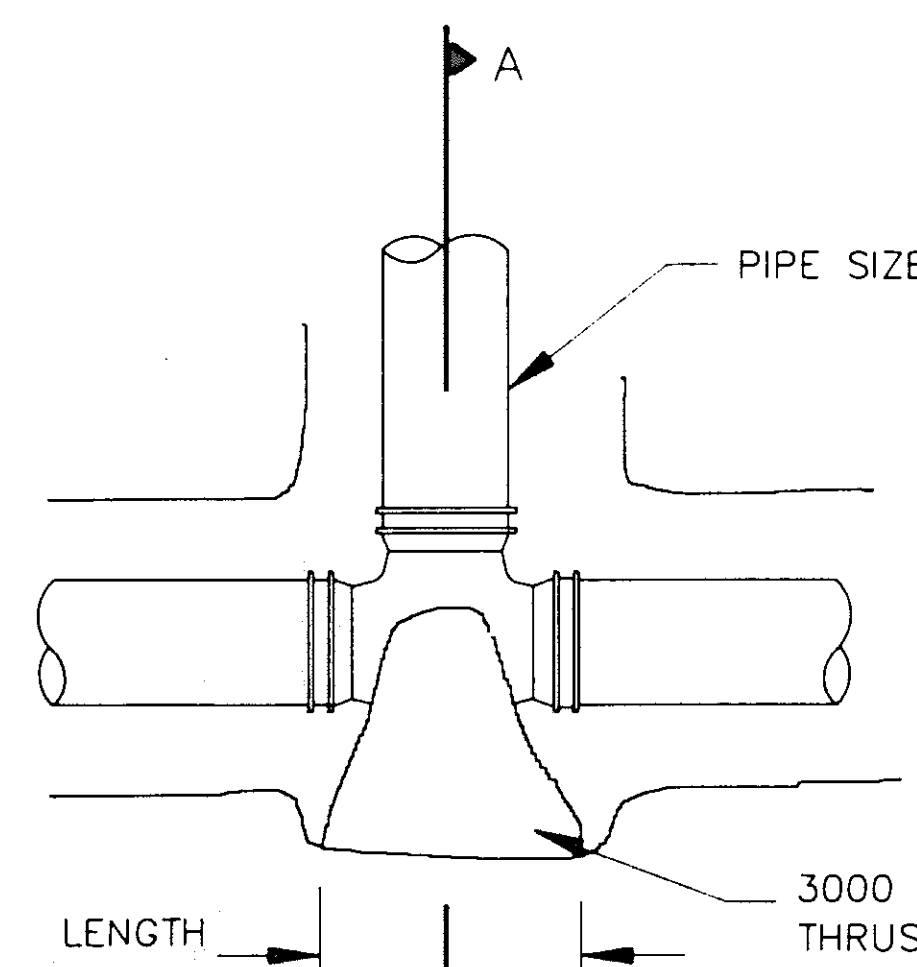


# THRUST BLOCK NOTES

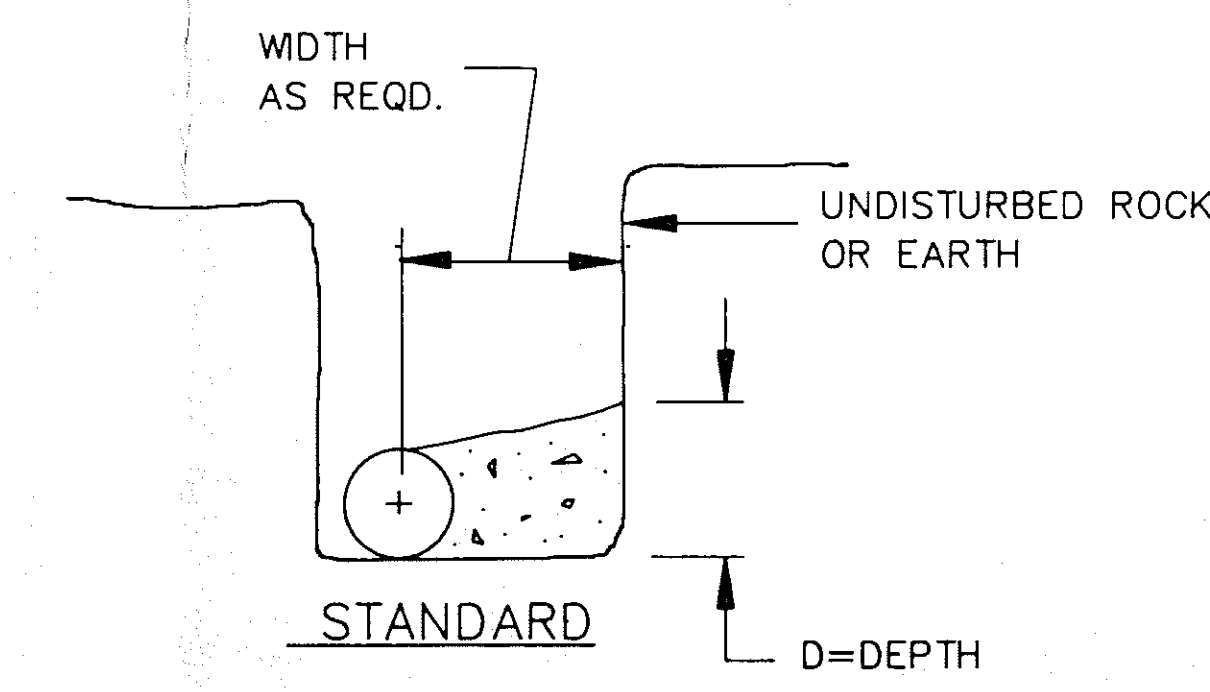
- FOR REQUIRED BEARING AREA DIMENSIONS D & L SEE TABLE AT RIGHT. DIMENSIONS OF D & L OTHER THAN THOSE SHOWN IN THE TABLE MAY BE USED PROVIDED THEY YIELD A BEARING AREA EQUAL TO OR LARGER THAN THAT REQUIRED.
- CONCRETE NOT TO OVERLAP ANY JOINT.
- CONCRETE TO BE PLACED SO AS NOT TO INTERFERE WITH REMOVING OR INSTALLING ANY OF THE JOINTING HARDWARE.
- APPROXIMATE VOLUME OF CONCRETE THRUST BLOCK:  

$$V = \frac{LD(W+D)}{8}$$

WHERE:  
V = VOLUME IN CUBIC YARDS  
L = LENGTH OF BLOCK IN FEET  
D = DEPTH OF BLOCK IN FEET  
W = WIDTH OF BLOCK IN FEET  
D = INSIDE DIAMETER OF PIPE IN FEET
- VALUES FOR TEE ALSO APPLY TO END PLUGS, CAPS, AND TAPPING SLEEVES.
- REQUIRED BEARING AREAS ARE DUE TO THRUSTS CAUSED BY 150 PSI WORKING PRESSURE PLUS 50% (75 PSI) SURGE ALLOWANCE RESULTING IN 225 PSI TOTAL INTERNAL PRESSURE. NORMAL PIPE DIAMETER USED.
- REQUIRED BEARING AREAS ARE BASED ON ALLOWABLE SOIL BEARING CAPACITY OF 2000 LBS PER SQUARE FOOT FOR SAND. DUE TO OTHER SOIL CONDITIONS ENCOUNTERED, BEARING AREAS MAY BE MODIFIED BY THE ENGINEER.
- IN MUCK, PEAT, OR RECENTLY PLACED FILL ALL THRUST SHALL BE RESISTED BY PILES OR TIE RODS TO SOLID FOUNDATIONS, OR BY REMOVAL OF SUCH UNSTABLE MATERIAL AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THE THRUSTS, ALL AS REQUIRED BY THE ENGINEER.



TEE

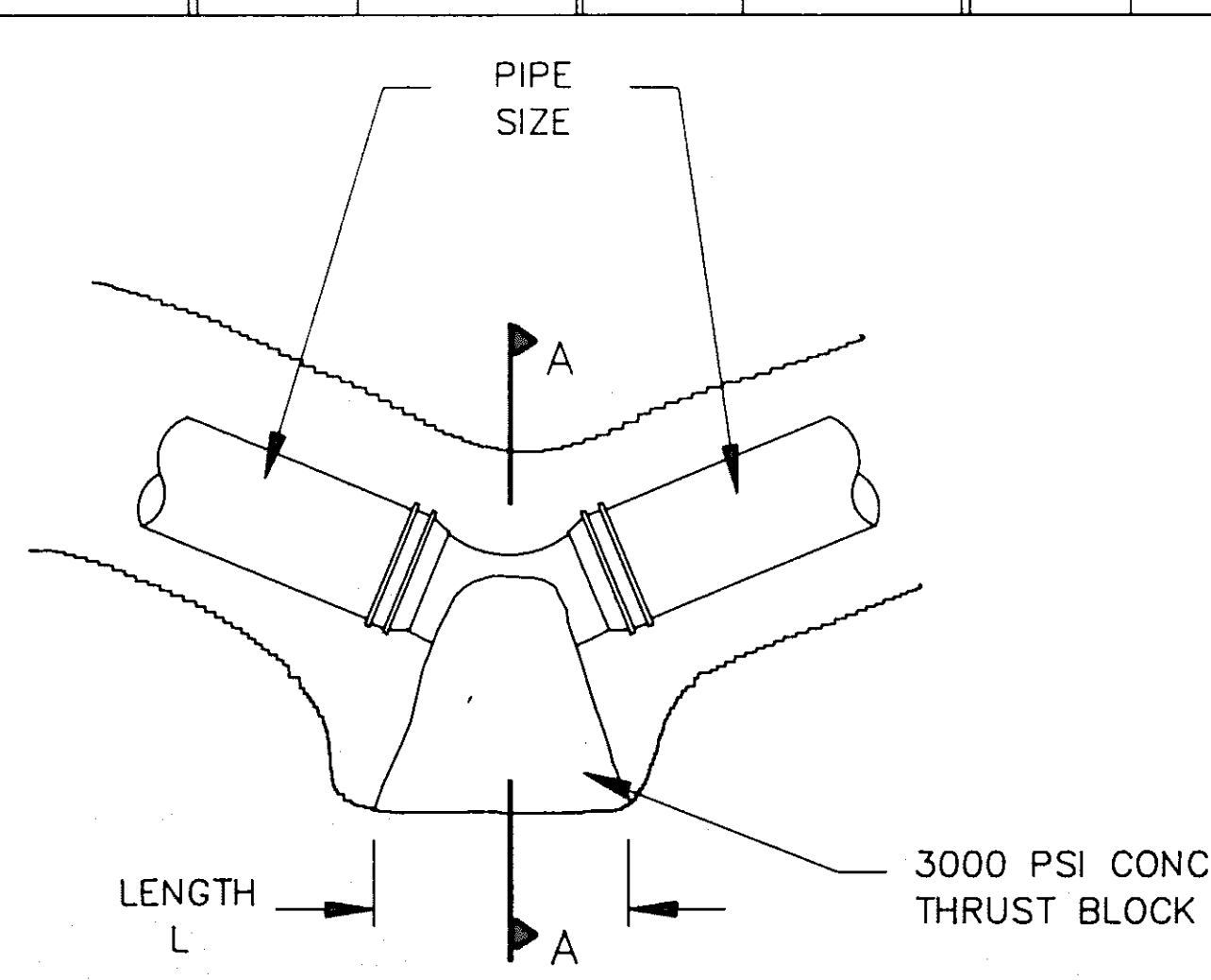


STANDARD

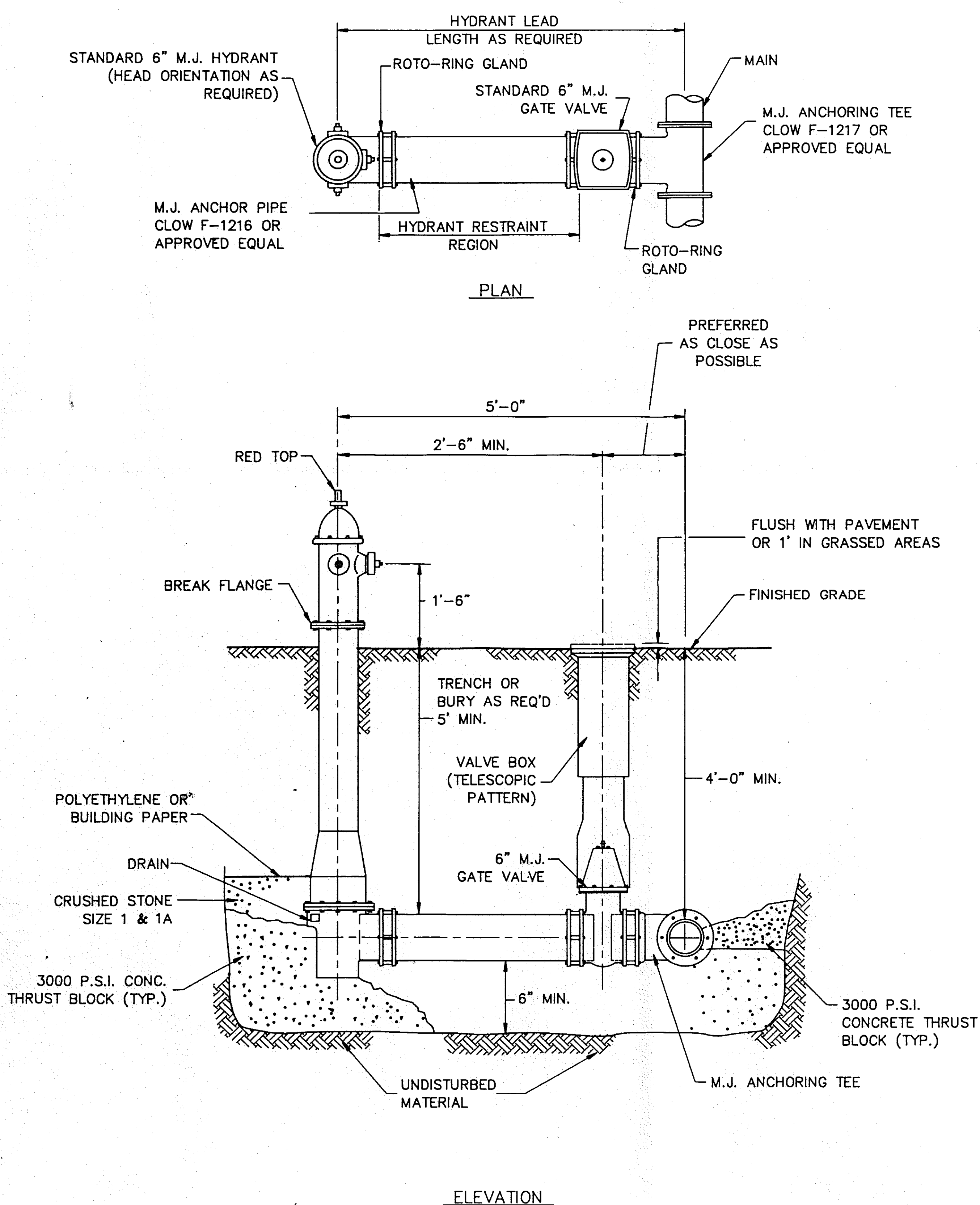
## THRUST BLOCK DETAILS

NO SCALE

| REQUIRED BEARING AREAS & DIMENSIONS<br>FOR CONCRETE THRUST BLOCKS |                  |              |              |                   |                  |             |              |             |              |             |              |
|-------------------------------------------------------------------|------------------|--------------|--------------|-------------------|------------------|-------------|--------------|-------------|--------------|-------------|--------------|
| PIPE SIZE (IN.)                                                   | TEE (See Note 5) | 80°(1/4)BEND | 45°(1/8)BEND | 22-1/2°(1/16)BEND | 1-1/4°(1/32)BEND |             |              |             |              |             |              |
| AREA Sq.Ft.                                                       | Dimen. D x L     | AREA Sq.Ft.  | Dimen. D x L | AREA Sq.Ft.       | Dimen. D x L     | AREA Sq.Ft. | Dimen. D x L | AREA Sq.Ft. | Dimen. D x L | AREA Sq.Ft. | Dimen. D x L |
| 4                                                                 | 1.4              | 1.0 x 1.5    | 2.0          | 1.0 x 2.0         | 1.1              | 1.0 x 1.5   | 0.6          | 0.5 x 1.5   | 0.3          | 0.5 x 1.0   |              |
| 6                                                                 | 3.2              | 1.5 x 2.5    | 4.5          | 2.0 x 2.5         | 2.4              | 1.5 x 2.0   | 1.2          | 1.0 x 1.5   | 0.6          | 1.5 x 1.5   |              |
| 8                                                                 | 5.7              | 2.0 x 3.0    | 8.0          | 2.0 x 4.0         | 4.3              | 2.0 x 2.5   | 2.2          | 1.5 x 1.5   | 1.1          | 1.0 x 1.5   |              |
| 12                                                                | 12.7             | 3.5 x 3.5    | 18.0         | 4.0 x 4.5         | 9.7              | 2.5 x 4.0   | 5.0          | 2.0 x 2.5   | 2.5          | 1.5 x 2.0   |              |

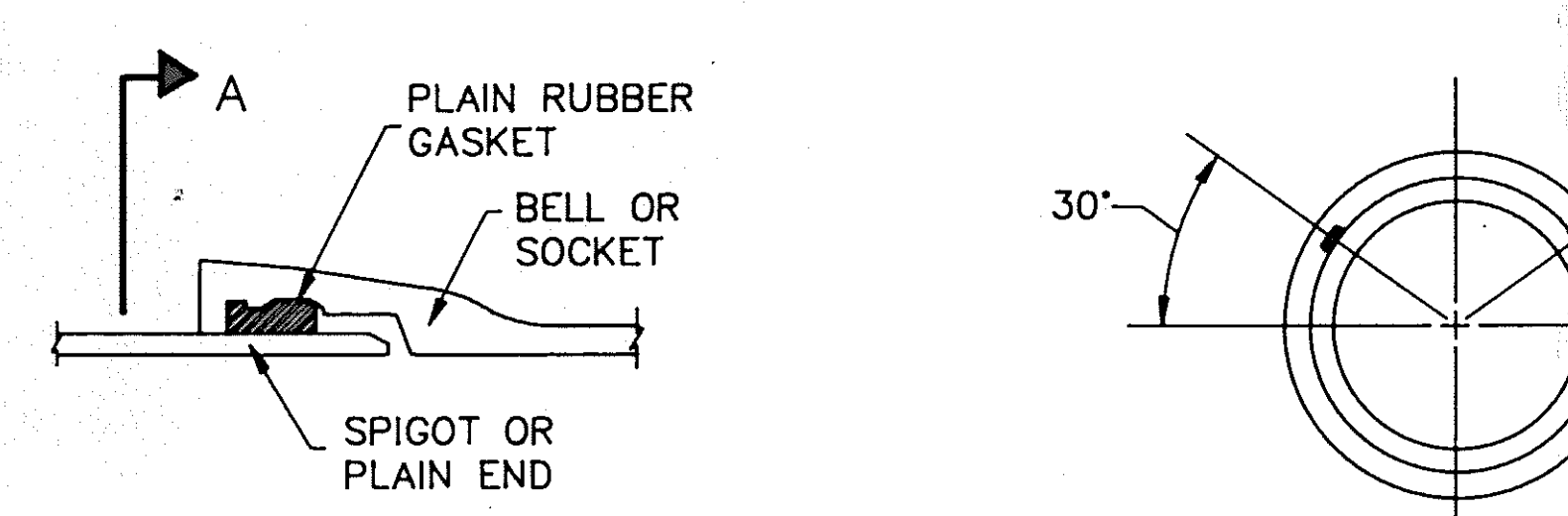


BEND

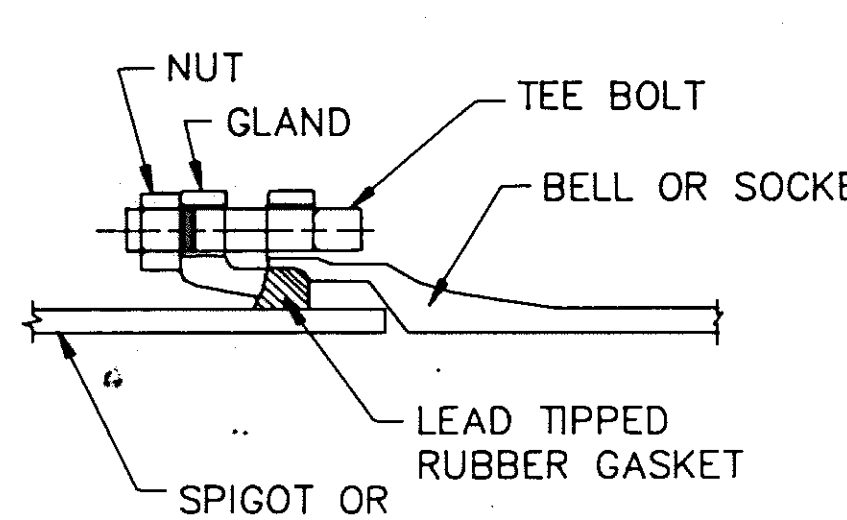


2 HYDRANT INSTALLATION DETAIL

NO SCALE



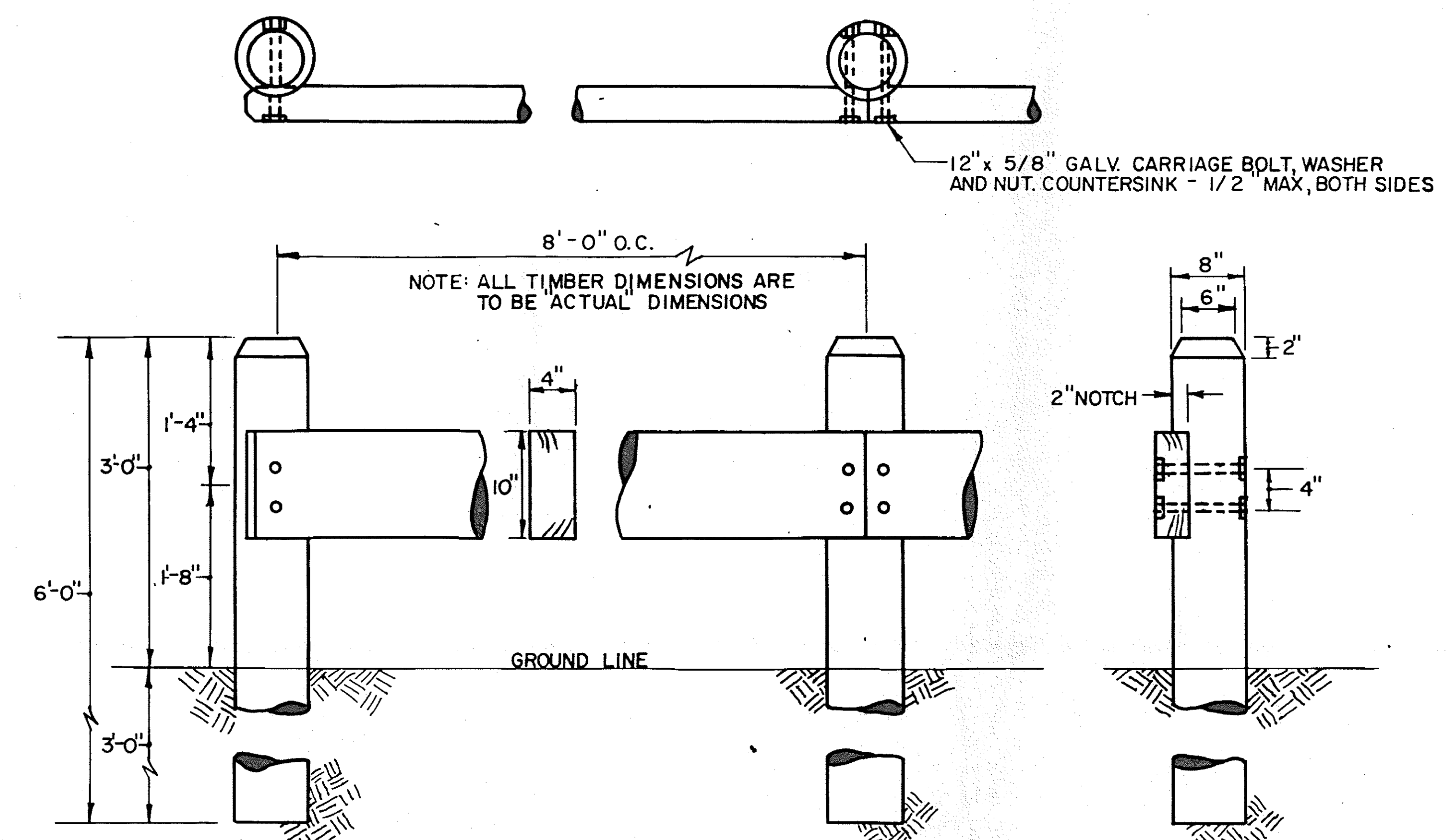
PUSH-ON-JOINT



MECHANICAL JOINT

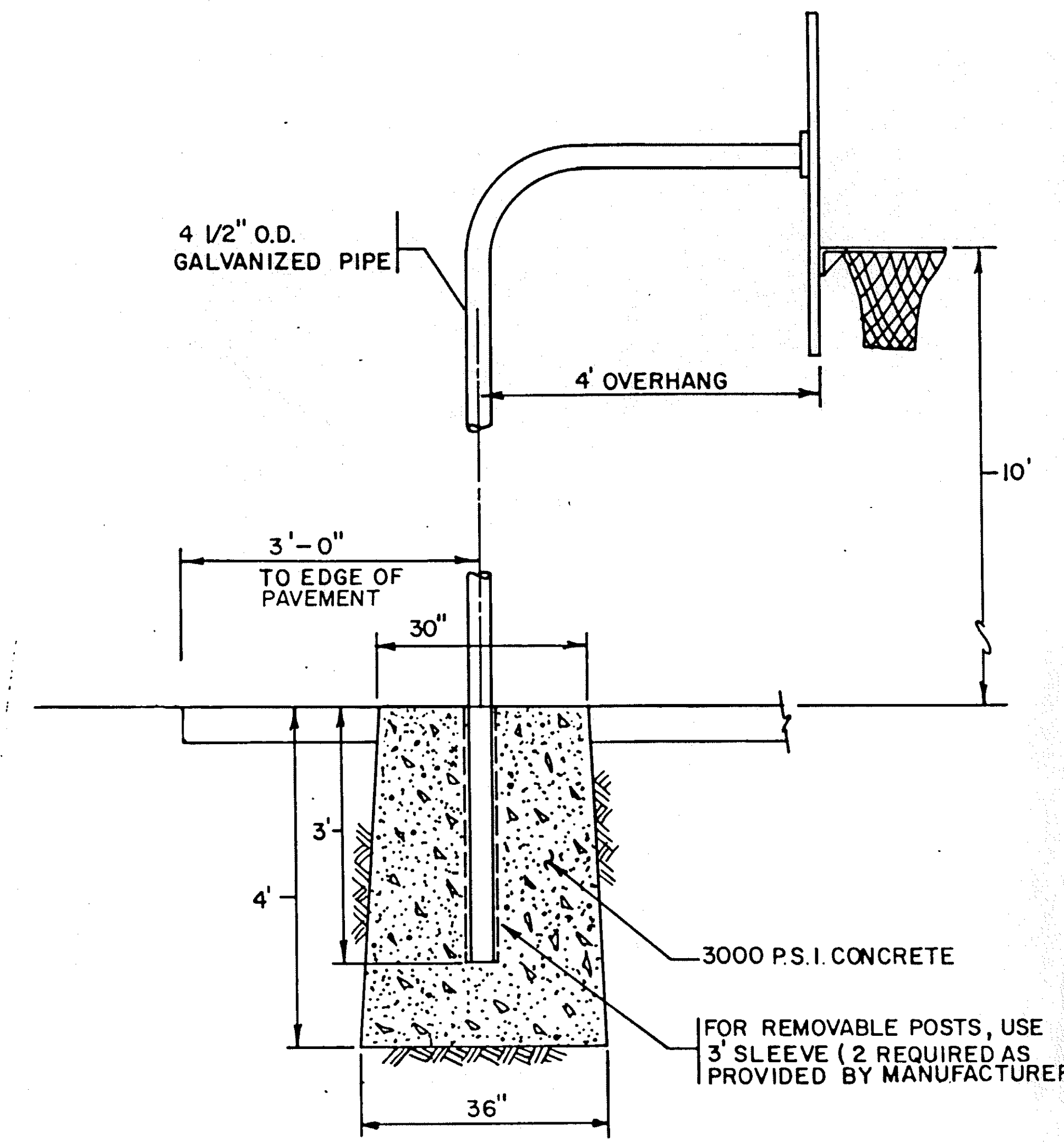
3 TYPICAL JOINT DETAILS

NO SCALE



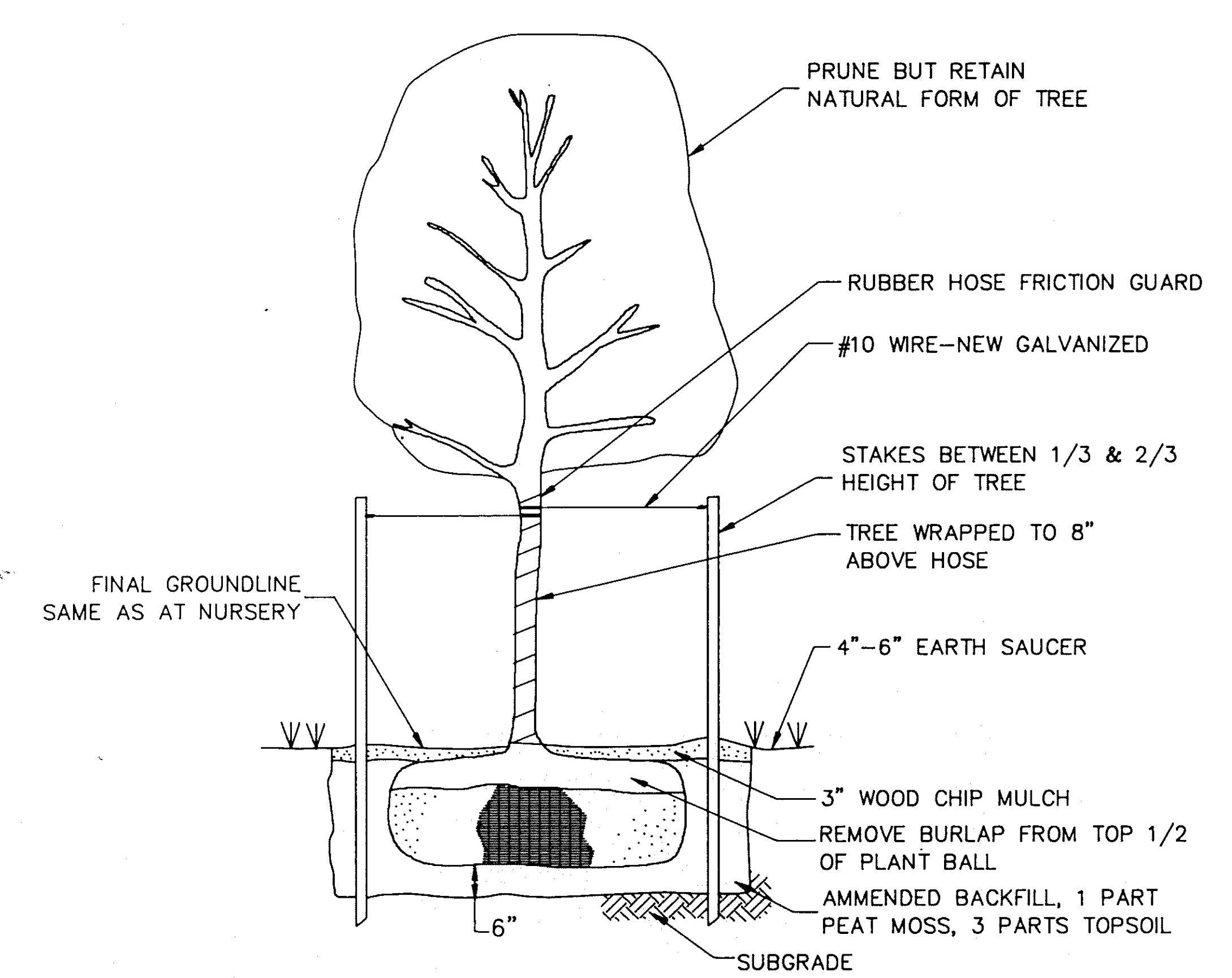
4 DECORATIVE TIMBER BARRIER

NO SCALE



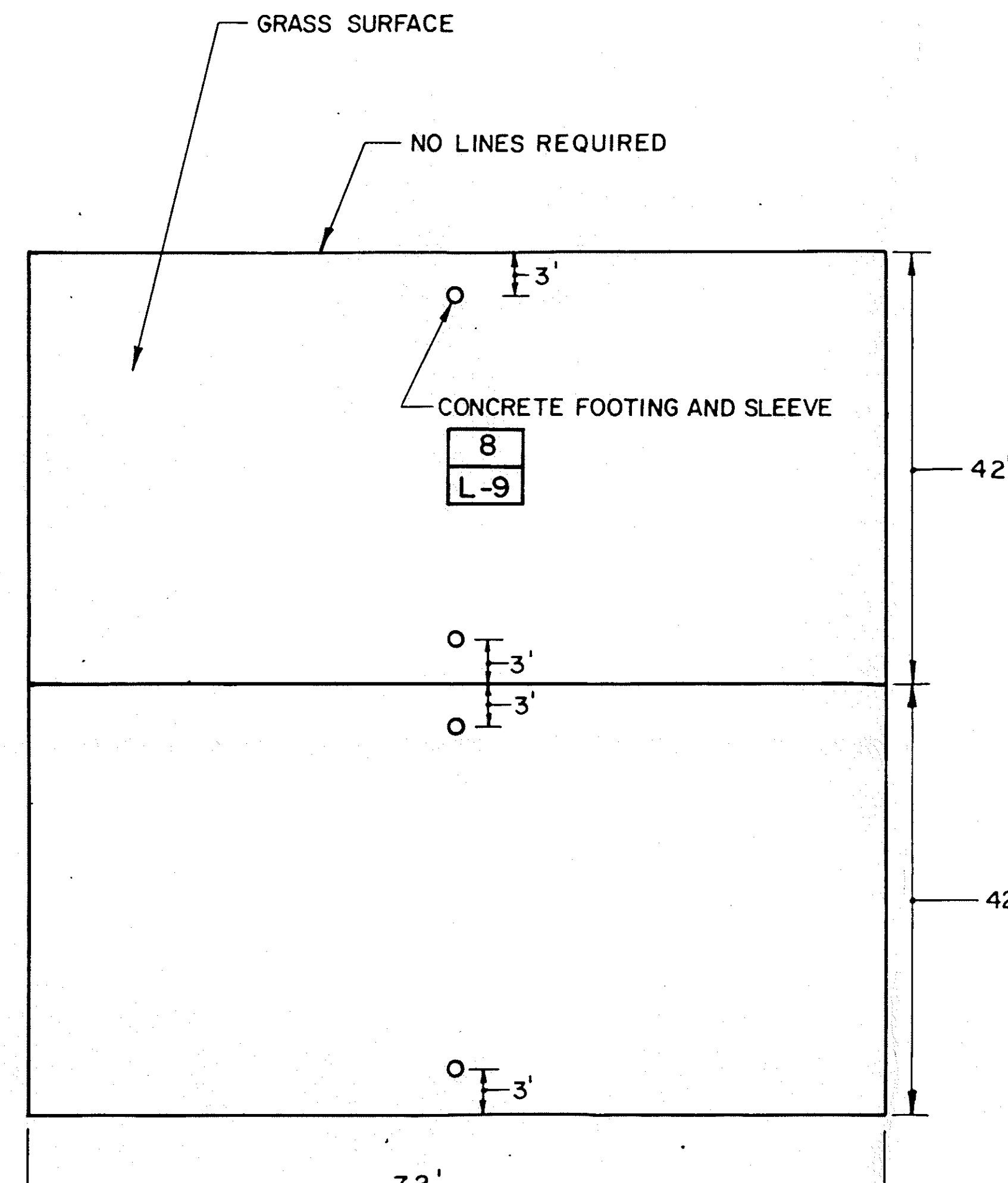
5 BASKETBALL BACKBOARD DETAIL

NO SCALE



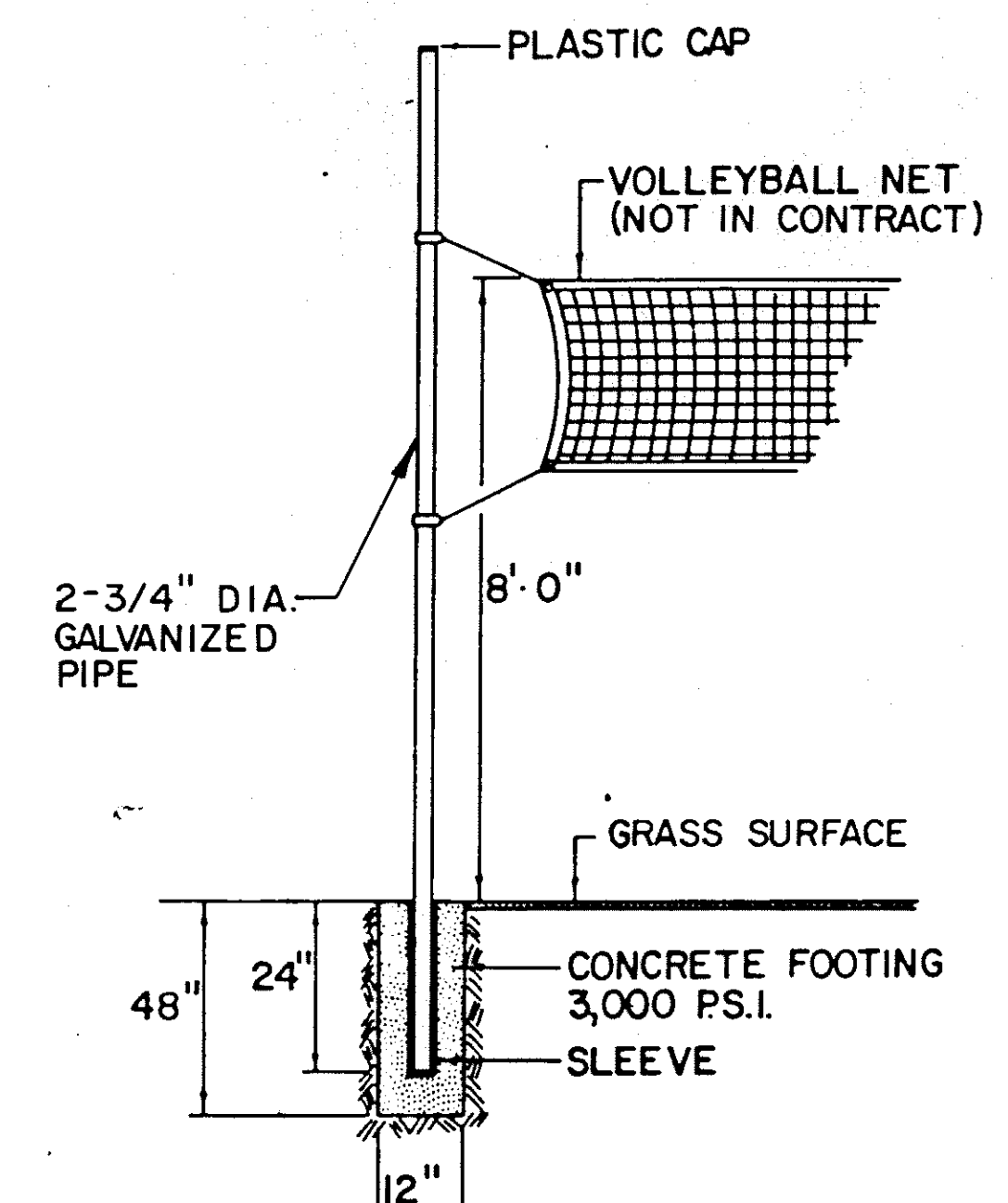
6 DECIDUOUS TREE DETAIL

NO SCALE



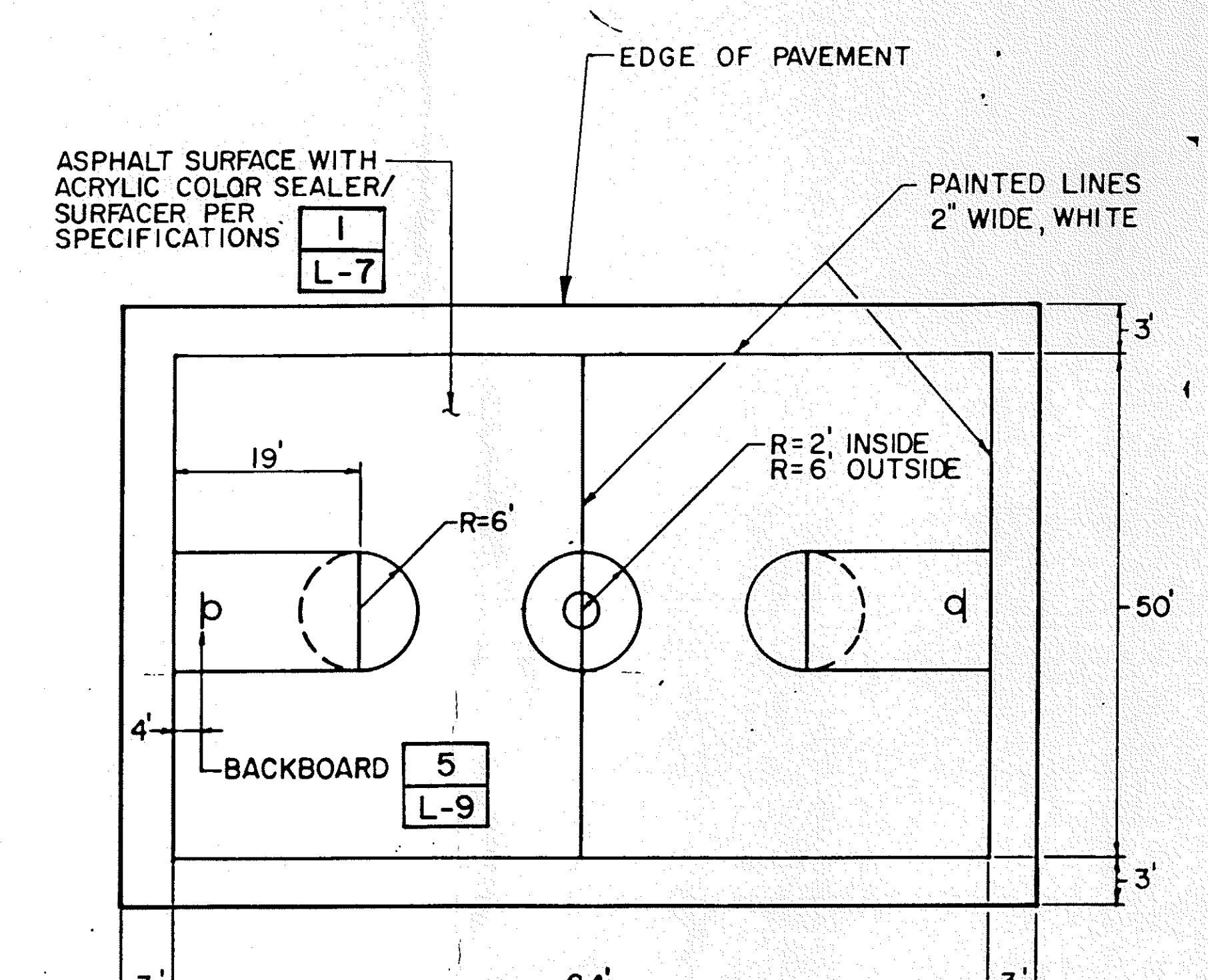
7 VOLLEYBALL COURT LAYOUT

NO SCALE



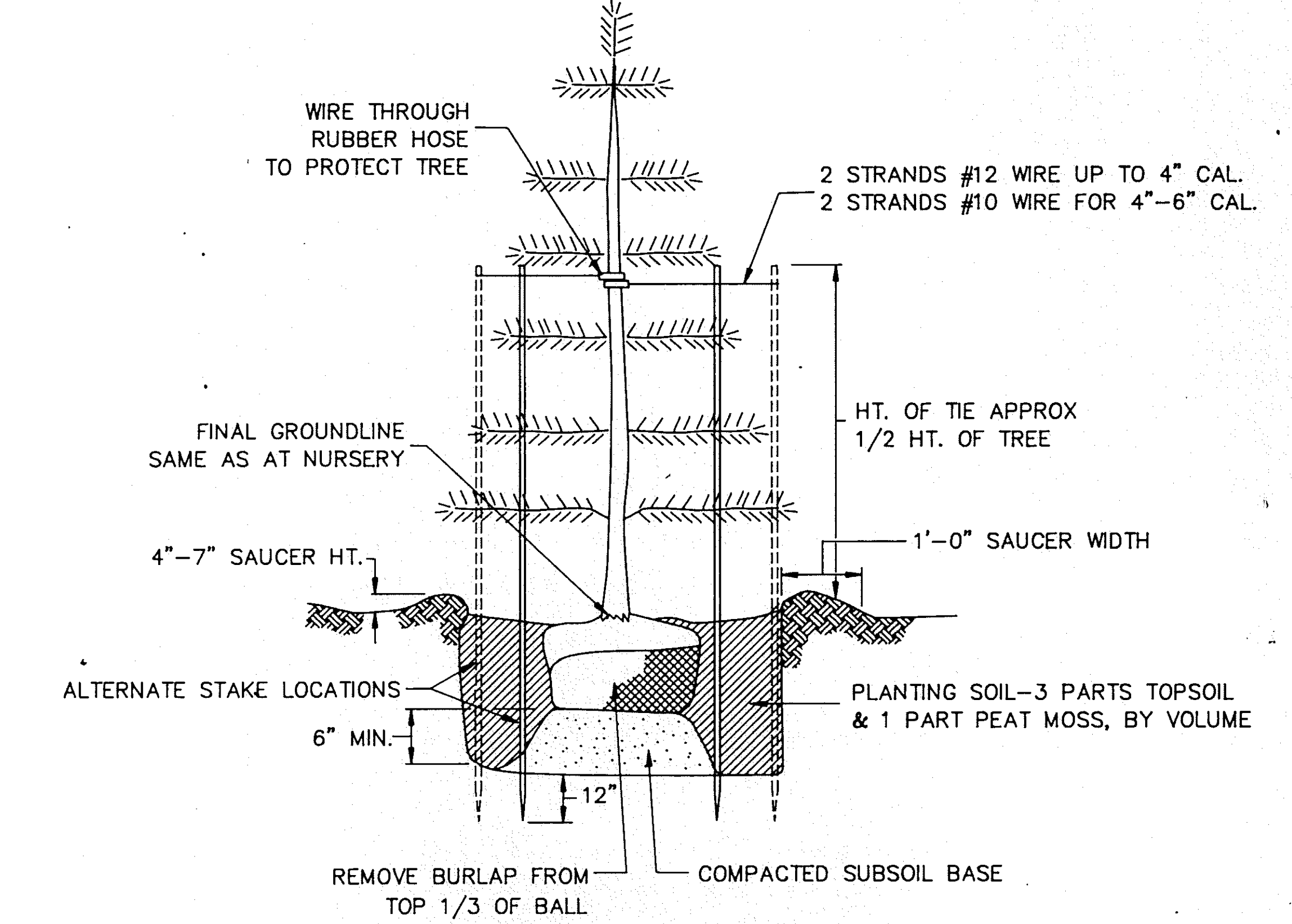
8 VOLLEYBALL NET & POST DETAIL

NO SCALE



9 BASKETBALL COURT LAYOUT

NO SCALE

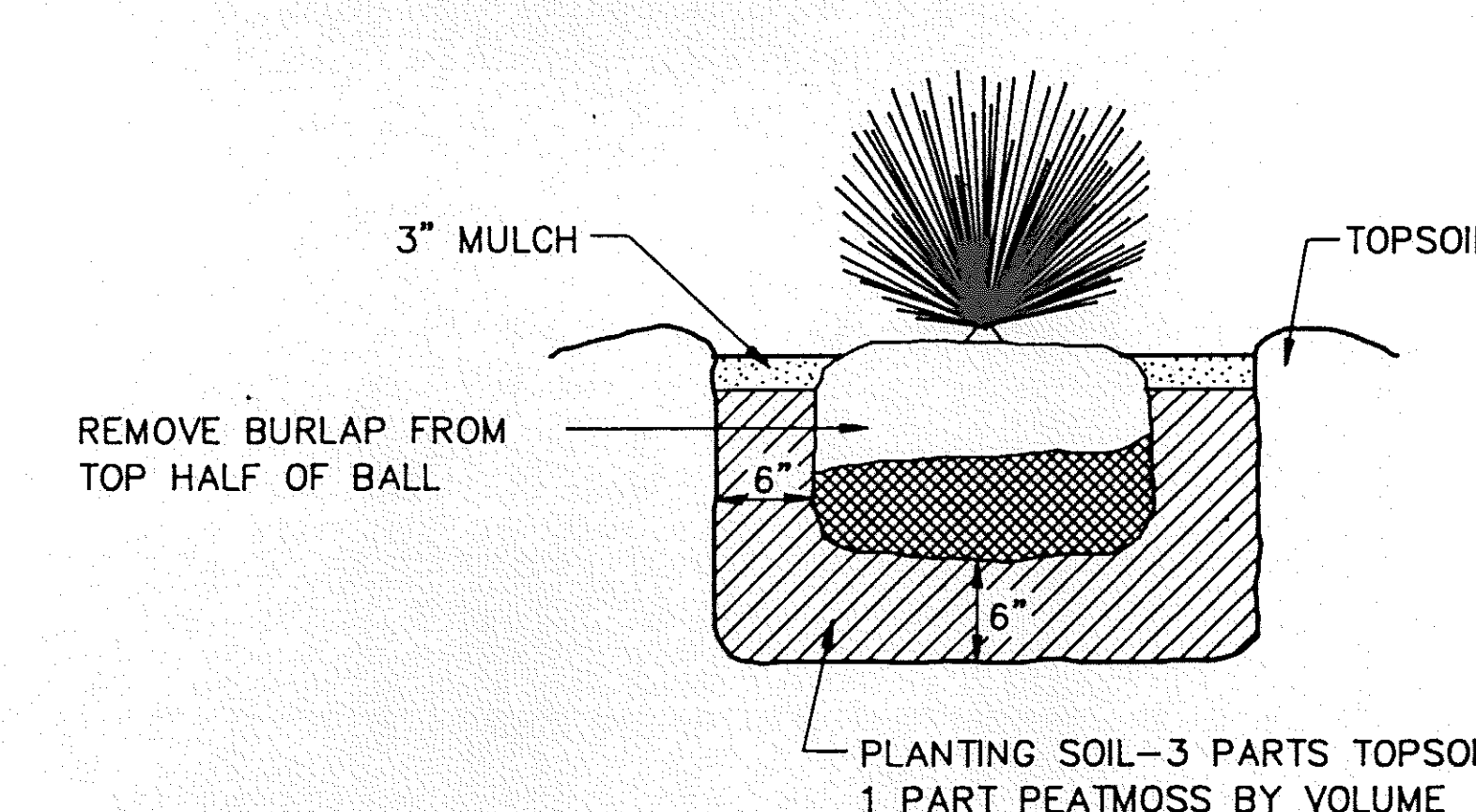


10 PLANTING & STAKING DETAIL

NO SCALE

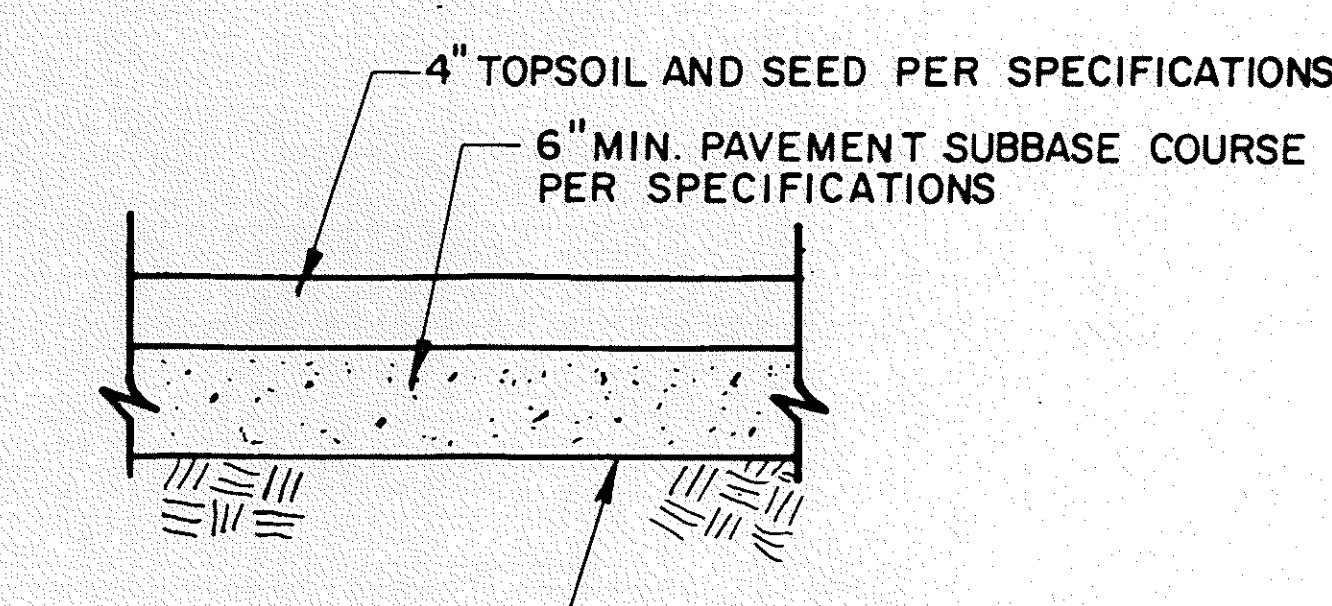
6' HT.-9' HT. - USE 2 STAKES, 1/2 HT. OF TREE + 2'

NO SCALE



11 TYPICAL SHRUB PLANTING DETAIL

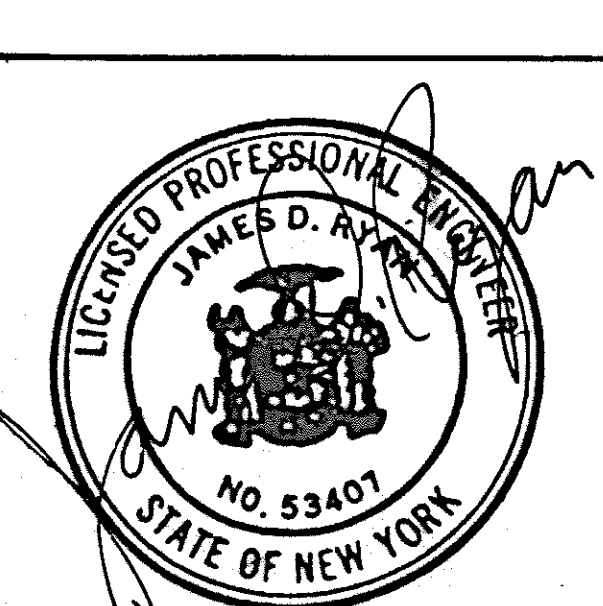
NO SCALE



12 STABILIZED LAWN AREA

NO SCALE

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CRANDELL ASSOCIATES P.C.  
GLENS FALLS, NEW YORK  
CLOUGH, HARBOUR & ASSOCIATES  
ENGINEERS & PLANNERS  
ALBANY, NEW YORK

Revision 1, Number Details 6-10-88

NEW DAY TREATMENT & WORKSHOP FACILITY  
for ALBANY ASSOCIATION FOR RETARDED CHILDREN  
KUMKILL AND BLESSING ROAD  
TOWN OF BETHLEHEM, NEW YORK

SITE DETAILS

JOB NUMBER 87866  
DATE 4/18/88  
SCALE AS SHOWN  
L-9