastic pails (**avoid metal containers** which may damage stones by incidental contact)
- Q-tips for test spots, and toothpicks for small recessed areas
- Compressed air (60 psi maximum) will assist in clearing off loose debris and dirt. The compressor should have a pressure regulator to avoid damage due to excessive pressure. A small broom can also be used.

Tools and Equipment to Avoid:

- **Never use metal tools** while cleaning stones. Tools such as wire brushes, putty knives, and shovels etc. can severely damage old stones.

- **Do not use any type of adhesive tape**, which may leave a residue on the stone.

General Cleaning Process

1. **Pre-wet the monument** with **clean** water before applying any chemical solutions. Wetting the surface avoids excessive penetration of both cleaning solutions and soil into the stone, and helps to soften the soiling material.
2. Clean the monument **on all sides from bottom to top** to avoid stains and streaks. Rinse frequently during the process.
3. Do not use a dry brush on the stone. Dip frequently in water to reduce friction on the stone – or have a hose running with a constant flow of water over the stone as you brush.
4. To ensure that stones have been properly rinsed, check the pH using a test strip. A pH of about seven is desirable.
5. **To repeat: never allow a cleaning solution to dry on the stone.**

Removal of Climbing Plants/ Vines

Climbing plants, such as vines and ivy, although rooted in the ground, will sometimes attach themselves to a headstone. Allowing plants to remain on headstones poses several preservation problems, including:

- Holding moisture against the surface of the stone
- Damage to the soft surfaces of the marker by root expansion in the interior of the stone and subsequent chipping of small areas on the surface
- Erosion of mortar joints by invasion of the roots
- Obscuring the inscription
- Impeding access to the stone for making repairs

The following recommendations are taken primarily from Chicora Foundation's training seminars. Before attempting to remove such growth, carefully examine the stone to see if the roots of the plant have compromised mortar joints, or have become imbedded in the surface of the stone. **Caution: never pull vines off of a monument because it may damage the stone.**

- Cut the plant off at the base of the growth using pruning shears.
- If the vine is large, cut it every six to twelve inches, leaving any growth adhering to the headstone.
- Peel back the bark one to two inches on either side of the cuts.
- Apply an herbicide, such as Chevron *Brush-B-Gon* or Monsanto *Round-Up*, with a small paintbrush to treat the exposed plant layers. Also apply the herbicide to cut areas on the stump.
- **Be careful that no herbicide comes in contact with the headstone. Do not allow any herbicide to touch the ground or it may wick up into the stone.**
- Allow the chemical to work its way into the plant and kill it. This may take a few days. After the plant is completely dead and brittle, remove the remains. Using a wooden scraper, such as a cedar shim, work the remains of the plant from the monument. Wetting the stone will facilitate removal.

- After all surface vegetation has been removed; gently remove any remaining plant matter by scrubbing the area with water and a natural bristle brush.

Removal of Organic Growths

In urban areas, headstones may be covered with a layer of sooty carbon residue from industrial and vehicle emissions, which can prove very difficult or impractical to remove. It is usually black in color and for this reason can be confused with certain other growths such as fungus and algae. The following test will determine whether the soiling on a headstone is dirt, carbon or soot (inorganic), or an organic growth:

- Dip a cotton swab in household bleach and touch the black deposit **in an inconspicuous place** (e.g., the lower rear corner of the marker).
- **If the soiling remains black** where the bleach swab touches the area, it is likely to be dirt, soot and other inorganic stains, which will not change color.
- If the test area turns light brown, green, or disappears, then the condition is organic growth. (*Chicora website; Landscapes of Memories: A Guide for Conserving Historic Cemeteries, Repairing Tombstones*, p. 18). Lichen, mosses, algae, and fungus commonly grow on headstones. Some of these growths may appear to be black; resembling the sooty deposits left by carbon residue, but upon closer inspection may appear multicolored. These organic growths trap moisture on/under the surface of the stone, and their roots may invade the stone, causing damage to the binding agents that hold the stone together. Some lichens secrete organic acids that can destroy calcium carbonate, which is the primary component of limestone. These lichens are considered *lithophagous* because they “eat” the surface of the stone. They are particularly harmful to limestone, marble and sandstone. (*Landscapes of Memories: A Guide for Conserving Historic Cemeteries, Repairing Tombstones*, p. 18)

Lichen and other organic growths can be treated with the architectural anti-microbial product, D-2, to prevent the damage that these growths cause. D-2 can be sprayed or brushed onto the growth to loosen a broad spectrum of biological deposits. D-2 has several attributes that make it very desirable:

1. It is non-toxic and biodegradable
2. It kills most bacteria within several minutes
3. There are no special precautions for handling and storage
4. It does not cause damage to headstones
5. It is harmless to landscape plants

When using D-2, thoroughly wet the surface of the stone, apply the liquid product, either full strength or diluted (1:1 to 1:4 with water), using roller, brush or sprayer. Then gently scrub the surface with a high quality, natural bristle brush and allow the D-2 to stay on the surface for one to ten minutes (taking care not to allow the stone to dry). It may be necessary to repeat the process. Finally rinse the surface thoroughly with water. (Chicora Foundation website and Cathedral Stone Inc.)

Pressure Washing and Sandblasting Not Acceptable

Use caution when working with monument and restoration specialty companies, because some still use high-power pressure washing for cleaning stone and metalwork. Experience has shown that older stones that have developed small fissures and subtle weaknesses are more likely to fail, even under the lower pressure of a typical 1000 psi consumer pressure washer. Sandblasting, whether sand, baking soda, or walnut shell as media, is too abrasive for older headstones. Instead of power washing or sandblasting, it is recommended that a garden hose, delivering a maximum of 60 psi, be used. Pressure higher than 60 psi has the potential to remove the outer surface of the stone, and can blast off raised lettering and deteriorated surfaces before the operator becomes aware of the damage. Be sure to have an ample supply of water available so that any deposits or cleaning agents can be thoroughly rinsed off before drying.

When cleaning products are not totally rinsed from the marker, accelerated soiling and damage can occur.

CLEANING AGENTS

When working with volunteers, it is recommended that cleaning agents be limited to water, D-2, and non-ionic detergents such as Vulpex, Photo-Flo, and Orvus. However, when conservation workers are more qualified, or when volunteers are working under the close supervision of a professional, the other options listed below may be used.

Cleaning Agents — According to Type of Agent

Tracy C. Walther, a member of the *Association for Gravestone Studies* and an architectural conservator, recommends the following:

A. Soaps and Detergents

Recommended:

1. Non-ionic detergents (e.g., Photo-Flo, Orvus and Vulpex) are recommended because they are electrically-neutral cleaning agents that neither contain nor contribute to the formation of soluble salts. Because they provide better wetting of the masonry surface, non-ionic detergents facilitate removal of **general soiling**.

Agent	Mix Rate (by volume)	Availability
Vulpex	1 part Vulpex per 6-7 parts cold water	Conservation, janitorial and photographic suppliers
Orvus	30 ml per 19 litres water	Farm and feed store
Photo-Flo	30 ml per 19 litres water	Photo supply store

Not Recommended:

1. Soaps (e.g., Ivory) are *not recommended* because they are rendered insoluble by calcium ions present in masonry and hard water. Soaps may also produce free alkali and fatty acid salts that can damage stone.
2. Commercial household detergents (liquids and powders) are generally chemically complex synthetic compounds that frequently contain additives that may be detrimental to masonry. Detergents may cause the formation and deposition of soluble salts in masonry.

B. Acidic Cleaning Materials — Acidic agents are never recommended

Hydrochloric or muriatic acid, phosphoric acid (e.g. Lime Away, Naval Jelly), or oxalic acids can damage headstones. Hydrochloric or muriatic acid may result in ferrous chloride (rust) staining and the deposition of soluble salts.

C. Alkaline, Corrosive, and Biocidal Cleaning Materials — Recommended:

1. Calcium Hypochlorite (also known as Chlorine, HTH, Shock Treatment), a *granular* product, is **recommended for the removal of biological growth**. This product must not be confused with liquid chlorine or sodium hypochlorite (household bleach) — *which are not recommended*.

Calcium hypochlorite is **recommended for use only by experienced conservators (Level 3)**. It is available from swimming pool suppliers. A suggested cleaning mixture is one ounce calcium hypochlorite per gallon of hot water. This product should be used only when a water hose with good water pressure (e.g., 50-60 psi) is available for rinsing the cleaning solution from stones.

2. Ammonium Hydroxide (e.g., household ammonia): Solutions of household ammonia are **recommended for cleaning of light colored stones. Ammonia is particularly effective for the removal of biological growth**. A suggested cleaning mixture is one cup of ammonia to one gallon of water. When using household ammonia be certain that it does not contain dyes or fragrances that may prove harmful to certain stone.

Caution: When using a cleaning mixture that includes household ammonia, damage to bronze or other metal components can result.

3. Quaternary Ammoniums (e.g., algaecides or biocides for swimming pools) have a slightly different chemical structure than ammonium hydroxide. They are **especially effective for the removal of biological growth, particularly stubborn black algae**.

Quaternary ammoniums, which are available from swimming pool suppliers, list ingredients such as alkylbenzyl trimethyl ammonium, benzyl alkyl dimethyl ammonium chlorides, or benzyl alkyl dimethyl ammonium bromides.

Not Recommended:

1. Sodium Hydroxide (e.g., Borax), and Sodium Hypochlorite (e.g., Clorox, liquid chlorine) *are not recommended* for general cleaning of stone.
2. Trisodium Phosphate (e.g., TSP, Calgon) is *not recommended* for cleaning monuments. It can cause the formation and deposition of soluble salts. “Calgon” contains trisodium phosphate and a number of additives that may be detrimental to monuments.
3. Fantastic All Purpose Cleaner, Formula 409, Spic and Span, and abrasive cleansers are *not recommended* for cleaning monuments. Avoid products containing sodium chloride, sodium sulfate, sodium carbonate, sodium bicarbonate, and ammonium carbonate, due to the propensity to form and deposit soluble salts in monuments. (Walther, Tracy C. 1990, *Cleaning Masonry Burial Monuments*. The Association for Gravestone Studies, Greenfield, Massachusetts)

Cleaning Agents for Specific Stone Types

Another leading authority on cemetery preservation, Lynette Strangstad, in her book *A Graveyard Preservation Primer*, recommends cleaning solutions according to stone type. They are listed in reverse order of cleaning strength; i.e., weakest first (which is the preferred order of application):

Marble and Limestone:

1. Water only.
2. Non-ionic cleanser such as Photo-Flo, (available at photographic supply houses) Triton-X 100, Igepal (available from conservators’ supply houses), and water.
– *Use 30 ml to 19 litres of water.*
3. Vulpex (a soap) – available from conservators’ supply houses).
– *Use one part Vulpex to two to four parts water.*
4. Household ammonia. (diluted)
– *Use one cup per four cups of water.*
5. Calcium hypochlorite. Use only to remove biological growth. Available as swimming pool disinfectants.

– Use one pound (dry weight) to four gallons of water. The water must be warm.

Sandstone:

1. Water only
2. Non-ionic detergent and water (see Marble)

Subflorescence and Efflorescence

Subflorescence is caused by the deposition of crystalline salts below the surface of a stone.

Some of the causes of subflorescence are:

- wicking of moisture (contaminated with salts, fertilizers or herbicides) into the stone
- using incorrect cleaning compounds
- using the wrong kind of mortar for masonry repairs
- air and water pollution.

Subflorescent salts can be drawn out of a stone by applying a poultice. **Application of a poultice may require hiring a professional conservator.**

Efflorescence is caused by the deposition of the salts on the surface of a stone; resulting when subflorescence migrates to the surface of the stone and becomes visible.

Efflorescence is an indicator of excessive salts. In order to prevent or reduce the damage from subflorescence, causes need to be identified and steps taken to eliminate the source(s). Delamination (breaking off of layers) of the stone surface can eventually result from subflorescence.

(Level 3) Poultices are water-based pastes made from *diatomaceous earth*, *fuller's earth* or *kaolinite* applied over stained areas on the monument. The following are the steps in applying a poultice:

- Mix the chosen product with water to the consistency of peanut butter.
- Apply the poultice to the soiled area – 1/4 – 1/2 inches thick.
- Wrap the area with plastic sheets to avoid premature drying.
- Remove the poultice when nearly dried – as indicated by cracks in the poultice material. In the process of drying, the poultice draws out the stain in most instances.
- After removing the poultice, the stone must be thoroughly cleaned with water to remove poultice residue.

For specific stains, special products can be added to the poultice to enhance performance. Conservator supply companies, such as Granite City Tool, offer premixed poultices.

Sealants

Do not apply any type of sealant or consolidant to a headstone. The Chicora Foundation, NPS Preservation Briefs, and the Association for Gravestone Studies all agree with this advice. A stone in contact with the ground continues to wick-up moisture and must be allowed to “breathe” and expel the moisture, although some sealing products claim to seal the surface of stone while still allowing the stone to breathe. Because of the risk of preventing the migration of moisture, applying any type of sealer or consolidant should be left to trained conservation professionals, and used only in very specific applications.

REPAIRING HEADSTONES AND MONUMENTS

Overview – The following are important conservation principles for repairing or otherwise conserving grave markers/headstones. The Association for Gravestone Studies, the National Center for Preservation Technology and Training, and other cemetery conservation groups, offer seminars on the topic and are sources of additional information that may be helpful.

While the repairs in this manual are primarily applicable to stone monuments and markers, the general principles may apply to any preservation or conservation repair. The italicized comments are intended to clarify the repair criteria, some of which may seem to be contradictory:

- The repair is less strong than the original.
Additional damage to the stone could result if the repair material is stronger than the original stone. If a new break occurs, the intent is to avoid any more damage to the original stone; i.e., the repair should fail, not the stone.
- The repair is reversible.
A repair should be able to be disassembled without damage to the stone. This is desirable because improved repair procedures may become available in the future.
- The repair respects the original material of the marker.
The repair methods and materials are compatible with those of the original marker, and minimize the possibility of further damage or discoloration to the stone.
- The repair is as historically accurate as is reasonable and possible.
- The repair does not inhibit the natural permeability and breathe-ability of the stone.
Avoid adhesives, coatings, sealers or other repair materials that may retain moisture or affect breathe-ability, which can result in secondary damage.
- Before attempting to repair headstones in a historic cemetery, inspect stones carefully to assure that they have not developed previously unforeseen cracks, spalling or other weaknesses that would affect the repair.

(Levels 2 & 3) General Caution. Repairing old stones requires training in specific skills and patience. Before starting complex projects such as multiple-break repairs or infill repairs, the practitioner should become totally familiar and comfortable with the repair methods.

Familiarity with the types of stone, with characteristics of mortars and epoxies, and with other equipment is required prior to working on an actual historic headstone.

If possible, practice on discarded stone fragments or on landscape stones. Each type of repair material; e.g., two-part epoxies and mortars, have unique characteristics. A wide variety of mortar recipes and proprietary infills are available (e.g., Jahn restoration mortar products from Cathedral Stone Products, Inc.).

Documentation

(Level 1) Before starting a repair, photograph each side of the stone. Rinsing gently with water may reveal parts of the inscription not previously visible, as well as the name of the stone carver. Document all information regarding the condition of the stone and any existing repairs that are visible, including materials and methods, and any pins, braces or straps previously used. If a previous repair has failed, record that fact and the reason for failure, if known. The purpose of accurate documentation is to help future conservators if new methods in the future provide the opportunity to improve the condition or the permanence of the repaired stone.

Record the repair process with photographs and notes, and document the condition of the stone when the repair is complete. Document all information on a headstone survey sheet. Identify all actions taken from start to finish, including the type of adhesive material or mortar mix used. If holes are drilled for blind pinning, record their locations and size, and the type and size of dowels used. Specifications or formulas for metal or other materials used should be documented, as well as any other treatment such as cleaning or infill. No action should be overlooked or considered too insignificant. If a commercial mortar product was used, Material Safety Data Sheets [MSDS] should accompany the records. The MSDS, available from chemical and mortar manufacturers and suppliers, should be kept with all other repair information records.

Fragility and Soiling

(Level 2) Always handle stones as extremely fragile items. When wet, stones are much more susceptible to breaking. A stone that has been lying on the ground absorbing moisture can take as long as a month to dry, depending on conditions. When stones have dried, efflorescence may appear on the surface. Any efflorescence or soiling should be removed prior to the repair. A poultice can be used to draw out the contaminating salts. See “Cleaning” section for specific poultice application practices.

Lifting and Moving the Stone

(Level 2) Headstones weigh 160 to 180 pounds per cubic foot. Use extreme care when lifting or moving stones to avoid personal injury or damage to the stone. When moving the stone, support the weight of the stone evenly, using nylon straps and boards to equalize the load. Larger stones can be moved by two persons using a lifting pole with nylon straps, or with lifting devices such as a portable crane, or a tripod with chain hoist. Stones should be protected from contacting chains or other metal lifting objects. Only experienced conservators should move heavy stones.

Handling Cautions: Metal bars and shovels should not be used to pry or lift a monument or headstone. Do not try to lift heavy stones without the assistance of another person. Even when using lifting equipment, another person should be available to assist if needed.

COMMON REPAIRS

The following are the most common types of repairs on stones in historic cemeteries, all involving slab markers/tablet stones. Repairing large or complex stones should be reserved for conservation professionals with the necessary experience and equipment. The following repairs are listed from easiest to the most difficult:

- Correcting tilted stones that were set directly in the ground
- Resetting fallen stones that were set directly in the ground
- Stabilizing and resetting a stone or a concrete base
- Replacing a marker into a base
- Making concrete bases for partial slab or tablet markers
- Repairing a snapped marker
- Infill of missing stone fragments using mortar
-

Correcting Tilted Slab or Tablet Markers Set Directly in the Ground (Not In Bases)

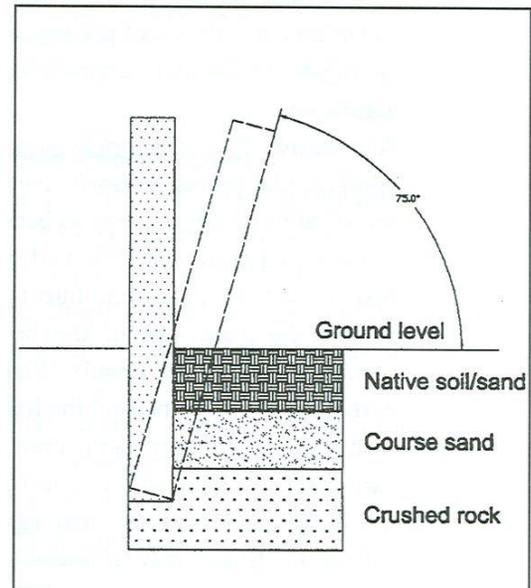
(Level 2) Tilted markers are among the most common problems in older cemeteries. Slab or tablet markers, installed directly in the ground (with approximately one third of the stone below grade), may have been standing for a century or more. Stones, especially in sandy soil, may have tilted due to shifting or the effect of gravity; or may have sunk, partially concealing the inscription. A stone that is leaning may become warped. In the worst case, if not corrected, the stone could eventually fracture due to its own weight. Generally, if the headstone is leaning less than fifteen degrees from the vertical, intervention to set it upright is not suggested. A stone that has sunk only minimally will usually not need to be removed unless the inscription is obscured below grade.

Straightening a tilted marker is fairly straightforward project and involves minimal cost. Trained and supervised volunteers can usually do it. Check to be sure that there are no unseen conditions that would preclude straightening the stone without damage. Removing the stone completely from the ground will usually not be necessary.

Straightening Tilted Markers

(Level 2)

- Hand-dig the ground around the stone. Remove the sod with a spade-shovel so that it can be easily replaced. Do not allow metal tools to contact the stone. Unless the stone has sunk so that the inscription is obscured or repairs to the stone are needed, it is usually not necessary to remove the stone from the hole.
- Excavate to the depth of the bottom of the stone. Assure that the sides of the hole are wide enough so that when the stone is straightened, the edges of the stone will not hang up on the sides of the hole, causing undue stress.
- Straighten the stone to vertical, checking for plumb. While supporting the stone, backfill the hole one-third full with heavy aggregate such as broken brick or 21-AA stone (from a cement yard) and tamp. Add coarse sand and gravel mix (aggregate) and tamp, leaving three to four inches for topsoil and sod. Place landscape fabric atop the aggregate, to maintain drainage by preventing dirt from filtering into the aggregate.
- Replace the topsoil and lightly tamp. Mound up soil to allow for settling. Replace the sod. After two or three weeks, check for settling around the base of the stone, adding more soil as required. Straightening a marker is a common task done usually when the marker is out of plumb by 15 or more degrees. Always use caution when moving a stone. Trying to force a stone can cause it to snap.



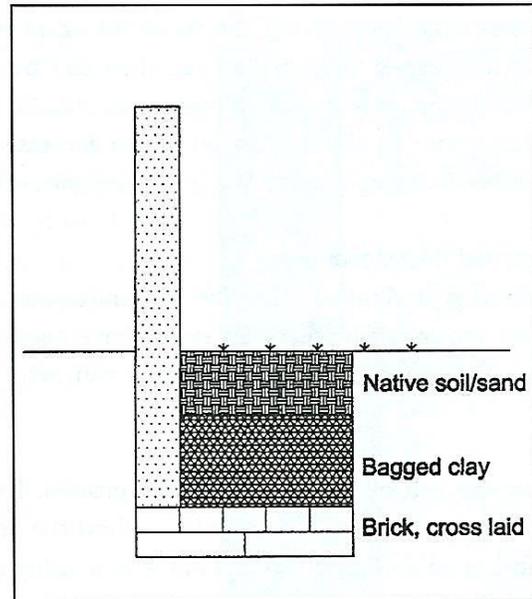
Straightening a marker is a common task done usually when the marker is out of plumb by 15 or more degrees. Always use caution when moving a stone. Trying to force a stone can cause it to snap.

Straightening Markers When The Stone is Removed

(Level 2) If the stone must be removed temporarily, additional preparation of the bottom of the hole is required to prepare for reinstallation. See the *Lifting* section for instructions on removing the stone from the hole.

- Excavate the existing hole to a rectangular shape, with vertical sides, and level bottom. The front wall of the hole remains at the original location of the front face of the stone. To achieve a solid base, tamp the bottom with a length of 4 x 4 lumber or other tamper.
- The depth of the hole is established by the desired height of the headstone above the ground. If possible, set the height so that the lowest inscription is visible – ideally a minimum of two inches above grade. The actual height at which the stone was previously set may be visible from staining on the stone (witness marks). The depth of the hole may vary depending on the following alternative “fill” method selected:

- **Alternative 1** – Stone and aggregate fill – Lay dry flat stones in the bottom of the hole. Lower the headstone into the hole with the front face of the stone against the front wall of the hole, centered side-to-side. Straighten to vertical, checking for plumb. While holding or bracing the stone, backfill with heavy aggregate (such as broken brick or 21-AA stone from a cement yard) to half-fill the hole, and tamp. Next add coarse sand and gravel mix to within a few inches of the top, and tamp. Place landscape fabric atop the aggregate, to maintain drainage by preventing dirt from filtering into the aggregate.



The drawing shows the cross section of a repair when clay bricks are used as a base and bagged clay is used to strengthen the repair.

- **Alternative 2** – Clay bricks and bagged clay fill – As an alternative to aggregate fill products above, line the bottom of the hole with unfired clay bricks, and use bagged clay as backfill. A first course (layer) of unfired clay bricks is laid on the bottom, with a second course laid perpendicular to the first. Lower the headstone into the hole with the front face of the stone against the front wall of the hole, centered side-to-side. Straighten to vertical, checking for plumb. While holding or bracing the stone, backfill with bagged clay to half-fill the hole, and tamp. Add topsoil to within a few inches of the top and tamp until firm. Clay provides a concrete-like and extremely solid base and support for the stone, and is easier to transport and more volunteer-friendly than aggregate. Clay is used on baseball and softball fields; and may be available in municipalities’ parks departments, as well as commercial nurseries. (One of the authors of this text developed this technique using clay material in collaboration with other professional conservators.)

- Add more topsoil and lightly tamp. Mound up soil to allow for settling. Seed or replace the sod. After two or three weeks, check for settling around the base of the stone, and add more soil as required.

Resetting Fallen Markers Set Directly in the Ground – Not in a Base

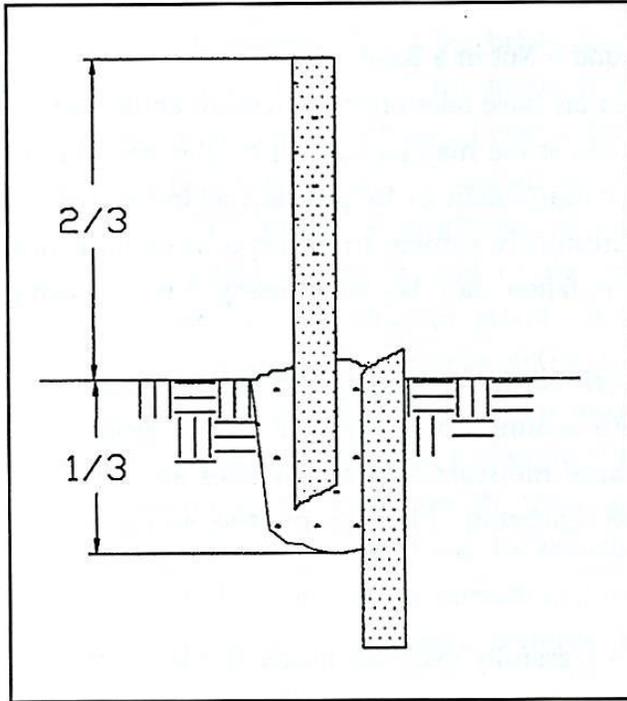
(Level 2) Slab or tablet stones in historic cemeteries may have fallen to the ground, and often are obscured from view by leaves, dirt, and turf. The stone may be stained by the decaying of organic materials, and damaged by maintenance equipment or by people walking across the stone. Stones lying on the ground are also continually subject to absorption of moisture, which weakens the stone. Markers that have fallen can be reset using the following procedure:

- **Preparation** – Gently remove any debris or turf covering the fallen marker. Using wooden shims carefully excavate around the perimeter of the stone. Extreme care should be exercised because moisture-saturated stones are very brittle and susceptible to snapping or chipping. Photograph the stone to document its condition.
- **Removing and Resetting the Stone** – Carefully excavate under the stone to allow for insertion of nylon lifting straps. Hoist the marker from the ground using nylon straps, supporting the weight evenly. Transfer the stone to a level base of two-by-fours to support the full length of the stone, and permit air circulation to allow the stone to dry. Allow space for replacing the nylon straps under the stone later for lifting. Depending on the weather, it can take a month or two for the stone to dry. Moving the stone into a heated building will accelerate the drying process. Remove any residual dirt by gently brushing. Total cleaning, including removal of efflorescence, should be accomplished after the stone has been fully dried and reset. Align and reset the stone using the method described in Straightening Tilted Markers (above).

Temporary Repairs of Snapped Headstones

(Level 2) When time and resources are limited it may be prudent to temporarily reset pieces of monuments until a better repair can be made. If stones have been snapped off and their “cousin piece” is still in the ground, this temporary fix can help to prevent additional damage. See sketch.

Remove the broken top half of the stone from the ground. Excavate a hole for the broken stone in front of the remnant, to a depth of one third the height of the fragment. Place the stone in the hole in an upright position. Fill the hole using clean sand or gravel as backfill (to avoid staining) and tamp firm. Although temporary, this repair can be an effective stopgap measure that can preserve the stone by keeping it upright until proper repairs can be made, as well as improve the appearance of the cemetery. As a temporary fix simply resetting the broken piece in front of the parent stone is a reasonable action and one that can quickly improve the look of the cemetery.



TEMPORARY PLACEMENT OF BROKEN HEADSTONES

Set the upper portion of the broken headstone upright, next to the section in the ground. Use gravel to backfill to avoid staining the face of the headstone.

Instead of leaving the headstones lying flat in the ground, set pieces together as a temporary repair. This helps keep fragments together and is useful when resources are limited. Such a measure, while only temporary, does help provide a managed appearance to the cemetery.

Types of Monument Bases Supporting a Headstone and Marker

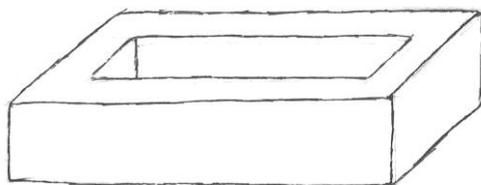
There are two styles of monument bases:

1. Slot-style monument bases, which may be made either of stone or concrete, have a narrow recess or slot in the top surface into which a tablet marker is inserted.
2. Flat-top bases made of stone that matches or complements the headstone, are usually set above grade and support a flat-bottomed marker. (See picture of stone base(s) with marker). The marker is adhered to the base either by a mortar bed, or occasionally with dabs of epoxy. Tablet markers (photo A) are often inserted into a slot style base (figure A).



Tablet markers (Photo A) are often inserted into a slot style base (Figure B)

Photo A ►



◄ Figure A

Obelisks (photo B) as well as larger, thicker tablets can be set onto a base. ►



Some bases, whether slot-type or flat-top, usually protrude above grade from about two inches up to the full height of the base. Cast concrete bases are usually set slightly below grade (i.e., not visible).

A typical problem on the slot-type base is damage around the slot where the tablet is inserted into the base. If not repaired, installation of the marker is likely to fail. Broken pieces on stone bases can often be repaired with epoxy. Missing pieces can be recreated with infill mortar mix. As well the base may have shifted due to tree roots or heaving due to frost.

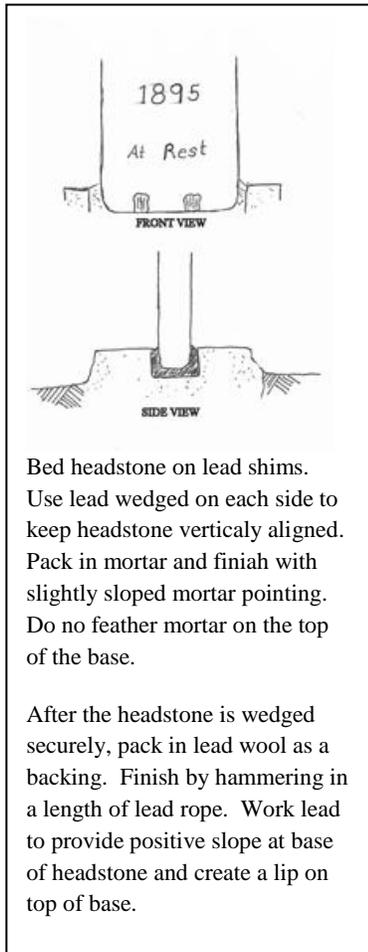
Resetting Headstone Bases

(Levels 2 & 3) Tree roots or heaving due to frost can cause a headstone base to shift sideways or upward. The process for leveling and stabilizing a shifted base applies to both the stone and the concrete base(s):

- If removing the base proceed with carefully. Excavate around the base and lift it onto a supporting platform, i.e., lumber platform.
- If the headstone is firmly attached to the base, proceed cautiously. Do not try to move or lift the assembly of the headstone itself. Always support the headstone while moving or lifting the base.
- Using only clear water, and soft nylon or bristled brushes remove the soil from around the base. Stubborn wood can be loosened or removed with wood or plastic scrapers. This process is not intended to remove heavy soiling, stains, or organic growth. These various conditions may be in the pores of the stone or bonded chemically with the surface of the headstone. A stone specialist should be consulted.
- Examine the base to determine if repairs are needed. If the base is damaged around the slot repair the slot before resetting the stone. Repair of this stone will covered on page 63.
- Determine the depth the marker was originally set. This can be done by the tooling pattern on the stone. This usually did not extend further than a couple of inches below the soil. The remainder of the base will be smooth.

- Determine if the subsoil is stable and capable of supporting the base. If so place the marker in the hole, ensure that it is plumb and aligned in the row. Replace the soil around the headstone.
 - If the existing soil is light, sandy loam, a concrete sand makes a good alternative.
 - Where clay soils exist, a mixture of the clay and a lighter soil or sand will help prevent formation of a “swimming pool” in the excavation.
 - Complete backfilling.
- In the case where the base is set on the side of a hill or incline a landscaping geotextile fabric placed into the excavation prior to backfilling to prevent erosion of the soil.
- In certain situations a concrete foundation, poured to below the frost line (4 – 6 inches) may be necessary. The top of the concrete foundation should be kept just below grade level (1 inch) and made slightly smaller than the base.
- Set the base on compacted fill or on the concrete ensuring it is firm and level. Use mortar to provide a levelling bed and to accommodate the uneven underside of the base. It is not necessary to use dowels in this situation.

Resetting a Headstone in a Base



Levels 2 & 3) The following procedures refer to the setting of a headstone into a base where pins are not necessary.

Headstone slabs usually 2 – 3 inches thick are set into a slot style base. The base is slightly oversized and about 1- 2 inches deep. It is somewhat difficult to ensure a rigid seal between the base and the headstone.

NOTE: Patching concrete or epoxy adhesive should not be used, because concrete is not compatible with stone, and an epoxy repair is not easily reversible. During the process to resetting a headstone it is important to continually check for plumb.

- A headstone with an even base in good condition can be set on lead shims and held in place in the slot with lead wedges along its sides.

- Where the bottom or base of the headstone is “sugary” (crumble easily) or broken off, the headstone should be set in a bed of mortar. The mortar should of a consistency to bear the weight. At the same time, set the lead wedges along the sides to hold the headstone upright.

- Once the headstone is in place, fill the space between the headstone and the edge of the slot with a mortar or with “lead wool” and “lead rope,” hammered in to provide a seal.

NOTE: Caution: hammering of led rope should not be used on limestone bases as this may cuase cracking of the stone.

- Angle the mortar slightly to form a drain for any water, but avail making a large triangular wedge or mortar between the headstone and the base to prevent failure.
- Pack the lead wool in as a backer for the lead to be finished on top of it. A blunt chisel can be used to press the lead down. Finish the surface at a slight angle, and the lead can just lip over the base to help provide a seal.



After the repair has been made, securing the marker is imperative. The use of clamps, wooden braces and shims assures the headstone is not touched by the metal clamps, and also prevents the headstone from moving while the repair treatment cures.

IMPORTANT NOTE:

It is not recommended that headstones be placed into concrete bases. Concrete is a rigid material that does not expand and/or contract in temperature fluctuations, whereas stone does. Placing a headstone in a concrete base can cause the headstone to crack.

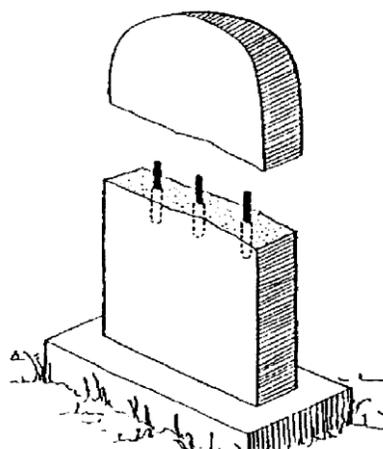
Snapped Headstone – Repairing

Snapped headstones can be common in historic/pioneer cemeteries. Repairing broken headstones with epoxy or mortar requires extreme care. Stone can be damaged beyond further repair if improperly used. Another means of repairing snapped headstones is the use of dowels.

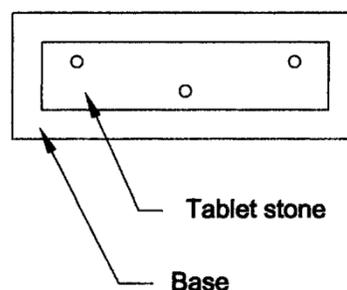
NOTE: Only professional conservators and/or skilled craftsmen should attempt this type of repair.

The procedures for repairing headstone with doweling (blind pinning) are applicable to flat slab markers and other types of headstones, i.e., obelisks.

Most common failures involve headstones that have snapped just above the top of the base or around mid-height where a roughly horizontal break has occurred.



- Clean the surfaces of the headstone which are to be joined and allow to dry. Dry fit the mating pieces. If the stone is out of the ground or has fallen from its base arrange the pieces on a workbench.
- Place slab markers on a flat, wooden bench for support and to keep the pieces aligned. If the base is present it must be securely positioned to prevent movement, particularly with drilling holes for the dowels.
- Align the pieces to determine dowel locations, length, and diameter. For a single break in a 3-inch-thick headstone, the use of threaded stainless steel dowels, 5 mm to 12 mm (3/8 – 1/2 inch) in diameter, is ideal. Two to three dowels should be used, and extend 3 – 4 inches into each piece of stone.
- The dowel holes are usually 6mm (1/4 inch) larger than the dowel itself. It is important to ensure that the holes are drilled exactly parallel to the edges of the stone using a level or jig to ensure accuracy.
- Drill two or three holes for pinning using carbide-tipped bits. If the third hole is used, offset its location from a straight line to strengthen the splice and ensure no cracking of the headstone.
- Keep the stone dust from the drillings. The dust can become part of the aggregate for mortar fillings to the stone.
- Ensure the holes are exactly matched by dry fitting the dowels and marker pieces together.
- Blow out the dust from the holes with compressed air (a turkey aster works nearly as well).



- Flush out holes with acetone, using a syringe.
- Prepare resin (epoxy) with a small amount of stone dust so that it is quite stiff and will not run. Using a spatula or popsicle stick, place a little resin (epoxy) in the hole. Coat the threaded dowel with the remainder of the resin and set it in the hole, turning the dowel to ensure proper sealing and filling between the stone and the dowel. Allow mixture to set fully.
- Optional: in addition to the securing of the dowels you can apply two or three quarter-sized dabs of resin (epoxy) on opposite sides of the mating surfaces.
- A slow-setting gel resin can be used to prevent leaks from hole and do not need to set fully before the next steps begin. Ensure the dowels remain straight.
- Apply resin (epoxy) to the holes on the piece to be mated and to be remainder of dowel. Carefully bring the two pieces together until they fit snugly.
- If some of the resin (epoxy) leaks or oozes ensue that it is cleaned immediately using rags and where necessary some acetone. If the resin (epoxy) hardens on the stone it can only be removed physically and this will result in pieces of the stone being lost in the process.
- Clamp the stone to align the two stone pieces, using bar clamps with wood spacers. Avoid contacting the stone with metal clamps or tools. After the resin (epoxy) has cured, remove the clamps. Fill any voids left in the stone using grout or colour-matched mortar.

Mortar Filling – Missing Stone Fragments.

Missing fragments of damaged headstones or bases can be replaced using mortar infill to approximate the original shape of the monument. Only experienced teams should carry out infill repairs.

- Mortar repairs should be done on site or after the headstone is installed to avoid damage to mortar during transport to cemetery.
- Fill up a crack along a junction, using a repair mortar that matches the marker in colour. Pack the mortar in, using fine tools to fill the joint completely. Where soft, rounded edges occur at the line of the break, avoid filling flush and feathering the mortar. It is better to keep mortar very slightly back from the face of the stone.
- Use only proprietary mortars, or specific mortar formulas suitable for the application.
- As the mortar sets up, stipple it with a short, stiff bristled brush to produce a lightly rough texture. Avoid tooling the mortar to a smooth finish, as this will cause it to dry very light in colour and will draw attention to the repair.
- Moist cure the mortar by lightly spritzing it with a water-spray bottle two or three times a day (more frequently in hot, sunny conditions) for two to three days. This helps the mortar to set up and prevents shrinkage from rapid drying.

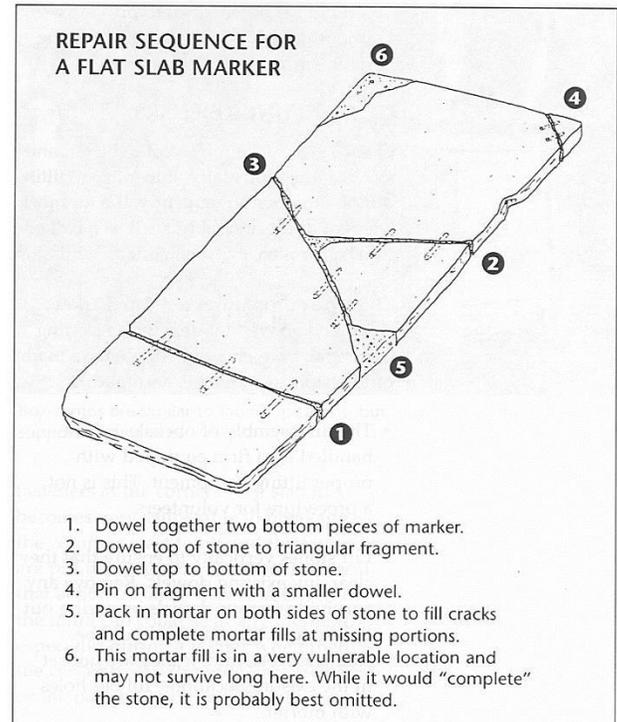
NOTE: The colour of the mortar can often be closely matched to the stone; when dry, infill-patch can achieve a similar texture to the stone. When attempting to match the colour of infill it is suggested to use

a colour lighter in than the stone. The infill can be darkened with a stain after curing. However, it is important to be judicious with the use of stain. A darker colour cannot be lightened. Stone dust, from stone fragments available at monument makers, can be used to achieve the desired colour.

Repairing Headstone with Several Breaks

Headstones that suffer from multiple breaks are difficult and time consuming to repair. A professional monument repair service or individuals who have experience with the procedures required to repair this type of break should be consulted and/or hired. Working with a headstone in this state should be done indoors where more favourable conditions exist.

- Collect all the pieces of the headstone and dry fit them together.
- Determine the order of pinning and mark the pieces for dowel placement. Where there are major breaks following the instruction outlined above for pinning stones.
- When joining smaller pieces reduce the size of the threaded, stainless steel dowels. It is suggested a range of sizes from 12 mm (1/2 in) diameter down to 3mm (1/8 in) should be on hand.
- Following the instructions for pinning as described above. Large pip clamps and nylon belts that can be tensioned are useful for holding large stones together. Use wood spacers to protect the edges of the marker.
- When working with small pieces it is preferable to use two dowels. In the instance when the piece is very small one dowel can be used.
- Assemble the pieces, working from the largest to the smallest pieces. Always allow sufficient curing time between each portion of the repair.



Preparing the Headstone for Infill

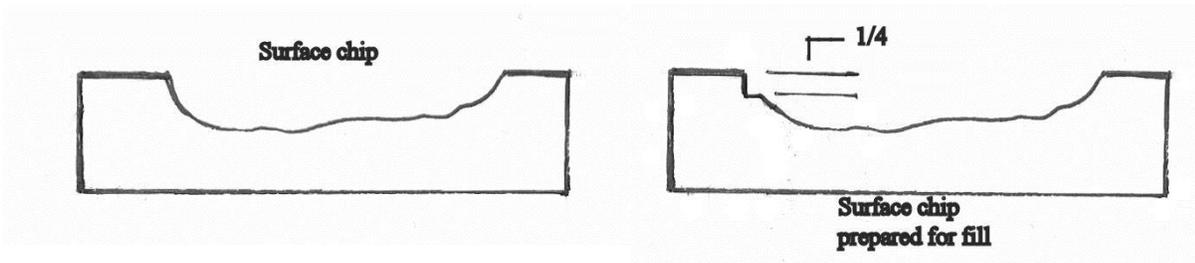
(Level 2 & 3) Small missing pieces of the headstone can be replaced by mortar filling. The infill can last for a long time if they are not too large and are repaired by experienced individuals.

Mortar fill must have similar characteristics to the stone on which it is being used. It is important to understand that mortar repairs, under stressful conditions, will be the first part of the headstone to fail. This usually occurs with mortar mixed from lime, a variety of graded aggregates, and a small amount of white Portland cement. There is considerable scope for use of hydraulic limes, becoming more available, as a binder, instead of the combination of white Portland cement and ordinary lime

Proprietary patching materials should not be used in these circumstances. They are designed primarily for concrete repair and are not compatible with marbles and other stones. The exception is where missing portions of a base prevent resetting of a slab marker. Here, a patching mortar, which can be matched exactly to the stone colour and characteristics can be employed. This procedure permits reuse of the base rather than replacement in new stone or casting in concrete.

NOTE: Do not apply mortar on a section of stone that has an obtuse (blunt) angle on the fracture at the surface. The resulting feathering edge of mortar will be weak and vulnerable to chipping and premature failure.

To fix this problem, grind a square-cut $\frac{1}{4}$ inch notch or recess into the beveled/fractured surface. (See figure A) This provides a more square (vs. sharp-edged) mortar section, which also increased the bonding surface area and decreases the possibility of future joint failure. **Minimize any grinding on the finished surface of the headstone,** which would affect its appearance.



Chips and breaks need to be prepared as shown in this illustration. A feathered edge repair is prone to failure.

Mortar Application

Note: This process has been recommended by professional conservators, and in particular by Cathedral Stone Products Inc.

- Before applying mortar, wet the stone with water to avoid absorption of moisture from the mortar by the stone and a resulting weak mortar joint. Any accumulated water should be removed, otherwise the mortar will not cure properly.
- Apply the mortar in thin layers to minimize voids. Work the mortar into any cracks or crevices along the break line. The surface of the mortar should be one-quarter to one-half inch higher than the desired final surface when the initial application of mortar is completed.
- When the surface of the mortar fill has begun to *partially* set, gradually scrape the mortar to the required size and shape. It is important to use tools that will not stain the surface such as a stainless steel “screed” or other flat tools that will not stain the mortar. As the mortar hardens, continue to shape it until the remaining high surfaces are flush with the original surface, or to the desired contour.
- Carved designs, tooling marks or textures, and even partial word inscriptions can be added using sculpting tools when the infill mix is still workable. To get a textured finish, lightly stipple the surface just after the initial setting. Be sure to take a photo of the original wording and design for reference.
- It is important to keep the infill moist and covered for at least twenty-four hours. This is critical for thicker fills. Use damp, absorbent towels in contact with the surface, occasionally spritzing with water for two more days. An option is to keep the surface covered with plastic sheets. Shrink wrap, available at hardware and office supply stores, can be used to wrap the repair after it has cured to the point where the use of the wrap will not cause alteration in the form/design.

Clean-Up

Remove uncured mortar from the border of the repair area before it is dried. Use clean water and a closed cell sponge. **Repeat several times to prevent a halo-effect (staining of adjacent masonry).**

Note: Mortar repairs are to be viewed as sacrificial; i.e. if the repaired stone breaks again, it is intended that the repaired joint will fail, not the material of the stone.

Resetting Obelisk Headstones



Because obelisk headstones are tall and slender they are vulnerable to tilting out of alignment. The uppermost sections of the headstone often topple.

The blind pinning procedures describe above can be adapted to the repair of obelisk headstones made of limestone, sandstone and marble.

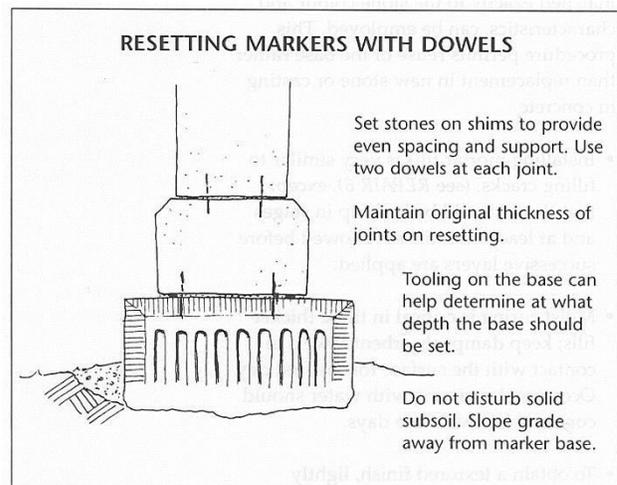
- The removal of each of the sections should be done by professionals equipped with proper lifting equipment. This is not a job for volunteers.

- Stones should be lifted vertically to clear any existing dowels. Remove the original dowels by coring out the stone. New dowels should be stainless steel. If the new dowels are not placed in the existing holes, fill the old holes with mortar.

- Repair any damage to the stones as outlined in above

sections.

- Reset the obelisk headstone on newly compacted fill or a concrete footing poured to just below grade, as described in previous sections.
- Reassemble the obelisk, dowelling between the sections. Use two opposing dowels to prevent twisting. Slate, lead, or plastic shims can be used to set the sections of the headstone. Pack the beds with mortar and point up to the surface. For very thin joints, apply a bed of mortar just prior to bedding the next stone. Rake back the bedding mortar and point up all joints together to obtain a consistent pointing mortar.
- Ensure the original joint thickness is maintained when reassembling the stones, particularly where fine joints are present, and resist the temptation to flatten joints to more workable tolerances.



Repairing Broken Bases

(Level 2 & 3) Slot-style bases in which a tablet headstone sits may be broken or eroded to the point it can no longer support the headstone.

- If at all possible reuse the existing base. Repair the base rather than replace.
- Jahn Mortar, a proprietary restoration mortar, can be used and formed very easily to profile and tooled to match the adjacent stone. The Jahn Mortar will set up nearly as hard as the stone and can, if allowed to cure properly, will perform in the same way as the stone.
- This type of repair, using restoration mortar, should be done by individuals who have fully trained by the product manufacturer. The technique should generally be limited to minor and straightforward repair. Major damage may require the replacement of the base with a matching stone or a base prepared either in stone or in a high-quality, cast-stone material. Do not use crude concrete bases.
- Slots are vulnerable to frost damage, primarily because they fill with water. Bases without the headstone slab should have the slot filled with mortar. Repaired bases (using restoration mortar) may require a discreet "weep hole" to allow moisture to escape.

Chapter 4: Mortars and Grout

ADAPTED FROM: Landscapes of Memories, A Guide for Conserving Historic Cemeteries, Repairing Tombstones, Compiles and edited by Tamara Anson-Cartwright.¹¹

(Level 2 & 3) Mortars are used in a variety of applications in the Cemetery. Because of the many different applications, including the various stone materials, no one mortar will work for all re-pointing tasks. All the mortars recommended in this guide are based on lime. Today lime is used primarily for historic building and monument repair, it can be somewhat difficult to obtain. It is important to understand the properties, mixing procedures, and applications. The interaction between the stone and the mortar determines the type the type of mortar mix to use.

- Use mineral-based mortars when repairing damaged headstones
 - Mineral-based mortars contain Portland cement and lime
- Premixed products contain latex or acrylic additives are **not compatible**

Ingredients of Mortar

Mortar consists of four basic components: water, sand, lime, and white (not gray) Portland cement. The strength of the mortar depends of the proportion of the ingredients.

- Increased percentage of Portland cement produces higher strength mortar
- More lime produces a softer, more plastic mix with improved workability

Constituents

- Sand – the aggregate is usually sand, which acts as filler and contributes to the durability of the mortar. It also gives the mortar its colour⁴ and texture. Washed sand crystals that have worn, rounded surfaces (vs. sharp crystals) should be used for work on historic stone. The sand should be well grades – that is, a selection of grain sizes from a powder to about 3mm (1/8 in). The result will be a finish similar to the historic mixes.

Note: Most builder's sands consist of very fine grains only, the these should be avoided.

¹¹ ©Queen's Printer for Ontario, 1998. Reproduced with Permission.

- Binders – Portland cement and lime are the two commonly used binders. A high lime mortar is a soft mortar that can resist failure due to temperature changes, and is water soluble and able to reseal hairline cracks. High concentration of (white) Portland cement give higher hardness, but shrink more upon setting, resist migration of water, and have greater thermal expansion and contraction. These properties are undesirable on historic stone. It is important to use suitable mixture for the type of stone and application.
 - Limes are fired in kilns to produce quicklime which is mixed with water (slaking) to produce lime putty suitable for use in mortar.
 - Hydrated lime – quicklime that has been commercially slaked with just enough water to produce powdered lime.
 - The speed of a hydraulic set depends on the amount of clay present in the limestone.
 - Hydraulic limes fall between natural cement and pure limes
 - Hydraulic lime is usually supplied as a dry, ground hydrate in airtight containers. It should be fresh and used within one or two months.
 - Hydraulic limes currently available are moderately (5 – 15 days) and eminently (1 – 4 days)
 - Hydraulic limes are imported from the United States and Europe.
 - Lime putty produced from quicklime or hydrated lime may be kept indefinitely, in an airtight container, if protected from frost.
 - White Portland Cement – Portland cement may be thought of as eminently hydraulic lime. Portland cement consists of limestone and clay which are burned together twice. Gypsum is then added to retard the setting characteristics. Because grey variant contains soluble salts, *only* white Portland cement should be used in mortars.

Non-proprietary Mortar Mixes

The white Portland and lime mixes described below have both the plasticity necessary to insure a good bond, and lower hardness compatible with historic stones. Because these mortars closely approximate the strength, permeability and appearance of older mortars and stone, they are appropriate for their respective application (taken from *John Walters Recipes for Mortar Mixes* – www.rootsweb.com/~inpcrp/mortarmixes.html).

- Slot Mix – a mixture used in the slot of a headstone base when replacing a tablet stone. Mix the following dry components (by volume):
 - One part white Portland cement
 - Four parts hydrated lime

- Eight parts clean sand
- Water (Very little water is needed for this mix. It should be very stiff and dry looking.)
- Stack Mix – a mixture used to set (stack) a headstone onto a *flat stone* base. Mix the following dry components (by volume)
 - One part White Portland cement
 - Three parts hydrated lime
 - Water (Very little water is needed for this mix. It should be very stiff and dry looking.)

Both the headstone and the stone base must be clean and sound. Remove all dried mortar from the base or stone. Masking the base stone to the size of the footprint of the headstone will avoid excessive clean up. Dampen the bottom of the headstone and the base with a spray bottle of water, to insure that the stone does not absorb water from the mortar.

- After pre-wetting the base and stone, apply a one-half to one-inch thick layer of mortar onto the top of the stone base, covering the outline of the stone. Set the headstone on the base. Use wooden braces for support if required. (See page ___)
- Completely fill the gap around the stone and the base. Create a one-eighth inch mortar fillet at the intersection of the stone and the base to help shed water. After the mortar has dried, usually in a day or two, the braces can be removed.

Infill Mortar Mix – Another basic mix, often used in historic cemeteries to replace missing fragments of stone. The intent is that the dried mortar closely matches the stone being repaired both in colour and texture. The choice of aggregate (e.g., sand or stone dust), will dictate the colour and texture to some extent. Stone dust, available at sand and gravel/landscape suppliers, or made by crushing stone fragments, can provide a variety of colours and textures. Experiment with different aggregates and check for colour-match when dry. If a close match cannot be achieved, choose a lighter coloured aggregate, and colour the mix with grout dye to match. Mix the following dry components (by volume)

- Two parts White Portland cement
- Four parts Hydrated Lime
- Seven parts stone dust (aggregate) from the parent stone if available
- Water (Very little water is needed for this mix. It should be very stiff and dry looking.)

Chapter 5: Management and Maintenance

DEVELOPING a CEMETERY MAINTENANCE PLAN

- Identify the local body which will manage the maintenance plan.
- Maybe necessary to educate the local rural and/or urban municipal authorities on the condition of historic cemeteries in their area and the need to develop additional regulations to preserve the integrity of these cultural resources
- The following are suggestions for articles of the maintenance plan: ¹²
 - Protection of the cemetery from vandalism and theft
 - Preservation and conservation of the historic cemetery and its artifacts and plantings
 - Protection of the cemetery from the removal of funerary objects
 - Development of land that contains a cemetery
 - Specific locations and needs of military veterans' grave markers
 - Guidelines related to removal, replacement, and repair of objects associated with a cemetery
 - Illegal possession and sale of headstones and funerary accessories
 - Sale of a cemetery
 - Authority to acquire or manage the cemetery
 - Authority to raise/appropriate money for conservation and maintenance
 - Supervisory body that will oversee management and finances
 - Rules and regulations of the cemetery
 - Process to appeal rules and regulations
 - Sale of lots including prices of plots and services
 - Plot records required
 - Registration of interments
 - Funerals and interments (rules)
 - Perpetual care fund (management)
 - Memorials (monuments and markers: definitions, use, restrictions)
 - Neglected or abandoned cemeteries

¹² Michigan Historic Cemeteries Preservation Guide, King, Gregg. G., Kosky, Susan, Glynn, Kathleen, Saborio, Gladys, p 128

The above list should serve as a guide in development a maintenance and care plan for a cemetery. When developing this plan ensure that the Saskatchewan Cemeteries Act is consulted to ensure that the plan meets the required regulations

A maintenance schedule should be part of the maintenance and care plan. Examples of short-term and long-term goals might be:

Short-term goals:

- Safety and emergency stabilization of a monument
- Weeding
- Pruning
- Moving
- Removing trash

Long-term goals:

- Strategies for lawn care
- Strategies for plant care, including trees and bushes
- Plan for any possible soil loss issues

Useful Links

SASKATCHEWAN CEMETERIES ACT

www.qp.gov.sk.ca/documents/English/Statutes/Statutes/C4-01.pdf

SASKATCHEWAN HERITAGE PROTECTION ACT

www.qp.gov.sk.ca/documents/English/Statutes/Statutes/H2-2.pdf

SASKATCHEWAN AGRICULTURE

An Urban Guide to Weed Control that can be found on the Saskatchewan Agriculture web site at <http://www.agriculture.gov.sk.ca/Default.aspx?DN=e959c984-a9d9-4a92-9f88-83bba942c334>

Information Services Corporation <https://www.isc.ca/Pages/default.aspx>

Standing Stone Landscape Architecture <http://www.standingstonevt.com/gravestone.html>

StonePics: Repairing Headstones – Newfoundland

http://www.stonepics.com/newfoundland_cemeteries/repair.htm

GravestonePreservation.info <http://www.gravestonepreservation.info/articles/broken-stones>

Carter's Cemetery Preservation <http://ccpreservation.com/>

Guidelines for Cemetery Conservation – National Trust of Australia

https://www.nationaltrust.org.au/.../1/cemetery_conservation_guide.pdf

Mortar mixes www.jahnmortars.com

National Park Service www.ncptt.nps.gov

The Association for Gravestone Studies www.gravestonestudies.org

The Chicora Foundation www.chicora.org

Cemeteries, Graveyards and Burying Grounds. A link to Resources on cemetery history and preservation www.potifos.com/cemeteries.html

Savings Graves www.savinggraves.org

The National Federation of Cemetery Friends, a site developed and maintained by a cemetery preservation league based in the United Kingdom. www.cemeteryfriends.org.uk/ -

www.internment.net

Links to various cemetery resources www.historicgraveyards.com

The Arkansas Historic Preservation Program

www.arkansaspreservation.org/preservation-services/cemetery-preservation/

Grave Concerns, A preservation Manual for Historic Cemeteries in Arkansas. Developed and published by the Arkansas Historic Preservation Program, an agency of the Department of Arkansas Heritage www.arkansaspreservation.org/pdf/publications/grave_concerns.pdf -

Newfoundland Cemeteries www.stonepics.com/newfoundland_cemeteries/repair.htm

Google Online Newspapers news.google.com/newspapers

Care and Maintenance Permission to Visit, Clean and/or Restore a Cemetery

(adapted from www.savinggraves.org and Michigan Historic Cemeteries Preservation Guide)

The undersigned land owner hereby grants permission to the volunteer(s) named below and other persons acting in a volunteer and non-volunteer supervisory role of said volunteer(s) access to _____ Cemetery in the Rural Municipality of _____, in the Province of _____.

There is an understanding that such access will be limited to efforts to restore and/or maintain the said cemetery. The efforts may include (but are not limited to) removing all noxious and detrimental vegetation (including trimming trees, lawn mowing and weeding), removing accumulated debris from buried gravestones and markers, the excavation and repair of markers, and the straightening and resetting of gravestones.

The land owner grants permission to any professional preservation and/or conservation individuals and their equipment hired by the volunteer organization to have access to the above cemetery.

Name and title (please print) _____

Signature of cemetery owner (or designee of municipality/church/cemetery committee)

Date Signed _____

Rural Municipality/Town/Village _____

Location of cemetery _____

Address of owner _____

Phone of cemetery owner _____

Special instructions to volunteer _____

The volunteer(s) named below agrees to perform the tasks set out herein to the best of his/her ability, promising to act in good faith to clean the above-named cemetery, to be responsible for the acts of any persons working under the volunteer's supervision, to be responsible for any damage sustained at the site and to exercise due and diligent care to prevent injury to the site or any persons. The volunteer named below certifies that neither he/she nor any person operating under the volunteer's supervision shall remove from the above location any stone, monument, marker, artefact, ornamentation, enclosure, or other object without the express permission of the cemetery owner. The volunteer named below further agrees that his/her efforts shall comply with the generally accepted cemetery conservation and preservation techniques as promulgated by the Saskatchewan Genealogical Society. The Saskatchewan Cemeteries Act must also be adhered to.

Date signed _____

Signature of Volunteer _____

Printed name of Volunteer _____

Address of Volunteer _____

Telephone number of Volunteer _____

E-mail address of Volunteer _____

Date signed _____

Signature of Volunteer _____

Printed name of Volunteer _____

Address of Volunteer _____

Telephone number of Volunteer _____

E-mail address of Volunteer _____

Date signed _____

Signature of Volunteer _____

Printed name of Volunteer _____

Address of Volunteer _____

Telephone number of Volunteer _____

E-mail address of Volunteer _____

Date signed _____

Signature of Volunteer _____

Printed name of Volunteer _____

Address of Volunteer _____

Telephone number of Volunteer _____

E-mail address of Volunteer _____

Date signed _____

Signature of Volunteer _____

Printed name of Volunteer _____

Address of Volunteer _____

Telephone number of Volunteer _____

E-mail address of Volunteer _____

Cemetery Care and Maintenance General Cemetery Survey Form

Survey Date _____

Current Cemetery Name _____

Historic Cemetery Name _____

Address: _____

Town/City _____ Land Description _____

Rural Municipality _____

Owner Address _____

Owner phone number _____

Type of ownership

private-profit private-non-profit private-unspecified town rural municipality
First Nations other _____

Accessibility to public

unrestricted restricted (private property) by car by foot other _____

Description (type of cemetery – check all that apply)

community family rural municipality religious ethnic other _____

Condition

- currently in use
- abandoned
- neglected
- maintained, but not in use

Specific problems

- overgrown vines
- overgrown grass
- overgrown shrubs
- unpruned trees
- no fence/fence in poor repair
- unfenced
- no shed/shed in poor repair
- no gate/gate in poor repair

Approximate size

- _____ metres x _____ metres; _____ hectares

Boundaries

- fence (material) _____
- wall (material) _____
- gate (inscription) _____
- hedge (type) _____
- other _____
- none _____

Condition of boundaries _____

Topography

- flat
- rolling
- treed/bush
- other _____

Plot enclosures (check all that apply; indicate number of each if appropriate)

- curbing, material _____
- hedge, type _____
- wall, material _____
- other (explain) _____

Condition of markers (give approximate number)

- inscriptions illegible inscriptions legible no inscription sunken/tilted stones
- fragments/pieces on the ground broken but standing damaged surfaced, chipped/cracked

If other conditions or damage observed, please specify problem _____

List any restoration efforts (examples: metal supports, enclosed in concrete, etc)

List other structures (mausoleums, chapels, columbaria, etc.) and describe condition _____

List artefacts (statues, urns, etc.) and describe condition _____

Circulation system of paths and roadways _____

General overview of vegetation _____

Other significant information _____

Cemetery Care and Maintenance Release of Liability

(Form must be completed for each volunteer participating in this program.)

Name of Volunteer _____

Address of Volunteer _____

Phone No. _____

Emergency Contact _____

Relationship _____ Phone No. _____

RELEASE OF LIABILITY

The Cemetery Care and Maintenance under the administration of _____, its directors, employees, volunteers and members are not responsible for any injury, loss of life, loss or damage of any kind sustained by any person while participating/volunteering in any or all of the elements of the physical care, restoration and/or maintenance of cemeteries funded under the Saskatchewan Cemetery Care and Maintenance Program.

ASSUMPTION OF RISKS

In consideration of my participation in the physical activities associated with the care, restoration and/or maintenance of the _____ cemetery, I acknowledge that I am aware of the possible risks, dangers and hazards associated with my participation in the care, restoration and/or maintenance of the cemetery. These risks include but are not limited to the following:

- a) Physical injury due to stretching, lifting, carrying and moving heavy objects, including all debris associated with the cemetery.
- b) Physical injury sustained working with any and all equipment, non-motorized and motorized used in the care, restoration and/or maintenance of the cemetery.
- c) Physical injury sustained from the actions of any board members, employees or volunteers.

ACKNOWLEDGEMENT

I acknowledge that I have read this liability waiver, that I have executed this liability waiver voluntarily, and that this agreement is to be binding upon myself, my heirs, executors, administrators and representatives in the event of my death or incapacity.

Signed this _____ day of _____, 20____, at _____ in the Province of Saskatchewan.

Signature of Volunteer

Signature of Witness

Printed Name of Volunteer

Printed Name of Witness

Before you go:

- Never go into the cemetery alone. There is always the possibility of a falling limb or other unforeseen accident.
- Bring a first aid kit and cell phone, and tell the person in charge what project will be done and when it will be done.
- Wear long pants, a long sleeve shirt, gloves, and sturdy shoes to prevent harmful plants, insects and other wildlife from harming you. Bring insect repellent and put anti-bee sting medication in the first aid kit.
- Be on guard for broken glass, sharp stones, and rusty metal. In the case of any injury that breaks the skin, a tetanus shot needs to be updated if the last one was over five years ago.
- If possible point out any known toxic plants in the cemetery. Poison ivy and oak especially like to grow on fences and trees. An awareness of what they look like and protective clothing are helpful.
- Avoid working during the hottest part of the day, wear sunscreen, and have water available.
- Pay attention to the area traversed. A sunken grave, wet stones or vegetation in the path might precipitate a fall.
- Use proper lifting techniques when working with stones. For heavy stones use a tripod with heavy-duty chain, winch and straps.

APPENDIX D

SAMPLE OF REQUEST FOR SUPPORT FOR CEMETERY MAINTENANCE AND REPAIR:

I am writing to you on behalf of _____ Cemetery Committee. The _____ Cemetery is a pioneer cemetery established in _____. **You could include a brief history of the cemetery**

Sustaining our heritage through the care and maintenance of our cemetery will ensure that future generations will have access to their history and heritage. The care and maintenance of the Stoney Crest Cemetery also honours those who rest there.

The _____ Cemetery Committee plans to undertake repairs and upgrading to the cemetery to prevent further deterioration. We have estimated the cost of the repairs to be _____ **(add approximately 20% to your estimated total)**. In order to proceed with the necessary work the Committee is asking for your support.

The _____ Cemetery Committee would be grateful for your support with a monetary donation to the work. You will receive an income tax donation receipt for your contribution. **Advise where donations can be made.**

If you wish to support the cemetery project please make a cheque payable to the _____. Please indicate on your cheque that the donation is for the _____ Cemetery. The _____ will issue the donation receipt for income tax purposes.

We thank you for your support and hope that you will come by the cemetery and view the work that is being done.

Sincerely,