

SECTION 02505 - STANDARDS OF PERIMETER TRAILS, MULTI-USE TRAILS, AND SIDEWALKS

PART 1 - GENERAL

1.1 Trail and sidewalk construction shall conform to the following requirements and standards:

A. Definitions:

1. Designated Trailhead – A designated point of access that may contain a parking area, information kiosks, restrooms, water fountains, and may be reached by vehicular or pedestrian access.
2. Perimeter Trail – A route designed, designated, or constructed within or outside street right of way for recreational use or to provide an alternative to vehicular routes within a transportation system. These trails will parallel streets designated in the current Thoroughfare Plan and provide connection to the multi-use trail system.
3. Multi-Use Trail – A facility that is physically separated from motorized vehicular traffic with an open space or barrier and either within the highway right of way or within an independent right of way. These trails are part of the Westfield Parks & Recreation Department system and are called out in the Alternative Transportation section of the current Thoroughfare Plan. A multi-use trail can be used by pedestrians, skaters, wheelchair users, joggers, bicyclists or other non-motorized users.
4. Sidewalk – The portion of a local street right of way designed for preferential or exclusive use by pedestrians.

B. Design Manuals

1. The design of Perimeter Trails, Multi-Use Trails, and Sidewalks shall follow the manuals below:
 - a. American Association of State Highway and Transportation Officials, *Guide for the Development of Bicycle Facilities*, 2012 (*AASHTO Bike Guide*) or most current edition.
 - b. Indiana Manual for Uniform Traffic Control Devices (MUTCD), 2011 or most current edition.
 - c. National Association of City Transportation Officials, *Urban Bikeway Design Guide*, 2012 (*NACTO Bike Guide*) or most current edition.

- d. Americans With Disabilities Act and Architectural Barriers Act, *Accessibility Guidelines – 2010 Standards (Signed March 2012 by DOJ)* or most current edition.

C. Perimeter Trails, Multi-Use Trails, and Sidewalks:

- 1. Perimeter Trails shall be constructed to a minimum width of eight (8) feet. The trail shall be constructed of asphalt. The maximum design speed for these perimeter trails is 20 mph. These trails shall be constructed using the following as minimum requirements:
 - a. Four (4) inches INDOT Type D, Compacted Aggregate No. 53, base
 - b. Three (3) inches HMA, Type A, Intermediate, 9.5mm
 - c. One (1) inch HMA, Type A, Surface, 9.5mm
 - d. See Figure PP-01 Typical Cross Section – Perimeter Trail
- 2. Multi-use trails shall be constructed to a minimum width of twelve (12) feet with a two (2) foot stone shoulder. The maximum design speed for these multi-use trails is 20 mph. These trails shall be constructed using the following as a minimum requirements:
 - a. Sixteen (16) feet wide, Four (4) inches thick INDOT Type D, Compacted Aggregate No. 53, base
 - b. Twelve (12) feet wide, Three (3) inches HMA, Type A, Intermediate, 9.5mm
 - c. Twelve (12) feet wide, One (1) inch HMA, Type A, Surface, 9.5mm
 - d. Two (2) feet wide, Four (4) inches thick INDOT Type D, Compacted Aggregate unwashed No. 12 stone shoulder, level with asphalt surface
 - e. See Figure PP-02 Typical Cross Section – Multi-Use Trail
- 3. All sidewalks shall be placed on properly prepared and compacted subgrades. These sidewalks shall be constructed using the following as minimum requirements:
 - a. Sidewalks shall be at least six (6) inches thick at drives and at least four (4) inches thick at all other locations within the subdivision.
 - b. Sidewalks shall be at least five (5) feet wide at all locations.
 - c. Sidewalks shall be concrete in accordance with Section 02500.
 - d. Expansion joints shall be located every 48 feet and control joints every five (5) feet minimum.
 - e. See Figures P-10 and P-17

4. Trails, sidewalks, and curb ramps shall comply with the most current INDOT and ADA requirements.
 5. All perimeter trails or multi-use trails shall be placed on properly prepared and compacted subgrades. Materials shall be furnished and installed in accordance with Section 02500 and INDOTSS. All perimeter trails or multi-use trails shall be proof roll tested with a WPWD Inspector or representative present during testing. All proof roll testing requires at least a 48 hour notification prior to testing to the WPWD.
 6. Where perimeter trails and multi-use trails intersect streets designated in the current Thoroughfare Plan, the streets must have signage and traffic control devices that meet current MUTCD standards and shall be installed at the developer's expense. When required, coordination and permitting with INDOT is also at the expense of the developer.
 7. The perimeter trails, multi-use trails, & sidewalks shall intersect the road at a 90 degree angle, where possible, but may not be less than 45 degrees.
 8. Clear sight lines shall be provided for both the motorist and the trail user. See specifications on Figure PP-03 Line of Sight Triangle
 9. If not located within public rights-of-way, an easement of at least ten (10) feet in width shall be provided for sidewalks and perimeter trails.
- D. Allowable Modifications - Where unusual or exceptional factors or conditions exist, the City of Westfield may allow minor modifications of any provision of this Section. When such modifications are allowed, a detailed written statement of the reasons for such modifications shall be attached to all copies of construction plans.
- E. Drainage:
1. All trails must have a 2% cross slope. A smooth surface is essential to prevent water ponding or ice formation.
 2. Where a multi-use trail is constructed on the side of a hill, a swale or other storm water collection system of approved dimensions must be placed on the uphill side to collect the hillside drainage. Such swale must be designed so that an undue obstacle cannot interfere with trail use. Where necessary, a catch basin with drains shall be provided to carry the collected water under the trail. Drainage grates must be located outside the trail. All drainage-structure grates must be designed for all wheeled traffic.

3. The minimum diameter of a culvert which conveys flow under a multi-use trail is 15 inches. Each culvert shall be designed to pass a minimum 2-year flood event.

F. Waterway Crossings:

1. Permitting - A structure crossing a waterway is required to obtain all federal, state, county, and local permits and approvals.
2. Allowable bridge decking products include:
 - a. Structural concrete slab for multi-use trails
 - b. City of Westfield approved treated wood products or concrete for perimeter trails.
 - c. Alternatives must be sent to the Westfield Parks & Recreation Department for evaluation. These alternatives must also be accompanied by a data sheet, provided by the manufacturer, stating that the product is designed for the proposed use.
3. All bridges on multi-use trails shall be designed to structurally support 10,000 pounds.
4. All bridge designs must be reviewed by a professionally licensed structural engineer selected by the City of Westfield, at the expense of the Developer.

G. Railings:

1. Trail Railing
 - a. Design of railings is based on specifications located in Figure PP-04 and 05 Typical Cross Section - Wood Railing Details.
 - b. All trail railings shall be 54 inches in height.
 - c. Design loading shall be W=50 pounds per linear foot transversely and vertically, acting simultaneously on each rail.
 - d. Any opening in railing elements shall not allow a 6-inch diameter sphere to pass through.

H. Bollards or gates shall be used on a case by case basis. Location of bollards or gates must be approved by the Westfield Parks & Recreation Department.

I. Multi-Use Trail Signage:

1. Trail identification and informational signage and sign specifications are called out in the Westfield Parks & Recreation Trail Standards.

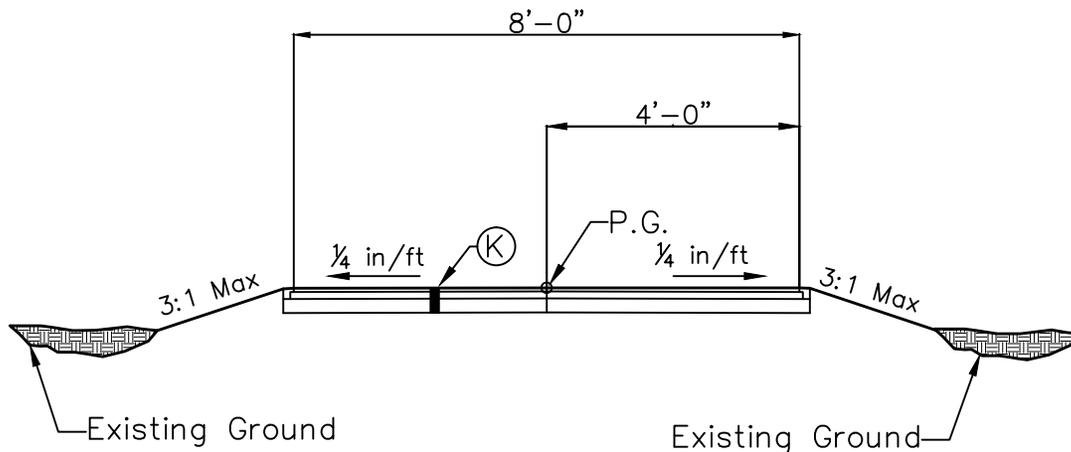
- J. Multi-use trail access points must be approved by the Westfield Parks & Recreation Department, as outlined in Policy PK 06-11, per Ordinance 11-22.

PART 2 – DETAILS AND SPECIFICATIONS

2.1 INDEX

<u>FIGURE</u>	<u>DESCRIPTION</u>
PP-01	Typical Cross Section – Perimeter Trail
PP-02	Typical Cross Section – Multi-Use Trail
PP-03	Typical Cross Section – Line of Sight Triangle
PP-04	Typical Cross Section – Wood Railing Details
PP-05	Typical Cross Section – Wood Railing Details

END OF SECTION 02505

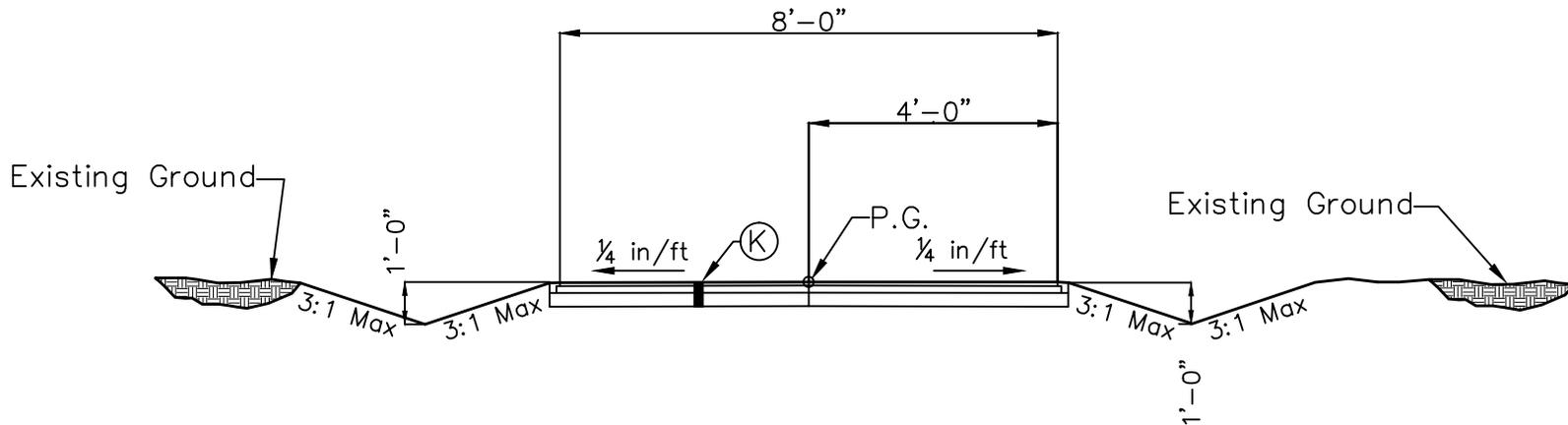


TYPICAL TRAIL FILL SECTION

SCALE =
NONE

LEGEND

- Ⓚ 110#/SYS HMA, TYPE A, SURFACE, 9.5MM
- 330#/SYS HMA, TYPE A, INTERMEDIATE, 19.0MM
- 4" INDOT TYPE D COMPACTED AGGREGATE BASE, No. 53 STONE



TYPICAL CROSS SECTION - PERIMETER TRAIL



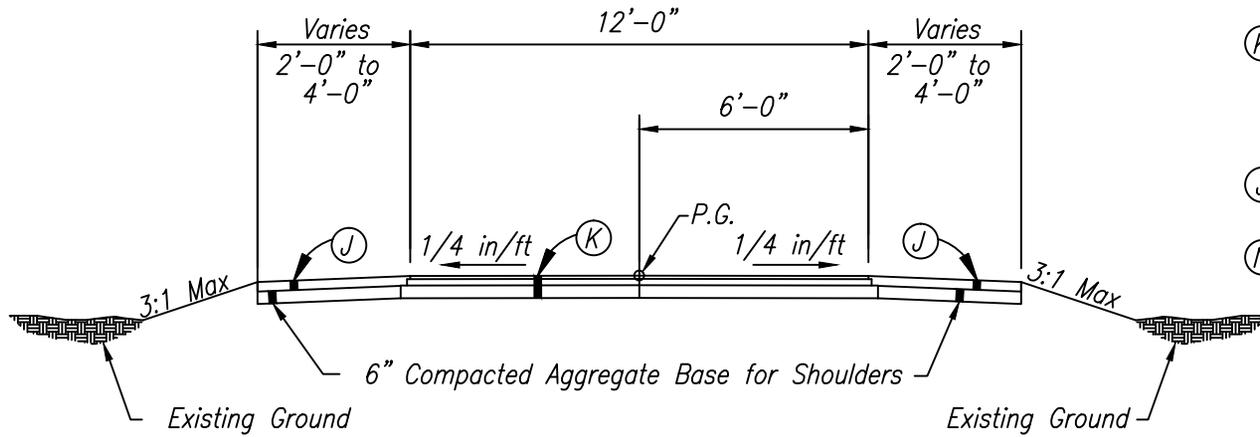
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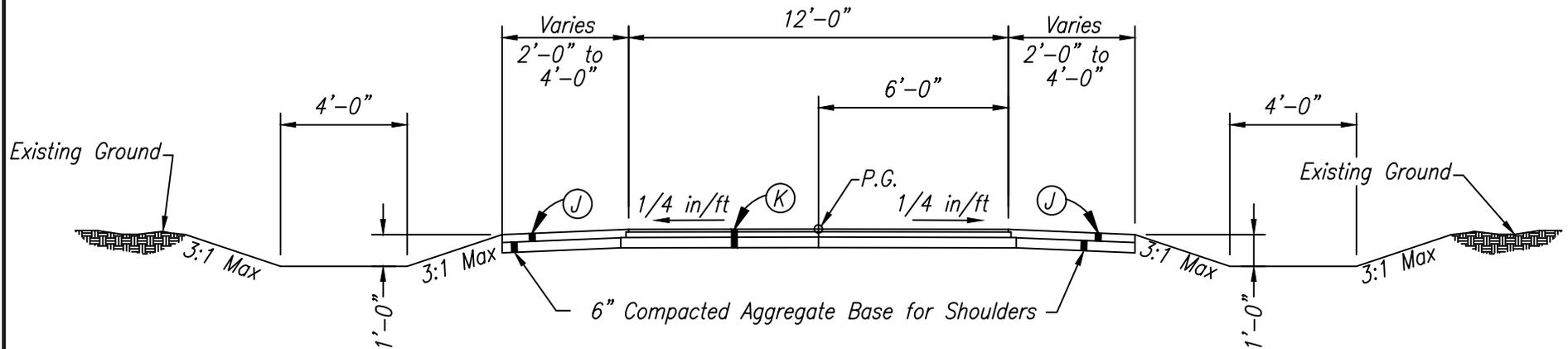
LEGEND

- (K) 110#/SYS HMA, TYPE A, SURFACE, 9.5MM
220#/SYS HMA, TYPE A, INTERMEDIATE, 19.0MM
4" COMPACTED AGGREGATE BASE, No. 53
- (J) 3" CRUSHED LIMESTONE FOR SHOULDER
- (N) 8" CRUSHED LIMESTONE FOR EQUESTRIAN PATH



TYPICAL TRAIL FILL SECTION

SCALE = NONE



TYPICAL TRAIL CUT SECTION

SCALE = NONE

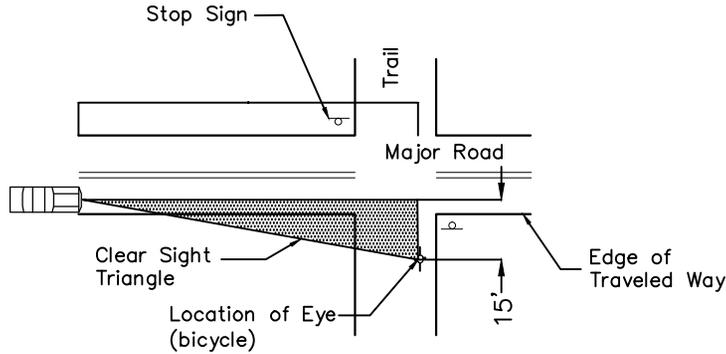
TYPICAL CROSS SECTION – MULTI-USE TRAIL



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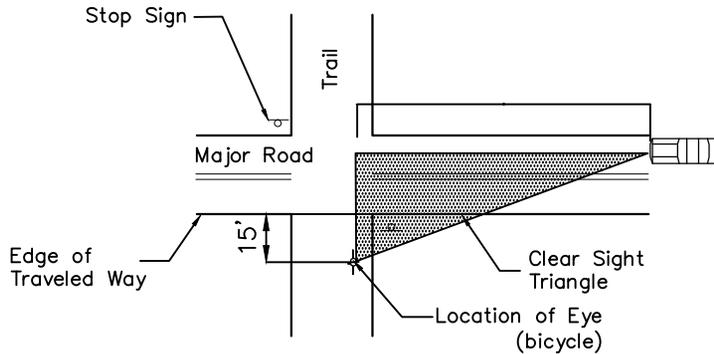
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CLEAR SIGHT TRIANGLE FOR VIEWING TRAFFIC APPROACHING FROM THE LEFT

US Customary	
Design Speed (mph)	ISD (ft)
20	225
25	280
30	335
35	390
40	445
45	500
50	555
55	610
60	665



CLEAR SIGHT TRIANGLE FOR VIEWING TRAFFIC APPROACHING FROM THE RIGHT

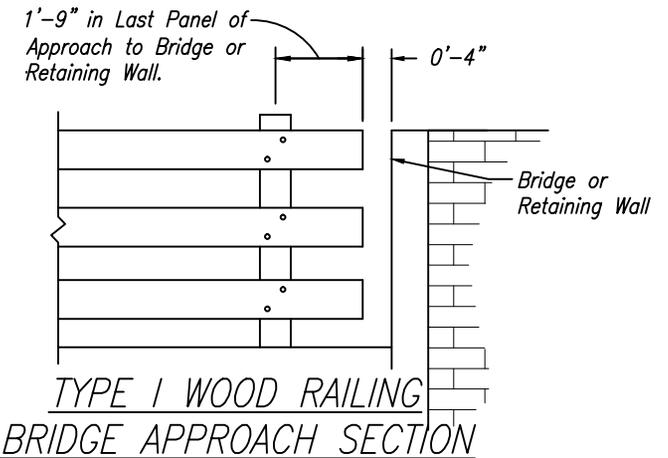
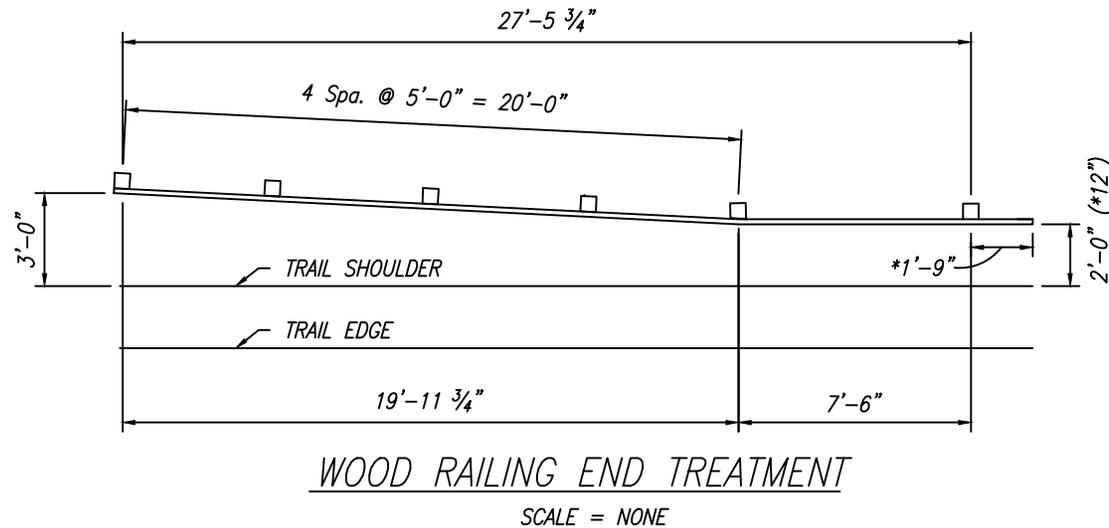
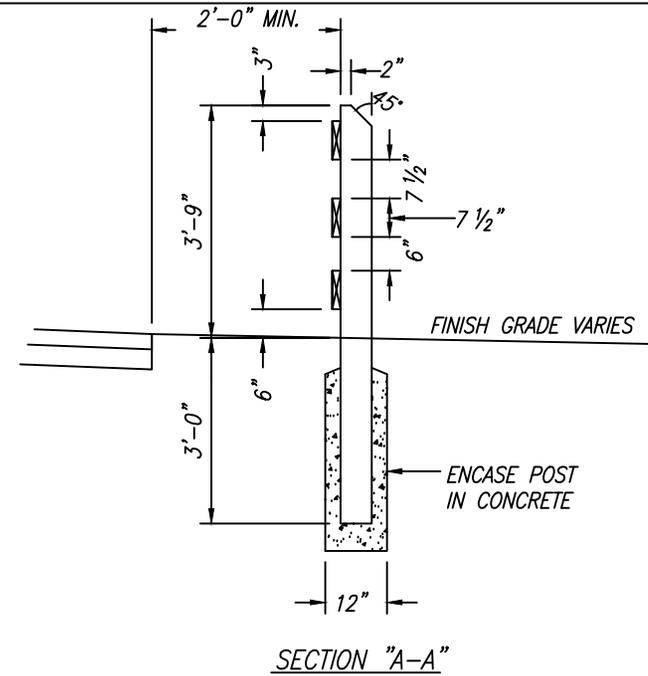
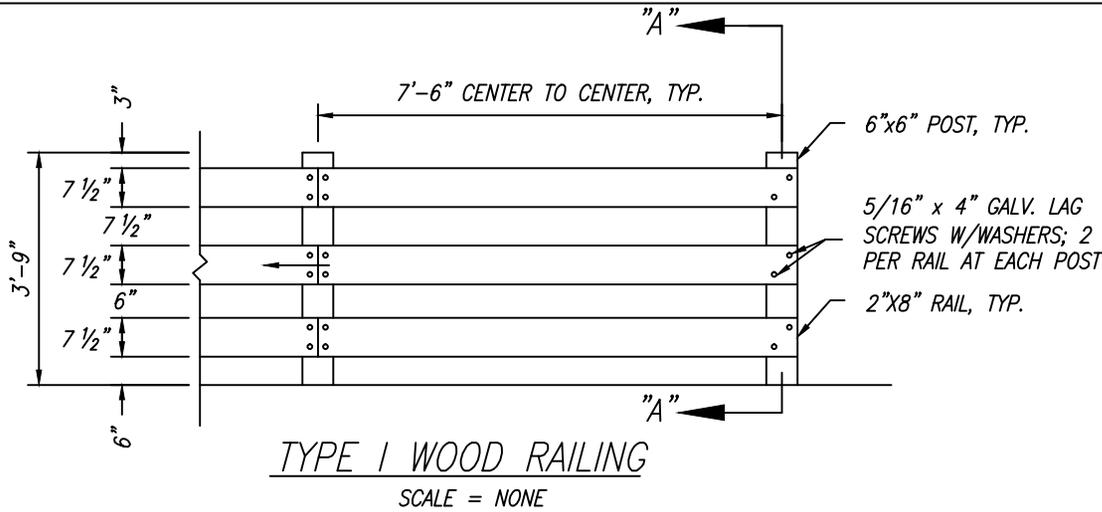
TYPICAL TRAIL SECTION – LINE OF SIGHT TRIANGLE



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*NOTE: THESE DIMENSIONS USED FOR END TREATMENT AT BRIDGE APPROACH.

TYPICAL TRAIL SECTION – WOOD RAILING DETAILS

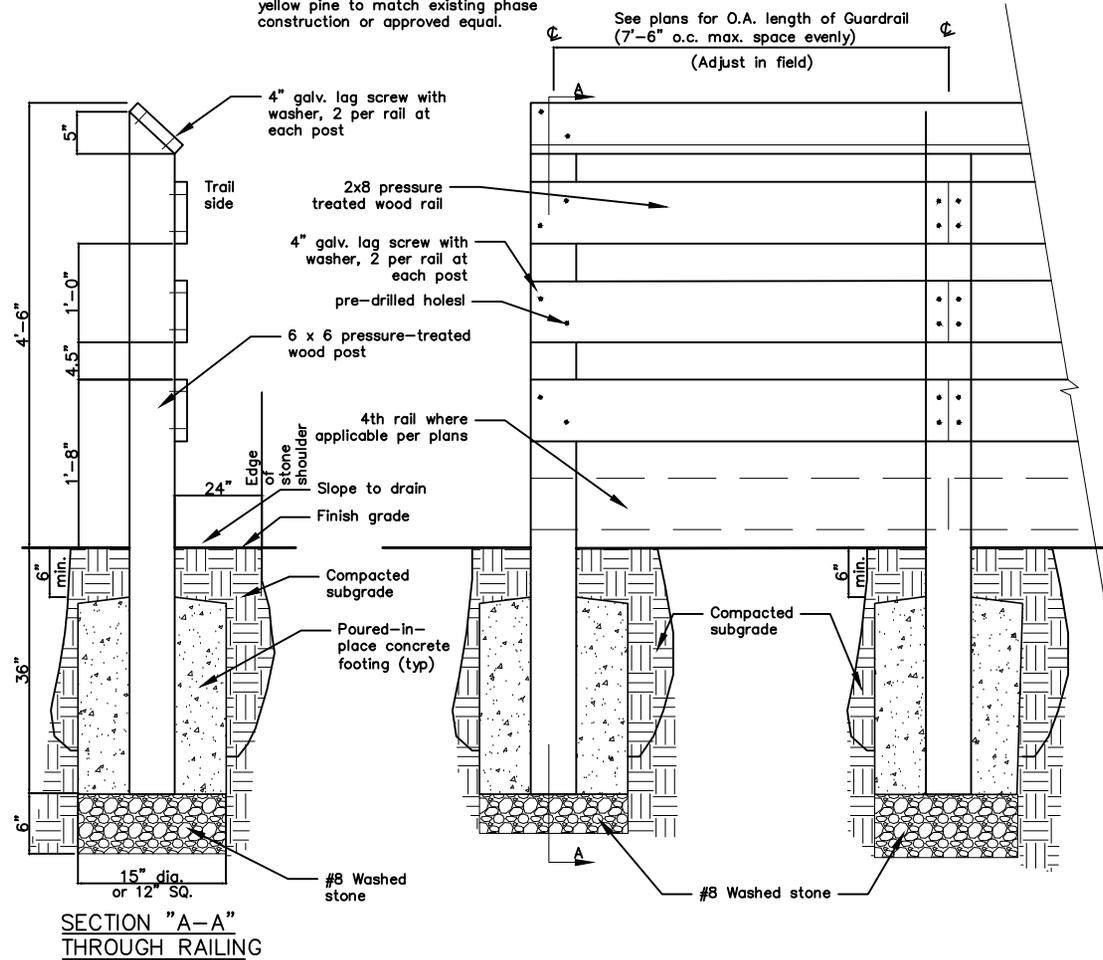


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All wood to be dimension lumber, grade 2 or better, 0.40 retention CCA, pressure-treated, S4S, EE, southern yellow pine to match existing phase construction or approved equal.



TYPICAL TRAIL SECTION – WOOD RAILING DETAILS

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