



## **DESIGN STANDARDS FOR:    PATHS**

---

The term “Standard Specifications” refers to the Standard Specifications for Road, Bridge and Municipal Construction and the Division One APWA Supplement as published by the Washington State Department of Transportation, latest edition, except as modified herein.

### Clearing, Grubbing and Trailside Cleanup

1. This item consists of clearing, grubbing and trailside cleanup of the right-of-way for construction. Included in this item is the removal and disposal of all trees, brush, stumps and debris within the clearing and grubbing limits.
2. Trailside cleanup shall give the trailside an attractive finished appearance. The trailside should be ready for reseeding and replanting by others.
3. Open Burning is not permitted.
4. Debris may be disposed of off-site or in areas approved by the Owner’s Representative.

### Subgrade

1. This item consists of preparing a suitable subgrade for the base course.
2. The subgrade shall consist of mineral soil, bedrock, or other material approved by the Parks and Recreation Department.
3. Subgrade shall be compacted by mechanical methods to 95% density (ASTM:D 1557).
4. A Parks Representative may require a proof-roll on sub-grade. Failing subgrade shall be removed and replaced with material approved by the Parks and Recreation Department.
5. A Parks Representative shall approve the sub-grade prior to placement of base course.

### Base Course

1. This item consists of supplying and placing crushed rock ballast over a prepared subgrade as shown on the drawings or approved by the Parks and Recreation Department.
2. Gravel base course shall conform to section 4-04 and 9-03.10 of the Standard Specifications.
3. Gravel base course shall consist of 1-1/4” minus crushed rock to 6” depth, or alternative approved by the Parks and Recreation Department.
4. Base course shall be compacted by mechanical methods to 95% density (ASTM:D 1557).

### Crushed Limestone Surfacing, Top Course

1. This item consists of supplying and placing crushed limestone surfacing over a prepared base course as shown on the drawings or as directed by a Parks Representative and conforming to Section 4-02, 4-04 of the Standard Specifications.
2. Crushed limestone surfacing shall consist of ½” minus crushed limestone to a compacted depth of 3” and meeting the following grading requirements:

Sieve	Percent passing (by weight)
½”	70-100
No. 4	45-70
No. 8	30-54
No. 30	12-34
No. 200	5-20

3. Crushed limestone surfacing shall be “dense grade” limestone. The material shall be uniform in quality and substantially free from extraneous material, except that it shall have minimal clay content of 5 to 9 percent (dry weight).
4. All areas shall be graded to within 0.1 foot, plus or minus of the proposed elevations.
5. Limestone shall be placed with a method that provides a finished surface of evenly mixed material free from large pockets of separated rock. Large pockets are defined as areas larger than 4 square feet.
6. Limestone surfacing shall be compacted after final grading with a minimum 3 passes of a 5-ton vibratory roller, or as directed by a Parks Representative.
7. Limestone shall be compacted by mechanical methods to 95% density.

### Drainage

1. Trail design shall provide positive drainage off of the trail in a manner that does not allow concentrated flows across the trail.
2. The trail shall be inspected by a Parks Representative at the subgrade inspection to determine the need for drainage improvements.

### Special Conditions

1. Trails through wetland areas require sub-grade stabilization and additional drainage flow considerations. Sub-grade review by a Geotechnical Engineer may be required after the subgrade inspection by the city representative.

## Modified Railway Ballast (where specified under special conditions)

1. This item consists of supplying and placing Railway Ballast for drainage prisms as shown on the drawings or as directed by the Owner and conforming to Section 4-04 of the Standard Specifications.
2. Railway Ballast shall be manufactured from ledge rock, talus, or gravel. The materials shall be uniform in quality, free from wood, roots, bark and other extraneous material. Railway Ballast shall meet the following requirements for grading and quality when placed in the hauling vehicle for delivery to the site:
3. Los Angeles Wear, 500 Rev. 35% max.
4. Degradation Factor                      15% min.

Sieve	Percent passing (by weight)
1 1/2" sq,	100
1" sq.	60 – 90
3/4" sq.	45 – 75
1/2" sq.	35 – 60
3/8" sq	100% retained

5. Railway Ballast material shall not contain more than a total of 1% by weight of wood wastes, clay lumps, dust, or other extraneous material. At least 85% of Railway Ballast material shall have at least one 1 fractured face. The rock must be washed twice.
6. Due to problems with stockpiled material breaking down (crushing) causing fines in stockpiled material, the Project Engineer must evaluate and certify the railway ballast mix as sampled from the on-site stockpile.
7. An open graded 2-inch clear crushed rock, subject to the listed durability fracture, and strength requirements, may be substituted for Railway Ballast where specified for use as a drainage layer. 2-inch clear crushed rock substituted for Railway Ballast will be paid as Railway Ballast. The rock must be washed twice.
  - a. The Project Engineer must evaluate and certify the open graded 2-inch clear crushed rock as sampled from the on-site stockpile.
  - b. 2-Inch Clear Crushed Rock shall have at least one fractured face on a minimum of 75 % of the rock. 2-Inch Clear Crushed Rock shall meet the test requirements of Section 9-03.9(1) Ballast and shall consist of crushed rock meeting the following gradation requirements:

Sieve	Percent passing (by weight)
4" sq,	100
2" sq.	50 - 100 retained
1" sq.	25 max

3/8" sq.	10 max
No. 4	5 max
No. 40	100 retained

8. Railway ballast or clear crushed rock placed adjacent to trail sections is designed to function as part of a drainage system. It is imperative that the drainage layer be in continuous contact with the materials placed for the trail section and that hydraulic connectivity between the various strata of construction be maintained to assure free movement of water through the materials.

#### Quality Control

1. Material shall not be contaminated at the site so as to change the moisture content or gradation. Stock piled material shall not be allowed to dry out. The contractor shall cover all stock piled material to maintain the material's moisture content. Material shall not be stock piled at the project site for an extended period of time, as determined by the owner.
2. The contractor will be required to submit a sieve analysis from the manufacturer that is dated no more than one year prior to the contract award date. At the owner's option, the owner may order that the contractor perform a sieve analysis of the material stock piled on the site at any time to ensure that it is in compliance with specifications.
3. The contractor will be required to attend an offsite visit with the owner to view an example of an existing trail built to the standards acceptable by the owner.
4. At the owner's option, the contractor may be required to build a test trail to show the level of quality of acceptable trail work before proceeding with the actual trail. The size and location of the test trail shall be determined at the pre-construction meeting. The contractor shall not proceed with work until the owner has approved the test trail.

END OF SECTION