

# GRIST

November/December 1979

Volume 23/Number 6

## New Marking System Weathers the Winter

Painted highway lines that are exposed to six or seven months of heavy snow, daily snowplow blades, vehicle chains, and snow tires, wear away quickly and become ineffective guides for traffic.

Frank Elliott, chief of maintenance for Yosemite National Park, reports that they have experimented with a new pavement marking system that is standing up to Old Man Winter.

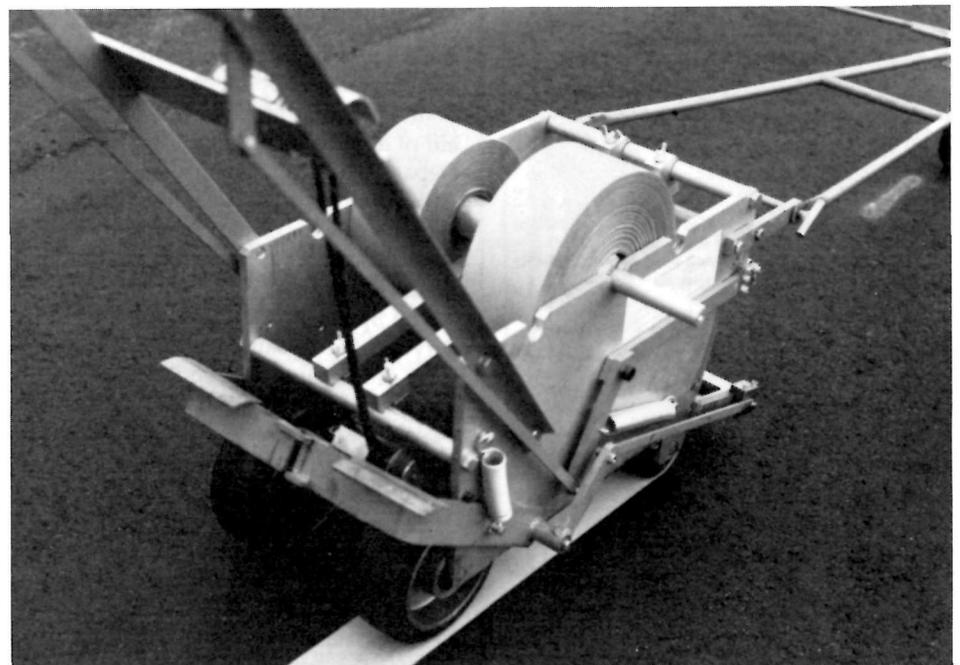
Yosemite National Park, located in the High Sierra, is visited year-round by a great number of campers, sightseers, and skiers. These visitors must be guided along the Park's narrow and winding roadways summer and winter, day and night, and pavement markings are an essential part of that guidance. Because painted lines tend to become less distinct due to winter wear (and repainting is impossible during the winter months), motorist hazard and the accompanying liability risk have been worrisome factors to the Yosemite maintenance people.

In September, 1978, they decided to mark resurfaced roads with a new product—a preformed polymer film which is inlaid into the hot asphalt surface. A nine-mile (14 km) section of Big Oak Flat Road, scheduled for resurfacing was selected as an evaluation site. "STAMARK" Brand Pavement Marking Film from 3M was authorized under the Federal Supply Schedule.

The installation, done by the paving contractor, is simple. After the new asphalt is put down and rolled by the break-down roller, the preformed polymer film is applied to the hot asphalt with an easy-to-operate mechanical applicator. It then is pressed



Highly visible pavement markings guide this driver along a winding section of Big Oak Flat Road.



A mechanical applicator is used to apply preformed polymer film to the hot asphalt surface.

(Continued on p. 45)

# Energy Saving

## GRIST

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The Park Practice Program is a cooperative effort of the National Park Service and the National Recreation and Park Association.

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### FOR SAFETY'S SAKE

All ideas and suggestions shared in the pages of *GRIST* are presented as guidelines, not final working blueprints. Be sure to check any device or plan you want to adapt for compliance with national, state and local safety codes.



## Spring Mill Shuttle A Resounding Success

IN Division of State Parks



Shuttle bus whisks visitors around the park, stopping at eleven popular sites.

Naturalist Lois Mittino-Gray reports the success of an experimental shuttle bus service that operates in Spring Mill State Park near Mitchell (IN), with the aid of a grant from the State Department of Commerce's Energy Group. This mass transport system is a prototype for possible expansion of the concept into other park and recreation areas in the State.

The Spring Mill Shuttle is a free service offered daily during the park's busy season and utilized for special purposes throughout the year. Four 19-passenger, mini buses run at 20-minute intervals and riders may get on or off the buses at any of 12 bus stop shelters.

Sample stop locations include the campground, pool, inn, restored pioneer village, nature preserve, lake, and various caves. Brochures are available on all the vehicles and bus drivers are well versed in the park's natural and human history, available facilities, and hours of operation.

Visitors are encouraged to ask the drivers questions, since they are knowledgeable interpreters.

Although the shuttle service is not mandatory as it is in some other park systems, it has been extremely successful in terms of user numbers.

Park management believes the shuttle will aid overall in creating a welcome feeling of tranquility and serenity as more and more park visitors use the bus instead of their private vehicles. Besides conserving energy and eliminating traffic problems, the overall effect of reduced motor traffic should lessen the stress of heavy visitation and motor fumes on the park's plant and animal life.

Perhaps the impact of the shuttle on visitors who use it was best summed up by one camper: "Those buses are great! They made my whole vacation! I just parked the car, pitched the tent, and never had to worry for a whole week."

# Ingenuity

# 345

Name John E. Doe  
 Address 24 Maple St.  
 Crescent city, CA  
 95531  
 License # YUK 336

## Easy Identification of Private Vehicles

From John A. Sacklin, environmental specialist at Redwood National Park (CA), comes this idea for easy identification of authorized private vehicles in restricted park areas.

A problem arose when private contractors were doing rehabilitation work in the Redwood Creek watershed area which was closed to non-authorized personnel. To help rangers distinguish between these contractors and trespassers, Sacklin suggested that the contractors and their employees be issued windshield stickers for their private automobiles. Each sticker would be issued for the length of the contract or the calendar year, whichever ended first. Each year's sticker would be a different color to permit quick identification. The sticker would contain a large number which would correspond to a master list available to all rangers and natural resource personnel. The name, address, and vehicle license number also would be on the permit in smaller type, to assure specific identification and prevent permits from being traded around. Either rangers or natural resource personnel could be charged with responsibility for issuing the permits.

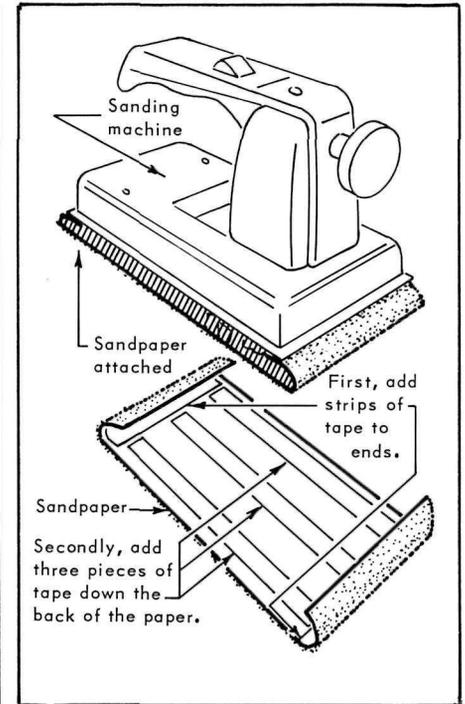
This idea provides quick and easy identification of authorized private vehicles, saves time for rangers in distinguishing authorized vehicles from trespassers, and results in better control over restricted areas.

## Tape Sandpaper to Your Power Sander

Mark A. Engler, park technician at Homestead National Monument (NB), shares a tip for saving both materials and manpower while using a power sander. He suggests applying masking tape or pressure-sensitive tape to the back of the sandpaper where the paper is fastened to the sander.

After trimming a piece of sandpaper to fit your power sander, just attach two strips of tape to each end of the sandpaper. Then, run three pieces of tape down the back of the paper, spacing them evenly apart.

This simple measure will increase the life of the sandpaper and also save workers' time, since they will not have to change the paper so often due to tearing.



## Number Portable Restrooms for Visitor Reference

This idea, submitted by Park Ranger Robert C. Marriott, from Lake Mead National Recreation Area (AZ,NV), could be useful in many large or semi-wilderness park areas.

Management at Lake Mead noted that visitors not familiar with specific cove names often used the new portable restrooms as landmarks when reporting incidents. One woman, for example, reported that her husband was missing in "the big cove with the two restrooms." The dispatcher who took the message had no map or information indicating the location of various restrooms; luckily the ranger on duty knew from experience that the place thus described was Sandy Cove.

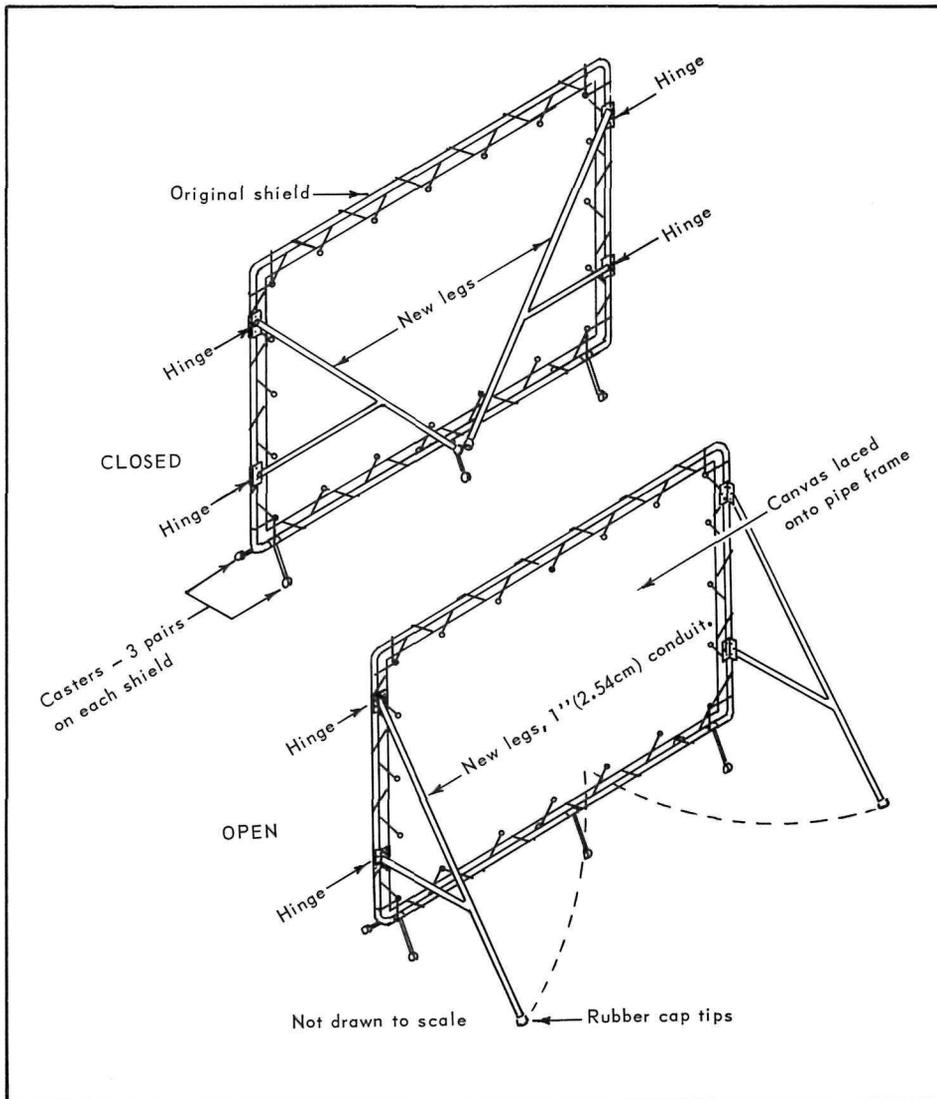
Marriott recommended, therefore, that the portable restrooms throughout the recreation area be marked with large white or reflective numbers that can be seen from a boat and used as landmarks by visitors. He further suggests that small dots and stenciled numbers be added to the large wall map in the



dispatcher's office—and perhaps in visitor centers—indicating the location and number of each restroom.

This also should help visitors in reporting disorders in the restrooms and enable the dispatcher to pinpoint quickly the problem unit and alert appropriate service personnel.

# Safety



## Bent Conduit Guards Portable Kerosene Heater

Electrician Gaylon Hayworth and Maintenance Worker Anvil Akers, of Ozark National Scenic Riverways (MO), have devised a solution to a common problem associated with the direct-fired portable kerosene heaters used in many parks.

These units presently pose serious safety hazards. Neither employees nor park visitors are afforded any protection from the heat output which is approximately 150,000 BTUs. Anyone walking directly in front of the heat source can be burned. If a heater is needed elsewhere, workers must unplug the unit and let it cool off before moving it. This is both time consuming and less efficient in controlling the heat in an area.

To solve these problems, Hayworth and Akers suggest placing a guard on the blower side of the portable kerosene heater. The guard can be made from electrical conduit bent to the form of the existing handle and clamped to the handle with hose clamps.

The guard serves two purposes. It prevents people from walking directly in front of the unit and burning themselves and it also functions as an extension of the standard handle, making it much safer and easier to move the unit.

## Protect Employees' Eyes from Arc Welder's Light

Anyone who ever has suffered eye burns from "welder's flash" will appreciate this suggestion from Nora Candelaria, project clerk at Lake Mead National Recreation Area (AZ, NV). The standard protective shield used at Lake Mead tended to blow over at the slightest wind, so welders often worked without it. Also, the canvas shield tore easily when it fell onto sharp objects. But some functional type of screening was needed to protect the eyes of nearby employees from the arc welder's light. Ms. Candelaria came up with this simple adaption which solves the problems of the old shield.

First, she replaces any torn canvas on

the standard shield. Then she attaches some 1" (2.5 cm) conduit (a stock item in many parks) to the frame of the standard shield. The welders can swing the pipe up against the canvas when not in use or pull it out and away from the canvas to hold the shield up securely against the wind when needed. A cross bar makes the attachment more sturdy and helps prevent people from walking under or tripping over the arm. As a final precaution, Ms. Candelaria recommends spraying yellow and black safety stripes onto the conduit.

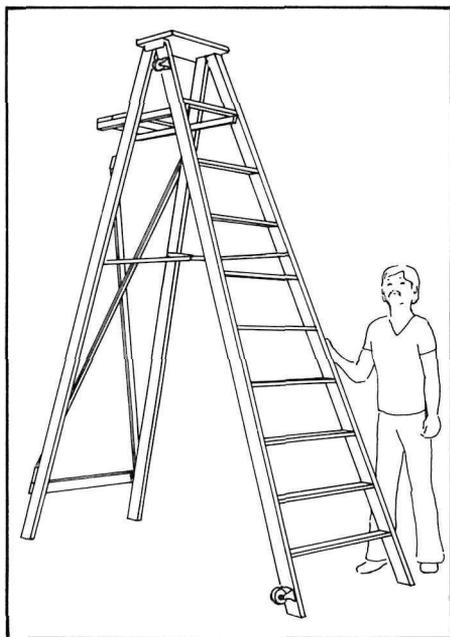
For this improvement, Ms. Candelaria won a \$25 National Park Service Incentive Award.



## Add Furniture Casters and Roll Your Stepladders

Wooden stepladders 10' (3m) and longer can be heavy and cumbersome to handle. Workers often are injured while trying to move them from place to place.

Dave Cormack, a laborer at Redwood National Park (CA), has a good idea for solving this problem. Simply add furniture casters to one or both ends of the ladder. Then one person can collapse the ladder and roll it easily from one job site to another.



## Poison-Free Wood Preservation

In the National Park Service's *CRM Bulletin*, Hugh Miller of the American Institute of Architects passes on to readers the results of studies made by the Forest Products Laboratory of the U.S. Forest Service on the use of water-repellent materials that contain no toxic preservatives.

This testing began 20 years ago. Window units were dipped for three minutes in either a solution of water-repellent preservatives or in water repellents without preservatives. Then they were exposed to weather conditions in Madison, Wisconsin.

The Forest Service reports that the untreated comparison control window units completely fell apart after six years. But little deterioration occurred in the treated window units. *There was very little difference in the weathering between the water repellents with toxic preservatives and those without.*

Continuous testing has shown that water-repellent treatments alone can provide excellent decay resistance in outdoor woodwork. The toxic preservatives appear to be unnecessary additions. Use of plain water repellents can represent a saving of money and resources as well as judicious avoidance

of toxic preservatives in such items as picnic benches, birdhouses, sheds, walkways, decks, fence rails, and other above-ground wood construction in park and recreation areas.

The Forest Products Laboratory recommends that water-repellent treatments be done before painting the wood; it can be done before or after construction. A simple formula is:

Exterior varnish	3 cups	
Paraffin wax	1 oz. (28 g)	
Mineral spirits or paint thinner or turpentine		Add to make 1 gal. (3.8 l)

The treatment is best done by dipping the wood for one to three minutes in a solution. If dipping is inconvenient, liberal brush application can be made, paying special attention to heavy treatment of all board ends and joints. Treated surfaces can be painted after three days of warm drying weather. In fact, the paint should spread better over the treated surface than over untreated wood.

For further information, you can contact the Forest Products Laboratory, P.O. Box 5130, Madison, Wisconsin 53705. The Lab is operated by the Forest Service in cooperation with the University of Wisconsin.



The compaction roller presses the polymer film firmly into the asphalt surface.

## New Marking System Weathers The Winter

(Continued from p. 41)

into the surface of the asphalt by the final compaction roller. The result is a pavement marking that is almost flush with the roadway surface. Marking in this manner during the September paving operation allowed the roadway to be open and properly marked at all times, with drivers smoothly guided through the area.

A side benefit of the polymer film is that it is a great deal more reflective than paint and gives better nighttime visibility.

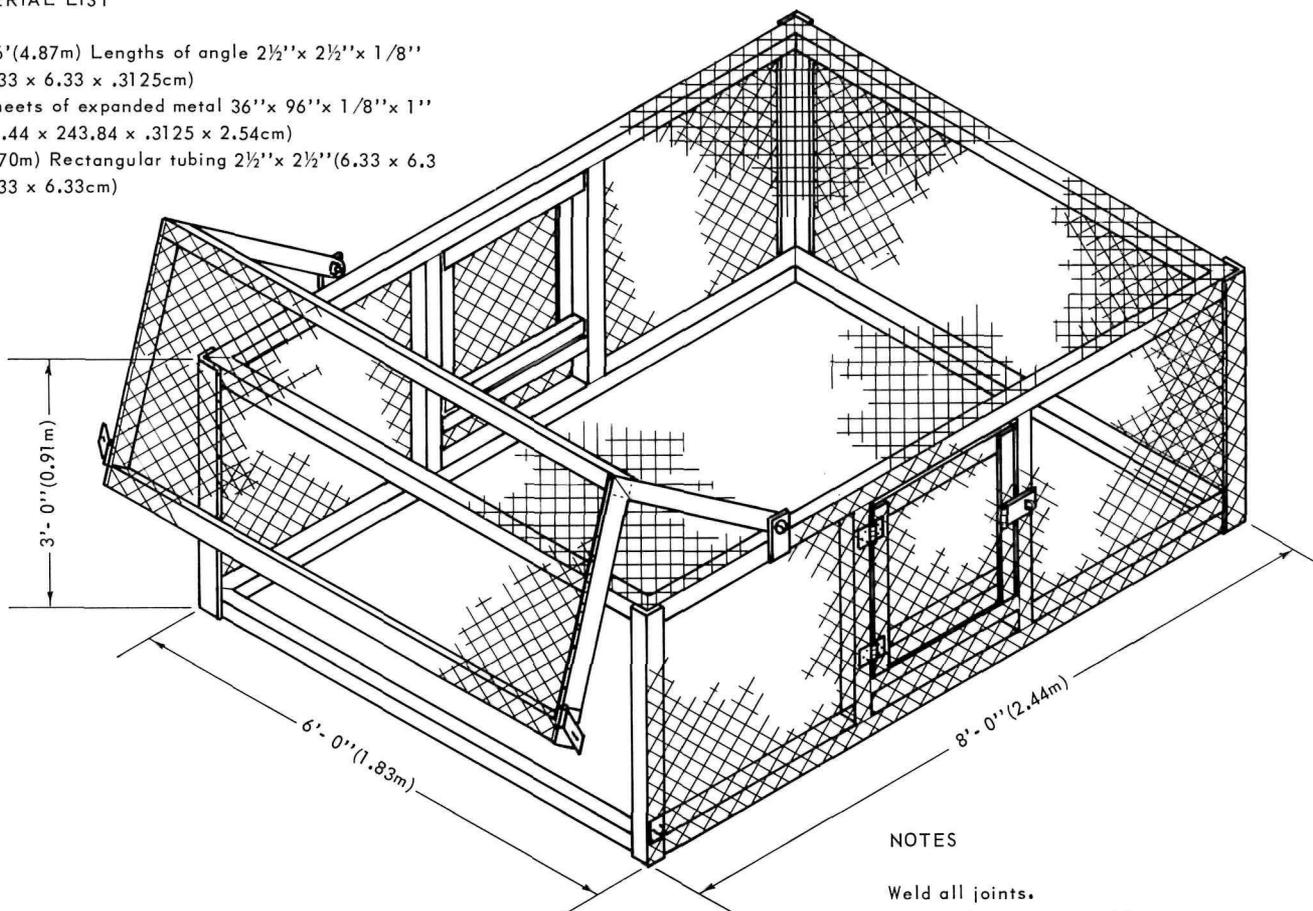
In the Spring of 1979, inspection of the road indicated no loss of line and excellent reflectivity. Elliott reports that he is pleased with the new preformed polymer system because it is durable enough to weather the abuse of winter, is clean and easy to apply, and requires less maintenance than previous pavement marking systems the park has used.

*This article was prepared for GRIST by Joanne R. Aanes, Marketing Communications Supervisor for 3M and Frank B. Elliott, Chief of Maintenance Management, Yosemite National Park (CA).*

# Maintenance

## MATERIAL LIST

- 6 – 16' (4.87m) Lengths of angle 2½" x 2½" x 1/8"  
(6.33 x 6.33 x .3125cm)
- 6 – Sheets of expanded metal 36" x 96" x 1/8" x 1"  
(91.44 x 243.84 x .3125 x 2.54cm)
- 22' (6.70m) Rectangular tubing 2½" x 2½" (6.33 x 6.33  
(6.33 x 6.33cm)



## NOTES

- Weld all joints.
- Make side doors a useable size.

## “Wire” Metal Box For Hauling Trash

Here's a handy box for hauling trash on the back of a pickup vehicle. Constructed from sheets of expanded metal, the box allows the driver to see clearly to the rear of the vehicle. It also is a sturdy container for hauling both garbage cans and larger trash items.

As the bed lifts in front, the tail gate opens and closes by its own weight. Latches on the side lock the gate. Side doors can be equipped with a sliding bolt lock, if desired.

Our thanks to Carpenter Henry Lovejoy, of Death Valley National Monument (CA, NV), for this useful design.

## Help Solve Pet Clean-Up Woes

From a recent issue of *Woodall's Campground Management* comes this tip for coping with the clean-up problems of campers' pets. Apparently, KOA Victoria East, in Victoria (BC), has come up with a good idea.

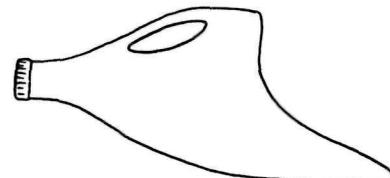
They first cut off the bottom of empty bleach bottles. Then a U-shaped piece is removed from the side, leaving the handle on a scoop. Labeled "Pooper Scooper," the device is handed out to campers with pets when they register. The larger the pet, the more advantage there is to providing the campers with a do-it-yourself clean-up tool.

The bottom of the bottle is labeled "Reserved" on both sides. It is given to the campers with a string hanger

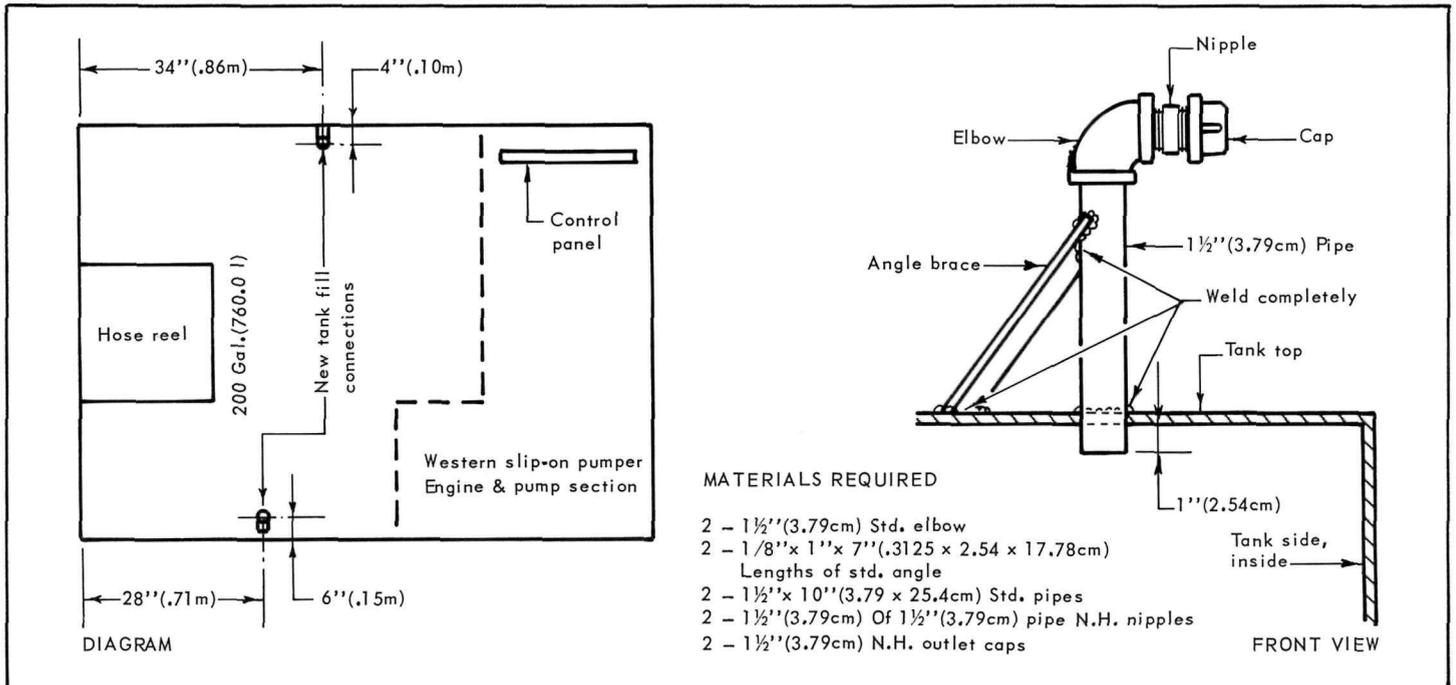
attached so they can hang it on their site marker post when away from their site.

Many campers return the cleaned scoop to the campground office, but perhaps the best feature is its disposability.

The empty bleach bottles usually can be obtained free by contacting various users of bleach in quantity. So the cost of this project is merely time, and very little of that is required. The profit is a more pleasant campground—or almost any kind of park area—for both operators and users!



## Filler Connections Improve Pumper



The 200-gallon (760 l) tank of the Western slip-on pumper unit at Fredericksburg and Spotsylvania County Battlefields Memorial National Military Park (VA) now can be filled more quickly and safely, thanks to the suggestion of Park Technician Thomas J. Smith.

A braced section of 1 1/2" (3.79 cm) steel pipe, elbow, nipple, and cap have been welded to the two filler necks on the tank. The raised filler connections make it possible for one man to fill the tank from a hydrant in less than one minute.

Under the old system, a fire hose or garden hose was draped into the standard tank filler neck. The fire hose would crimp where it was bent into the filler neck; this restricted the flow of water to the tank.

A safety hazard also existed. With too much pressure, the draped fire hose could jump from the filler neck and become a dangerous whip. This problem, too, was resolved with the nipple on Smith's filler connection.

## Cross-Linked Polyethylene Vault Toilet

Vault toilet tanks having a 1,000-gallon (3,800 l) capacity and fabricated from cross-linked polyethylene (Marlex® CL-100) recently have become available commercially and offer parks an acceptable alternative to the concrete and fiberglass tanks currently in use. To help you evaluate this new product, the Department of Agriculture's Forest Service Equipment Development Center, located in San Dimas (CA), has published the following list of polyethylene vault toilet pros and cons.

### Advantages:

1. The monolithic cross-linked polyethylene tanks have no metal inside, which eliminates corrosion problems.
2. These tanks require fewer handling precautions than others and vibration during shipment is harmless.
3. Disinfecting and deodorizing chemicals in common use do not affect cross-linked polyethylene.
4. The sloped bottom—1" (2.54) per foot (30.48 cm)—shallow depth, and smooth interior make cleaning easier.
5. The black color reduces the visual

impact of the wastes.

6. The tanks can be buried without being inserted into an excavation liner of any sort; the outer metal support fits loosely, allowing for any initial tank movement during installation.
7. The plastic tanks are light in weight—450 lbs (202.5 kg).

### Disadvantages:

1. These tanks are produced only in California, which adds to the cost of shipment and delivery time to the East and Midwest.
2. The surfaces of the tanks are not rigid. Therefore, obtaining a watertight seal between the tank and the toilet building concrete floor slab is not easy.
3. Damage to cross-linked polyethylene is difficult to repair (instructions are available from the tank manufacturer).

For more information about these tanks, write to Ontrak Design, Inc., 21600 Osborne Street, Canoga Park, CA 91304 or telephone the company at 213/998-5105.

## New Twist to Nonprofit Concessions

by Loren Thorson

Concession operations in Wisconsin's state parks have an unusual "twist" that might prove interesting to other park and recreation agencies. Wisconsin state parks do not operate their own concession stands. Yet, in some cases concession stands return 100 percent of their profits to the state park where the profits are generated.

To understand how this works, one must be aware of the general public attitude toward Wisconsin state parks. While state parks are for all citizens, local communities and villages near a state park are very much interested in the facilities, programs, and development taking place in "their state park down the road." Development and improvements desired by these local citizens are not always possible in this day and age of budgets that often must absorb inflationary costs.

Through the cooperation of local citizens and local communities, a unique method has been worked out whereby local communities can insure that many desired improvements or new facilities in adjacent state parks can become a reality. Through an agreement with a community or several communities, a nonprofit concession corporation is formed. This concession corporation is awarded the concession rights in a state park with the key point or the "twist" in the agreement being that all profits generated by this concession are state assets and will be used for improvements, new facilities, or support of programs within that particular state park.

How the "profits" will be spent is determined by joint meetings of state park officials and local representatives of the concessions corporation. Once a determination is made on an expenditure, the project or acquisition goes forth—with the concession corporation "picking up the tab."

### Many Advantages

This type of operation has a number of advantages and enhances the public's



Nonprofit concession at Devil's Lake.

WI State Parks

attitude toward state parks. First of all, such an arrangement gives the concession operation a "local flavor," since local management and personnel are involved. Secondly, the profits are used to enhance a local state park facility. Thirdly, the local concession corporation is "given a piece of the action" in that it has a direct voice in how the profits will be spent.

This concept originated with a nonprofit concession corporation known as the Baraboo-Devil's Lake Concession Corporation which operates in Devil's Lake State Park, Wisconsin's largest park with annual attendance of 1½ million. Over the years of its operation, this concession has returned over \$500,000 worth of capital improvements with generated profits.

Recently, a similar but novel approach was implemented in connection with the operation of the Sugar River State Trail—a 26-mile (41.6 km) state trail that has been converted from an abandoned railroad right-of-way. This state trail is now used for biking and hiking in the summertime and snowmobiling in the

winter. The four communities through which this trail passes have formed a nonprofit trail corporation with each community having two members on the eight-member Board of Directors.

Banks in the local communities made a loan for "seed money" to enable the Board of Directors to purchase rental bicycles and other related items to service the many users of the Sugar River Trail. Profits of the corporation are being used first to pay off the loan. After that, all profits will be turned back into improvements along the Sugar River State Trail in a manner that is agreed upon by the Board of Directors of the corporation and the representatives of the state park system.

Wisconsin state park officials indicate such an arrangement may not be possible or practical in all cases because of certain unique concession operations or services. However, it is an approach that is worthy of exploration.

*Loren Thorson is Chief of the Recreation Program Section of the Wisconsin State Parks.*