

*St. Louis County Department of Public Works  
Division of Code Enforcement*

**RESIDENTIAL RETAINING WALLS**  
**BUILDING PERMIT REQUIREMENTS**

This guideline is intended to provide the homeowner/contractor with the basic information needed to apply for a building permit to construct residential retaining walls on a lot containing a one and two family residence or townhouse.

A permit is required for any retaining wall in the unincorporated areas of St. Louis County and in Municipalities that contract with St. Louis County for building plan review and inspections services (see Municipal Contract Matrix) if any of the following conditions are proposed:

- A. The wall exceeds 3' in height. Height is measured from the top of the grade on the non-retained side of the wall to the top of the wall.
- B. The wall exceeds 2' in height and supports a surcharge load (driveway, pool, or similar structure).
- C. The wall is located less than or equal to its height from the property line.
- D. The wall has a fence or guardrail on top of the wall and the total height of the wall from the lowest grade to the top of the fence/guardrail exceeds 6'.

Note: Retaining Walls (including walls that do not require a building permit) shall not block or affect an existing swale or drainage path in a manner to cause damming and ponding.

The contracting municipality, if applicable, should always be contacted for zoning approval regardless of whether a building permit is required through St. Louis County Department of Public Works.

1. Fill out and sign application for a building permit.
2. Submit four (4) separate copies of your plot (site) plan showing existing structures with the new retaining wall and its perpendicular distances to the lot lines and from other structures on the lot, if any.
  - a. Indicate the perimeter control measures (silt fencing) required to ensure the siltation/erosion does not leave the construction site.
  - b. Site plans must show water run-off (use arrows to indicate flow of water). The location of the retaining wall cannot obstruct any swales or natural water run-off unless special provisions are made with the Department of Public Works and/or Metropolitan Sewer District of St. Louis (MSD) if applicable.
  - c. Indicate the height of the wall preferably by furnishing both the top of wall (T.W.) and bottom of wall (B.W.) elevations at reasonable intervals along the length of the retaining wall. The bottom of wall elevation shall be the finished grade level on the lowest side.
  - d. Indicate which side of the wall is retaining soil. No part of a retaining wall may extend across a property line without a recorded Construction and Maintenance Easement.
  - e. Show location of all easements.
  - f. Show the location of the septic tank and field if applicable.
3. Obtain zoning approval from the St. Louis County Department of Public Works (if unincorporated) or from the municipality. In municipalities, site plans must be marked "Approved" and include a

Municipal Approval Form.

**NOTE:** In unincorporated areas retaining walls greater than 6' in height and retaining walls with guards or fences on top whose combined height is greater than 6' must meet yard zoning setback requirements from the lot lines.

4. Submit four (4) separate complete sets of detailed retaining wall construction plans drawn to scale containing the following:
- Plan view of the wall at a larger scale for serpentine and similar garden type walls.
  - Complete cross-sectional drawing of wall to scale.
  - Elevation view from the low grade side of wall drawn to scale.
  - Guardrail details if applicable. Retaining walls more than 4' in height are required to have a 42" guard rail or other approved protective measure when closer than 2' to a sidewalk, path, parking area or driveway on the high side. No openings are permitted in the guardrail that will allow the passage of a 4" diameter sphere.

Plans for small residential retaining walls complying with the design criteria below may be drawn by the homeowner/contractor: (Note: The walls shall not be subject to any surcharge loading from steep slopes, driveways, swimming pools and other structures, etc.)

- The proposed retaining wall is located on a parcel of land containing a one or two family dwelling.
- Wood retaining walls not exceeding 6' in height for single tier or 4' in height for double-tiered (8' total height) walls designed and constructed in accordance with the attached "Standard Construction Details and Specifications for Residential Wood Retaining Walls."
- Modular block walls and stone walls pre-approved by Public Works not exceeding 6' in height of single tier and 4' in height for double-tiered (8' total height) walls designed and constructed in accordance with the manufacturer's approved engineered design specification. Many local manufacturers, suppliers and contractors have had their engineered retaining wall designs, plans and specifications reviewed and pre-approved so that the homeowner/contractor can easily obtain their permits. Pre-approved modular block wall systems have been assigned a Master Plan Number by Public Works which must be quoted on your application for permit. Consult your modular block supplier for this master plan number and the cross-sectional drawing that matches your design. Refer to the attached list of Master Plan Approved Retaining Wall Systems.

Retaining walls of greater heights, having greater surcharge loading and walls of different materials or designs than those specified above must be designed by a Missouri Licensed Professional Engineer. One copy of the structural analysis addressing the wall design, bearing, overturning and sliding must be included with the plan submittal. The cover sheet of each set of the construction plans for the wall and the cover sheet of the structural calculations must have the original seal and signature of the professional. The balance of the sheets within the plans may have mechanically reproduced professional seals.

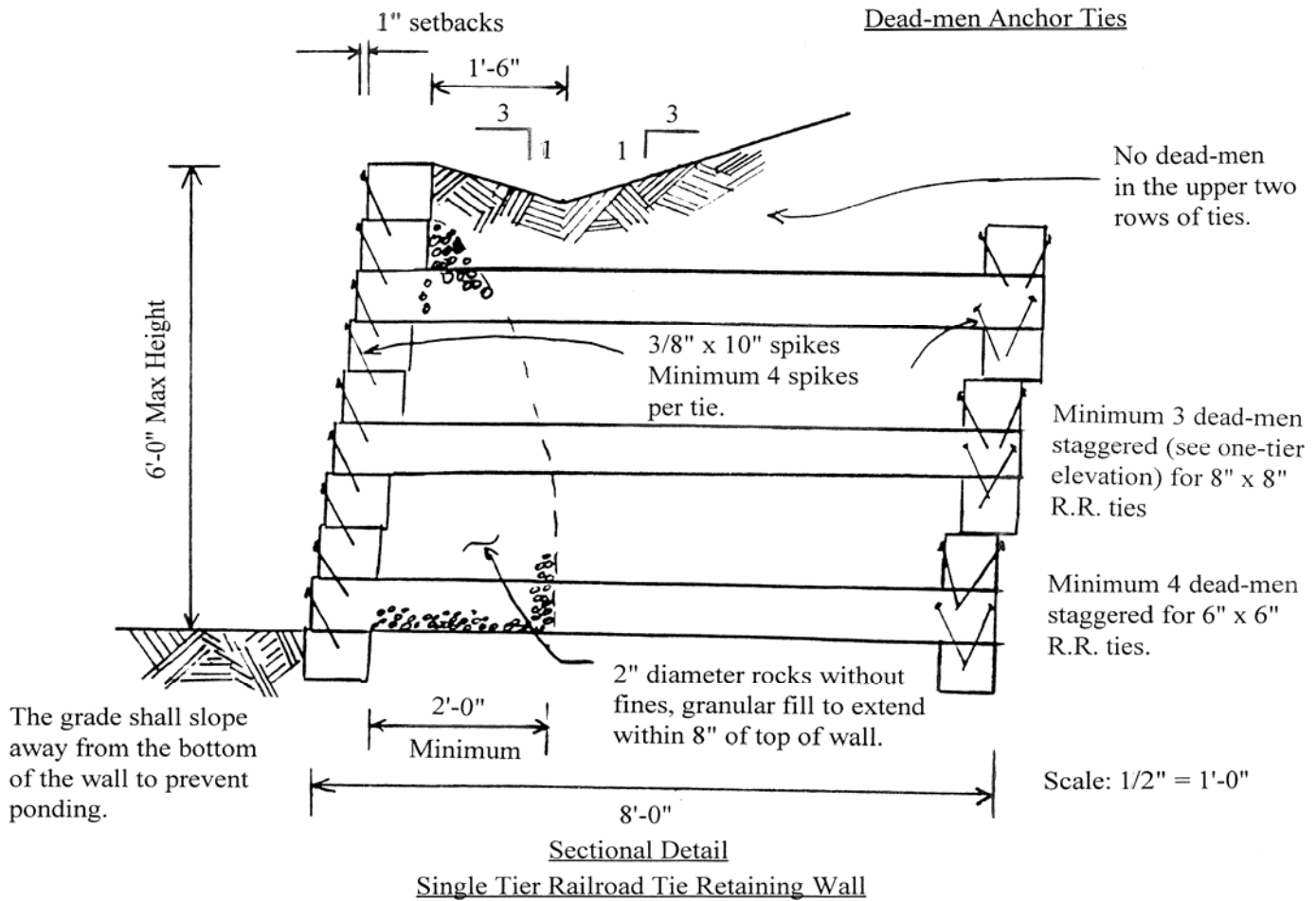
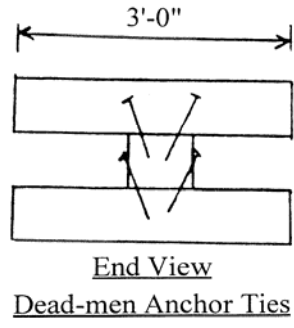
Refer to the attached "Standard Construction Detail and Specifications" retaining wall designs and additional drawings for more information that needs to be included on the retaining wall construction plans.

The preceding requirements apply to most simple retaining wall projects, however, the Plan Reviewer may determine that unusual circumstance dictates the need for additional information on any particular project.

Issuance of a building permit for the project does not authorize construction access to the work site. If the existing driveway entrance to the site is unavailable for construction access, the owner/contractor shall apply for a permit to construct a temporary entrance from the owner of the Right-of-Way.

For additional information regarding the criteria in this handout, please contact:

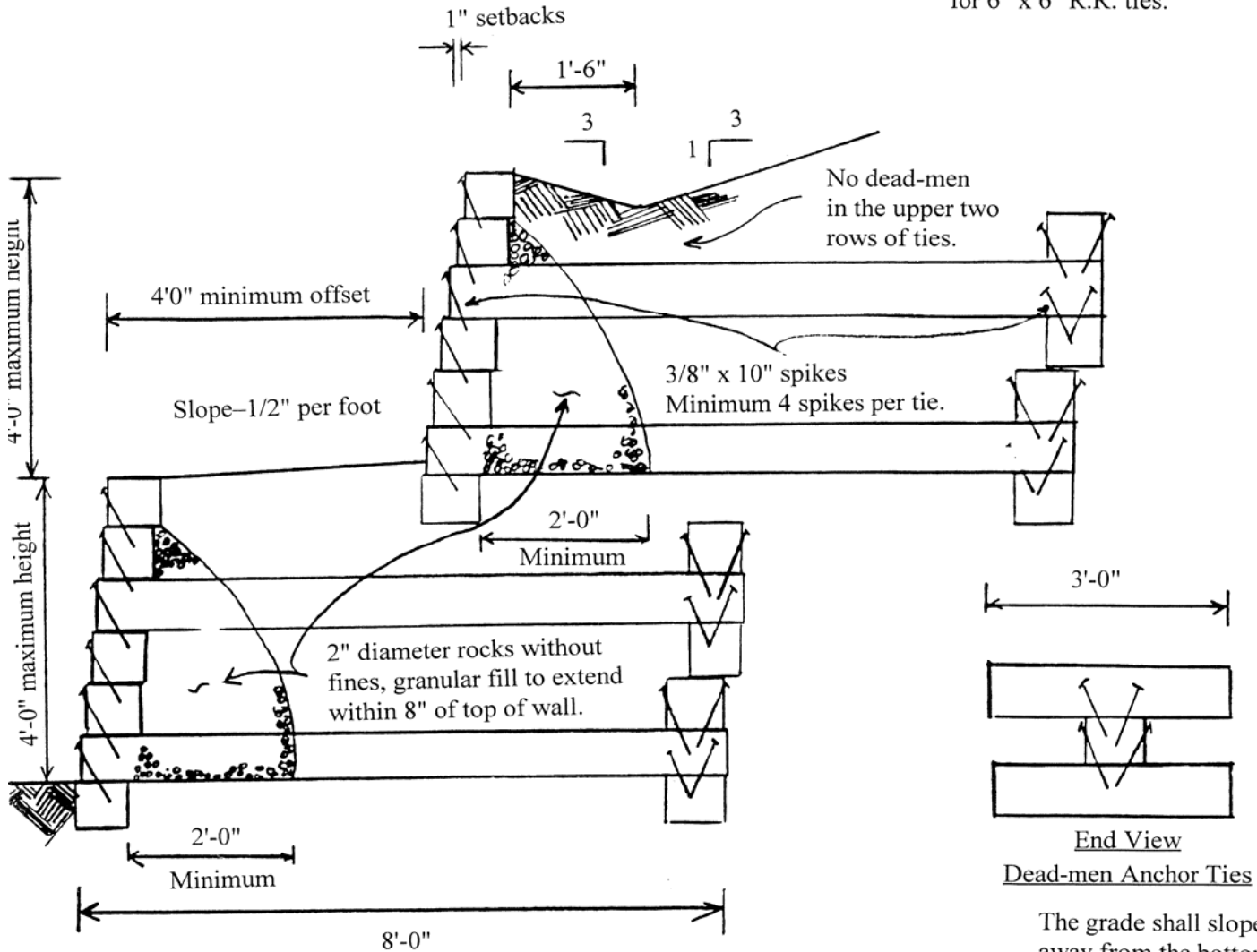
	<u>Contact</u>
General Information	(314) 615-5184
Permit Processing	(314) 615-7155
Zoning Review	(314) 615-3763
Building Plan Review	(314) 615-5485
Right-of-Way Owner	
State	(888) 275-6636
County	(314) 615-8517
Municipality	Municipality



All wood to be treated in accordance with American Wood-Preserver's Association (AWPA) C2 or C9 or Missouri State Department of Agricultural Certification 2CSR 7040.015. Timbers which are not marked or labeled by one or the other of these agencies cannot be approved.

<i>St. Louis County Department of Public Works</i> <b>WOOD RETAINING WALLS FOR 1&amp;2 FAMILY RESIDENTIAL</b> Standard Construction Details and Specifications	Date: 3/16/98
	Drawing No. 1 of 3

Minimum 2 dead-men staggered per tier for 8" x 8" R.R. ties (see Two Tier Elevation).  
 Minimum 3 dead-men per tier for 6" x 6" R.R. ties.



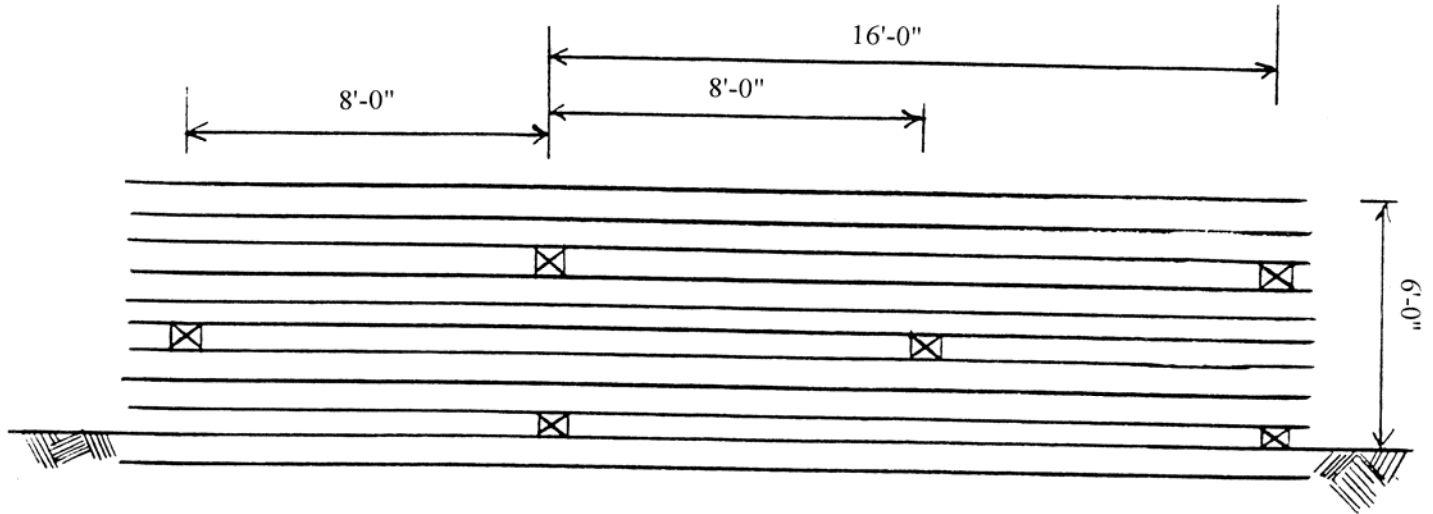
Sectional Detail  
Two Tier Railroad Tie Retaining Wall

End View  
Dead-men Anchor Ties

The grade shall slope away from the bottom of the wall to prevent ponding.

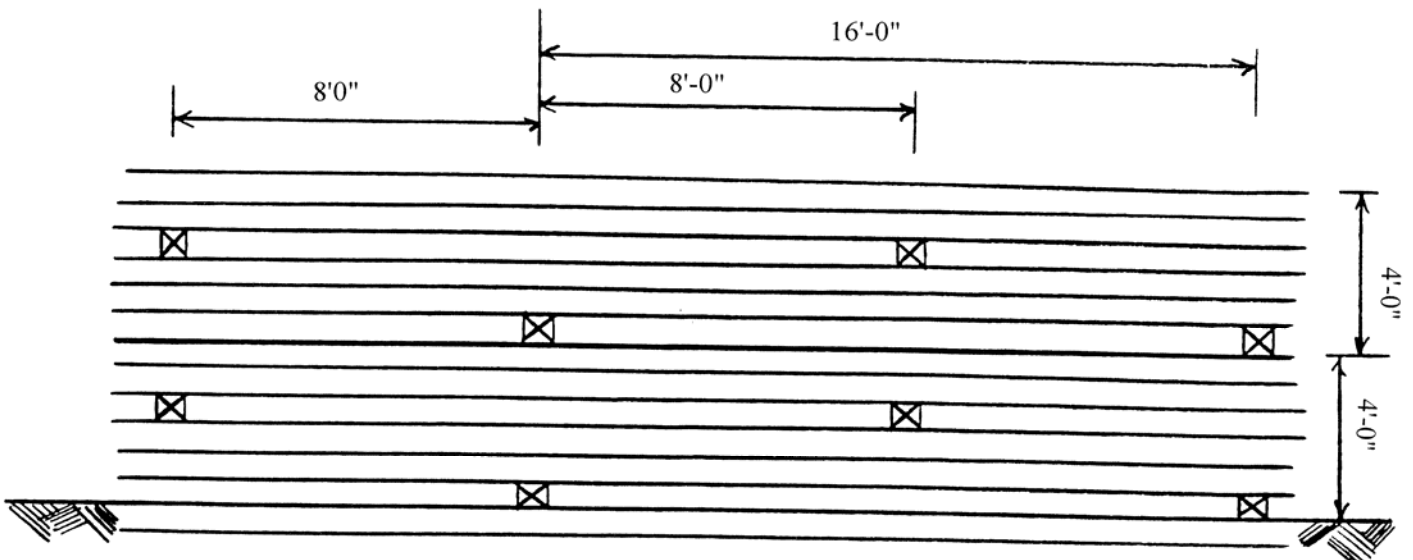
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	Drawing No. 2 of 3



Elevation View  
Single Tier Railroad Tie Retaining Wall

1/4" = 1'0"

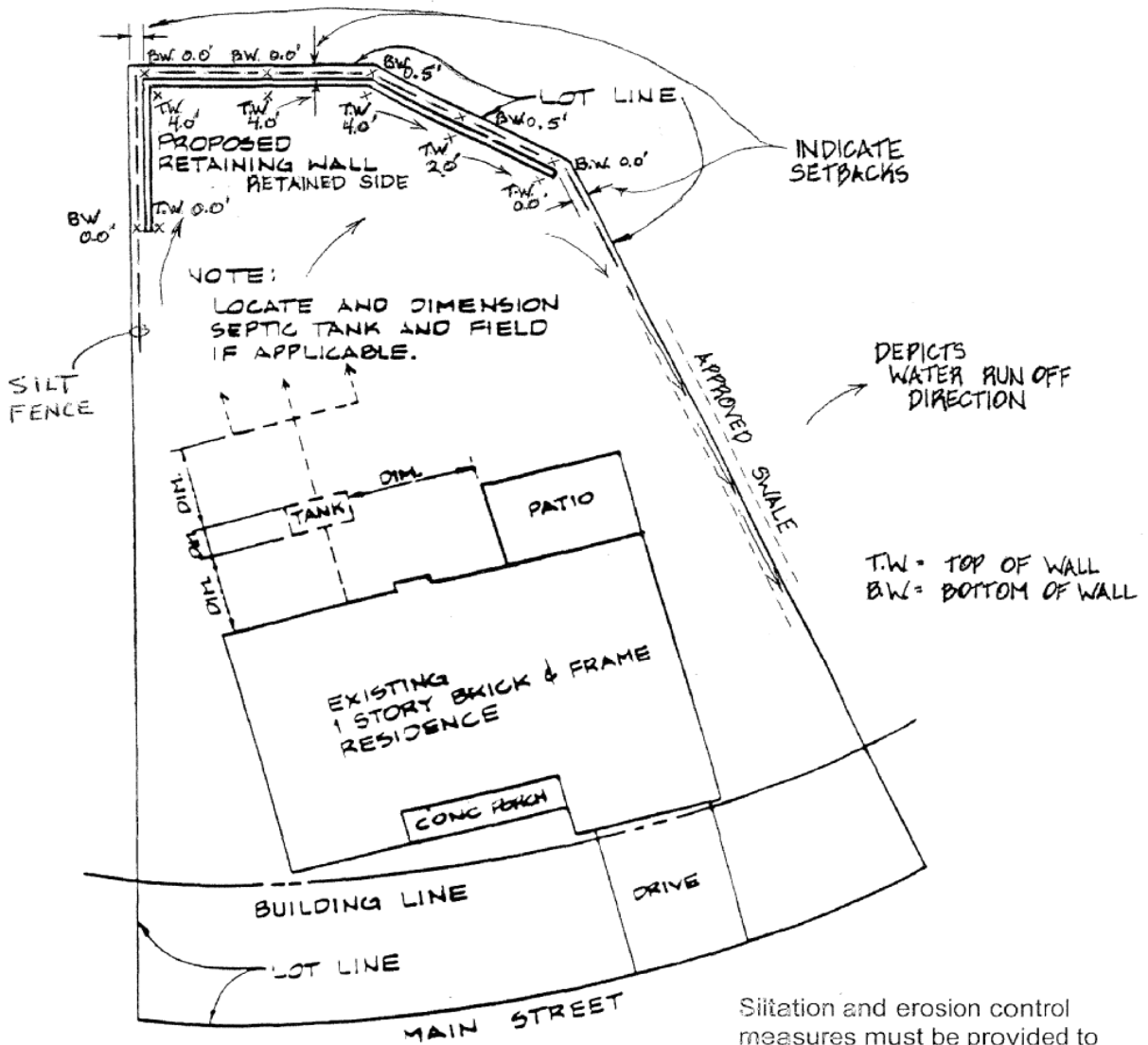


Elevation View  
Two Tier Railroad Tie Retaining Wall

1/4" = 1'0"

<i>St. Louis County Department of Public Works</i> <b>WOOD RETAINING WALLS FOR 1&amp;2 FAMILY RESIDENTIAL</b> Standard Construction Details and Specifications	Date: 3/16/98
	Drawing No. 3 of 3

OWNER \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 SUBDIVISION \_\_\_\_\_ LOT NO. \_\_\_\_\_



**TYPICAL PLOT PLAN FOR A RETAINING WALL**  
 SCALE: 1" = 20'-0"      EXAMPLE DEPICTS 4'-0" HIGH WALL

*St. Louis County Department of Public Works  
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**St. Louis County Approved Master Plan Retaining Wall Systems  
As of November 2, 2005**

The following Suppliers and/or Manufacturer's have had their engineered retaining wall designs, plans, and specifications reviewed and pre-approved by Public Works. The use of these pre-approved designs are limited to retaining walls six feet or less in height and double-tiered walls eight feet total height or less on lots containing a one and two family dwelling or townhouse. The walls must be constructed in accordance with the manufacturer's approved engineered design specifications. These pre-approved retaining wall systems have been assigned individual master plan numbers which must be quoted by the Homeowner/Contractor on their application for building permit. Consult the Manufacturer/Supplier you select for their master plan number and installation manual.

Additional information regarding building permit requirements can be found in our guideline for the homeowner/contractor titled "Residential Retaining Walls."

<b>Product Name</b>	<b>Supplier and/or Manufacturer</b>
Versa-Lok & Alpenstein	F. F. Kirchner 12901 St. Charles Rock Road Bridgeton, MO 63044 (314) 291-3200
Keystone	Kirchner Block & Brick 12901 St. Charles Rock Road Bridgeton, MO 63044 (314) 291-3200
Allen Block	Hendrick Concrete Products 14327 Jamestown Bay Dr. Florissant, MO 63034 (314) 355-6731
Diamond Block Anchor Wall Systems	Building Products, Inc. 960 Freeburg Ave. Belleville, IL 62220 (618) 233-4427

<b>Product Name</b>	<b>Supplier and/or Manufacturer</b>
Hercules Retaining Walls	St. Louis Retaining Wall Co. 232 N. Kingshighway; Suite 1207 St. Louis, MO 63108 (314) 367-9255
K – Stone	Wm. Kovac Construction Co. P. O. Box 40 Cottleville, MO 63338 (314) 978-3700
Rockwood Classic Retaining Wall	Erosion & Drainage Products 743 Goddard Ave. Chesterfield, MO 63005 (636) 519-9955
Creta Stone	PaveLoc Industries, Inc. 8302 South Route 23 Marengo, IL 60152 1-800-590-2772
Diamond Block	Pavestone Company 2720 East Outer Road Scott City, MO 63780 (573) 587-1007
	Missouri Boulder 220 Sunset view Fenton, MO 63026 (636) 343-8999
Belgard	Miller Material Co. 2405 E. 85 <sup>th</sup> St. Kansas City, MO 64132 800-289-2244
Vy King	Mid-MO Block & Brick 3918 Stockman Lane Jefferson City, MO 65109