

**RECREATION  
HANDBOOK**

Form 406

---

**U. S. DEPARTMENT OF AGRICULTURE**

**FOREST SERVICE**

**REGION FOUR**

**1935**



This revised issue of the Region 4 Recreation Handbook supersedes all previous instructions. Copies of the old Recreation section of the Lands Handbook should be destroyed at once. Whenever supplemental pages are issued, they should be inserted herein without delay.

*Diana Parkinson*

A. R. F.

LIBRARY  
SPECIAL EDUCATION  
COLORADO STATE UNIVERSITY

TABLE OF CONTENTS

	<u>Page</u>
I. Recreation Plans	1
II. Regional Plan	1
III. Forest Plan	1
A. Objectives	1
B. Map	2
(Legend)	3-7
C. Text	8
1. Description of numbered or named features on Map	8
2. General Rules for Administering Recreation- al Resources	8
3. Records	8
IV. Unit Plan	9
A. Definitions	9
1. Recreation Unit	9
2. Recreation Tract	9
3. Recreation Lot	9
B. Procedure	9
C. Classification	9
1. General Principles	9
2. Coordination of Recreation Facilities on Public and Private Land	10
3. Roads	10
4. Occupancy Areas	11
5. Wild Areas	11
D. Compilation of Unit Plan	11
Maps	12
Text	12
1. Name of Forest and Unit	12
2. Location	12
3. Status	12
4. Topography	12
5. Cover	12
6. Water	12
7. Accessibility	12
8. Scenic and Recreation Features	12
9. Unfavorable Factors	12
10. Utilization	12
11. Roads and Trails	12
12. Scenic Strips	13
Sample Plan	14
13. Forest Management Policy Outside Scenic Strips	15
14. Range Management Policy Outside Scenic Strips	15
15. Signs	15
16. Other Improvements	15
17. Fire Regulations	15
18. Sanitation	15

	19. Other Policies	-- -- -- -- --	15
	20. Special Rules	-- -- -- -- --	15
	21. Patrol and Public Relations	-- -- -- -- --	15
	22. Charges	-- -- -- -- --	15
	23. Private Land Use	-- -- -- -- --	15
	24. Classification and Tract Plans	-- -- -- -- --	15-16
	Sample Tract Map	-- -- -- -- --	17
V.	Development of Occupancy Areas	-- -- -- -- --	18
	A. Public Campgrounds	-- -- -- -- --	18
	1. Name	-- -- -- -- --	18
	2. Location	-- -- -- -- --	18
	(Growth of Camps)	-- -- -- -- --	18
	3. Posting and Survey for Protection	-- -- -- -- --	18-19
	4. Roads and Trails	-- -- -- -- --	20
	5. Camp Spots	-- -- -- -- --	21
	6. Parking Places	-- -- -- -- --	21
	7. Clearing and Shade	-- -- -- -- --	21
	8. Stoves, Tables and Bonfire Places	-- -- -- -- --	21
	9. Disposal of Garbage and Trash	-- -- -- -- --	22
	10. Toilets	-- -- -- -- --	22
	Toilet Requirement Table	-- -- -- -- --	23
	a. Flush	-- -- -- -- --	23
	b. Chemical	-- -- -- -- --	24
	c. Pit	-- -- -- -- --	25
	d. Portable	-- -- -- -- --	25
	e. Maintenance	-- -- -- -- --	25
	11. Shower Baths and Laundry	-- -- -- -- --	26
	12. Cesspools and Sumps	-- -- -- -- --	26
	13. Septic Tanks	-- -- -- -- --	27
	14. Water Systems	-- -- -- -- --	27
	15. Public Areas	-- -- -- -- --	28
	16. Picnic Areas	-- -- -- -- --	29
	17. Playgrounds and Sports	-- -- -- -- --	29
	18. Public Service Enterprises	-- -- -- -- --	29
	19. Pest and Nuisance Control	-- -- -- -- --	29
	20. Wild Life and Game Planting	-- -- -- -- --	30
	21. Recreational Trails	-- -- -- -- --	30
	22. Amphitheatres	-- -- -- -- --	30
	23. Fences	-- -- -- -- --	31
	24. Restrictions	-- -- -- -- --	31
	25. Plunges and Pools	-- -- -- -- --	31
	26. Barriers	-- -- -- -- --	31
	27. House Trailers	-- -- -- -- --	32
	28. Miscellaneous Bridges, Shelters, Registration Booths, Rock Work, Signs, Boat Landings, Etc.	-- -- -- -- --	32-34
	B. Resorts and Organization Sites	-- -- -- -- --	34
	Tickler List	-- -- -- -- --	34-36
	Sample Plan	-- -- -- -- --	37
	C. Summer Homes	-- -- -- -- --	38
	1. Location	-- -- -- -- --	38
	2. Laying Out Summer Home Lots	-- -- -- -- --	38

	<u>Page</u>
a. Public Areas	38
b. Roads	38
c. Water	39
d. Area of Lots	39
e. Arrangement of Lots	39
D. Winter Recreation	39-40
E. Standards of Design	41
1. Buildings	41
a. Building Design	41
b. Setting	41
c. Colors, Paints, Varnishes, Stains	41-42
Covering Capacity	43
Color Specification Chart	44-53
Color Samples	53a
2. Landscape Design and Planting	54
Planting and Species	54
Moving Larger Trees	54
Plans for Planting	54
List of Plants for Mass and Screenage Planting	55
List of Plants for Foundation Plant- ing	55
List of Plants for Clump and Specimen Planting	55
F. Tickler List of Recreation Facilities	56-60
VI. Functions of Recreation Patrol	60
A. Short-Term Men	60-62
B. Ranger or Other Yearlong Force	63
VII. Appendix	64
A. Exhibits	64
1. Layout of Summer Home Sites	64
2. Method of Marking Tract and Lot Corners	64
3. Pipe sizes and Amount of Water Discharge	64
4. Trash Incinerator	64
B. Roadside Scenic Strips Letter L-Uses 4/23/31	65-66
C. Standards of Design - by F. A. Waugh	67-68
D. Uses of Germite	69-70
E. Camp Rules	71
F. Plans for Recreation Improvements	(Listed
in chronological order in back of handbook. Detailed	
plans and specifications on file in the Regional Office.)	

## I. RECREATION PLANS

Plans will be made for the Region as a whole, for each Forest, for each recreational unit, and individual tract.

It is difficult to correct mistakes once a plan is put into effect, especially after permits have been issued or improvements constructed. The entire situation must, therefore, be studied before the plan is started. There must be congruity of use. The scenic effects must be studied. The effect of certain uses upon the scenic and other attractions, not only at the present time but in the near future, must be considered. The character of the buildings to be constructed, how any particular use or uses will affect the entire situation, and whether the landscape architect and the general public will look with favor upon the completed plan, must be considered.

## II. REGIONAL PLAN

See Page 101-L of Manual.

## III. FOREST PLAN

The Forest Plan is to be made in duplicate by the Forest Supervisor and sent to the Regional Forester for approval, after which one copy will be returned. Approval by the Regional Forester denotes the adoption of a recreational plan for the Forest. It means that the classification is set except for minor details that do not affect the intent and purpose of the plan. Corrections can then be made only by a special memorandum in detail (submitted in duplicate so approved copy can be returned) approved by the Regional Forester. This should be posted on Atlas-size sheet at beginning of the Forest Plan.

### A. Objectives.

When preparing the Forest Plan the following Objectives should be frequently referred to and kept constantly in mind.

1. To realize the maximum social and economic potentialities of recreational resources which are becoming an increasingly important agency of cultural progress and a basis of economic and commercial community life. The natural character of the Forest must be preserved to the limit of practicability.

2. To provide to the:

a. General Public, the maximum reasonable degree of unimpaired natural beauty and interest along all main routes of travel; freedom of use of the National Forest areas best adapted to its needs; maximum beauty and natural interest of campground environment; adequate facilities for protection of public health and property; personnel to direct recreation into its more cultural aspects.

b. Special Use Permittees and Guests, maximum natural beauty and interest of environment; protection from incongruous or incompatible forms of development or use; reasonable spaciousness of sites;

freedom from conflicting occupancy by general public; and high standards of architectural design, water supply, sanitation, garbage disposal, conduct, neatness, etc.

c. Business Utilities, sites permitting maximum service and business success to fullest extent justified by actual requirements of public convenience or necessity but without conflict with proper use and enjoyment of National Forest by general public or special use permittees; reasonable opportunity to apprise potential patrons of the services available, i. e., advertising signs, but not to undue detriment of natural beauty.

3. To Safeguard the National Forests Against:

- a. Fire and other Hazards to Public Property and Health.
- b. Undue Limitations of other Major Purposes and Services, viz:

Utilization of Timber Resources  
" " Forage "  
" " Water "  
" " Mineral "  
" " Land "

- c. Undue Limitations of Protective and Administrative Requirements:
  - Administrative Road Construction
  - Firebreak Construction
  - Lookout Towers - Telephone Lines - Patrol Stations

The Forest Plan will consist of the following:

B. Map.

(Folded to Atlas-size, bound on 21" and left-hand edge) Preferably one-quarter inch base map; larger scale may be used if needed. This map should be an index of recreational assets, using following legend:

AMENDMENT TO LEGEND FOR RECREATIONAL TRACT MAPS

All types of recreational plans will be drawn up in pencil on heavy cream drawing paper, suitable for field use, and traced on cloth, as has previously been the practice on a number of forests in the Region. The ink tracing will then be forwarded to the Regional Office for approval. Five black-white prints will be made and sent to the forest as in the past.

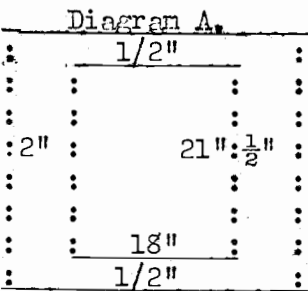
All drawings of minor architectural features will be on atlas sized sheets, 18" x 21". On other recreational plans the same will be followed except where the area to be mapped is too large for one atlas sized sheet, in which case it can be placed on a sheet that can be folded not more than three times to go in an atlas binder. In all cases, the binding edge will be on the left-hand 21" vertical edge. (See diagrams A. and B. below.)

Included in this are the following types of work:

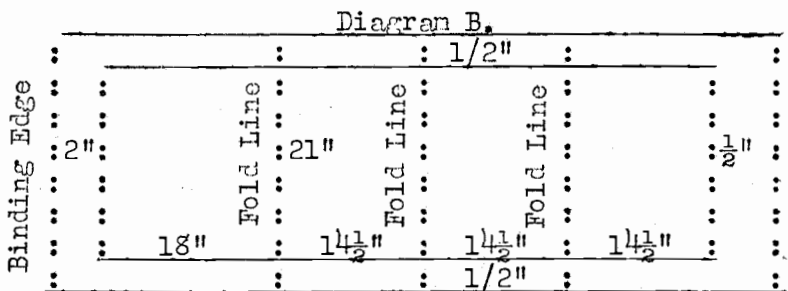
1. Recreational plans for campgrounds and picnic grounds having 5 or more stoves.
2. Plot or ground plans for summer home sites, lodge and resort sites, water systems, organization sites for Scouts, lodges, clubs, etc.
3. Minor Architectural features, including:
  - a. Foot Bridges, preferably of peeled log or rock construction. (Design data for abutments, beams, and other under-structures to conform to standard plan R-4 121 A-1.)
  - b. Superstructure for Minor Road Bridges under 30 ft. span, where standard truss construction is not required.
  - c. Entrance Portals on forest boundaries.
  - d. Signs - recreation tract, campground, directional, overlook, entrance and informational.
  - e. Wading Pools. (Structural data but not plan design to conform to standard plan R-4 111.)
  - f. Minor Shelters - campground, overlook, and trailside.
  - g. Picnic Ground Equipment - fireplaces, barbecue pits, fountains.
  - h. Trail and Roadside Fountains and Spring Developments in natural settings.
  - i. Summer Home Cabins, single and double, of rock, log, timber construction.
4. Landscape and planting Plans of Supervisors' Headquarters, Ranger Stations, Guard Stations, roadside improvement projects, and other planting details.

In order to encourage originality and individuality in design, suggestions are invited on the preparation of the above minor architectural features, provided any plans containing divergence from the designs in the Recreation or Building Handbooks are first approved by the Regional Office.

This policy will emphasize the importance of securing the necessary topographical data in the summer and fall and designing as many of the recreational plans, minor architectural features, etc., as possible in the winter months.



Single atlas size sheet.  
(L-Rec. Hdbk. R-4, 10-29-35)



(63-1/2" maximum length of multiple fold sheets)











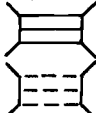
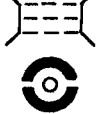



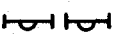
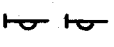
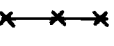

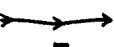





*Dana A. R. F.*  
A.R.F.



LEGEND FOR RECREATIONAL FOREST, UNIT, AND TRACT MAPS

(Show on all maps date of field work, drafting, revision and by whom)

Symbol	Description	Applies to		
		Forest	Unit	Tract
	Area of special significance, i.e., Primitive Area, Game Preserve, etc., number or name on map, description in text	*	*	
	Private Land	*	*	
	Private Land, acquisition for recreation desirable	*	*	
	Unit Boundary	*	*	*
	Unit Reserved for Future Planning	*		
	Tract. Indicate purpose, i.e., playground, public camp. Show course and distance on boundaries if surveyed. Designate tract by capital letters	*	*	*
	Tract reserved for Future Planning	*	*	
	Lot. Give lot number. Show course and distance on boundaries			*
	Airplane Landing Field	*	*	*
	Airplane Landing Field, Proposed	*	*	*
	Amphitheatre			*
	Amphitheatre, Proposed			*
B	Boats Available	*	*	*
	Boat Landing			*
	Boat Landing, Proposed			*
	Boundary of usable area			*
	Bridge			*
	Bridge, Proposed			*

Symbol	Description	: Applies to :			
		: Forest :	Unit :	Tract :	: Plan :
	Bulletin Board	:	:	:	* :
	Bulletin Board, Proposed	:	:	:	* :
$\frac{1}{8}$ " 	Camp, Improved - less than 10 tables orange	:	*	:	:
$\frac{1}{8}$ " 	Camp, Proposed - less than 10 tables orange	:	*	:	:
$\frac{3}{16}$ " 	Camp, Improved - 10 to 20 tables, orange	:	*	:	:
$\frac{3}{16}$ " 	Camp, Proposed - 10 to 20 tables, orange	:	*	:	:
$\frac{1}{4}$ " 	Camp, Improved - over 20 tables, orange	:	*	:	:
$\frac{1}{4}$ " 	Camp, Proposed - over 20 tables, orange	:	*	:	:
	Camp, Stove or Grate	:	:	:	* :
	Camp Stove or Grate, Proposed	:	:	:	* :
	Cattle Guard	:	:	:	* :
	Cattle Guard, Proposed	:	:	:	* :
	Community Bonfire	:	:	:	* :
	Community Bonfire, Proposed	:	:	:	* :
	Drainage Field or Filter Trench	:	:	:	* :
	Drain Tile	:	:	:	* :
	Drain Tile, Proposed	:	:	:	* :
	Fence	:	:	:	* :
	Fence, Proposed	:	:	:	* :
	Flume	:	:	:	* :
	Forest Service Station	:	*	*	* :
	Forest Service Station, Proposed	:	*	*	* :
	Fountain	:	:	:	* :
	Fountain, Proposed	:	:	:	* :
	Garbage Can	:	:	:	* :

Symbol	Description	Applies to		
		Forest	Unit	Tract
○	Garbage Can, Proposed	:	:	*
Ⓟ	Garbage Pit	:	:	*
(P)	Garbage Pit, Proposed	:	:	*
●—●	Gate	:	:	*
○—○	Gate, Proposed	:	:	*
Gd	Guides Available	*	*	*
▣ ▣	Horseshoe Court	:	:	*
▣ ▣	Horseshoe Court, Proposed	:	:	*
Ⓜ	Hydrant	:	:	*
(H)	Hydrant, Proposed	:	:	*
⦿	Incinerator	:	:	*
⊙	Incinerator, Proposed	:	:	*
2-C	Latrine, Show type and number of units	:	:	*
2-C	Latrine, Proposed 2-C is 2 unit chemical	:	:	*
2-C	4-F is 4 unit flush	:	:	*
L	Lodging Available	*	*	*
M	Meals Available	*	*	*
■	Organization Special Use (green)	*	:	:
□	Organization Special Use, Proposed (green)	*	:	:
— — —	Pipe Line	:	:	*
— — —	Pipe Line, Proposed	:	:	*
PO	Post Office	*	*	*
▣▣	Register Booth	:	:	*
▣▣	Register Booth, Proposed	:	:	*
2+3	Resorts, 2 existing, 3 proposed (red)	*	:	:
====	Roads, Main	*	*	*

Symbol	Description	Applies to		
		Forest Plan	Unit Plan	Tract Plan
====	Road, Main, Proposed	*	*	*
=====	Road, Secondary	*	*	*
===== <u>==</u>	Road, Secondary, Proposed	*	*	*
SH	Saddle Horses Available	*	*	*
	Sand Box			*
	Sand Box, Proposed			*
	See Saw			*
	See Saw, Proposed			*
	Septic Tank			*
	Septic Tank, Proposed			*
G	Service Station	*	*	*
	Settling Basin			*
	Settling Basin, Proposed			*
	Sewer Pipe			*
	Sewer Pipe, Proposed			*
•	Sign			*
o	Sign, Proposed			*
	Spring Development			*
	Spring Development, Proposed			*
S	Store	*	*	*
	Summer Homes, 1 existing, 2 proposed (blue)	*		
	Swing			*
	Swing, Proposed			*

Symbol	Description	Applies to			
		Forest	Unit	Tract	
		Plan	Plan	Plan	
	Tables	:	:	:	* :
	Tables, Proposed	:	:	:	* :
	Tank	:	:	:	* :
	Tank, Proposed	:	:	:	* :
TLP	Telephone Instrument	:	:	:	* :
	Telephone Line	:	:	:	* :
	Telephone Line, Proposed	:	:	:	* :
	Tent Site	:	:	:	* :
	Trail	:	*	:	* :
	Trail, Proposed	:	*	:	* :
	Wading Pool	:	:	:	* :
	Wading Pool, Proposed	:	:	:	* :
	Well	:	:	:	* :
	Well, Proposed	:	:	:	* :
	Wood Pile	:	:	:	* :

(Map Title)

Wasatch National Forest  
 Mirror Lake Unit  
 Tract A  
 Soapstone Camp  
 Scale 1 inch = 100 feet

Approved \_\_\_\_\_

Approved \_\_\_\_\_

Regional Forester

Forest Supervisor

Field work by \_\_\_\_\_

Date \_\_\_\_\_



C. Text.

(Atlas-size, bound on 21" and left-hand edge) See pages L-101 and L-102 of the Manual.

1. Describe briefly in numerical order the features of special significance on the map. Photographs are better than text matter for describing such features. These should illustrate general features and leave special unit features for the Unit Plan.

2. General Rules for administering the recreational resources and for correlating with recreational work of other agencies which are not specific enough in the Handbook or Manual.

3. Records - The annual recreation record of Forest visitors is given in Statistical Report, Form 446.

The recreation improvements are all listed in the "Investment and Depreciation Record," Form 21-J, of the Accounting Record.

Reference should be made to these two records.

The Tract Plan shows on the map, existing and proposed improvements.

The above, together with the summaries of Recreation Improvements, Existing and Proposed, which are submitted to the Regional Forester as needed, will suffice.

#### IV. UNIT PLAN

##### A. Definitions.

In recreational planning, the following area or territorial designations shall be adhered to:

1. Recreation Unit - This should comprise all parts of a Forest or group of areas on contiguous Forests whose use or classification for use is interrelated to a degree which requires unity or uniformity of policy, planning and management. (Such as Warm River-Yellowstone on the Targhee Forest or Logan Canyon on the Cache Forest.) A unit may embrace a square mile or several townships of land which may be contiguous or segregated. Each unit will be designated by a name.

2. Recreation Tract - A recreation tract is a compact division of a recreation unit defined by natural features or for convenience in planning. It may contain lots devoted to various uses, i. e., one lot for a public campground, another for a resort, and one for a store, etc. A lot devoted to public camping should not be close to summer home lots. Each tract will be designated by a capital letter, as A, B, C, using only one series for each Unit. A tract may be further designated by naming its location, i. e., Mt. Park, Tract B, of Cottonwood Canyon Unit.

3. Lot - A lot is a subdivision of a tract defined by a survey as an area subject to a specific form of use or occupancy. This may be a public campground, a summer home lot, or a resort lot under Special Use Permit. Lots will be designated by number, using only one series for a tract. The form of use should be designated on the map for each lot or group of lots.

##### B. Procedure.

The Unit Plan is to be made by the Forest Supervisor and submitted to the Regional Forester in duplicate for approval. One copy will be returned. Approval by the Regional Forester denotes the adoption of a recreational plan for the unit. It means that the classification is set except for minor details that do not affect the intent and purpose of the plan. Corrections can then be made only by a special memorandum in detail (submitted in duplicate so one copy may be returned), approved by the Regional Forester. This should be posted on Atlas-size sheet at beginning of the Unit Plan.

##### C. Classification.

(See pages 98 and 99-L of Manual.)

1. General Principles - The Unit Plan may not necessarily be completely finished at one examination or by one report. The lands on one side of a river may be worked out first if the use of the other side is questionable for a considerable time; or the unit may be examined in sections, part at a time, beginning with the most important. It usually works out best to do the entire job on one examination, since recreation

values are generally strung along the entire length of the unit, and also because it is much more simple for an examiner to finish what he has started rather than to take chances on another examiner to come in later and pick up loose threads.

The land must not be too fully loaded. Virgin conditions must, of course, be altered on any recreation area. Even a road or trail does this; but the tracts should be laid out in such a way that the traveler on roads and recreation trails, fishermen along streams, boatmen on lakes and rivers, be confronted as nearly as possible by a display of Nature unspoiled. This is the most vital factor in the classification of any recreational area. (See L-Uses, Roadside Strips letter of 4-23-31, Page 65 of appendix.)

The Unit recreation plan is mainly a classification except on small units when it becomes a detailed plan. Ordinarily more detailed information will be reserved for the Tract Plan. The examiner first makes a preliminary trip over the main road or through the important parts of the unit, to arrange his schedule of detailed work; to select the key locations; to locate the necessary sawmill, logging and other necessary administrative or non-recreational reservations; to designate scenic strips along roadside, small wild areas, points of historical, geological, scenic, or other interest which should be reserved from occupancy or given special protection. He must know about lake and stream action in maximum flood conditions, snow-slide and rockslide possibilities; he must know which streams and springs dry up too early in the summer to be of use; he must know how the various cover types respond to human occupancy.

2. Coordinate Recreation Facilities with those on private or Other Publicly Owned Lands. Recreation facilities on lands owned and managed by private parties, by the state or public organizations, other than the Government, must be considered and fitted to the plan. There should be no duplication nor useless competition. Any agency that relieves the Government of furnishing ground for recreation activities, and handles its patrons or users properly, is in reality a cooperator. If conflicts are problematical, the classification should be made as if there were no private land use involved.

3. Roads - Roads passing through important recreational units should be located to do a minimum of injury to the use of the area for recreation. Curves are desirable, but care must be taken to have good visibility. Camp roads should connect, if practicable, with main roads at right angles by "T" or "Y" method. When clearing rights-of-way for roads, drag the down timber and debris out of sight before burning, or burn it on the road-bed. Avoid unnecessary scarring of the landscape by either roads or trails with unsightly cuts, fills or borrow pits that could be screened by timber. Borders of native shrubbery are valuable between the roadway and the edge of the timber. Vistas should be opened through the timber to make the view more attractive from the road. Roads and trails should be out of sight from people on lakes.

If a large stream valley is involved with recreation land on both sides, the examiner must provide a good wide right-of-way on both sides so that future road development will not be handicapped.

4. Occupancy Areas and Their Priorities - While exceptions requiring special administrative decisions are inevitable, the order of preference or priority of various forms of use should generally be as follows:

a. Public campgrounds, motor camps, playgrounds, or picnic grounds.

b. Health camps, summer camps, playgrounds, or picnic grounds maintained by states, counties, or municipalities.

c. Health camps, playgrounds, or picnic grounds maintained by semi-public organizations.

d. Health camps, summer camps, playgrounds, or picnic grounds maintained by charitable, fraternal, denominational, or other like organizations.

e. Summer schools conducted by public agencies.

f. Hotels, camps, and resorts operated on a commercial basis for the accommodation of the general public.

g. Public utilities, such as stores, garages, filling stations, boat houses, liveries, etc., for which there is an actual public demand and need.

h. Club houses, camps, resorts, and campgrounds maintained by private organizations for the exclusive use of their membership and not available to the general public.

i. Summer homes for the exclusive use of permittees and their families.

Public campgrounds and picnic areas have precedence over other classes of recreational use. The use of public campgrounds is growing tremendously and ample area for future expansion should be provided before designating areas for other types of use. It is important that public campgrounds be one-fourth mile or more from summer homes, private resorts, etc.

5. Wild Areas - Most of the Forest visitors will not have the means or be in a position to visit the large primitive areas of a quarter of a million acres or more. Small wild areas of from 50 to 1,000 acres, within a quarter of a mile or so from the road, would be enjoyed by a great many, if accessible to campgrounds and other occupancy areas and should be reserved by keeping free from roads and other improvements, except low-standard trails.

Be sure to have plenty of unoccupied area in a wild condition, so that the occupied areas will have a natural setting.

#### D. Compilation of the Unit Plan.

The plan will consist of maps, photographs, and text matter, bound in an atlas-size folder on the 21" and left-hand edge.

Maps: (Title maps as shown in Legend on page 7 .) For small units and for all tracts the maps should be on a scale of either 100 or 200 feet equal 1 inch. Contours will be shown where needed, using as small an interval as conditions warrant. The more detailed maps may need a 10 foot interval or less. For large units use a scale of 400 feet equal 1 inch or a Key map on scale of 2 inches equal 1 mile. Each tract should then be enlarged on a separate map on a scale of 100 or 200 feet equal 1 inch.

Scenic Strip maps should be on a scale specified under paragraph 12 of text.

Text: Discuss the Unit briefly, according to the following outline:

1. Name of Forest and Unit.
2. Location. Brief, such as name of canyon and distance from town.
3. Status. Withdrawals, claims. Is it mineral territory?
4. Topography. Level, steep, etc. Surface smooth or rocky. If topography affects use, explain.
5. Cover. Kind and size of timber and other growth.
6. Water. Source, purity and amount, period available, also discuss any water development that may be necessary. Note if water has been filed on and by whom.
7. Accessibility. Kind of road, i. e., state highway, oiled, etc. Distances from such accommodations as stores, garages, telephone, post offices, towns, railroads and the like. Season used by campers; summer home dwellers; picnickers; hunters; fishermen, etc. Settlements drawn from and population dependent.
8. Scenic and Recreation Features. Fishing, hunting, hiking, boating, scenery, nature study, etc.
9. Unfavorable Factors, i. e., insects, muddy roads, dust, remoteness, high prices.
10. Utilization. Discuss present and prospective recreation use and demand. (Do not repeat data under 24, Classification (a).)
11. Roads and Trails. Roads and trails necessary to render the unit accessible should be discussed.



12. Scenic Strips. (See L-Uses Roadside Strips letter 4-23-31 in appendix.) List roads (giving termini) along which scenic strips will be protected and improved by landscaping and roadside strip cleanup. For each of these a Scenic Strip plan will be prepared.

For roads surveyed during and since 1929, the Bureau of Public Roads has a project plan (traverse and profile) on a scale of 1/2 inch equals 100 feet. For roads surveyed prior to 1929, the scale is 1 inch equals 100 feet. These may be secured through Engineering. The 1/2 inch equals 100 feet scale is preferable when available. If an independent survey is made for Scenic Strip plan, use a scale of 400 feet equals 1 inch.

a. If a Bureau of Public Roads project plan or similar map, ( $\frac{1}{2}$ " or more equals 100') is available, it will be converted into Scenic Strip plans by platting thereon the boundaries of the strip and within the strip, showing types; present and proposed improvements; other uses existing or allowable; action needed to enhance the beauty of the strip. Attached to this will be a sheet with brief statements, as follows:

(1) Policy: Within the designated scenic strip unless otherwise indicated on the attached maps, there will be no telephone lines, fences, signs, buildings or other improvements; no grazing, no cutting of green timber other than defective trees menacing the beauty of the strip. Action needed to enhance the beauty of the strip is also indicated on the maps.

(2) Method of Enforcing Above Policy: - i. e., removal of objectionable private developments by acquisition.

(3) Elaborate if necessary on existing improvements and occupancy and state ultimate aim regarding them.

b. If there is no Bureau of Public Roads project plan (consisting of traverse and profile) or other suitable survey, the Scenic Strip plan will be in accordance with the following sample, using a separate Atlas-size sheet for each plan.

SCENIC STRIP PLAN

A. Name of road or trail \_\_\_\_\_

B. Policy: Unless indicated under Column 5, there will be no telephone lines, fences, signs, buildings, or other improvements; no grazing; no cutting of green timber (other than defective trees menacing the beauty of the strip) within the width of strip designated below. Action needed to enhance the beauty of the strip will also be stated in Column 5.

1	2	3	4	5
Miles or Station	Description	Width of Scenic Strip from Center line. (feet)	Reason for variation in width of strip.	Use allowable & action needed to beautify strip.
0	Leave town	On right	On left	
20.00	Enter N.F. on Moore's Creek	200	200	
27.00		200	300	Ravine on left 300 feet across.
27.50		200	200	
35.00		600	200	Open ponderosa on right.
40.00		50	25	Box Canyon - can't see out.
41.00		200	200	
52.00				F. S. Standard direction sign reading " _____ " 40' to right of center line
60.00				Approach sign " _____ " 45' to left of center line
68.00				Scarify borrow pit on left.
69.00				Dense lodgepole stand to be thinned on right.

C. Method of Enforcing Above Policy, such as by acquisition, exchange, cooperative agreement, patrol, clauses in Special Use Permits.

D. Elaborate if necessary on: Existing improvements and occupancy of scenic strips (show in Column 5) and state ultimate aim regarding them, i. e., shall they remain or be moved as opportunity occurs.

13. Forest Management Policy Outside Scenic Strips.

Reservation of fuel for recreation uses.

Restrictions on timber cutting, etc.

14. Range Management Policy Outside Scenic Strips.

Reservation of forage for campers.

Grazing limitations pertaining to specific areas, season of use, etc. Can area be used in Fall.

15. Signs. Special use permits should require that all signs used on the tract or its approaches be approved by the Forest Supervisor. All permitted signs should be appropriate and as high standard as used on Forest Service developments.

16. Other Improvements. Only such, if any, as are not included under tract descriptions in Topic 24.

17. Fire Regulations. Discuss briefly fire hazard and methods of protection. Abbreviate by referring to fire plan.

18. Sanitation. Disposal of garbage, sewage, safety measures.

19. Other Policies. Such as type of buildings, public strip along shores which are not covered specifically enough in Recreation Handbook.

20. Special Rules. For posting; for special clauses needed in permits.

21. Patrol and PR. Existing and needed. Duties of patrolmen. Other public contacts needed.

22. Charges. Schedule of rates for summer home lots, etc.

23. Private Land Uses. List and describe briefly, resorts, stores, service stations and recreation resources, etc., on patented land. Kind of accommodations and services.

24. Classification and Tract Plans. (See "C. Classification" of this Handbook.) List each tract separately and plan it as a subdivision of the Unit Plan, as follows:

a. Brief description of distinctive features.

b. Classes of use, existing and planned, such as campground, store, summer homes, etc.

c. Other data not in sufficient detail elsewhere in the Unit Plan, such as individual lot rates, special signs, rules, etc.

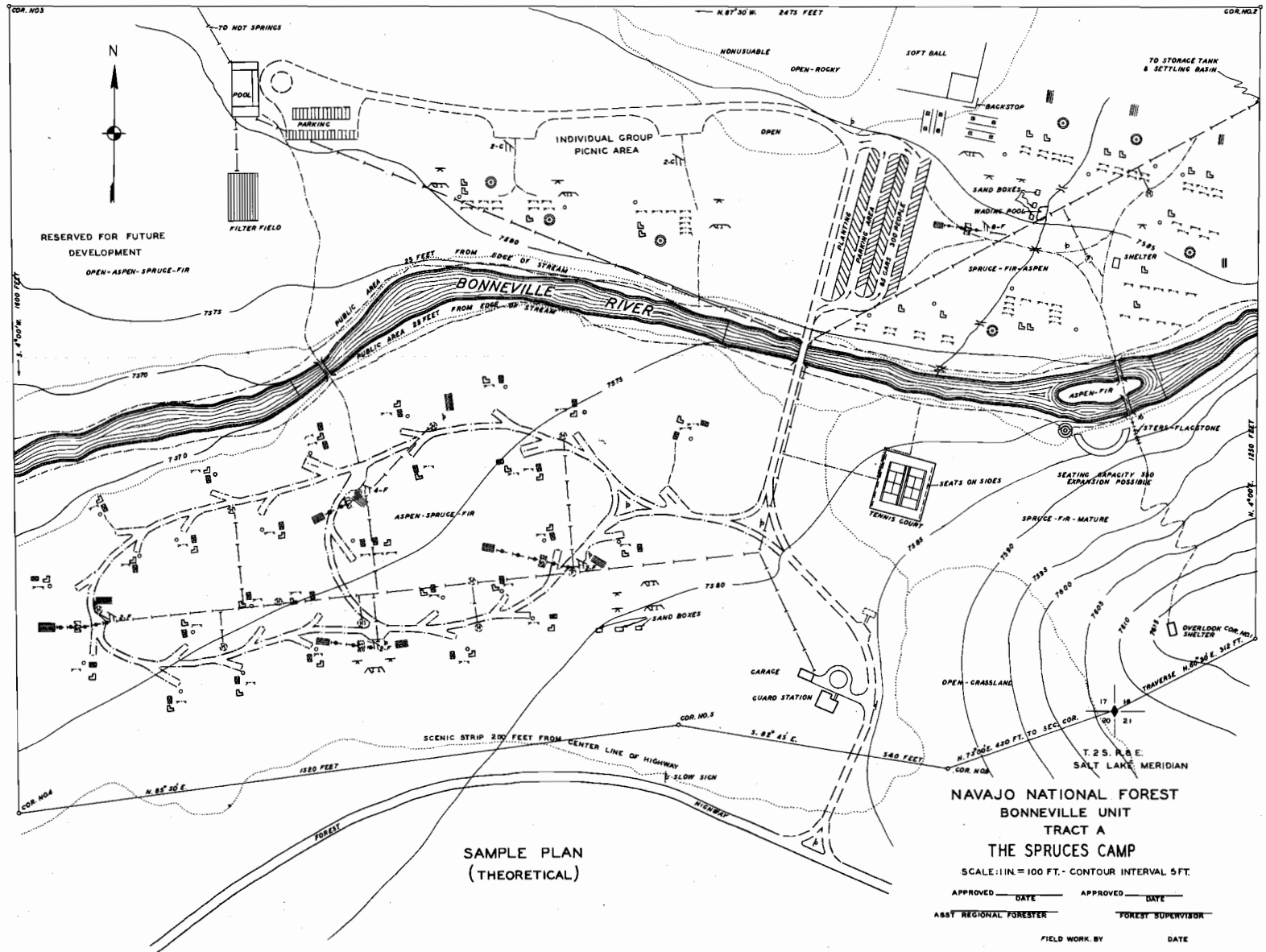
d. Is or should the tract be withdrawn as a public service site?

e. Map. A map, scale 1 inch equals 100 feet, (1" equals 200 feet may be used if tract is too large to get on map 18" x 18") showing location of all the improvements proposed for the public campground and the arrangement of lots, roads, public areas, water supply, etc., for special use areas. (See Legend.)

The map should show accurately all topographic features as streams, lakes, cliffs. Contours are not required but the usable area should be outlined. The cover type should be sketched roughly and names written in as ponderosa pine, Douglas fir, aspen, sage. Recreation maps are most satisfactorily made by two men with compass and chain and planetable. The map should also show a tie to G. L. O. corner or prominent landmark such as forks of stream or a Forest Service monument.

A tract plan must be made and approved by the Supervisor for all public campgrounds and for all other types of occupancy listed above in C - 4, Occupancy Areas, before improvements are constructed or Special Use Permits are issued.

Each District Ranger should have a copy of all approved Tract Maps for his district.



SAMPLE PLAN  
(THEORETICAL)

NAVAJO NATIONAL FOREST  
BONNEVILLE UNIT  
TRACT A  
THE SPRUCES CAMP

SCALE: 1 IN. = 100 FT. - CONTOUR INTERVAL 5 FT.

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_ APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

ASST. REGIONAL FORESTER \_\_\_\_\_ FOREST SUPERVISOR \_\_\_\_\_

FIELD WORK BY \_\_\_\_\_ DATE \_\_\_\_\_



## V. DEVELOPMENT OF OCCUPANCY AREAS

### A. Public Campgrounds.

These have precedence over other classes of recreational use. (See Par. 4 under C-Classification, page 11 .)

1. Name. Give each campground an appropriate name. Avoid duplication of names.

2. Location. Should be on fairly level ground, slopes of over 10 percent undesirable, but can be terraced if no other area available; should be accessible; should afford sufficient enjoyment of natural features, but scenic outlook is not so important as comfort and convenience of campground. Boating and swimming facilities are very desirable. Consider also access to hot springs, scenery, fishing, and areas where big game can be seen. Where feasible, provide ample area for playgrounds. On large campgrounds, consider need for patrolman quarters, store, etc. If practicable, keep the campground between the road and shore line, and keep buildings and campground improvements, as well as the areas actually occupied by campers, tents and automobiles, out of full view of main roads, of large streams and of lakes.

Public camps should be remote (at least one-fourth mile) from summer homes and private lodges. A public Forest camp, however, is usually not objectionable in the neighborhood of a resort or commercial site, or both; in fact, it is often a decided advantage since they tend to maintain a proper balance. There are many ways in which each may help the other. The patronage is of mutual benefit. The public camp may profit from store facilities, water or lighting developments, or even supervision by the resort or commercial permittees. The mistake should not be made of setting the Forest camp immediately adjacent to the resort. There should be some natural barrier, perhaps a timbered strip or a water-course between.

Guard against the following: Areas of high wind; snowslide areas; streams or springs that dry up; ground that becomes swampy or boggy; high water; rockslides; old stream beds; streams cutting banks; claims; withdrawals for power, reclamation, mineral, etc., that might interfere with permanent improvements. Mosquitoes and other pests must be reckoned with but need not necessarily bar the site.

Growth of camps should be provided for and other uses, such as sites for hotels, etc., should be kept far enough away to allow for expansion of the campground proper.

3. Posting and Survey for Protection. Under date of October 1, 1932, the Solicitor wrote the Forester as follows:

"Receipt is acknowledged of Mr. Kneipp's letter (L-Claims, Mineral, Campgrounds) of September 20, asking to be advised whether the mining laws are applicable to public camping grounds within the National Forests upon which you have constructed with money specifically appropriated therefor by Congress, fireplaces, tables, and toilet facilities which have made these sites attractive

to the public and have caused them to be visited by large numbers during the summer months.

"The presence of campers and the unrestricted building of camp fires on the National Forests are grave fire hazards. The assembling of campers at designated camp sites where the building of fires can be more easily supervised is an important measure for the prevention of destructive forest fires. Consequently land devoted to that purpose is used for administrative purposes as much as are lands upon which lookout stations, telephone lines and the like are located. With knowledge of what the Forest Service has been doing in this respect, Congress has continued from year to year to appropriate for 'Sanitation and Fire Prevention' thereby impliedly approving such use of land. Realty Co. v. Montgomery, 284 U. S. 547.

"In view of the appropriation for sanitation and fire prevention and the decision of the Supreme Court of the United States in Midwest Oil Co., 236 U. S. 459, there is no doubt of the authority to make a withdrawal of lands for public camp purposes. The putting of the land to actual use is a withdrawal under the decision of the Supreme Court of the United States in Wilcox v. Jackson, 13 Pet. 498. The land is therefore not subject to the operation of the mining laws. Helen G. Rankin, 47 L. D. 329; Op. 35 L. D. 262; James C. Reed, 50 L. D. 687; Decision of the U. S. District Court for Arizona under date of Nov. 24, 1929, in U. S. v. Charles Stewart, Equity No. 75.

"If an attempt is made to locate a mining claim upon any such area, the proper procedure would seem to be the institution of a suit for an injunction to restrain the asserted claim of possession on the ground that it is a purpresture. U. S. v. Homer Hodges, 218 Fed. 88; Beard v. U. S., 41 Fed. (2d) 711, certiorari denied 282 U. S. 886; U. S. v. Charles Stewart, Supra."

All public campgrounds which the Forest Supervisor believes might be entered as mining claims will be withdrawn as Public Service Sites. At the time the campground is mapped a compass and tape traverse will be run around it and tied to a General Land Office corner or to a Forest Service monument. Only corner No. 1 need be established on the ground. Each campground to be withdrawn will be posted with Public Service Site Notices, Form 394-A, one to be visible upon entering the camp and one in the vicinity of at least four corners. If the tract has more than four corners, a sign in the vicinity of each of the four corners which come nearest to encompassing the area will ordinarily suffice. The Supervisor will record the public campground as a Public Service Site on his Status book as described in the Manual, page 61-L. He will submit to this office in duplicate the survey notes and a brief memorandum along the line of the following sample. Survey and memorandum will be approved by the Regional Forester and one copy of each returned to the Supervisor. The traverse will be shown on the tract map of the campground and referred to in Public Service Site withdrawal memorandum.

Sample Public Service Site Withdrawal Memorandum

L  
Public Service Sites

REGIONAL FORESTER:

Enclosed find survey notes on the Beaver Dam Campground, Tract A, High Meadows Recreation Unit, a map of which has been submitted.

This area is being improved as a public campground and recreation is considered its highest use.

It has been surveyed and posted as a Public Service Site, and I recommend that it be withdrawn as such.

---

Forest Supervisor

Approved: \_\_\_\_\_, 193\_\_\_\_\_

---

Regional Forester

4. Roads and Trails. Main roads should never run through a campground and if possible should be located so that the camp will lie between the road and the stream or lake, well screened from each.

When laying out a campground, the first and one of the most important things to do, is to stake out your main and secondary roads. There should be at least a 33 foot right-of-way for camp roads and trails within which no structures are erected. In the case of very large camps, a main two-way road may run to the main parking area. The roads through the campground should be narrow and meandering in loops and usually not over 10 to 12 feet wide. One-way roads are preferred. All roads should be well drained and gravelled where dust or mud are liable to give trouble. To avoid undue travel through the larger campgrounds, it is well to lay them out as a series of separate loops with not over 50 campers' spots on any loop. If conditions are such that the camp roads can be laid out as a series of loops about 250 feet across, full use can be made of the area and each camper will have plenty of back yard. This arrangement facilitates future development by the addition of new loops.

Care must be taken when constructing camp roads, to avoid scarring roadside trees. This precludes the use of large bulldozers and graders and requires small equipment and hand work.

LIBRARY  
GENERAL EDUCATION  
COLORADO STATE UNIVERSITY

When clearing for camp roads, all material two inches in diameter or over should be cut in 4-foot lengths and piled for fire wood. Stumps and rotten logs should be hauled away. Small twigs and slash should be burned on the road in small piles or hauled away.

5. Camp Spot. Should be back from the edge of stream or lake 50 feet, if possible. They should never be within 200 feet of a center line of Forest Highway or 100 feet of center line of other through roads without approval of Regional Office, and never within plain view of through roads or within 75 feet of each other from center to center. They should be secluded from each other even if it necessitates planting. Each camp spot should be compact and conveniently arranged. The proposed location of parking spur, table, stove, bonfire and tent should be staked on the ground when plan is made for convenience of the construction foreman. If road survey stakes are used and clearly marked with lumber keel, they will be readable for a year or more.

Do not place camp spot above springs where pollution of water may result. Comfort stations and hydrants should be accessible to every camper's lot without crossing another lot. (See Sample Plan)

6. Parking Places. Ample parking space must be set aside and distinctly defined with logs, posts, or rocks arranged to prevent cars being driven promiscuously through the campground. (See Barriers Plan #69 B-3.) Usually there will be an individual single-track parking spur, at least 20 feet long, for each camper's spot. Two or three cars may be parked together for a group of camps, but this is not usually desirable.

7. Clearing and Shade. Never remove trees or brush unless it is absolutely necessary for parking cars, actual occupancy or to develop a view. It is easy to ruin a camp by too much clearing. In case of doubt, leave the trees and brush.

Campers' spots should be cleared of brush, stumps, etc. Young coniferous trees should never be trimmed, except possibly 12 inches from the ground when necessary to reduce fire hazard. All dead and down material should be removed from within the campground area to reduce fire hazard. Trash or other material too small for fuel should be hauled away or burned in small piles in the road; never surface burn.

All dry snags or leaning trees which might fall across a campground should be removed. It is important that insect depredations or outbreaks of mistletoe be checked immediately when they threaten campgrounds.

8. Stoves, Tables and Bonfire Places. Region 4 camp stove (Plan #96 A-1) is for use on individual camp spots. Where gatherings too large for one stove are expected the 2 stove combination or one of the 4 stove combinations should be used. Care should be taken to place the stove so that the prevailing wind will blow smoke away from table and tent. When use ends in the fall, all stoves should be covered with heavy crude oil to prevent rusting.

Tables should be placed so as to be in the shade, and staked down. Alternate legs should be bolted to cedar or creosoted posts. On picnic areas

sufficient loose tables should be available for large groups. Tables should be put together with bolts. Bolts should be battered or cut so as to prevent removal. Jagged edges should be smoothed off to prevent tearing of hose and clothes.

Where evening warming fires are needed, each camper's spot should have a small place set aside. (Plan #105) It should be so located that trees will not be scorched. On the larger picnic areas a large bonfire location (Plan #106) with logs or rustic seats may be constructed.

9. Disposal of Garbage and Trash. Every camper's spot should have easy access to a garbage pit or can.

Camps of 2 or 3 camp spots, which will not be closely patrolled, should use a pit 2 x 2 x 3 feet deep in which the refuse can be covered with earth from time to time.

Larger camps which will not have sufficient patrol to justify garbage cans should use the large covered garbage pit. (Plan #103) Garbage cans should be used in preference to pits wherever they can be emptied at least once a week during season of heavy use. All garbage cans should be provided with a fly-proof cover. These cans should be fastened to a cedar or creosoted post with eyebolt, chain and padlock. The preferred type is a 15 gallon can of heavy iron, painted dark green, with "Garbage" stenciled on the side in white.

Garbage cans should be washed out every week with Germite or dilute creosote dip, or similar solution.

Garbage cans will be purchased centrally by the Regional Office.

As a rule, on small campgrounds, paper, cloths, and burnable material will be burned in the camp stoves, while cans and garbage will be placed in pits or hauled away. The Boyco type or Region 1 incinerator will handle refuse from medium-sized camps. For larger campgrounds and summer home communities where an isolated dump is not available, more elaborate incinerators must be provided. (Plan #103 B-1)

10. Toilets. No camp spot should be more than 300 feet from a toilet. Have your toilets readily accessible and have signs to insure their being found. Locate them to be within reach of as many camp spots as they should serve. Toilets may frequently be placed at road intersections to good advantage.

It is estimated each single unit toilet should suffice for 3 camp spots. (1 seat for 15 overnight or 20 day campers.) This means that a 5 table camp would require 2 single units or preferably 1 double unit. A 15 table camp should have 2 - two unit or 1 - four unit toilet.

### Approximate Toilet Requirements

: Size of Toilet : (No. of Seats)	: No. of : Camp Spots	: No. of Over- : night Campers	: No. of : Day Campers
: 1	: 3	: 15	: 20
: 2	: 6	: 30	: 40
: 4	: 15	: 75	: 100
: 5	: 20	: 100	: 125
: 6	: 25	: 125	: 150
: 8	: 35	: 175	: 200

Where a campground is long and narrow the distance from camp spots should control the number of toilets.

Toilet plans call for three optional forms of construction: native rock, 2-inch log siding, 1-inch manufactured siding of styles specified. Native rock should be used when rock is readily available and labor cheap, (C.C.C. jobs). Do not use soft sandstone. For camps in ponderosa pine, lodgepole pine or Douglas fir type, log siding is preferred.

Be particularly careful that specifications for seat and box of chemical and pit toilets are followed exactly. It is easy to ruin a good building by careless construction of these features. If agitators of chemical toilets do not work freely, adjust them so they will. Consult new plans for these fixtures.

Toilets must be light inside. If too dark, paint the inside of toilets pearl gray. Stain or oil the outside as specified in the color specification chart in this Manual on pages 46 to 48.

Rectangular or square window may be substituted for diamond-shaped window in plans 71 and 72. (Suggest 10" x 18" rectangular window.)

Human excretions are a menace even when some distance from streams, as after heavy rains they may reach the streams. A septic tank does not kill disease germs; it merely liquefies. The life and virulence of a disease germ is measured in days, not distance. Do not be deceived by the common statement that a rapidly flowing stream purifies itself.

Where ground water (which may drain into drinking water) is within 5 feet of surface of ground in spring of year, use no cesspool or septic tank disposal field. A pit toilet, however, can be used if ground water is within 3 feet of surface in spring, provided pit is only 2 feet deep. In both cases keep at least 100 feet from streams.

a. Flush toilets should be used only where use is heavy and where daily attention can be given by a patrolman; where there is ample water supply with 30 feet or more head; and where drainage is safe. An engineer, working with the campground planner, should lay out the water supply and disposal system. If excavation is easy and soil is porous, and drainage remote from running water, a cesspool may be used without a septic tank.

Ordinarily, however, a septic tank will be preferable since it liquefies the effluent. It does not purify.

H. B. Hommon, Sanitary Engineer for Public Health Service, wrote on June 26, 1933:

"Most all of the flush valves for standard plumbing comfort stations will operate with 12 ft. of head (5 lbs. per square inch pressure) but we ordinarily prefer heads as high as 30 to 40 feet (12 to 16 lbs. pressure) in order to get more flow of water to the valves. If you can only get 5 lbs. pressure without pumping, I would use this pressure, but use large enough pipes to supply the valves. Both Crane and Sloan Companies give tables in their catalogues showing the sizes of pipes required for different heads. It is essential to have the proper sized pipes in order to get proper action of the valves.

"In getting out proposals for flush valves, I would be sure to state that there must be siphon breakers on them."

Flush toilets must be drained when in danger of freezing and are, therefore, not suitable for use during freezing weather. On important campgrounds where the use justifies flush toilets, supplemental facilities of pit or can type must be provided or the use of the area prohibited after flush toilets are drained.

On important and heavily used camp and picnic grounds lights must be provided in toilets. Coleman #220-B with straight generator and pyrex glass is preferable. Use only high-test gasoline; keep clean; and lock so they cannot be taken. Order sufficient mantles, generators and gasoline at the beginning of the season.

"Sanette H-3 Self-closing receptacles" or equal will be used in all individual compartments on women's side.

Regional Office approval is necessary for installation of flush toilets.

b. Chemical toilets have the following advantages: They sterilize and liquefy the sewage. They are safe near water supplies where flush toilets and pit toilets are not safe. They can be emptied easier than pit toilets. They are freer from odor than pit toilets. They require much less attention than flush toilets since they do not stop up with foreign matter. There is little danger from freezing, although they should be drained at the end of the season. With moderate use they need be charged but once a month and if use is not too heavy one charge will last a season. Chemical toilet vaults must be made waterproof. This will require careful supervision.

Charge with 25 pounds of flake caustic in 125 gallons of water. Flake caustic can be secured in 25 to 400 pound drums from Bintz & Co., 573 West 2nd. South, Salt Lake City, Utah. It should be dissolved in very little water before pouring into tank. Standard chemical toilet should hold 584 gallons of water and have added 117 lbs. of flake caustic.

Chemical mixture should be two feet deep and ordinarily one charge will last a season if kept well agitated. (Several times a day when in use) With very heavy use or if not agitated enough, the liquid will become sour and need draining and a new charge in a month. Sometimes chloride of lime will kill the sour odor.

"Sodium hydroxide, the standard charging material used in chemical toilets, is a powerful reagent. It has strong caustic properties and will burn clothing or skin. When it is dissolved in water, a great deal of heat is generated. In charging chemical toilets, the danger of caustic burns must be borne in mind." (From R-5 Handbook.)

c. Pit toilets are cheaper to build than chemical or flush, and generally used on camps of less than 10 tables. They are more difficult to keep sanitary. They can be used if ground water is within 3 feet of surface in spring, provided pit is only 2 feet deep. They should be kept at least 100 feet from streams. If well kept they can be within 30 feet of a camper's spot or residence; however, this does not imply that pit toilets should be within 30 feet of camp spots.

Liquid cresolis, creosote dip, or germite are superior to chloride of lime as a deodorant and as a fly repellent.

Pit toilets may have a cement vault with clean-out opening.

d. Portable Toilets. For occasional large crowds which the permanent toilets cannot accommodate and for use after the flush toilets are closed for the winter.

e. Maintenance of Toilets. All toilets should be kept spotlessly clean and all recreation patrolmen should be instructed to sweep out all toilets and wash the seats with soap and water at least once a day if use is heavy and in all cases at least once a week during period of use.

If rodents bother, use 24" galvanized iron wire screen below mud sills.

Post camp regulations inside of doors.

Keep supplied with toilet paper and be sure the locks on inside of doors are in working order.

Keep a broom in storeroom of large toilets.

Sprinkle creosote dip (20 parts water to one creosote dip) daily into vault of pit toilets.

Spraying underneath seat with germite or liquid cresolis will help repel flies.

In winter leave seats of pit and chemical toilets up to prevent moisture from warping.

In the fall drain bowls of flush toilets by removing drain plug.



Drain plumbing and disconnect goosenecks.

11. Shower Bath and Laundry. Showers and laundry tubs are desirable on the larger and more heavily used campgrounds. Laundries and showers should never drain into the septic tank even when in the same building with the toilet.

12. Cesspools and Sump. Make cesspools deep enough to reach through impervious top soils to sand or gravel.

Do not locate under a building or on too steep hill slopes. Keep sewage cesspools at least 100 feet from water likely to be used for drinking.

If in coarse granitic sand, a cesspool will give off bad odors unless vented by a stack.

Where ground water (which may drain into drinking water) is within 5 feet of surface of ground in spring of year, use no cesspool.

Smooth out excavated material, cover with top soil if necessary and seed to grass or plant.

Where the soil is sufficiently sandy or gravelly to give good drainage, cesspools should have a capacity of 100 cubic feet for each toilet seat served. This means that a 4-Unit flush toilet requires a cesspool of 400 cubic feet capacity.

If showers, bath or wash tubs are to be connected, add 50 cubic feet for each shower head and 25 cubic feet for each tub.

The cesspool should be cylindrical in shape and walled up with loose laid rock. The top of the cesspool should be 2 feet below the ground surface and the manhole covered with a heavy, close-fitting lid.

For kitchen and wash water a sump 4 feet in diameter by 2 feet deep will do.

13. Septic Tanks. (Plans 76 and 76-A) Overflow is as dangerous as raw sewage. Sludge must be cleaned out every two to five years so install low pressure drain valve or plug. Drainage in winter is not necessary.

Capacity should be 40 to 50 gallons (7.48 gallons equal 1 cubic foot) per person, which takes care of 24 hours run.

Four-tenths of 1 percent grade is minimum grade for sewer pipe. Six inch vitrified sewer pipe (at about 26¢ per foot) is minimum size for untreated sewage.

Effluent from septic tank should go into filter trenches. Effluent from shower baths and laundries should drain directly into filter trenches and not into septic tank.

Plans for septic tanks and filter trenches will be furnished by Regional Office.

14. Water Systems. (See Plates 62, 149 and 157, and "Manual for Small Water Development.") Pure and ample water is an absolute necessity. Cool water is desirable.

Always have an engineer assisted by campground planner stake out camp water systems and furnish list and specifications of pumps, hydrants, pipe, etc.

Requirements: Camp spots and cabins should ordinarily be within 200 feet of water and without the necessity of crossing other lots.

25 Gallons per person per day for campers' cabins with flush toilets and lavatories and baths.

40 to 50 Gallons per person per day for summer homes with bath and flush toilets and lavatories.

5 Gallons per person per day for camps without flush toilets.

When a spring is used, it should be walled up with rock or cement and provided with an overflow spout or pipe and a lid which can be locked down.

When the water is piped from a spring or stream, a settling tank should always be constructed near the intake to keep silt and sand out of the pipes. Every storage tank should have a valve in the bottom to permit drainage and a lid which can be locked to prevent dirt getting into the water. If there is any possibility of foreign material getting into the tank, its outlet should be screened with 14 mesh rust-proof bronze wire. Storage tanks and pipes should be drained at end of season to prevent freezing.

Pipe, etc. Pipe should be buried deep enough to keep water cool if not too costly, and deep enough to protect from traffic. It need not be below frost line, as it will be drained in freezing weather.

Where water is piped an accurate map showing location of source, tanks, unions, tees, elbows, valves, drains and size of all pipe and fittings should be made. This is not only necessary for good maintenance, but also for filing on the water. It is well to remember that we can get only as much water as our pipes will carry and not as much as we should like to file on, and we must have an accurate survey and map in order to complete filings for water (in Utah).

Minimum grade for water pipe is  $\frac{4}{10}$  of one percent. For size of pipe needed see Exhibit #3 in appendix.

Wells. Curb with concrete up at least 1 foot above ground and cover with vermin-tight top, i. e., concrete, wood with sheathing of tin, or small galvanized iron, or better still, provide tight concrete cover and pump and casing should be cemented inside and out to a depth of 12 feet.

Hydrants. When a pipeline crosses a campground, hydrants should be set at about 200 foot intervals. Campers can go 300 feet for water, however, and spur lines should not be built for shorter distances except to picnic or playground areas where considerable numbers will be served.

All hydrants should be 36 inches high and may be encased in rock or log to insure beauty and strength. A small area around the hydrant should be excavated and filled with gravel and rock to facilitate drainage and avoid mud and erosion. Spring faucets and hose bibs should always be used. The Murdock 3' hydrant has been satisfactory where there is danger of freezing. However, in freezing weather water should be allowed to run day and night.

Fountains. Recommended on more heavily used grounds. Spring faucets and slanting jet preferable. Set in rock or cement base with step for children. Either drainage should be provided or immediate vicinity gravelled to prevent development of mud hole. (Plan #98, 98 A-1.) A few pebbles in fountain bowl will prevent clogging with leaves, etc.

Do not have common drinking cups.

Pitcher Pumps. Not ordinarily desirable on account of necessity for priming. Where used they should be cemented around base to prevent back drainage into well.

Sprinkling System. In a few cases automatic lawn sprinkling systems may be justified. They must be laid out by an engineer after approval by Regional Office. Ample supply of water and complete coverage are essential.

15. Public Areas. Areas within 25 feet or more of latrines, water taps, springs, and stream banks; within 50 feet or more of lake shores, and small natural parks, playgrounds, places for wading pools, piers, swings, horseshoe courts, ballgrounds, tennis courts, archery range, outdoor theatres, parking areas for large gatherings, etc., should be reserved.

16. Picnic Grounds. A sufficient number of the more accessible camps should be developed for picnicking of large groups. Such group use requires a concentration of stoves and tables. Large campfires and amphitheatres may also be needed. Picnic and camping use should be separated.

17. Playgrounds and Sports. Swings, teeter-totters, wading pools, sand boxes, horseshoe courts, and an area for soft ball, if properly placed and not crowded onto our camp areas, will add considerable to the enjoyment of many of our visitors. Tennis and golf courses will only be considered where there will be sufficient patronage to justify them. Tennis, volley ball, basketball, chutes, baseball and swings may be used in organizational camps where the use and age classes will justify their construction.

Teeter-totters, swings, wading pools and sand boxes, because they are for the use of small youngsters, should be conveniently located in a shady place. Larger swings, horseshoe courts, soft ball areas, and archery ranges should be somewhat removed from the more crowded portions of the picnic or campground, and should be away from amphitheatres. Toilets should be easily accessible from all play areas. The various play areas will be separated according to the age classes of the users so younger children will not be bothered by older ones, etc.

Volley ball, putting greens, horizontal bars, chutes and any other type of playground activity which can be developed may be planned for in our larger and more spacious campgrounds. However, do not crowd developments. It would be much more desirable to have one or two properly designed play areas than to have too many.

18. Public Service Enterprises. Headquarters for administrative officers, such as camp patrolmen; stores; cafes; gas stations; cabins for rent; wood piles; etc., should be provided for and conveniently but not conspicuously located.

19. Pest and Nuisance Control.

Dust - In establishing campgrounds on light soils, dust will become a problem when use becomes intensive and provision for meeting the problem should be made.

If water is to be piped to the grounds, hydrants should be provided at sufficient intervals to allow sprinkling.

If irrigation water is available, ditches and laterals should be planned to allow maintenance of a ground cover.

Where irrigation or sprinkling is not feasible, gravelling or sanding will be the standard practice,

Rodents - Ground squirrels and porcupines should be eradicated on areas where they bother.

Flies - Cresol compound in strength of 1 to 2 percent is good disinfectant.

Lime that has been air slacked is useless.

Chloride of lime deteriorates rapidly. If used, mix 6 oz. with 1 gallon of water.

Mosquitoes - Drain breeding pools where feasible. Treat with oil all stagnant water for one-half mile radius around camp. Salvaged automobile oils are satisfactory to destroy mosquito larvae through spraying seeps, swamps, ponds and vegetable matter along the shores of lakes, according to Dr. Beatty of the Utah State Board of Health. He suggests spraying be done as soon after snow recedes as is practical. Ordinarily two sprayings will be sufficient. This treatment will not destroy fish.

Ants - Use kerosene.

Yellow Jackets and Hornets - Trap.

20. Wild Life and Game Planting. Consider the desirability and feasibility of introducing some wild life and game as an added recreation attraction. Deer may be planted in some areas. By salting and where feasible by winter feeding they may be held close to recreation areas where the public can see them occasionally.

Protect beaver and place signs directing campers to beaver ponds and dams.

Consider, in connection with fish culture and stream improvement work, the possibility of rearing ponds near campgrounds.

Indicate proposed game preserves or areas and waters which should be closed to hunting and fishing.

Coordinate recreation and wild life.

21. Recreation Trails. Loop hiking trails are a great advantage to any campground and should be constructed whenever there is a point of interest within 2 hours hiking distance.

Where loop trails are not feasible one-way trails should be provided. There is need for shorter and better designed recreation trails radiating out from our camps. Definite vistas, smoking spots and rest places should be provided. The "tagging" of flowers, shrubs and trees will add to the educational value of the trail. Where possible and feasible, water and toilet facilities should be provided along the longer trails.

22. Amphitheatres. On campgrounds where large assemblies are expected, amphitheatres should be provided. They should be located so as to take advantage of natural rise for seats, native screenage for wings, etc. Planting may be necessary to improve setting. Locate so as to allow for expansion. Keep away from parking places, roads, playgrounds, and other sources of disturbing noises.

23. Fences. Never fence a campground unless absolutely necessary and then make the fence as inconspicuous as possible. Do not allow the fence to crowd the used area. Make the area enclosed plenty large. Fence with woven wire with smooth wire on top. Do not use barbed wire unless absolutely necessary to keep stock out and then only with approval of the Regional Office.

When poles are available, they make a more attractive fence. All posts should be creosoted. Cattle guards and stiles are preferable to gates.

24. Restrictions. Keep saddle horses, as well as other domestic stock, out of camp. Do not allow dogs to run loose. Prohibit shooting in immediate vicinity of campgrounds. (Reg. T-9-E) Check loud noises, boisterous and improper conduct. Prohibit washing of clothes or dishes and human ablutions in streams or lakes. Swimming may be allowed where conditions warrant. Prohibit digging for fish worms within campgrounds. Prohibit building fires anywhere except in designated places. Prohibit cutting of boughs and picking of flowers within camp area.

25. Plunges and Pools. Preference will be given to areas where there is natural hot water. Ordinarily we will not expect pools to be located at intervals of less than 20 miles unless the use is so heavy that more than this number of pools would be required to accommodate the public.

26. Barriers. The main purpose of barriers is to protect vegetation from destruction and limit the number of cars and, therefore, the number of people that can use an area.

Barriers should be constructed or placed parallel with camp roads and along sides and at end of parking spur. Parking spurs should be on a 45 degree or a 90 degree angle from road. If the latter is the method used, the road must be wide. This method will take more space than the 45 degree angle method, but a 45 degree spur is more convenient on a one-way road.

Materials used so far include large rocks either placed on end or laid flat; large logs laid parallel to roads; and regular barrier posts with logs placed on them. If large enough rock can be found near enough to the camp areas, and can be moved with a tractor and large stone boat, they are possibly superior to the logs or posts. Rocks must be large and anchored in the earth so that they cannot be moved. To make these rocks look natural is a difficult problem and it is often better not to attempt it but to place them in definite lines.

Barrier posts and logs have been used to some extent. (See plan #69-B3.) This method consists of creosoting butts, putting in ground and anchoring cross logs to them. Logs used vary in diameter from 6" to 10". The upper part of the post and the log is stained, after being peeled and seasoned, using a mixture of 4 gallons linseed oil, 1 gallon spar varnish and 1/2 lb. burnt umber ground in oil. Often-times the posts have been used alone, spacing them so a car could not get between. The important thing is to anchor solidly, make attractive and place where they are needed. Rocks should never be painted or marred in any way.

27. House Trailers. "During recent years, a de luxe type of auto trailer has been developed, which is literally a house on wheels. Some of these trailers are 30-feet long, painted in gaudy colors, and are self-contained units. The people who travel with these trailers are not campers. They carry their own stoves, water supply, toilet facilities, and lighting systems. The trailer has built-in bunks and table, so no tent or camp table are required. In fact, they are prepared to stop wherever night overtakes them.

"These trailers should not be allowed on Forest Service camps, which have been designed and developed for bonafide campers and picnickers.

"Since the travellers with this equipment have no need for most of the camping facilities provided by the Forest Service, they should be directed to park and set up housekeeping at especially selected spots where they will not conflict with the administration and use of the areas devoted to bonafide camping. Sections set aside for use by house trailers should be provided with toilet facilities, garbage collection, and water." (From R-5 Handbook.)

28. Miscellaneous Bridges, Shelters, Registration Booths, Rock Work, Signs, Boat Landings, etc.

Bridges - (See Plan #121 A-1) Should be simple and not have too many decorative features. The sketches shown in plan 121 A-1 are designed for stress and strain, and the size of material, spans, width of bridge and height of railing should be followed. However, it is the intention to allow considerable leeway for new ideas. Most material should be peeled, seasoned and stained with 4 gallons linseed oil, 1 gallon spar varnish and 1/2 lb. burnt umber ground in oil. If the bark is to be left on, the timber should be cut in the dormant season and varnished when used.

Shelters - Shelter #104 is for use on large campgrounds or where the use justifies it. If practicable, use flagstone floor, coping and steps in plan #104. The use of flagstone for coping and floor will require a skilled rock mason. Caulking cement must be used in the joints of the coping to make it waterproof. On rock and log combination shelters, including plan #104, use two-tone color scheme. (C.P.C. Green on roof and Oil stain or Varnish on all other wood portions.)

Registration Booths - Install only after more essential improvements have been constructed. Needed on larger campgrounds and on important trails and possibly some lookout points. Consider on trails leading into "Primitive Areas," and other areas of special significance. Should be located so they will not cause unnecessary congestion of traffic.

Rock Work - Large flagstone (from 12" to 36" across, irregular or regular) are much more desirable than small. For Rubble masonry or rock masonry work you should generally use rocks with 12" face or better. Put weathered side out. Where available use colored rock, working the colors in so there is some kind of order or pattern.

The inverted pointing or "rake" joint is most effective. This consists in placing the mortar about 1/2 to 1 inch in from the edge of the rock and making a concave surface. This makes the rock stand out away from the mortar and tends to decrease the apparent amount of mortar surface.

If forms are used, wet sand may be filled in between rocks next to the outside form and mortar then poured. The wet sand will prevent the mortar from working out flush with face of rock and when the concrete has set the forms may be removed and the sand brushed out. This will leave a "rake" joint. Colored mortar (black or red) may be used sparingly. Either lamp black paste for coloring black or red mineral coloring material for red mortar can be used.

Where flagstone is desired and it is not available, cast concrete and rake joints in imitation of flagstone. Figure out flagstone scheme before concrete is poured. The Portland Cement Association recommends the following materials for colors listed:

- |                               |   |
|-------------------------------|---|
| Buff, Yellow or Red - - - - - | Iron Oxide Pigments                       |
| Green - - - - -               | Chromium Oxide Pigments                   |
| Blue - - - - -                | Cobalt Blue or Ultramarine Blue           |
| Brown - - - - -               | Iron Oxide or Iron and Manganese Pigments |
| Gray, Slate and Black - - -   | Iron Oxide or Manganese Dioxide Pigments  |

The color is determined primarily by the proportion of pigment to concrete. Pigments may be safely used in amounts up to 10% of the weight of the cement, -- 9 pounds of color pigment to each sack of cement. Lighter shades obtained by using less coloring pigment. Variations in color or shades by using two or more pigments together. Make sample mortar panels 8"x12"x1" to obtain color desired. Store for 4-5 days to cure and bring out color. Use rag dipped in equal parts paraffin oil and benzine to clean and bring color out.

Mixing should continue for 10 minutes when color mixer is used. For small jobs mix color pigment with cement by sifting through a one-eighth mesh screen. Do not use more than five (5) gallons of water for dry material, less for wet materials. Make mix as stiff as can be worked.

For concrete stepping stones and flagstones, use forms, making flagstone regular, i. e., 12"x18", 12"x24", 18"x32", etc. Make stepping stones irregular, i. e., triangular, broken rectangles and other broken shapes. Use trial mix of 1-2 $\frac{1}{4}$ -3, with not over 5 gallons water for each sack of cement. Aggregate not over 1 $\frac{1}{2}$ " diameter. If mix is too stiff decrease amount of sand slightly, but do not add more water. Add coloring pigments if desired. Use good taste.



Angular, flat-surfaced, broken rocks, or rocks from a quarry are most desirable for rock construction. Rock work must be built perfectly square and straight and not allowed to "wobble."

Signs - (See plans #64 C-1 to C-4, 64 D-1 & D-2; 64 C with metal triangular sign is not recommended.

Use care in locating signs. Stain according to color specification chart. Creosote portions in the ground.

Post camp rules inside all toilet compartment doors and on bulletin boards. Maintain in good condition. Remove and repair or replace all damaged signs. Informational and directional signs are important.

Boat Landings - Do not locate in front of lodges or hotels. Make accessible to road to facilitate unloading of boats. Make provision for unloading of fish from trucks. Make attractive but not conspicuous.

#### B. Resorts and Organization Sites.

The following is a tickler list of services that may be needed and factors to be considered in planning these uses.

1. Areas from 5 acres up are desirable.
2. Accessibility to centers of population and nearness to large cities.
3. Abundance of pure water, and favorable conditions for disposal of sewage.
4. Sufficient playground area.
5. Buildings should ordinarily be grouped for attractiveness, convenience and economy in plumbing.
6. Seclusion necessary for most non-commercial organization sites.
7. Desirability of lakes or other bodies of water for swimming and boating.
8. Check type of organization and financial status before issuing special use permit.
9. Organization sites should not be located within 1/4 mile of Forest Camp or commercial resort.
10. Plans should be worked out by the Forest Service and the permittee and must be approved by the Forest Service before construction starts.
11. Hotels and resorts should be convenient to main roads,

except where special attractions as lakes, waterfalls and scenic features will draw the public.

12. Commercial uses as stores and service stations, if practicable, should be combined with the hotel and resort uses.

13. Dude ranches are usually appropriate adjacent to primitive areas. Seclusion and a wild setting are essential.

14. Scenic views from resort and lodge area are important. View from main lodge building itself is not so important.

15. Central lodge building should ordinarily be first seen when actually arriving at the site, and should be convenient to the best views.

16. Manager's quarters, office, dining room, and kitchen should be in lodge.

17. Store and service station may be in connection with lodge or resort development.

18. Guest cabins should not be crowded, and grouped by themselves.

19. Toilets and showers for guests. (See Toilets under Public Campgrounds.)

20. Horse barn, corral, tie rack and saddle room should not be within sight of the lodge or hotel but should be convenient. (From 600' to 2000')

21. Boat landings, boat livery quarters, and boat storage facilities should not be directly in front of lodges or hotels but to one side. Boat houses should be screened from full view.

22. Roads and driveways should preferably be outside of main view from hotel or lodge. Must be convenient to guest cabins. Loop roads preferable. Dead-end roads must have turnaround.

23. Parking space. Guest cabins and housekeeping cabins should have parking spur with barrier, on one side or at rear of cabin. Lodges, hotels and resorts should have large parking areas located away from front of buildings and properly designed. (Use 17' strip for parking and 45 degree angle parking, and 17' for roadway. Have traffic circulate in one direction only. One roadway will serve two parking strips.)

24. Fountains. Inside and outside fountains for hotels and lodges. Consider plan #98 and 98 A-1, without cement coping, for outside fountains.

25. Playgrounds and Activities.

a. Swimming pools for larger resorts, hotels, lodges, and non-commercial organization sites. Especially in areas where there is a natural supply of hot water.

ation sites.

- b. Tennis courts for hotels, lodges, and organiz-

is suitable.

- c. Golf courses. For hotels and lodges when terrain

- d. Skating ponds, ski jumps, toboggan slides, putting greens, soft ball, etc., for areas where use and available land area would justify.

- e. Bonfire Place.

- f. Amphitheatre.

26. Service area should be at rear and away from living quarters.

- a. Storehouse.

- b. Cellar.

- c. Laundry and clothes line.

- d. Quarters for help, including facilities (toilets, etc.)

- e. Coal bin, woodshed, wood saw.

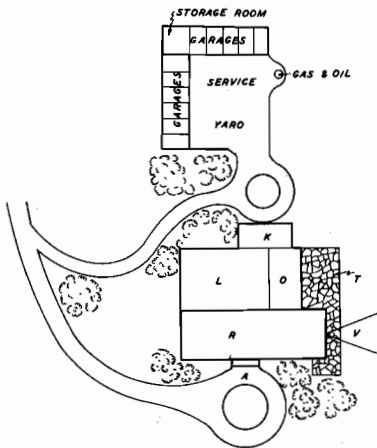
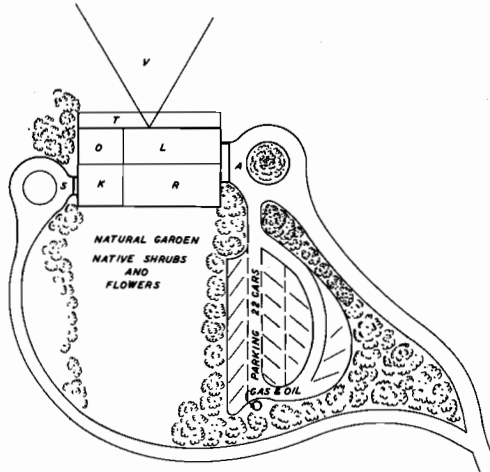
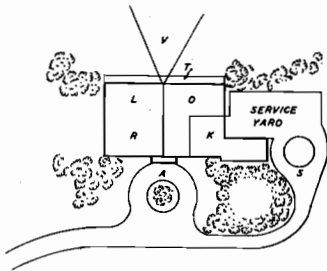
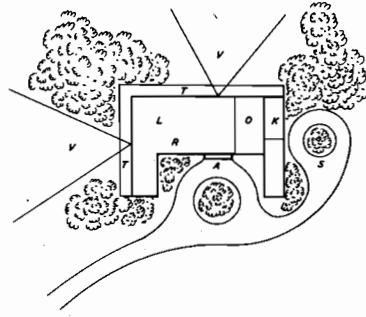
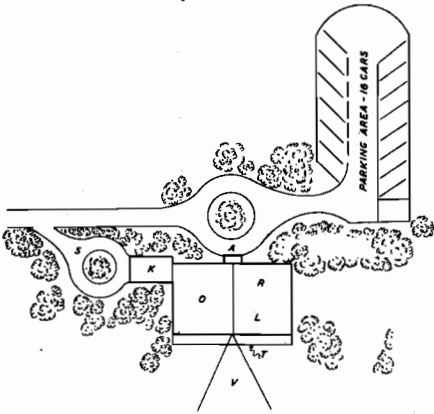
- f. Garbage cans and garbage disposal.

- g. Light and power plant, pump house. Should be away from and out of hearing of main building. Light and telephone wire preferably underground in lodge and hotel area.

- h. Garage and tool shop.

- i. Water storage.

27. Scenic effects around hotels, lodges and other improvements may be greatly improved by effective landscaping or may be marred by too much "decoration."



**SUGGESTIVE LODGE & HOTEL BUILDING  
ARRANGEMENTS**

SCALE: 1 IN = 50 FEET

**LEGEND**

- A FRONT APPROACH
- V VISTA
- S SERVICE APPROACH
- K KITCHEN
- D DINING ROOM
- R RECEPTION ROOM OR LOUNGE
- T TERRACE
- L LIVING ROOM

**NOTE:— KEEP FRONT APPROACH, PARKING AREAS AND SERVICE APPROACH AWAY FROM VISTA.**

## C. Summer Homes.

(For procedure in handling permits see Uses section, Lands Handbook.)

1. Location. As this class of use is ninth on the list (Page 99-L of the Manual) in order of precedence, it should be confined to the rougher or more inaccessible ground where there is any present or potential demand for the other classes of use. Residences can be built on hillsides or rocky ground, if necessary. Summer homes should be kept out of plain sight of main roads; of large streams and lakes; and they should be kept away from public campgrounds, stores and service stations. They may be near but screened from organization sites. (See L-Uses, Roadside Strip letter of 4-23-31 in appendix.)

Regional Office approval must be secured before laying out summer homes in game preserves or on important winter range for game.

Avoid areas of high wind; snowslide areas; water supplies that dry up in mid-summer; ground that becomes swampy or boggy; high water; rock-slides; old stream beds likely to be flooded; streams that will cut away banks; claims; withdrawals for power, reclamation, mineral, etc. Consider also, mosquitoes and other pests that may be a drawback if not controlled.

### 2. Laying Out Summer Home Lots.

a. Public Areas - Keep lots at least 25 feet from small streams and 50 to 100 feet or more from large streams, lake shores, falls, impressive gorges or exceptional features. Do not allow a lot or a group of lots to monopolize water. Buildings should be kept out of view from exceptional features. Provide room where appropriate, for the following community uses:

Ball grounds	Swimming Pools
Tennis Courts	Golf Links
Croquet Grounds	Pastures
Horseshoe Courts	Archery Range
Swings	Community Boat Landings, Boat Houses, Beaches, etc.

A sufficient number of adjoining lots for public service enterprises such as stores should be laid out in every tract.

b. Roads - Locate roads, bridges and trails first, especially if their location is not flexible. Roads should be winding or in loops rather than parallel. It is preferable to locate the road so lots can be between it and shore lines of lakes or streams. Streets and trails should have at least 33 feet right-of-way.

The reservation of a certain part of the tract for use as a civic or community center, playground, school or church, may be desirable.

Where Forest Service special use tracts adjoin private subdivisions, our road system should tie in to that of the private road subdivision.

c. Water - Make sure the lots are accessible to water. The Forest Service may install the main pipe line to serve a group of lots.

d. Area of Lots - Lots should seldom be less than 1 acre. In light cover, lots should be larger than in dense timber or brush. Rough land may be included for convenience of survey.

e. Arrangement of Summer Home Lots - Isolated tracts are in poor demand, although applicants frequently think they want to be isolated. Therefore, summer homes should ordinarily be grouped. Make lot lines fit topography. Select the building site first and then lay out lot lines to conform. Lots need not be rectangular.

Avoid large groups of lots. Five to ten adjoining without a break are enough. These groups should be separated by playgrounds, wild areas, roads, trails, etc. If lots must have rear next to highway, a fringe of timber can be left between them and the highway to screen back yard activities. Where lots have an important frontage, such as a lake, they need not necessarily face the lake but can face each other, running the lot tiers at right angles rather than parallel to the shore. The rear lots then will not face back yards.

Do not locate a lot on a spring that should be accessible to other lots.

Roads and trails should be so planned that every lot will have access to water, lake, stream and public attractions without crossing another lot.

When a small number of lots are to be laid out in an area suitable for a large development, do not lay out any of the lots until a plan for the entire area has been made; then after a few lots are staked the area can be expanded as needed. Otherwise, the few lots originally laid out might spoil the entire area.

When the building of private garages is neither possible nor advisable on the individual lots, an inconspicuous area should be reserved for the building of either community or individual private garages. (See exhibit in back of this manual.)

A ground plan showing location of all improvements should be made for each summer home lot by the Forest Service. This, together with plan of structure, must be approved by the Forest Supervisor and the permittee before any construction is done. The roads, trails and buildings should be staked on the ground.

#### D. Winter Recreation.

Possibly the most important winter sport activity is that of

skiing. Other winter sport activities include skating, tobogganing, bob sledding, curling, hockey, etc. For the present and in the initial development on winter sport areas skiing will be considered as of first importance and ice skating and tobogganing as of second and third importance. Later on if demand justifies, bob sled runs, curling areas, hockey rinks, etc., may be considered.

In all winter recreation development the areas considered for such development should be studied during the winter months when conditions are identical to the conditions under which the area will be used. Depth of snow, length of season, exposures of proposed ski runs and jumps, accessibility and distance from cities, parking facilities, roads to be kept open, comfortable quarters, etc., are a few of the factors which must be taken under consideration. In most, if not all, of our winter recreation areas we must coordinate our winter and summer use. It may be possible to utilize our tennis courts for skating ponds and to design and locate our parking areas for summer and winter use, although maintaining parking areas in the winter is going to be a difficult problem and require heavy equipment.

Development of ski jumps, ski trails, skating ponds, shelters, etc., must not detract from the summer beauty. In other words, construction must be such that it will fit in with the natural surroundings.

Construction of ski jumps, skating ponds; toboggan slides, bob sled runs and ski hauls is an exacting and somewhat complicated engineering job and will require the services of a competent engineer and considerable study. For the masses winter recreation will be largely confined to the areas near the hotels or resorts where warmth and comfort are available. The more experienced skiers will move to the areas which afford the most thrills and offer the best skiing. Hills and open areas must be within approximately one-half mile of the hotel or lodge for the best development and as much closer as feasible. North slopes with a gradient up to 40 degrees are desirable for skiing. It is essential that places be provided on which beginners may learn to ski; however, a skier rapidly seeks the more difficult runs.

Accommodations, including hotels, lodges and shelters, will be necessary in highly developed winter sports areas. Shelters on ski trails may be desirable.

Ample toilet facilities and fuel wood are important considerations. Parking may be taken care of by widening the road and using single row angle parking.

Down-hill obstacle racing is a favorite form of skiing. It may require clearing in some places to a width of 20 feet. The need of proper ski equipment should be stressed. Beginners have often bought jumping skis and other useless equipment.

~~For Winter Sports - See reference "SKI Annual" listed in appendix.~~

## E. Standards of Design.

### 1. Buildings.

a. Building Design - Unless otherwise specified all government-owned improvements and building plans will be those drawn up and approved by the Regional Office. This does not preclude men on the ground from working out new designs or improving the Regional Office plans and seeking Regional Office approval. Many fine ideas should come from the men on the job.

See Standards of Design - by Frank A. Waugh, 5-17-33, in appendix.

In some cases the Regional Office will be called upon to design special plans to fit the site, i. e., Aspen Grove Amphitheatre.

b. Setting - Needless to say, all structures should harmonize with the landscape, both in color, form and material, and conform to the topography. "The building should be adapted to its site; it should 'fit the ground.' Great variations in height of foundations should be avoided. In general, foundations should be low."

Buildings will be blended with their setting by the use of native trees, shrubs, vines and proper grading, and will be "squared" or placed parallel with the topography or natural unit, rather than with the cardinal points of the compass. When there is more than one building they will either be parallel or at right angles to each other. If the directional trend of the topography is not evident, buildings may be oriented with the highway or main road, providing there is a definite relationship.

Buildings should ordinarily be placed in or at the edge of the timbered area and seldom, unless for a very special reason, should they be placed out away from all trees and shrubs.

In order to achieve unity, it is necessary to have some idea of the functional arrangement of the buildings. These functions can roughly be divided into three divisions; approach, service, and living. Obviously it would be undesirable to approach a lodge, hotel or administration building through the service or "back yard" entrance.

In keeping with our objective of supplying the individual the maximum reasonable amount of unimpaired natural beauty we should so locate, orient and partially screen our buildings that they will be unobtrusive but yet attractive.

c. Colors, Paints, Varnishes, Stains - Paints, stains, varnishes and shellacs have two purposes; first, to preserve the material they cover; and second, to add to the attractiveness of the building or structure. By the use of rubble masonry or rock masonry foundations, chimney and porch columns, and the use of flagstone for floors, steps and walks, we can add considerable natural color to our improvements. Unobtrusive colored mortar will also add to the attractiveness of the rock work if skillfully handled. In using a native stone the weathered side or a new broken face may be placed to the outside. Each



has considerable color. Lichen growth adds to the appearance of native rock work where it is in vertical walls or parapets.

Stains should be mixed and the number of coats desired should be applied to a sample of the material which is to be stained. Each coat must be properly dried before the next is applied. If you do not secure the proper color upon application, change the proportions and repeat until the sample matches the shade desired. You will note the desirable shades as shown on the color samples on page 53a.

In applying stain or paint all the work should be clean and dry. Varnish or stain cannot be successfully applied over marred lumber. Apply stains freely, follow instructions furnished by manufacturer, always go over the job a second time with a dry brush to finish and even out the stain. With some of the stains the final color does not develop for some time after the stain has been applied. Usually additional coats of stain darken the work correspondingly.

Stir paints and stains well and if more than one package or can is required, mix altogether in one large container. Do not thin out and always allow 24 hours between coats for drying in normal weather.

Door frames, window frames, doors and other trim should usually be stained a slightly darker color than the body. Sharp contrasts should be avoided. For log shelters, log amphitheatres, log or pole signs, log entrance portals, log parapets and log barriers, use oil stain or varnish. Where the woodwork is rough-cut, stain alone should be used. In these cases varnish does not look well.

For green roof paint use a mixture of 1 gallon of boiled linseed oil, 2 pounds of graphite and 2 pounds of C.P.C. light green, thoroughly mixed. Mix all that will be used on one job at the same time. Two coats are necessary for good work.

For brown roofs use a stain that will correspond to the colors shown in the charts of this manual. Two coats are necessary for good work.

Paint can be applied over some creosote stains but stains must not be applied over paints. When applying paint over stain, it may be necessary to use a primer coat of aluminum paint.

For interiors of toilets, paint with pearl gray in order to make light, where the wood is of such a character that it will not take stain well or where the size of the toilet room is small or dark. For the interiors of large toilets which are fairly light and where material such as plywood, knotty pine, or other composition boards are used, a light or natural stain is more desirable. Cover the rafters of such buildings, together with the sheathing or ceiling, with a very light stain, possibly Silver Gray or Driftwood. Where rafters or sheathing are dirty or of poor quality lumber, paint with pearl gray.

## Covering Capacity:

### Stains

One brush coat - 1 gallon to each 150 square feet of surface.  
Two brush coat - 1 gallon to each 100 square feet of surface.  
On smooth wood - 1 gallon to 200 - 250 square feet, two coats.  
This applies in computing amount needed for log siding.  
Hand dipping and 1 brush coat - 3 to 4 gallons per each 1,000  
16" shingles. Larger sizes take proportionately more.

### Paint (Exterior Surface)

White body and frames - 1 gallon for each 250 square feet for  
3 coats.  
Nile Green for windows and sash - 1 gallon for each 300 square  
feet for 2 coats.

When painting, cover floors and fixtures with heavy paper or  
canvas to protect from paint.

It will be the aim in the selection of stains and paints to make  
our buildings attractive but not conspicuous.

See the chart on next page for more detailed information on Color  
Specifications. Follow specifications for buildings listed and use as a  
guide for other recreational improvements.

COLOR SPECIFICATIONS

Plan No.	Name of Building	Type of Siding	Vegetative Type	Body	Roof	Doors	Door Frame	Window Frame	Window Sash	Corner Boards	Gable Ends	Other Trim	Interior Body	Interior Trim
6	Dwelling	Reg.	Broad Leaf & Conifer	White	Green	White	White	White	Green	White	White	Green	Optional as listed in Bldg.Cons.Hdbk	
	Guard Station	Log	Conifer	Med. Stain	Green	Dark	Dark	Dark	Dark	Dark	Med. Stain	Dark	Ditto	
53	Office or Dwelling	Reg.	Broad Leaf & Conifer	White	Green	White	White	White	Green	White	White	Green	Ditto	
		Log	Conifer	Med. Stain	Green	Dark	Dark	Dark	Dark	Dark	Med. Stain	Dark	Ditto	
64	Bulletin Boards	Reg.	Broad Leaf & Conifer	White	-	-	-	-	-	-	-	-	White	-
		Log	Conifer	Dark Stain	-	-	-	-	-	-	-	-	Dark Stain	-
64 B	Checking Station	Reg.	Broad Leaf & Conifer	Light Stain	Green	Light	Med. Stain	Med. Stain	Nile Gr. or White	Light	-	-	Pearl Gray	Pearl Gray
		Log	Conifer	Light Stain	Green	Light	Med. Stain	Med. Stain	Dark	Light	-	-	Pearl Gray	Pearl Gray
64 B-1														
64 B-2														
64 B-3														
64 B-4														

COLOR SPECIFICATIONS

Plan No.	Name of Building	Type of Siding	Vegetative Type	Body	Roof	Doors	Door Frame	Window Frame	Window Sash	Corner Boards	Gable Ends	Other Trim	Interior Body	Interior Trim
64 B-5														
64 C	Camp Grd. Entrance Sign	-	All Types	White	-	-	-	-	-	-	-	-	-	-
64 C-1 to 64 C-4	Entrance to Signs	On peeled log surfaces use medium stain. On unpeeled log surfaces use clear spar varnish.												
64 D-1 and 64 D-2	Markers	is optional but should be rarely used, except with white and green metal signs.												
64 D-3														
64 E	Archways													
64 E-1	Archways													
64 E-2	Archways													
64 E-3	Archways													
64 F	Entrances													
64 F-1	Entrances													
64 F-2														

COLOR SPECIFICATIONS

Plan No.	Name of Building	Type of Siding	Vegetative Type	Body	Roof	Doors	Door Frame	Window Frame	Window Sash	Corner Boards	Gable Ends	Other Trim	Interior Body	Interior Trim
65	Fences & Gates	No Finish		-	-	-	-	-	-	-	-	-	-	-
65 A	Buckpole Fence	No Finish		-	-	-	-	-	-	-	-	-	-	-
69 A-1	Rustic Seats													
: On peeled log surfaces use medium stain. On unpeeled log surfaces use clear spar varnish. : On smooth surfaces, sand lightly, stain, letter and varnish. On dimension lumber, white : is optional but should be rarely used, except with white and green metal signs.														
69 A-2														
69 A-3														
69 A-4														
69 A-5														
69 A-6														
69 B-1	Screens													
69 B-2	Portals													
69 B-3	Barriers													
: On peeled log surface use medium stain. On unpeeled log surfaces use clear spar varnish.														
70	1 Unit Latrine	Reg.	All Types	Light Stain	Green	Medium Stain	Light Stain			Light Stain		Light Stain	Spar Varnish	Spar Varnish
70 A-1	1 Unit Latrine	Shakes	All Types	Light Stain	Dark Stain	Medium Stain	Medium Stain	Medium Stain					Pearl Gray	Pearl Gray
70 A-2														

COLOR SPECIFICATIONS

Plan No.	Name of Building	Type of Siding	Vegetative Type	Body	Roof	Doors	Door Frame	Window Frame	Window Sash	Window Boards	Window Corner	Window Gable	Window Other	Interior Body	Interior Trim
70 B-1	2 U. Pit Toilet	Rock	All Types	-	*Brown or Gr.	Medium	Light	Light	Dark	-	Medium	Light	-	Pearl	Pearl
70 B-2	2 U. Std. Plumbing	Shakes	All Types	Medium	Dark	Dark	Dark	Dark	Dark	-	Medium	Dark	-	Pearl	Pearl
71	4 Unit	Reg.	Broad Leaf & Conifer	Light	Green	Stn.or	Stn.or	None	None	Light	Light	Light	-	Pearl	Pearl
	Chemical		Conifer	Stain	White	White				Stain	Stain	Stain	-	Gray	Gray
	Latrine	Combin-ation	Broad Leaf & Conifer	light	Green	Light	Light	None	None	Light	Light	Light	-	Pearl	Pearl
		Log	Conifer	Light	Brown or Gr.	Medium	Light	-	-	Medium	Light	Dark	-	Pearl	Pearl
71 A-1															
71 A-2															
72	4 Unit	Reg.	Broad Leaf & Conifer	Light	Green	Stn.or	Stn.or	-	-	Light	Light	Light	-	Pearl	Pearl
	Pit Toilet	Combin-ation	Broad Leaf & Conifer	Light	Green	Light	Light	-	-	Light	Light	Light	-	Pearl	Pearl
		Log	Conifer	Light	Brown or Gr.	Medium	Light	-	-	Medium	Light	Dark	-	Pearl	Pearl
				Stain	or Gr.	Stain	Stain	-	-	Stain	Stain	Stain	-	Gray	Gray
72 A-1	4 Unit Pit Toil.														
72 A-2															
72 B-1	5 U. Std. Plumbing	Rock	All Types	Rock	*Brown or Gr.	Medium	Light	Light	Dark	None	Medium	Light	-	Pearl	Pearl
72 B-2	5 U. Std. Plumbing												-	Gray	Gray

\* Note: Refer to Manual for details of mixing colors.  
 Alternate allowed on this item.

COLOR SPECIFICATIONS

Plan No.	Name of Building	Type of Siding	Vegetative Type	Body	Roof	Doors	Door Frame	Window Frame	Window Sash	Window Corner	Gable Boards	Other Ends	Interior Body	Interior Trim
73	: 6 Unit	: Reg. Log Combin.	: Broad Leaf & Conifer	: Light Brown Stain	: Brown or Gr.	: Medium Stain	: Light Stain	: Light Stain	: Dark Stain	: Dark Stain	: Light Stain	: Light Stain	: Pearl Gray	: Pearl Gray
	: Standard	: Log Com-	: Conifer	: L.S.or	: Brown	: Medium	: Light	: Light	: Dark	: D.S.or	: L.S.or	: L.S.or	: Pearl	: Pearl
	: Plumbing	: in Slab	: Conifer	: Varnish	: or Gr.	: Stain	: Stain	: Stain	: Stain	: Varnish	: Varnish	: Varnish	: Gray	: Gray
73 A-1	: 6 U.Std.	:	:	:	:	:	:	:	:	:	:	:	:	:
	: Plumbing	:	:	:	:	:	:	:	:	:	:	:	:	:
73 A-2	:	:	:	:	:	:	:	:	:	:	:	:	:	:
74	: 8 Unit	: Reg. Log Combin.	: Broad Leaf & Conifer	: Light Brown Stain	: Brown or Gr.	: Medium Stain	: Light Stain	: Light Stain	: Dark Stain	: Dark Stain	: Light Stain	: Light Stain	: Pearl Gray	: Pearl Gray
	: Standard	: Log Slab	: Conifer	: L.S.or	: Brown	: Medium	: Light	: Light	: Dark	: Dark	: L.S.or	: L.S.or	: Pearl	: Pearl
	: Plumbing	: Combin.	: Conifer	: Varnish	: or Gr.	: Stain	: Stain	: Stain	: Stain	: Stain	: Varnish	: Varnish	: Gray	: Gray
74 A-1	:	:	:	:	:	:	:	:	:	:	:	:	:	:
74 A-2	:	:	:	:	:	:	:	:	:	:	:	:	:	:
75	: 4 U.Std.	:	:	:	:	:	:	:	:	:	:	:	:	:
	: Plumbing	:	:	:	:	:	:	:	:	:	:	:	:	:
75 A-1	:	:	:	:	:	:	:	:	:	:	:	:	:	:
75 A-2	:	:	:	:	:	:	:	:	:	:	:	:	:	:
77	: 8 Unit Toilet	:	:	:	:	:	:	:	:	:	:	:	:	:
99	: Tourist Cabin	:	:	:	:	:	:	:	:	:	:	:	:	:
99 A-1	: Single Cabin	:	:	:	:	:	:	:	:	:	:	:	:	:
99 A-2	: Single Cabin	:	:	:	:	:	:	:	:	:	:	:	:	:
99 B-1	: DeLuxe Cabin	:	:	:	:	:	:	:	:	:	:	:	:	:

COLOR SPECIFICATIONS

Plan No.	Name of Building	Type of Siding	Vegetative Type	Body	Roof	Doors	Door Frame	Window Frame	Window Sash	Corner Boards	Gable Ends	Other Trim	Interior Body	Interior Trim	
99 B-2	DeLuxe Cabin	:	:	:	:	:	:	:	:	:	:	:	:	:	
99 C-1	Hunter & Summer Cbn	:	:	:	:	:	:	:	:	:	:	:	:	:	
99 C-2	Hunter & Sum. Cabin	:	:	:	:	:	:	:	:	:	:	:	:	:	
104	Camp-ground Shelter	Log & Rock	Broad Leaf & Conifer	Light Green Stain	Green or Br.	-	-	-	-	-	-	Light Varnish Stain	Ceiling	-	
			Conifer	Medium Green Stain	Green or Br.	-	-	-	-	-	-	-	Light Light Stain	Stain	-
104 A-1	Rock Shelter	:	:	:	:	:	:	:	:	:	:	:	:		
104A-2	Rock Shelter	:	:	:	:	:	:	:	:	:	:	:	:		
104A-3	Rock Shelter	:	:	:	:	:	:	:	:	:	:	:	:		
104B-1	3 Wall Shelter	:	:	:	:	:	:	:	:	:	:	:	:		
108	Playgrnd Equip.	:	All Types	Dark Stain on log supports.	:	:	:	:	:	:	:	:	:		
112	Bath House	:	:	:	:	:	:	:	:	:	:	:	:		
112A-1	Shower Bath	Shakes	All Types	Medium Stain	Dark Stain	Dark Stain	Dark Stain	Dark Stain	Dark Stain	Dark Stain	Medium Stain	Dark Stain	Pearl Gray	Pearl Gray	
112A-2	Shower Bath	Shakes	All Types	Silver Gray Stain	Red	Drift-wood Stain	Drift-wood Stain	Drift-wood Stain	Drift-wood Stain	Drift-wood Stain	Silver gray Stain	Drift-wood Stain	Pearl Gray	Pearl Gray	
112A-3	Shower Bath	:	:	:	:	:	:	:	:	:	:	:	:		



COLOR SPECIFICATIONS

Plan No.	Name of Building	Type of Siding	Vegetative Type	Body	Roof	Doors	Door Frame	Window Frame	Window Sash	Corner Boards	Cable Ends	Other Trim	Interior Body	Interior Trim
112B-1	Wash House													
112B-2	Wash House													
113	Swimming Pool													
113A-1	Swimming Pool													
113A-2	Swimming Pool													
121A-1	Foot Bridges	On peeled log surfaces use medium stain. On unpeeled log surfaces use clear spar varnish. On smooth surfaces, sand lightly, stain and varnish.												
123 D	Boat House													
123D-1														
123D-2														
123D-3														
124														
124A-1	Dress Rm. building for Lakes	Shakes	All Types	Medium Stain	Dark Stain	Dark Stain	Dark Stain	Dark Stain	Dark Stain	Dark Stain	Medium Stain	Dark Stain	Pearl Gray	Pearl Gray
124A-2														
124A-3														
125														
130	Community Bldg. with RecreaRms.													

COLOR SPECIFICATIONS

Plan No.	Name of Building	Type of Siding	Vegetative Type	Body	Roof	Doors	Door Frame	Window Frame	Window Sash	Corner Boards	Gable Ends	Other Trim	Interior Body	Interior Trim
130B-1	Summer Com.Hall													
130B-2	Summer Com.Hall													
130C-1	Winter Com.Hall													
130C-2	Winter Com.Hall													
131	Museums													
131A-1	Museums													
131B-1	Exhibit Houses													
131B-2	Exhibit Houses													
132	Service Buildings													
132A-1	Inn													
132A-2	Inn													
132A-3	Inn													
132B-1	Canteen													
132B-2	Canteen													
132B-3	Canteen													
132B-4	Canteen													
132C-1	Stores													

COLOR SPECIFICATIONS

Plan No.	Name of Building	Type of Siding	Vegetative Type	Body	Roof	Doors	Door Frame	Window Frame	Window Sash	Corner Boards	Gable Ends	Other Trim	Interior Body	Interior Trim
132C-2	Stores													
132C-3	Stores													
133	Summer Homes													
133A-1	I Room	Reg.	Broad Leaf	Light			Medium	Medium	Medium	Dark	Light	Light	Shut-	Pearl
			& Conifer	Stain	Green	Stain	Stain	Stain	Stain	Stain	Stain	Stain	ters	Gray
133A-1		Reg.	Log	Light	Brown		Medium	Medium	Medium	Dark	Light	Light	same	Pearl
			Conifer	Stain	or Gr.	Stain	Stain	Stain	Stain	Stain	Stain	Stain	as	Roof
133A-2	2 Room													
133B-1	With Dn&													
	Sit.Rms. Toilet & Shower													
133B-2	3 Rm.Add													
	Fireplace Bedroom, Porch													
133C-1	5 Rm.Add													
	Bedrm,etc													
134	Lodges													
134A-1	Lodges													
134 A2	Lodges													
135	Service Stations													
135A-1	Service Stations													

COLOR SPECIFICATIONS

Plan No.	Name of Building	Type of Siding	Vegetative Type	Body	Roof	Doors	Door Frame	Window Frame	Window Sash	Corner Boards	Gable Ends	Other Trim	Interior Body	Interior Trim
135A-2	Service Stations													
136	Garage													
136A-1	Garage													
136A-2	Garage													
136A-3	Garage													
137	Laundry Buildings													
137A-1	Laundry Buildings													
137A-2	Laundry Buildings													
138	Public Lookouts													
138A-1	Lookout													
138A-2	Lookout													
138A-3	Lookout													
138A-4	Lookout													
139	Dude Ranch													

General Note: All floors of wood to be oiled and varnished or stained and varnished.

COLOR SAMPLES



Light Stain	)	When light, medium or dark stain is specified the shades should match the samples as shown here. All brown exterior stains shall be made from a mixture of 4 gallons of raw linseed oil, 1 gallon spar varnish and a varying amount of "Turkey" burnt umber ground in oil.
Medium Stain	)	
Dark Stain	)	
Silver Gray	)	For use on exterior shakes and interior pine woods, plywood, etc., of good quality.
Driftwood	)	For use on exterior shakes and interior pine wood, plywood, etc., of good quality.
White	)	For use on exterior surfaces.
Pearl Gray	)	For interior walls and trim of buildings such as pit and chemical toilets, shower buildings, etc.
Roof Green	)	For roof surfaces.
Maroon	)	For roof surfaces.
Natural Ivory	)	For special purposes only, -- such as ornamental friezes, decorative surfaces, etc.
Cardinal Red	)	
Old Ivory	)	(NOTE: All above colors are inside paints, enamels or oil stains. Use as color examples for exterior work only. O.K. for interior work.)
	)	
Nile Green	)	

2. Landscape Design and Planting. The objective of landscaping and planting will be to secure the maximum amount of natural beauty. The idea will be to transplant native trees, shrubs, ferns, flowers and vines, except on some few areas where nursery specimens of native stock would be faster growing, more easily transplanted and serve our purposes better. The use of nursery specimens not from native stock must have the approval of the Regional Office.

The removal of surplus plant growth should be delayed until after the buildings or other improvements have been constructed. The first consideration, therefore, should be to carefully preserve all existing trees and shrubs and to disturb the terrain as little as possible. When removal and trimming are done, it should be under the careful supervision of someone fully capable of handling such work. Conifers should seldom be trimmed.

Refer to "Standards of Design" - by Frank A. Waugh, 5-17-33, in appendix.

Planting & Species - Deciduous stock survival will be increased by "balling" the roots. Coniferous stock must be balled as the roots cannot be allowed to dry out. Either spring or fall when the plant is dormant is the best time to transplant shrubs and trees. Considerable care and careful supervision is essential to a good job. For immediate effect big stock (6 - 10') must be planted. It does little good to plant small coniferous stock as by the time the tree is big enough to be of value the building or area has possibly decreased in value.

Moving Larger Trees - (5 - 10 feet in height) - Trees are dug so as to cut just as little of the root ends as possible and to get a ball of earth as big as can be handled with reasonable ease. Break or disturb just as few of the root hairs as possible. The ball of earth is wrapped with burlap or canvas and tied or sewed. When trees are too heavy to be lifted into truck by hand, a tripod or derrick can be set inside or at the rear of a truck and the trees hoisted into it. The derrick should be equipped with blocks and tackle. Trees must be handled with care to prevent the breaking of roots, root hairs, branches and twigs. It is essential to remember that so far as possible trees should be planted in sites similar to where they have been growing.

Plans for Planting - must be made before any holes are dug or planting done. Location of each specimen or mass should be staked. Proper spacing will include room for growth. Soil should be moist and well tamped around all specimens. Larger specimens may need "guy" wires to hold them in place until they have become anchored. In some areas it will be necessary to protect from porcupine.

Buildings or other structures can be made much more attractive by "foundation" planting. This consists of using low spreading specimens and breaking the monotony of a full foundation wall. This also ties the building to the ground. Accent planting is placed at the corners or against other vertical lines to break the stretch of height. This has the effect of lowering the apparent height of the building. Occasionally a taller specimen is placed in front of a large unbroken space in order to break up the effect of bareness.

In campground planting other than foundation planting most of our work will be of four types: first, mass planting; second, screenage planting; third, clump planting; and fourth, specimen planting (seldom used). Mass planting and screenage planting are very similar, and dense, hardy species are required. Clump plantings are made to fill in small unforested areas on a tract. It presents a better effect than regular spacing of trees. In simulating natural forest growth we should most often follow the clump method and should study natural clumps for our ideas as to mixture of species, etc.

The following trees and shrubs are recommended for the various types of planting:

For Mass and Screenage Planting

- |                           |                                      |
|---------------------------|--------------------------------------|
| 1 - Blueberry elder       | <i>Sambucus caerulea</i>             |
| 2 - Red elder             | <i>Sambucus microbotrys</i>          |
| 3 - Bearberry honeysuckle | <i>Lonicera involucrata</i>          |
| 4 - Red-osier dogwood     | <i>Cornus stolonifera</i>            |
| 5 - Mt. Snowberry         | <i>Symphoricarpos oreophilus</i>     |
| 6 - Round-leaf Snowberry  | <i>Symphoricarpos rotundifolius</i>  |
| 7 - Wild Rose             | <i>Rosa</i> spp.                     |
| 8 - Sumac                 | <i>Rhus cismontana</i>               |
| 9 - Mt. ash               | <i>Sorbus scopulina</i>              |
| 10 - Manzanita            | <i>Arctostaphylos pungens</i>        |
| 11 - Hawthorne            | <i>Crataegus rivularis</i>           |
| 12 - Chokecherry          | <i>Prunus virginiana melanocarpa</i> |
| 13 - Resin birch          | <i>Betula glandulosa</i>             |
| 14 - Willow               | <i>Salix</i> spp.                    |

For Foundation Planting (Around Buildings)

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1 - Red elder                     | <i>Sambucus microbotrys</i>   |
| 2 - Red-osier dogwood             | <i>Cornus stolonifera</i>     |
| 3 - Dwarf juniper                 | <i>Juniperus sibirica</i>     |
| 4 - Creeping or prostrate juniper | <i>Juniperus communis</i>     |
| 5 - Oregon grape                  | <i>Odoxylon repens</i>        |
| 6 - Red cedar                     | <i>Juniperus scopulorum</i>   |
| 7 - Utah juniper                  | <i>Juniperus utahensis</i>    |
| 8 - Shrubby cinquefoil            | <i>Dasiphora fruticosa</i>    |
| 9 - Manzanita                     | <i>Arctostaphylos pungens</i> |

For Clump and Specimen Planting

- |                            |                             |
|----------------------------|-----------------------------|
| 1 - Red-osier dogwood      | <i>Cornus stolonifera</i>   |
| 2 - Mt. alder              | <i>Alnus tenuifolia</i>     |
| 3 - Red birch              | <i>Betula fontinalis</i>    |
| 4 - Hawthorne              | <i>Crataegus rivularis</i>  |
| 5 - Narrow-leaf cottonwood | <i>Populus angustifolia</i> |
| 6 - Bigtooth maple         | <i>Acer grandidentatum</i>  |
| 7 - Blue spruce            | <i>Picea pungens</i>        |
| 8 - Engelmann spruce       | <i>Picea engelmanni</i>     |

9 - Alpine fir	Abies lasiocarpa
10 - Douglas fir	Psuedotsuga taxifolia
11 - Ponderosa pine	Pinus ponderosa
12 - Red cedar	Juniperus scopulorum
13 - Utah juniper	Juniperus utahensis
14 - Mt. Mahogany	Cercocarpus ledifolius
15 - Box elder	Acer negundo interius

F. Tickler List of Recreation Facilities.

1. Amphitheatre. Plan 107, 107 A-1 to A-3. Keep away from playgrounds, parking places, roads and other sources of noise.

2. Barbecue Pit. Plan 119, 119 A-1. May be useful on larger picnic areas.

3. Barriers. Plan 69 B-3. Do not paint, - use brown stain.

4. Boat Dock & Landing. Plan 123 A-1 to A-4, 123 B-1 to B-4, 123 C-1 to C-3. Do not locate directly in front of lodge or hotel.

5. Boat House. Plan 123 D-1 to D-3. Regional Office approval necessary. Screen from view. Use neutral colors.

6. Bonfire. Plan 106 B-1, 106 B-2. Keep away from playgrounds, parking areas, roads and trees.

7. Bulletin Boards. Plan 64 A. Use where they will be read.

8. Camp Spot. At least 75 feet from center to center and 150 feet deep. Screen from each other and from road. Gravel if dust is bad.

a. Parking Spur - Approximately 20' x 10' - diagonal preferred.

b. Table - Plan 97 A, 97 B, 97C, 97 D-1, D-2, D-3, D-4. Regional Office approval required for 97 A. with hinged top.

c. Stove - Plan 96 A-1 preferable; 96 A-4 very desirable for picnic areas. Limit 96 A-2 and 96 A-3 to picnic areas of large group use.

d. Warming Fire - Plan 105 A, 105 B, 106.

e. Garbage Can - 15 Gal. with cover. Order through Regional Office.



f. Site for Tent - Must be level, preferably in the shade.

g. Food Cabinet - Plan 116, 116 A-1, 116 A-2.  
Not always needed.

9. Bridges, Foot. Plan 121 A-1 to A-5, 121 B-1 to B-4.  
Make simple. Do not decorate.

10. Checking Station. Plan 64 B. Tie in with fire plan.  
Regional Office approval required.

11. Cribbing of Streams. Plan 151.

12. Dams for Pools. Plan 152. Have engineer on job.

13. Dressing Room at Lake. Plan 124, 124 A-1 to A-3.  
Regional Office approval required.

14. Dude Ranch. Plan 139. Regional Office approval required. Make special effort to maintain natural surroundings.

15. Entrance Signs, Archways, Markers. Plans 64 C-1 to 64 C-4, 64 D-1 to 64 D-3, 64 E, 64 E-1 to 64 E-3, 64 F, 64 F-1, 64 F-2, 69 B-2.

16. Exhibit Houses. Plan 131 B-1, 131 B-2. Rarely needed. Regional Office approval necessary.

17. Fences & Cattle Guards. Do not fence unless necessary. Then fence large enough area to avoid resembling corral. Plans 65, 65 A, 67, 67 A. Use cattle guards and stiles rather than gates.

18. Flag Pole. Plan 118 A-1, 118 A-2. Place to one side of headquarters station rather than directly in front.

19. Fountain. Plans 98, 98 A-1.

20. Garages for Summer Homes & Lodges. Plans 136, 136 A-1 to A-3. Regional Office approval required.

21. Garbage Pit. Plans 103, 103 A-1, 103 A-2. Cans are preferable.

22. Gasoline & Oil House. Plan 95.

23. Incinerators. Plan 103 B-1 for large camps. Use Boyco type for smaller camps.

24. Laundry Building for Lodges. Plan 137. Regional Office approval required.

25. Lighting Plant Building. Plan 101 B-1 to B-3.  
Regional Office approval required.

26. Lodges. Plan 134, 134 A-1. Regional Office approval required.
27. Museums. Plan 131, 131 A-1. Rarely needed. Regional Office approval required.
28. Observation House. Plan 138. Rarely needed.
29. Patrol Headquarters & Garage. Plan 7 A, 7 B, 7 (revised), 23.
30. Playgrounds. (In order of preference) Plan 108, 109, 122. Consider desirability of shade.
- a. Swings. Plan 108, sheet 2.
  - b. Seesaw. Plan 108, sheet 1.
  - c. Sand Box. Plan 108 D-1 to D-3.
  - d. Wading Pool. Plan 111, 111 A-1.
  - e. Horseshoe Courts. Plan 122.
  - f. Baseball. Plan 122.
  - g. Tennis. Plan 122.
  - h. Volley Ball. Plan 122.
  - i. Croquet. Plan 122.
  - j. Putting Green.
  - k. Horizontal Bar. Plan 108 A-2.
  - l. Basket Ball. Plan 122.
  - m. Driving Range.
  - n. Chutes. Plan 108 C-1 to C-3.
  - o. Golf Course. Plan 122 A-1 to A-3.
  - p. Archery Range.
  - q. Winter Sports.
    - (1) Ski Run. Plan 122 E-1 to E-3.
    - (2) Toboggan Slide. Plan 122 F-1 to F-3.
    - (3) Skating Rink. Plan 122 G-1 to G-3.

31. Pump Building. Plan 115 B-1, 115 B-2.
32. Recreation Hall. Camps of 20 camp spots or more. Must have ample room and Regional Office approval. Plan 130 A-1, A-2, 130 B-1, B-2, 130 C-1, C-2.
33. Roads & Trails. Gravel if dust is bad. Avoid using too much space for roads. One-way roads often preferable. Use more short trails near camps.
34. Seats, Rustic. For camp spots, play areas, outlook points. Plan 69 A-1 to A-6, 109 A-1 to A-6, 109 B-1 to B-4, 109 C-1, C-2, 109 D-1, D-2.
35. Septic Tank. Plan 76, 76 A, 76 A-1.
36. Service Station. Locate in service area. Plan 135, 135 A-1, A-2.
37. Shelter. With and without stoves. Use only when plenty of room. Large flagstone may be used for floor and steps. Plan 104, 104 A-1 to A-3. 104 B-1 for "Primitive Area" - "lean-to" type.
38. Shower Bath. Natural hot water preferred. Regional Office approval required. Plan 112, 112 A-1 to A-3.
39. Signs. See entrance signs.
40. Spring House. Plan 60, 60 A-1, A-2.
41. Store. Plan 132 C-1 to C-3.
42. Stove, Cooking. See #8 c. this list.
43. Stove, Heating. Plan 105 A.
44. Summer Homes & Cabins. Plan 133, 133 A-1, A-2, B-1, B-2, C-1, D-1. Regional Office approval required.
45. Swimming Pool. Suitable places with natural hot water preferred. Regional Office approval required. Plan 113, 113 A-1, A-2.
46. Tent Floor. Plan 120, 120 A-1, A-2.
47. Toilets. Within 300' of all campers' spots. Accessible without crossing other camps. Forks of roads preferable. Single units least desirable. Regional Office approval required for flush toilets. Water supply must be ample. Proper disposal of sewage very important. Plans 70 to 75 incl. - 78 (portable).

48. Wash House. Very large camps only. Plan 112 B-1, B-2.
49. Water Cooler. Plan 117, 117 A-1.
50. Water System. Have engineer lay it out.
  - a. Cistern - Plan 94.
  - b. Hydrants - Plan 115 A-1, A-2.
  - c. Pump Building - Plan 115 B-1, B-2.
  - d. Storage Tank - Plan 114, 114 A-1 to A-3.

## VI. FUNCTIONS OF RECREATION PATROL.

### A. Short-Term Men.

Short-term men should be instructed and trained along the following lines:

1. Area to be patrolled.
2. Forest Service policies, activities, points of interest, fishing, game, timber, etc., on the area.
3. Frequency of trips, indicating time of day and days of week.
4. Improvements in campgrounds to be made during slack time.
5. Cleaning camps.
  - a. Clean up papers, cans, garbage, etc., and have definite method of disposal.
  - b. Wash garbage cans and sprinkle or paint with creosote compound, gerrite, etc., to repel flies.
  - c. Keep comfort stations fly-proof, and sweep out, wash seat with soap and water and treat pit with creosote dip (20 parts water) daily or at least twice a week.
  - d. Agitate chemical toilets daily or as near daily as conditions justify. Recharge with flake caustic once a season or oftener. Check depth of solution and keep valves tight in chemical tanks.
  - e. Sweep out, wash seats and clean wash bowls in flush toilets daily. On heavily used campgrounds this work should be done early in the morning. Definite instructions should be given for each ranger district by the ranger in charge.

f. Keep all campground improvements clean and in repair.

g. Put all fire, sanitation, etc., signs on bulletin boards, rather than scatter on trees. Keep signs in good repair and replace any torn or marred paper signs.

h. Keep registration booth in order and collect registration sheets. Distribute educational material desirable.

i. Allow nothing to be nailed to trees. Prevent cutting of boughs, initialing trees and other acts of vandalism. Become familiar with Regulations T 1-2-3-5-7-8-9. (See N. F. Manual, pages T-3 to T-18.)

j. Patrolman should be impressed with the fact that the attractiveness of the campgrounds reflects upon him as well as upon the Service.

k. Post campground rules.

#### 6. Contact the Public.

a. Personal appearance to be of good standard. Must wear neat, clean field clothes. Keep shaved.

b. Approach to be courteous and tactful.

c. Learn camper's interest, such as fishing, scenery, etc., and offer help in finding the same.

d. Tell him of points of interest and help him enjoy his stay.

e. Acquaint him with fire and sanitation rules and solicit his cooperation in their application.

f. Caution against injuring trees in any manner, especially at campgrounds. (See Reg. T-5 (A) page 9-T.)

g. Supply visitors with one or more of the following:

(1) Bookmark containing fire rules. (Use mainly in schools.)

(2) Forest Fires or Game.

(3) Sportsmen's Code.

(4) Map Folders - Also Northern and Southern Half of Intermountain Region.

(5) Vacation in the National Forest.

(6) It Might Have Been You.

h. Bulletins and mimeographed sheets to those who will use them (Scout Masters, heads of organizations, interested visitors.)

(1) Native Trees of the Intermountain Region. (Forest Service R-4, 1934, - 20 pages.)

(2) Our Forests - What They Are and What They Mean to Us. (U.S.D.A. Misc. Pub. 162 - 1933, - 34 pages.)

(3) What the National Forests Mean to The Intermountain Region. (U.S.D.A. Misc. Cir. 47, 1930, - 22 pages.)

(4) Whitefish, Grayling, Trout and Salmon of the Intermountain Region. (Dept. of Commerce, Bureau of Fisheries, Doc. 1062, 1929, - 17 pages.)

(5) Government Forest Work in Utah. (U.S.D.A. Misc. Pub. 99, 1931, - 18 pages.)

(6) Floods and Accelerated Erosion in Northern Utah. (U.S.D.A. Misc. Pub. 106, 1934, - 21 pages.)

(7) The National Forests of Idaho. (U.S.D.A. Misc. Cir. 61, 1926, - 34 pages.)

(8) Forest Fires in the Intermountain Region. (U.S.D.A. Misc. Cir. 19, 1924, - 16 pages.)

i. Train recreational tastes so visitor will learn to appreciate intelligent use of resources as well as their protection.

j. Pay special attention to making arrangements for accommodating large groups.

k. Convey the idea that the Forest Service desires to have the recreational resources fully utilized and enjoyed.

l. Encourage recreational use, by urging organizations in towns to use Forest Camps.

m. Avoid appearance of loafing. Make contacts and break them at the proper time. Let public know you are busy.

n. Temporary men avoid pretense of being a Ranger.

o. Record estimated (or actual) number of visitors daily on a chart. Total by week, month or season. Record amount of literature distributed and note preference. Report to Forest Ranger the response of public to different kinds of service and any worthwhile suggestions made by visitors.

p. Learn and suggest ways of making recreation more attractive for visitors.

q. Avoid being a nuisance. Do not thrust yourself on people against their wish.

7. Watch for and report insect infestations.

B. Ranger or Other Yearlong Force.

Should have definite instructions as follows:

1. Frequency of his own inspection of campgrounds and work of his short-term men.

2. Work to be done during these inspections, such as listed under 1 to 7 above.

3. Purpose of making contacts. In addition to points listed in 5 above, he should, when feasible, familiarize the visitors with what he is aiming to accomplish by the administration of his District and make it plain that he is a manager of valuable resources, rather than merely a policeman or a fire fighter. He should make the most of opportunities to secure help on PR objectives for the Region.

4. Frequency, time and place for talks to be given at camp fires, lodges, etc. Definite understanding with Supervisor about subject matter.

5. Make sure his short-term men are creating a favorable impression.

6. Encourage use of the recreational resources and make sure they are rendering as high service as feasible to the community.

PROGRAM OF RECREATION PLANNERS' CONFERENCE

Thursday & Friday, April 9 & 10, 1936

Ogden, Utah.

ote: To be inserted as a Recreation Hand Book Supplement, following page 63.

V. DEVELOPMENT OF OCCUPANCY AREAS. See Recreation Handbook p. 18 et al.

A. CAMPGROUNDS AND PICNIC AREAS.

1. Selection of Site - Factors determining which use site best adapted for.  
- Size of area required for the two uses.

Community Picnic Ground

Campground

- a. Accessibility - within 3 hours drive. Not determining factor.  
- Near towns or cities. Not necessarily determining factor.

(Experience in 1935 on the Cache was that people did not go readily to the higher areas, and that many of these brush areas could be improved by planting of proper species.)

- b. Drinking Water - gals/person/day. Gals. per day.

(We need information on the amount of water required at peak of consumption during the day. This calls for installation of water meter. Water supply must be such as to meet the peak requirements for all purposes.)

- c. Scenic Values - views of growing importance. Scenic Values - views of growing importance.

- d. Open and nearly level area for 1 or | of lesser importance.  
More soft ball diamonds.

(Slopes up to 5 % are usable.)

- e. Existing Cover. - select cover where very little or no additional planting is needed. Existing Cover - select cover where very little or no additional planting is needed.

- f. Practicability of expansion - on picnic units 200 to 300 ' apart. | On units 75 to 100' apart.

- g. Segregation - where to be used jointly with camping. Segregation - where to be used jointly with picnicking.

(1) By means of topographical boundaries.

2. Planning Procedure.

- a. Determining size of area required (See A-1 above, Selection of Site).  
b. Preparation of topographical map for picnic and camp grounds.

(1) Scale - Use 100' scale where 40' scale will not allow placing on single atlas sheet or 1 fold thereof. Topographic maps drawn at 200' scale are rarely usable. 20' or 40' is preferable to 30' or 50' scale because carpenter's rule or ordinary foot rule on 40' scale 1/4" = 10' and on 20' scale 1/8" = 5'.



- (2) Contours vs. Percent of Slope. Where area does not justify preparing contour map, show percent of slope every six or seven inches, together with dotted line showing top and toe of slope and dashed line indicating outline of non-usable area, if any. Percent of slope to read + 7% or - 7%. Plus 7% indicates ascending grade in direction of arrow. Minus 7% indicates descending grade in direction of arrow.
  - (3) Views. Plan should show direction of significant views where shelters or observation seats might be erected. Show by regular symbol of "L-Recreation" circular of 11/7/35.
    - (a) Plan should show where selective thinning for views to be done.
  - (4) Cover Types - Open areas in cover. Show outline of opening. Where trees scattered, show important groups. On proposed resort site involving large specimen trees which will necessarily influence placing of main buildings or facilities, show trees by small cross with caliper of trunk in inches.
  - (5) Existing Roads. Ungraded types need not be shown on topographic maps.
  - (6) Geological Formations- Indicate size, height and nature of cliffs, etc.
- c. The Campground - Developing the Landscape Plan.
- (1) Intensity of Occupancy a controllable Factor.
  - (2) Determining Location of Camp Unit Groups.
    - (a) Single car.
    - (b) Two cars.
    - (c) Car with small trailer.
    - (d) Car with house trailer.
    - (e) See recent R-4 standard plate #122 B-2, "Types of Camping Units Composite Designs."
  - (3) Individual Camp Units - Their design and arrangement. 10 stove limit.
    - (a) Do not prepare plans for R. O. where 10 stoves or less.
    - (b) Record need only be on form 878a.
    - (c) Camps of 10 stoves or less need only be staked on the ground by the recreational planner and typewritten memorandum sent by the F.S. to R. O. of this action. (See L-Recreation Circular May 1)
    - (d) Select individual units for character of their views and outlook. Orient table and tent to take advantage of view. See R-4 #122 B-2.
    - (e) Privacy needed between units without resorting to planting. Planting is expensive.
    - (f) Fireproofing - Place units between camp road and creek so as to encircle group with road or creek or both. Clean up of brush, debris and needles, etc., necessary where there is fire danger. Apply resourcefulness in locating trails, roads, parking areas so as to serve dual purpose with fireproofing. Spark arrester suggested on stoves where hazard is high, as determined by Supervisor.
    - (g) Irregular topography - Avoid terracing except where imperative.
    - (h) Table, stove and Food Box - each spaced approximately 10 ft. from the other. See R-4 #122 B-2; "Types of Camping Units."
    - (i) Combination Food Box-Cooler of log construction - may be constructed also of 4" or 6" shevlin log siding. Construct only on campgrounds planned for longer than overnight use and only in outlying camps where people come long distances and often stay for some time. A compartment under the table as a part of the table itself in which to store food may be desirable.

- (4) Comfort Stations - Spacing and Locations on Campgrounds.
- (a) So located that no camp unit more than 300' from a toilet.
  - (b) Use of compass on landscape plan- Swinging arcs on 600' centers with 300' radii in order to ascertain number of toilets. On all future plans show these circles in light dashed lines.
  - (c) Before locating or placing toilet stations, be sure they balance with requirements listed in table on p. 23 of Recreation Handbook, "Approximate Toilet Requirements for 1, 2, 4, 5, 6, and 8 toilet seats."
- (5) Shelters - Community picnic Shelter seldom justified on campgrounds.
- (a) Trailside shelter at observation points is occasionally desirable; simple, inexpensive seat with log and shake roof.
- (6) Signs and Bulletin Boards. Campground to be well posted thru use of new series of recreational signs R-4 64 D-5 to D-10.
- (a) Letters to be burned on all signs except those listed in our "L-Recreation" circular of February 24.
  - (b) Burned letters applied with pyrography outfit.

(One man can letter and burn 5 of these trail signs, 3" letters, possibly two or three words to the sign average, in a day.)

- (c) Use of ancient Roman alphabet, B-W prints of which are available from the R. O. in the following sizes: 1", 2", 3", 4", and 5".
- (7) Drinking Fountains. Use of new type #98 A-2 or log type R-4 #98 A-3, according to needs.
- (8) Campground Road Problems.
- (a) One-way, single-track roads 10 ft. wide laid out either as loop or series of loops, or with turning circle at end. Where turning circle, use 12 ft. road.

(A 16 ft. single-track surfaced road with turnouts will give ample room on a campground for traffic going in both directions on the campground.)

- (aa) Do not show right angle spurs on 1-way road.
  - (bb) Camp spurs to be at 45 degree angle on one or both sides of the road.
  - (cc) Camp spurs to be minimum depth of 25 ft. on shortest side, preferably 35 ft., width 12 ft.
  - (dd) House trailer spurs to be arcs of 50 ft. outside radius and located on outside of curves of camp roads, and carefully segregated 1/8 mile or more from other types of camps. See standard plan R-4 #122 B-2. "Types of Camping Units."
  - (ee) Important to post with signs.
- (b) Two-way, double-track roads 16 to 18 ft. wide.
- (aa) Camp spurs to be at 90 degrees so car can back and leave via either direction.
  - (bb) Right angle spurs only on 18 ft. roads.
- (c) One-way vs. two-way roads. Conditions determining use.
- (aa) Large camps where cover or topography prohibit camper from seeing exit, usually call for 2 way roads.
- (d) Design of one-way roads. Where 1-way roads are proposed avoid placing them in locations which would invite use by traffic in both directions. (Example: A right-hand turn-off of an ascending grade proposed as an exit for outbound or descending traffic.)

- (aa) Mileage to nearest town. All roads leading into campgrounds should show mileage to next adjacent town, or distance to adjacent campground, resort, administrative site, etc., both on plan and on ground.
- (e) Barriers - Use restraint to avoid indiscriminate placing of barriers throughout whole area. Use rock barriers sparingly, logs preferably.
  - (aa) Rock - imbedded rock minimum size 3 ft. long by 2 ft. high, minimum above grade 18". For construction, see R-4 #69B-4.
  - (bb) Log- Use of short 8 ft. portable types not recommended as they are easily removed. Show location and type on all plans.
  - (cc) Use portable types only where logs of sufficient size and length to remain in place, 15 to 25 ft. average, and 15" minimum diameter.
- (9) Group Parking Areas on Campgrounds.
  - (a) Rarely needed except on community picnic grounds.
  - (b) Refer to R-4 plate #122 B-1 for design and arrangement.
- (10) Children's Play Areas.
  - (a) Play apparatus in small groups 400 ft. to 600 ft. apart preferable to scattering same thru area.
  - (b) Where community picnic ground adjoins campground the play area for both is sometimes placed between the two uses. However, this tends to break down the needed segregation and is not a good general practice.
  - (c) Types of Playground Facilities.
    - (aa) Swings, set of 3, fittings cost approximately \$14.00.
    - (bb) Teeters.
    - (cc) Horizontal bars.
    - (dd) Place all 3 types of these facilities in one structure by erecting them end to end. This has been successfully constructed on the Manti N. F.
    - (ee) Wading Pool. Select either round or new 38 ft. naturalistic-shaped combination wading pool and sand box, standard plan R-4 #111 A-1. The latter is generally preferable.

(Hand chlorination by an attendant requires regular maintenance. In some cases, will have to provide disposal of the water, either through leaching fields as on the Cache, or by septic tanks under more aggravated conditions.)

  - (aaa) Each of these pools to be so fitted into topography as to blend harmoniously with the surroundings and appear to be a natural part of the landscape. This will require study on the part of the planner to select best location on the ground. Type R-4 #111 A-1 is more appropriate than #111.
  - (bbb) When placing on slope, cut and fill slopes would be made sufficiently wide to permit running and playing around pool.
  - (ccc) Water inlet - Use care in laying up rock so as to simulate a natural spring; grading up behind the rock masonry to fit the artificial spring more harmoniously into the surroundings.
  - (d) Total number of pieces of play apparatus desirable on a given area.
    - (aa) 1 Swing per 5 children on the area at a given time.
    - (bb) 1 Teeter per 10 children on the area at a given time.
    - (cc) 1 Large sand Box measuring 12 ft. x 20 ft. per 10 children on the area at a given time. Sandbox is included with pool, #111A-1- (11) Adult Recreational Facilities for Campgrounds.
  - (a) Soft Ball diamond not often needed except on larger camps of 20 or more stoves. Picnic grounds should have soft ball diamond.

(In selecting the area for the ball field the one should be selected which involves the least grading work. We are merely providing for amateurs who come out to play a strictly amateur's game. The Cache has as intensive use of ball grounds as they do of their picnic grounds. We are not justified in going to material expense in providing large backstops, extensive grading, etc.)

- (b) Indicate minimum outfield radius of 250 ft. on plan even though cover may not allow clearing to this size.
- (c) Horseshoe Courts - 2 to 4 courts placed side by side.
  - (aa) Always oriented so that players pitch horseshoes to north and to south rather than east and west on account of sun in eyes of players.
  - (bb) Always located off to one side of principal use area; of line of pedestrian traffic between different facilities; and off to one side of children's playgrounds. This is necessary on account of danger to children being hit by the flying objects.
- (d) Bonfire Circle.

- (aa) In locating bonfire circle, study topography to permit location which will be as unobtrusive as possible in the general landscape. Where proposed in areas of high fire hazard, it should be well out in the open from trees and brush. Placing these structures on a slight slope or hillside with effectively graded cuts and fills will sometimes produce a very attractive and natural appearing structure.

- (bb) In locating bonfire circle, it is desirable to place same where good views are obtainable from this structure.

- (cc) Size of seat or top face of logs to be a minimum of 12" in width, preferably 14". This will require a 16 to 18" log. The resultant ruggedness of appearance will more than offset the extra labor involved in securing this larger diameter log and will assist in overcoming the flimsiness of some of these structures in the past. Avoid use of half logs.

d. Community Picnic Grounds - Developing the Landscape Plan.

- (1) Intensity of Occupancy - controllable, by limiting size of parking areas and by barriers.

(Number and extent of facilities provided is the basis determining the carrying capacity of an area. In Logan Canyon, picnic grounds are let out on permit and are reserved ahead and others are prohibited from entering. The reservations are registered.)

- (2) Segregation between different groups or outing.

- (a) Often desirable where 2 or more large groups using given area simultaneously.

- (b) Segregation by placing each community stove and group of tables on centers 200 to 300 ft. apart depending on cover and area available.

- (c) Use compass to swing arcs of 100 to 150 ft. radii determining number of group units possible on site.

- (3) Determining Location and Capacity of Group Units.

- (a) Scenic views - sites selected for views.

- (b) Shade or sun.

- (c) Fireproofing area - surround by roads or creek or both.

(Denuded ground on heavily used areas might call for gravelling some areas of heavy use or by replacing the species that will be killed out, by planting of more hardy types, as conifers.)

(d) Toilets.

- (aa) 300 ft. maximum distance from group unit to toilet on community picnic grounds.
- (bb) On all future plans, draw circles in light dashed lines having a radius of 300 ft. to determine the number of toilets and the number of camps which each of them will serve.
- (cc) On all recreation plans the comfort station facilities should be sufficient in number of units to serve the aggregate average number of people anticipated, as determined from the number of stoves and tables proposed for the area.
- (dd) Pit Toilets - See Recreation Handbook p. 25.  
On all plans show R-4 plan number, type of siding and exterior color.  
(On outlying areas pit toilets built with creosoted skids so can be moved around. - - - Gurr considers pit toilets in many areas very satisfactory. - - - Arentson questions the advisability of constructing large pit toilets; prefers to construct chemical, and they are much cheaper to maintain than flush, he thinks. - - - Pits should be at least eight feet deep.)
- (ee) Chemical Toilets - See Recreation Handbook p. 24.
- (ff) Flush Toilets - See Recreation Handbook p. 23.

(Another limiting factor on flush toilets other than the cost and maintenance is the limited water supply.)

- (gg) In locating each comfort station structure endeavor to place them so as to be out of the principal views and somewhat screened by natural existing cover by placing in fringe of trees.
- (hh) Determination of number of toilet seats required for a given area on community picnic grounds.
- (aaa) As soon as number of 1-unit and 2-unit community stoves has been decided upon for a given picnic ground, it will then be possible by assigning an average number of people per stove to determine the total use occupancy of the area. Example: 1-Unit stove will be used by from 10 to 25 people at one time. 2-Unit stove will be used by from 25 to 35 people per unit at one time, or 50 to 70 per 2-unit stove. Likewise, by assigning an average number of people per picnic table, it will be possible to determine the total use occupancy of the area. Example: 1 - 6' picnic table will accommodate an average of 1 auto load of people, or 4.6 persons per table. These data observed at Fishlake,

Special consideration should be given to cases where above does not apply such as at amphitheatres.

(4) Drafting of Community Picnic Ground Plans.

- (a) Where planting of trees or shrubs is proposed, show these directly on the picnic ground or campground development plan. Do not prepare separate planting plan for the area.
- (b) Revised symbol for top and toe of slope is to be a dashed line bearing the words "Top of Slope" or "Toe of Slope" as conditions require.
- (c) Approximate elevation above sea level. Where contours are not

given, show by a note near the title the approximate elevation of the area in round numbers.

- (d) Section, township and range to be shown on all plans of every description prepared by recreational planner, or forest ranger.
- (e) Free-hand drafting. Do as much free-hand drafting as possible consistent with good work.
- (f) Tabulation of all Facilities to be placed on all camp and picnic plans. Show whether existing or proposed.

(Wherever possible, use typewriter in preference to lettering.)  
Every recreation plan should carry this complete tabulation.

- (aa) Each development plan to carry a table listing the total facilities of each kind and showing the correlation between them.
- (bb) Group Parking Spaces - Total units to be approximately 10% less than total number of tables proposed, where construction of parking facilities adds materially to costs; otherwise, parking space may be provided for total number of people anticipated as indicated by other facilities.
- (cc) Total Stoves, indicate whether single or double or grate.
- (dd) Total Units of Comfort Station Facilities, i.e. 1-2C, 3-4P, etc.
- (ee) Total Units of Children's Play Apparatus, and types.

(5) Community Picnic Ground Road Problems.

- (a) Roads within area primarily to serve parking areas.
- (b) Service roads to amphitheatre - to unload piano, etc. Closed to public.
- (c) Service roads to major group areas for unloading of tables, etc. Closed to public.
- (d) Individual picnic units - reached by trail or bridge from adjacent auto parking areas, latter preferably to spur road serving them where area is restricted in size.
- (e) Small areas best designed if parking areas and roads are kept outside.

(6) Group Parking Areas.

- (a) Located so as to be out of principal views wherever possible.
- (b) Located so as to be minimum distance of 250 ft. from amphitheatre; likewise so autos will not have to pass directly behind stage to reach parking area; also so do not look into parking area from amphitheatre.
- (c) Located where existing cover will give necessary screenage or requiring minimum of new planting.
- (d) Designed on basis of new R-4 standard plan #122 B-1, "Parking Areas and Turns."
- (e) Finish grade need not be level. (White City parking area averages 8% N&S slope - cars park E & W.)
- (f) Parking capacity.
- (aa) Barriers - See new R-4 #69 B-4, "Rock and log barriers."

(Log and rock placed with tops almost level with dirt back fill, which will be planted, leaving the road as natural drainage, is less conspicuous than barrier which sticks up and may give a better appearance.)

(In the location of fences on a campground, the idea is primarily to give a feeling of not being fenced in; thus fences should be obscure and back in the cover.)

- (g) Screening by planting. Avoid locations requiring new planting.

- (aa) Average planting requires irrigation for at least 2 years.
- (bb) Planting requires protection by barriers.
- (7) Children's Play Areas.  
(See same heading under "Campgrounds" above.)
- (8) Recreational Facilities for Adults.  
(See same heading under "Campgrounds" above.)
  - (a) Soft ball diamonds.
  - (b) Horseshoe pits.
  - (c) Bonfire circle.
  - (d) Amphitheatre.
  - (e) Volley ball courts.
    - (aa) Always placed so players face North and South on account of sun in eyes of players.
    - (bb) Surfacing - gravel vs. cement. Volley ball courts should always be gravel or clay or combination of both. Use of cement in surfacing of volley ball courts is unwarranted except in rare cases where there is an actual and decisive demand for use of court as dance floor. This is only justified in community picnic grounds of heavy concentrated use, and even under these conditions R. O. approval is required.
  - (f) Tennis Courts.
    - (aa) Always placed so players face north and south on account of sun in eyes of players. - Question is raised as to whether there is real justification for tennis courts on our campgrounds and picnic grounds in the National Forests.
    - (bb) Surfacing. Tennis courts placed in areas which are to receive little or no maintenance will have to be constructed of concrete to be at all serviceable without excessive maintenance expense. However, the minimum size concrete slab on a single tennis court is 36 x 78' which requires a minimum purchase of 250 sacks of cement.
  - (g) Amphitheatre.
    - (aa) Selection of Site. Every proposed site should have profile of existing ground taken and plotted on scale drawing to definitely determine the sight clearance and percent of slope.
    - (bb) Front of stage often needs to be raised to height of 24 to 30" to obtain this sight clearance.
    - (cc) Stage construction. When cement is used for floor of stage it should have an edging of either field rock or log.
    - (dd) Guard rails. Erect log guard rails at sides and rear for protection of participants where stage is raised 2 ft. or more above ground.

(In the selection of site for amphitheatre, securing of a natural bowl shape that fits the design will result in less dirt moving and a more economical grading job. - - - 16 constructed in R-4 to April 1, 1936. - - - Civic groups, etc, use them weekly, monthly, etc. However, be sure that they are going to be used before constructing one. - - - Amphitheatres should be kept as simple and inexpensive as possible. - - - 75 ft. is about the maximum distance people speaking outdoors can be heard. - - - With respect to views in back of amphitheatre, a good conifer background with views off to right or left is very desirable for people enjoying amphitheatre in the day time as well as the evening performances. - - - Portable public address systems may be desirable for larger meetings.)



e. Hunters' Camps.

- (1) When locating, realize it will be used by other groups, so plan facilities for summer occupation as well as fall and winter.
- (2) Horse corrals.

(Grates in place of stoves to serve the dual purpose of warming fire and cooking.) These are available upon order from R. O.

B. RESORTS, AUTO CAMPS, STORES, SERVICE STATIONS, ETC. Operated on a commercial basis for the accommodation of the public. The following is a tickler list of services that may be needed and factors to be considered in planning these uses:

1. Areas from 5 acres up are desirable.
2. Accessibility to centers of Population and Nearness to Large Cities.
3. Abundance of pure Water, and Favorable Conditions for Disposal of Sewage.
4. Sufficient Playground Area.
5. Buildings and Facilities. Their grouping - recognition of site planning principles.
  - a. Central resort building should ordinarily be first seen when actually arriving at the site, and should be convenient to the best views. Scenic views from resort and lodge area are important. View from main lodge building itself is important.
  - b. Correlation needed in providing sufficient setback in accordance with roadside scenic strip policy and maintaining convenience to highway.
    - (1) Approach roads and turn-offs from main road.
    - (2) Grading and treatment of barrier strip between highway and gas pumps.
    - (3) Gas Pump Units - Their location and installation. See "Gasoline Pump Units with Suggestions for Improving Their Location and Installation," by Ellis Groben, 1936. Available from Division of Engineering, U. S. Forest Service, Washington, D. C.
  - c. Topography and Its Relation to Grouping of Buildings.
    - (1) Study opportunities to arrange main buildings and also cabins in groups in which the contours and scenic views determine the character and shape of the group. Avoid placing rows of cabins in straight lines where by following suggestions offered by the particular site a more pleasing and practical effect would result from arranging cabins and facilities in curving outline.
    - (2) Tourist camps, 1935 survey indicates they are increasing at rate of 500 annually.
    - (3) Cabins should not be crowded - minimum of 20 ft. between, preferably 30 to 40 ft.
    - (4) Each cabin to have its parking spur with barrier on one side or at rear of cabin, where topography permits.
    - (5) Where topography or cover prohibit, provide small group parking spaces as near cabins as possible. However, ordinarily preferable to select a site for cabins which will permit individual parking spur.
    - (6) Central toilets and bath houses for cabin groups - spaced so as no cabin more than 300 ft. from toilet - less in rough topography. Every special use resort plan should show location and type of toilets needed.



- (7) Boat landings and storage facilities should not be directly in front of resorts and hotels but to one side and screened from full view.
- d. Parking Spaces - Serving Main Buildings or Dance Floor.
- (1) Should be placed to one side rather than between resort and highway, or between resort and good views.
  - (2) Where striking views warrant an overlook, study possibility of combining needed parking spaces with this overlook parking space. (See Targhee - Scott Special Use on Teton Pass. Plan on file in R. O.)
  - (3) Place in fringe of cover rather than in open park. Utilize existing cover screenage in preference to proposed plantings.
  - (4) Design and Arrangement. (See standard plan R-4 #122 B-1, "Parking Areas and Turns.").
- e. Parking Spaces - To serve Individual Cabins.
- (1) Auto camps require individual parking spur placed at side or rear of each individual cabin. Where cabins are shown in plan and where topography will permit, these spurs should also be shown.
- f. Service Areas. (The following applies with equal force to Administrative Sites.)
- (1) Location at rear, away from living quarters, in well-screened location, either natural or man-made screen, such as slab fences, planting, etc. Locate away from approach to resort.
  - (2) Space requirements for handling and temporary storage of containers for soft drinks, for boxes, crates, for garbage, rubbish, etc., awaiting collection, is almost invariably underestimated. Area should be sufficient for these requirements in addition to that needed for parking 1 to 3 cars. Area always should be connected by 1-way or 2-way service drive and be adjacent to service door of building. Minimum size of service area to be 50' by 50'.
    - (a) Provide access to coal bin, woodshed, wood saw, garbage cans and garbage disposal, laundry and clothesline. (See grouping of service buildings below.)
  - (3) Service Buildings - Most desirable grouping is a square or rectangular service courtyard surrounded by each of the service buildings or facilities. This "hollow square" is advantageous chiefly in that the enclosure formed by the surrounding service buildings provides for confinement of maintenance activities and equipment to an area that becomes ultimately screened from public view as the various service structures are erected. Another decided factor in its favor is that only the exposed side of this "wall" need receive esthetic consideration; the inside may be constructed with entire view to practical and serviceable requirements. Size of open service court will vary from 50 x 50 to 50 x 150 ft. Service buildings should not be within main views from principal use area.
    - (a) Storehouse.
    - (b) Garage and machine shop.
    - (c) Barn, stable, corral, tie rack, saddle room, placed with regard to direction of prevailing winds. Place two latter 300' from lodge.
    - (d) Equipment and implement sheds and yards.
    - (e) Quarters for help including toilets, etc.
    - (f) Laundry.
    - (g) Light and power plant, pump house - should be away from and out of hearing of main building and cabins. Light and telephone

wires preferably in conduit under ground in areas of principal public use.

(h) Cost of conduit: 110 volt service line from transformer for a short distance (100 ft.), would cost around \$70 for underground non-metallic 2-wire cable, material only, --does not include labor. 220 volt 3-wire hook-up, commonly used for distribution in some of these areas, would cost around \$260 per thousand feet, supplying power up to a kilowatt.

(i) Cost of electric light distribution lines: The cost of short distribution lines for electric power, servicing lights and home appliances around a Ranger Station and Recreation Area, would be about as follows for materials only:

Non-metallic underground cable laid 18" or more in ground  
400' or less 110 V. A.C. #8-2 wire cable for 1 K.W. load or less \$17.50 per 100'.

1000' or less 110-220 V. A.C. #6-3 wire cable for 1.5 K.W. load or less \$260.00 per 1000' or \$30.00 per 100'.

Materials for a pole line (not including poles) for a similar distribution service would cost \$12.50-\$15.00 per 100'.

Transmission Lines.

2300 V. 3-#6 bare wire 3-Phase 60 cycle pole line (not including poles) without transformers would cost around \$360.00 per mile up to 3 miles. Beyond 3 miles a higher voltage should be used.

A metallic sheathed underground cable for high tension transmission would cost about 5½ times as much as a pole line for the same type of service.

(aa) Where lighting only is necessary, small units can be purchased very reasonably.

(bb) In many installations a gas driven electric generator set would be less expensive and more desirable to use. The amount of electric power needed would be a determining factor as to the size of plant.

A 1.5 K.W. 110 V. A.C. hand-cranked unit would cost around \$375.

Fuel cost per month would be about \$1.00-\$2.00.

A 3 K.W. 110 V. A.C. hand-cranked unit would cost around \$600.

Fuel cost per month would be about \$4.40.

Small hydro-electric plants cost a little more for the same size of gas electric unit where water is available, but there is no monthly fuel or maintenance cost.

## 6. Hotels and Resorts.

- a. Should be convenient to main roads except where special attractions as lakes, waterfalls, cascades and scenic features will draw the public.
- b. Set-back required of special use facilities. All buildings, structures, walls, facilities and uses should be kept from 50 to 100 ft. and preferably more from the shores of lakes, rivers, falls, impressive gorges or other exceptional features. Buildings should be kept out of view from exceptional features.

## 7. Commercial Uses as Stores and Service Stations.

- a. If practicable, should be combined with the hotel and resort use.

## 8. Manager's Quarters, Together with Office, Dining Room and Kitchen.

- a. Should be in lodge.

B-1. ORGANIZATION SITES, INCLUDING BOY SCOUTS AND GIRL SCOUTS.

1. Site possessing seclusion is often desirable.
2. Lakes or Ponds desirable for Swimming and Boating.
3. Check type and extent of facilities proposed and type of organization and financial status before preparing development plan, or issuing special use permit.
4. Organization Sites. - Should not be located within 1/4 mile of Forest camp or commercial resort.
5. Landscape Development Plans. - Should be worked out by the Forest Supervisor and the permittee showing the arrangement and grouping of all proposed and existing facilities, buildings, drives, areas, etc. These must be approved by the Regional Office before construction starts. In Ogden and in Salt Lake we have done something along this line of planning organization sites but it is not intended to be one of our main objectives. We want to suggest and be helpful, however.
6. Extent of Facilities Required.
  - a. Shelter cabins with 4-8 bunks or no bunks at all.
  - b. Recreation Hall combined with Mess Hall.

C. SUMMER HOMES.

D. WINTER RECREATION.

E. STANDARDS OF DESIGN.

F. TICKLER LIST OF RECREATIONAL FACILITIES.

G. WATER AREAS.

1. Reservoirs and Lakes.
  - a. Importance of maintaining water level.
  - b. Maintaining free access to shore line.
  - c. Types of Boat Landings.
    - (1) Pontoon boat landing, standard plan R-4 #123 B-1.
    - (2) Parallel to shore log and rock boat landing as in Spring Hollow-Logan Canyon, Cache N. F. type. Obtainable on request from R. O.
    - (3) Rock fill-log cribbing pier projecting into lake as in Fish Lake.
    - (4) Boat wharfs, piers and boat houses should be placed in sheltered cover, with a view to their being as well screened by existing cover and topography as conditions will permit.
  - d. Motor Boats - Removed from lake by inclined plane runway with block and tackle.
  - e. Boat Storage House - To be constructed in fringe of cover wherever conditions permit.
  - f. Bathing Beaches.
  - g. Skating Ponds.
2. Springs.
  - a. Rocking up to secure natural effect.
  - b. Opportunities for scenic strip developments, thru rocking up springs and by enhancing small waterfalls near road.
  - c. Roadside Fountains. See new R-4 typical plan soon to be released.

### 3. Waterfalls.

- a. Protection of waterfalls.
- b. Trails to base vs. trails to top of falls.
- c. Location of foot bridges so as not to interfere with view.
- d. Development of overlooks from which to view falls.

### 4. Dams and Spillways. All dams have to be approved by Engineering. All dams over 20 ft. in height have to be approved by Washington. Plans should indicate whether if less than 20 ft. in height would be satisfactory. The latter would avoid delay in securing Washington approval on account of requiring only R. O. approval.

- a. Small dams should, where possible, be curved downstream in profile to simulate natural lake with toe of slope curved to fit ground, or with ends of dam curved into contours. A.D. Taylor's "Small Earth Dams."
- b. Spillways of small dams built as waterfalls.
- c. Importance of careful selection of site for borrow pits.
  - (1) Earth fill secured from below low water line, or
    - (a) From area adjacent to entrance road to form parking area.
    - (b) From behind group of trees.
    - (c) From behind ridge out of sight from road.
    - (d) From above level eye.
- d. Avoid destruction of aesthetic values caused by riprapping downstream slope of dam except where wind or other erosion requires it. Planting of shallow-rooted shrubs and grass, from our standpoint, is preferable to riprapping downstream face of dam. Where the riprapping would fit in with the natural surrounding, we should riprap; where shrubs would fit in better, we should do planting.

### H. ADMINISTRATIVE SITES.

1. See R-4 Building Construction Manual on Site Planning, p. 14.
2. Site Planning Principles to be considered in grouping buildings and facilities. (See above under "Resorts.")
  - a. Definite need of planning building locations, drives, service areas, parking spaces, and entire landscape setting, including private garden area at rear of dwelling all at the same time and in one whole operation. Where drives and service parking spaces are located independent of determination of garden location, the resulting landscape setting will be unsatisfactory and unfortunate. There can be no positive assurance as to the most fitting location for a single unit until all the possibilities involved have been studied and a complete plan worked out. The result then is a dependable design rather than a hasty answer to the immediate question. Such a plan will show not only the correct location of one building but of all the other future buildings, roads, drives, walks, approaches, service areas, parking spaces and garden areas. Thus the redesign, redrafting, and reconstruction of misplaced areas are eliminated.
  - b. Each design to be the best design possible consistent with the relative importance of the site; even though water not available this year, it may be subsequently. Do not be satisfied with mere foundation planting, 1 row in depth. If circumstances do not permit carrying out entire plan first year, the skeleton or framework of the design can be established and the balance built at a later time. Avoid studiously the design involving a hundred or more shrubs on remote, out-of-the-way stations. Check quantities proposed to see that they do not represent excessive amount of planting labor.

- c. Orientation for sunlight and views.
- d. Avoid placing barns, corrals, hog pens, etc., where prevailing winds will carry odors to dwelling.
- e. Parking Spaces - to one side, not in front of buildings or in principal views or foreground.

### 3. Design of Planting Plans - Factors to be Considered.

- a. Keystone of design is often suggested by existing topography.
- b. Existing Cover - build design around this as far as possible reinforcing existing groups of trees and shrubs with additional ones of near or related family.
- c. By cross-hatched lines indicate existing trees and shrubs which are to be left.
- d. Indicate existing lawns by showing outline by dotted line and mark "edge of existing lawn."
- e. Indicate trees by full circle having approximate diameter of 20 to 30 ft. for deciduous and 10 to 20 ft. for conifers. These are spread diameters representing spread of tree in feet at maturity.
- f. Spacing of Trees and Shrubs.

(1) Where irrigation is ordinarily needed but none will be available, plants should be set a minimum of 6 ft. apart to permit use of horse-drawn cultivator, using dry-farming methods of regular cultivation.

(2) Overplanting for immediate effect. Avoid overplanting with anticipation of subsequent removal and transplanting as it is not practical to expect those in charge of maintenance at future date to cut down trees and shrubs nor to undertake transplanting of crowded plantings.

(3) Conifers adjacent to walks, drives, etc. - Keep center minimum distance of 10 ft. from edge of public use areas.

(4) Use of bow dividers in determining quantities and locations of plants. Place small dot for each shrub except where spacing is 2 ft. or less on center.

(5) In all planting plans, refer to spacing list sent out from R. O., April 1936. O-Improvement Planting Lists Circular letter 4-16-36.

g. Planting Lists. All to be typed. Place column at right of each common name entitled "Distance apart to plant." Under this heading give spacing in feet.

#### h. Planting Design.

(1) Group shrubs and trees in curved lines in such a way that a line connecting each group will have the curving form of a crescent. This does not mean plant in crescent-shaped beds.

(2) Plant in odd numbered groups of 3, 5, 7, 9, etc.

(3) Grouping of trees along fences and boundary lines - arrange in clumps rather than regular spacing in straight lines.

#### i. Foundation Planting.

(1) Average minimum depth to be 6 to 8 ft. which calls for facer as well as medium or large shrubs in each clump or group.

(2) Avoid continuous collar of shrubs around entire building. Show some 8-12 ft. spaces of lawns to base of building.

#### j. Lawns - Size of.

(1) Average maximum size of lawn to be 30 ft. out from wall of house in each direction - 15 ft. minimum.

(2) In general, no strip of lawn narrower than 4 ft. nor smaller than 4 x 20, on account of undue maintenance cost.

(3) Avoid labeling all left over areas as "lawn." Consider gravel, or uncut meadow grass. On remote stations indicate lawn as "Native grasses." White clover lawn seed will not require cutting.

(4) Maintenance cost of lawns- approximately 3 times as high as equal area in drouth resistant shrubs.

k. Varieties of Shrubs and Trees.

- (1) Use restraint in choice of varieties - simplicity and harmony better than spotted effect of too many varieties.
- (2) In shrubbery borders along fence or property lines, use fairly large beds of one variety, 20 to 60 ft. in length and 6 to 10 ft. in width or more.
- (3) Native materials should predominate over exotic.
- (4) Deciduous ornamental trees - are available without cost as "surplus deciduous stock" upon application to School of Forestry, U. A. C., Logan, Utah. Forest should pay express charges.

4. Drafting and Delineation of Landscape Planting Plans.

- a. See our "O-Improvement, Landscape Planting Plan" circular of April 3, 1936, which governs design and tracing or drafting of all landscape planting plans. This circular letter specifies that in the future all landscape planting plans are to be drawn directly on a B-W print rather than on tracing paper or cloth where such B-W prints are available. It further states that where these are not available and the improvement plan is to be surveyed and plotted by the/<sup>recreational</sup> planner, he should at the same time and on the same sheet of tracing paper or cloth, prepare the planting plan also. This "O-Improvement" circular letter should be fastened securely in Recreation Handbook for future reference.

(Planting plan is required at all year-long stations and Supervisors' Headquarters, offices, and other buildings in towns; other stations or buildings on which there are heavily used roads, or stations near recreational areas or where better plan is needed for special show purposes. Plan others only on request of Forest Supervisor.)

- b. Titles. Title should represent accurately the exact nature and designation of the plan. Careless application of wording of title results in confusion and delay in subsequent filing and B-W printing as well as in all future correspondence dealing with the plan.

Correct Title for All "O-Improvement" Landscape Planting Plans

U. S. Department of Agriculture - Forest Service - R-4  
Wasatch National Forest  
Kamas \_\_\_\_\_ Station  
LANDSCAPE PLANTING PLAN

Select appropriate designation: (in filling in above blank)

Kamas Overnight Station  
Kamas Guard Station  
Kamas Ranger Station  
Kamas Supervisor's Headquarters  
Kamas Warehouse

- c. Section, Township and Range - Every plan whether administrative site or recreational to carry the section, township and range in which the property is situated, also with standard recreation title & north-point.
- d. Note of change in all Recreation Titles.
  - (1) Omit word "date" so as to leave more room for placing the month, day, and year within this space.
- e. Each Plan to Show Existing or Proposed Flagpole.
- f. All Buildings, whether existing or proposed, to show R-4 Standard Plan Number.

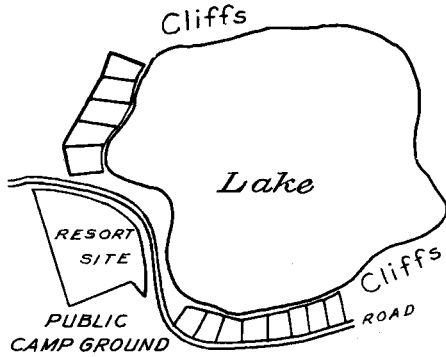
VII. APPENDIX.

A. Exhibits.

1. Layout of Summer Home Sites.
2. Method of Marking Tract and Lot Corners.
3. Pipe sizes and Amount of Water Discharge.
4. Trash Incinerator.

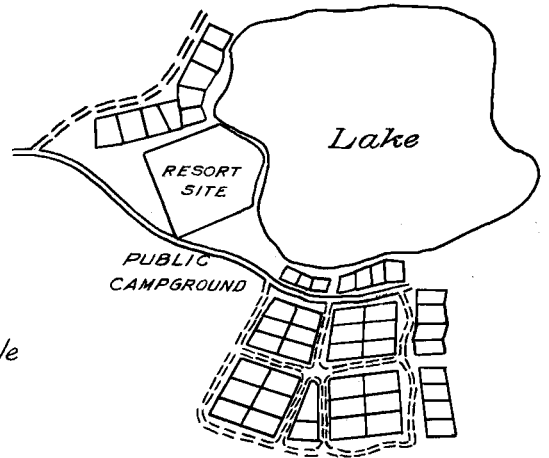
(Exhibits 1, 2, 3 and 4 to be found on following pages.)

# EXHIBIT NO. I

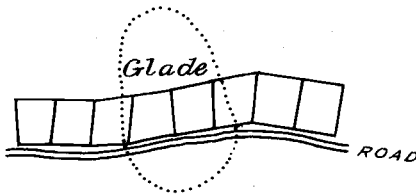


No. 1

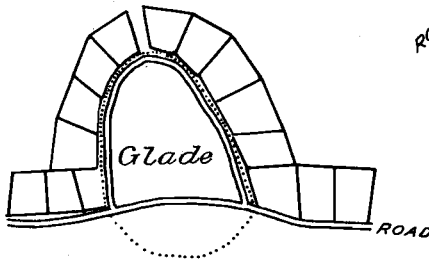
*Improper Layout - Entire Accessible Lake Shore blocked by Lots. No chance for Expansion*



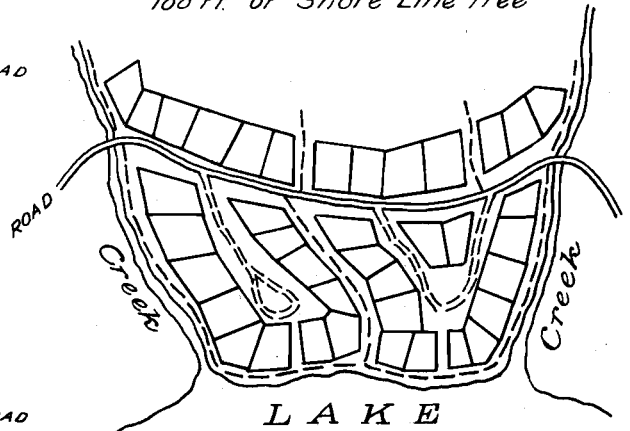
No. 2 Same Lake with better layout Camp Ground extending to shore 100 ft. of Shore Line free



No. 3 Poor Layout



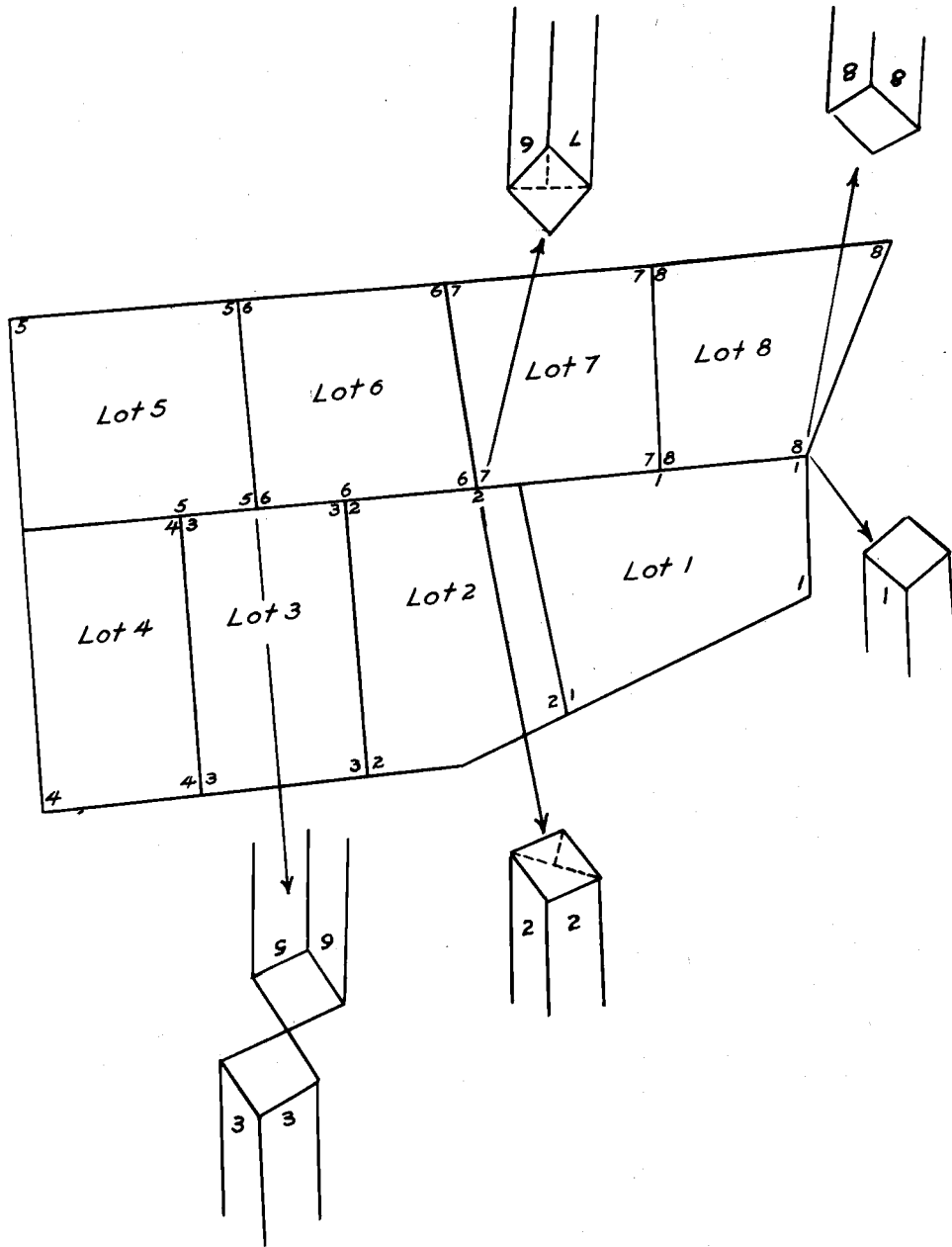
No. 4 Better Layout



No. 5 Road at Base of Slope with Flat extending to Lake Shore. All lateral roads at rear of Lots and Lake and Creek bank free for Trails. This gives maximum of 1<sup>st</sup> class lots. Same layout could be used with meadow or stream instead of Lake.



# EXHIBIT NO 2



*Diagram shows method of Corner marking  
for Summer Home Sites*

# EXHIBIT NO. 3

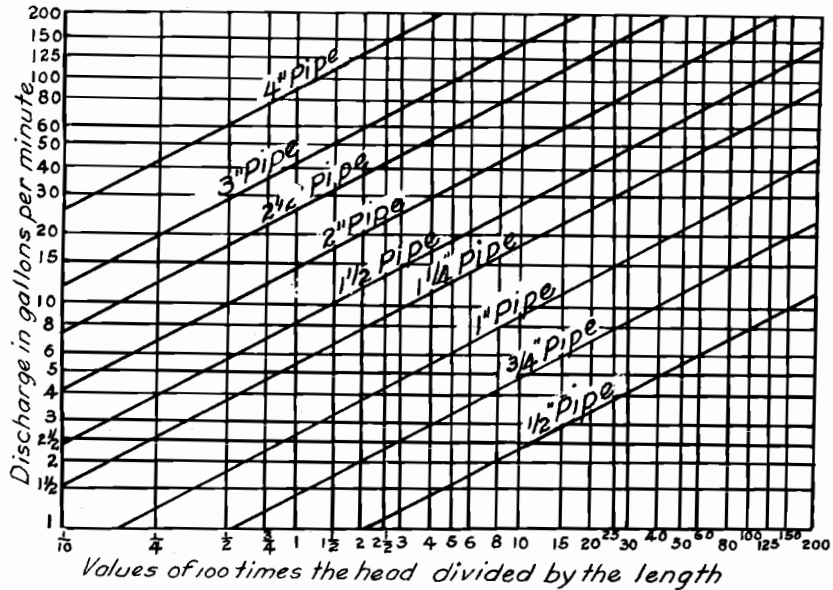


Diagram giving the discharge of  $\frac{1}{2}$ -inch to 4-inch straight water pipes

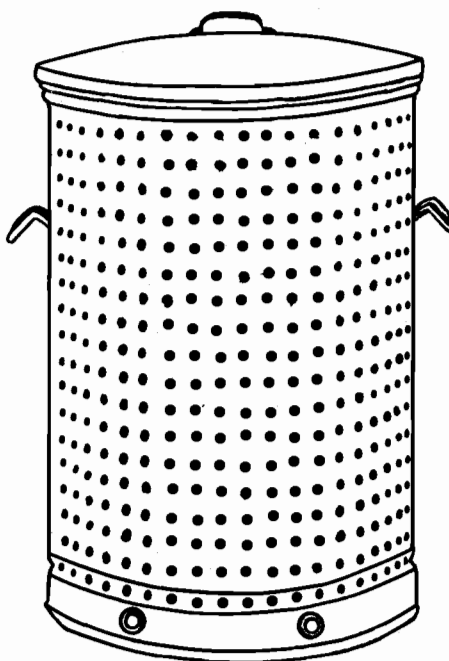
Directions: Measure the vertical distance in feet from the delivery end of the pipe to the surface of the water in the spring or tank; multiply this distance by 100 and divide the produce by the length of the pipe in feet; find this value on the lower horizontal line of the diagram and follow vertically upward to the inclined line or lines showing pipe sizes; from such intersection follow horizontally to the left to find the discharge in gallons per minute.

Example: How much water will be discharged by 128 feet of 1-inch pipe under a head of 32 feet?

Solution: Thirty-two multiplied by 100 equals 3,200; 3,200 divided by 128 equals 25; enter the diagram at 25, follow upward to the line marked 1-inch pipe, and then follow to the left where the discharge is seen to be 15 gallons per minute.

# TRASH INCINERATOR

A Standard type of moveable burner



<i>NO.</i>	<i>SIZE</i>	<i>WEIGHT OF IRON</i>
<i>2 HEAVY</i>	<i>19-3/4 X 31-1/4</i>	<i>36 #</i>
<i>3 HEAVY</i>	<i>22-1/2 X 35-1/2</i>	<i>56 #</i>

"Boyco Incinerator" sold by  
Union Hardware and Metal Co.  
411 East First Street, Los Angeles, Cal.

## Appendix

### B. Roadside Scenic Strips Letter L-Uses 4/23/31.

"Reference is made to the Forester's letter of March 16, a copy of which has been furnished you, stating that the development of scenic, inspirational and recreational aspects must be a major factor in the planning and administration of road systems and roadside strips.

"The above mentioned letter with the accompanying statement of principles should be studied carefully. The mention of Class A, B and C roads refers to Class 1, 2 and 3 roads, respectively. Class 1 are forest highways, which are or might be on the 7% system and are all within the forest. Class 2 are the same except that part of the road is outside the forest. Class 3 are forest highways not on the 7% system. They are usually county or community roads, but may be state highways.

"You will note that the Forester states: 'A single instance of ill-advised occupancy of or timber cutting upon National Forest lands contiguous to a highway may subject the Forest Service to extreme embarrassment and have far reaching consequences.' In order to get lined out safely, the policy in Region 4 will be as follows:

#### "A. Road Construction, etc.:

In the location, construction and maintenance of all roads, including not only Classes 1, 2 and 3, but also Forest Development and other roads, the Supervisor will be responsible for protecting and developing the existing and potential scenic, recreational and inspirational values on lands abutting and visible from the road.

#### "B. Occupancy:

1. TELEPHONE LINES: Along Class 1 and 2 highways and other roads of high scenic or recreation value, no telephone lines will be built within 200 feet of the center line until approved in writing by the Regional Forester. Along other roads telephone lines may be constructed with the approval of the Supervisor. In locating and maintaining telephone lines along all roads, care should be exercised to prevent unsightly conditions.

2. SIGNS: Within 200 feet of the center line of Class 1 and 2 highways and within 100 feet of the center line of all other roads except logging roads and motorways having low scenic and recreational value, and even beyond these distances if in plain sight from the road, advertising signs and those calling attention to resorts, lodges, places of business, etc., will be discouraged and not allowed until approved in writing by the Regional Forester. Directional and other signs on requisition approved by the Regional Forester, fire and camp sanitation signs, may be posted within these roadside strips, but the Supervisor should assure himself that they are not an objectionable type; that they are moderate in size and used as sparingly as aesthetic conditions demand.

3. OTHER IMPROVEMENTS: On National Forest lands within

200 feet of the center line of Class 1 or 2 highways; within 100 feet of the center line of all other roads, except logging roads and motorways having low scenic and recreation value, and even beyond these distances if in plain sight from the road, no building, fences, or other permanent improvements except as noted above shall be constructed, nor permits granted for the same until approved in writing by the Regional Forester.

"C. Timber Cutting:

Within 200 feet of the center line of Class 1 and 2 highways; within 100 feet of the center line of all other roads except logging roads and motorways having low scenic and recreational value and even beyond these distances if in plain sight from the road, no green timber except defective trees and those necessary for maintenance and improvement of roads, trails, and telephone lines shall be cut without written approval of the Regional Forester. Any debris resulting from cutting should be removed from sight immediately, and stumps within sight of the road should be cut close to the ground (as much under ten inches as practicable).

"D. Grazing:

Stock subject to Forest Service control should not be trailed within the right-of-way of any road on the Forest where use of stock driveways is practicable. Within 200 feet of the center line of Class 1 and 2 highways and other roads of high scenic or recreational value, grazing should be limited to as great a degree as is practicable. Where practical to avoid, trailing of stock to an extent that will damage vegetation or watershed will not be allowed on areas within plain sight of any road specified in this paragraph.

"E. Recreation Plans:

Each Forest will make and submit to the Regional Forester for approval, detailed and systematic plans for the management and use of all National Forest lands tributary to Class 1, 2 and 3 highways and to other roads with recreation or scenic values, including not only lands within 200 feet of the center line, but also such other additional lands as may affect the public value of a given road, these plans to be made as rapidly as the available personnel, funds and other administrative obligations will permit. National Park approach roads and other roads leading to similar areas will be given initial consideration. Someone from the Regional Office will confer with you regarding the type of these plans.

"F. Acquisition:

While the proposal to acquire all timbered lands contiguous to highways by granting National Forest stumpage in exchange therefor is regarded by the Forest Service as impracticable, the acquisition of especially desirable privately-owned forest land, within the boundaries of the National Forests, for the purpose of conserving roadside beauty, will be accomplished as rapidly as such lands can be acquired through exchange with due regard to other requirements of public interest."

R. H. RUTLEDGE  
Regional Forester

## Appendix

### C. Standards of Design - by F. A. Waugh.

#### "Private Camps or Homes on National Forest Lands

##### Standards of Design

"A. Adaptation to Site - The building should be adapted to its site; it should 'fit the ground.' Great variations in height of foundations should be avoided. In general foundations should be low.

"B. Building Materials - Building materials should be suitable to the forest and, as far as practicable, native to the locality. Houses of logs, au naturel, peeled, hewed or sawed, fit well into the forest landscape. Buildings of sawed lumber may be quite suitable; unplanned lumber generally better than planed; stained finish better than painted. Where local stone can be economically used it will usually be satisfactory. Brick, cement, stucco and similar materials are undesirable.

##### "C. Building Design:

1. Foundations should be low and inconspicuous. They may be partially hidden by foundation plantings, using only such shrubs, vines, ferns, etc., as are native to the immediate locality.

2. Walls should present clean, interesting surfaces, and the various wall areas should keep some geometrical relation to each other. If these areas are all unrelated, hit-or-miss, the result is much less pleasing.

3. Windows and doors should generally be of uniform size, or of uniform shape, or should bear an obvious geometrical relation to one another. They should be equally spaced or the spacing should show some interesting pattern.

4. Roofs should present an interesting pattern; slopes of various roof areas should usually be the same; broken valleys and ridges should be strictly banned; shingles should be used in most cases; tin and other unpleasing materials should be barred. Roofs should not be too much broken up.

5. Porches should fit the house. As far as possible they should be integral with the main body. An appearance of being stuck on is evidence of bad design. If the house would look as well or better with the porch removed, the design is obviously faulty. Construction should be substantial.

6. Chimneys should be safe; construction should be as substantial as circumstances permit. Same for fireplaces. Native stone is to be preferred as material. Lines should be clean and simple, avoiding swellings and bumps.

7. Decoration should be extremely simple; in most cases it should be altogether lacking. 'Gingerbread work' and 'Dodads' of every sort are highly unsuited to forest camps.

8. In general simplicity is the keynote of good design. Good proportions, a feeling of naturalness, an air of dignity, count much more than any dolling up. Everything ornate, elaborate, pretentious, showy, tricky, fussy or peculiar is necessarily bad.

"D. Landscaping:

1. Existing trees should be preserved as far as practicable. The clever adjustment of the building to existing trees, rocks and streams entitles the job to credit for good landscaping.

2. Additional plantings, when required, should be made of trees, shrubs, vines, ferns, etc., native to the immediate locality. Exotic plants should be strictly prohibited, such as crimson rambler roses, scarlet salvias; even hollyhocks, in most forest camps give a 'citified' air.

3. Flower beds are unsuited to a forest camp. No flower garden should be attempted except about buildings fairly removed from the forest atmosphere. Purely naturalistic rock gardens for native plants or wild gardens of other sorts may be permitted. They should always be so inconspicuous as never to be seen in the general view.

4. 'Decoration' of the grounds with whitewashed stones, conspicuous rocks, crude rustic furniture, or any other man-made articles, is almost always bad -- frequently disastrous. Placing such furniture, or flower beds or other features between the house and the roadway, or between the house and a lake or river frontage, is especially bad.

5. Fences when required should be of native materials and of the utmost simplicity. This statement includes gates.

6. In general good landscaping depends mainly on nice adaptation of the house to the terrain and to the native trees. All imported 'improvements' are apt to be negative."

Revised May 17, 1933, F. A. W.

## Appendix

### D. Uses of Germite.

#### STANDARD OIL SUPER-GERMITE

##### General Uses

Standard Oil Super-Germite is a very powerful antiseptic, disinfectant germicide and deodorant. An antiseptic prevents or counteracts putrefaction. A disinfectant is an agent that frees from infection. A germicide is a material which destroys disease germs or other micro-organisms. A deodorant modifies or destroys odors.

It is uniform in quality and mixes readily with water in various proportions to form a practically clear solution which will not separate or settle out on standing. These features are most important. When it is considered that often-times large quantities of a solution of Standard Oil Super-germite must be prepared, using cold water, which may also be hard water, by men who may be untrained and who are working with scanty equipment, it is most important that the product mix very readily with water. Further, if it did not produce a practically clear solution there would be the possibility of certain undiluted particles causing serious injury to animals, particularly their eyes.

Standard Oil Super-Germite is approved by the U. S. Bureau of Animal Industry for official disinfection. Only products which produce a clear solution are approved.

Standard Oil Super-Germite is a poison, as will be noted by examining the label. On every label you will also note the antidotes that are effective in temporarily counteracting its effect.

A few words regarding the external antidote will be of interest to you at this point. Standard Oil Super-Germite is in certain respects similar to Lysol, carbolic acid, and other comparable materials. If allowed to get on the hands or body in undiluted form it burns, and if not neutralized at once, can cause severe burns. Consequently, use care in handling it. Should you have occasion to open a barrel, be careful not to spill it on your hands, or gloves. If by any chance you should get Standard Oil Super-Germite on your gloves or clothing, it would be most essential to remove the garment at once, and bathe the portion of the body affected as indicated in the external antidotes. Before the garment is worn again it should be washed. We do not wish, by what has been said, to alarm you about Standard Oil Super-Germite. It is not in a strict sense a dangerous product to handle, but it is, like all other germicides (such as Lysol, Carbolic Acid, etc.) a concentrated product, and good common sense and ordinary precaution in handling it should be followed.

(General Disinfection) As a general rule, 1 part of Standard Oil Super-Germite to 60 or 80 parts of water, will produce a very effective disinfectant. It is desirable, though not absolutely essential, that the water be soft, and where convenient, slightly warm. In this dilution, it



will be found an excellent general disinfectant and precautionary measure for such places as auto camps, rest rooms in service stations, and other public places, sinks, drains, garbage cans, in and about the house, and many other places too numerous to mention. Used frequently, it will be found to be both a deodorizer and germ destroyer.

In hospitals, Standard Oil Super-Germite is well suited for the disinfection of bed pans, urinals, expectorant pans, etc., at dilutions of 1 to 40.

A dilution of 1 to 60 makes an effective disinfectant for swimming pools, shower bath and locker room floors.

There is no limit to the ways that Standard Oil Super-Germite may be used for general sanitation. It may be sprayed about the premises. It may be poured down sinks, drains, and toilets. Garbage cans may be swabbed out with a brush. Lavatories, etc., may be mopped with a solution of Standard Oil Super-Germite and water. Walls may be wiped down with an ordinary sponge which is saturated with a 1 to 60 or 80 solution. The main thing to keep in mind is that an adequate amount of the solution must be used and that all surfaces infected or contaminated must be contacted, as this product like all others of a similar nature, or like fly sprays, must contact germs to kill them. Needless to say, mechanical cleanliness must accompany general disinfection with Standard Oil Super-Germite.

#### (Disinfection - Animals and Their Habitats)

It is of the utmost importance to keep the habitats of animals clean and sanitary. They thrive better, are kept in better health, and in general repay the careful rancher many times for the slight expense and effort involved. For general disinfection, in other words, ordinary precautionary disinfection, a mixture of 1 part of Standard Oil Super-Germite to 60 or 80 parts of water will be an adequate disinfectant, if mechanical cleanliness is practiced, manure and other refuse frequently removed, side-walls and other surfaces kept clean and occasionally white-washed.

Horses and Cattle. Use 1 part Standard Oil Super-Germite to 60 parts water as a disinfectant wash for cuts, sores and abrasions.

Devices. Standard Oil Super-Germite diluted may be sprayed with any type of atomizing device. For work requiring a small sprayer, our No. 35 D & B Superbilt Chemical Sprayer will be found admirable. For those requiring larger sprayers, the regular orchard tree-spraying equipment has been found to be most effective. Likewise, there are certain medium-sized sprayers mounted on a carriage similar to a wheelbarrow with means of compressing the liquid in a cylinder then spraying sections needing such treatment. An ordinary sprinkling can, such as used for garden work, is also very useful for sprinkling Standard Oil Super-Germite around dairy barns, ranches, etc.

For side walls and floors an ordinary string mop will be adequate for the purpose. In general, the important thing is to get an adequate amount of the disinfectant on the area or section being treated.

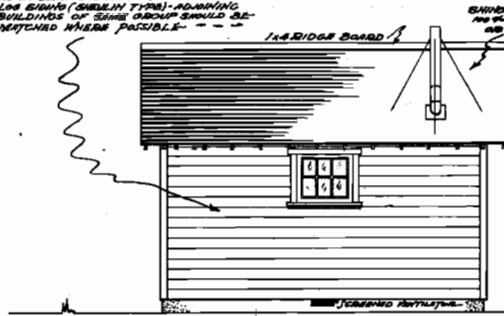
Full directions for use are printed on each can of Standard Oil Super-Germite.

### C A M P R U L E S

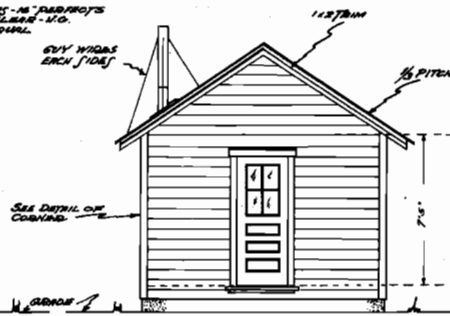
1. AXES, KNIVES and NAILS. Keep out of live trees.
2. AUTOS. Keep from bumping trees and shrubbery.
3. FLOWERS, FERNS, SHRUBS, etc. Leave those growing in vicinity of this camp.
4. DEFACING or DESTROYING signs, buildings, or other Government property is punishable by fine or imprisonment.
5. REFUSE. Burn, bury or place in the containers provided all garbage, papers, clothes, tin cans, etc.
6. HORSES. Are not to be tied up in this camp.
7. WASH in a container and empty away from stream. No bathing or washing of anything in water used for drinking.
8. FIRE ARMS. No shooting in the vicinity of this camp.
9. CAMP FIRES. Use great care. Build in designated places. Extinguish before leaving.
10. HOW TO PUT OUT A CAMP FIRE. Stir the coals while soaking them with water. Turn small sticks and drench both sides. Wet the ground around the fire. If you can't get water, stir in earth and tread it down until packed tight over and around the fire. BE SURE THE LAST SPARK IS DEAD.
11. MATCHES. Be sure your match is out. Break it in two before you throw it away.
12. TOBACCO. Be sure that pipe ashes and cigar or cigarette stubs are dead before throwing them away. Never throw them into brush, leaves, or needles. Place them in the road, trail, or on bare ground and stamp out with the foot.

- - - - -

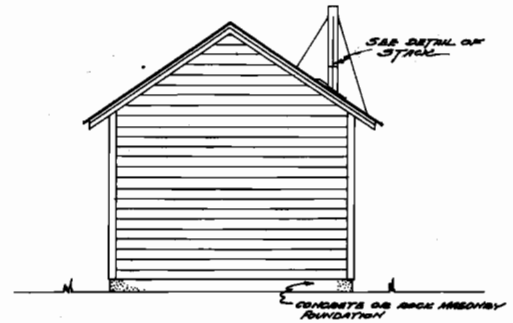
BUILDINGS TO BE COVERED WITH  
1/2" OSB SHEET SIDING & SHINGLES  
AS IN SOME CASES IF SPECIFIED A 2x8  
LOW SIDING (SHEATHING TRIM)-FRAMING  
BUILDINGS OF SOME DESIGN SHOULD BE  
MATCHED WHERE POSSIBLE



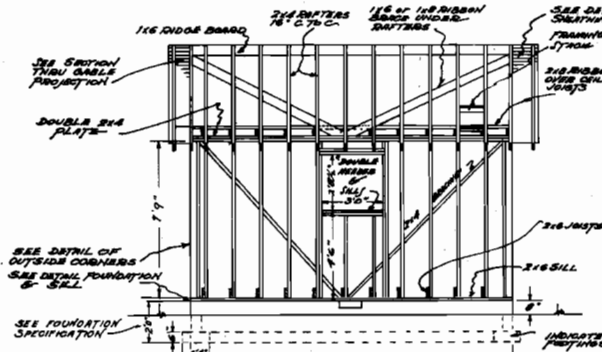
- SIDE ELEVATION -  
- BOTH SIDES ALIKE -



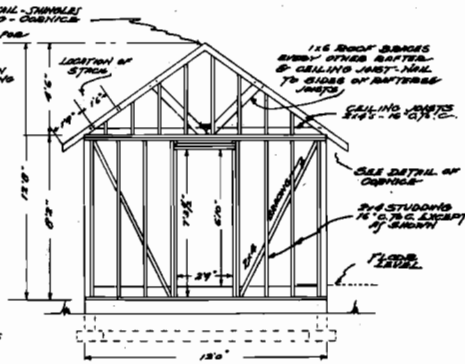
- END ELEVATION -



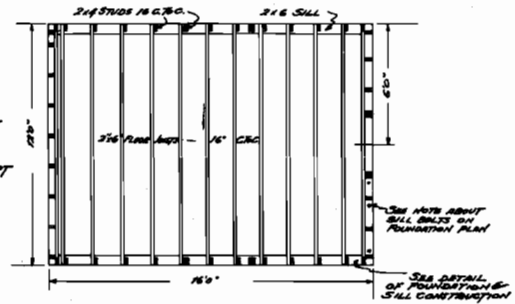
- END ELEVATION -



- FRAMING SIDE ELEVATION -



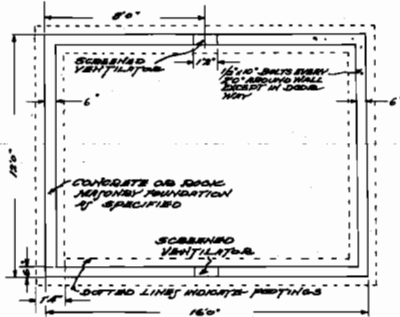
- FRAMING END ELEVATION -



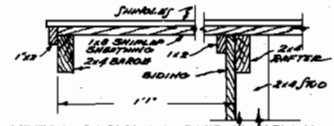
- FLOOR FRAMING -



- FLOOR PLAN -



- FOUNDATION PLAN -

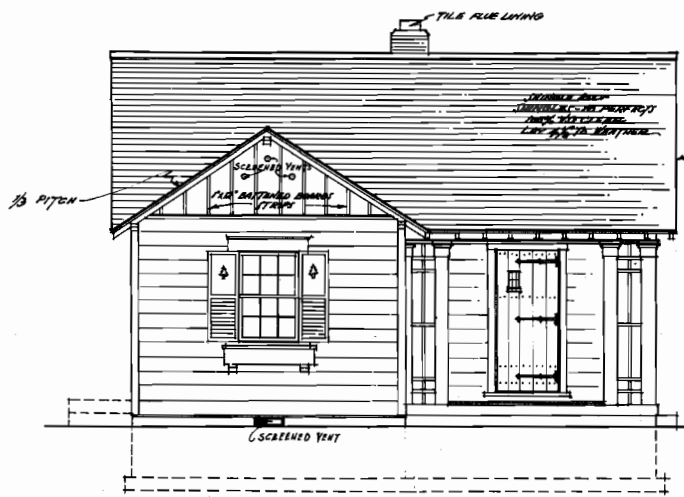


- SECTION THRU CABLE PROJECTION -  
SCALE - 1/2" = 1 FT. -

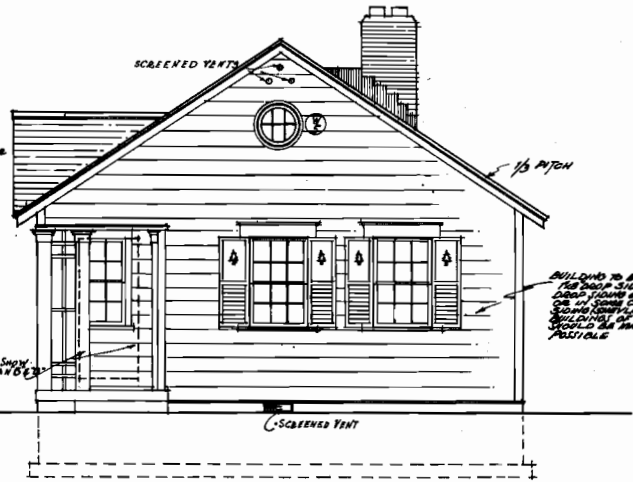
FOREST SERVICE  
DWELLING - GUARD STATION  
ONE ROOM - NO PORCH  
PLAN R-4 # 6  
SHEET 1 OF 4

REVISED MAY 1, 1978

CHECKED BY: [Signature]  
DATE: 5-22-78  
APPROVED BY: [Signature]  
SCALE: AS SHOWN  
DRAWN BY: [Signature]



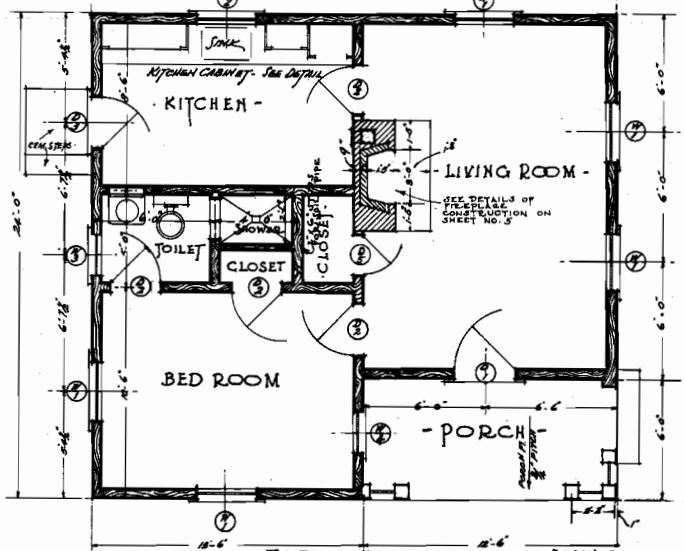
1/2" SHAPED TILE  
GABLE MATCHED LINING  
OVER SHUTTERS



BUILT TO BE COVERED WITH  
1/2" SHAPED TILE FOR 1/2"  
GABLE END OR MATCHED LINING  
OR 1/2" SHAPED TILE FOR 1/2"  
GABLE END. THIS IS A  
BUILDING OF THIS GROUP  
WOULD BE TYPICAL "TILE"  
POSTIONS

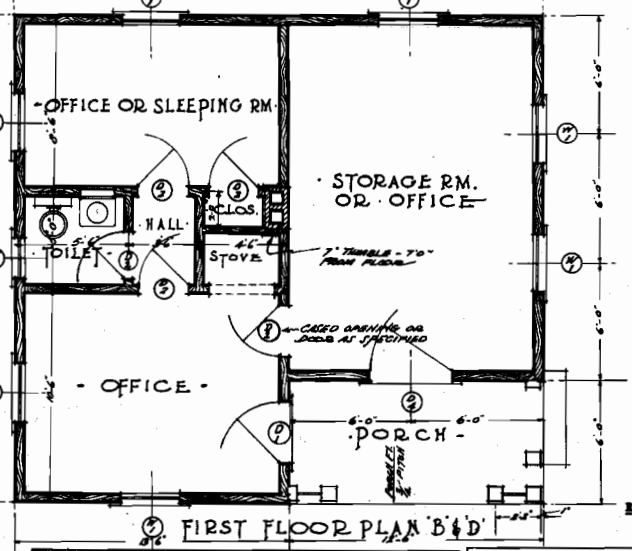
FRONT ELEVATION -

SIDE ELEVATION -



FIRST FLOOR PLAN "A & C"

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN "B & D"

REVISED JUNE 1, 1934

**DOOR SCHEDULE**

NO.	TYPE	SIZE	GLASS	FINISH
U-10	6'0" x 7'0"	3'6" x 7'0" x 1/2"	AS	SLIP DOOR
U-11	6'0" x 7'0"	3'6" x 6'8" x 1/2"	AS	SLIP DOOR
U-12	6'0" x 7'0"	3'0" x 7'0" x 1/2"	AS	SLIP DOOR
U-13	6'0" x 7'0"	3'0" x 7'0" x 1/2"	AS	SLIP DOOR
U-14	2'0" x 6'6" x 1/2"	2'0" x 6'6" x 1/2"	AS	SLIP DOOR

**WINDOW SCHEDULE**

NO.	TYPE	SIZE	GLASS	FINISH
W-1	6'0" x 7'0"	3'6" x 7'0" x 1/2"	AS	SLIP DOOR
W-2	6'0" x 7'0"	3'6" x 6'8" x 1/2"	AS	SLIP DOOR
W-3	6'0" x 7'0"	3'0" x 7'0" x 1/2"	AS	SLIP DOOR
W-4	6'0" x 7'0"	3'0" x 7'0" x 1/2"	AS	SLIP DOOR
W-5	2'0" x 6'6"	2'0" x 6'6" x 1/2"	AS	SLIP DOOR

**SCHEDULE - ALTERNATE TYPES OF CONSTRUCTION -**

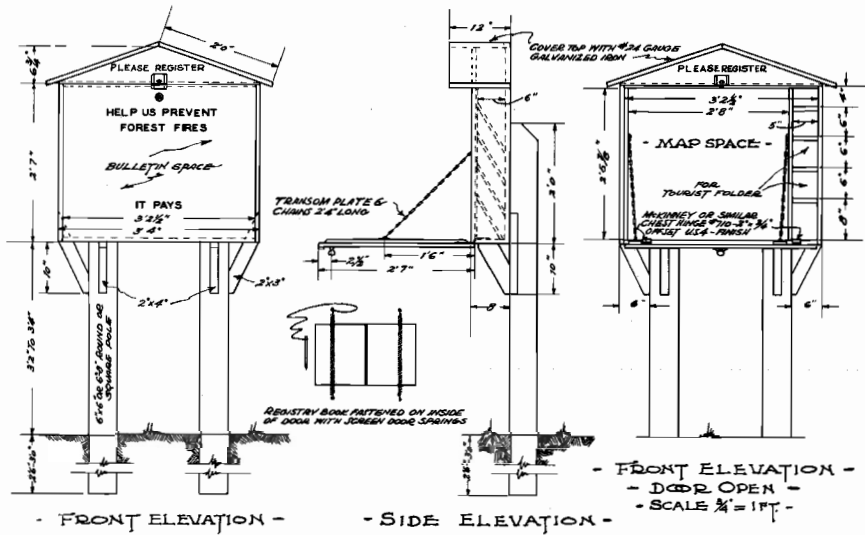
- TYPE A - THREE ROOM DWELLING 1/2 PITCH ROOF
- B OFFICE, STORAGE ROOM, R.M. 1/2 PITCH ROOF
- C THREE ROOM DWELLING 1/2 PITCH ROOF
- D OFFICE, STORAGE ROOM, R.M. 1/2 PITCH ROOF

NOTE: THE ABOVE ALTERNATE TYPES FROM CHOICE IN CONSTRUCTION - CHOOSE THE MATERIAL LIST THAT MEETS YOUR CONDITIONS - LISTS ARE DESIGNATED AND CORRESPOND TO THE ABOVE SCHEDULE -

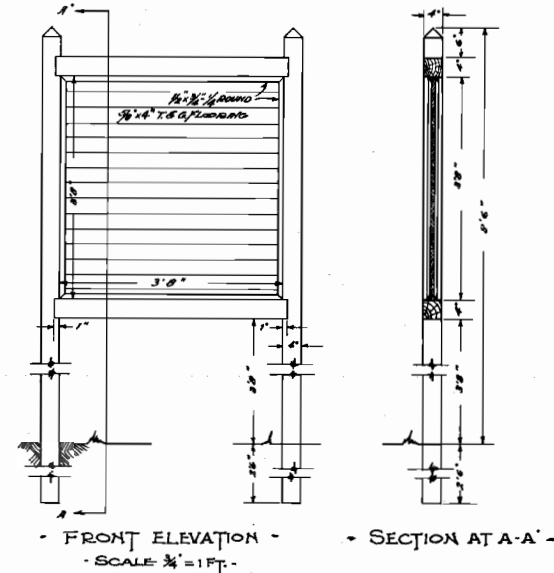
FOREST SERVICE  
OFFICE STOREROOM & LIVING RM.  
DWELLING GUARD STATION 3 RM.  
PLAN R-4 # 53

SHEET 1 OF

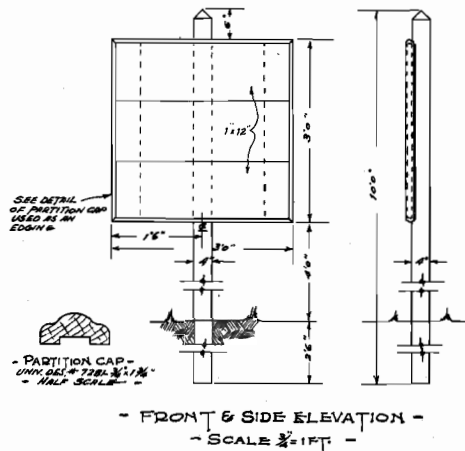
CHECKED BY: [Signature] DATE: [Date]  
APPROVED BY: [Signature] SCALE: 1/4" = 1'-0"



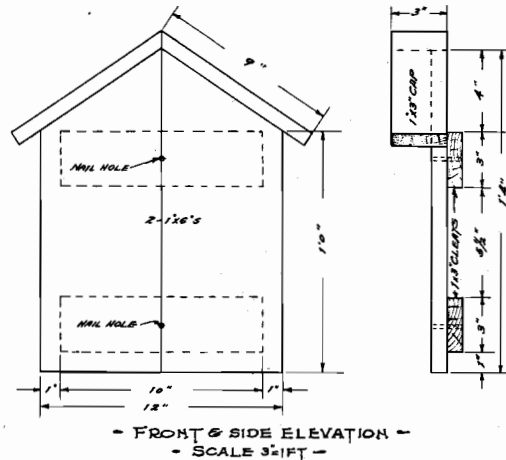
- TYPE A - REGISTRY BOX & BULLETIN BOARD -



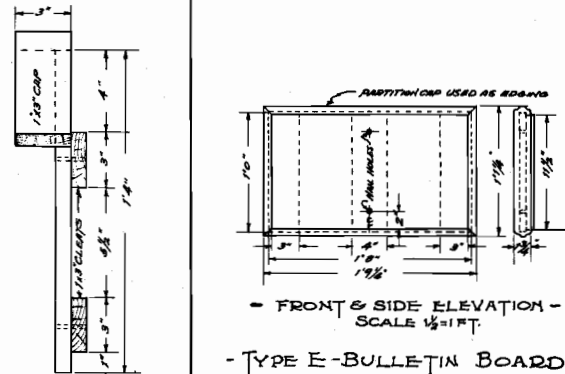
- TYPE B - BULLETIN BOARD -



- TYPE C - BULLETIN BOARD -



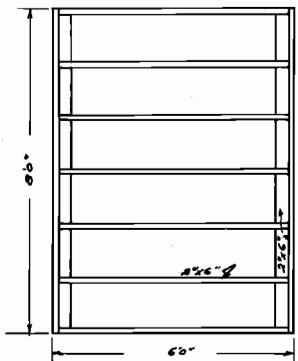
- TYPE D - BULLETIN BOARD -



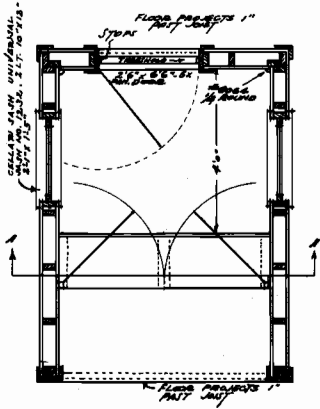
- TYPE E - BULLETIN BOARD -

REVISED MAR 3, 1934

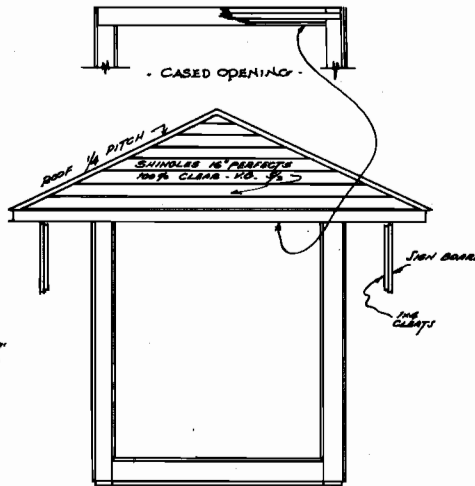
FOREST SERVICE	
<b>BULLETIN BOARDS</b>	
- TYPES A TO E -	
PLAN R-4#64A	
SHEET 1 OF 2	
CHECKED	DATE
APPROVED	SCALE
	FOURTH CLASS



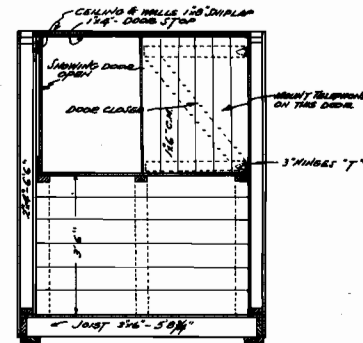
- FLOOR FRAMING PLAN -



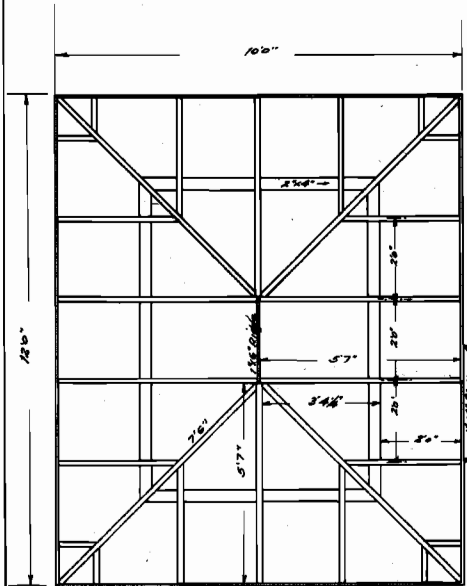
- FLOOR PLAN -



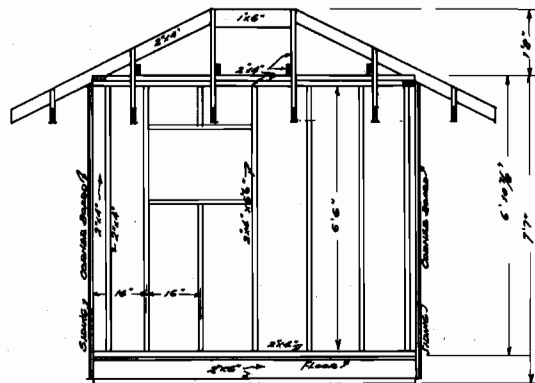
- FRONT ELEV -



- CROSS SEC A-A -



- ROOF FRAMING PLAN -



- FRAMING PLAN - SIDE ELEVATION -



- SIDE ELEVATION -

REVISED MAY 1, 1935

FOREST SERVICE			
CHECKING STATION & TELEPHONE BOOTH			
PLAN R-4 # 64 B			
FROM R-1 - PLAN M-7 SHEET 1 OF			
CHECKED	DATE	SCALE	
APPROVED C. R. W.	6-2-35	1/4" = 1'-0"	

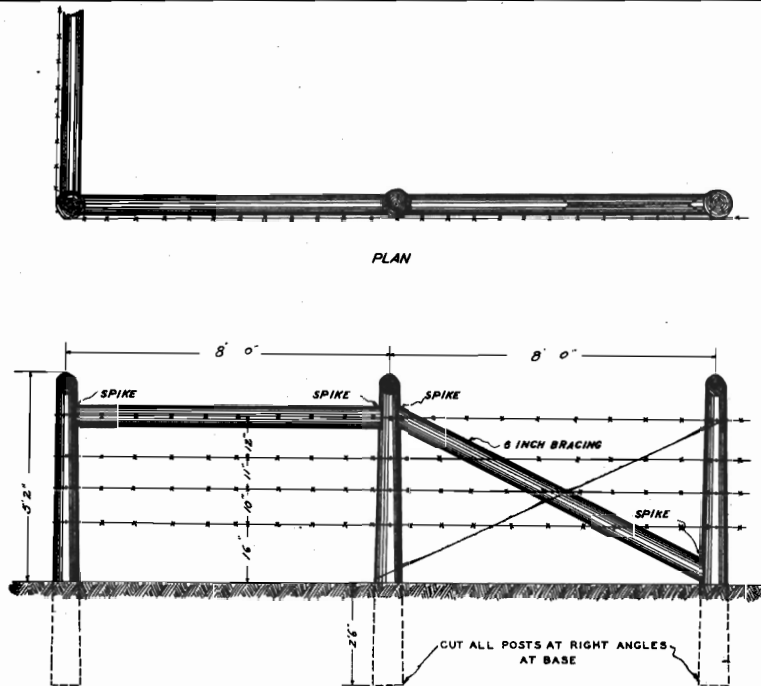


FIG. 1

STANDARD BRACING FOR FENCE CORNERS

Material list is for 1 mi. of straight fence and 1 gate and 1 corner condition, with alternate corner construction and alternate gate construction.

Item No.	Qty.	Material	Purpose
<b>Lumber (Material list &amp; yard list)</b>			
1	4	Posts 7'8" long (see specifications)	Vertical wood posts for corners
2	320	" 7'8" "	" " " " " straight fence
3	2	Nails 8"0" long (5" diameter)	Horizontal rails at corners
4	2	" 9'0" "	Diagonal "
5	400	2" x 2" or 3" round wood stags 4'8" long	Intermediate vertical stags
6	2	Posts 13'6" long, 12" minimum diameter	Vertical uprights for gate
7	1	Nail 13'6" long or 15'6" long	Horizontal above 10'0" or 12'0" wide gate
8	5	Pos. 1" x 6" x 12'0"	Horizontal members for gate 10'0" or 12'0" wide
9	1	" 1" x 6" x 2'6"	Horizontal slide for gate lock
<b>Material (Other than lumber)</b>			
10	16	80 rod rolls #12 1/2 ga. galv. barbed wire (glidden pattern) round barbs 5" apart.	1 mile of 4-wire fence
11	43	#1 1/2" galvanized staples	
12	8	1" metal angles 4'6" long, punched as shown	Vertical ties for gate
13	4	" 1" " 4'6" "	Diagonal "
14	51	2" x 1/4" bolts complete with nuts & washers	Bolting ties to gate
15	2	1" metal angle 13' long, punched as shown	Guard for slide
16	2	12" drift pins	For top of side posts at gate
17	1	18" turnbuckle as detailed	On top stay for gate
18	2	18" x 3/4" bolts with turned heads as shown	For gate pivots
19	2	2" x 1" washer pivot lock hinges (as detailed)	For gate hinge pivots
20	1	pound #40D spikes	Nailing horiz. & Diagonal members to turnbuckle, & bracing one corner if barbed wire is not used
21	3	" #9 gauge galv. wire	Guy wire for bracing gate
22	1	18" x 3/4" open eye bolt	For turnbuckle

Note: All metal parts for gate equivalent to or equal to "Cent Sag" steel for "Cent Sag" gates by Howe Mfg. Co.

**ALTERNATE CONSTRUCTION (if desired)**

Should alternate type of corner with deadman brace be adopted, eliminate from material & yard list, items #3 and #4 and add:

23	1	2" guard pole 7'0" long	Corner brace
----	---	-------------------------	--------------

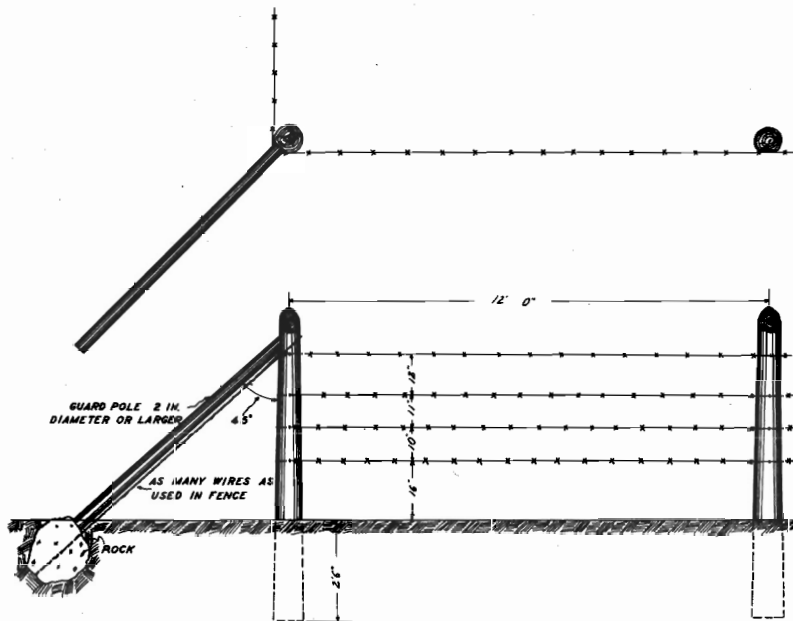


FIG. 2

ALTERNATE TYPE OF CORNER WITH DEADMAN BRACE

Should alternate type of gate and bracing for roads used infrequently and where long posts are not available, be adopted, eliminate from the material list the following items:

- Item #6 to #9 incl.
- " #12 to 19 "
- " #22 "

Add the following:

Item No.	Qty.	Material	Purpose
24	2	Pos. 6" bracing 8'0" long (see detail)	Horizontal bracing
25	2	" 6" " 9'0" "	Diagonal "

**SPECIFICATIONS**

Size of posts & depth of setting:

(The following specifications should govern as the minimum.)

Juniper 7' long 3" tip 5" butt, except aspen which should be 1" greater in diameter.  
 Treated posts 7' long, 4" tip 5" butt, except aspen which should be 1" greater in diameter.  
 The minimum depth of setting should be 2' in loose soil, or for corner posts, a greater depth (2 1/2') should be used.  
 In the case of any post or pole to be set in the ground and the butt crosscut treated, the top should be roofed.  
 Also, where the butt only is crosscut treated or treated dust paste used, there is little chance that it will ever be advisable to reset the pole, stub or post after the butt has rotted, since some rot will have started by that time in the part above ground. This is mentioned so that posts and poles will be cut a minimum length and no extra length provided with the idea of resetting.  
 Even when a juniper post for stub is used, at least the part that will go into the ground should be peeled.

FOREST SERVICE

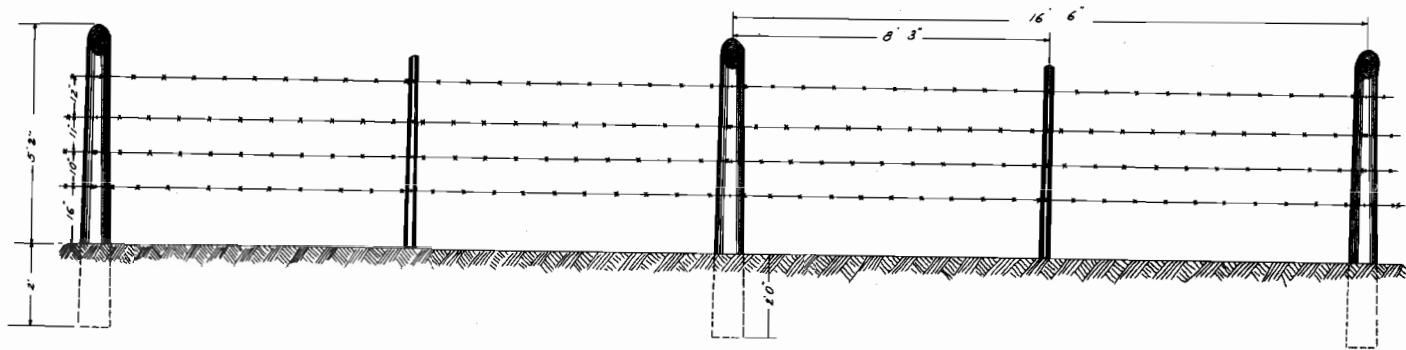
**FENCES & GATES**

PLAN R-4 #65

SHEET 1 OF 3

REVISED MAY 1, 1939

CHECKED *CLK* DATE *6-15-39* SCALE *1/2" = 1 FOOT*  
 APPROVED *N.Y. 75-3-39*



SECTION OF LINE FENCE

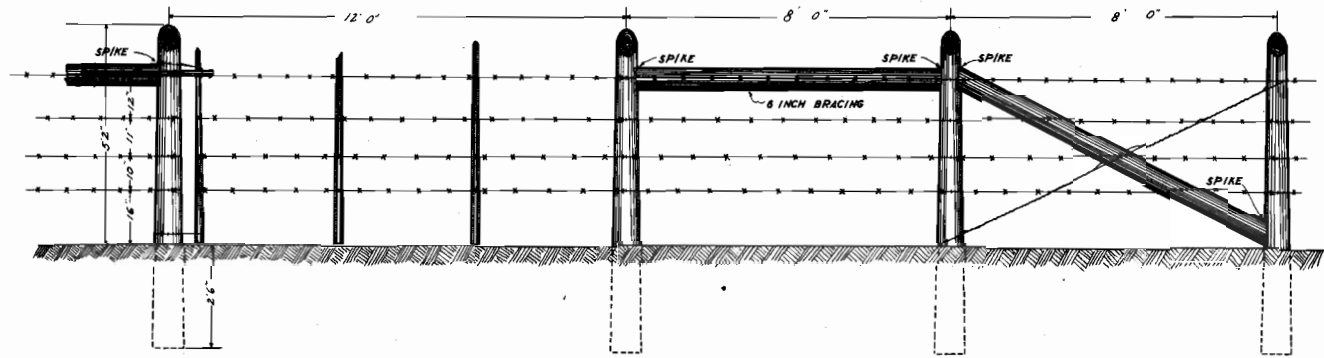


FIG 3

GATE AND BRACING ON ROADS USED INFREQUENTLY AND WHERE LONG POSTS ARE NOT AVAILABLE

FOREST SERVICE	
<b>FENCES &amp; GATES</b>	
PLAN R-4 # 65	
SHEET 2 OF 3	
CHECKED	DATE
APPROVED	SCALE
	1/2" = 1 Foot



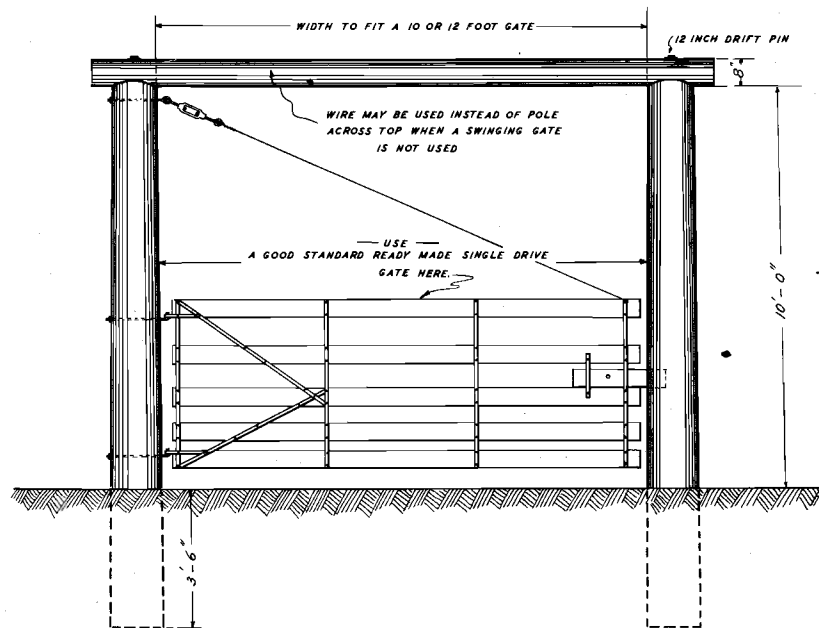
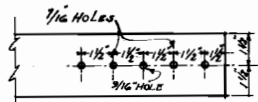


FIG. 4  
 FRAME AND BRACING FOR GATE OPENING ON  
 FREQUENTLY USED ROADS WHERE LONG POSTS  
 ARE AVAILABLE

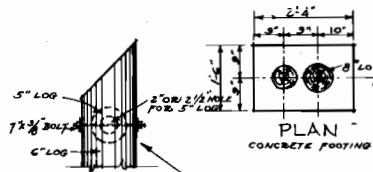
FOREST SERVICE	
FENCES & GATES	
PLAN R-4 # 65	SHEET 3 OF 3
CHECKED <i>CLM</i>	DATE <i>7-7-35</i>
APPROVED <i>CLM</i>	SCALE <i>1/2" = 1 Foot</i>



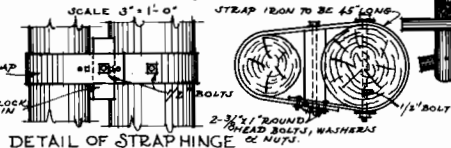
SECTION-A-A



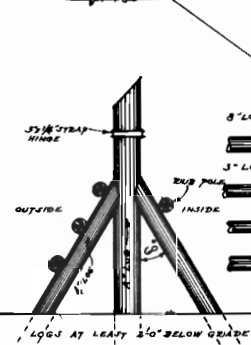
DETAIL OF END OF STRAP  
(MAKE BOTH ENDS SAME)



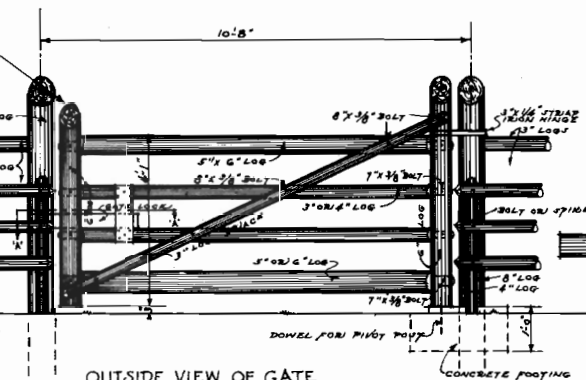
PLAN  
CONCRETE FOOTING



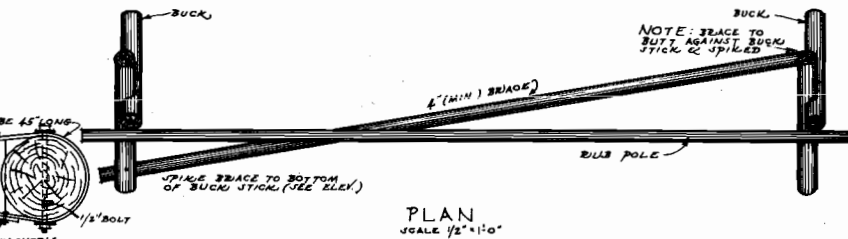
DETAIL OF STRAPHINGE



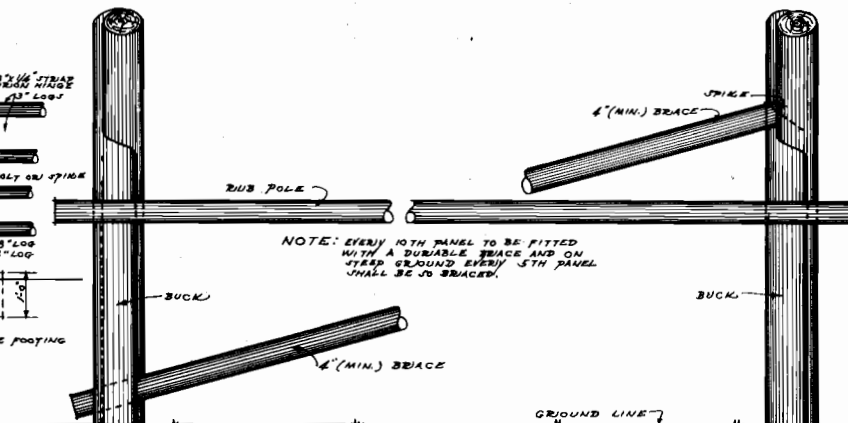
SIDE VIEW  
SCALE 1/2" = 1'-0"



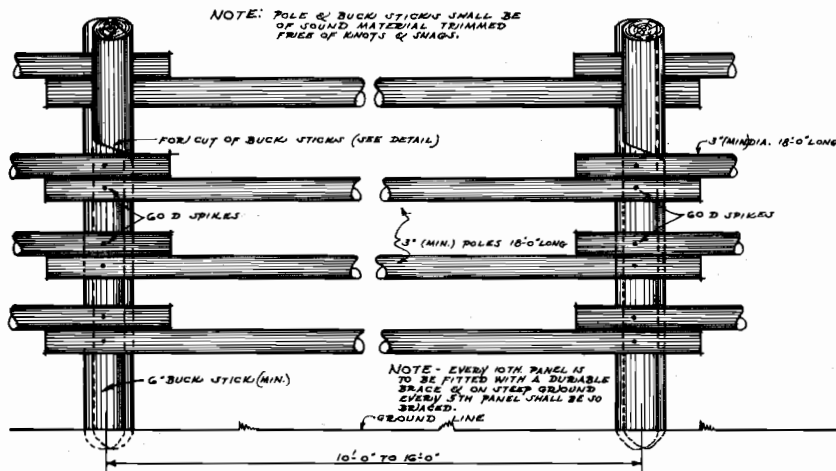
OUTSIDE VIEW OF GATE  
SCALE 1/2" = 1'-0"



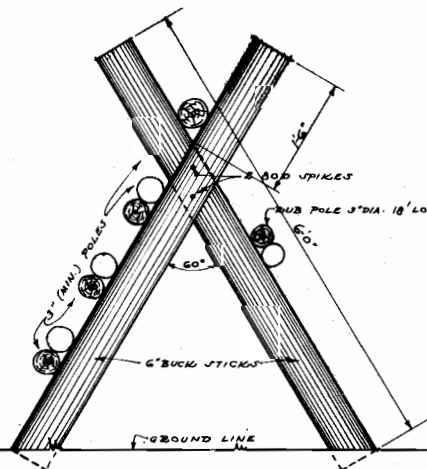
PLAN  
SCALE 1/2" = 1'-0"



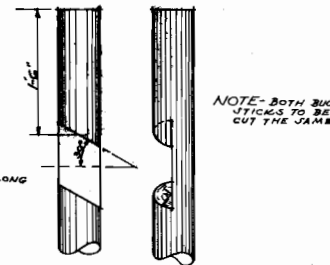
ELEVATION SHOWING BRACE  
SCALE 1" = 1'-0"



ELEVATION  
SCALE 1" = 1'-0"



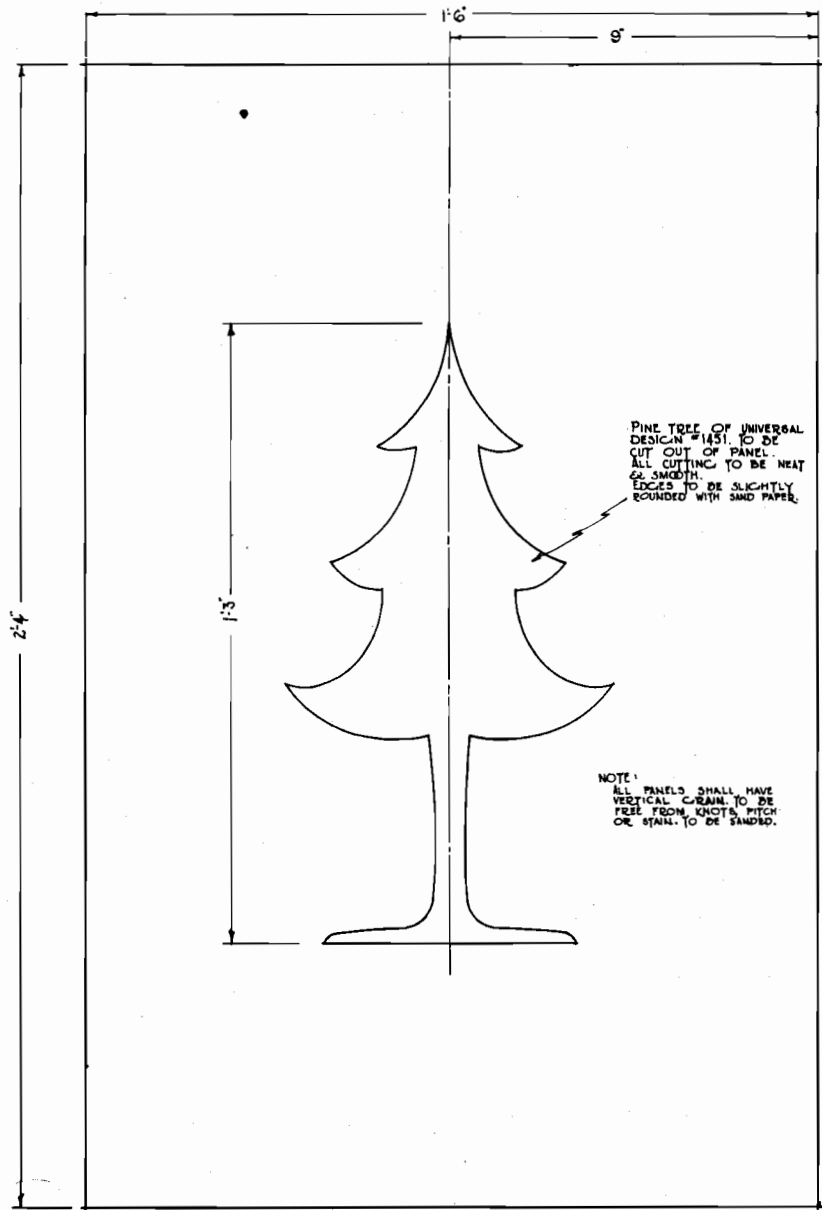
SECTION SHOWING  
DETAIL OF BUCKS  
SCALE 1" = 1'-0"



DETAIL SHOWING CUT FOR  
BUCK STICKS  
SCALE 1" = 1'-0"

FOREST SERVICE	
<b>BUCK POLE FENCE</b>	
PLAN R-4 # 85 A	SHEET 1 OF 1
REVISED	SCALE
CHECKED <i>[Signature]</i>	AS SHOWN
APPROVED <i>[Signature]</i>	

Revised May 1, 1934



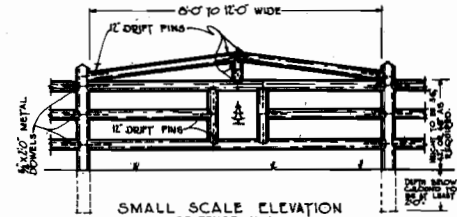
PINE TREE OF UNIVERSAL DESIGN #1451 TO BE CUT OUT OF PANEL. ALL CUTTING TO BE NEAT & SMOOTH. EDGES TO BE SLIGHTLY ROUNDED WITH SAND PAPER.

NOTE: ALL PANELS SHALL HAVE VERTICAL GRAIN TO BE FREE FROM KNOTS, FITCH OR STAIN. TO BE SANDED.

FRONT ELEVATION



FIVE PLY FIR BOARD ALL EDGES TO BE PLANED SMOOTH.



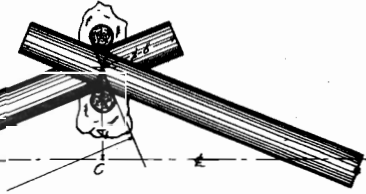
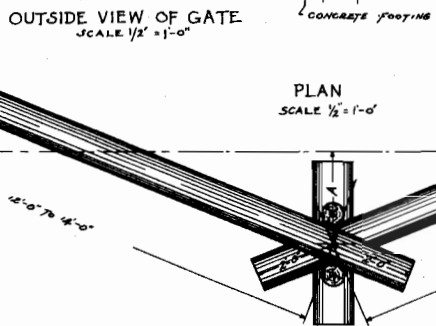
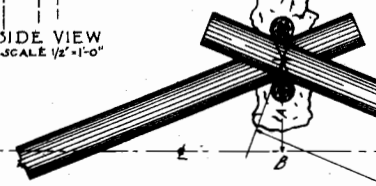
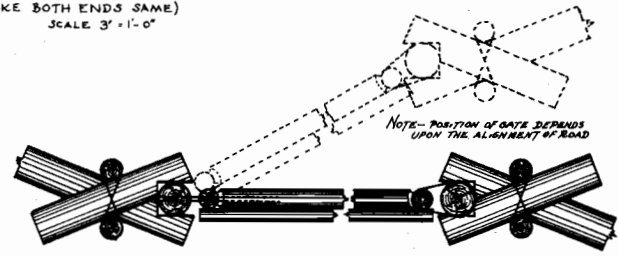
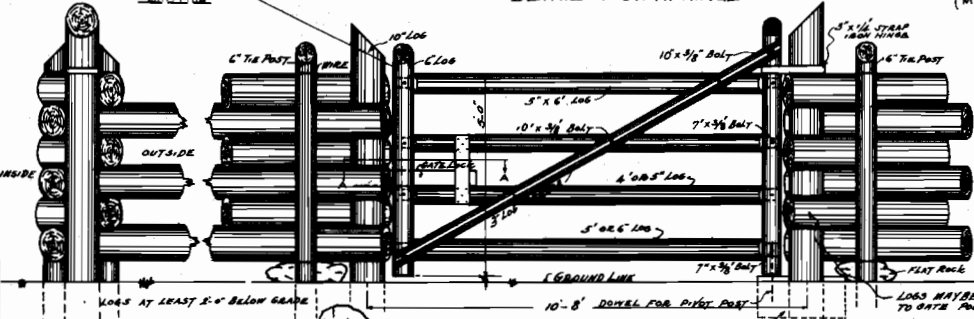
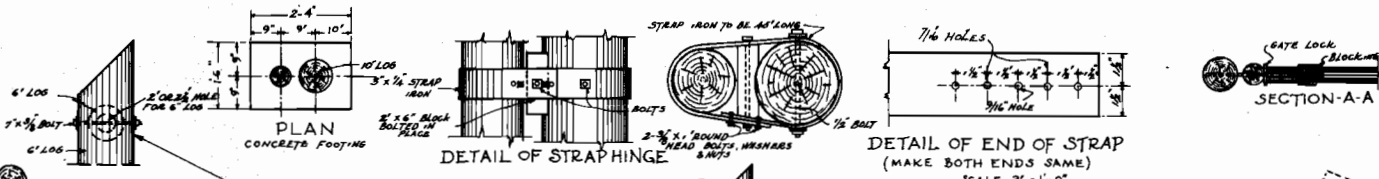
SMALL SCALE ELEVATION OF FENCE WITH PANEL IN PLACE

**NOTE:**

It is recommended that the laminated panels which are specified be carefully painted. If there is any indication that the plies or layers are separating, they can be re-seamed with Du Pont or Lepage's liquid cement and clamped together until the cement has hardened. Spring clothes pins or small bench clamps can successfully be used. Where a wood clamp is used however, caution should be taken to avoid putting the clamp directly on the panel itself—place a piece of wood between the clamp and the panel. After the cement has hardened, white lead should be rubbed into the edges of the panel around the tree cut-out and then one coat of aluminum paint should be applied. The panels after this treatment are ready for painting.

END ELEVATION

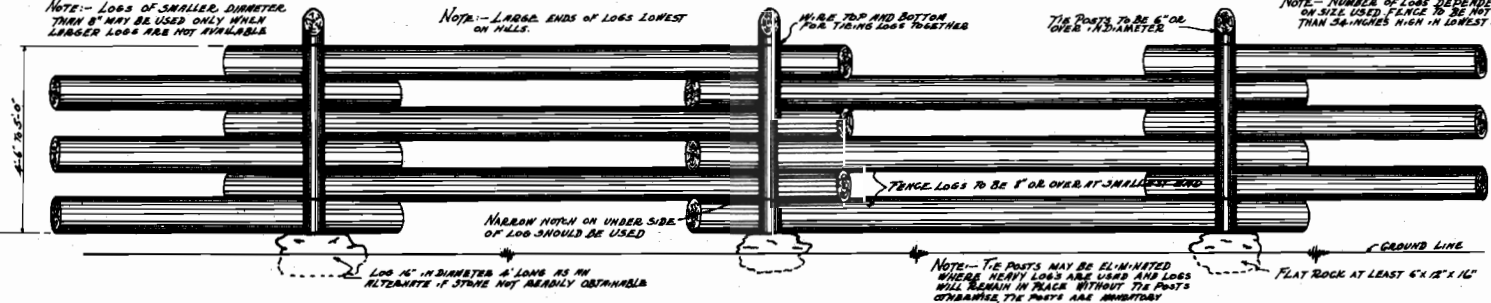
FOREST SERVICE	
PANEL FOR LOG FENCE	
PLAN R-4 #65B	SHEET 1 OF 1
CHECKED <i>[Signature]</i>	DATE <i>[Date]</i>
APPROVED <i>[Signature]</i>	SCALE 1/2" = 1" INCH



A = 2'-3" FOR 12'-0" SPAN  
 A = 2'-8" FOR 14'-0" SPAN  
 B-C = 22'-3" FOR 12'-0" SPAN  
 B-C = 25'-10" FOR 14'-0" SPAN

NOTE:- LOGS OF SMALLER DIAMETER THAN 6" MAY BE USED ONLY WHEN LARGER LOGS ARE NOT AVAILABLE

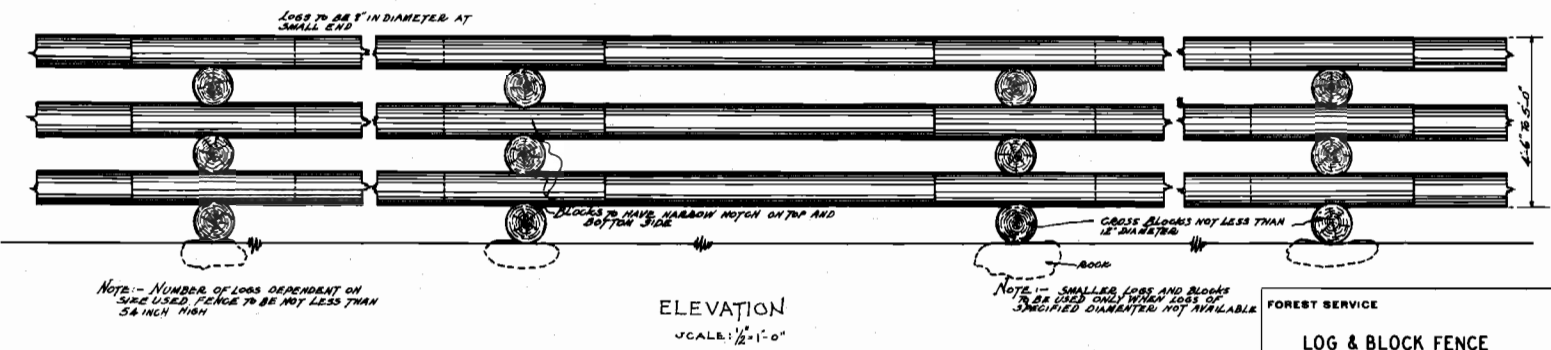
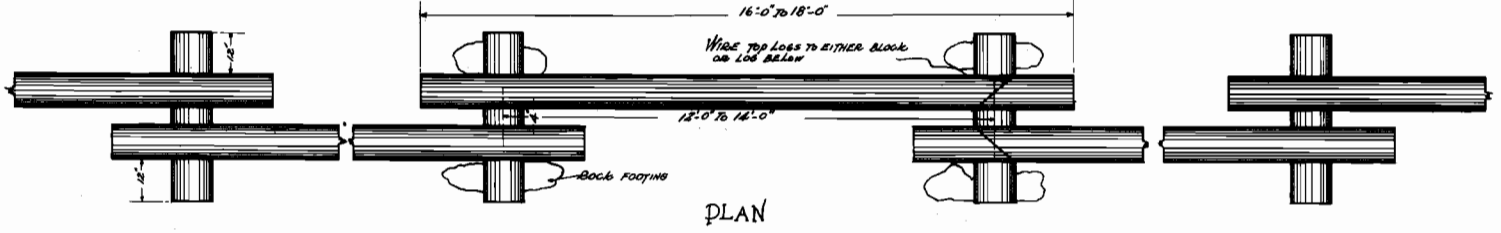
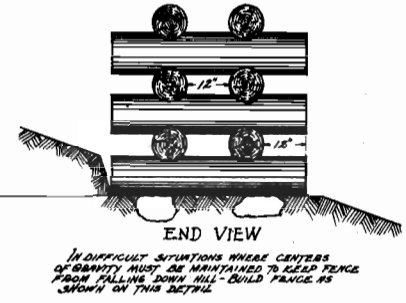
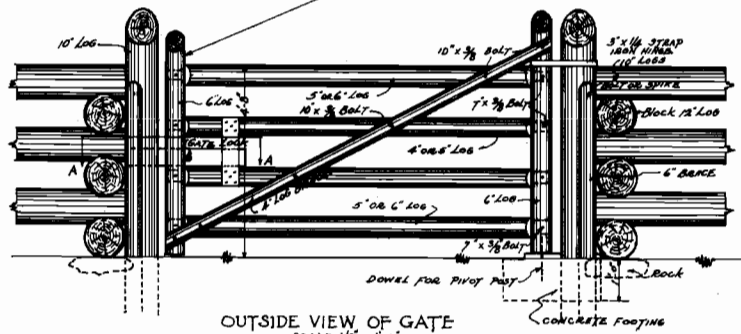
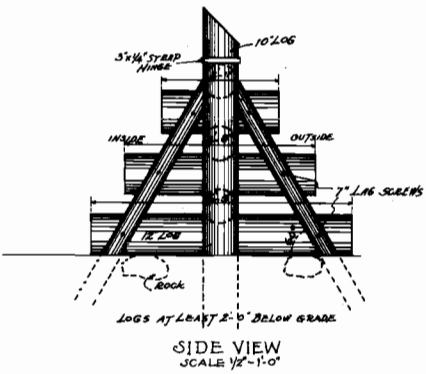
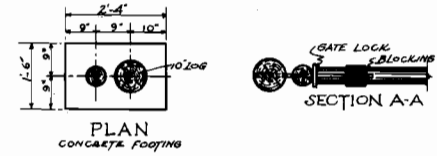
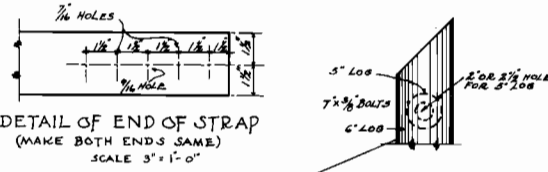
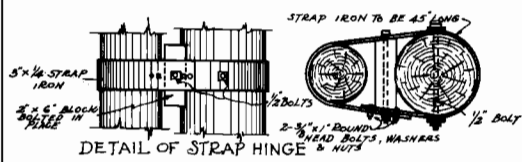
NOTE:- LARGE ENDS OF LOGS LOWEST ON HILLS.



NOTE:- NUMBER OF LOGS DEPENDENT ON SIZE USED. FENCE TO BE NOT LESS THAN 24 INCHES HIGH IN LOWEST SPAN

ELEVATION  
 SCALE 1/2" = 1'-0"

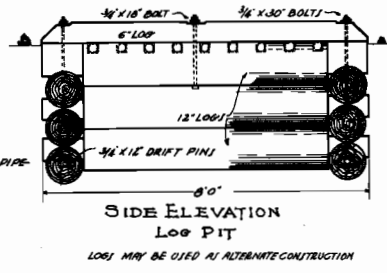
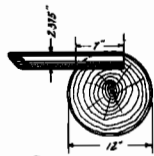
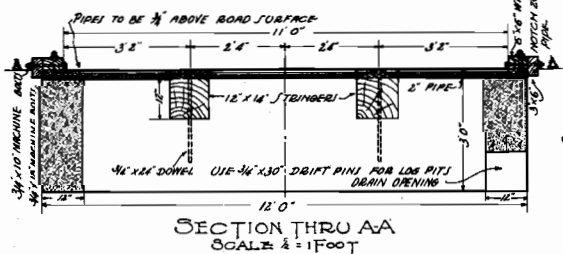
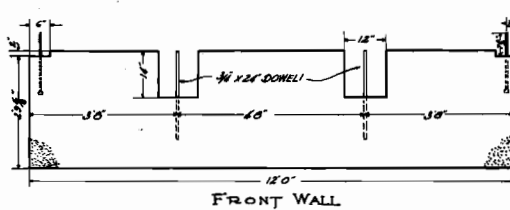
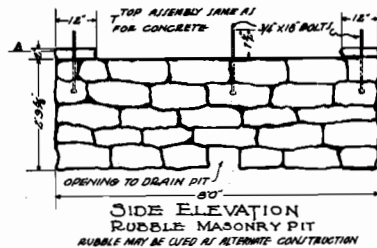
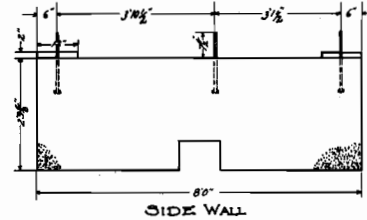
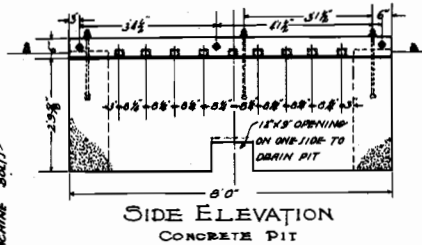
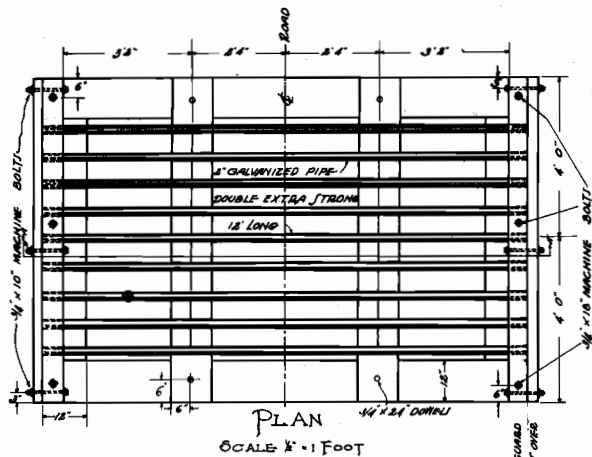
FOREST SERVICE	
WORM FENCE	
PLAN R-4 # 85C	SHEET 1 OF 2
CHECKED <i>[Signature]</i>	DATE <i>6-2-46</i>
APPROVED <i>[Signature]</i>	SCALE AS SHOWN



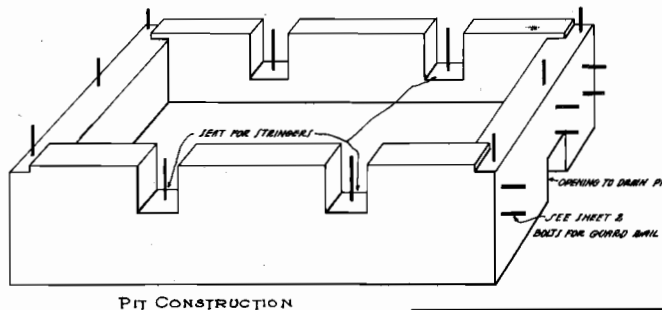
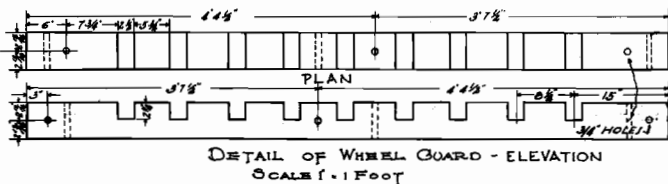
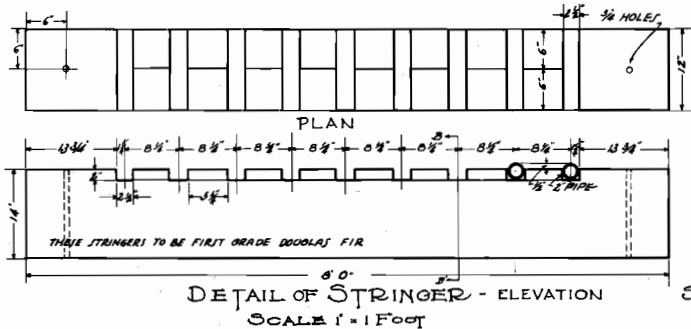
NOTE - NUMBER OF LOGS DEPENDENT ON SIZE USED FENCE TO BE NOT LESS THAN 5 1/2 INCH HIGH

FOREST SERVICE  
LOG & BLOCK FENCE  
PLAN R-4 # 65D  
SHEET 1 OF 2

CHECKED	DATE	SCALE
APPROVED		AS SHOWN



NOTE:  
THIS CATTLE GUARD IS TO BE USED IN CONNECTION WITH RANGES STATION BUILDINGS ONLY. (FOR TRUCK TRAIL CATTLE GUARDS REFER TO TRUCK TRAIL MANUAL).

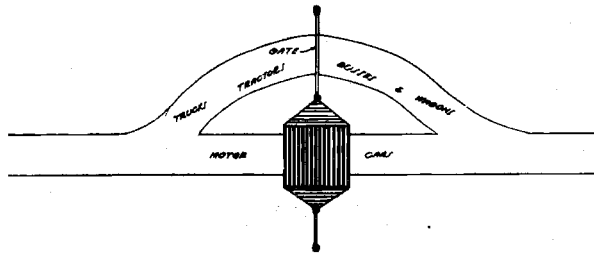


REVISED MAY 1, 1929

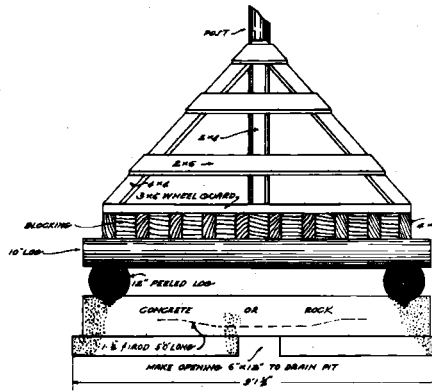
FOREST SERVICE  
**CATTLE GUARD**  
PLAN R-4 \* 67  
TYPE A 5 TON CAPACITY  
CHECKED BY [Signature]  
APPROVED BY [Signature]

SCALE  
As Shown

SHEET 1 OF 2

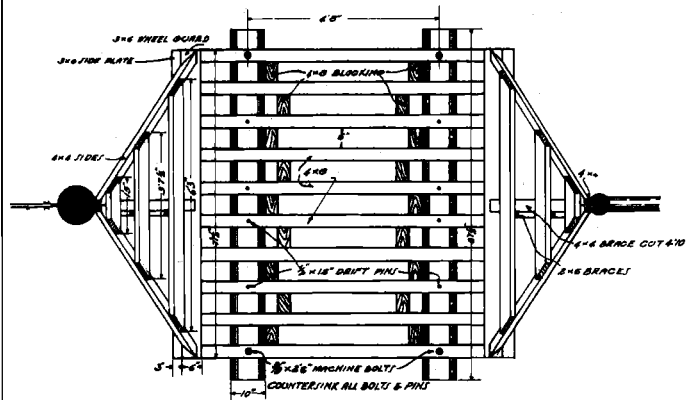


GENERAL PLAN

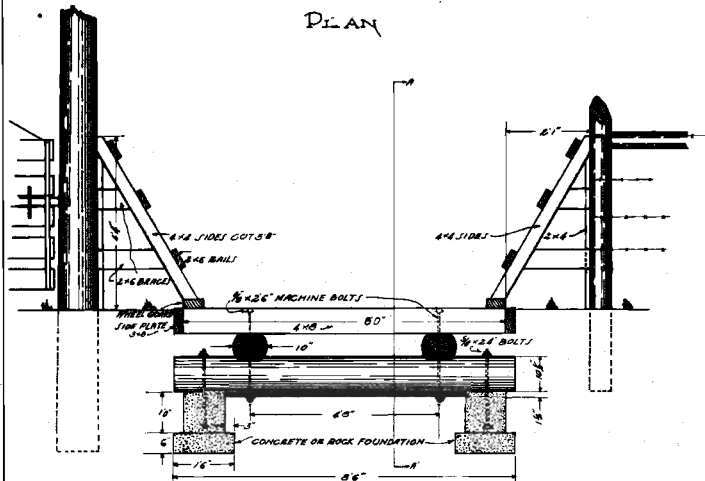


SECTION ON A-A

NOTE:  
THIS CATTLE GUARD IS TO BE  
USED IN CONNECTION WITH  
RANGERS STATION BUILDINGS ONLY  
(FOR TRUCKS TRAIL CATTLE GUARDS  
REFER TO TRUCK TRAIL MANUAL)



PLAN



FRONT ELEVATION

BILL OF MATERIALS

Item No.	No. of Pcs.	Material	Purpose	Qty
<b>Concrete, Sand &amp; Gravel</b>				
1		(Amount listed under lumber)	Foundations & footings	
2	1/2	Cu. Yds. Sand	" " "	
3	1	Cu. Yds. Gravel	" " "	
<b>Lumber &amp; Yard List - Cement, etc.</b>				
4	6	Sacks of Portland Cement		
5	10	Pcs. 4"x8" - 8'-0" #1 Common D.F. S4S	Platform	214
6	2	" 3"x8" - 8'-0" Ditto	Sideplate	32
7	2	" 3"x6" - 8'-0" Ditto	Wheelguard	24
8	1	" 4"x8" - 10'-0" Ditto	Blocking	27
9	4	" 4"x8" - 8'-0" Ditto	Sides	43
10	1	" 4"x8" - 10'-0" Ditto	Center braces for sides	14
11	1	" 4"x8" - 8'-0" Ditto	Braces for sides	8
12	2	" 2"x8" - 12'-0" Ditto	Horizontals for sloping sides	24
13	1	" 2"x8" - 10'-0" Ditto	Vertical anchor members for sides	7
14	2	" 10" diam. logs - 8'-7 1/2" long (peeled)	Platform support	
15	2	" 1" " " 8'-6" long (peeled)	Platform lateral support	
16	4	5/8"x2 1/2" machine bolts complete with nuts and washers	For bolting ends of platform	
17	8	1/2"x12" drift pine	For platform	
18	2	1/2" Iron rods 5'-0" long	Reinforcing footings	
19	3	#10D Nails		
20	4	#80D Nails		
21	4	5/8"x2 1/2" Bolts complete with nuts and washers	Bolting logs to concrete	
22	1/2	#30D Nails	Spikes for anchoring to support	
<b>Paint</b>				
21	1	Gallon White Paint	Platform and sides	
22	1	Gallon Creosote	For treating logs & ground members	

(Paint to be furnished by the Regional Office.)

**SPECIFICATIONS**

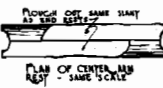
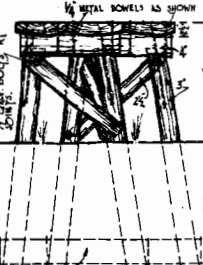
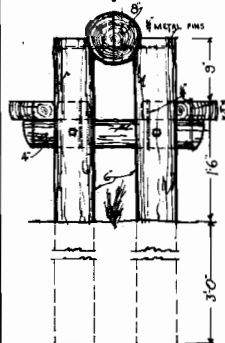
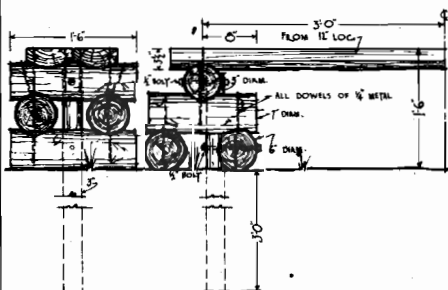
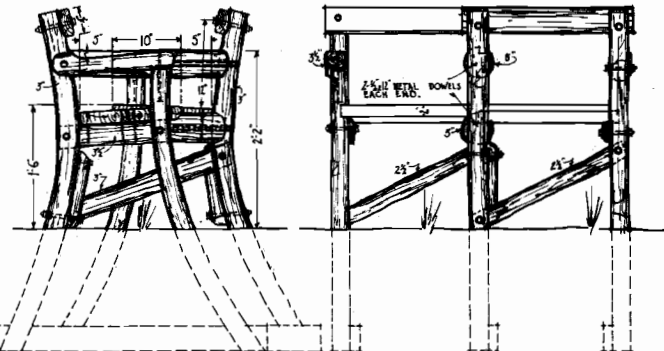
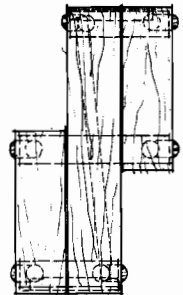
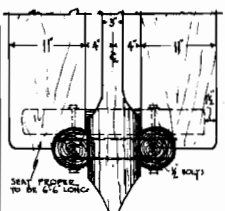
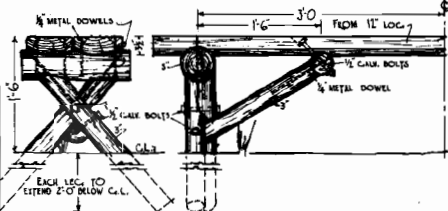
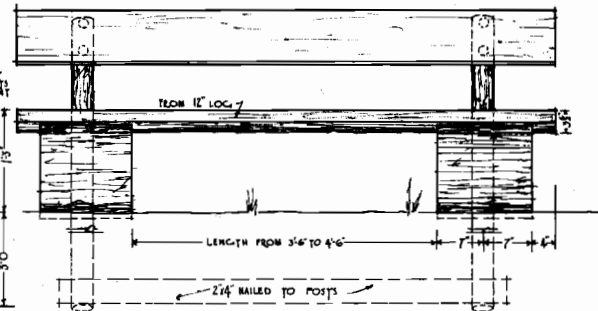
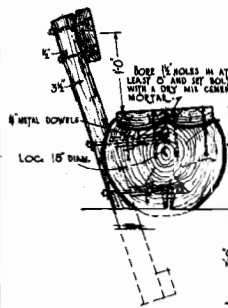
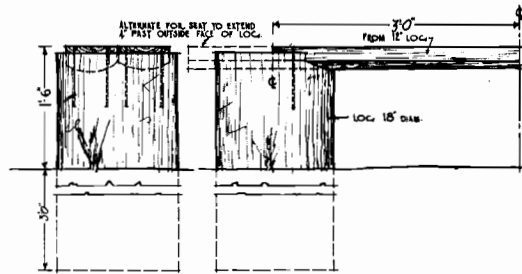
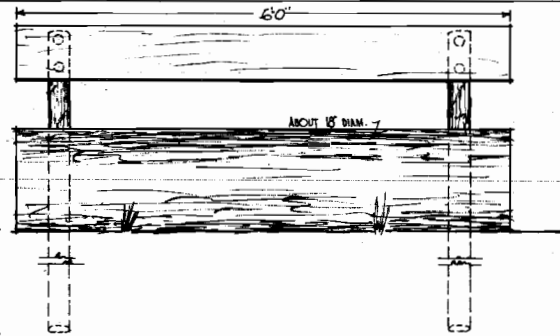
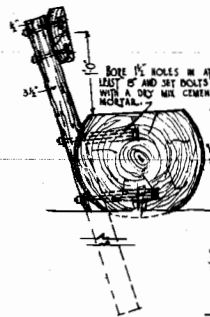
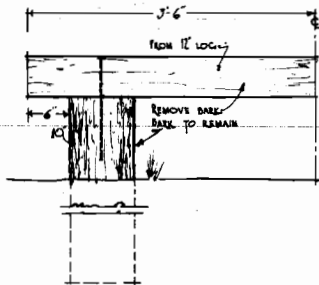
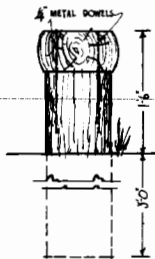
**Concrete:**- Bottom of footings to be levelled and tamped. The concrete is to be mixed thoroughly in proportion of 1-2-1/2-5 and the water is to be carefully measured, using seven (7) gallons clear, clean water to each one sack batch where the sand and gravel is dry, or six (6) gallons where sand and gravel are moist. Thoroughly mix.

**Lumber:**- All lumber to be #1 Common Douglas Fir S4S for finish lumber and Douglas Fir logs.

Logs and ground members to be creosoted.

FOREST SERVICE	
<b>CATTLE GUARD</b>	
DESIGNED FOR LOADS UNDER THREE TONS	
PLAN R-4 #67A	
LOG TYPE	SHEET 1 OF 1
CHECKED G.W.	DATE 12-22-34
APPROVED G.W.V.	SCALE 3/4" = 1'-0"

REVISED MAY 1, 1934

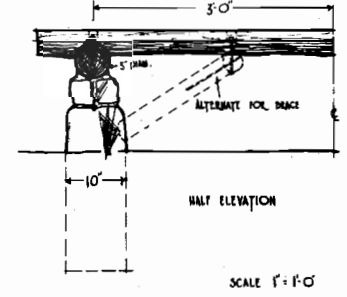
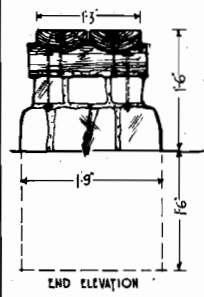
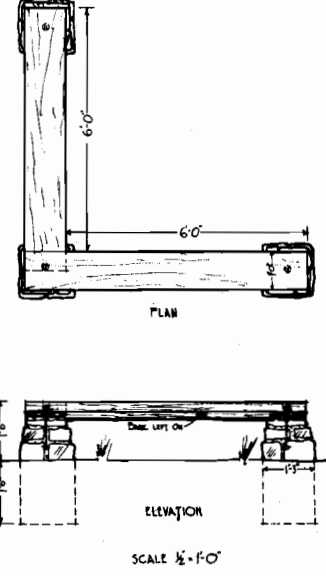
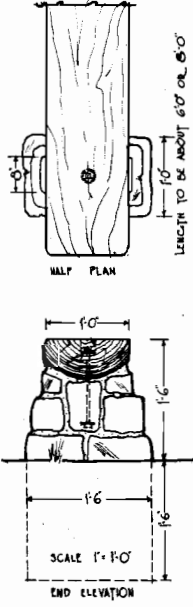
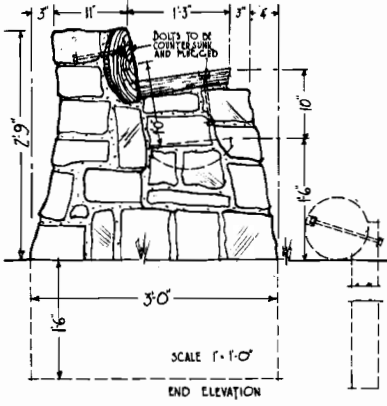
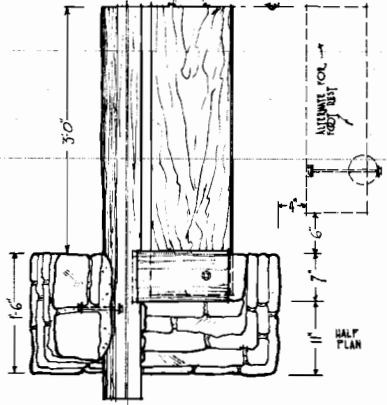


**GENERAL NOTES**

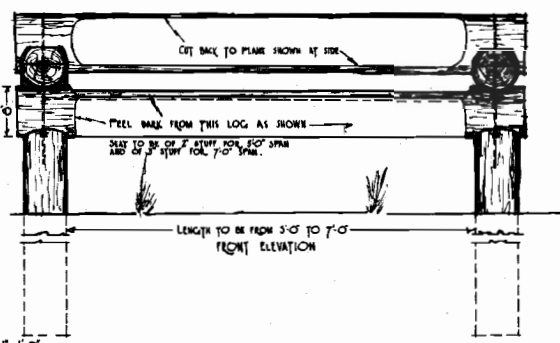
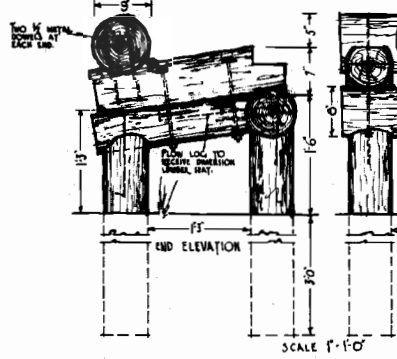
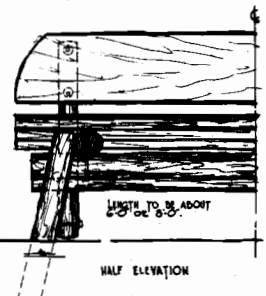
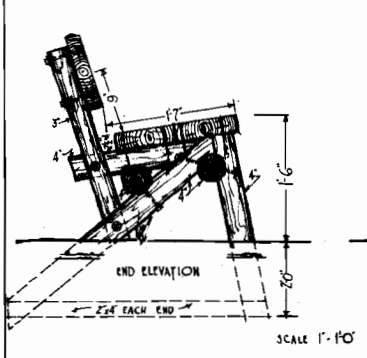
CREOSOTE ALL WOOD IN CONTACT WITH EARTH TO 6" ABOVE THE GROUND EXCEPT ON LOG SEATS WHICH ARE TO HAVE A PRESERVATIVE TO SAME DISTANCE ABOVE THE GROUND IN THE FOLLOWING: PREDOMINANTLY ONE OF THE FOLLOWING: TWO OF SPAL, VARMIN, SIXTER OF UNSEED OIL. WHERE POSSIBLE TO SECURE LOGS ARE TO BE WIPED OFF. REMOVE BARK FROM LOGS WHERE IN CONTACT WITH BODY. TRIM EXPOSED SURFACES WITH 2 CORN LOG SHING TRAIL. SET BOLTS IN PLEON SPREAD AND GIVE A WOOD PLUG TO COVER HEADS WHERE SHOWN.

FOREST SERVICE	
<b>RUSTIC SEATS</b>	
PLAN R-4 #69 A-1 SHEET 1 OF 2	
CHECKED <i>[Signature]</i>	DATE <i>[Date]</i>
APPROVED <i>[Signature]</i>	SCALE 1" = 1'-0"

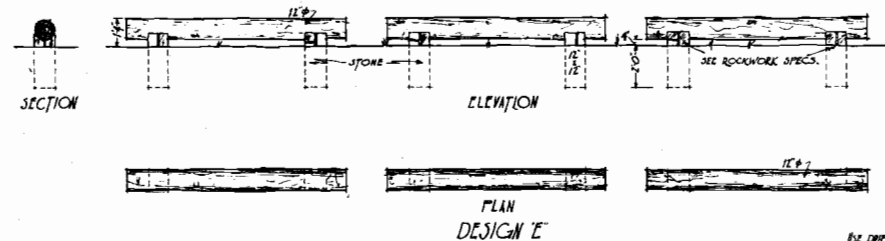
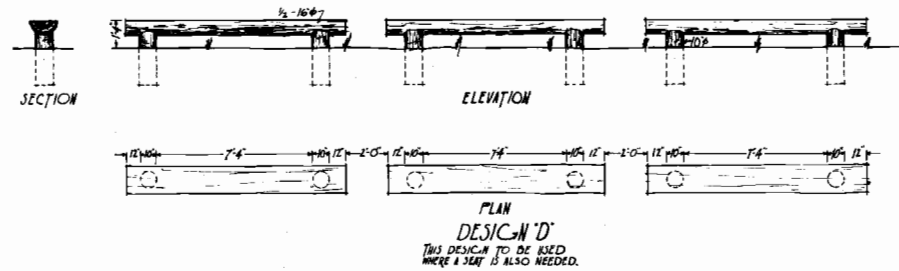
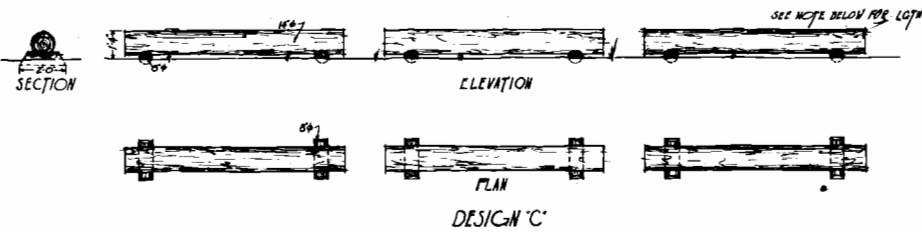
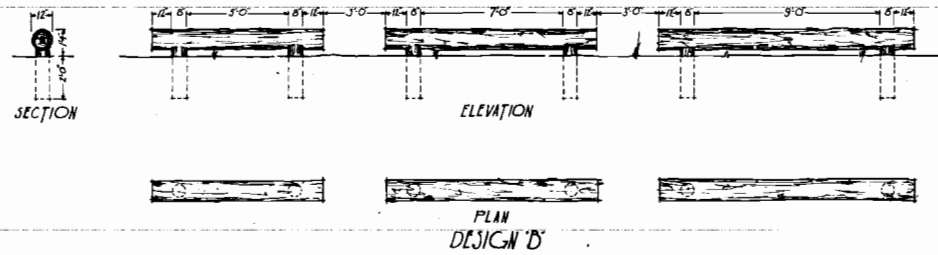




**GENERAL NOTES**  
 CHOOSE ALL WOOD IN CONTACT WITH EARTH TO BE ABOVE THE GROUND, WHILE PORTALS TO SEALS, LOGS ARE TO BE WHITE, OAK AND WELL SEASONED. BRUSH WALK FROM LOGS, WHERE IN CONTACT WITH BODY.  
 WHERE LOGS HAVE NEWER SURFACES THESE SURFACES ARE TO BE FINISHED FULLY SMOOTH AND ROUNDED. STAIN REFINISHED SURFACES ALSO, LOGS ARE TO BE 4" UNLESS SHOWN OTHERWISE.  
 SET BOLTS IN FRONT FACE AND GLUE A WOOD PLUG TO COVER HEADS WHERE SHOWN.  
 WHERE NO BOLTS OR DONNELS ARE SHOWN MEMBERS MAY BE SECURED WITH SUITABLE SIZED SPIRES.  
 JOINTS IN LOGS ARE TO BE RAKED AND TROWELED 1" BACK.

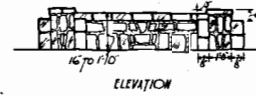


FOREST SERVICE  
**RUSTIC SEATS**  
 PLAN R-4-489A-1 SHEET 2 OF 2  
 CHECKED *ad* DATE *2-1-36*  
 APPROVED *pp* SCALE AS SHOWN



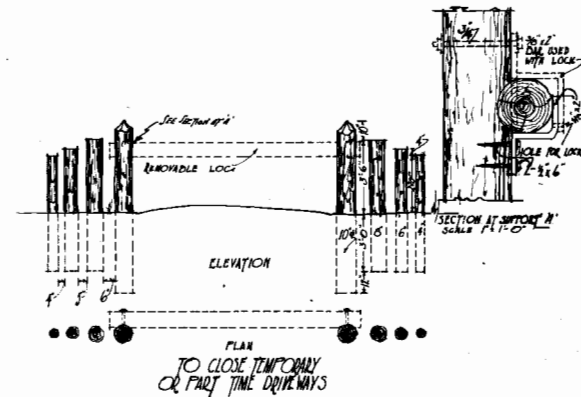
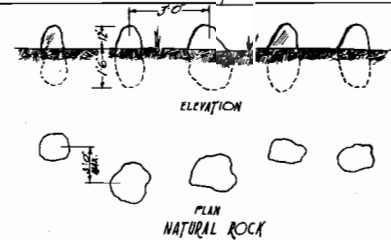
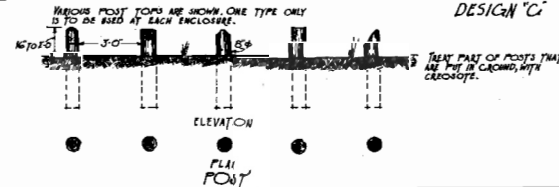
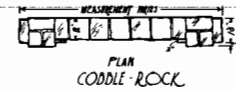
CREDIT NOTE:  
DESIGNS A-B-C-D-MID E TAKEN  
FROM LANDS HANDBOOK - SECTION 6.

NOTES  
USE SHARP POINTS & UNCHISELED  
EDGES TO PATTERN THAT  
LOGS TO POSTS.  
LENGTH AND SIZE OF LOGS  
VARIABLE.  
DESIGN TO BE AS  
CLOSE AS POSSIBLE  
TO DESIGN WHEN POSSIBLE  
CUT LOGS IN DOWNMAN  
DIRECTION WHEN POSSIBLE.  
TREAT PART OF POSTS THAT  
ARE PUT IN GROUND WITH  
CREOSOTE.



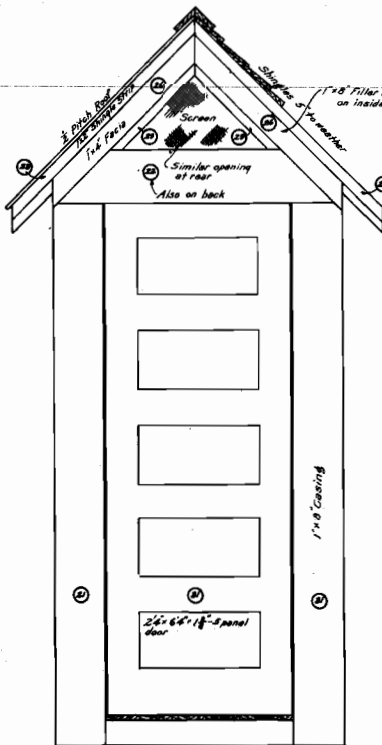
DESIGN 'T'

ROCKWORK  
THE ROCK WILL BE Laid IN A MORTAR  
MADE IN THE FOLLOWING PROPORTIONS  
BY VOLUME:  
1 PART PORTLAND CEMENT  
4 PARTS OF CLEAN SHARP SAND.  
THE MORTAR WILL BE OF HEAVY  
BATTER CONSISTENCY, USUALLY REQUIRING  
30 TO 40 GALLONS OF  
WATER PER CUBIC YARD OF MORTAR.  
ESTIMATE 30 TO 40% OF CUBIC ROCK  
WORK AS MORTAR.

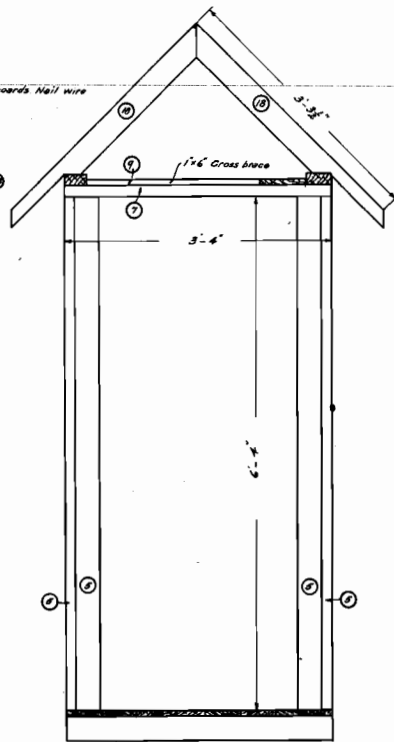


NOTES  
WHERE ROCKS, STUMPS OR TREES  
EXIST AND WHERE THESE WILL  
MAKE AN AMPLE DANGER AND  
STOPS MUST BE MADE.  
THE MORE NATURAL THE BARRIER,  
THE MORE PLEASING THE APPEARANCE.  
TREAT PART OF POSTS THAT ARE PUT  
IN GROUND WITH CREOSOTE.

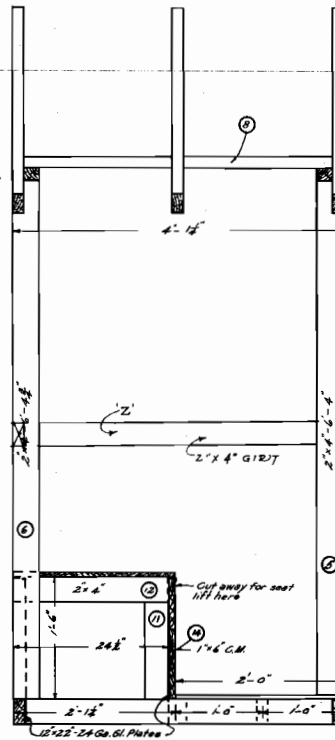
FOREST SERVICE	
<b>BARRIERS</b>	
PLAN R-4	#69B-3
SHEET 1 OF 1	
CHECKED <i>SLC</i>	DATE <i>1-26-61</i>
APPROVED <i>BA</i>	SCALE <i>1/2" = 1'-0"</i>



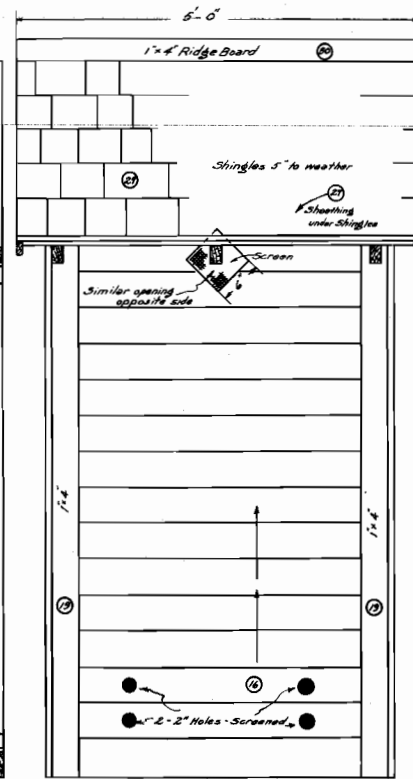
FRONT



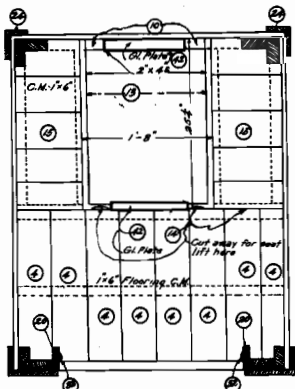
FRONT FRAMING



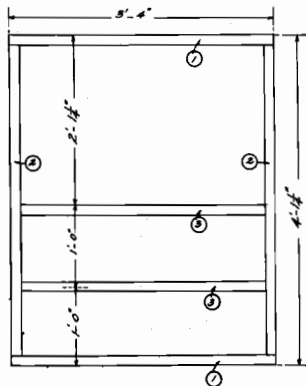
SIDE FRAMING



SIDE ELEVATION



FLOOR PLAN



FLOOR FRAMING

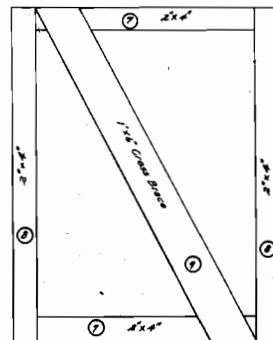


PLATE FRAMING

NOTE:  
FOREST OFFICER IN CHARGE  
IS TO HAVE A CROSS BAIL ON  
EACH DOOR BRANDED WITH "U.S."

FOREST SERVICE

SINGLE UNIT LATRINE

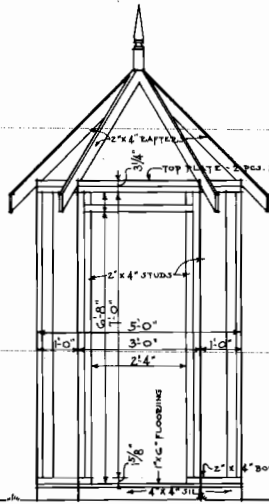
PLAN R-4 #70

Revised by R-F  
From Plan R-1

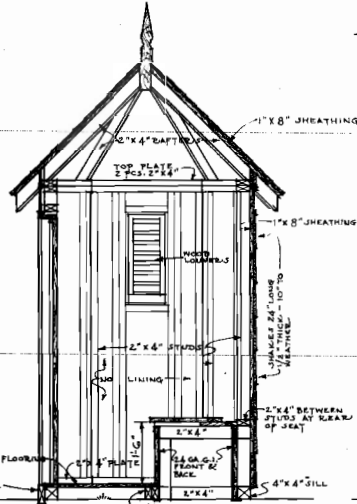
SHEET 1 OF 3

CHECKED *R.F.* DATE *5-10-38*  
APPROVED *H.W.* SCALE 1/4" = 1 FOOT

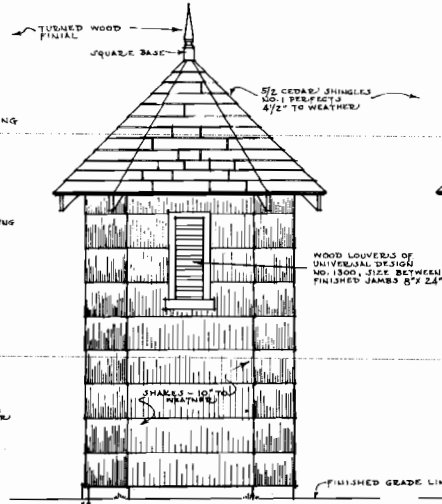
REVISED MAY 1, 1938



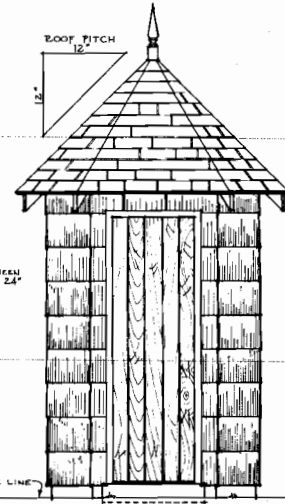
FRONT ELEV. OF FRAMING  
SCALE 1/2" = 1'-0"



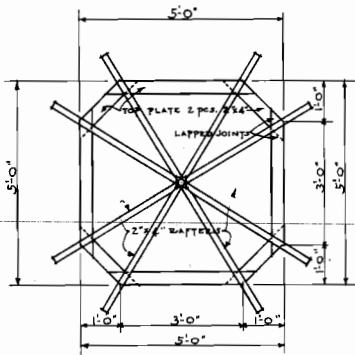
SECTION ON LINE 'A-A'  
SCALE 1/2" = 1'-0"



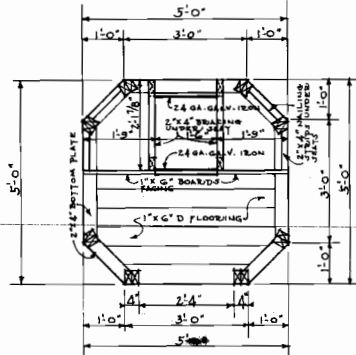
SIDE ELEVATION  
(OPPOSITE SIDE SIMILAR)  
SCALE 1/2" = 1'-0"



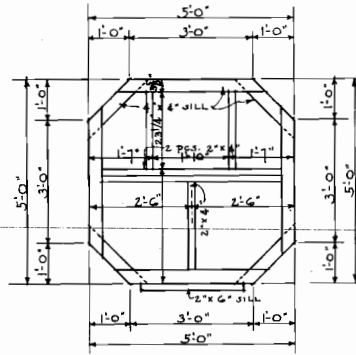
FRONT ELEVATION  
SCALE 1/2" = 1'-0"



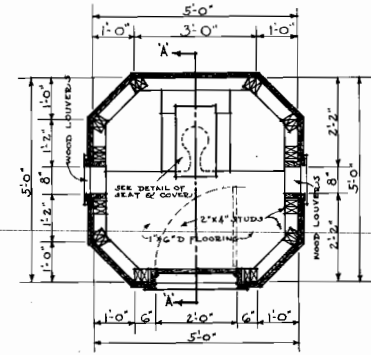
ROOF FRAMING  
SCALE 1/2" = 1'-0"



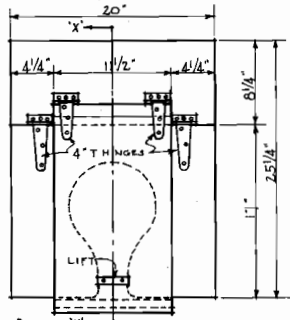
PLAN SHOWING SEAT FRAMING  
SCALE 1/2" = 1'-0"



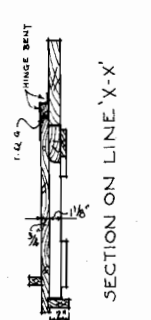
FLOOR FRAMING  
SCALE 1/2" = 1'-0"



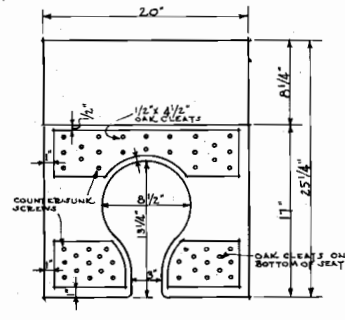
PLAN  
SCALE 1/2" = 1'-0"



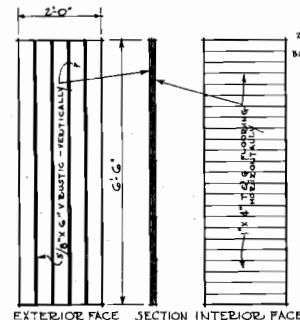
PLAN OF TOP DETAILS OF TOILET SEAT



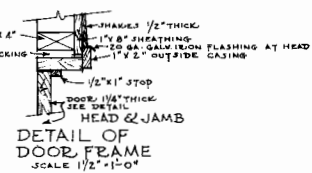
SECTION ON LINE 'X-X'



REFLECTED PLAN (SHOWING BOTTOM OF SEAT)  
SCALE 1/2" = 1'-0"

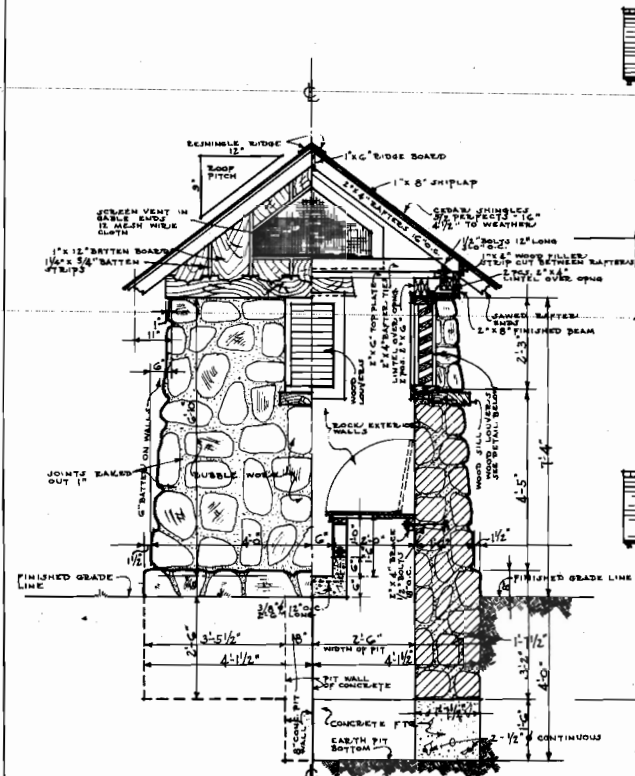


DETAILS OF DOOR  
SCALE 1/2" = 1'-0"

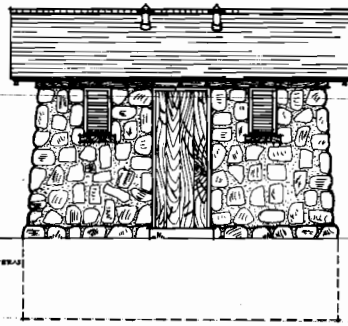


DETAIL OF DOOR FRAME  
SCALE 1/2" = 1'-0"

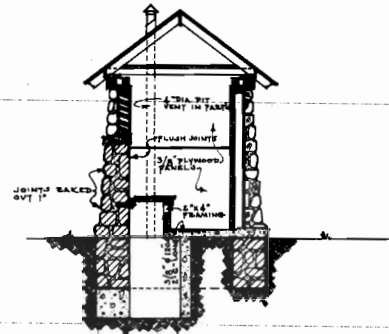
FOREST SERVICE	
SINGLE UNIT LATRINE	
PLAN R-4 # 70A-1	
SHEET 1 OF	
CHECKED <i>gld</i>	DATE <i>2/22/52</i>
APPROVED <i>DP</i>	SCALE AS SHOWN



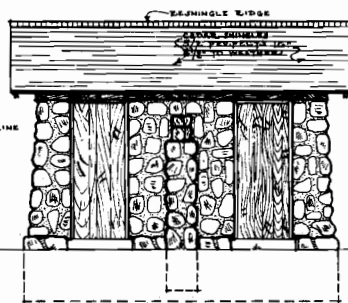
HALF END ELEV. HALF CROSS SECTION  
SCALE 1/2" = 1'-0"



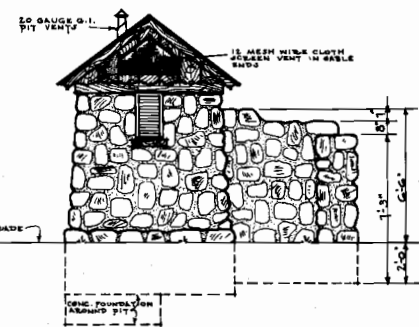
REAR ELEVATION  
SCALE 1/4" = 1'-0"



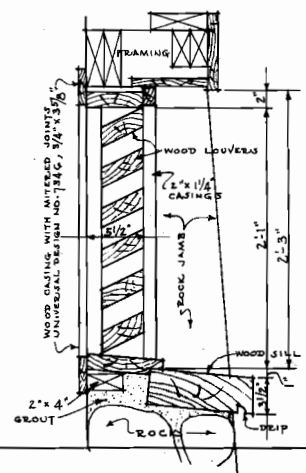
SECTION ON LINE 'A-A'  
SCALE 1/4" = 1'-0"



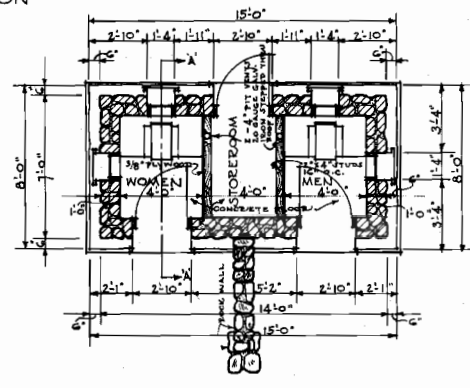
FRONT ELEVATION SCALE 1/4" = 1'-0"



END ELEVATION  
SCALE 1/4" = 1'-0"  
(OPPOSITE END SIMILAR)



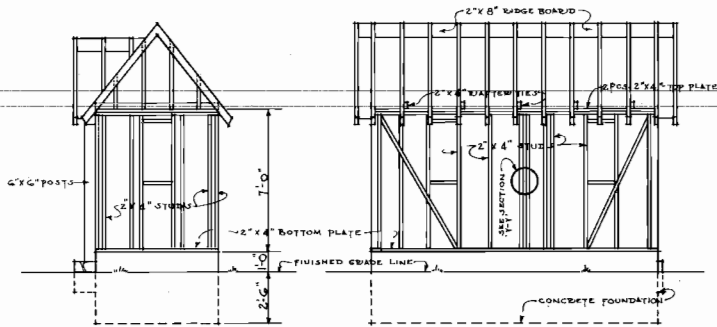
DETAIL OF VENTILATORS  
SCALE 1/2" = 1'-0"



PLAN  
SCALE 1/4" = 1'-0"

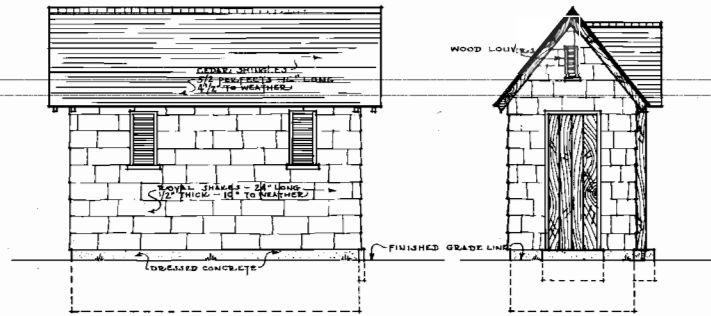
DOORS:  
ALL DOORS TO BE SIMILAR TO  
UNIVERSAL DESIGN NO. 108 EXCEPT  
WITHOUT GLASS PANEL. SIZE TO  
BE 2'-0" x 6'-8" x 1 3/4". JOINTS  
TO BE PLACED ON OUTSIDE ONLY.

FOREST SERVICE		TWO UNIT PIT TYPE COMFORT STATION	
PLAN R-4		70B-1	SHEET 1 OF 3
CHECKED	DATE	SCALE	AS SHOWN
APPROVED	2-22-57		



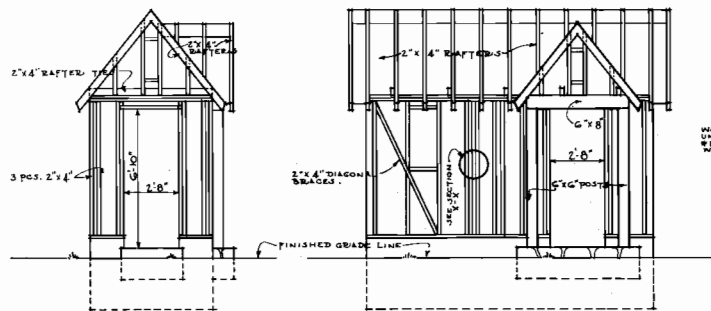
END FRAMING  
SCALE 1/4"=1'-0"

REAR FRAMING  
SCALE 1/4"=1'-0"



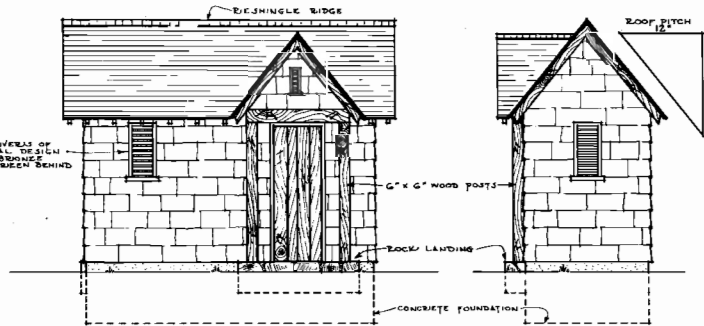
REAR ELEVATION  
SCALE 1/4"=1'-0"

END ELEVATION  
SCALE 1/4"=1'-0"



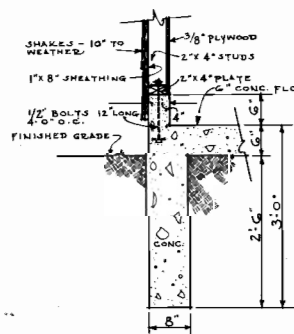
END FRAMING  
SCALE 1/4"=1'-0"

FRONT FRAMING  
SCALE 1/4"=1'-0"

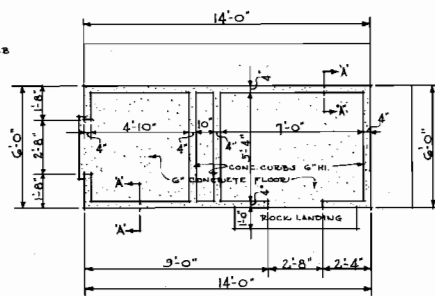


FRONT ELEVATION  
SCALE 1/4"=1'-0"

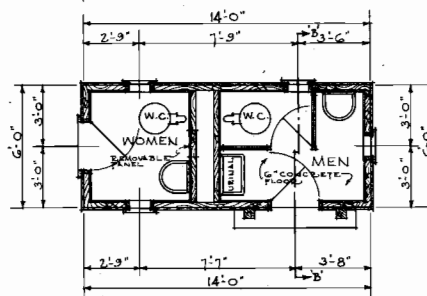
END ELEVATION  
SCALE 1/4"=1'-0"



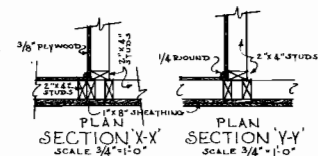
SECTION A-A  
SCALE 3/4"=1'-0"



PLAN of CONCRETE FLOOR  
SHOWING CONCRETE CURBS  
SCALE 1/4"=1'-0"



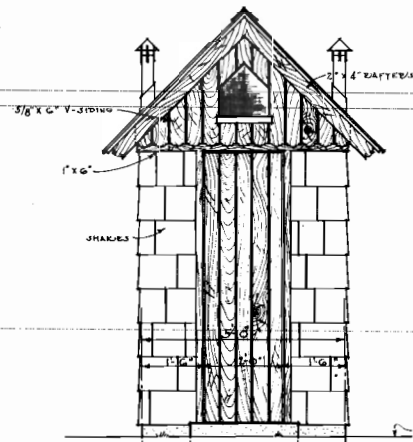
FLOOR PLAN  
SCALE 1/4"=1'-0"



PLAN SECTION X-X  
SCALE 3/4"=1'-0"

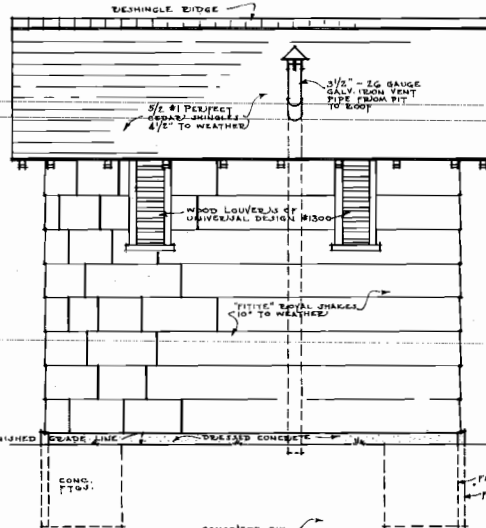
PLAN SECTION Y-Y  
SCALE 3/4"=1'-0"

FOREST SERVICE		
TWO UNIT STD. PLBG. COMFORT STATION		
PLAN R-4 * 70B-2		
SHEET 1 OF 3		
CHECKED: <i>DF</i>	DATE: 2-20-37	SCALE: AS SHOWN
APPROVED: <i>DF</i>		



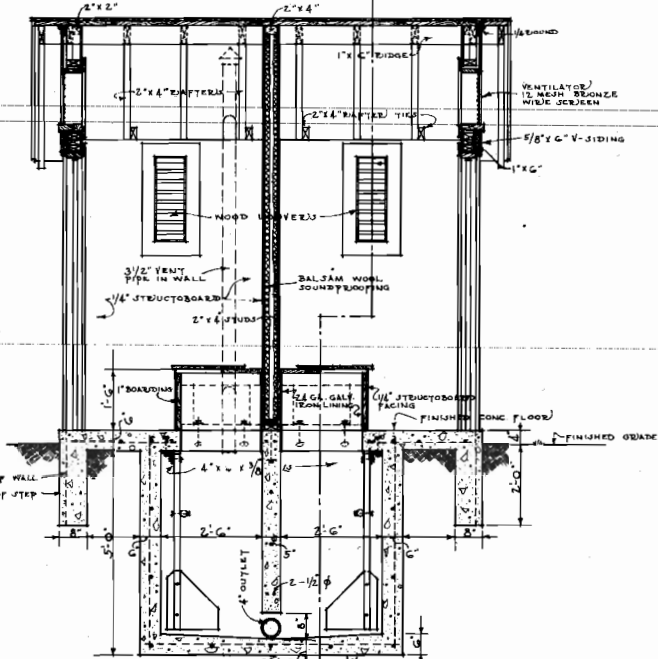
END ELEVATION  
(OPPOSITE END SIMILAR)

ROOF PITCH 12



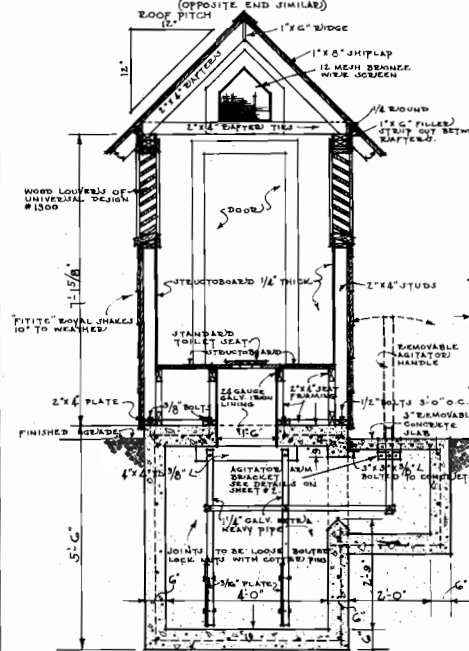
SIDE ELEVATION (OPPOSITE SIDE SIMILAR)

SCALE 1/2" = 1'-0"



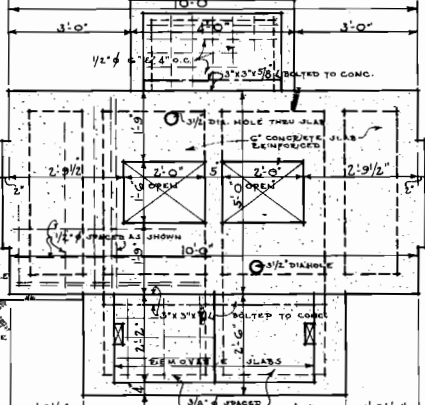
LONGITUDINAL SECTION ON C-C

SCALE 1/2" = 1'-0"



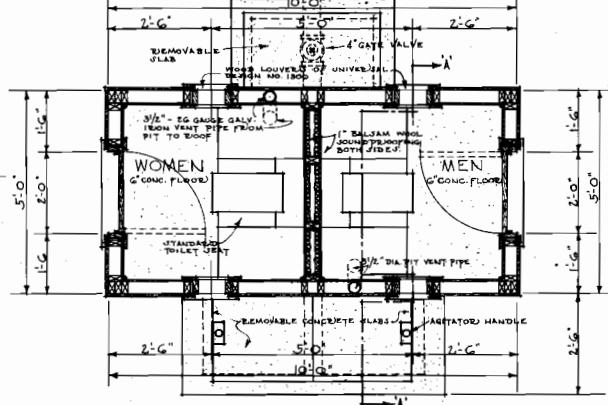
CROSS SECTION ON LINE A-A

SCALE 1/2" = 1'-0"



PLAN OF CONC. FLOOR SLAB

SCALE 1/2" = 1'-0"

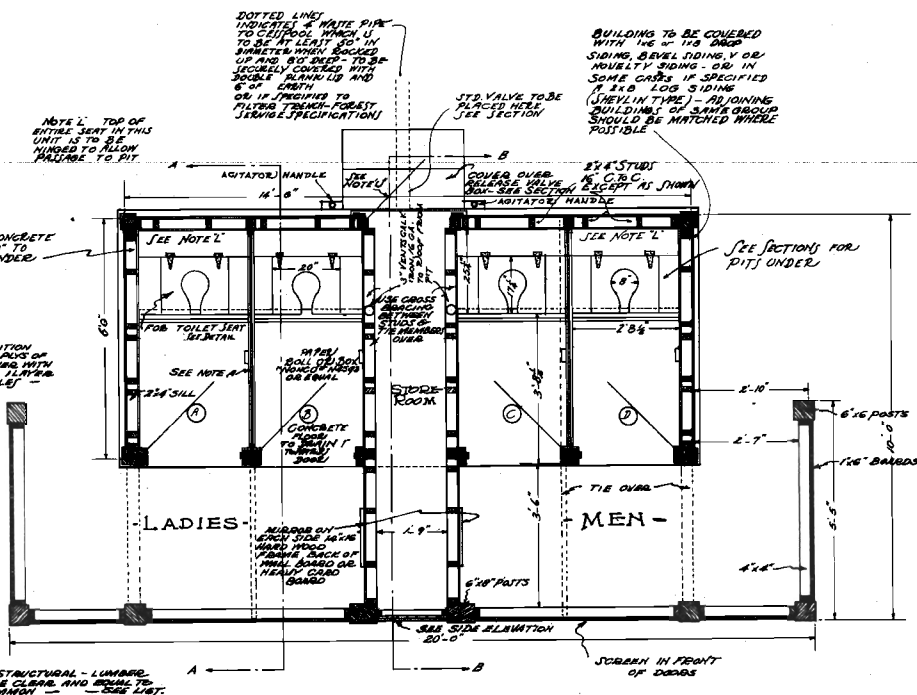


FLOOR PLAN

SCALE 1/2" = 1'-0"

FOREST SERVICE	
TWO UNIT CHEMICAL LATRINE	
PLAN R-4 # 70B-3	
SHEET 1 OF 4	
CHECKED <i>G.A.</i>	DATE <i>1/2/34</i>
APPROVED <i>G.P.</i>	SCALE AS SHOWN

NOTE U  
 2" PANEL - FIBERGLASS - 2'0" X 6'0"  
 WITH 2" HINGED - NINGE HINGE COMPLETE  
 FOR PADLOCK



DOTTED LINE  
 INDICATES 1/2" WATER PIPE  
 TO CEILING WHICH IS  
 TO BE AT LEAST 20" IN  
 DIAMETER WHEN SLOTTED  
 UP AND 30" DIA. - TO BE  
 JOISTED WITH  
 DOUBLE PLANK LIP AND  
 6" x 6" BRUSH  
 OR IF SPECIFIED TO  
 FLOOR FROM FOREST  
 SERVICE SPECIFICATION

BUILDING TO BE COVERED  
 WITH 1/2" x 1/8" DRIP  
 SIDING, BEVEL SIDING, V OR  
 NOVELTY SIDING - OR IN  
 SOME CASES IF SPECIFIED  
 1/2" x 1/8" LOG SIDING  
 (SHEYLIN TYPE) - ADJOINING  
 BUILDINGS OF SAME GROUP  
 SHOULD BE MATCHED WHERE  
 POSSIBLE

NOTE L - TOP OF  
 ENTRY SEAT IN THIS  
 UNIT IS TO BE  
 HINGED TO FOLLOW  
 WALL TO PIT

1/2" BOLTS IN CONCRETE  
 WALL EVERY 20" TO  
 FASTEN SILL UNDER  
 STUDDING

NOTE A - COMPARTMENT PARTITION  
 IS PLYWOOD - MADE OF 2 PLYS OF  
 WOOD CEMENTED TOGETHER WITH  
 WATER PROOF CEMENT - PLASTER  
 RUNNING AT RIGHT ANGLE -

OUTSIDE DOOR - SPANSEL  
 FIBERGLASS - 2'4" X 6'5"  
 HINGED - LATCH AND HINGED  
 HINGE COMPLETE FOR PADLOCK  
 DOORS TO BE 2" x 6" x 1/2" HINGE  
 WITH WOODEN TRAILER BOARD

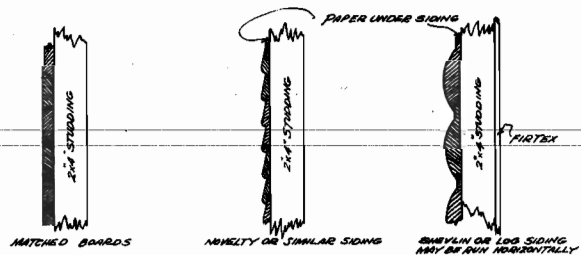
- ALL STRUCTURAL - LUMBER  
 MUST BE CLEAR AND EQUAL TO  
 ANY COMMON - SEE LIST

- FLOOR PLAN -

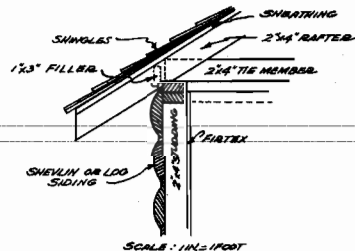
NOTE:  
 IF FOREST OFFICER IN CHARGE  
 OF UNIT DECIDERS UNIT IN  
 THIS STATION HE MAY HAVE SAME  
 INSTALLED ON WALLS OF EACH  
 COMPARTMENT. THESE UNITS ARE  
 NOT INCLUDED IN MATERIAL LIST  
 AND MUST BE PURCHASED AS AN  
 EXTRA.

FOREST SERVICE	
<b>FOUR UNIT CHEMICAL COMFORT STATION</b>	
PLAN R-4 #71	SHEET 1 OF 10
CHECKED <i>[Signature]</i>	DATE <i>[Date]</i>
APPROVED <i>[Signature]</i>	SCALE <i>[Scale]</i>





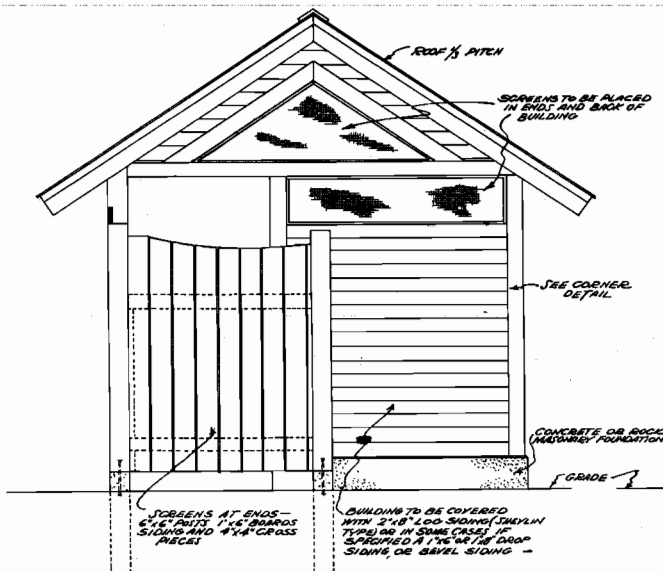
- DETAIL SHOWING ALTERNATE SIDING -  
SCALE: 1/2 IN. = 1 FT.



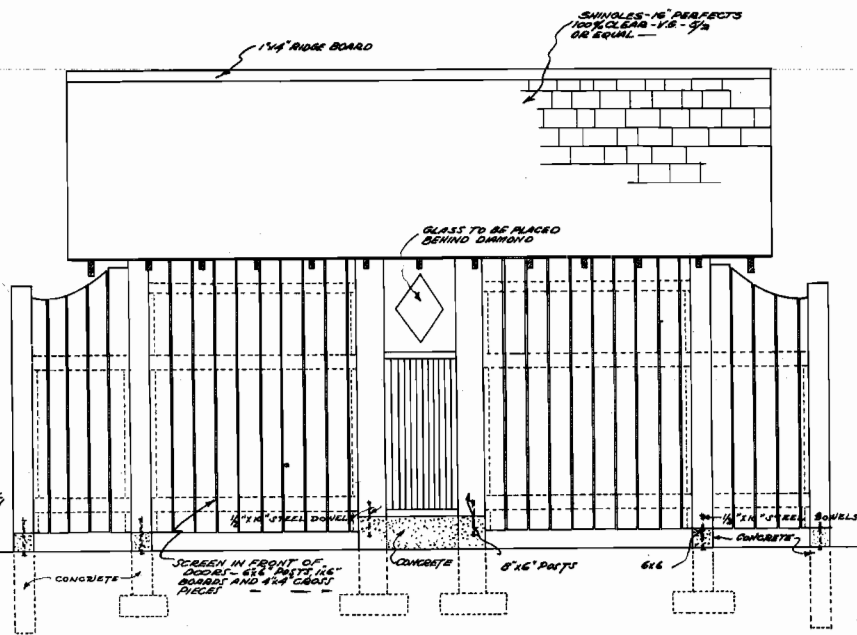
SCALE: 1 IN. = 1 FOOT



- DETAIL OF CORNER -  
SCALE: 1/2 IN. = 1 FT.



- END ELEVATION -

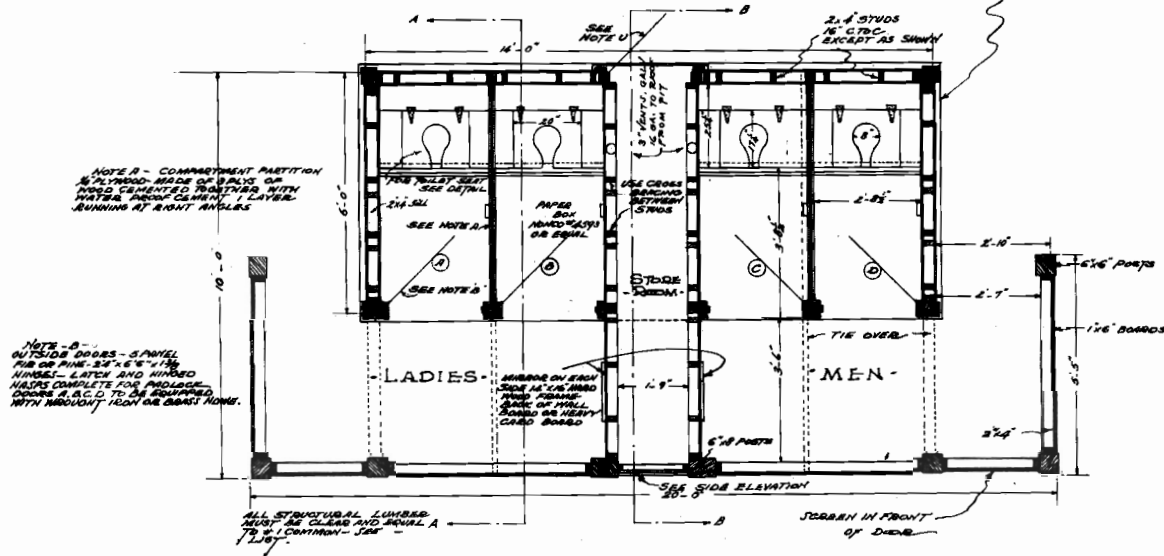


- FRONT ELEVATION -

FOREST SERVICE			
FOUR UNIT CHEMICAL COMFORT STATION			
PLAN R-4 #71		SHEET 2 OF 10	
FRAME TYPE			
CHECKED	DATE	SCALE	
APPROVED	DATE	SCALE	

NOTE U  
 DOOR - 36" x 84" - 2 1/2" x 6 1/2"  
 STAINEL - 1/2" OR PINE - 3/4" x 6 1/2"  
 WITH 2 HINGES - HINGE HARDS COMPLETE  
 FOR INSIDE

BUILDING TO BE COVERED  
 WITH 2x4 OR 1x8 DECK  
 SIDING, BEVEL SIDING, V.B.B.  
 NOVELTY SIDING, OR IN  
 SOME CASES IF SPECIFIED  
 A 2x8 LOG SIDING  
 (JUNGLIN TYPE) - JOINING  
 BUTT JOINTS OF SAME GROUP  
 SHOULD BE MATCHED WHERE  
 POSSIBLE



NOTE A - COMPARTMENT PARTITION  
 1/2" PLYWOOD MADE OF 3 PLYS OR  
 GOOD CEMENTED REASINER WITH  
 WATER PROOF CEMENT 1/2" LAYER  
 RUNNING AT RIGHT ANGLES

NOTE B -  
 OUTSIDE DOORS - 36" x 84" - 2 1/2" x 6 1/2"  
 HINGEL - LATCH AND HINGED  
 HALDS COMPLETE FOR INSIDE  
 DOORS A, B, C, D TO BE EQUIPPED  
 WITH THROUGH IRON OR BRASS KNOBS

ALL STRUCTURAL LUMBER  
 MUST BE CLASSED AND GRADED  
 TO U.S. COMMON - 1st  
 LUM.

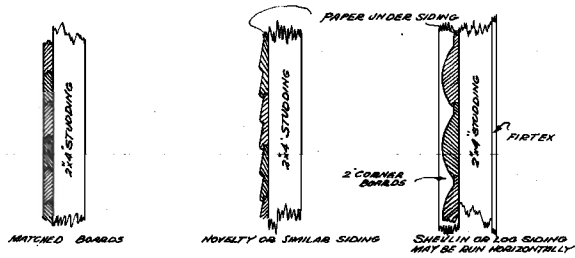
- FLOOR PLAN -

Note: Forest Officer in charge is to have a  
 cross rail on each door branded with  
 "U.S."

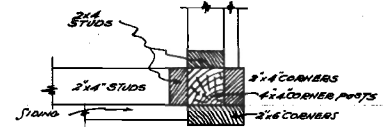
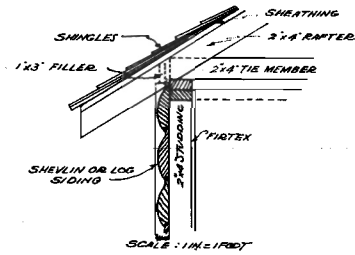
If deodorant units are desired in this  
 Comfort Station the same may be install-  
 ed on the wall of each compartment.  
 These units are not included in the material  
 lists and must be purchased as an extra.

REVISED MAY 1, 1934

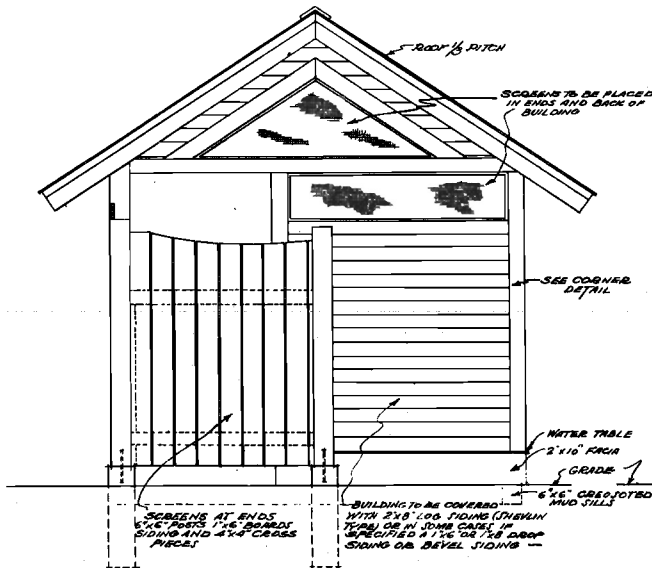
FOREST SERVICE	
<b>FOUR UNIT PIT TYPE COMFORT STATION</b>	
PLAN R-4 872	SHEET 1 OF 10
FRAME TYPE	SCALE
CHECKED <i>W.N.</i>	DATE <i>6-2-34</i>
APPROVED <i>W.P.</i>	BY <i>W.P.</i>



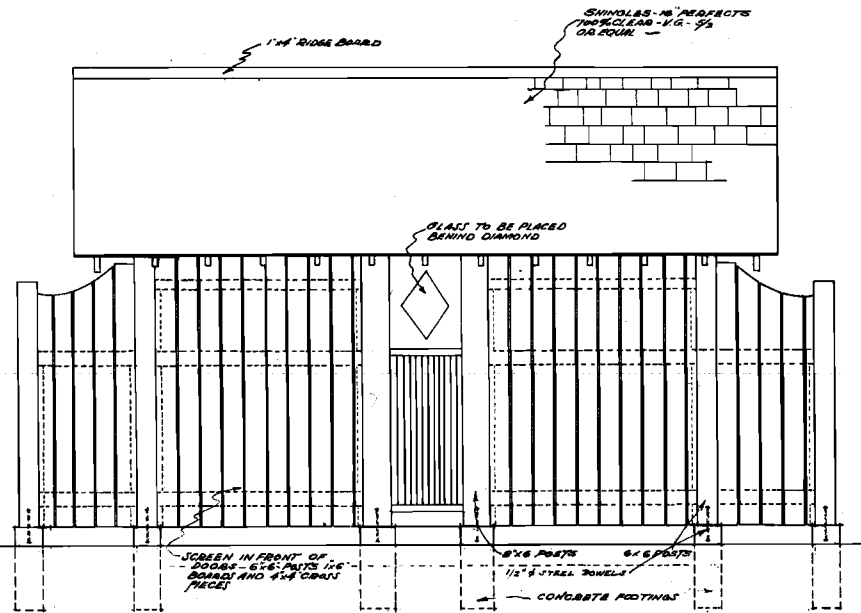
- DETAIL SHOWING ALTERNATE SIDING -  
SCALE 1/2" = 1 FT.



- DETAIL OF CORNER -  
SCALE 1/4" = 1 FT.

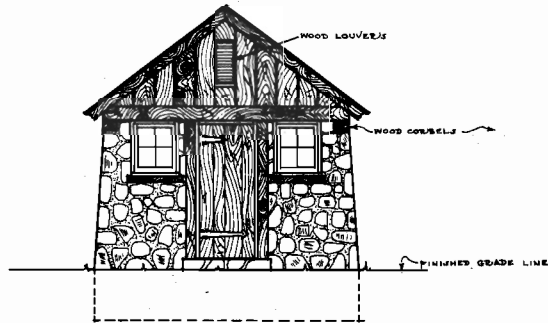


- END ELEVATION -

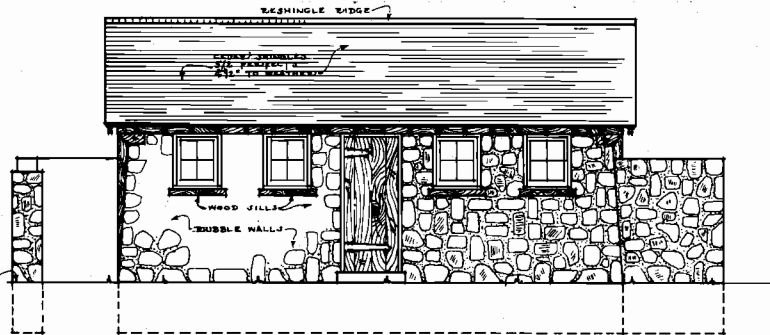


- FRONT ELEVATION -

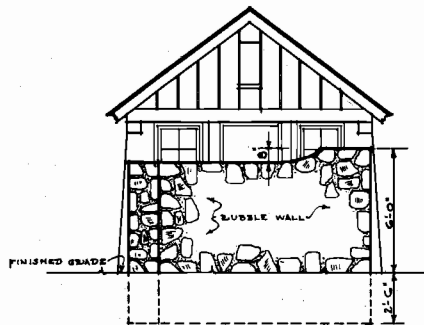
FOREST SERVICE			
<b>FOUR UNIT PIT TYPE COMFORT STATION</b>			
PLAN R-4 #72		SHEET 2 OF 10	
FRAME TYPE			
CHECKED <i>GAJ</i>	DATE <i>5-20-59</i>	SCALE <i>1/4" = 1 FOOT</i>	
APPROVED <i>BY</i>	DATE <i>5-20-59</i>	DRAWN BY <i>GAJ</i>	



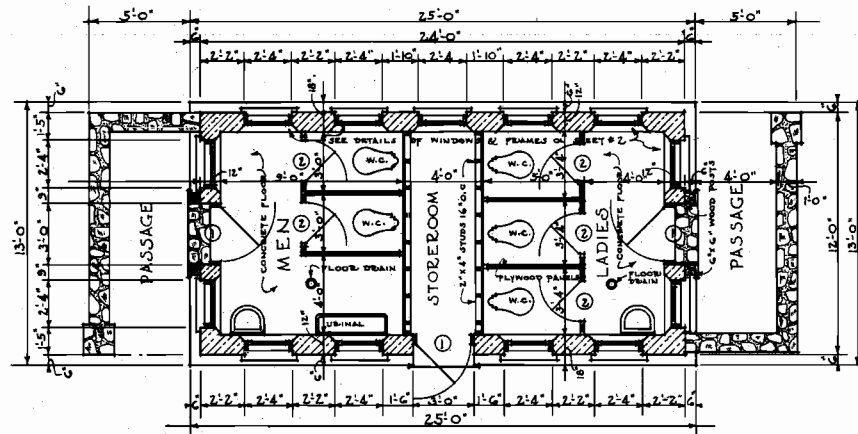
END ELEVATION  
SCALE 1/4"=10"  
(OPPOSITE END SIMILAR)



SIDE ELEVATION  
SCALE 1/4"=10"  
(OPPOSITE SIDE SIMILAR EXCEPT WINDOW ON E IN PLACE OF DOOR)



END ELEVATION SHOWING  
ROCK WALL  
(OPPOSITE END SIMILAR)  
SCALE 1/4"=10"



PLAN  
SCALE 1/4"=10"

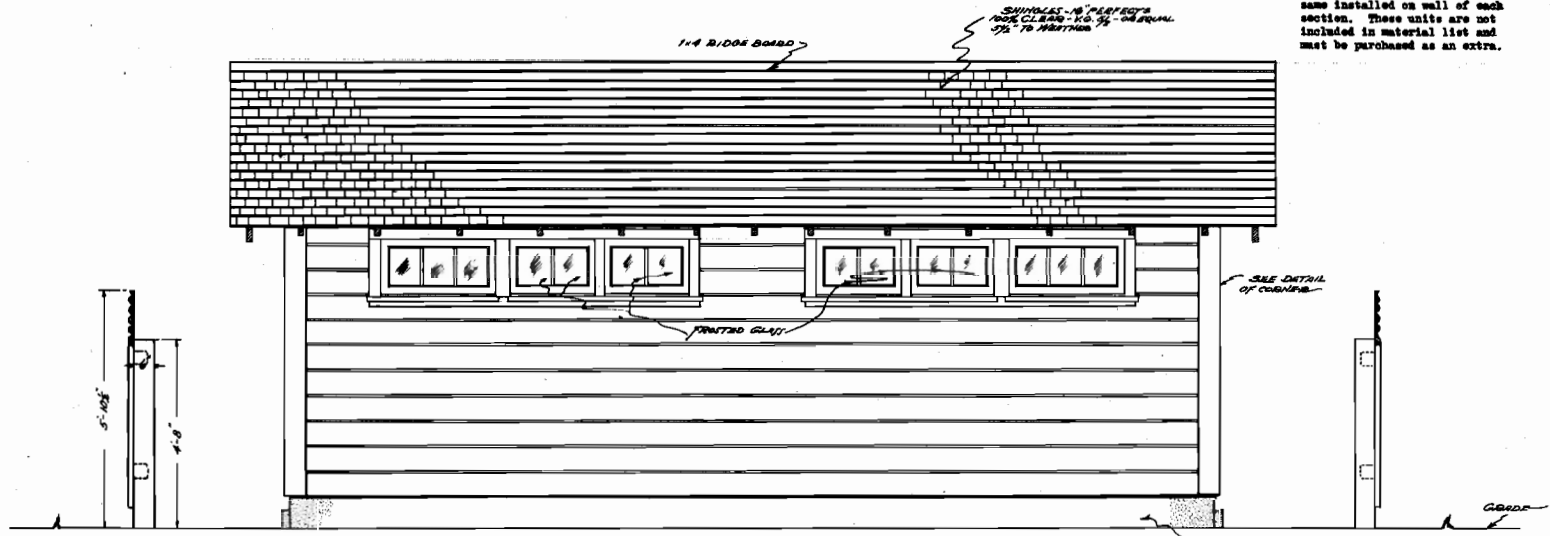
WINDOWS  
JAMB TO BE OF UNIVERSAL  
DESIGN # 1224, 4 LIGHT JAMB,  
16" X 16" O.C. GLASS  
FRAMES DETAILED ON SHEET # 2.

DOOR SCHEDULE				
DOOR UNIVERSAL NO.	DESIGN NO.	WOOD	W.C.	REMARKS
①	417	PINE OR FIR	2'8" x 6'8" x 1 1/2"	WETRY FOR SANDWICH MIDDLE
②	610	PINE OR FIR	2'0" x 4'0" x 1 1/2"	

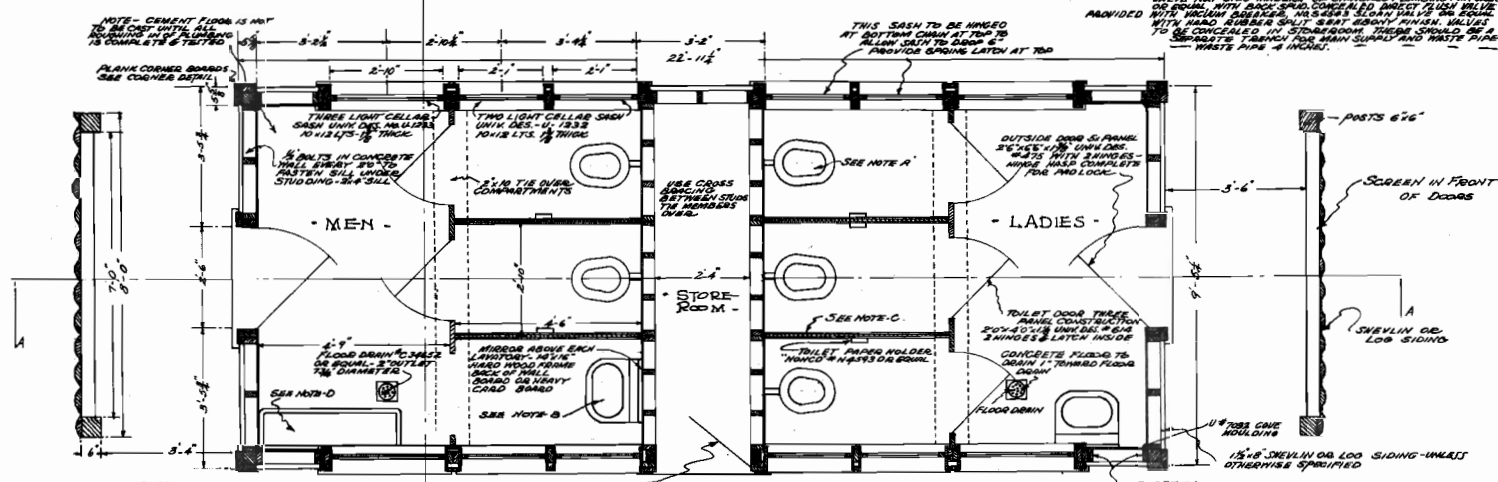
FOREST SERVICE  
**FIVE UNIT  
COMFORT STATION  
STANDARD PLUMBING**  
PLAN R-4 \*72B-1  
SHEET 1 OF 4

CHECKED BY: [Signature] DATE: 12-27-57  
APPROVED BY: [Signature] SCALE: AS SHOWN

**Note:** If Forest Officer in charge desires deodorant units in this station he may have same installed on wall of each section. These units are not included in material list and must be purchased as an extra.



- SIDE ELEVATION -



- FLOOR PLAN -

**NOTE-D:** URINAL TUBS ARE SIMILAR TO CANINE SO THAT LENGTH IS 2 1/2" MORE THAN SHAMMLED INSIDE URIN PIPE WALL RUN WITH INTERCAL BRICK CONCEALED HORIZONTAL (1/2" URIN PIPE USED) BRICK MOUNTED ON 1/2" (1/2" URIN PIPE) WITH LOCAL SHELL CONNECTIONS TO PIPES AND SUPPORTS. CAST BRICK ONE PIPE WASTE STRAIGHT IS CAST BRICK 1" TUB WITH CLEAROUT AND 1/2" URIN PIPE WALL PLUMBING ALL TURNED METAL PARTS ARE GALVANIZED BRASS.

**NOTE-A:** LAVATORY CONN. TO 2" DIA. OR EQUAL 1/2" DIA. WITH ONE RUNNING ALONG - FIELD JO. CONNECTION. CONCEAL WITH 1/2" DIA. WASTE PIPES. INSTEAD OF DRAIN PLUG - BRASS PLUG ON NUTS. CONCEAL SO IT CANNOT BE REMOVED WITH HOSE. 1/2" DIA. WOOD ON 1/2" PIPE UNDER WASH BASIN FOR 3/4" HOSE CONNECTION. COMPLETE WITH FITTINGS. PIPE CONNECTIONS, WASTE PIPE, AND TUB TO CONNECT RETURN TO WASH SINKS AND CESSPOOL. CUR. DOWNWARD FIELD.

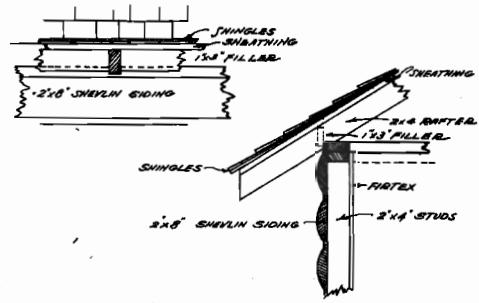
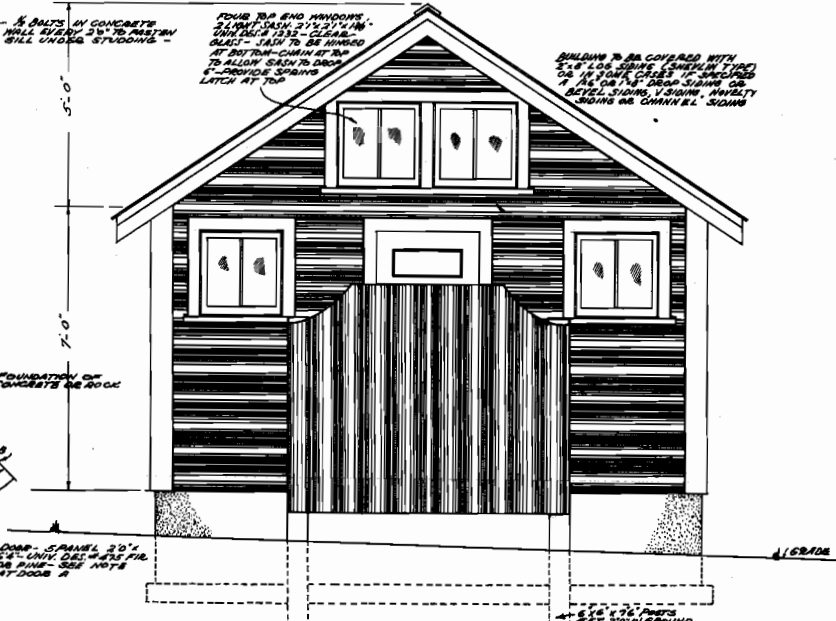
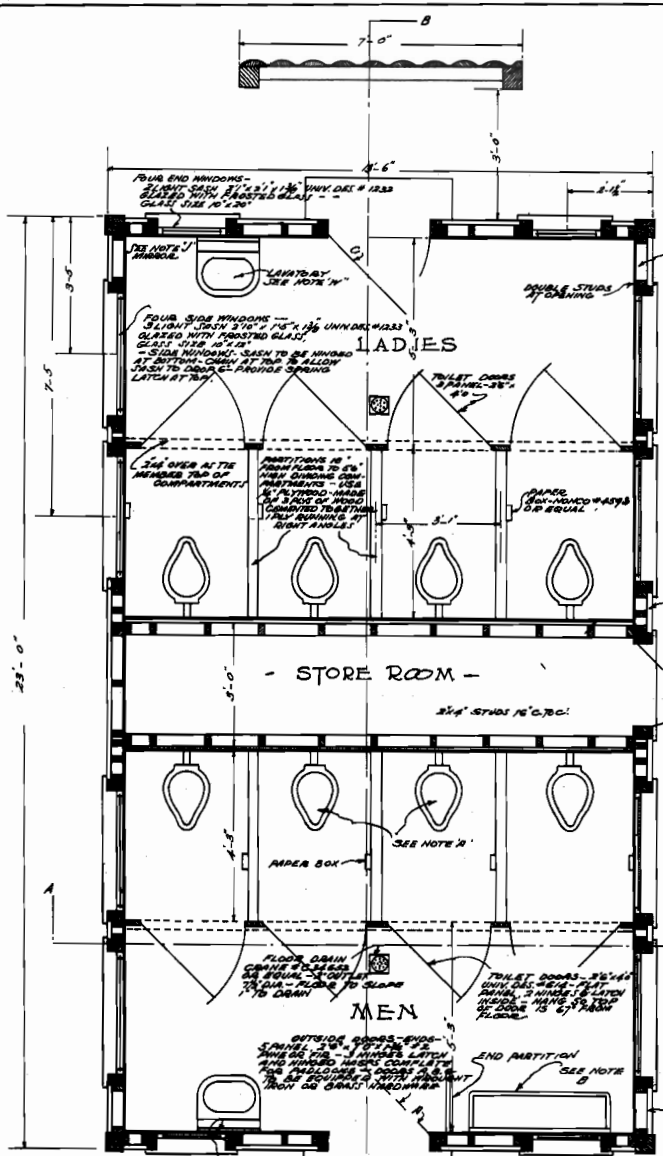
STORE ROOM DOOR - 3/4" PANEL 2 1/2" x 2 1/2" x 1 1/2" UNL. DES. W/TS. P/B WITH 2 HINGES & LATCH COMPLETE - FINE PROLOCK.

**NOTE-C:** 1/2" PLYWOOD MADE OF SPLVS OF WOOD CEMENTED TOGETHER WITH WATER PROOF CEMENT - LAYED GUNNING AT RIGHT ANGLES.

THE STAIRS 14" x 10" G. EXCEPT AS SHOWN

REVISED MAY 1, 1938

FOREST SERVICE			
FIVE UNIT STANDARD PLUMBING			
COMFORT STATION			
PLAN R-4 # 73		SHEET 1 OF 7	
FRAME TYPE		SCALE	
CHECKED GLK	DATE 7-2-38	1/4" = 1' PLAN	
APPROVED D.P.	DATE 4-18-38		



**NOTE A** - SYNON JET ELONGATED CLOSETS WITH SELF DRAINING JET AND DRAIN PLUG AND WITH CERAMIC FLOOR. FLOOR VALVE NO. 2122 MADE OF STANDARD PLUMBING FITTINGS OR EQUAL - WITH BRASS SEALS. CONCEALS DIRECT FLUSH VALVE PROVIDED WITH BRASS COVER. BRASS COVER TO BE CONCEALED IN STORE ROOM - THERE SHOULD BE A SEPARATE TRENCH FOR MAIN SUPPLY AND WASTE PIPE - WASTE PIPE 2 INCH.

**NOTE B** - LAVATORY CABS #2322 OR EQUAL 18" WITH ONE DRAINING ELONGATED JET. BRASS BALL VALVE WITH POPUP WASTE INSTEAD OF BRASS PLUG - BRASS COVER TO BE CONCEALED IN STORE ROOM. REMOVE WITH HOSE BALL #63 3/4" AND UNDER WASH BOWL AND WASTE CONNECTION. WASTE PIPE AND TRAP TO CONNECT OUTSIDE TO WATER SERVICE AND OUTSIDE OR DRAINAGE FIELDS.

**NOTE C** - METAL TRUCKS SIMILAR TO CRANE #2172 18" WITH ONE DRAINING ELONGATED JET. BRASS BALL VALVE WITH POPUP WASTE INSTEAD OF BRASS PLUG - BRASS COVER TO BE CONCEALED IN STORE ROOM. REMOVE WITH HOSE BALL #63 3/4" AND UNDER WASH BOWL AND WASTE CONNECTION. WASTE PIPE AND TRAP TO CONNECT OUTSIDE TO WATER SERVICE AND OUTSIDE OR DRAINAGE FIELDS.

**NOTE D** - CEMENT IS NOT TO BE CAST UNTIL ALL PLUMBING IS COMPLETE AND TESTED.

**NOTE E** - UNIFORM TRUCKS SIMILAR TO CRANE #2172 18" WITH ONE DRAINING ELONGATED JET. BRASS BALL VALVE WITH POPUP WASTE INSTEAD OF BRASS PLUG - BRASS COVER TO BE CONCEALED IN STORE ROOM. REMOVE WITH HOSE BALL #63 3/4" AND UNDER WASH BOWL AND WASTE CONNECTION. WASTE PIPE AND TRAP TO CONNECT OUTSIDE TO WATER SERVICE AND OUTSIDE OR DRAINAGE FIELDS.

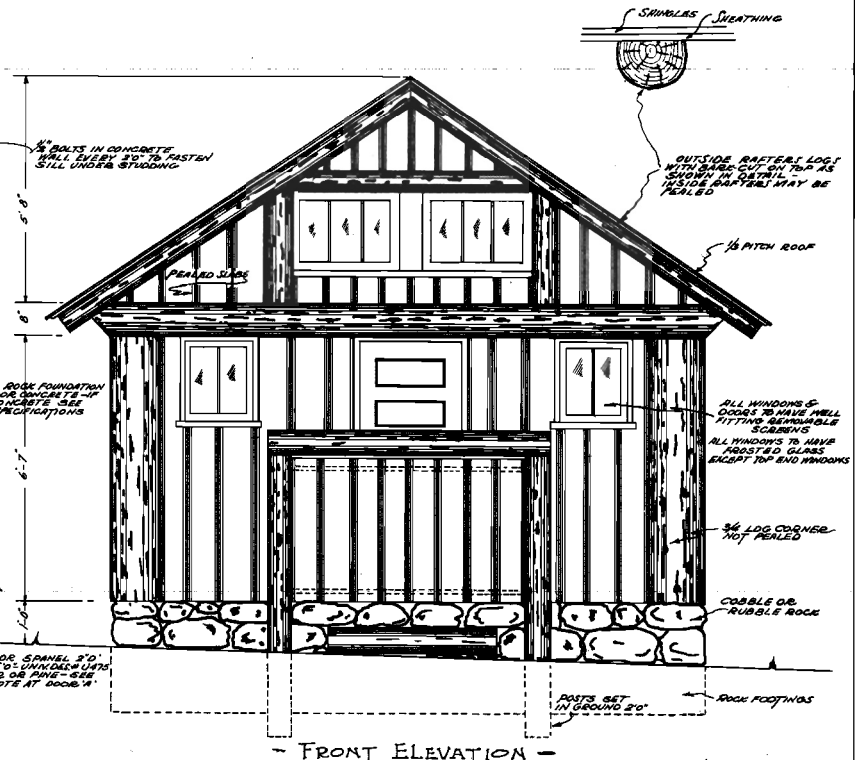
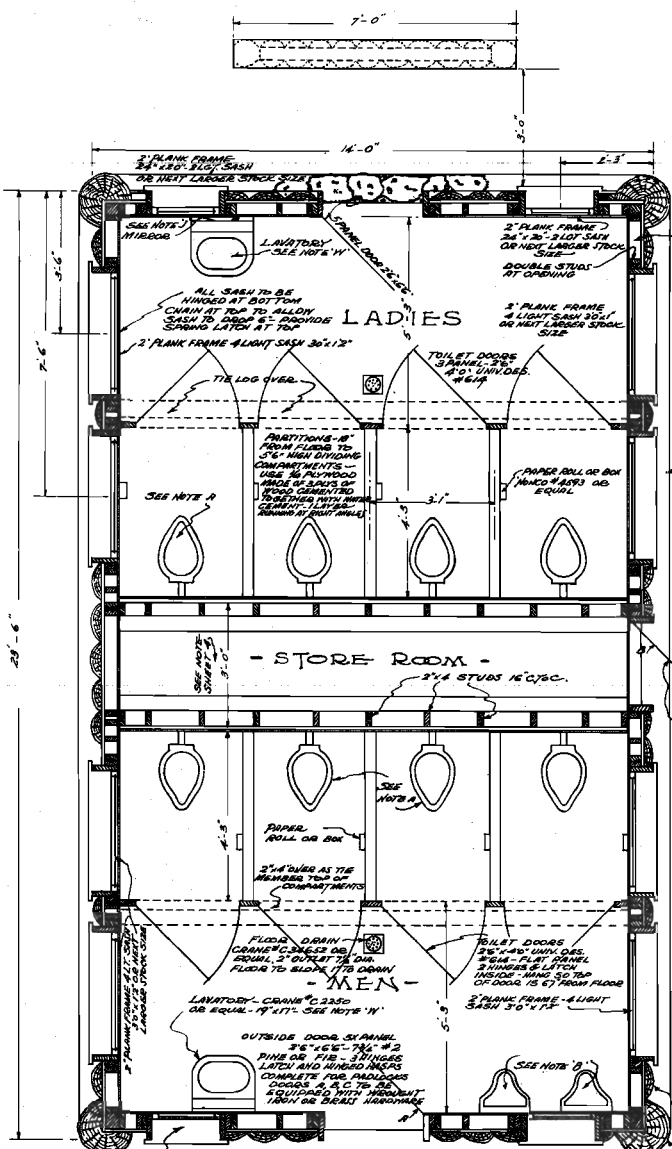


- FLOOR PLAN -

- FRONT ELEVATION -

FOREST SERVICE			
<b>EIGHT UNIT TYPE STANDARD PLUMBING</b>			
PLAN R-4 #74		SHEET I OF 7	
FRAME TYPE			
CHECKED G.L.M.	DATE 7-11-33	SCALE 1/8" = 1'-0"	EXCEPT AS SHOWN
APPROVED B.T.			

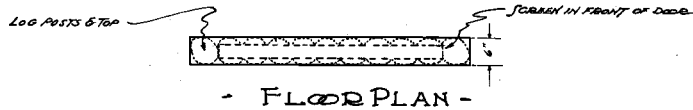
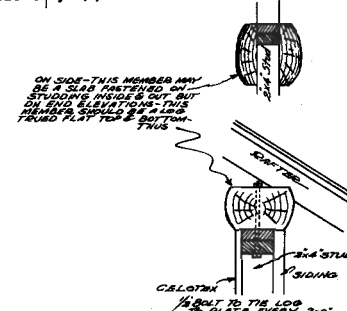
REVISED 9/15/34.



**NOTE A -** STORM JET ELDONBETS CLOSETS WITH SELF DRAINING JET AND DRAIN PLUG AND WITH SAND FOR FLUSH VALVE NO F313 MODERN OR STANDARD PLUMBING FIXTURES OR EQUAL WITH BACK CHECK DIRECT FLUSH VALVE PROVIDED WITH VACUUM BREAKER, NO 5543 SIGN VALVE OR EQUAL WITH HARD RUBBER SPIT SEAT SEVEN FINISH VALVES TO BE CONCEALED IN STUBS ONLY.

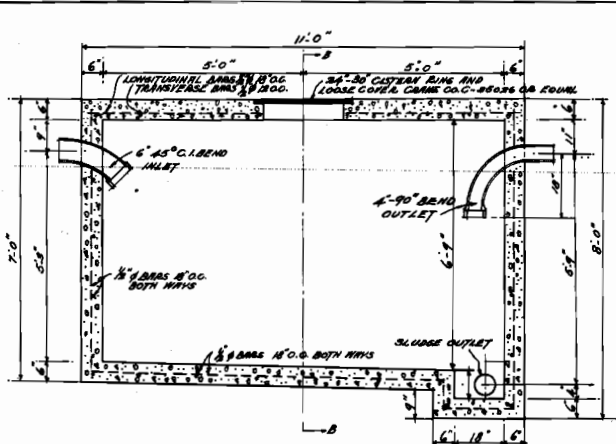
**NOTE B -** URINAL - VITREOUS CHINA SET BACK URINAL WITH TOP SINKY & BOTTOM OUTLET PASSTHROUGH TYPE WITH CONSIDERABLE FRICST COMPLETE WITH ALL FITTINGS FOR FLOOD AND WALL CONNECTIONS UNIT 15"x18"

**NOTE C -** URINAL - VITREOUS CHINA SET BACK URINAL WITH TOP SINKY & BOTTOM OUTLET PASSTHROUGH TYPE WITH CONSIDERABLE FRICST COMPLETE WITH ALL FITTINGS FOR FLOOD AND WALL CONNECTIONS UNIT 15"x18"

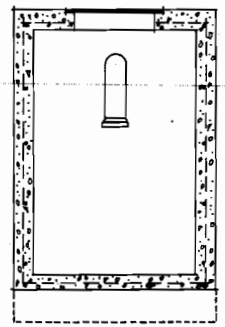


FOREST SERVICE  
**EIGHT UNIT TYPE  
 STANDARD PLUMBING**  
 PLAN R-4 # 74  
 LOG & SLAB TYPE SHEET 1 OF 8

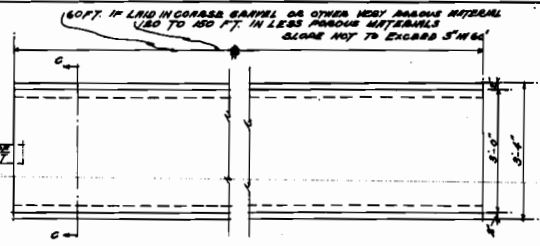
CHECKED BY [Signature] DATE 12-23-33 SCALE 1/4" = 1'-0"  
 APPROVED BY [Signature] 12-1-33 EXCEPT AS SHOWN



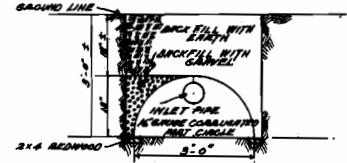
SECTION THRU A-A



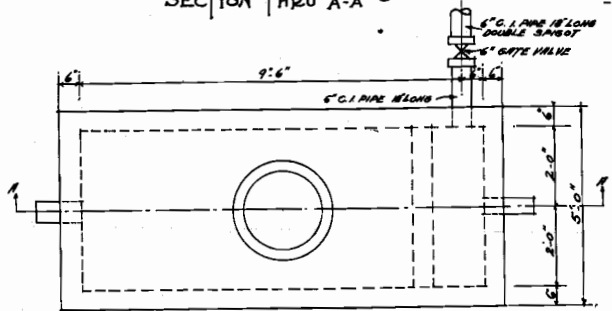
SECTION THRU B-B



FILTER TRENCH PLAN



SECTION THRU C-C OF FILTER TRENCH



PLAN SEPTIC TANK

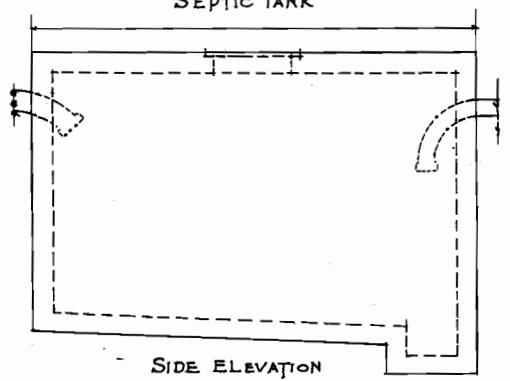
NOTE - SLUDGE OUTLET SHOULD NOT BE INCLUDED IN THE CONSTRUCTION OF SEPTIC TANK UNLESS THERE WILL NOT BE A GRAVITY OUTLET

IF 6" DIA. PIPE CANNOT BE FOUND OR IF IT MAY BE MORE CONVENIENT USE 8" DIA. PIPE IN CONSTRUCTION OF FILTER TRENCH

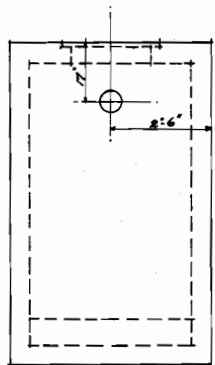
SEPTIC TANK HAS CAPACITY FOR APPROX. 100 GALLONS OF SEWAGE

1 GATE VALVE - FOR DISCONT. OF 6" DIA. PIPE IN THE LENGTH.

NO.	SIZE	LENGTH	DIAGRAM	LOCATION
4	1/2"	11'-0"	-----	BOTTOM LONGITUDINALLY
1/8	1/2"	10'-9"	-----	TOP AND SIDES LONGITUDINALLY
14	1/2"	6'-10"	-----	VERTICAL IN WALLS
6	1/2"	7'-9"	-----	VERTICAL IN WALLS
28	1/2"	4'-9"	-----	TOP BOTTOM AND ENDS TRANSVERSELY



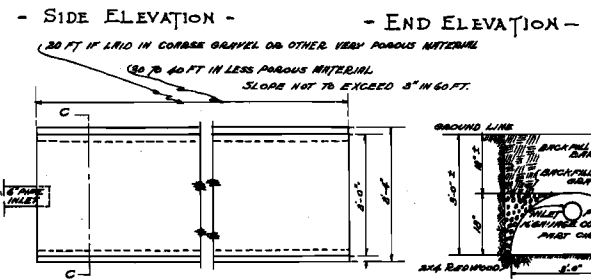
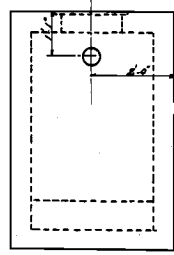
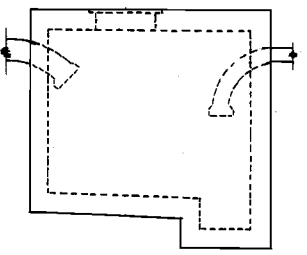
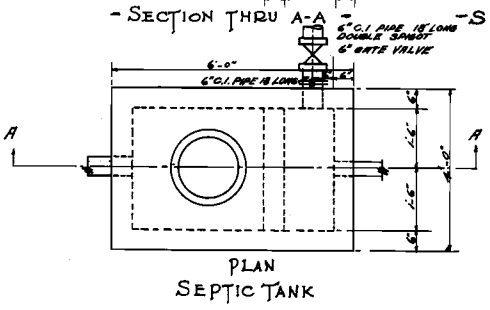
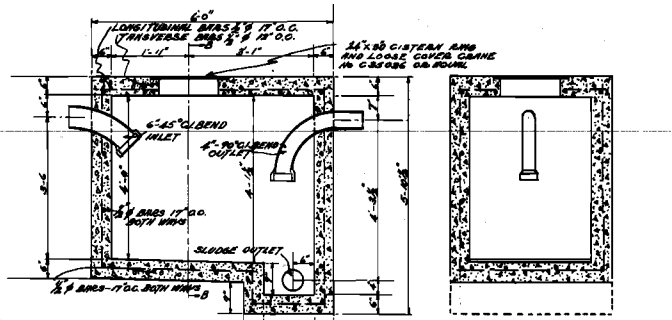
SIDE ELEVATION



END ELEVATION

FOREST SERVICE  
**SEPTIC TANK & FILTER TRENCH**  
 PLAN R-4 @ 76  
 FROM U.S. PUBLIC HEALTH SERVICE SHEET 1 OF 1  
 CHECKED [Signature] DATE [Date] SCALE 1/8" = 1'-0"  
 APPROVED [Signature] DATE [Date]





**BILL OF MATERIALS**

Item No.	No. Pcs.	Materials	Purpose
<b>Cement, Sand, Gravel, Pipe, Corrugated Iron, etc.</b>			
1	21	Sacks Portland cement	Concrete
2	2	Cu. yds. sand	"
3	3	" " gravel	"
4	1	Form material specified with buildings for which septic tanks are built.	Back fill in filter trench
5	1	6" - 45° bend cast iron pipe	Inlet
6	1	1 1/2" - 90° " " " " " "	Outlet
7	1	24" - 30" C.I. cistern ring & loose cover Crane C-35026 or equal	Manhole cover
8	1	16 gauge corrugated iron semi-cylindrical 34" diameter filter trench housing as per detail (with 6" pipe inlet) - 20' long if laid in coarse gravel, or 30' to 40' long (slope not over 3" in 60') if laid in less porous material. Forest Officer in charge to determine length.	For filter trench
9	40	4 in. ft. minimum 2" x 4" redwood sill Forest Officer in charge to determine actual length according to porosity of soil	Filter trench sill
10	4	1/2" round steel rods 6'7" long	Reinforcing for concrete
11	8	1/2" " " " " 3'9" "	" " " "
12	6	1/2" " " " " 4'8" "	" " " "
13	18	1/2" " " " " 5'6" "	" " " "
14	18	1/2" " " " " 3'9" "	" " " "

**Alternate**  
Where sluuge outlet is used one 6" gate valve shall be included in list, also 18" length 6" cast iron pipe, threaded one end for gate valve connection.

**SPECIFICATIONS**

**GENERAL**  
The entire work is to be constructed and finished in every part in a good, substantial and workmanlike manner according to the plans a part hereof, and these specifications to the full extent and meaning thereof.

Where figures are not given all drawings must be accurately followed and measured according to their scales. All notations and figures on plans are to be considered a portion of these specifications, and must be followed. Follow figures in preference to scales.

For each cubic yard, use the following proportions:

- 7.00 sacks of cement
- .52 cu.yards of sand
- .78 cu.yards of gravel

All forms are to be constructed of dry lumber which is to be substantially braced and plumb. The inside of the forms are to be as smooth as possible - put the best face of the lumber in always. The bottoms of footings are to be leveled and tamped. The concrete is to be mixed thoroughly in the proportion of 1 - 2 - 3 and the water is to be carefully measured, using 7/8 gallons of clear oleum water to each one sack batch where the sand and gravel are dry or 1/2 gallons of water where the sand and gravel are moist. Concrete may be mixed by machine or by hand. In either case, mixing must proceed until stone and pebbles are completely coated with a mortar of sand and cement.

**Note:** No lists for issuing of bids have been prepared for this plan. Forest Officer in charge will make up his own bid forms for materials needed.

Place septic tank within 25 to 30 feet of the last 1/4 bend which is underneath the toilet fixture. This gives a fall of from 1 to 3 feet from the building. The hope is that the topography is such that the man hold may be placed near the surface of the ground.

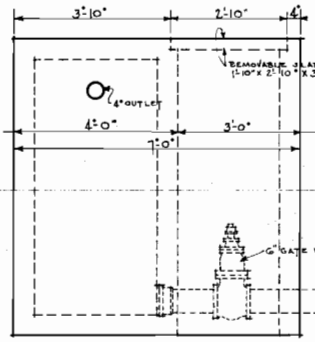
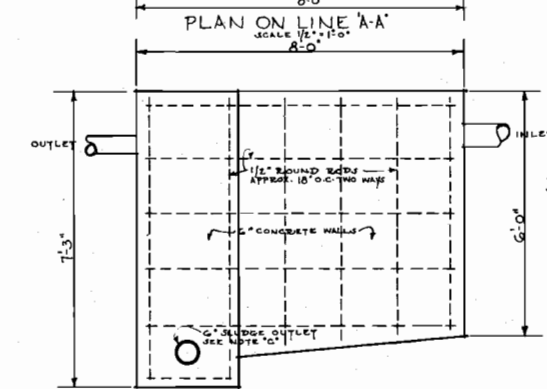
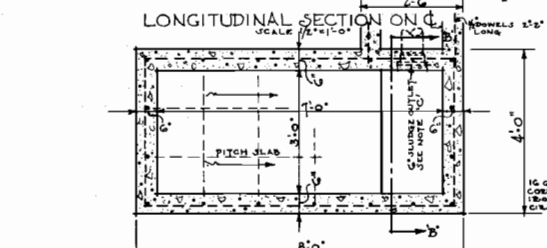
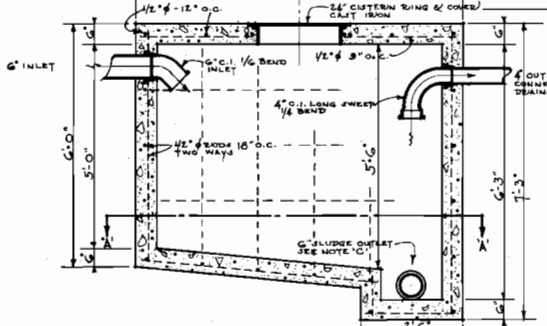
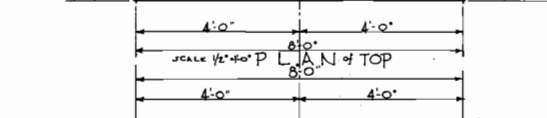
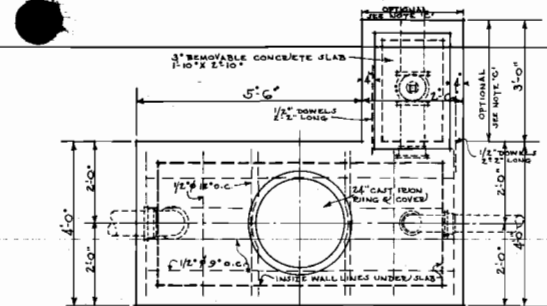
**NOTE -** SLUDGE OUTLET SHOULD NOT BE INCLUDED IN THE CONNECTION OF ANY TANK WHERE THERE WILL NOT BE A SANITARY OUTLET

IF 1" PUMP CABLE PIPE CANNOT BE FOUND OR FIT WITH THE ABOVE DIMENSIONS USE ORBITAL BOUND TIMBER IN CONSTRUCTION OF FILTER TRENCH

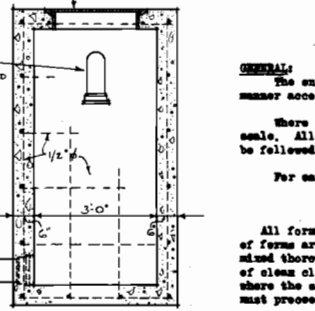
SEPTIC TANK HAS CAPACITY FOR APPROX. 700 GALLONS OF SEWAGE FOR 24 HOURS

No.	Size	LENGTH	DIMENSIONS	LOCATION
1	1/2"	6'-7"	REINFORCING	BOTTOM LANE/TODDRAILS
2	1/2"	5'-9"	REINFORCING	TOP AND SLIDE
3	3/4"	4'-8"	REINFORCING	VERTICALLY IN OUTSIDE WALLS
4	3/4"	5'-6"	REINFORCING	VERTICALLY OUTSIDE WALLS
5	1/2"	5'-9"	REINFORCING	TOP, BOTTOM, ENDS AND SIDE WALLS THROUGHOUT

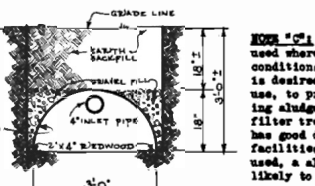
FOREST SERVICE  
**SEPTIC TANK & FILTER TRENCH**  
PLAN R-4 #76A  
FROM U.S. PUBLIC HEALTH SERVICE  
SHEET 1 OF 1  
CHECKED *[Signature]* DATE *[Date]* SCALE *[Scale]*  
APPROVED *[Signature]*



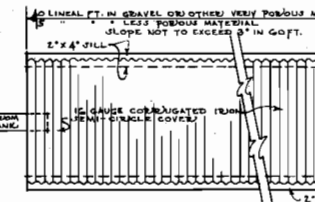
END ELEVATION  
SCALE 1/2"=1'-0"



CROSS SECTION - LINE B-B  
SCALE 1/2"=1'-0"



SECTION THRU FILTER TRENCH  
SCALE 1/2"=1'-0"



PLAN OF FILTER TRENCH  
SCALE 1/2"=1'-0"

NOTE:  
SLUDGE OUTLET SHOULD NOT BE INCLUDED IN THE CONSTRUCTION OF ANY TANK, WHERE THERE WILL NOT BE A GRAVITY OUTLET.  
IF SEMI-CIRCULAR CORRUGATED IRON PIPE CANNOT BE OBTAINED OR IF THERE COME ANY USE CORRUGATED WOOD THICKEN IN CONSTRUCTION OF FILTER TRENCH.

BILL OF MATERIALS			
Item No.	No. of Pcs.	Material	Purpose
1	42	Common Sand Gravel, Pipe, Corrugated Iron, etc.	
2	4	Sacks Portland Cement	Concrete
3	7	Yards Sand	Concrete
4	1	Yards Gravel	Concrete & backfill in trench
5	1	6" - 45° Elbow C.I.	Inlet
6	1	4" - 90° Elbow C.I.	Outlet
7	1	24" C.I. Cistern ring & loose cover.	Movable cover
8	1	Crane 0-35026, or equal	
9	1	16 gauge corrugated iron semi-cylindrical Filter trench cover	
10	1	3" diameter filter trench housing 40' long if laid in coarse gravel, or 75 ft. if laid in less porous material. Forest Officer in charge to determine length.	
11	80	Lime 1 ft. 2" x 4" redwood sill (Forest Officer in charge to determine actual length)	Filter trench sill
12	4	1 1/2" round reinforcing rods 1'-0" long	
13	6	1 1/2" round reinforcing rods 1'-8" long	
14	16	1 1/2" round reinforcing rods 2'-2" long	
15	26	1 1/2" round reinforcing rods 3'-6" long	
16	8	1 1/2" round reinforcing rods 5'-8" long	
17	8	1 1/2" round reinforcing rods 7'-0" long	
18	10	1 1/2" round reinforcing rods 7'-8" long	
19	14	1 1/2" round reinforcing rods 7'-0" long	
20	14	1 1/2" round reinforcing rods 7'-8" long	

**GENERAL:**  
The entire work is to be constructed and finished in every part in a good, substantial and workmanlike manner according to the plans a part hereof, and these specifications to the full extent and meaning thereof.  
Where figures are not given, all drawings must be accurately followed and measured according to their scale. All notations and figures on plans are to be considered a portion of these specifications, and must be followed. Follow figures in preference to scale.

For each cubic yard use the following proportions:  
58 cu. yards of sand  
7.00 sacks of cement  
.78 cu. yards of gravel  
All forms are to be constructed of dry lumber which is to be substantially braced and plumb. The insides of forms are to be smooth as possible - put the best face of the lumber in always. The concrete is to be mixed thoroughly in the proportion of 1 - 2 - 3 and the water is to be carefully measured, using 5 1/2 gallons of clean clean water to each one sack where the sand and gravel are dry, or 1 1/2 gallons of water where the sand and gravel are moist. Concrete may be mixed by machine or by hand. In either case, mixing must proceed until stones and pebbles are completely coated with a mortar of sand and cement.

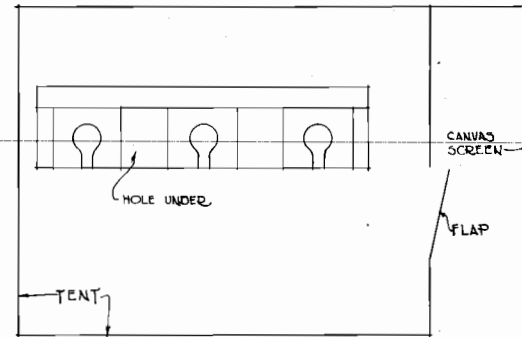
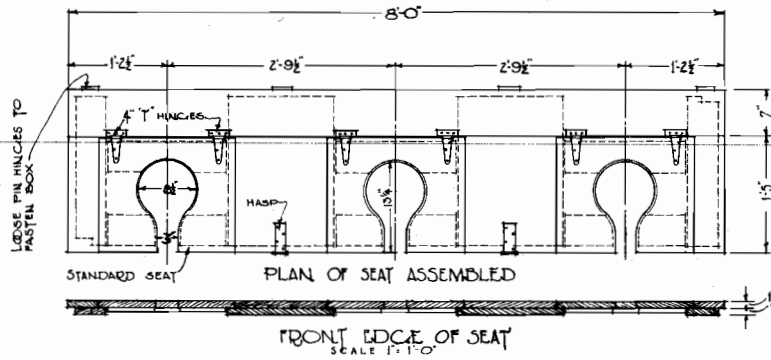
NOTE: No lists for issuing of bids have been prepared for this plan. Forest Officer in charge will make up his own bid forms for materials needed.

NOTE: Sludge outlet may be used where poor filter trench conditions prevail and where it is desired, because of heavy use, to provide a means of flushing sludge out of tank. Where filter trench is in gravel or has good drainage, or where facilities are only moderately used, a sludge outlet is not likely to be necessary.  
NOTE: Form material to be obtained from forms used on other buildings.

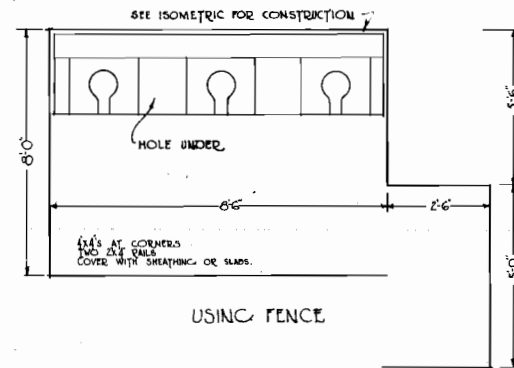
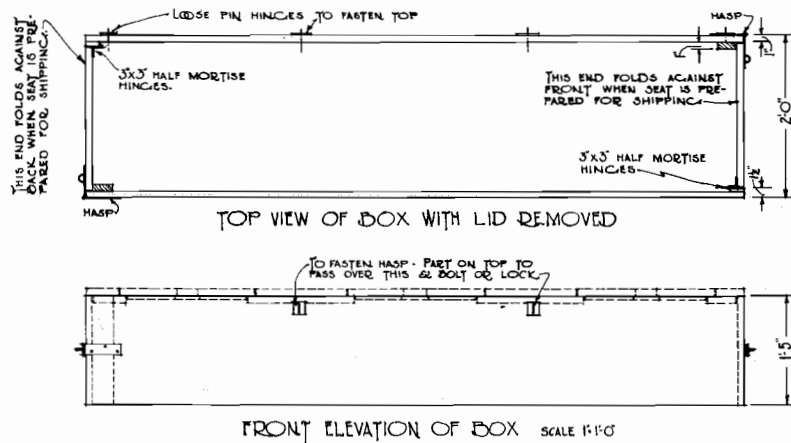
REINFORCING STEEL			
NO. OF BARS	SIZE	LENGTH	LOCATION
7	1/2"	3'-8"	CROSSWISE IN BOTTOM
4	1/2"	5'-8"	LENGTHWISE IN BOTTOM
16	1/2"	2'-2"	HORIZONTALLY DOWNED INTO WALLS BY VERTICALLY IN SIDE OF SLUDGE OUTLET
4	1/2"	1'-0"	HORIZONTALLY IN END WALL
11	1/2"	3'-8"	HORIZONTALLY IN END WALL
4	1/2"	5'-8"	VERTICALLY IN END WALL
4	1/2"	7'-0"	" " " "
14	1/2"	1'-8"	HORIZONTALLY IN SIDE WALLS 4' IN TOP
8	1/2"	5'-10"	VERTICALLY IN SIDE WALLS
6	1/2"	7'-0"	" " " " (LOW END)
6	1/2"	1'-8"	CROSSWISE IN REMOVABLE COVER
8	1/2"	3'-8"	" " " " TOP SLAB

FOREST SERVICE  
**SEPTIC TANK & FILTER TRENCH**  
PLAN R-4 #76A-1  
SHEET 1 OF 1

CHECKED	DATE	SCALE
APPROVED		AS SHOWN



USING WALL TENT



USING FENCE

SUGGESTIVE SETUPS

SEAT AND BOX TO BE BUILT OF CLEAR, WELL SEASONED PINE TO BE COATED ONE COAT OF LINSEED OIL & TURPENTINE. TO BE FURNISHED WITH A CRATE WHICH WILL ALLOW SHIPPING AND CONTAINED RESHIPMENT IN THE SAME CRATE. HARDWARE MAY BE WELDCOHT IRON, STEEL, COPPER OR BRASS.



ISOMETRIC OF TENT & SCREEN



ISOMETRIC OF FENCE

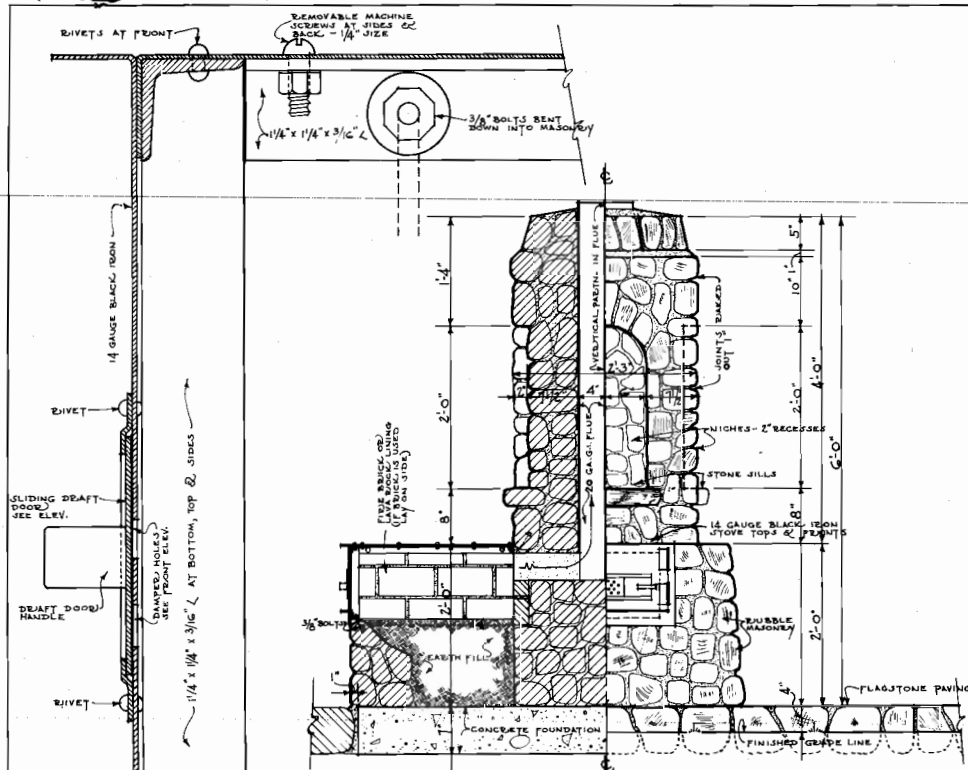
FOREST SERVICE

PLAN OF PORTABLE TOILET

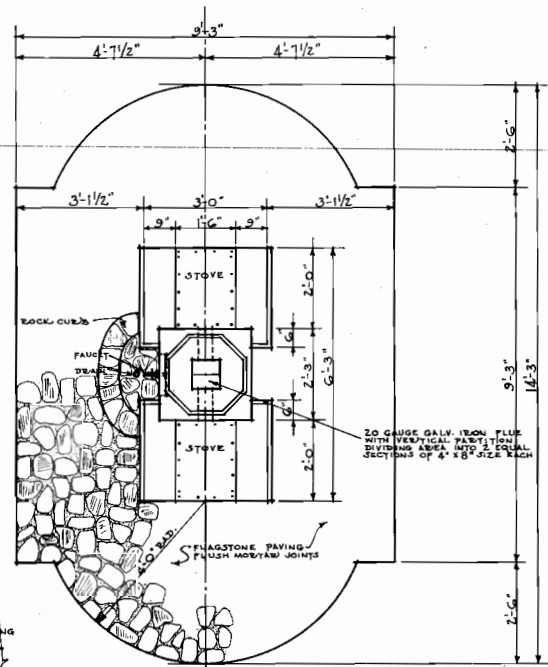
PLAN R-4 #79

SHEET 1 OF 1

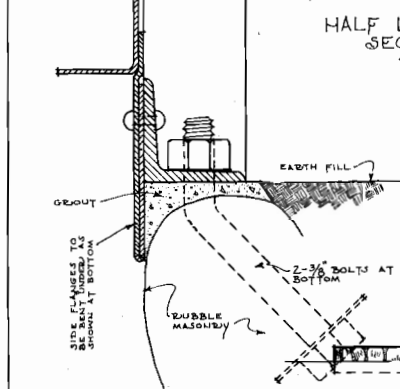
CHECKED <i>GLH</i>	DATE <i>4-23-30</i>	SCALE AS SHOWN
APPROVED <i>DB</i>		



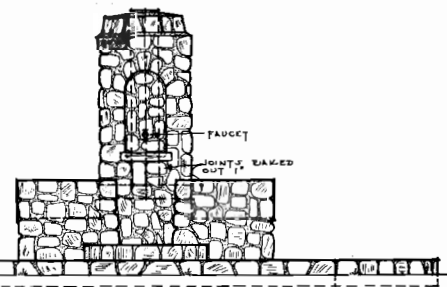
HALF LONGITUDINAL SECTION on C SCALE 1/2" = 1'-0"  
 HALF ELEVATION of FRONT SCALE 1/2" = 1'-0"



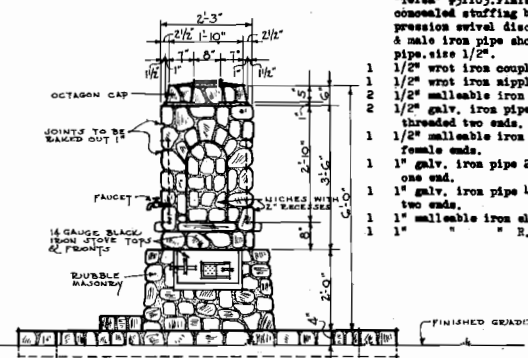
PLAN SCALE 1/2" = 1'-0"



F.S. SECTION THRU DOOR



SIDE ELEVATION ~ SCALE 1/2" = 1'-0"



FRONT ELEVATION SCALE 1/2" = 1'-0"

**BILL OF MATERIALS**

No. of Pcs.	Material	Purpose
<b>Metal Work</b>		
2	14 gauge black iron stove tops and fronts. Include all angles, bolts, etc. necessary for complete installation and as shown by details on drawing.	Stoves
1	20 gauge galvanized iron flue 8" x 8" with vertical partition dividing cross sectional area into two compartments 4" x 3" each. Total length of flue 4'-8".	Stove Flues
<b>Concrete, Sand, Gravel, &amp; Stone</b>		
10	Sacks Portland Cement	Stone mortar & concrete
9	" Ry. Lime	Stone mortar
1	Cu. Yd. Sand	Stone mortar & concrete
5	" " Rock	Stone Work
85	Fire Brick (or lava rock may be used if desired)	Lining in Stoves

**Flumbing**

- 1 Compression faucet similar to Crane "Teles" #1103. Finished brass, with concealed stuffing box, enclosed compression swivel disc, tee handle, hose & male iron pipe shoulder for iron pipe, size 1/2".
- 1 1/2" wrought iron coupling, galv.
- 1 1/2" wrought iron nipple 5" long, galv.
- 2 1/2" malleable iron elbow 90°, galv.
- 2 1/2" galv. iron pipe, 6'-0" long threaded two ends.
- 1 1/8" malleable iron R.R. union, galv. female ends.
- 1 1" galv. iron pipe 2'-0" long, threaded one end.
- 1 1" galv. iron pipe 4'-0" long, threaded two ends.
- 1 1" malleable iron elbow 90°, galv.
- 1 1" " R.R. union, galv.

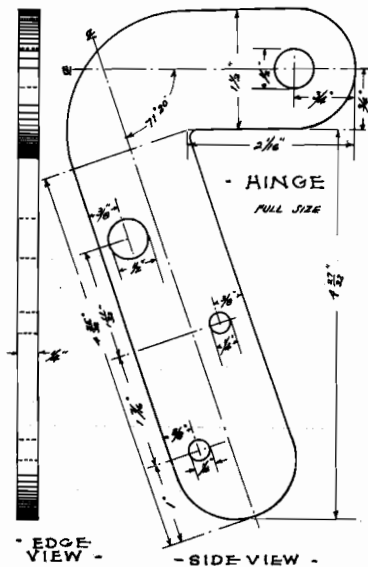
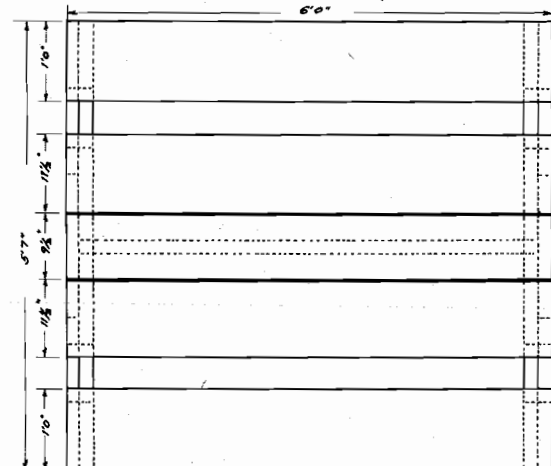
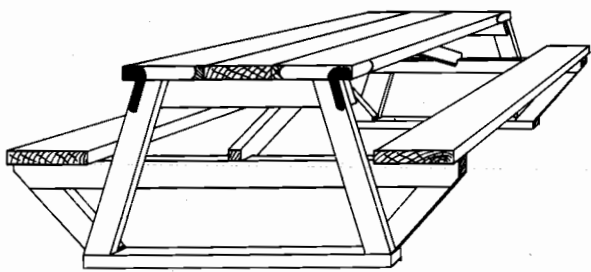
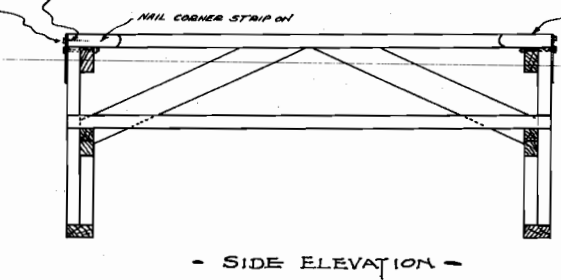
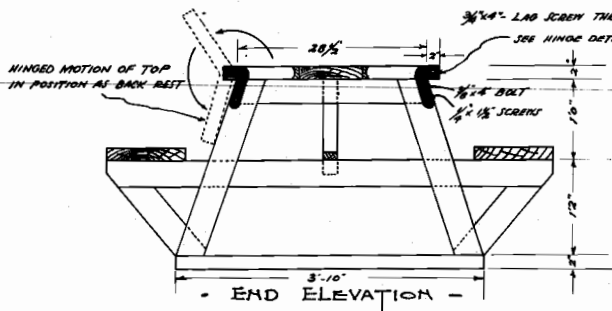
**ROCK WORK**

A capable rock mason should be engaged. The rock will be laid in a mortar made in the following proportions by volume:  
 1 part hydrated lime  
 1 part Portland cement  
 4 parts of clean sharp sand  
 The mortar will be of a heavy batter consistency, usually requiring 50 to 60 gallons of water per cubic yard of stone work. Estimate 50 to 100% of cubic foundation as mortar.

**SPECIFICATION**

FOREST SERVICE  
**TWO UNIT CAMP GROUND STOVE**  
 PLAN R-4 \* 96A-4  
 SHEET 1 OF 1

CHECKED <i>Ed. A.</i>	DATE <i>11-27</i>	SCALE AS SHOWN
APPROVED <i>BP</i>	"	"



- PERSPECTIVE OF TABLE -

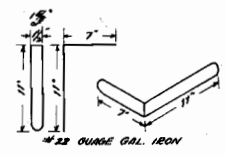
- PLAN -

- COMBINATION CAMP TABLE AND SETTEE -

BILL OF MATERIALS

Item No.	No. Pcs.	Materials	Purpose
<b>Lumber, etc.</b>			
1	2	2" x 12" x 6'0"	Seat tops
2	2	2" x 12" x 6'0"	Table tops
3	1	2" x 10" x 6'0"	
4	2	2" x 4" x 6'0"	Cross piece at ends under seat
5	2	2" x 4" x 4'0"	Cross piece under legs at ends
6	2	2" x 4" x 3'0"	Cross piece ends top of legs
7	4	2" x 4" x 1'6"	Brace legs to end cross pc. under seats
8	4	2" x 4" x 2'6"	Legs
9	2	2" x 4" x 3'0"	Brace under center of table
10	5	Lbs. 200 common nails	For construction
11	1/4	" 60 finishing nails	"
12	1/4	" 40 common blued or galv. nails	"
<b>Hardware</b>			
13	4	Hinges (as per detail)	To allow top to move in position of back rest
14	4	3/8" x 4" lag screws	To fasten top to hinge
15	4	3/8" x 4" bolts comp. with nuts & washers	To fasten hinge to leg of table
16	8	1/4" x 1 1/2" screws	"
17	4	Corner strips (as per detail)	Protect corners

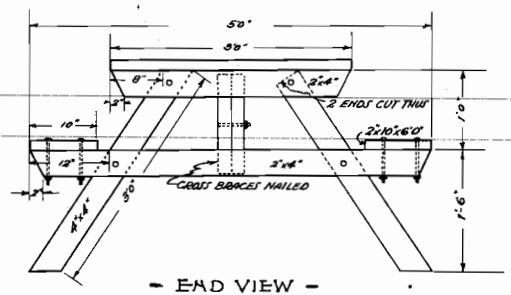
Item No.	No. Pcs.	Materials	Purpose or Grade	F.M.L.
<b>Yard List (Includes items 1 to 12, incl. Do not duplicate.)</b>				
1XL	2	2" x 12" x 12'0"	#1 Com.D.F. or West Coast Hemlock #4s	hg
2"	1	2" x 10" x 6'0"	Ditto	10
3"	2	2" x 4" x 10'0"	"	13
4"	2	2" x 4" x 6'0"	"	8
5"	2	2" x 4" x 6'0"	"	8
6"	5	Lbs. 200 common nails	"	11
7"	1/4	" 60 finishing nails	"	
8"	1/4	" 40 common blued or galvanized nails	"	
<b>Paint</b>				
18	1/2	Gal. paint (brilliant or bottle green)	Paint table all over. 3 coats	
<b>Alternate Paint</b>				
19	1/2	Gal. oil stain	Stain " " " "	
<b>*Proportions of ingredients:</b>				
4		Gal. raw linseed oil		
1		Spar varnish		
1		Lb. oen burnt umber ground in oil		



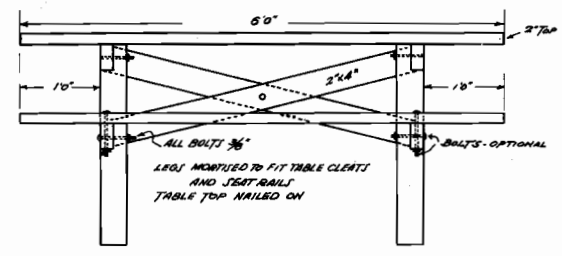
DETAIL OF CORNER STRIP

FOREST SERVICE  
**CAMP GROUND TABLES**  
 PLAN R-4 # 97A SHEET 1 OF 1  
 SCALE  
 CHECKED *CLN* DATE *10-23-33*  
 APPROVED *D.P.* *1-10-1934*

REVISED MAY 1, 1934.



- END VIEW -



- SIDE VIEW -

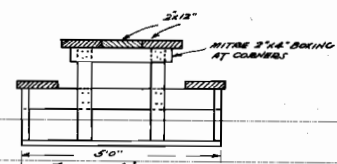
- CAMP TABLE TYPE 'B' -  
SCALE 1" = 1'-0"

**BILL OF MATERIALS**

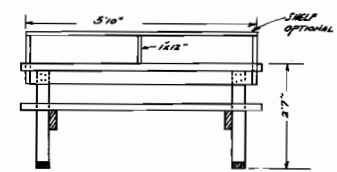
Item No.	No. of Pcs.	Lumber - Yard List	Material or Labor	Purpose	F.B.M.
1YL	1	1 1/2"x4"-12'-0"	#1 Common Douglas Fir S4S	Legs	16
2YL	3	2"x4"-8'-0"	Ditto	Seat Rails, Cleats & braces	16
3YL	2	2"x10"x6'-0"	"	Seats	20
4YL	3	2"x12"x6'-0"	"	Top	36
5YL	5/8	16 D Common Nails	"	For Construction	
<b>Option</b>					
If bolts are desired eliminate 5/8 of Item 5YL					
<b>Add the following:</b>					
6YL	8	3/8"x5" bolts complete with nuts & washers	"		
7YL	9	3/8"x4" Ditto	"		
<b>Paint</b>					
8YL	1/2	Gal. Green Paint (Brilliant or Bottle Green)		Paint table all over (3 coats)	
<b>Alternate Paint</b>					
9YL	1/2	Gal Oil Stain *		Staining table all over (3 coats)	
<b>* Proportions of Ingredients</b>					
4 Gal. Raw Linseed Oil					
1 Gal. Spar Varnish					
1 lbs. can burnt umber ground in oil.					



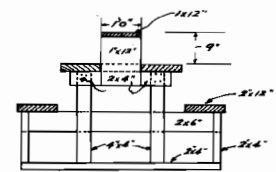
- SIDE VIEW -



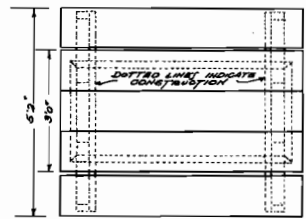
- END VIEW -



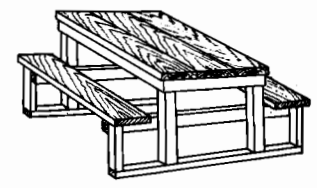
- SIDE VIEW -  
SHOWING TABLE EQUIPPED WITH SHELF



- END VIEW -



- PLAN OF TOP -



PERSPECTIVE -

- CAMP TABLE TYPE 'C' -  
SCALE 1/2" = 1'-0"

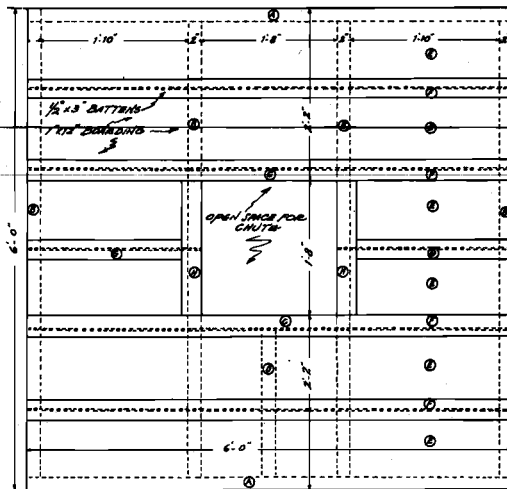
**BILL OF MATERIALS**

Item No.	No. of Pcs.	Lumber - Yard List	Material or Labor	Purpose	F.B.M.
1YL	5	2"x12"x6'-0"	#1 Common Douglas Fir S4S	Top and Seats	60
2YL	1	1"x12"x10'-0"	Ditto	Shelf	10
3YL	1	1"x4"x10'-0"	"	Legs	14
4YL	1	2"x6"-10'-0"	"	Cross pcs. at ends under seats	10
5YL	1	2"x6"-10'-0"	"	Ditto legs	7
6YL	1	2"x6"-12'-0"	"	Boxing under top around legs	8
7YL	2	2"x4"-6'-0"	"	AND POSTS UNDER SEATS	8
8YL	7	16s. 16D Common Nails	"		
<b>*Optional - this item may be dropped if desired.</b>					
<b>Paint</b>					
9YL	1/2	Gal. Green Paint (Brilliant or Bottle Green)		Paint table all over (3 coats)	
<b>Alternate Paint</b>					
10YL	1/2	Gal. Oil Stain **		Staining table all over (3 coats)	
<b>** Proportions of Ingredients</b>					
4 Gal. Raw Linseed Oil					
1 Gal. Spar Varnish					
1 lb. can burnt umber ground in oil.					

REVISED MAY 14, 1932

FOREST SERVICE  
**CAMP GROUND TABLES**  
 PLAN R-4 # 97B6C  
 SHEET 1 OF 1

CHECKED	DATE	SCALE
APPROVED	DATE	SCALE

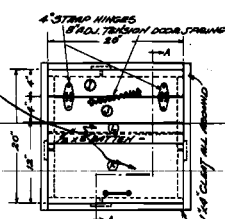


- PLAN OF PIT COVER -

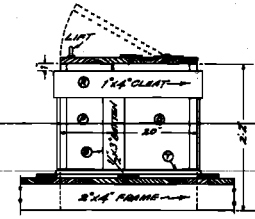
2 1/2" x 2" HOLES AS SHOWN IN UNDER SIDE OF LID

NOTE - DIMENSIONS MAY BE MODIFIED AS DESIRED BUT ALL COVERS ARE TO BE BUILT TO ALLOW "FREE BOARDING" FOR THE COVER TO ADAPT ALL DIMENSIONS ACCORDING TO ACTUAL WIDTH AND THICKNESS OF MATERIAL USED

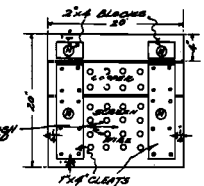
2 1/2" x 2" HOLES AS SHOWN IN UNDER SIDE OF LID



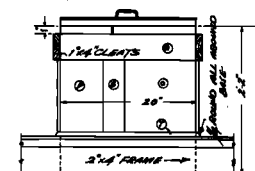
- TOP VIEW -



- SIDE ELEVATION - OTHER SIDE SIMILAR



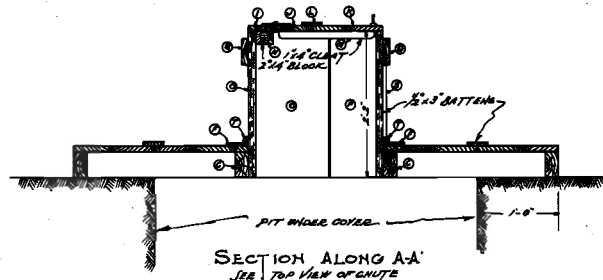
- UNDER SIDE OF LID -



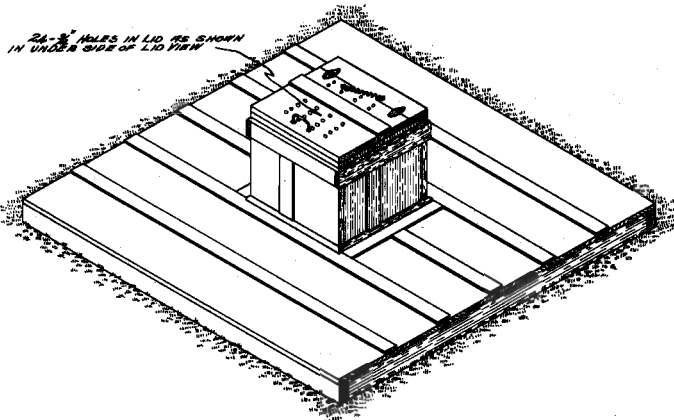
- FRONT ELEVATION -

- DETAIL OF CHUTE -

NOTE - ADAPT ALL DIMENSIONS ACCORDING TO ACTUAL WIDTH AND THICKNESS OF MATERIAL USED



SECTION ALONG AA' SEE TOP VIEW OF CHUTE



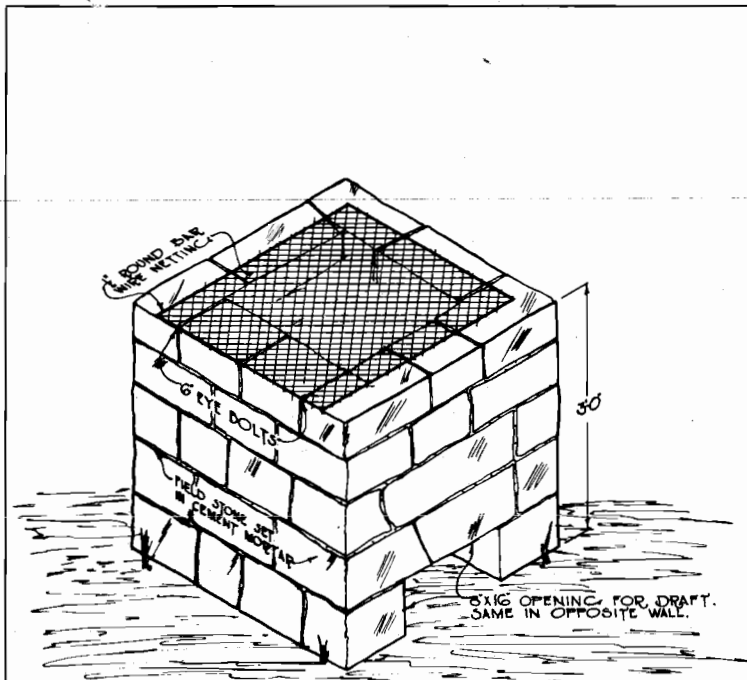
- COVER ASSEMBLED -

**BILL OF MATERIALS**

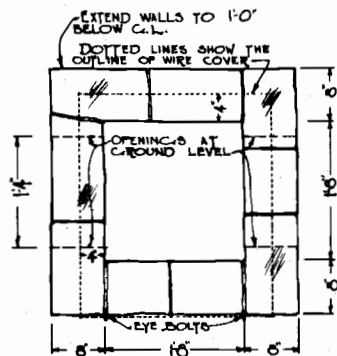
Item No.	Qty.	Material	Purpose	P.S.N.
<b>Lumber &amp; Yard List</b>				
1	4	Pos. 2"x4"x6'0"	#1 Common D.F.S.W	Platform facing 4 sides
2	2	2"x4"x6'0"	Ditto	Joists
3	1	2"x4"x6'0"	Ditto	Platform Floor
4	4	1"x12"x6'0"	D Select Pine S&S	Ditto
5	2	1"x12"x6'0"	Ditto	Bottom strips on platform
6	4	1/2"x3"x6'0"	"	Ditto
7	2	1/2"x3"x6'0"	"	Ditto
8	1	1"x2"x4'0"	"	At flooring & chute
9	1	1"x12"x6'0"	"	Sides of chute
10	1	1"x2"x8'0"	"	Ditto
11	1	1"x12"x6'0"	"	Cover at chute
12	1	1"x2"x4'0"	"	Ditto
13	1	1/2"x3"x6'0"	"	Battens at cover & on chute sides
14	1	1"x4"x6'0"	"	Horizontal cleats on chute
15	1	1"x4"x6'0"	"	Cleats under lid & blocking
16	1	3/4" - 1/4 round SPO long	"	Trim at bottom of chute
17	2/2	1/2" 200 common nails	"	"
18	1/4	" 100 "	"	"
19	1	" 100 "	"	"
20	1/2	" 80 "	"	"
20A	2	Sq. Ft. Double Selv. 14 mesh bronze screen wire cloth.	Under holes in lid.	
<b>Hardware</b>				
21	1	Pair 1/2" strap hinges		
22	1	#2 door lift		
23	1	1" adjustable tension door spring		
<b>Paint</b>				
24	1/2	Gallon paint (Color to be selected by Forest Officer in charge)		
Paint to be furnished by Regional Office.				

REVISED MAY 1, 1952

FOREST SERVICE	
<b>GARBAGE PIT COVER</b>	
PLAN R-4 # 103	SHEET 1 OF 1
TRACED FROM RECORDS OF PLAN	DATE
CHECKED <i>ML</i>	DATE <i>E-3-51</i>
APPROVED <i>J.D</i>	SCALE <i>1/4" = 1 FOOT</i>



ISOMETRIC VIEW SHOWING OPENING



PLAN WITH COVER REMOVED SCALE 1"=1'-0"

BILL OF MATERIALS

Item No.	No. of Pcs.	Materials	Purpose
1	2	Rock (To be supplied by Forest) Cu. Yds. Rock	Body of Incinerator
2	1/2	Mortar Cu. Yd. Mortar	Mortar
3	4	Material to be Purchased Sacks Portland Cement	Mortar
4	4	Sacks (50-lbs.) Hydrated Lime	Mortar
5	2	6" Eye Bolts	To fasten wire cover
6	1	Pc. 1/2" Round Bar setting, 28"x32" welded on all outside edges to a 3/4" round bar	

SPECIFICATIONS

ROCK WORK

A capable rock mason should be engaged. The rock will be laid in a mortar made in the following proportions:

- 2 sacks Hydrated Lime (50-lbs.)
- 2 sacks Portland Cement
- 6 Cu. ft. of clean sharp sand

The above materials will be sufficient for one cubic yard of rock work.

The mortar will be of a heavy batter consistency, usually requiring 50 to 60 gallons of water per cubic yard of stone work.

GENERAL

The entire work is to be constructed and finished in every part in a good substantial and workmanlike manner according to the plans a part hereof, and these specifications to the full extent and meaning thereof.

Where figures are not given, all drawings must be accurately followed and measured according to their scales. All notations and figures on plans are to be considered a portion of these specifications, and must be followed. Follow figures in preference to scale.

Six inch eye bolts are to be securely set in place as rock work is laid.

The Incinerator must not be used until after the Rock Work has set for 10 days.

FOREST SERVICE

INCINERATORS

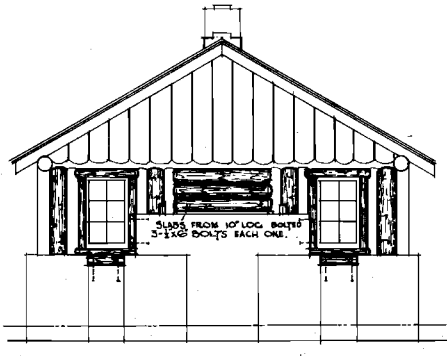
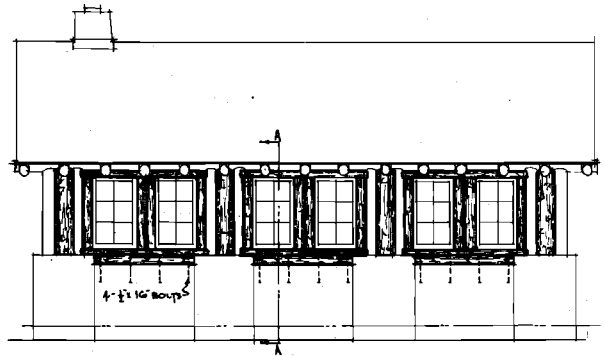
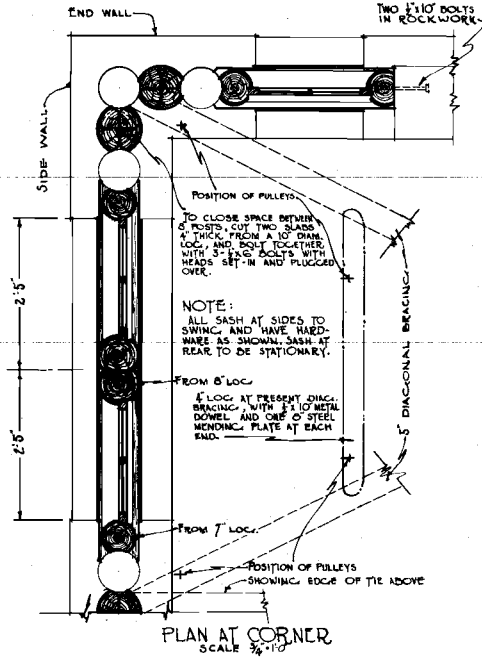
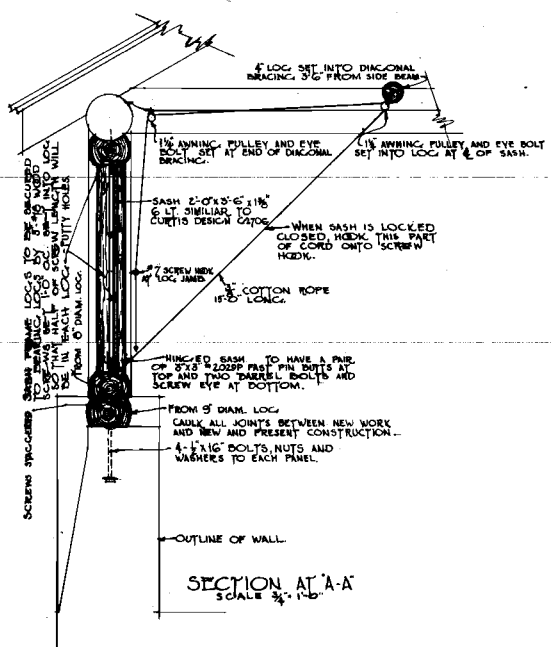
PLAN R-4 # 103 B-1

SHEET 1 OF 1

CHECKED BY *[Signature]* DATE *[Date]*  
APPROVED BY *[Signature]*

SCALE AS SHOWN





NOTE: THE WORK OUTLINED IN HEAVY LINES REPRESENTS THE MEANS FOR PARTIALLY CLOSING IN SHELTER PLAN R-4 #104 A1. THE LIGHT LINES PICTURE THE SHELTER AS SHOWN IN PLAN R-4 #104 A1.

**GENERAL:**  
The work contemplated by this specification is of such a nature that it must be constructed and finished in every part in a good substantial and workmanlike manner according to the plans a part hereof, and these specifications to the full extent and meaning thereof.

Where figures are not given, all drawings must be accurately followed and measured according to their scale. All notations and figures on plans are to be considered a portion of these specifications, and must be followed. Follow figures in preference to scale.

**ERECTION AND FITTING TO EXISTING WORK:**  
It is assumed that the work provided herein is a means for closing in Camp Ground Shelter #104-1. The new work must be carefully fit and adjusted to existing work. All new work is to be level or plumb and carefully fastened in place to avoid a patched appearance.

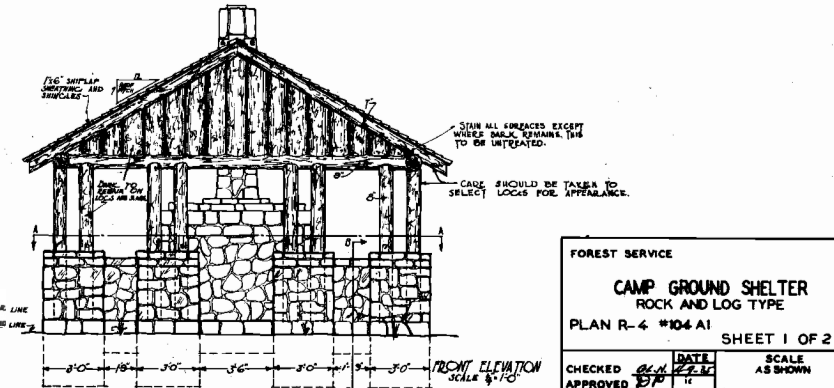
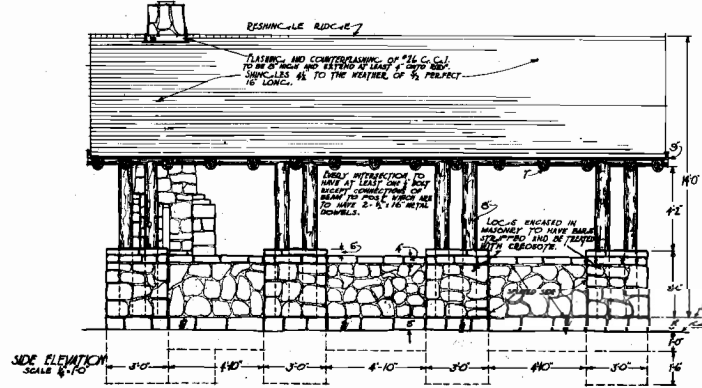
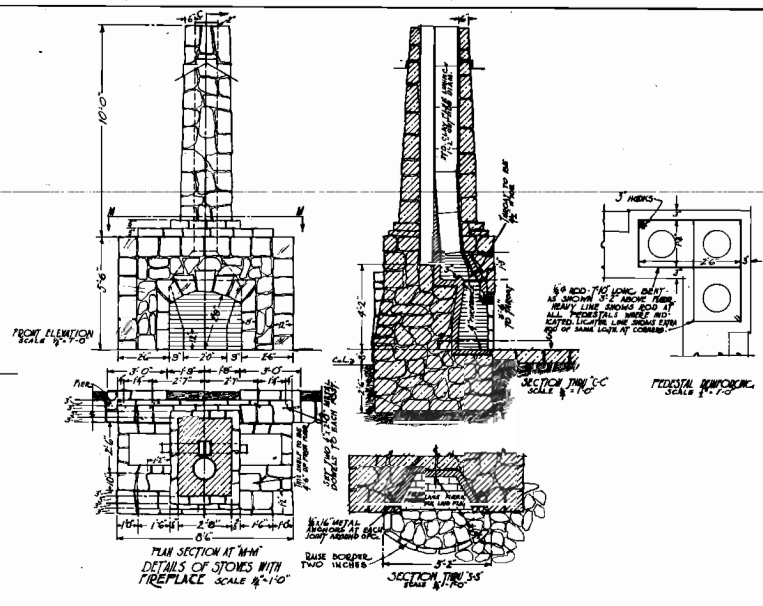
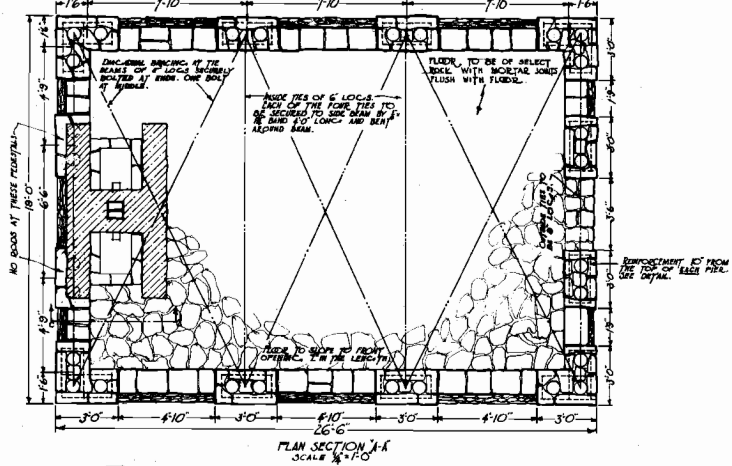
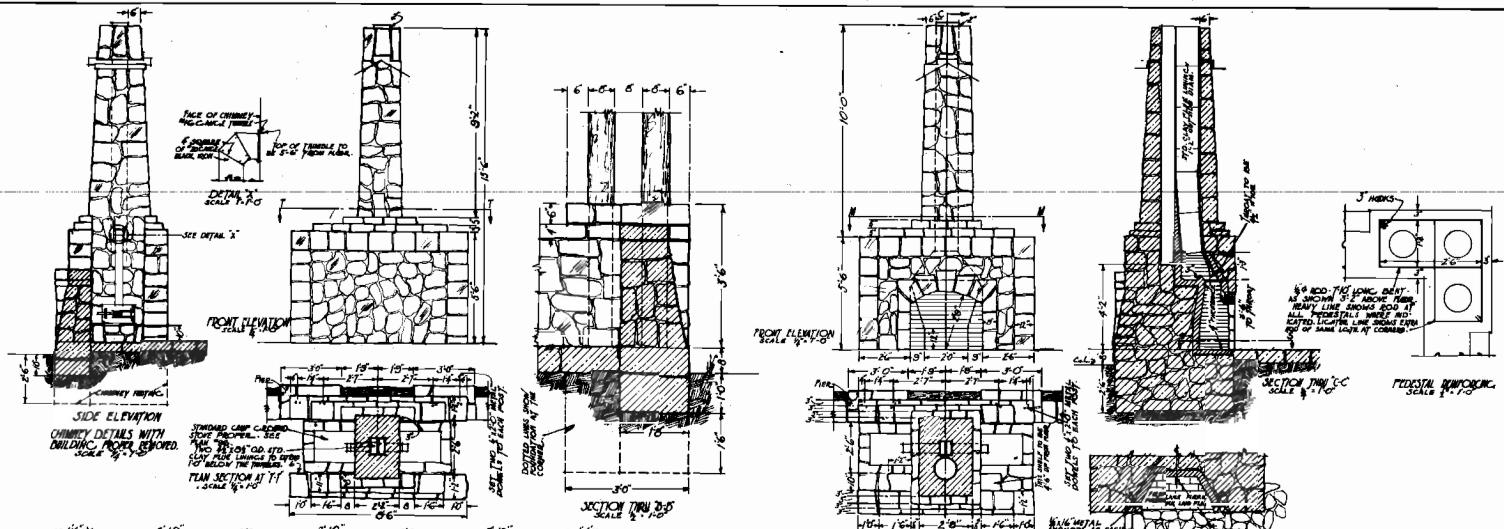
The sash must be hung carefully so that they will act freely when operated to open position. Due allowance must be made for expansion or swelling of the sash when they are fit.

All pulleys, ropes and hardware must be accurately placed and adjusted and tested as to operation.

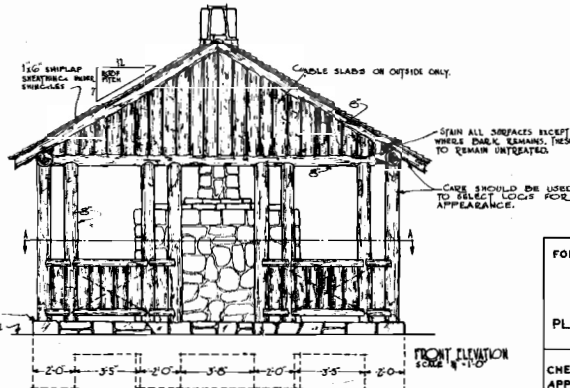
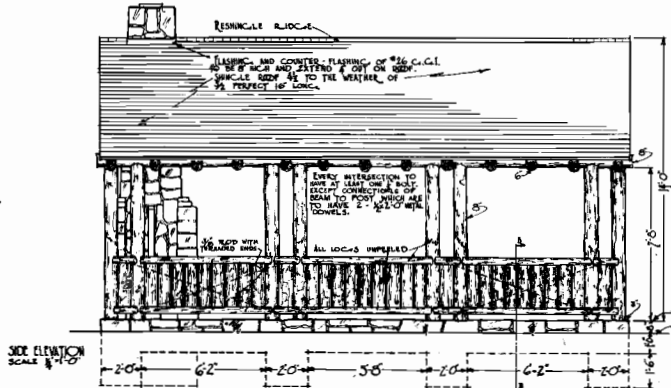
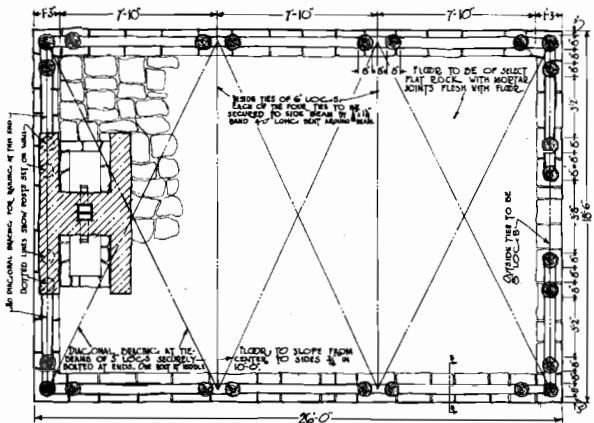
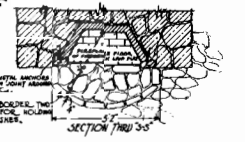
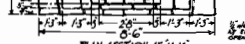
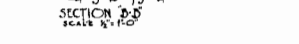
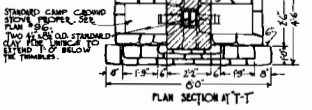
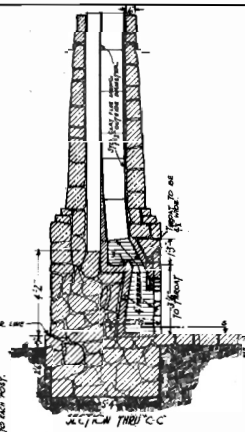
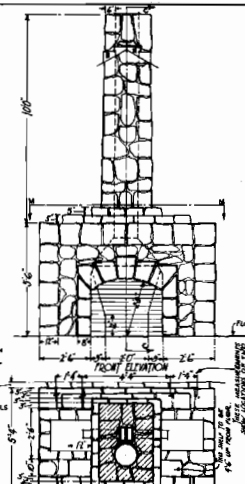
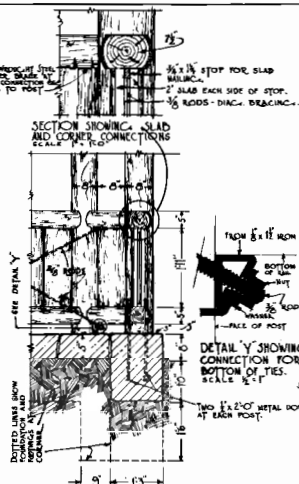
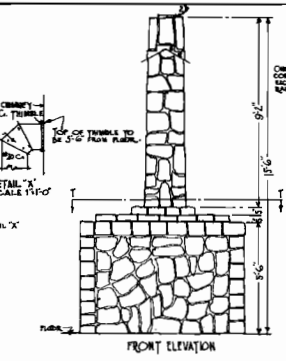
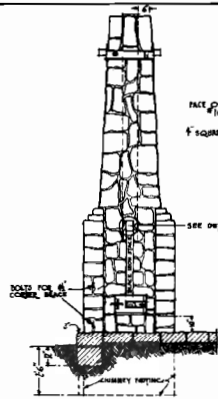
All details of framing and erection are shown clearly in the plans and are to be followed in detail.

**PAINT & PAINTING:**  
All painting will conform to the Lands Manual, Plan #104-1. Trim of the sash is to be a Silver Gray Stain.

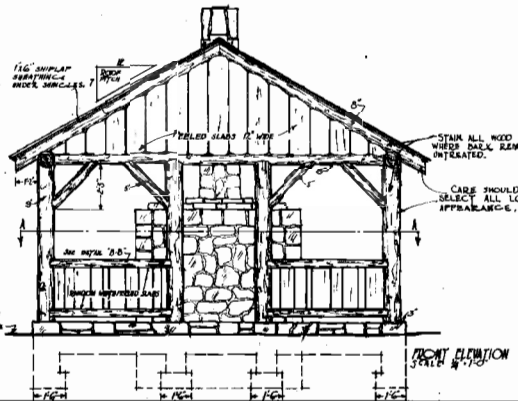
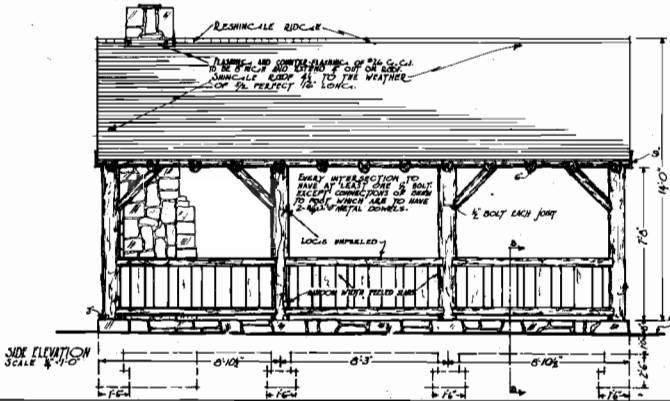
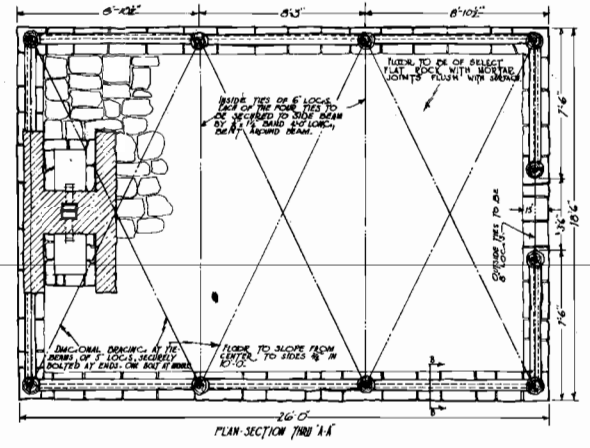
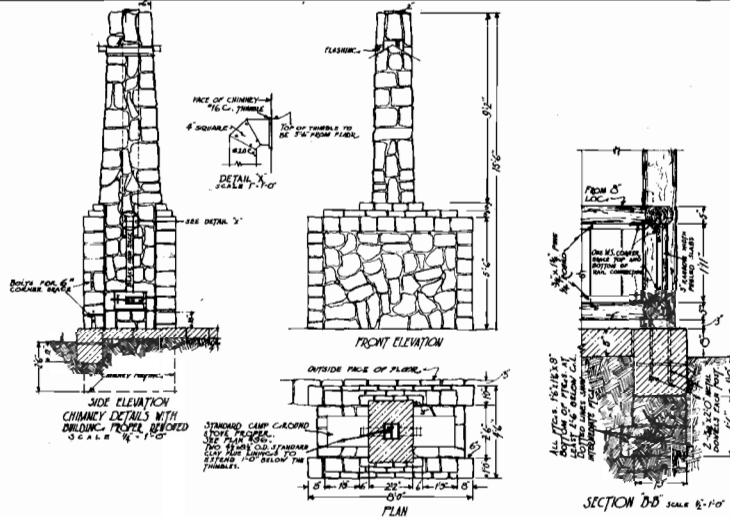
FOREST SERVICE	
METHOD FOR PARTIALLY CLOSING IN CAMP GROUND SHELTER (PLAN R4 104A1) PLAN R-4 #104A1A	
SHEET 1 OF 2	
CHECKED <i>Clad</i>	DATE 5-22-34
APPROVED <i>SP</i>	SCALE AS SHOWN



FOREST SERVICE  
**CAMP GROUND SHELTER**  
 ROCK AND LOG TYPE  
 PLAN R-4 #104 A1 SHEET 1 OF 2  
 CHECKED *[Signature]* DATE *[Date]* SCALE AS SHOWN  
 APPROVED *[Signature]*



FOREST SERVICE	
CAMP GROUND SHELTER	
ROCK AND LOG TYPE	
PLAN R-4 #104A2	
SHEET 1 OF 2	
CHECKED G.M.	DATE 4-23-37
APPROVED J.P.	SCALE AS SHOWN



**MATERIAL LIST**

Item No.	No. of Pcs.	Material or Labor	Purpose
<b>Rockwork</b>			
1	17	(To be furnished by Forest) Ca. Yds. Rock	Rockwork
<b>Sand and Flue Lining</b>			
(Obtain bids on this list)			
2	74	Ca. yds. Sand	Mortar
3	24	Lin. ft. 4-1/2" x 8-1/2" tile flue liners	Flue Lining
<b>Logs and Native Lumber</b>			
(To be furnished by Forest)			
4	10	Pcs. 9" dia. logs 8'-0" long	Posts
5	2	Pcs. 9" dia. logs 25'-0" long	Side beams
6	2	Pcs. 8" dia. logs 17'-0" long	End beams
7	4	Pcs. 8" dia. logs 12'-0" long	End rafters
8	12	Pcs. 8" dia. logs 8'-0" long (cut as shown)	Railing
9	4	Pcs. 8" dia. logs 6'-0" long " " "	Railing
10	4	Pcs. 8" dia. logs 4'-6" long " " "	Railing
11	22	Pcs. 6" dia. logs 12'-0" long	Rafters inside
12	2	Pcs. 6" dia. logs 17'-0" long	Inside ties
13	6	Pcs. 5" dia. logs 19'-0" long	Diag. bracing
14	14	Pcs. 5" dia. logs 3'-0" long	Bracing beams and posts
15	120	Lin. ft. of peeled slabs 12" wide by 3/4" thick from 18" logs	Cable ends.
16	204	Lin. ft. of peeled slabs, widths 6" to 10", 3/4" thickness, individual lengths 1'-11" lin. ft. figured from an average width of 8" slab.	Railings
<b>Lumber</b>			
(Do not obtain bids on this list - included under Yard List)			
17	57	Sacks Portland Cement	Mortar
18	71	50-lb. bags hydrated lime	Mortar
19	130	Lin. ft. 3/4" x 1-3/4" quarter round "D" sel. Pine	Railing railing slabs
20	750	F.B.M. 1" x 6" Shiplap	Roof sheathing
21	28	Bundles of cedar shingled #2 16" 5/2 Perfects	Roofing
22	4	Lbs. 160 Finishing Nails	Railing gable slabs and nailing logs at ridge
23	6	Lbs. 100 Finishing Nails	Railing railing slabs
24	15	Lbs. 80 Common Nails	Shingles
25	26	Lbs. 3D Common galv. nails	Shingles
26	2	Lbs. 8D Finishing Nails	Railing quarter round to rails
26a	10	Lbs. 160 Common Nails	Framing
<b>Metal</b>			
27	2	Std. campground stoves proper complete plans #96 (To be furnished by Regional Office)	Stoves
28	2	4" elbows and #16 gauge thimble to match std. pipe.	Stack
29	1	Flashing and counter flashing as shown	Chimney
30	3	1/2" x 10" machine bolts (with nut & 3 washers each)	Crossings of bracing
31	62	1/2" x 12" machine bolts (with nut & 3 washers each)	Joints of rafters & ties & post bracing
32	8	Pcs. 1/8" x 1-1/4" iron band (8-3/4" bright steel wood screws each)	Ties to side beams
33	40	3/4" x 2'-0" metal	Dowels
34	12	3/8" x 8" bolts (with nut and washer each)	Connecting railg. to fireplace wall
35	40	6" corner braces (wrought steel 6-3/8" screws each)	Securing railg. to posts
<b>Paint</b>			
(Do not obtain bids - to be furnished by Regional Office)			
36	8	Gals. roof paint as specified	Shingles exposed
37	84	Gals. log siding stain	Soffit of shiplap, log end, both sides of slabs, surfaced part of railing.

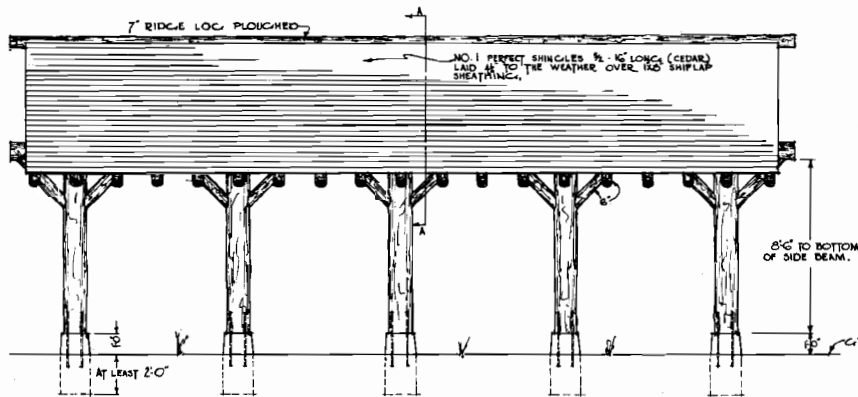
FOREST SERVICE

**CAMP GROUND SHELTER**  
ROCK AND LOG TYPE

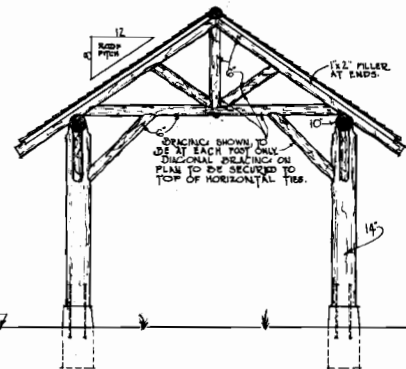
PLAN R-4 #104A3 SHEET 1 OF 2

CHECKED	DATE
APPROVED	SCALE

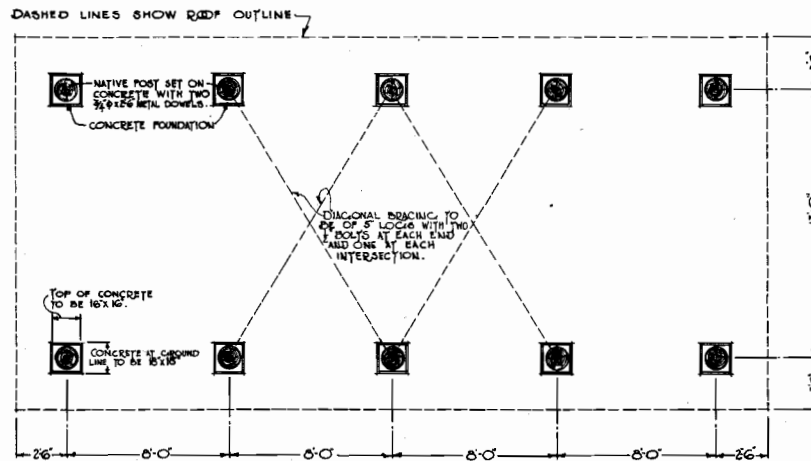
AS SHOWN



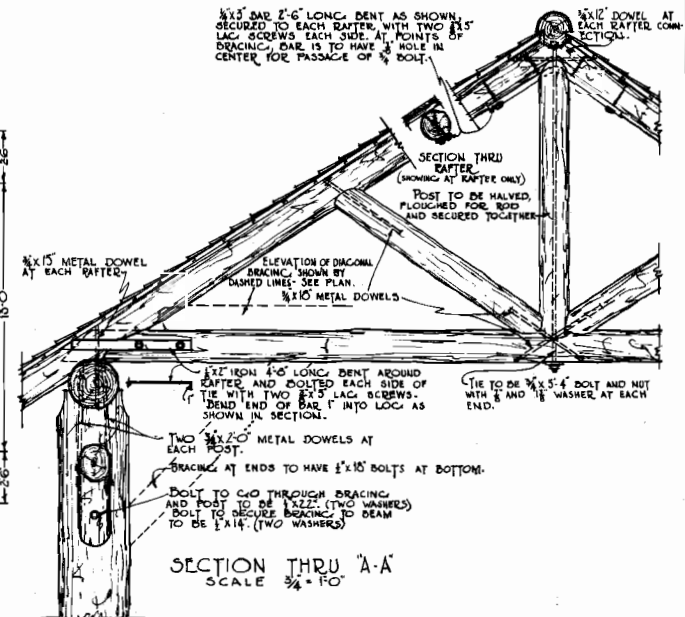
SIDE ELEVATION  
SCALE 1/4" = 1'-0"



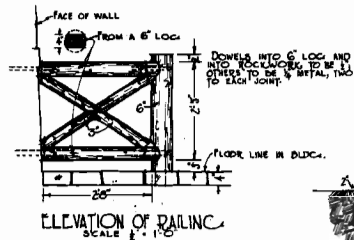
END ELEVATION  
SCALE 1/4" = 1'-0"



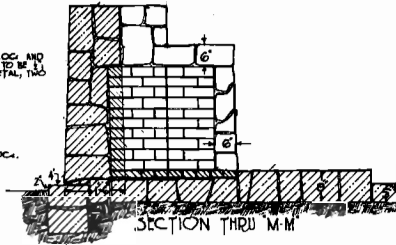
PLAN  
SCALE 1/4" = 1'-0"



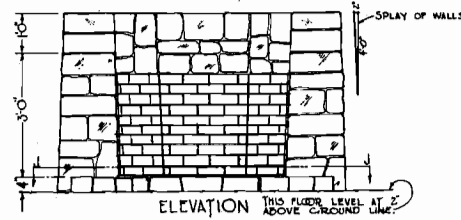
FOREST SERVICE	
LOG SHELTER	
PLAN R-4 # 104-A4	
SHEET 1 OF 2	
CHECKED	DATE
APPROVED	SCALE
	AS SHOWN



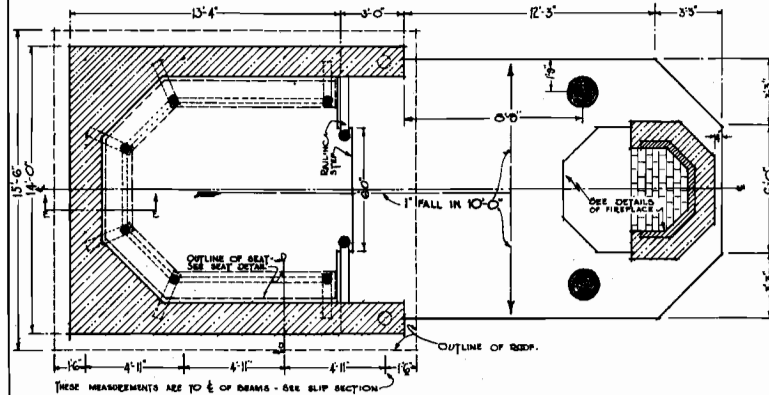
ELEVATION OF RAILING  
SCALE 1/2" = 1'-0"



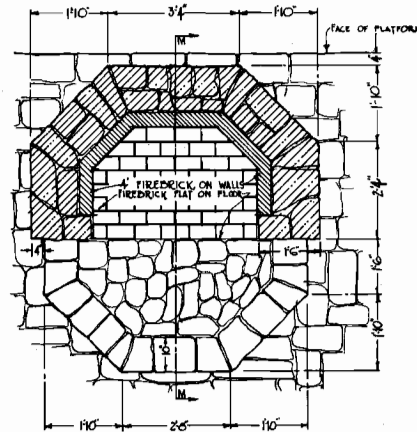
SECTION THROUGH M.M.



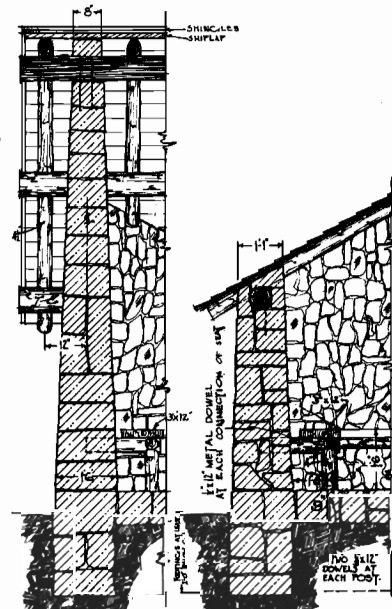
ELEVATION  
THIS FLOOR LEVEL AT ABOVE CIRCLED LINE



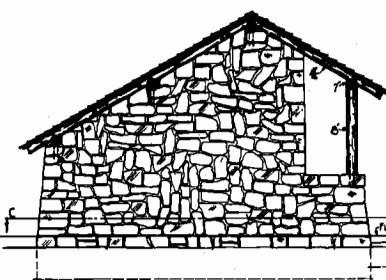
PLAN AT C-C - SHOWING OUTLINE AT FLOOR - SCALE 1/4" = 1'-0"



PLAN AT J-J  
DETAILS OF FIREPLACE  
SCALE 1/2" = 1'-0"

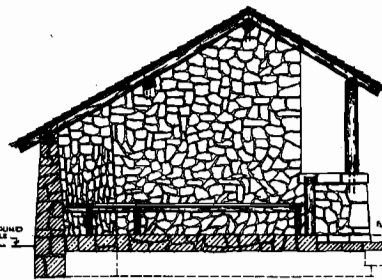


SECTION D-D  
SECTION E-E  
SLIP SECTIONS  
SCALE 1/2" = 1'-0"

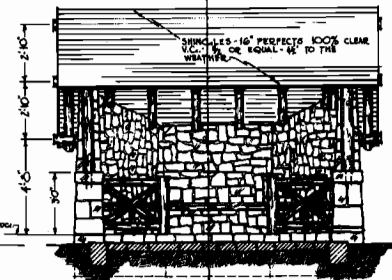


SIDE ELEVATION  
SCALE 1/4" = 1'-0"

NOTE:  
DOWELS, EXCEPT WHERE OTHERWISE SHOWN, ARE TO BE TWO 1/2" DIA METAL FOR LOGS IN CONTACT WITH ROCK. CONNECTIONS OF RAFTER TO BEAM TO BE A 1/2" BOLT AND WASHERS.

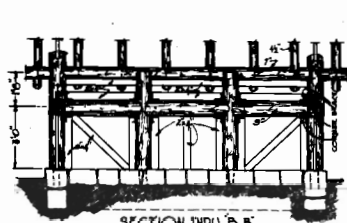


SECTION THROUGH C  
SCALE 1/4" = 1'-0"

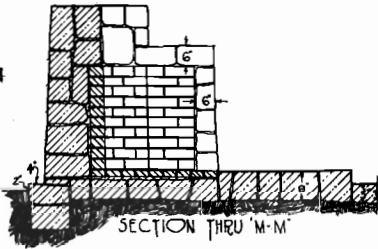


ELEVATION AT A-A  
SCALE 1/4" = 1'-0"

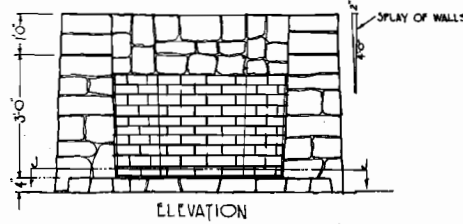
FOREST SERVICE	
LEAN-TO SHELTER	
PLAN R-4 #104 B-1	
SHEET 1 OF 2	
CHECKED	DATE
APPROVED	SCALE AS SHOWN



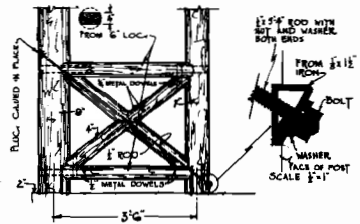
SECTION THRU D-D  
SHOWING SLABS AND  
ROOF SHEATHING REMOVED  
SCALE 1/4" = 1'-0"



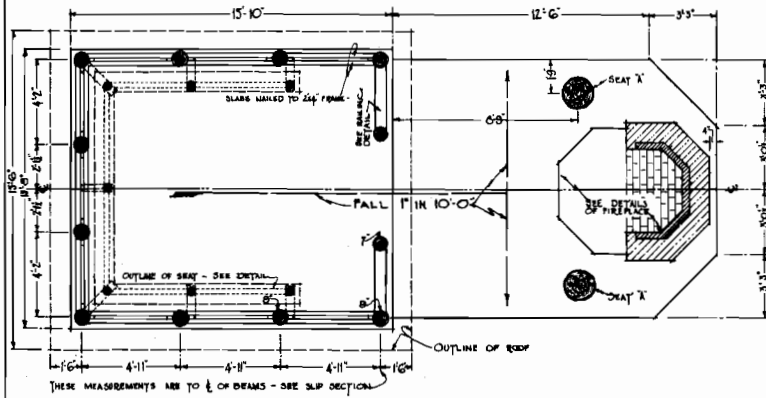
SECTION THRU M-M



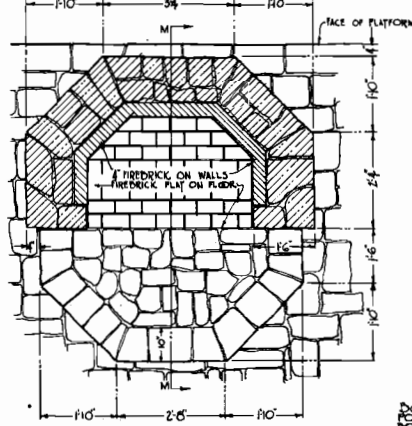
ELEVATION



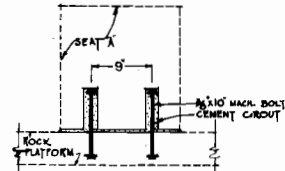
ELEVATION OF RAILING  
SCALE 1/2" = 1'-0"



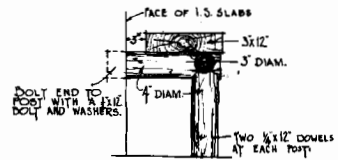
PLAN AT C-C - SHOWING OUTLINE  
AT FLOOR SCALE 1/4" = 1'-0"



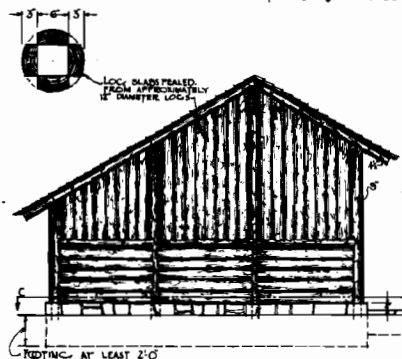
PLAN AT J-J  
DETAILS OF FIREPLACE  
SHOWING BRICK LINING AS  
ALTERNATE FOR FIREPLACE.  
SCALE 1/2" = 1'-0"



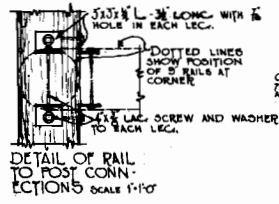
SECTION SHOWING DETAIL  
OF SEAT ANCHORAGE  
SCALE 1/2" = 1'-0"



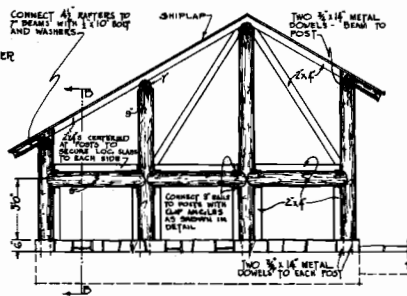
DETAIL OF SEAT SCALE 1" = 1'-0"



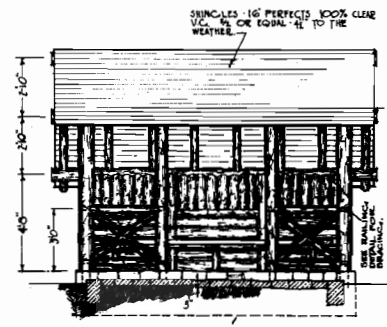
SIDE ELEVATION  
SCALE 1/4" = 1'-0"



DETAIL OF RAIL TO POST CONN-  
NECTIONS SCALE 1" = 1'-0"

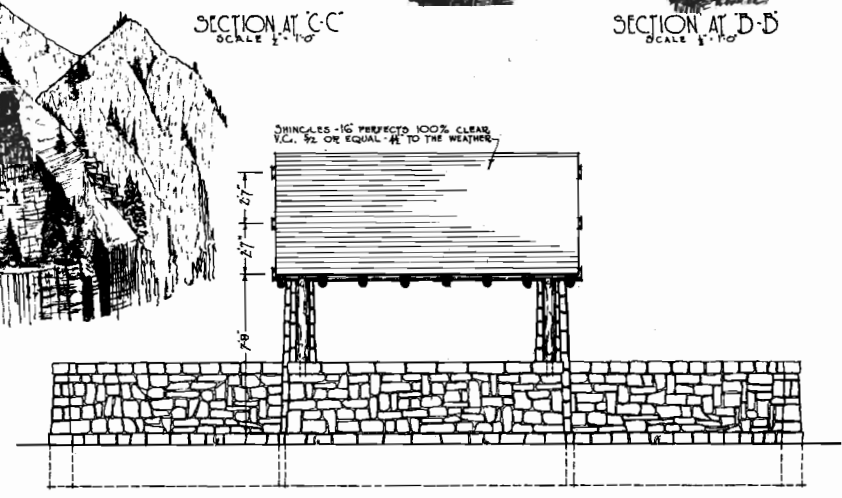
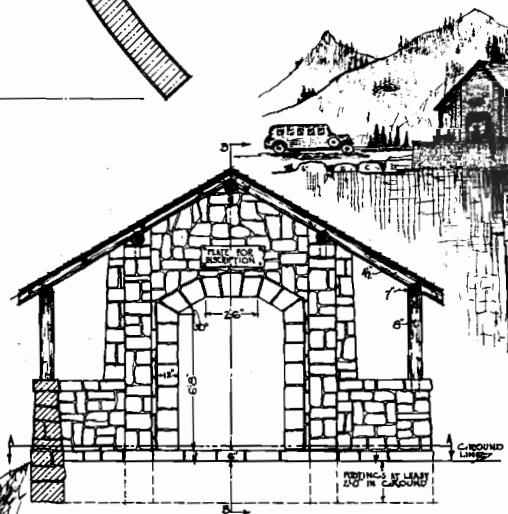
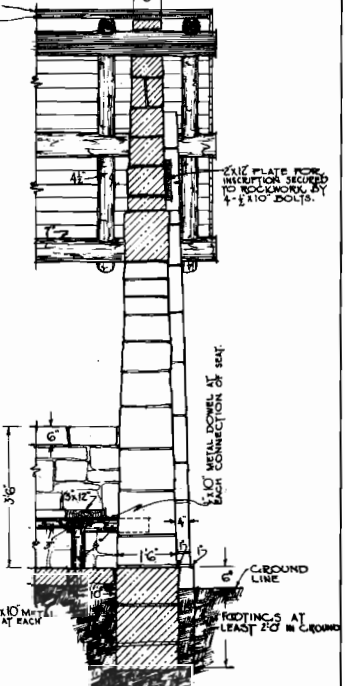
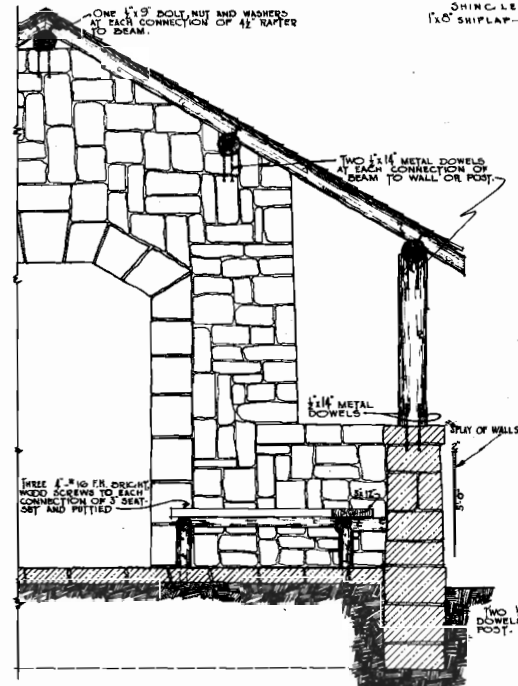
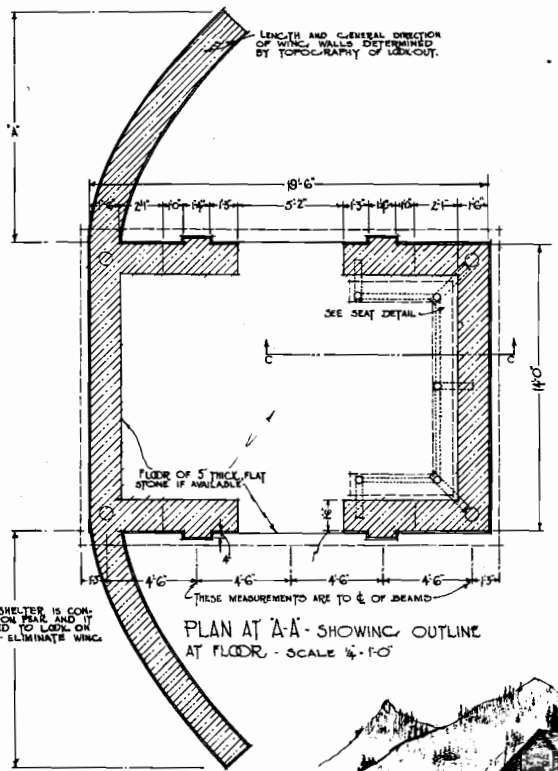


SIDE ELEVATION SHOWING  
SLABS REMOVED SCALE 1/4" = 1'-0"



ELEVATION AT A-A  
SCALE 1/4" = 1'-0"

FOREST SERVICE	
LEAN-TO SHELTER	
PLAN R-4 # 1048-2	
SHEET 1 OF 2	
CHECKED <i>[Signature]</i>	DATE <i>[Date]</i>
APPROVED <i>[Signature]</i>	SCALE AS SHOWN



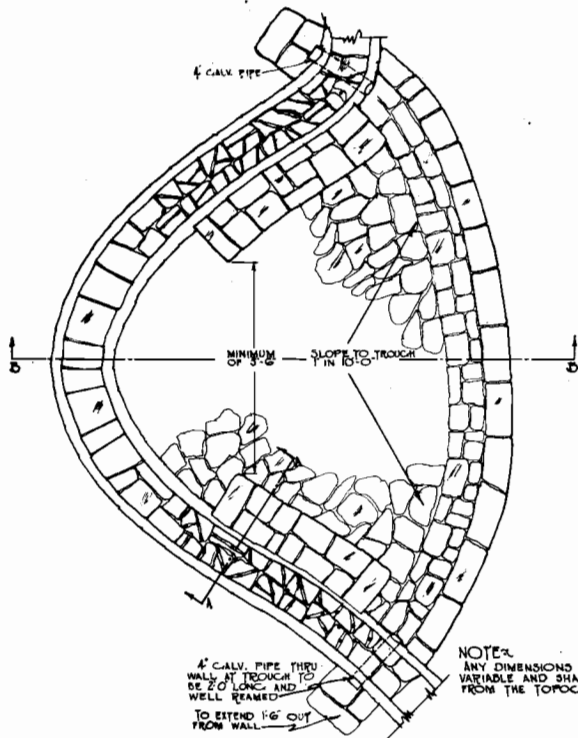
FOREST SERVICE

OVERLOOK SHELTER

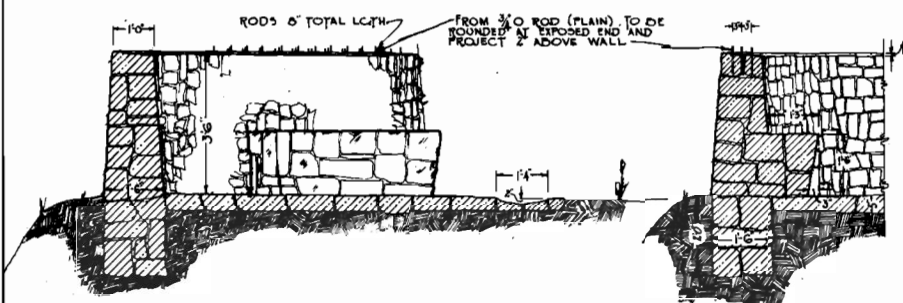
PLAN R-4 # 104B4 SHEET 1 OF 2

CHECKED BY	DATE	SCALE
APPROVED BY		AS SHOWN





PLAN SCALE 1/2"=1'-0"



SECTION THRU 'D-D' SCALE 1/2"=1'-0"

SECTION THRU 'A-A' SCALE 1/2"=1'-0"

**BILL OF MATERIALS**

Item No.	No. of Pcs.	Material	Purpose
1	10	Back Cu. Yds. Back	Back Work (more or less will be needed if plan is built differently than shown)
2	3	Mortar Cu. Yds. Mortar	Mortar
3	20	Material to be Purchased Bags Portland Cement	Mortar
4	20	Bags (50-lb.) Hydrated Lime	Mortar
5	2	Pcs. 4" x 2'-0" galv. pipe	Drain
6	50	Pcs. 3/4" Round Rods x 8' (metal)	Set in wall to prevent people from climbing or sitting on parapet wall

**SPECIFICATIONS**

**GENERAL**

The entire work is to be constructed and finished in every part in a good and substantial manner according to the plans a part hereof, and these specifications to the full extent and meaning thereof.

Where figures are not given, all drawings must be accurately followed and measured according to their scale. All notations and figures on the plans are to be considered a portion of these specifications, and must be followed. Follow figures in preference to scale.

**FOUNDATIONS AND FOOTINGS**

Plans have been drawn with the assumption that this building will be constructed on an approximately level site. If erected on a site on which the topography slopes, the footings shall be adjusted to the condition of the site. In all cases, it is the intent to have the footings below the frost danger line. If it is known that the frost extends to a depth of 2'-0" be sure that the footings extend below that line. Should the frost extend lower, provision must be made to go lower for safety. The bill of materials provides for a depth as shown in plans - lower depths require more material. However, do not lose sight of the fact that a building constructed on a slope will have to be figured on a basis of the slope and usually more material will be needed for these cases as well. It may be economical to step the footings when the slope is over 2%.

ROCK WORK WILL BE USED in either rubble or coursed, using the available materials to the best of advantage.

A capable rock mason should be engaged to supervise and direct the work.

The rock will be laid in a mortar made in the following proportions:

- 2 sacks of Portland Cement
- 2 sacks (50-lb.) Hydrated Lime
- 6 cu. ft. clean sharp sand

The above materials will be sufficient for one cubic yard of rock work. The mortar will be of a heavy better consistency, usually requiring 50 to 60 gallons of water per cubic yard of stone work.

All rock shall be wet when placed so that the absorption of moisture from the mortar will be prevented.

**ROCK FLOORS - Dry Base Essential:** Good practice recommends that the floor be placed on a fill which is at least six (6) inches higher than the surrounding grade. This fill may consist of well compacted loose rock or earth. The joints are to be filled and struck flush with the rocks so that no dirt can collect in them. The rocks are to be chosen of as large a surface for the floor as is practicable. They should be at least 5" thick.



FOREST SERVICE

SCENIC POINT DEVELOPMENT

PLAN R-4 #104B5

SHEET 1 OF 1

CHECKED	DATE	SCALE
APPROVED		1/2"=1'-0"

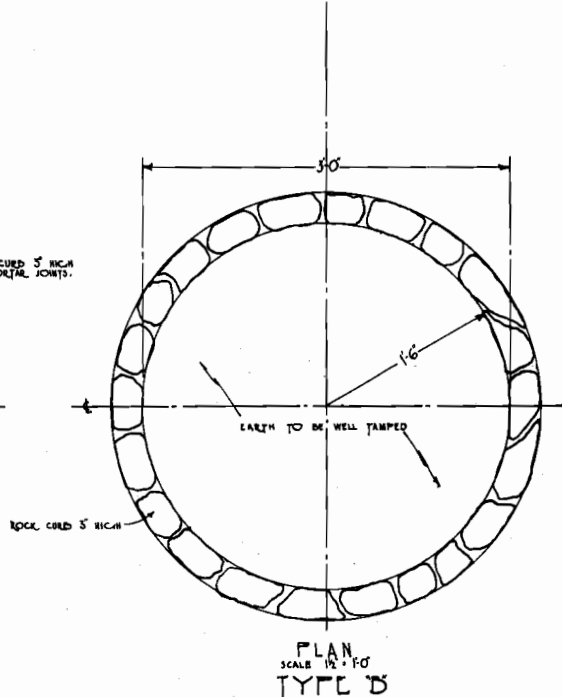
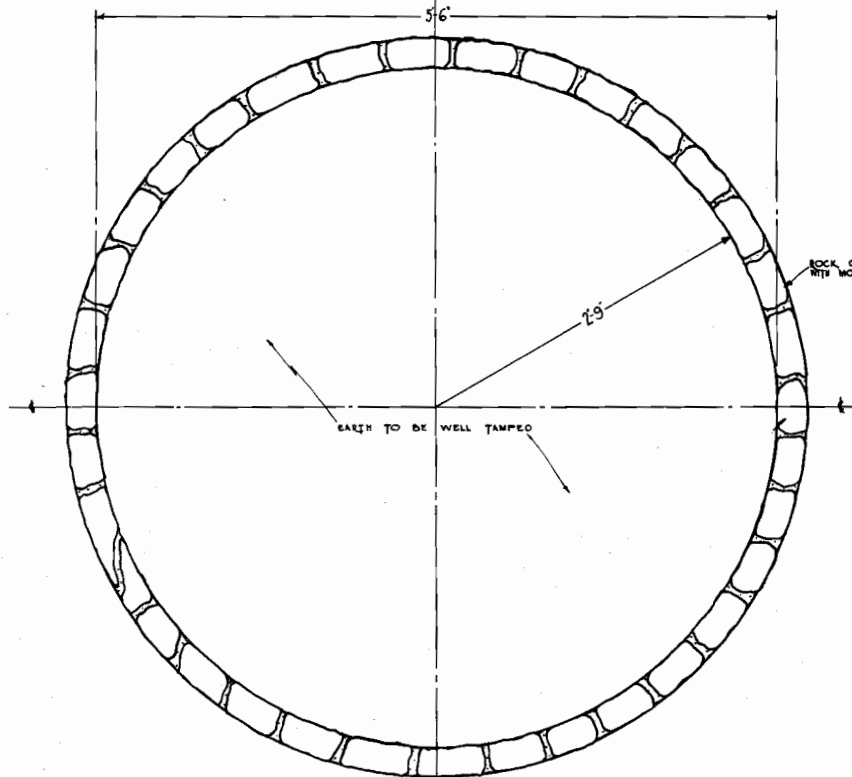
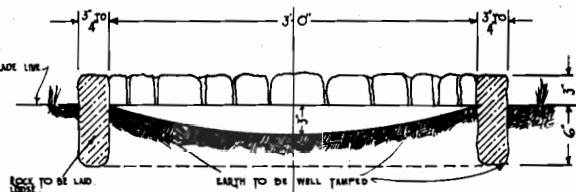
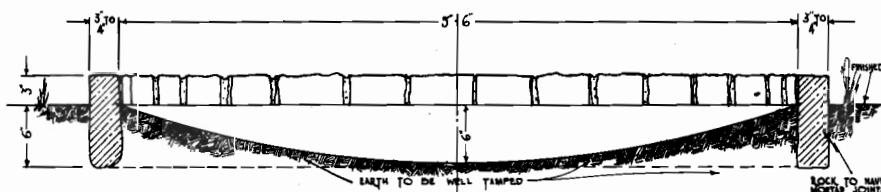
**SPECIFICATION**

**Block Work:**

A capable rock mason should be engaged. The rock will be laid in a mortar made in the following proportions by volume:

- 1 part hydrated lime
- 1 part Portland cement
- 4 parts of clean sharp sand

The mortar will be of a heavy batter consistency, usually requiring 50 to 60 gallons of water per cubic yard of stone work. Estimate 30 to 40% of cubic foundation as mortar.



PLAN  
SCALE 1/4" = 1'-0"  
TYPE 'A'

FOREST SERVICE	
WARMING FIREPLACE	
PLAN R-4 #105 SHEET 1 OF 1	
CHECKED <i>ELW</i>	DATE 5-2-22
APPROVED <i>EB</i>	SCALE AS SHOWN

BILL OF MATERIALS

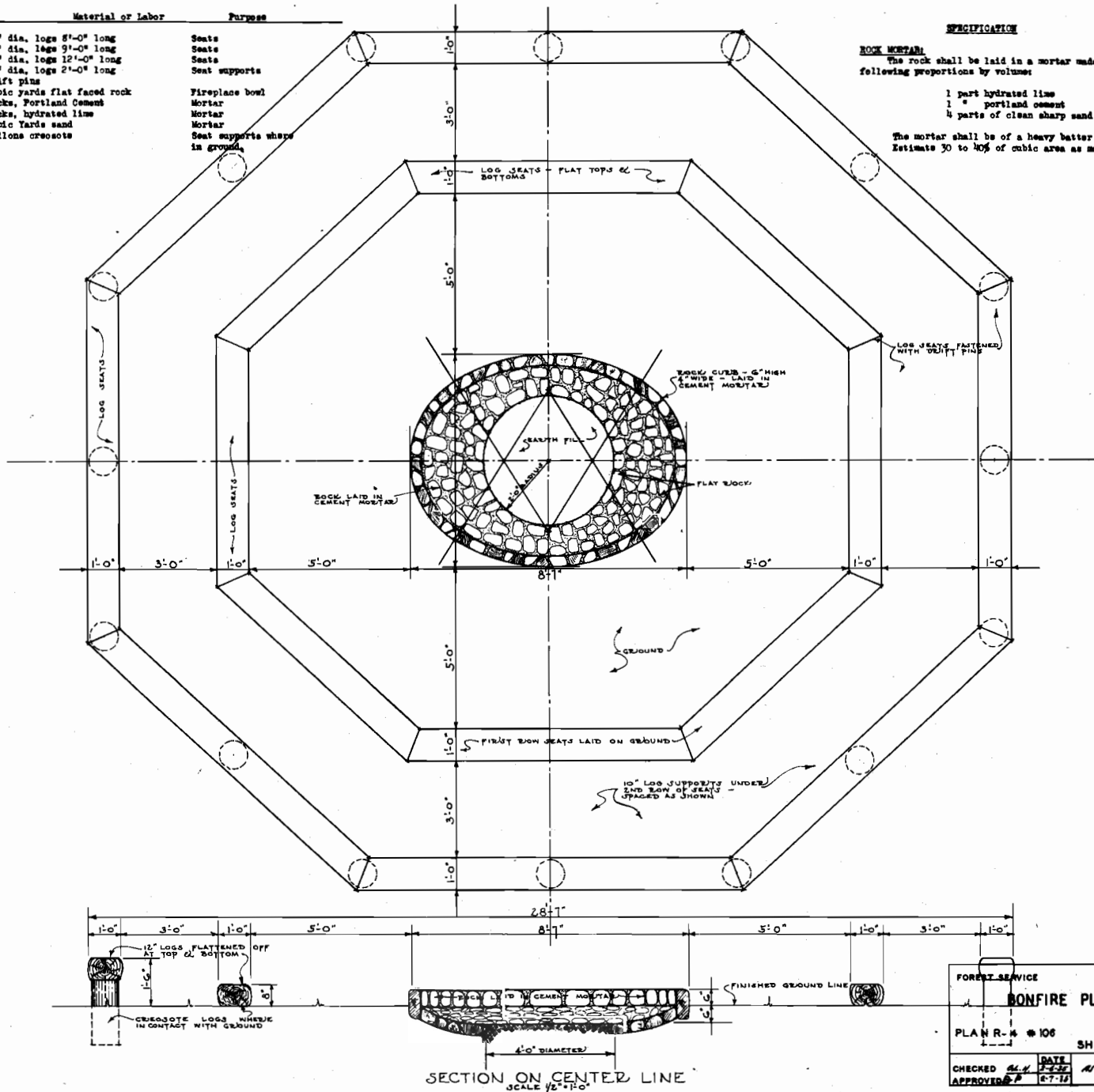
Item No.	No. of Pcs.	Material or Labor	Purpose
1	6	12" dia. logs 8'-0" long	Seats
2	2	12" dia. logs 9'-0" long	Seats
3	8	12" dia. logs 12'-0" long	Seats
4	16	10" dia. logs 2'-0" long	Seat supports
5	50	Drift pins	
6	2	Cubic yards flat rock	Fireplace bowl
7	3	Sacks, Portland Cement	Mortar
8	3	Sacks, hydrated lime	Mortar
9	2	Cubic Yards sand	Mortar
10	3	Gallons creosote	Seat supports where in ground

SPECIFICATION

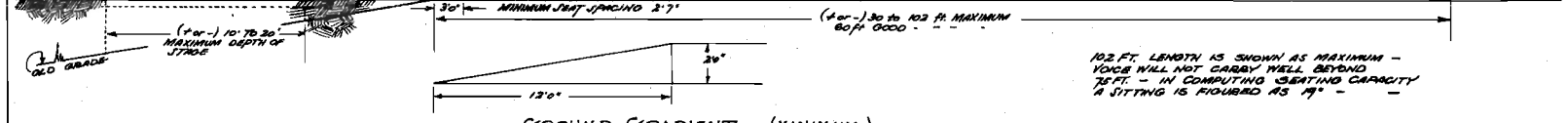
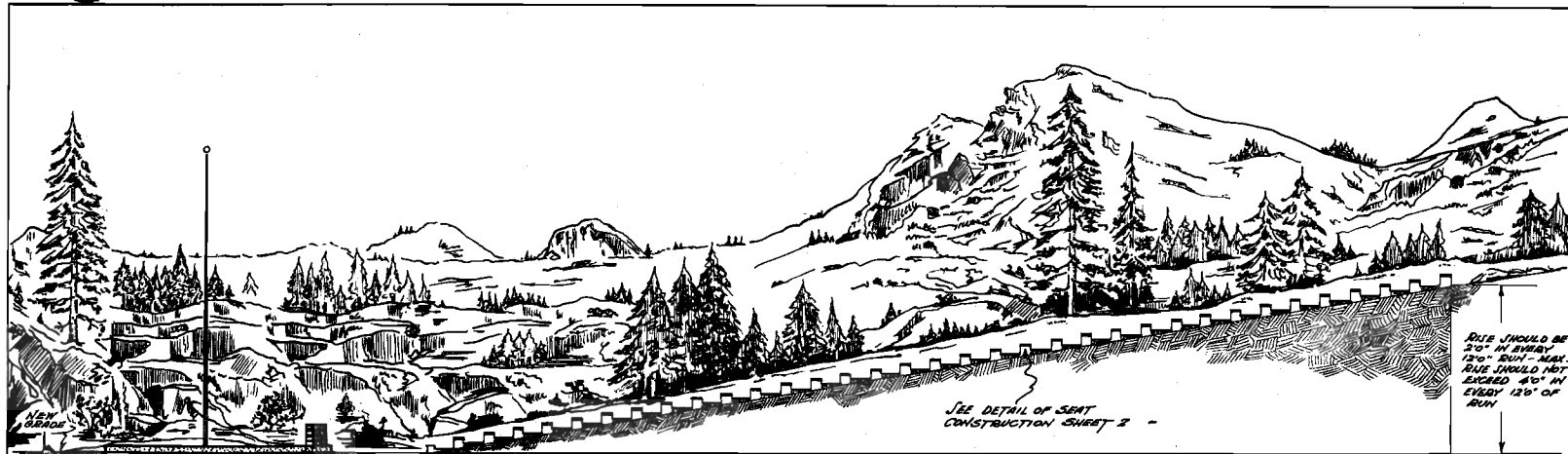
**ROCK MORTAR:**  
The rock shall be laid in a mortar made in the following proportions by volume:

- 1 part hydrated lime
- 1 " portland cement
- 4 parts of clean sharp sand

The mortar shall be of a heavy batter consistency. Estimate 30 to 40% of cubic area as mortar

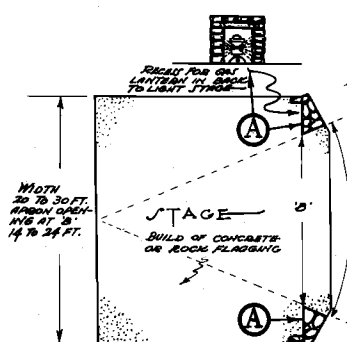


FOREST SERVICE	
<b>BONFIRE PLACE</b>	
PLAN R-4 #106	
SHEET 1 OF 1	
CHECKED <i>ALN</i>	DATE <i>3-25-32</i>
APPROVED <i>AP</i>	SCALE <i>AS SHOWN</i>



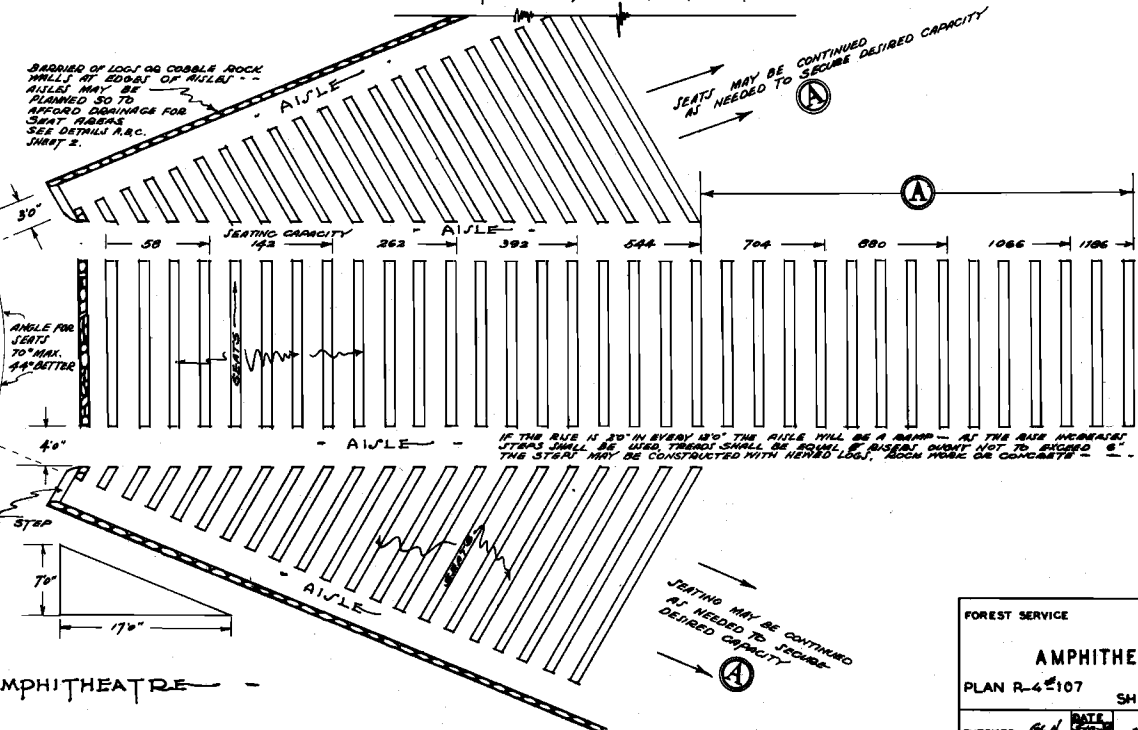
- GROUND GRADIENT (MINIMUM) - SECTION OF AMPHITHEATRE

A FLAGPOLE COULD BE ADAPTED TO THE JETTING AND PLACED TO ONE SIDE OF STAGE



SEE SPECIFICATION FOR CONSTRUCTION INFORMATION

A STD. PLAN DRINKING FOUNTAIN CAN BE PLACED CONVENIENTLY TO ONE SIDE OF STAGE

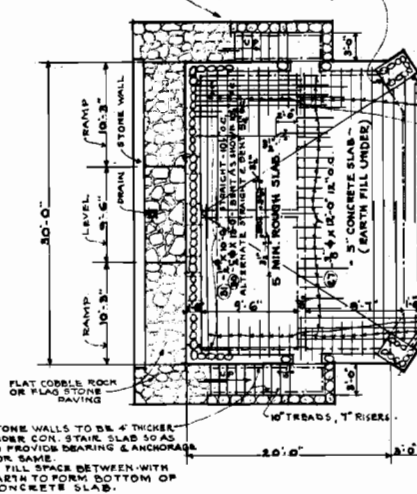


PLAN OF AMPHITHEATRE

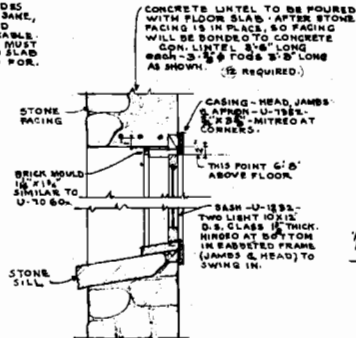
FOREST SERVICE	
<b>AMPHITHEATRE</b>	
PLAN R-4-107	SHEET 1 OF 3
CHECKED BY: [Signature]	DATE: [Date]
APPROVED BY: [Signature]	SCALE: 1/8" = 1 FOOT

STAIR REINFORCING PROVIDED IN BILL OF MATERIAL.

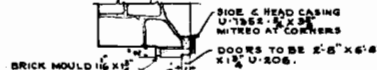
RECESS FOR LANTERN (SEE SECTION A-A)



NOTE: STAGE FLOOR SLABS TO HAVE 2" MINIMUM BEARING ON STONE WALLS ALL AROUND.  
5" MIN. ROUGH SLAB INCLUDES FINISH. IF IT IS INTEGRAL WITH SAME, THAT IS SLAB MUST BE FINISHED WHILE CONCRETE IS STILL WORKABLE. OTHERWISE FINISH MUST BE ADDITIONAL TO SLAB THICKNESS CALLED FOR.

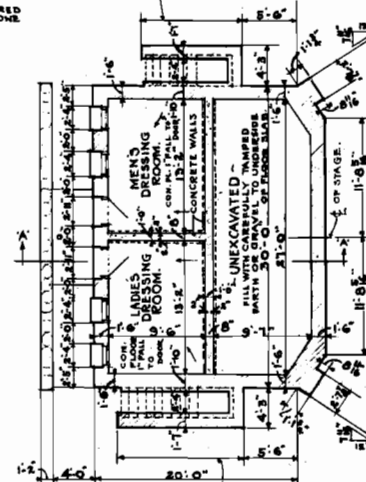


- SECTION THRU WINDOWS -  
SCALE 1/2" = 1'-0"

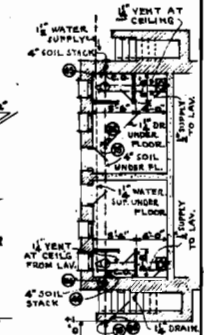


- DETAIL OF DOOR JAMB -  
SCALE 1/2" = 1'-0"

THIS DIMENSION AND NUMBER OF STEPS REQUIRED TO BE DETERMINED ON SITE, AS EXACT GRADE IS NOT KNOWN.

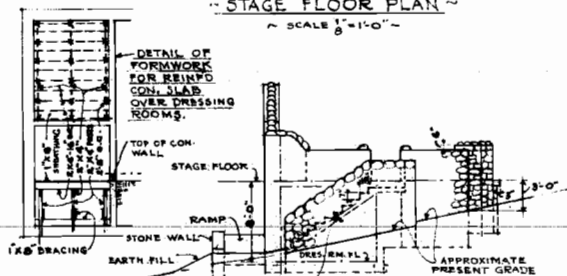


- DRESSING ROOM FLOOR PLAN -  
SCALE 1/8" = 1'-0"



- PLUMBING DIAGRAM -  
SEE BILL OF MATERIAL FOR KEY NUMBERS.

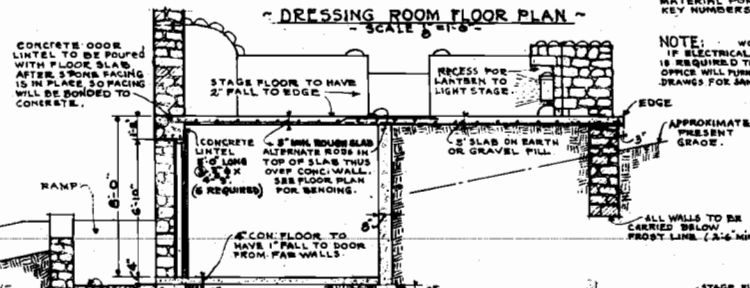
- STAGE FLOOR PLAN -  
SCALE 1/8" = 1'-0"



- SIDE ELEVATION -  
(WEST SIDE)  
SCALE 1/8" = 1'-0"

NOTE: ALL STONE WORK TO BE LAID IN CEMENT MORTAR

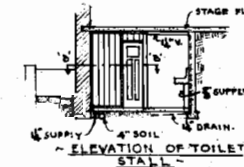
4" LAYER OF GRAVEL ON TOP  
4'-0" SQUARE X 4'-0" DEEP SUMP FILLED WITH LOOSE COBBLE ROCK  
OR  
EXTEND PIPE TO DRAIN OUT ON SLOPE.



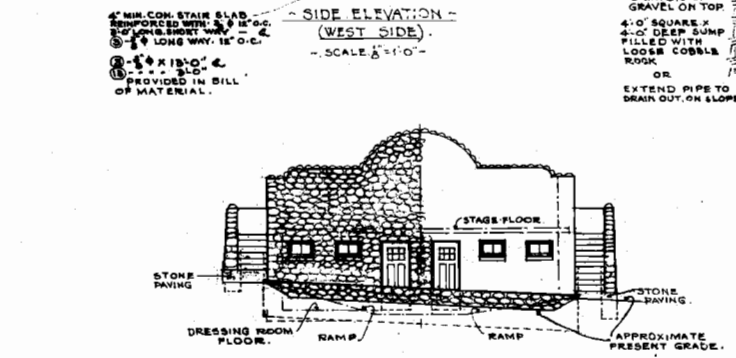
- SECTION A-A -  
SCALE 1/4" = 1'-0"

NOTE: WORK IF ELECTRICAL IS REQUIRED TO THE OFFICE WILL NUMBER DRAWINGS FOR SAME.

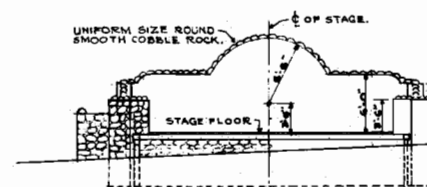
APPROXIMATE PRESENT GRADE  
ALL WALLS TO BE CARRIED BELOW PROST LINE (2'-6" MIN)



- ELEVATION OF TOILET STALL -



- REAR ELEVATION -  
SCALE 1/8" = 1'-0"



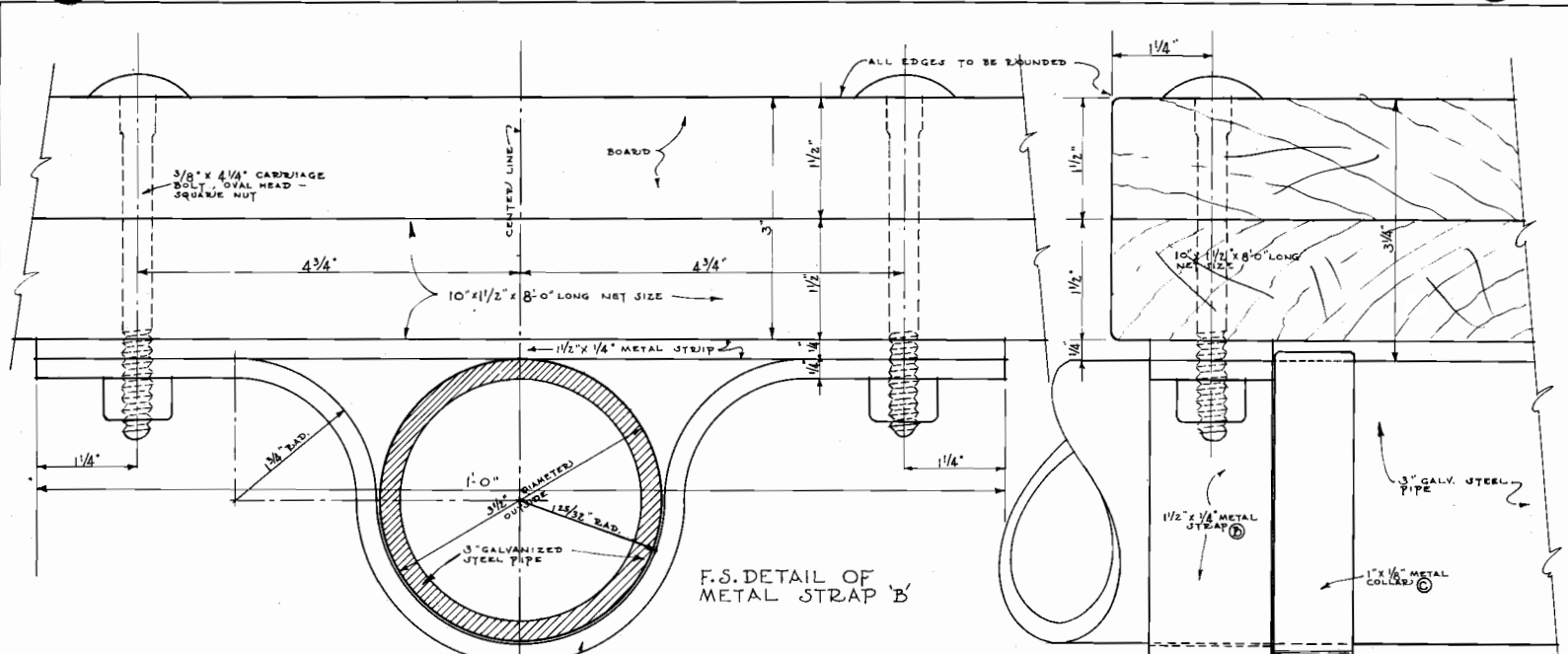
- FRONT ELEVATION -  
SCALE 1/8" = 1'-0"

FINISHED GRADE ON THE SIDE OF BLDG. TO HAVE GOOD PITCH AWAY FROM BLDG.  
APPROXIMATE PRESENT GRADE

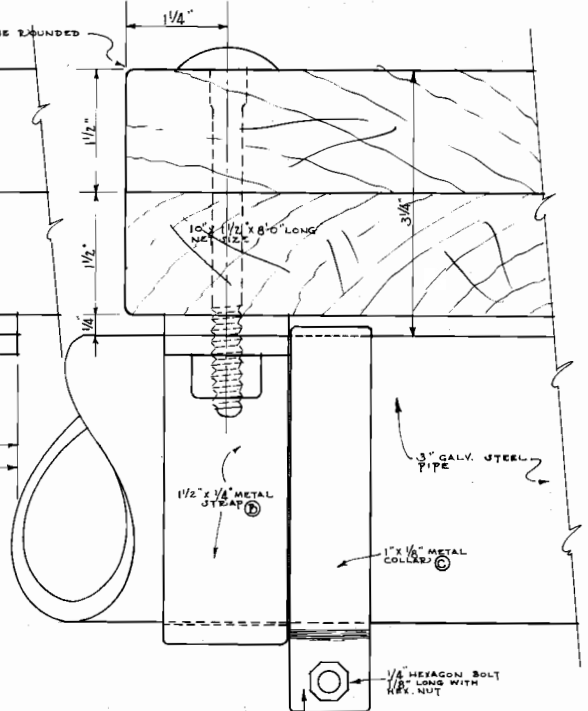
FOREST SERVICE		
<b>AMPHITHEATRE STAGE</b>		
PLAN R-4 #107A2		
SHEET 1 OF 3		SCALE
CHECKED BY	DATE	SCALE
APPROVED BY	DATE	SCALE

Note: This Amphitheatre Stage plan is intended for use in connection with the seating arrangement as shown in the standard plan #107 and in line of the stage shown therein.

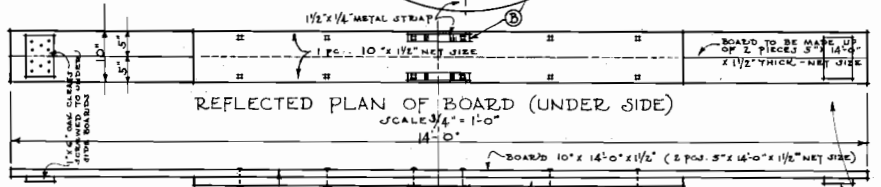
DO NOT BUILD WITHOUT REGIONAL OFFICE APPROVAL



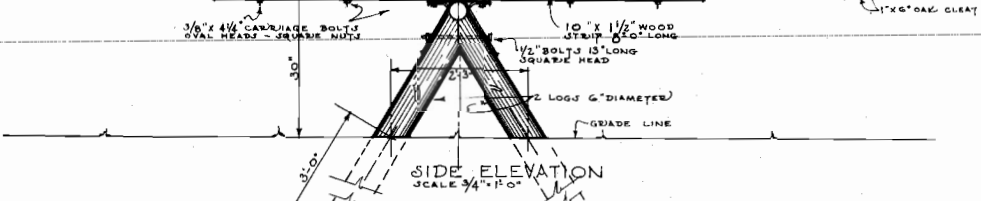
F.S. DETAIL OF METAL STRAP B



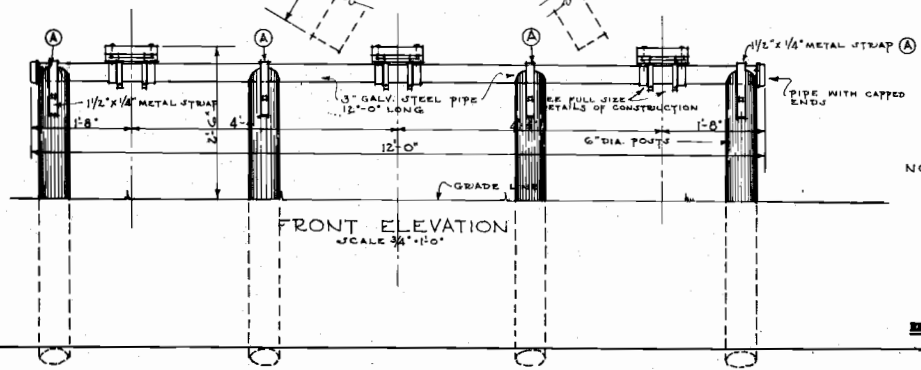
F.S. DETAIL BOARD CONSTRUCTION



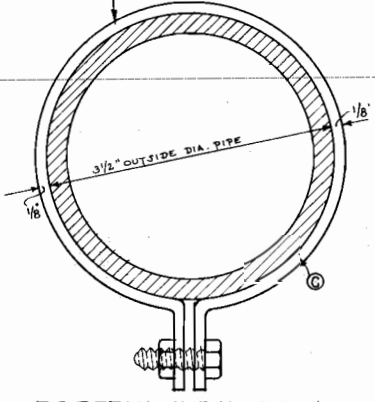
REFLECTED PLAN OF BOARD (UNDER SIDE)  
SCALE 3/4" = 1'-0"



SIDE ELEVATION  
SCALE 3/4" = 1'-0"



FRONT ELEVATION  
SCALE 3/4" = 1'-0"



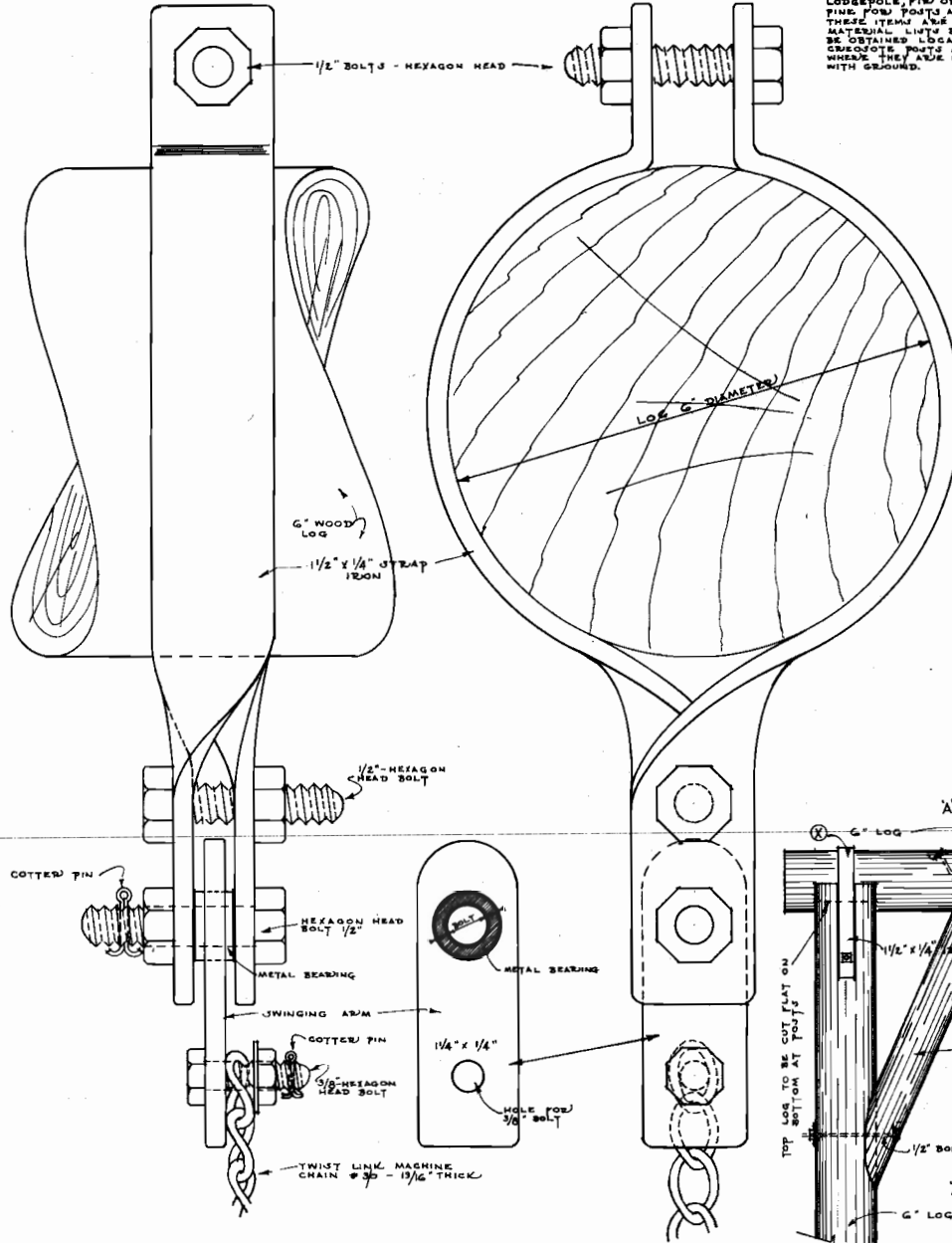
F.S. DETAIL METAL COLLAR C

NOTE:  
USE LOCAL WELL SEASONED  
LORDEPOLE, F1R OR J YELLOW  
PINE FOR POSTS AND UPRIGHTS.  
THESE ITEMS ARE GIVEN ON  
MATERIAL LISTS BUT ARE TO  
BE OBTAINED LOCALLY.  
CRIBBOTE POSTS AND UPRIGHTS  
WHERE THEY ARE IN CONTACT  
WITH GROUND.

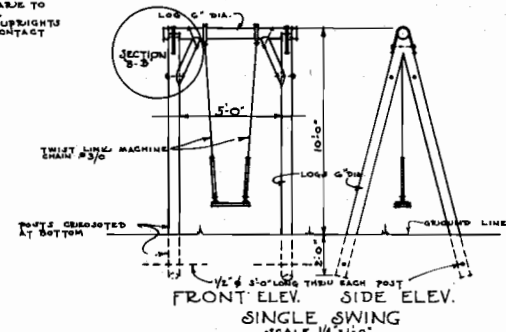
FOREST SERVICE	
PLAYGROUND EQUIPMENT	
SEE-SAW	
PLAN R-4 # 108	
SHEET 1 OF 3	
CHECKED <i>GLW</i>	DATE <i>5/22/35</i>
APPROVED <i>KWC</i>	SCALE <i>AS SHOWN</i>

REVISED JUNE 17, 1935

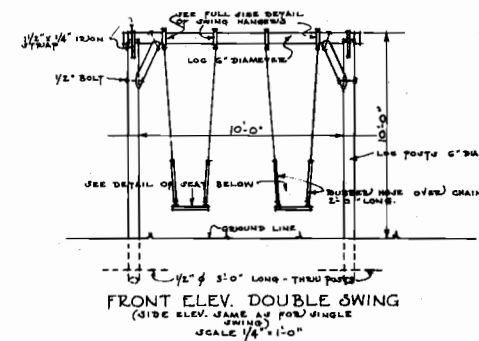
NOTE:  
 USE LOCAL WELL SEASONED  
 LODGEPOLE, FIR OR YELLOW  
 PINE FOR POSTS AND UPRIGHTS.  
 THESE ITEMS ARE GIVEN ON  
 MATERIAL LISTS BUT ARE TO  
 BE OBTAINED LOCALLY.  
 CROCKETE POINTS AND UPRIGHTS  
 WHERE THEY ARE IN CONTACT  
 WITH GROUND.



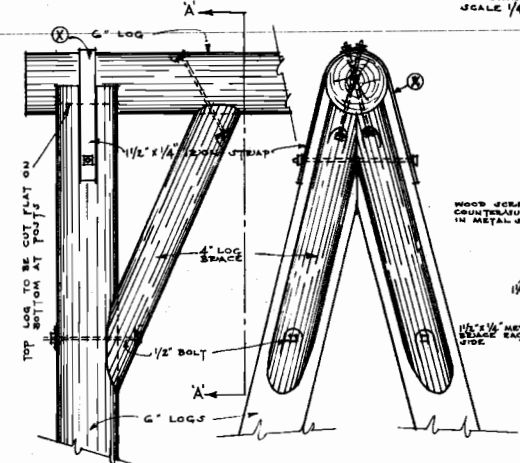
F. S. DETAIL SWING HANGER



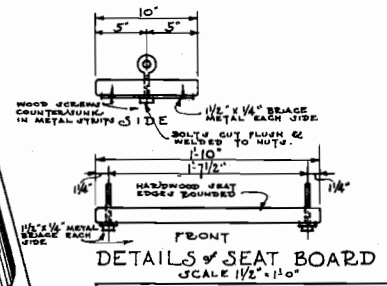
FRONT ELEV. SIDE ELEV.  
 SINGLE SWING  
 SCALE 1/4" = 1'-0"



FRONT ELEV. DOUBLE SWING  
 (SIDE ELEV. SAME AS FOR SINGLE SWING)  
 SCALE 1/4" = 1'-0"



SECTION B-B SCALE 1/2" = 1'-0"  
 SECTION ON LINE 'A-A' SCALE 1/2" = 1'-0"

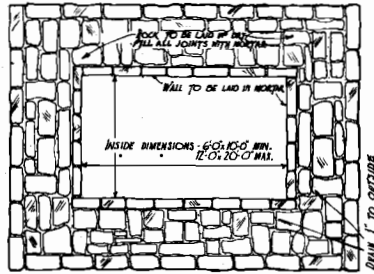
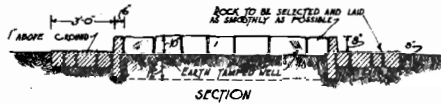


FRONT  
 DETAILS OF SEAT BOARD  
 SCALE 1/2" = 1'-0"

FOREST SERVICE	
<b>PLAYGROUND SWING</b>	
PLAN R-4 # 10B	SHEET 2 OF 3
CHECKED <i>RLA</i>	DATE <i>8/1/40</i>
APPROVED <i>RLA</i>	SCALE <i>AS SHOWN</i>

ROCK SANDBOX

BILL OF MATERIALS



PLAN  
DETAILS OF ROCK SANDBOX  
SCALE 1/2" = 1'-0"

Item No.	No. of Pcs.	Materials	Purpose
This Material List is for the Sand-box of 6'-0" x 10'-0" dimensions inside and includes the Rock Walk Cement, Sand, Rock, etc.			
1	3 1/2	Cu. Yds. Rock	
2	11	Sacks Portland Cement	
3	11	Sacks Hydrated Lime	
4	1-1/3	Cu. Yds. Sand	

SPECIFICATION

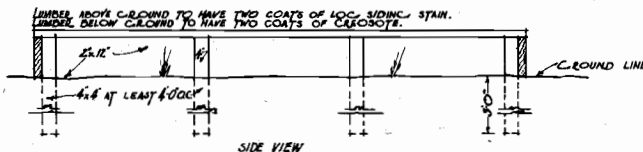
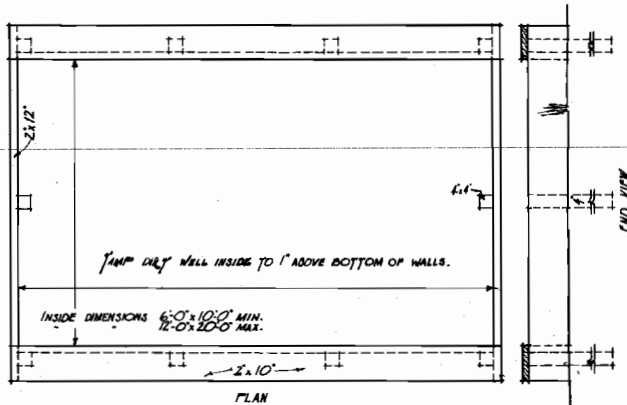
**ROCK WORK:** A capable rock mason should be engaged. The rock will be laid in a mortar made in the following proportions by volume:

- 1 part hydrated lime.
- 1 part Portland cement.
- 4 parts of clean sharp sand.

The mortar will be of a heavy batter consistency, usually requiring 50 to 60 gallons of water per cubic yard of stone work. Estimate 30 to 40% of cubic foundation as mortar.

PLANK SAND BOX

BILL OF MATERIALS



SIDE VIEW  
PLANK SAND BOX  
SCALE 1/2" = 1'-0"

Item No.	No. of Pcs.	Materials	Purpose
This estimate is for a Sand-Box of 6'-0" x 10'-0" dimensions.			
<b>Lumber</b>			
1	2	4" x 4" - 20'-0" (#2 Common Pine or Fir)	Anchor
2	2	2" x 12" - 8'-0" " " " " " "	End Walls
3	2	2" x 12" - 10'-0" " " " " " "	Side Walls
4	1	2" x 10" - 22'-0" " " " " " "	Top Pieces
<b>Paint and Preservative</b>			
(Do not obtain bids on this material. It will be furnished by the Regional Office.)			
5	1 1/2	Gals. Log Siding Stain	For wood above G. L.
6	1	Gal. Creosote	For wood below G. L.
<b>Nails</b>			
7	1 1/2	Pounds 16D Common Nails	

NOTE: IN ERECTING - BE SURE TO PUT SANDBOXES IN SHADE AND WHERE IT IS NOT TO WET.

FOREST SERVICE

**SAND BOXES**

PLAN R-4 #108D-1 SHEET 1 OF 1

CHECKED <i>SLD</i>	DATE <i>1/25/54</i>	SCALE AS SHOWN
APPROVED <i>DP</i>		



**SPECIFICATIONS**

**Flagstone Walk around Pool**

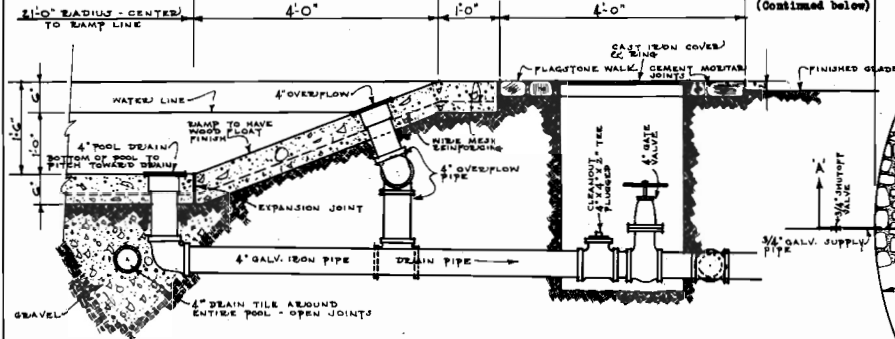
A capable rock mason should be engaged. The rock shall be wet and will be laid in a mortar made in the following proportions by volume:

- 1 part Portland cement
- 3 parts of clean sharp sand

The mortar will be of a heavy batter consistency, usually requiring 50 to 60 gallons of water per cubic yard of rock work. Estimate 30 to 40% of cubic rock work as mortar. Cement mortar that has been partly set up should not be used.

**Bottom and Sides of Pool**

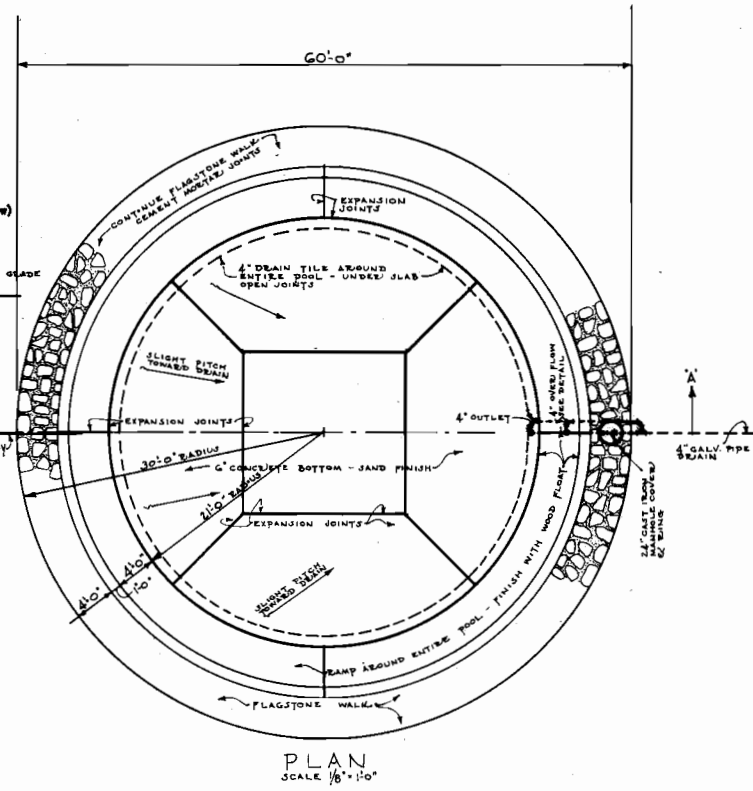
**Very Important:** If the site on which the pool bottom is to be located is poorly drained, it is advisable to run drain tile around same so as to intercept water which might otherwise drain underneath. (Continued below)



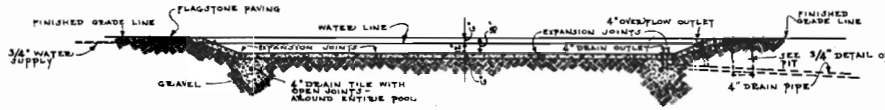
SECTION THRU POOL SHOWING DRAINS  
SCALE 3/4" = 1'-0"

**MATERIAL LIST**

Item #	No. of Pcs.	Material of Labor	Purpose
<b>Sand &amp; Gravel</b>			
1	19	Cubic Yards Sand	Concrete
2	2	" " Sand	Stonework Mortar
3	37	" " Gravel	Concrete
<b>Cement, Etc.</b>			
4	14	Sacks Portland Cement	Stonework Mortar
5	193	" " "	Concrete Work
6	275	Feet Asphalt Expansion Joints, 3/8" x 8"	Joints in Pool
7	400	Sq. Ft. Reinforcing Mesh, (Weight 4 1/2# per 100 sq.ft.)	Reinforcing Concrete slab
<b>Stone</b>			
8	7	Cubic Yards Flagstones	Stone Walk
<b>Plumbing</b>			
9	150	Lineal Ft. Vitrified Tile 4"	
10	1	4" x 4" x 4" Vitrified Tee	
11	1	Fo. 4" Galv. Pipe 10' long, threaded two ends	
12	1	Fo. 4" Galv. Pipe 6'-6" long, threaded two ends	
13	1	Fo. 4" Galv. Pipe 4'-0" long, threaded two ends	
14	1	4" Galv. nipple, 4" long	
15	1	4" x 4" x 2" Tee - 2" outlet capped, C. I.	
16	1	4" Ell, 90°, Galv.	
17	1	4" x 4" x 4" Tee C. I.	
18	1	4" Gate Valve similar to Crane #460	
19	3	4" Angles 90°, C. I.	
20	1	Fo. 4" Galv. Pipe, 4'-7" long, threaded two ends	
21	1	4" x 4" x 4" Tee, C. I.	
22	1	4" Galv. nipple, 8" long	
23	1	" " " 10" long	
24	2	Fo. 4" Galv. Pipe 1'-0" long, threaded two ends	
25	1	4" Galv. I. C. Flange Union	
26	1	4" Galv. nipple, 7" long	
27	2	4" Drains similar to Crane #3640 with brass strainer	
28	1	2 1/2" Cast Iron Ring and Cover	
29	1	3/4" Globe valve, Crane #1 or equal	
30	1	Fo. 3/4" Galv. pipe 10'-0" long, threaded one end	
31	1	Fo. 3/4" Galv. pipe 4'-0" long, threaded two ends	
32	1	3/4" R. R. Union, galv.	



PLAN  
SCALE 1/8" = 1'-0"



SECTION THRU POOL ON CENTER LINE 'A-A'  
SCALE 1/8" = 1'-0"

**SPECIFICATIONS - CONTINUED:**

Such a tile line should be placed about two (2) feet below ground and sloped toward an outlet to insure quick and complete drainage.

One-course construction shall be used. This term indicates that the fill thickness of the pool bottom is placed using the same mixture 1:2:4 of concrete throughout and troweling for surface finish.

Concrete floor work should be rather stiff, requiring some tamping to get it to settle into place. It is deposited in the area to be concreted and worked up and struck off flush with a straight edge, which is worked back and forth over the mass to bring it to the proper level.

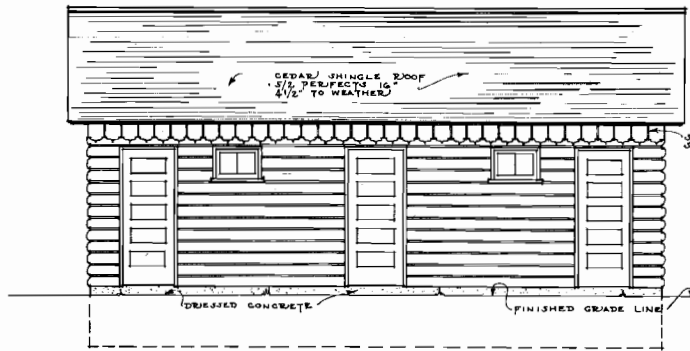
Proper fall or drainage is indicated on plans, Units between expansion joints shall be placed in one operation.

The surface of concrete should not be finished at once but given time in which the concrete can stiffen.

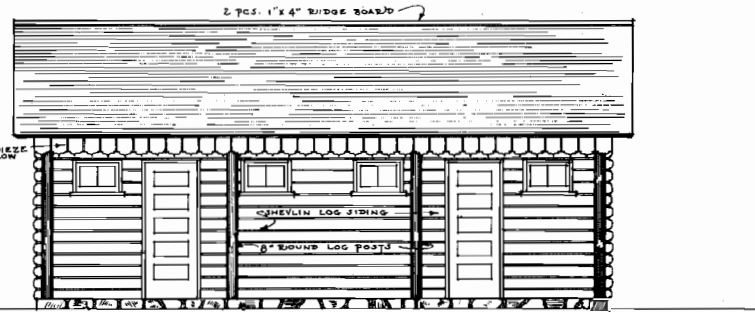
**CAUTION:** Attempts to finish the surface immediately after pouring may cause fine particles to come to the top. This causes a tendency for the finish to check or crack and does not wear well. All surfaces are to be rough texture, sand finished - use only a wood float trowel - no metal trowels will be tolerated on this work.

FOREST SERVICE  
**PLAYGROUND WADING POOL**  
PLAN R-4 #III  
SHEET 1 OF 1

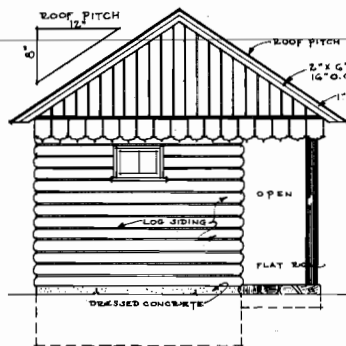
CHECKED	DATE	SCALE
BY: [Signature]	12-24-34	AS SHOWN
APPROVED	BY: [Signature]	



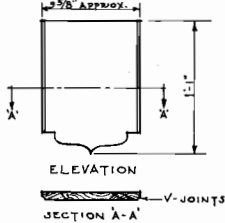
REAR ELEVATION  
SCALE 1/4" = 1'-0"



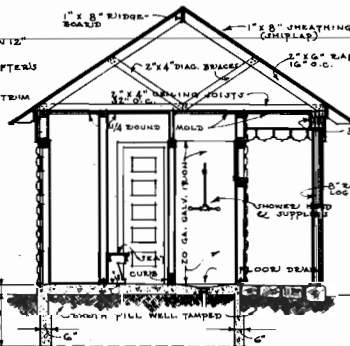
FRONT ELEVATION  
SCALE 1/4" = 1'-0"



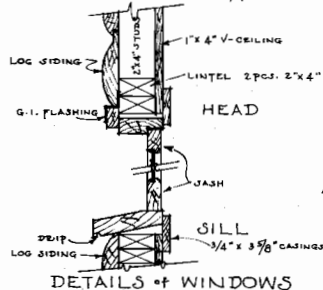
SIDE ELEVATION  
SCALE 1/4" = 1'-0"  
(OPPOSITE END SIMILAR)



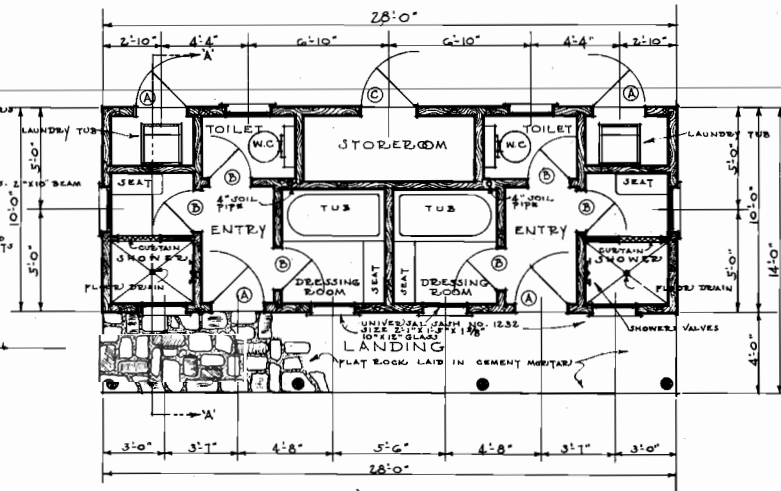
DETAILS OF JAWED  
WOOD FRIEZE  
SCALE 1/2" = 1'-0"



SECTION ON LINE A-A  
SCALE 1/4" = 1'-0"



DETAILS OF WINDOWS



PLAN  
SCALE 1/4" = 1'-0"

DOORS:  
A. 2'-0" x 6'-8" x 1 3/8" UNIVERSAL DESIGN NO. 415  
B. 2'-0" x 6'-8" x 1 3/8" " " " " " "  
C. 2'-0" x 6'-8" x 1 3/8" " " " " " "

FOREST SERVICE	
BATH HOUSE	
PLAN R-4 #112 SHEET 1 OF 3	
CHECKED	DATE
APPROVED	UWS
SCALE	AS SHOWN

Bath House Plans 112, 112 A-1, and 112 A-2.

When natural hot water is not available, plans 112 and 112 A-2 should be equipped with a chimney and all three should be provided with water heater and tank. A supplemental sheet showing the proper location of chimney, heater, and tank will be sent you by EM, to be attached to each of above plans.

A Crane & Co. "Rudy" cast iron water heater #85, or equal, should be used. This heater is capable of heating 85 Gallons of water per hour and will cost \$15 to \$16. With this heater, use an extra heavy galvanized range boiler, 20" x 60" of 82 Gal. capacity. These will cost \$30 to \$32 each.

Chimney for Plan 112 will require:

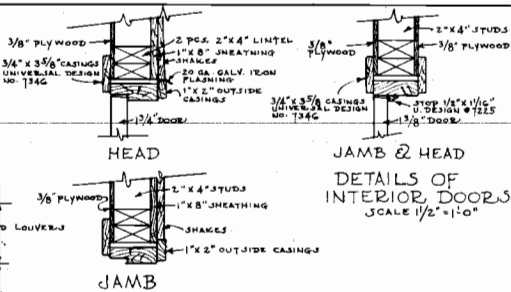
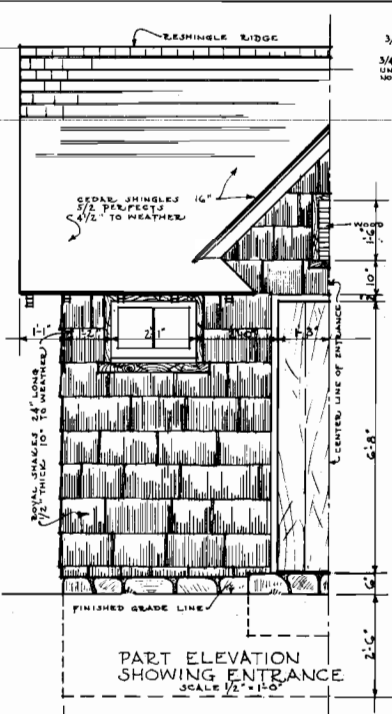
- 10 linear feet  $8\frac{1}{2}$  x  $8\frac{1}{2}$  tile flue liners
- 400 common brick
- $\frac{1}{2}$  cu. yds. sand
- 2 sacks Portland cement
- 1 (50 lb.) sack hydrated lime
- 1 6" metal chimney trundle
- 1 piece asbestos-lined galv. iron 36" x 6'

Chimney for Plan 112 A-2 will require:

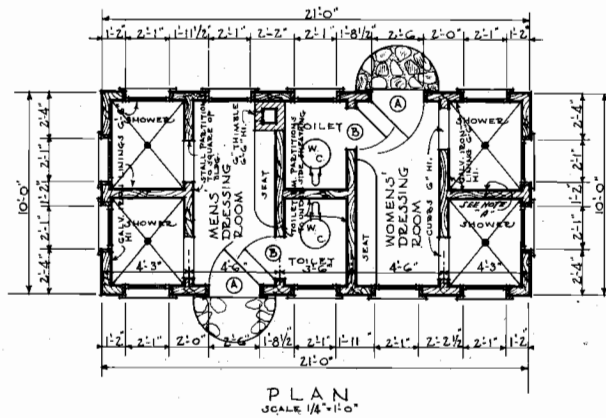
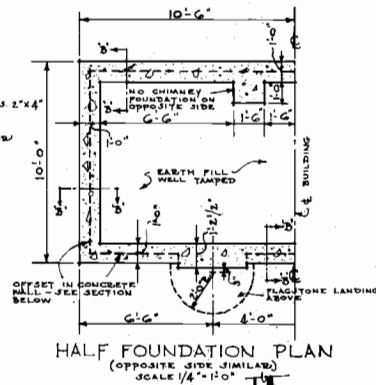
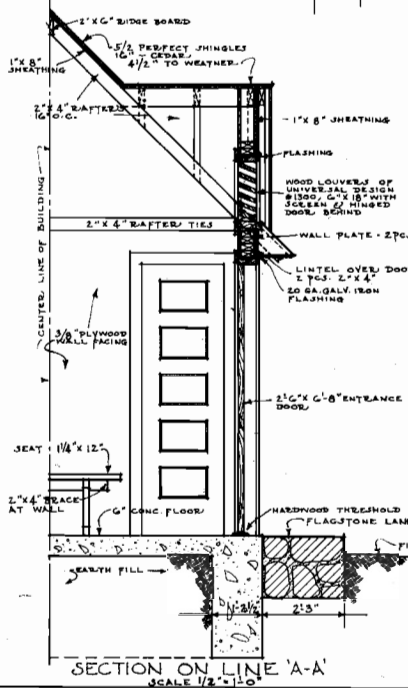
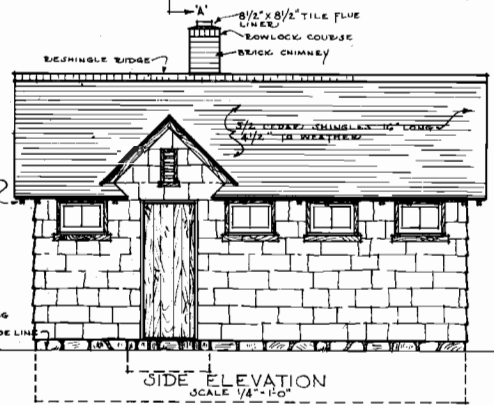
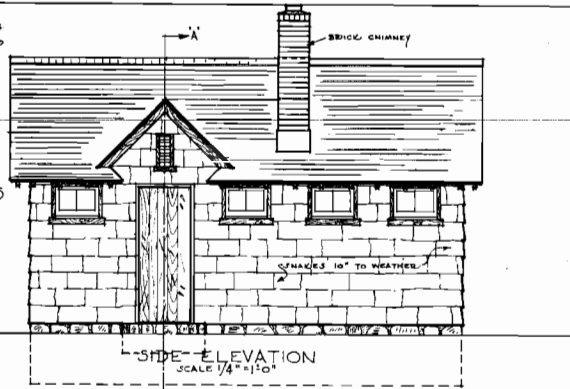
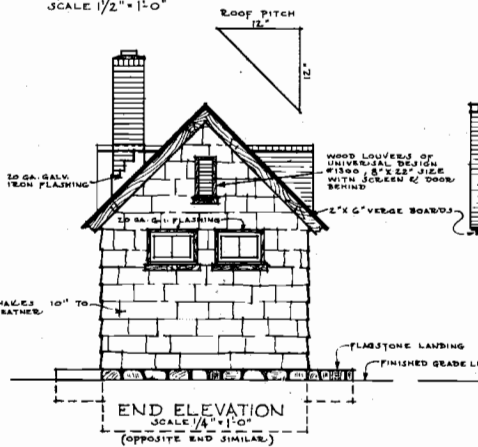
- 12 linear feet  $8\frac{1}{2}$  x  $8\frac{1}{2}$  tile flue liners
- 500 common brick
- $\frac{1}{2}$  cu. yds. sand
- 2 sacks Portland cement
- 1 (50 lb.) sack hydrated lime
- 1 6" metal chimney trundle
- 1 piece asbestos lined galv. iron 36" x 6'

Costs - Materials exclusive of labor

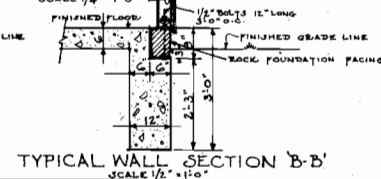
#112 with tank, heater and chimney . . . .	\$ 925.00
#112 A-1 with tank, heater and chimney . . . .	975.00
#112 A-2 with tank, heater and chimney . . . .	1,200.00



DETAILS OF ENTRANCE DOOR FRAMES  
SCALE 1/2" = 1'-0"

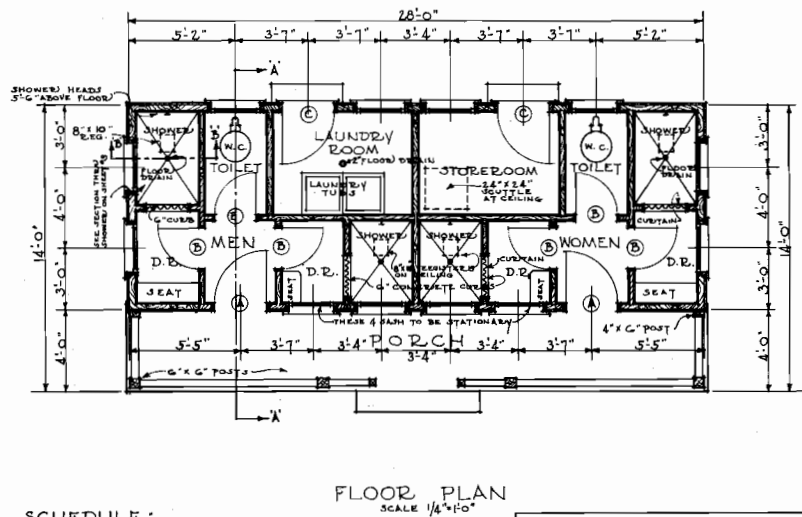
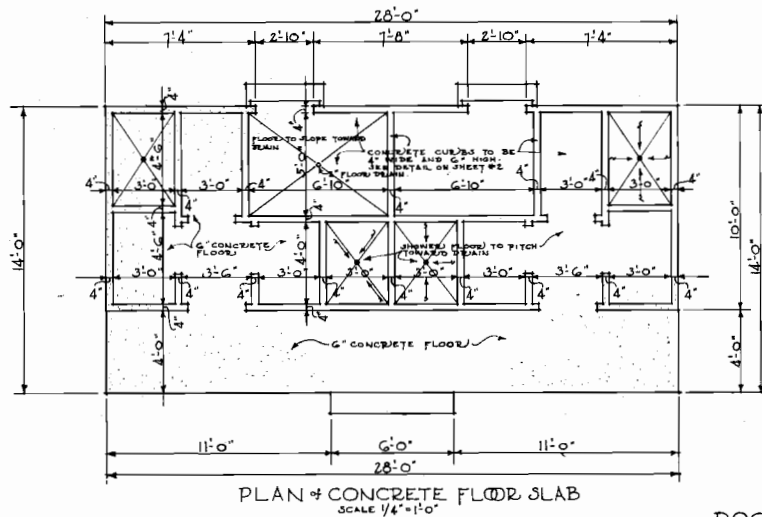
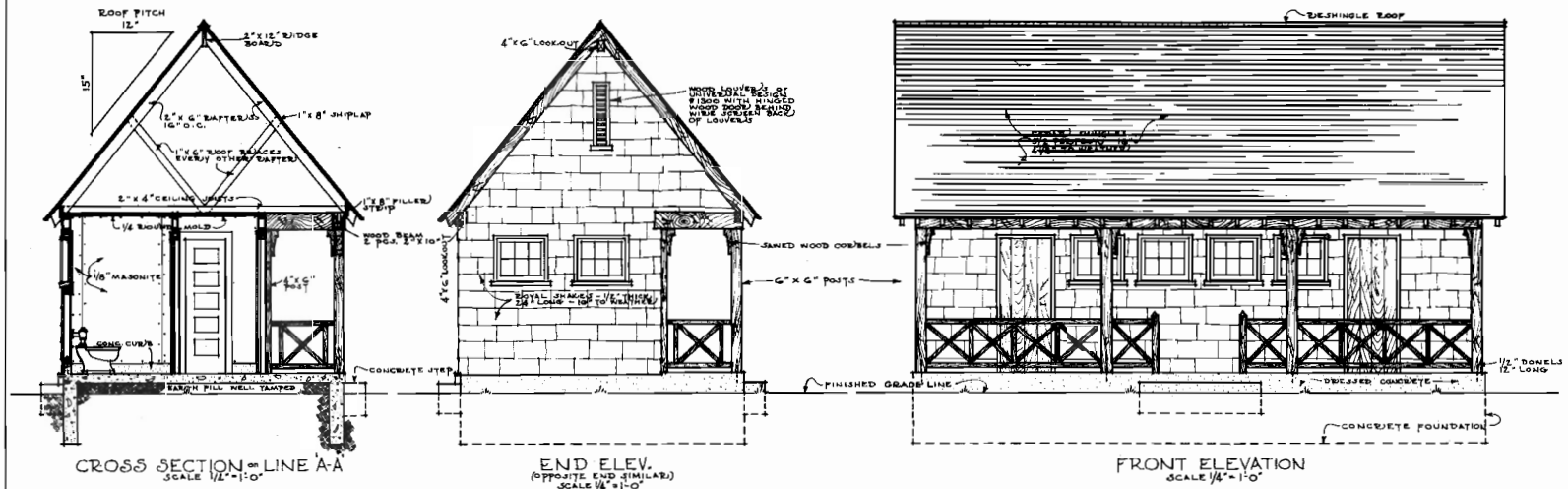


NOTE: "A" - SHOWER HEADS SHOULD BE INSTALLED WITH IN SHOWER STALLS -



**DOOR SIZES**  
A - 2'-6" x 6'-8" x 13/8" FIN. OR PINE, 3/8" PLYWOOD FACE OUTSIDE  
B - 2'-0" x 6'-0" x 1 3/8" 6" PANEL 3" FIN. OR PINE, 1/4" DESIG.

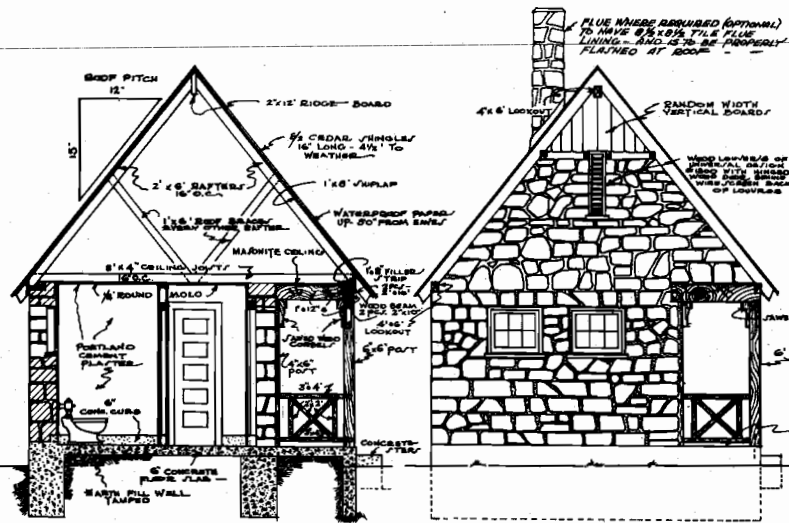
FOREST SERVICE			
<b>BATH HOUSE</b>			
PLAN R-4 #112A-1			
SHEET 1 OF 4			
CHECKED	DATE	SCALE	
APPROVED		AS SHOWN	



**DOOR SCHEDULE:**

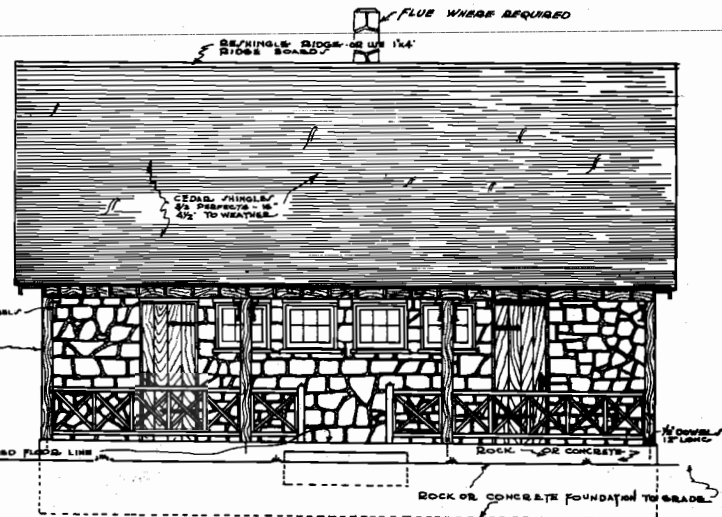
- 2'-0" x 8'-0" x 1 3/8" - 5X PANEL DOORS OF UNIVERSAL DESIGN #475, PIED OAK PINE, WITH 3/8" PANEL GLUED OVER OUTSIDE FACE WITH WATERPROOF GLUE. VERTICAL V-JOINTS CUT IN PANEL AT RANDOM WIDTHS.
- 2'-0" x 6'-8" x 1 3/8" - 5X PANEL DOORS OF UNIVERSAL DESIGN #475, PIED OAK PINE.
- 2'-0" x 6'-8" x 1 3/4" - 5X PANEL DOORS OF UNIVERSAL DESIGN #475, PIED OAK PINE.

FOREST SERVICE	
<b>SHOWER BATH HOUSE</b>	
PLAN R-4 * 112A-2	
SHEET 1 OF 5	
CHECKED <i>GLN</i>	DATE <i>4-2-37</i>
APPROVED <i>EP</i>	SCALE AS SHOWN

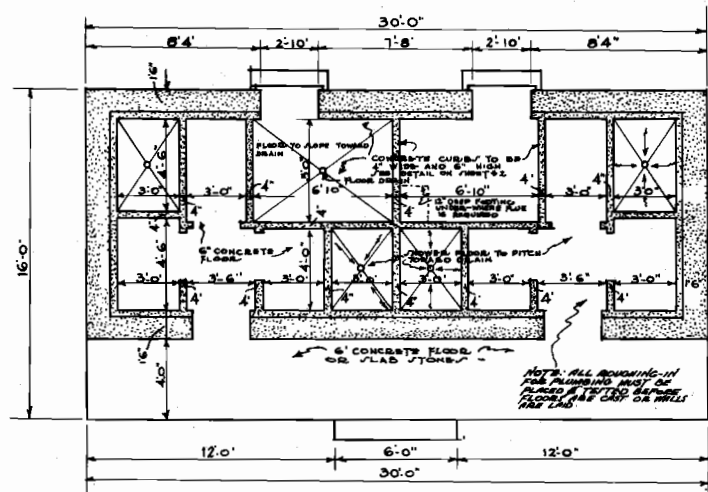


CROSS SECTION - LINE A-A  
SCALE 1/4" = 1'-0"

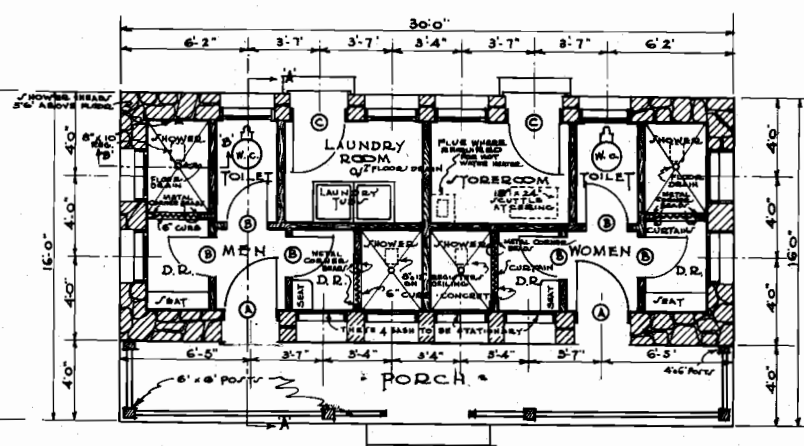
END ELEV.  
(OPPOSITE END SIMILAR.)  
SCALE 1/4" = 1'-0"



FRONT ELEVATION  
SCALE 1/4" = 1'-0"



PLAN OF CONCRETE FLOOR SLAB  
SCALE 1/4" = 1'-0"

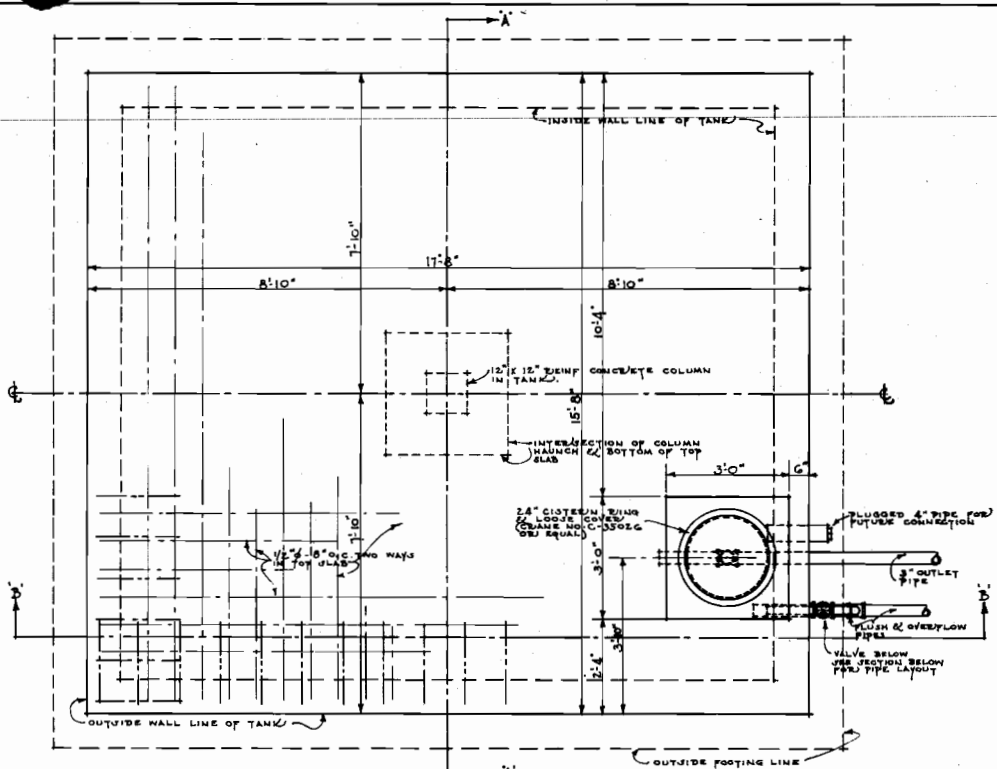


FLOOR PLAN  
SCALE 1/4" = 1'-0"

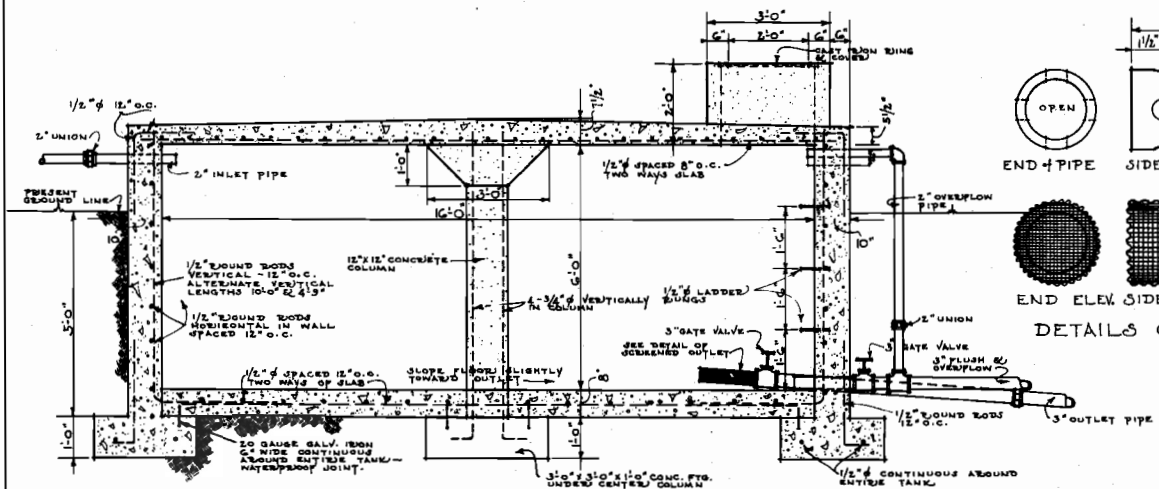
DOOR SCHEDULE:

- (A) 2'-8" x 6'-8" x 1 3/4" - 5X PANEL DOOR OF UNIVERSAL DESIGN #475, FIR OR PINE WITH 3/8" PANEL GLASS OVER OUTSIDE FACE WITH WATERPROOF GLUE. VERTICAL J-TYPE CUT IN PANEL AT RANDOM WIDTH.
- (B) 2'-0" x 6'-6" x 1 3/4" - 3X PANEL DOOR OF UNIVERSAL DESIGN #475, FIR OR PINE.
- (C) 2'-8" x 6'-8" x 1 3/4" - 5X PANEL DOOR OF UNIVERSAL DESIGN #475, FIR OR PINE.

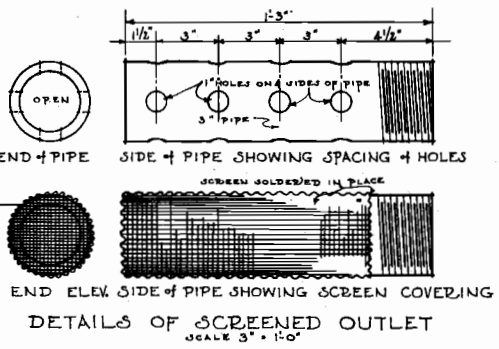
FOREST SERVICE	
<b>SHOWER BATH HOUSE</b>	
PLAN R-4 # 112A-3	
SHEET 1 OF 5	
CHECKED BY	DATE
APPROVED BY	SCALE
	AS SHOWN



TOP PLAN  
SCALE 1/2" = 1'-0"

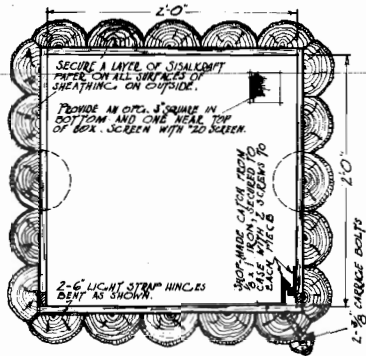


SECTION ON LINE 'B-B'  
SCALE 1/2" = 1'-0"

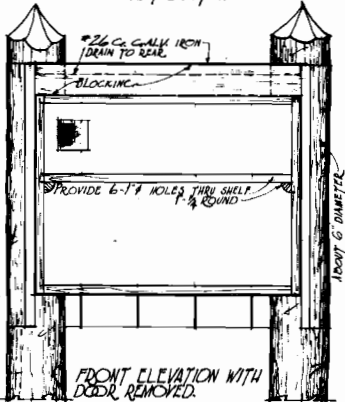


DETAILS OF SCREENED OUTLET  
SCALE 3" = 1'-0"

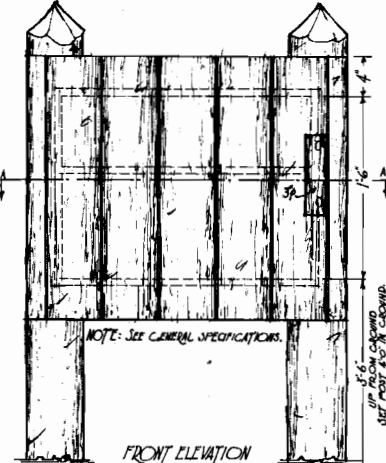
FOREST SERVICE			
WATER STORAGE TANK			
10000 GALLONS			
PLAN R-4 #114		SHEET 1 OF 2	
CHECKED	DATE	SCALE	
APPROVED	5-11-74	AS SHOWN	



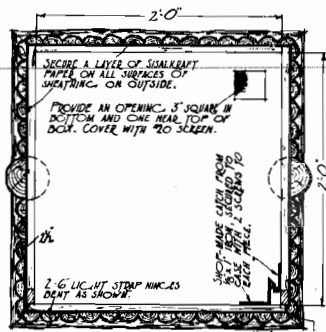
PLAN SECTION AT 'A'



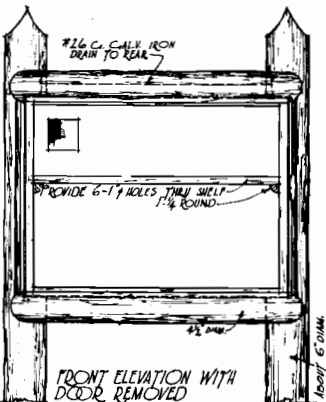
FRONT ELEVATION WITH DOOR REMOVED



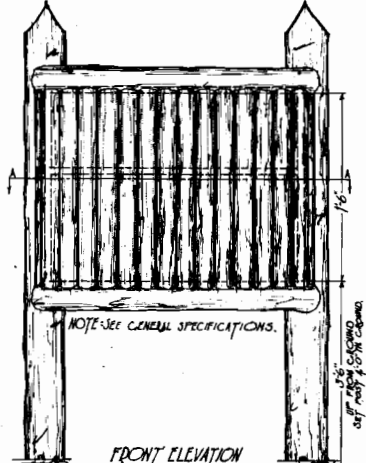
FRONT ELEVATION STYLE 'A' SCALE 1/4"=1'-0"



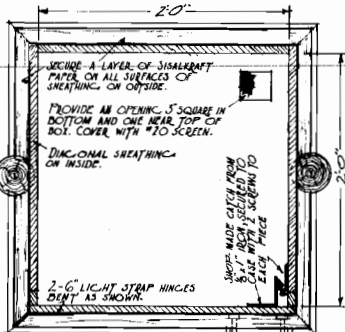
PLAN SECTION AT 'A'



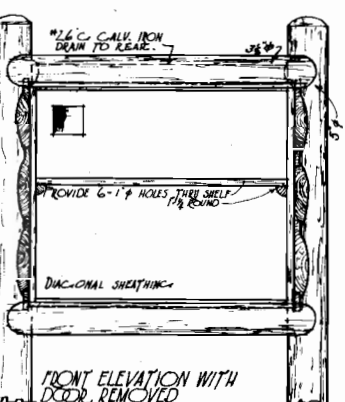
FRONT ELEVATION WITH DOOR REMOVED



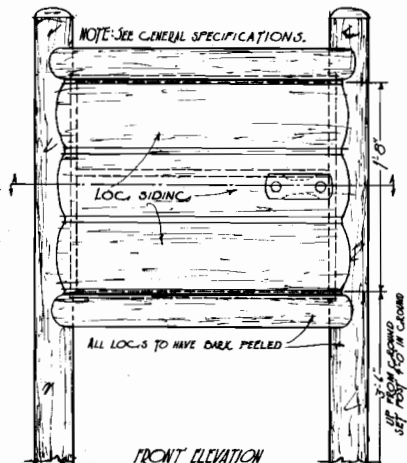
FRONT ELEVATION STYLE 'B' SCALE 1/4"=1'-0"



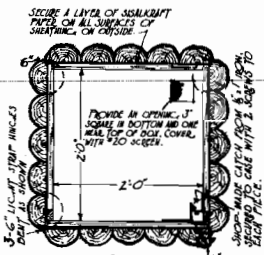
PLAN SECTION AT 'A'



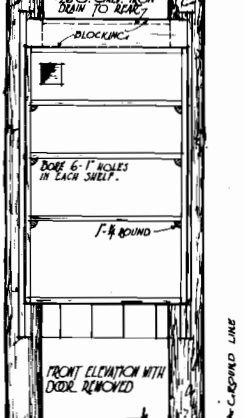
FRONT ELEVATION WITH DOOR REMOVED



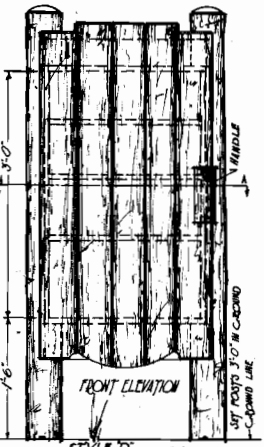
FRONT ELEVATION STYLE 'C' SCALE 1/4"=1'-0"



PLAN SECTION AT 'A'



FRONT ELEVATION WITH DOOR REMOVED

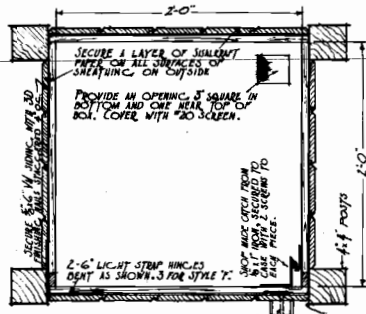


FRONT ELEVATION STYLE 'D' SCALE 1/4"=1'-0"

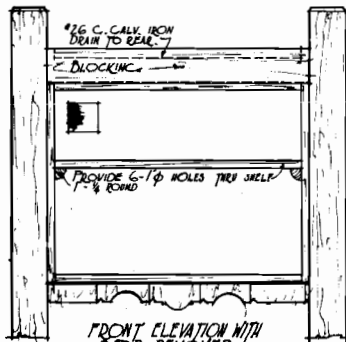
FOREST SERVICE			
<b>CAMP GROUND FOOD BOXES</b>			
PLAN R-4 *110A-1		SHEET 1 OF 3	
CHECKED	DATE	SCALE	
AS SHOWN	3-6-30	AS SHOWN	
APPROVED	DATE	SCALE	
DP	3-7-32	AS SHOWN	



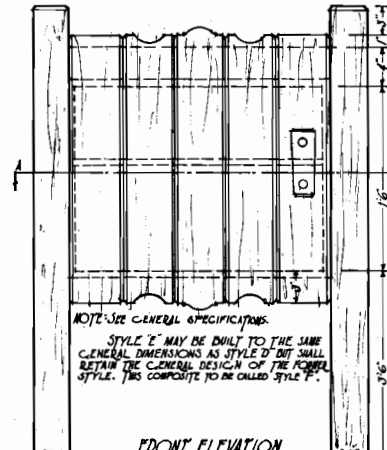
**BILL OF MATERIALS**



PLAN SECTION AT A A 2-6" x 3" CARRIAGE BOLTS



FRONT ELEVATION WITH DOOR REMOVED



FRONT ELEVATION STYLE E SCALE 1/2"=1'-0"

Item No. of	Qty.	Materials	Purpose
<b>Style "A"</b>			
<b>NOTE:</b> Please note in Bills of Materials that some native materials are listed - do not buy these.			
<b>Lumber</b>			
1	3	1" x 8" - 14'-0" long #2 common pine or fir	Box form and blocking
2	2	6" legs - 10'-0" long	Supports
3	9	6" legs - 2'-0" long	Log slabs
4	1	1" 1/4 round 4'-0" long	Shelf supports
<b>Insulation</b>			
5	21	Square ft. Siskraft's building paper	Secured to outside of sheathing
<b>Metal</b>			
6	2	3/8" x 3" carriage bolts, mts. & washers	To bolt door pull to door
7	2	1lb. 7D Common Nails (galv.)	Bailing box & slabs
8	1	Small box #6 cut carpet tacks	Securing Siskraft to sheathing
9	1	Pc. 1/8" x 1" iron 1'-4" long	Door catch
10	4	1-1/2" round head wood screws	Securing catch to wood
11	2	6" light strap hinges and screws (wrot steel)	For door
12	2	Pos. 4" x 4" - 20 mesh copper screen	Vents
13	1	Pc. #26 gauge galv. iron 3'-0" x 3'-0"	Roofing
14	1/8	1b. galv. roofing nails	To secure roofing
15	1/8	1b. solder	Galv. iron joints
<b>Paint and Preservative</b>			
<b>NOTE:</b> Do not obtain bids on the following - to be furnished by Regional Office			
16	1/2	Gal. leg siding stain	Wood above ground
17	1	Qt. creosote	Wood below ground

Item No. of	Qty.	Materials	Purpose
<b>Style "B"</b>			
<b>Lumber</b>			
1	3	1" x 8" - 14'-0" long #2 common pine or fir	Box form and blocking
2	2	6" legs - 10'-0" long	Supports
3	8	4-1/2" legs - 2'-0" long	For bottom & top of slab ends
4	26	2-1/2" legs - 1'-0" long	Log slabs
5	1	1" quarter round 4'-0" long	Shelf supports
<b>Insulation</b>			
6	21	Sq. ft. Siskraft's building paper	Secured to outside of sheathing
<b>Metal</b>			
7	1	1b. 7D Common Nails (galv.)	To nail box together and slab ends to box
8	2	1lb. 5D Common Nails (galv.)	To nail small slabs to box
9	1	Small box #6 cut carpet tacks	Securing Siskraft to sheathing
10	1	Pc. 1/8" x 1" iron 1'-4" long	Door catch
11	4	1-1/2" round head wood screws	Securing catch to wood
12	2	6" light strap hinges and screws (wrot steel)	For door
13	2	Pos. 4" x 4" - 20 mesh copper screen	Vents
14	1	Pc. #26 gauge galv. iron 3'-0" x 3'-0"	Roofing
15	1/8	1b. galv. roofing nails	To secure roofing
16	1/8	1b. solder	Galv. iron joints
<b>Paint and Preservative</b>			
<b>NOTE:</b> Do not obtain bids on the following - to be furnished by Regional Office.			
17	1/2	Gal. leg siding stain	Wood above ground
18	1	Qt. creosote	Wood below ground

Item No. of	Qty.	Materials	Purpose
<b>Style "C"</b>			
<b>Lumber</b>			
1	4	1" x 8" - 12'-0" long #2 Common pine or fir	Box form and blocking
2	1	1" quarter round 4'-0" long	Shelf supports
3	1	4 1/2 ft. 2x Shovlin or equal leg siding #1 Com. Fir	Outside box
4	2	5" peeled legs 10'-0" (net measurements)	Supports
5	8	3-1/2" peeled legs 2'-0" (net measurements)	For top and bottom of siding
<b>Insulation</b>			
6	21	Sq. ft. Siskraft's building paper	Secured to outside of sheathing
<b>Metal</b>			
7	2	3/8" x 3" carriage bolts, mts. & washers	Bolting knob to door
8	1 1/2	1lb. 6D Common Nails (galv.)	Box and siding
9	1 1/4	1b. 5D "	For corners of 3/4" pes.
10	1	Small box #6 cut carpet tacks	Securing Siskraft to sheathing
11	1	Pc. 1/8" x 1" iron 1'-4" long	Door catch
12	4	1-1/2" round head wood screws	Securing catch to wood
13	2	6" light strap hinges and screws (wrot steel)	For door
14	2	Pos. 4" x 4" - 20 mesh copper screen	Vent
15	1	Pc. #26 gauge galv. iron 3'-0" x 3'-0"	Roofing
16	1/8	1b. galv. roofing nails	To secure roofing
17	1/8	1b. solder	Galv. iron joints
<b>Paint &amp; Preservative</b> (Do not obtain bids on the following - to be furnished by Regional Office)			
18	1/2	Gal. leg siding stain	Wood above ground
19	1	Qt. creosote	Wood below ground

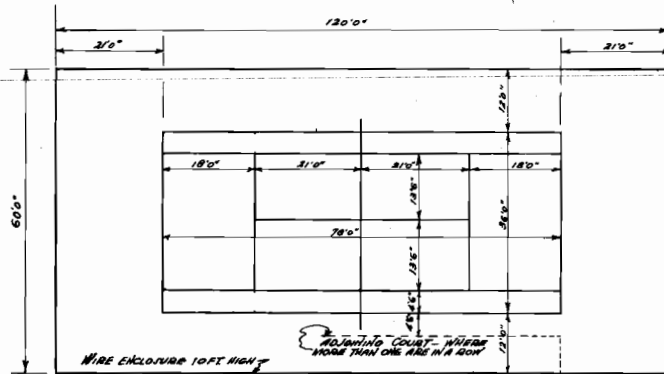
**GENERAL SPECIFICATIONS**

Legs to be cut in the dormant season and to be well seasoned, Leg slabs to be secured to sheathing box by suitable sized nails staggered 4" o.c. Style D and F may have nails for this purpose spaced 6" o.c.  
Where siding is nailed from the outside, nails are to be set and heads putted over.  
Sheathing to be 1" x 8".  
Nail small piece of 1" stuff as shown for door to fit tightly against.  
Wood above ground line to have 2 coats of leg siding stain.  
Wood below ground line to be treated with creosote.  
Top screen on each type to be secured between sheathing and leg slabs.  
Galv. iron roof to be flashed over top of wood at least 1".  
Lee side to extend 1" over furthest projection and to be bent back 1-1/2".  
All work to be finished in a neat manner.

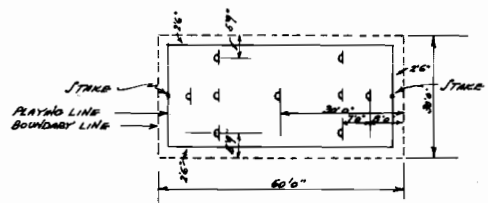
**BILL OF MATERIALS**

Item No. of	Qty.	Materials	Purpose
<b>Style "D"</b>			
<b>Lumber</b>			
1	4	6" legs 8'-3" long	Supports
2	6	6" legs 4'-0" long	Log slabs
3	2	6" legs 4'-3" long	Log slabs
4	9	1" x 8" - 10'-0". #2 Common Pine or Fir	Box form and blocking
5	1	1" quarter round 12'-0" long	Shelf supports
<b>Insulation</b>			
6	34	Sq. ft. Siskraft's building paper	Secured to outside of sheathing
<b>Metal</b>			
7	2	1/4" x 3" carriage bolts, mts. & washers	Bolting knob to door
8	2 1/2	1lb. 7D Common nails (galv.)	Box & slabs
9	1	Small box #6 cut carpet tacks	Securing Siskraft to sheathing
10	1	Pc. 1/8" x 1" iron 1'-4" long	Door catch
11	4	1-1/2" round head wood screws	Securing catch to wood
12	3	6" light strap hinges and screws (wrot steel)	For door
13	2	Pos. 4" x 4" - 20 mesh copper screen	Vents
14	1	Pc. #26 gauge galv. iron 3'-0" x 3'-0"	Roofing
15	1/8	1b. galv. roofing nails	To secure roofing
16	1/8	1b. solder	Galv. iron joints
<b>Paint and Preservative</b>			
<b>NOTE:</b> Do not obtain bids on the following - to be furnished by Regional Office.			
17	1	Gal. leg siding stain	Wood above ground
18	1	Qt. creosote	Wood below ground

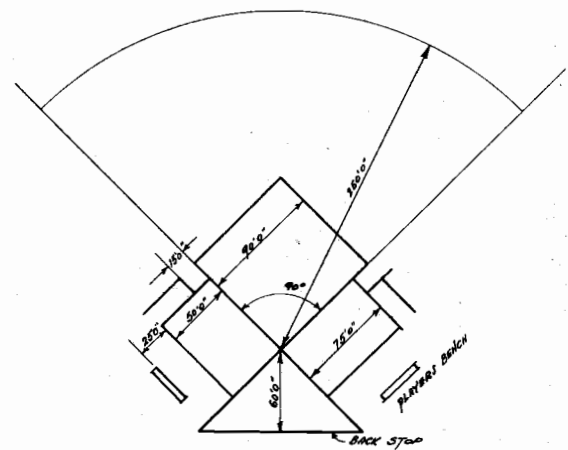
FOREST SERVICE			
<b>CAMP GROUND FOOD BOXES</b>			
PLAN R-4 #116 A-1			
SHEET 2 OF 3			
CHECKED	DATE	SCALE	
APPROVED	BY	AS SHOWN - ALLS.	BILL OF MATERIALS



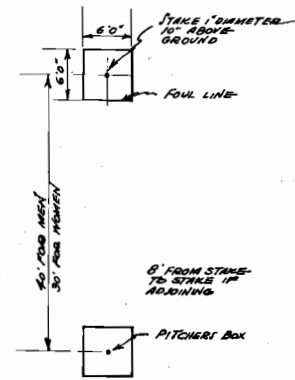
TENNIS COURT -  
SCALE 1/16" = 1 FT.



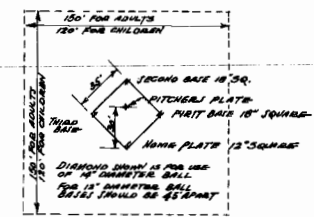
- CROQUET -  
SCALE 1" = 20 FT.



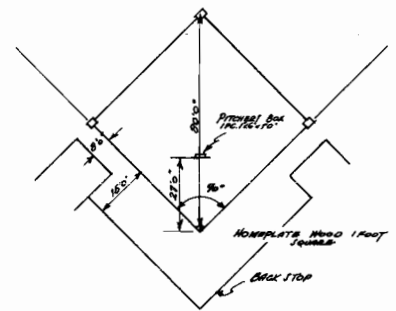
- BASEBALL FIELD -  
SCALE 1" = 60 FT.



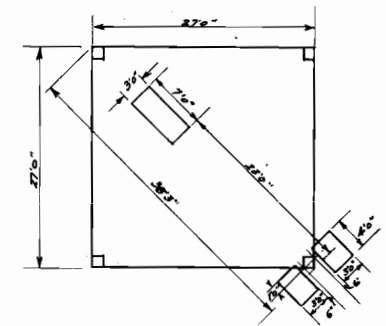
HORSESHOE PITCHING COURT -  
SCALE 1" = 10 FT.



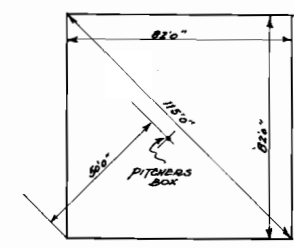
- PLAYGROUND BALL -  
SCALE 1" = 60 FT.



- SOFT BALL -  
SCALE 1" = 30 FT.

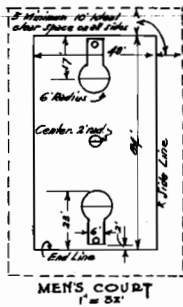


INDOOR BASEBALL -  
SCALE 1" = 10 FT.

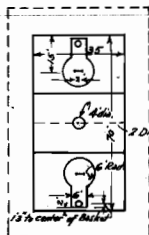


JUNIOR LEAGUE -  
BASEBALL -  
SCALE 1" = 30 FT.

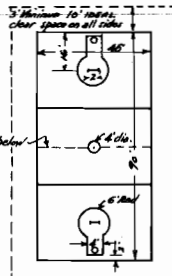
FOREST SERVICE			
PLAYGROUND LAYOUTS			
PLAN R-6 # 122		SHEET 1 OF 2	
CHECKED	DATE	SCALE	
APPROVED	8-20-55	AS SHOWN	



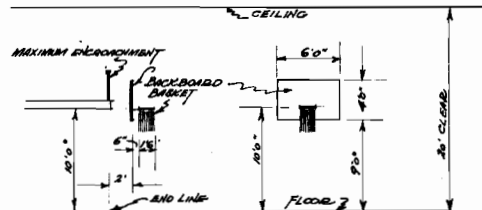
MEN'S COURT  
1" = 32'



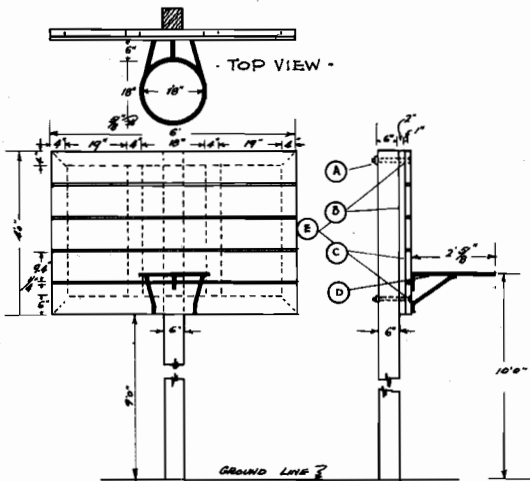
WOMENS COURT  
- HIGH SCHOOL -  
1" = 32'



WOMENS COURT  
COLLEGE  
1" = 32'



SECTION ELEVATION  
SHOWING BASKET & ENCROACHMENTS - SCALE 1/8" = 1 FT.  
- BASKET BALL FOR MEN AND WOMEN -



FRONT VIEW - SIDE VIEW -  
- BASKET BALL GOAL POST -  
- SCALE 1/2" = 10' -

**MEN'S COURTS**  
COLLEGE - 84' x 48'  
IDEAL COURT SIZE - HIGH SCHOOL 75' x 48'  
MINIMUM COURT DIMENSIONS - 60' x 35'  
MAXIMUM COURT DIMENSIONS - 94' x 55'

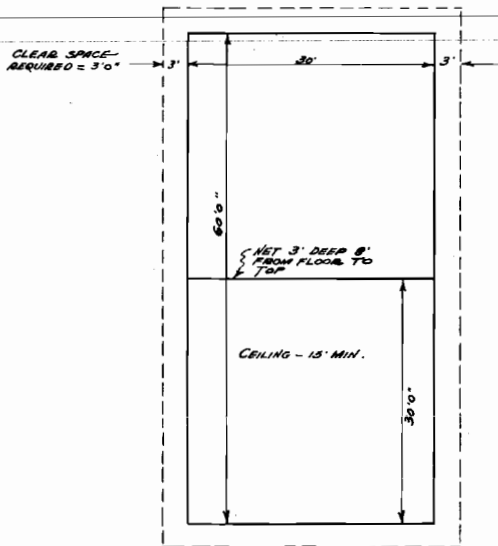
**WOMEN'S COURTS**  
MAXIMUM SIZE - 100' x 50' - 3 DIVISIONS  
MINIMUM SIZE - 60' x 35' - 2 DIVISIONS  
FOR COLLEGE AND HIGH SCHOOL - 15' LEIS  
TRIAN TO LONG - USE 3 DIVISIONS  
FOR HIGH SCHOOL SIZE IF COURT IS  
OVER 60' USE 3 DIVISIONS

**MATERIALS REQUIRED**

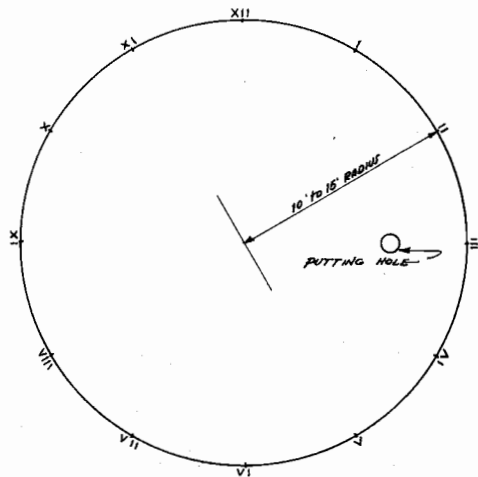
- Fig. 1
- A = posts - 2 - 6" x 6" x 16' - 6"
  - B = frame boards -
    - 2 - 2" x 4" x 6'
    - 4 - 2" x 4" x 4'
    - 2 - 2" x 4" x 3' - 6"
    - 2 - 2" x 4" x 6'
  - C = face boards - 10 - 1" x 9.4" x 6'
  - D = goal rings - 2 - Regulation
  - E = fastener bolts -
    - 4 - 3/4" x 9-1/2" mch. counterbore,
- Lumber Best Grade Pine D. & S.

**CONSTRUCTION NOTES**

- Lumber above ground two coats paint
- Posts under ground creosoted
- Open joint between face boards 1/4"
- Corners and edges slightly beveled
- Face boards fastened with large screws
- Rings fastened with 1/4" carriage bolts
- Use 1/4" x 1" Iron Plates for washers
- 2 heavy large washers each fastener bolt.

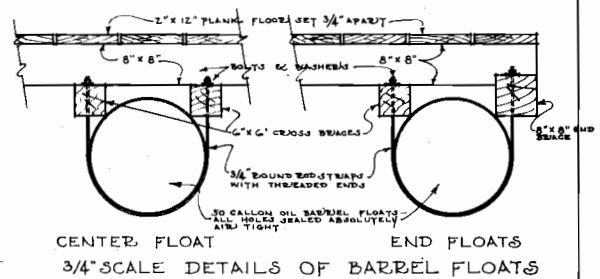
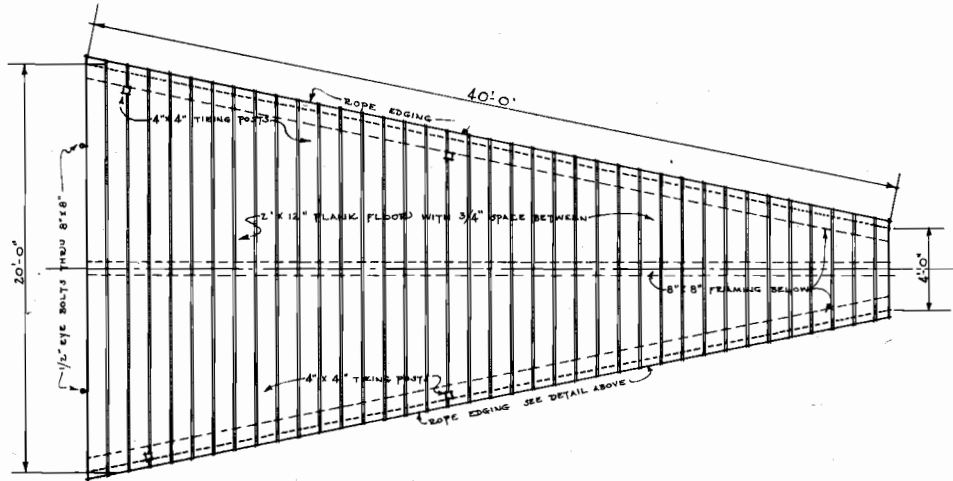
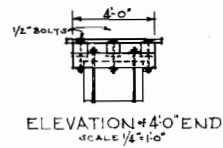
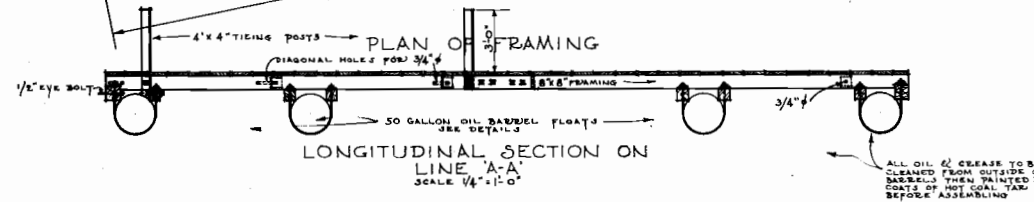
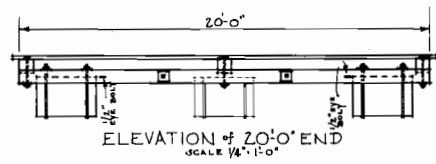
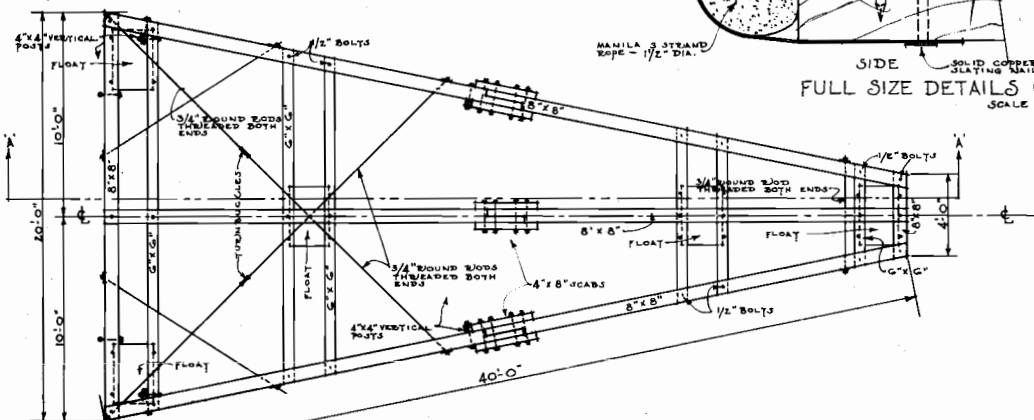
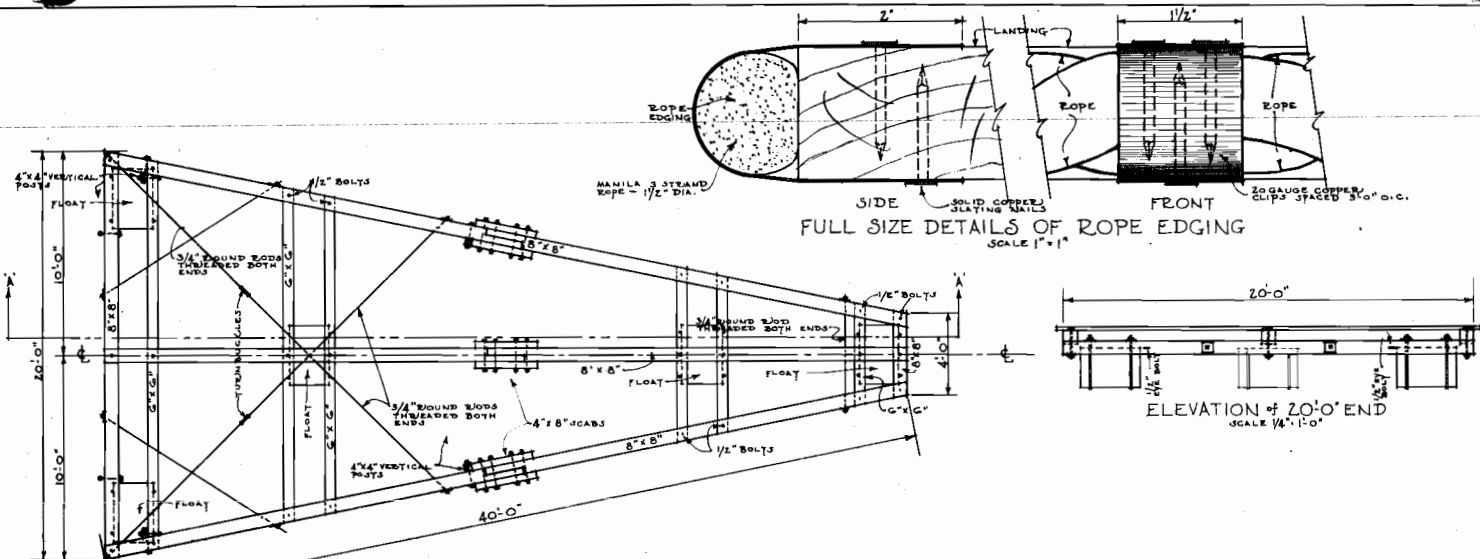


- VOLLEY BALL -  
OUTDOOR COURTS TO BE 60' x 40'  
SCALE - 1" = 10' 0"

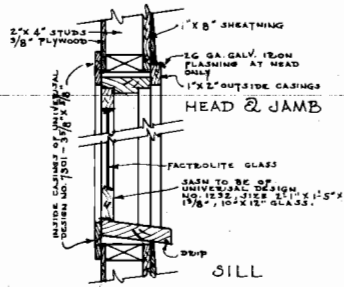


- CLOCK GOLF -

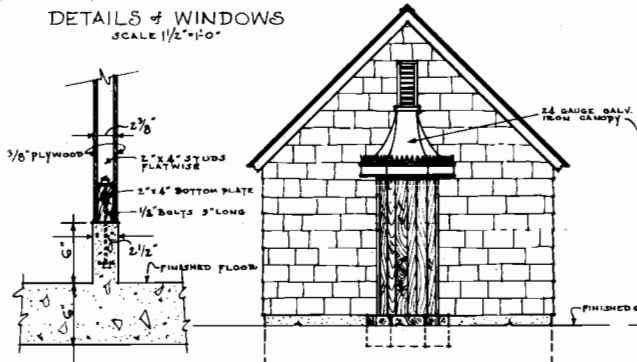
FOREST SERVICE	
<b>PLAYGROUND LAYOUTS</b>	
PLAN R-4 # 122	
SHEET 2 OF 2	
CHECKED <i>ALJ</i>	DATE <i>8-28-50</i>
APPROVED <i>SP</i>	SCALE <i>AS SHOWN</i>



FOREST SERVICE	
PONTON BOAT LANDING	
PLAN R-4 #123 B-1 SHEET 1 OF 2	
CHECKED <i>GLA</i>	DATE <i>3-28-30</i>
APPROVED <i>P.F.</i>	SCALE AS SHOWN

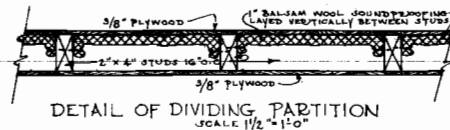


DETAILS of WINDOWS  
SCALE 1/2" = 1'-0"

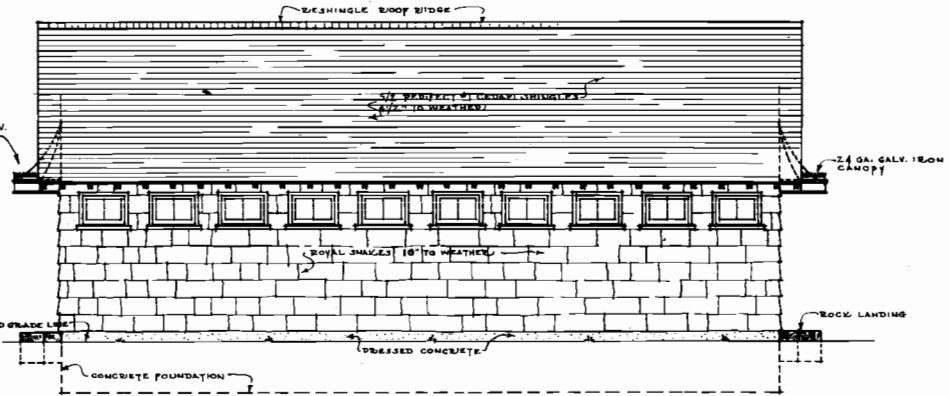


DETAIL of PART'N CURBS  
SCALE 1/2" = 1'-0"

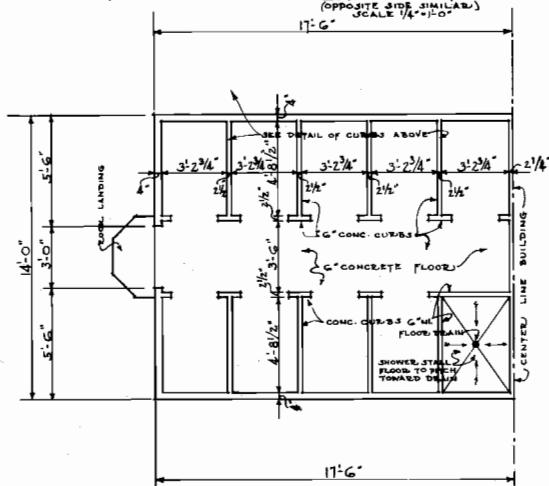
END ELEVATION  
(OPPOSITE SIDE SIMILAR)  
SCALE 1/4" = 1'-0"



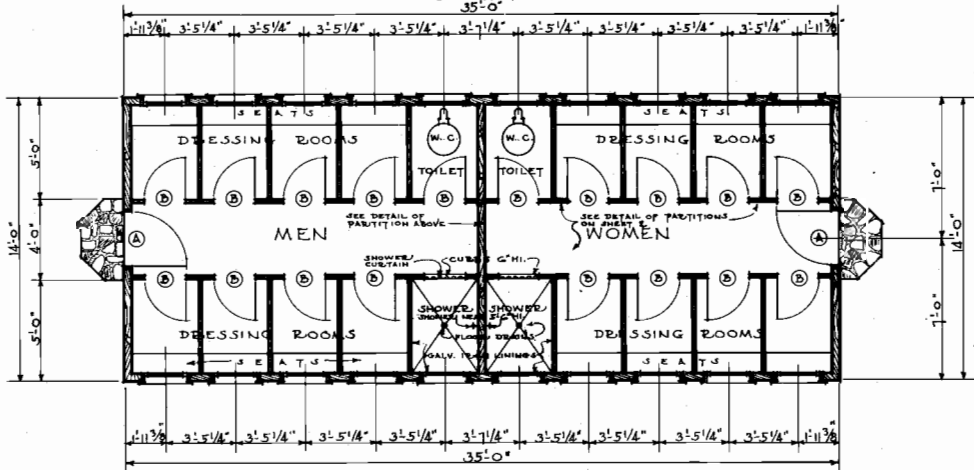
DETAIL OF DIVIDING PARTITION  
SCALE 1/2" = 1'-0"



SIDE ELEVATION  
(OPPOSITE SIDE SIMILAR)  
SCALE 1/4" = 1'-0"



HALF PLAN OF FLOOR  
(SHOWING CONCRETE CURBS)  
(OPPOSITE SIDE SIMILAR)  
SCALE 1/4" = 1'-0"



PLAN  
SCALE 1/4" = 1'-0"

DOOR SIZES:

- (A) 2'-8" x 6'-8" x 1 7/8", 5X PANEL DOOR OF UNIVERSAL DESIGN # 415, WITH 3/8" PANEL OUTSIDE FACING GLUED ON WITH WATERPROOF GLUE - VERTICAL V-MARKS
- (B) 2'-0" x 6'-8" x 1 7/8", 5X PANEL DOOR OF UNIVERSAL DESIGN # 415

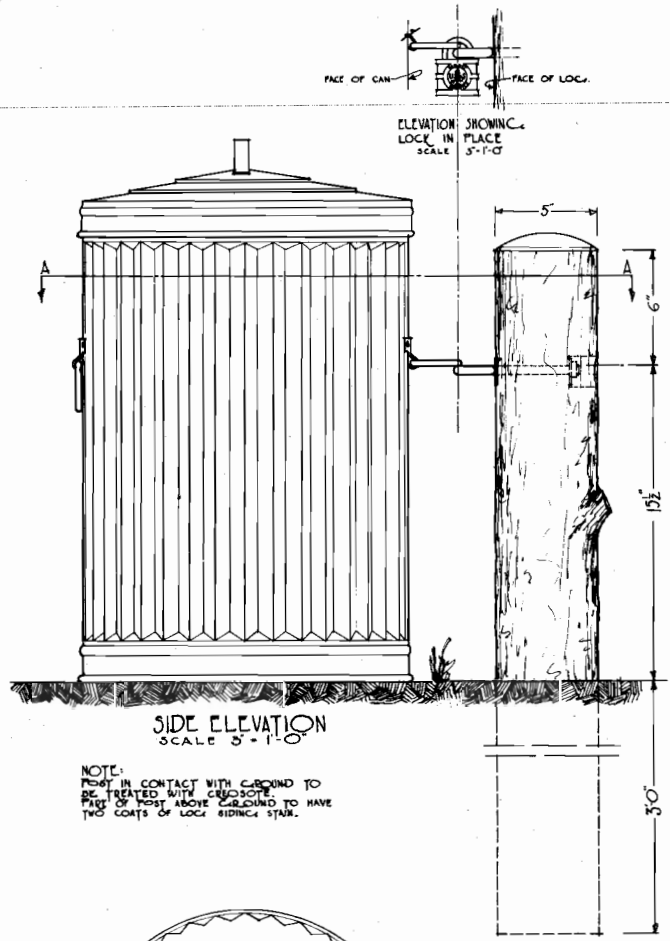
FOREST SERVICE

**DRESSING RM. BLDG.**  
FOR LAKES

PLAN R-4 #124A-1

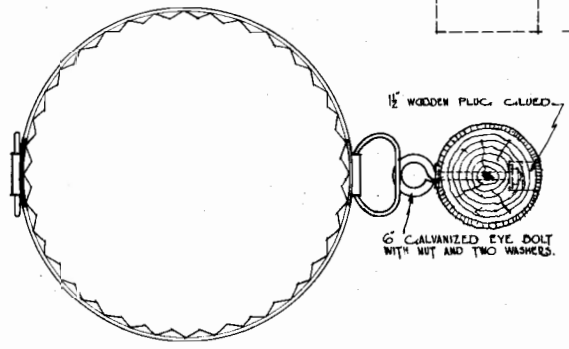
SHEET 1 OF 4

CHECKED	DATE	SCALE
APPROVED		AS SHOWN



SIDE ELEVATION  
SCALE 3"-1'-0"

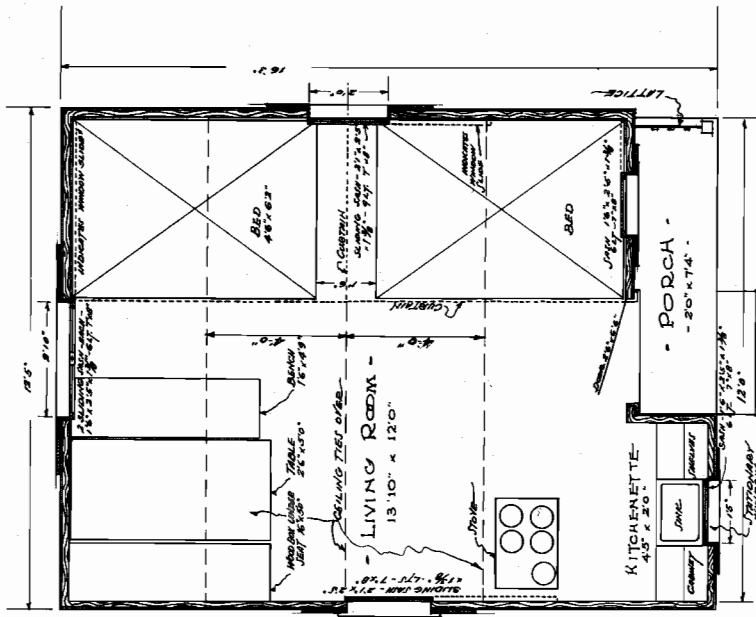
NOTE:  
POST IN CONTACT WITH GROUND TO  
BE TREATED WITH CREOSOTE.  
FACE OF POST ABOVE GROUND TO HAVE  
TWO COATS OF LOCK PILING STAIN.



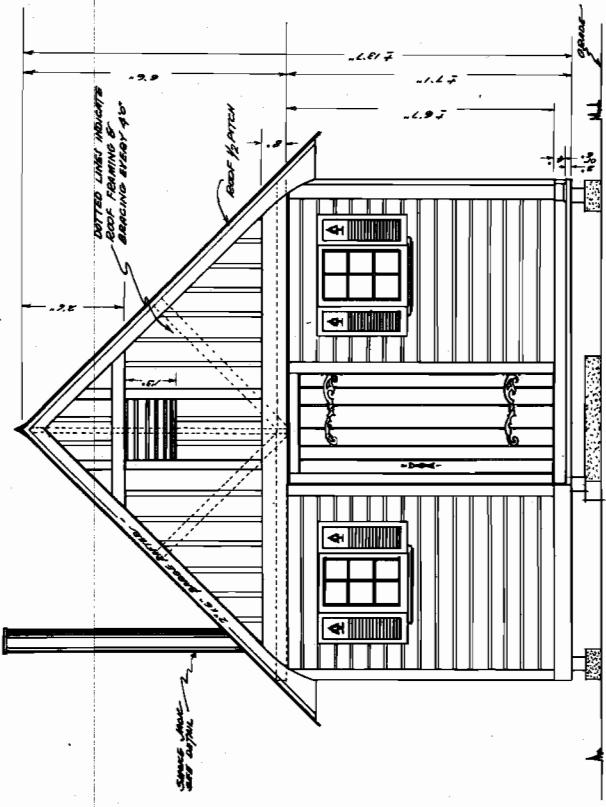
PLAN SECTION AT 'A-A'  
SCALE 3"-1'-0"

FOREST SERVICE			
<b>GARBAGE CAN ANCHORAGE</b>			
PLAN R-4 #125		SHEET 1 OF 1	
CHECKED	DATE	SCALE	
APPROVED		3" = 1'-0"	

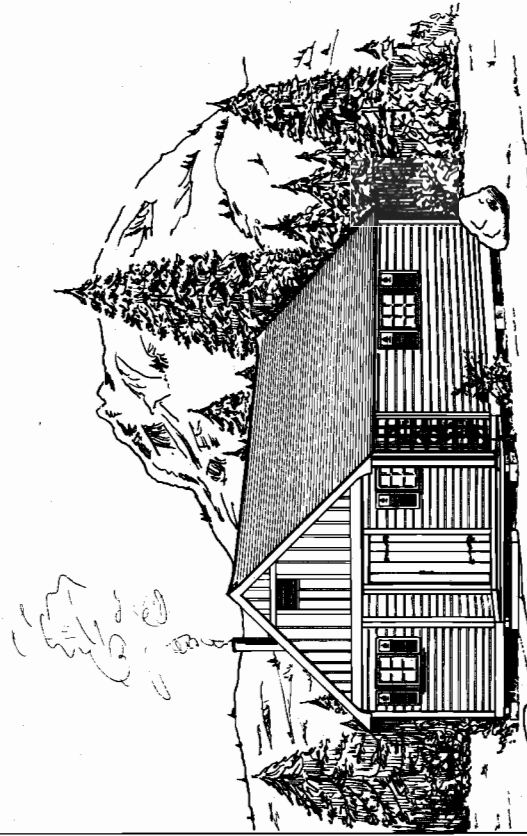
FOREST SERVICE  
**TOURIST CABIN**  
PLAN R-4 \* 133 A-1  
SHEET 1 OF 5  
SCALE  
CHECKED BY: [Signature]  
DATE: [Date]  
APPROVED BY: [Signature]



- FLOOR PLAN -



- FRONT ELEVATION -



- PERSPECTIVE -

DRAWN BY: [Signature] MAY 3, 1935