

#### 2.3.2.2.2—Protection of Users

Replace the 3<sup>rd</sup> paragraph with the following:

In the case of movable bridges, warning signs, lights, signal bells, gates, barriers, and other safety devices shall be provided for the protection of pedestrian, cyclists, and vehicular traffic. These shall be designed to operate before the opening of the movable span and to remain operational until the span has been completely closed. The devices shall conform to the requirements for “Traffic Control for Movable Bridges,” in the *California Manual on Uniform Traffic Control Devices* (CA MUTCD) or as shown on plans.

#### 2.3.2.2.3—Geometric Standards

Replace the article with the following:

Requirements of the Caltrans *Highway Design Manual* shall either be satisfied or exceptions thereto shall be justified and documented. Width of shoulders and geometry of traffic barriers shall meet the specifications of the Owner.

Add the following commentary:

#### 2.3.2.2.4—Road Surfaces

#### C2.3.2.2.4

Replace the article with the following:

Road surfaces on a bridge shall be given crown, drainage, and superelevation in accordance with the Caltrans *Highway Design Manual* or local requirements.

Bridge deck surface characteristics are specified in Caltrans *Standard Specifications*.

### **2.3.3.2—Highway Vertical**

Replace the article with the following:

The vertical clearance of highway structures shall be in conformance with the Caltrans *Highway Design Manual* for the Functional Classification of the Highway or exceptions thereto shall be justified. Possible reduction of vertical clearance, due to settlement of an overpass structure, shall be investigated. If the expected settlement exceeds 1.0 in., it shall be added to the specified clearance.

The vertical clearance to sign supports and pedestrian overpasses shall be in conformance with the Caltrans *Highway Design Manual*.

The vertical clearance from the roadway to the overhead cross bracing of through truss structures should not be less than 17.5 ft.

### **2.3.3.3—Highway Horizontal**

Replace the 2<sup>nd</sup> paragraph with the following:

Horizontal clearance under a structure should meet the requirements of Article 2.3.2.2.

#### 2.6.4.4.2—Bridge Scour

Replace the 3<sup>rd</sup> paragraph with the following:

Spread footings on soil or erodible rock shall be located so that the top of footing is below the total scour elevation and the bottom of footing is below the scour depths determined for the check flood for scour. Spread footings on scour-resistant rock shall be designed and constructed to maintain the integrity of the supporting rock.

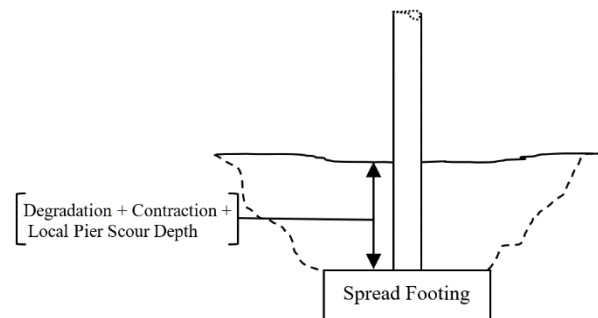
Replace the 4<sup>th</sup> paragraph with the following:

Deep foundations with footings shall be designed to place the top of the footing below the estimated degradation plus contraction scour depth where practical to minimize obstruction to flood flows and resulting local scour. Even lower elevations should be considered for pile-supported footings where the piles could be damaged by erosion and corrosion from exposure to stream currents. Where conditions dictate a need to construct the top of a footing to an elevation above the total scour elevation, attention shall be given to the scour potential of the design

#### C2.6.4.4.2

Add the following after the 3<sup>rd</sup> paragraph:

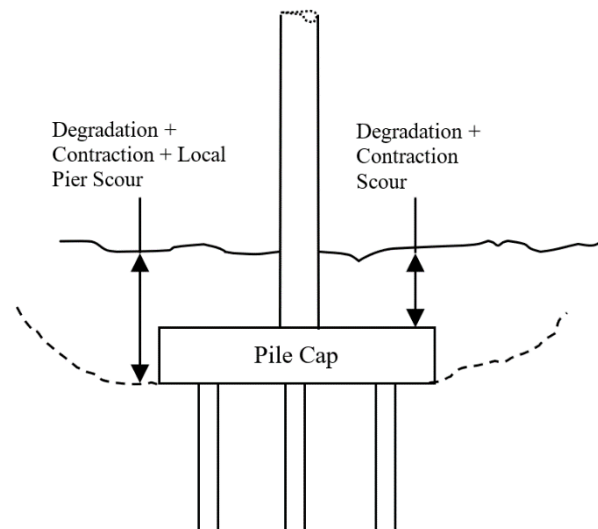
Total scour is the cumulative sum of contraction, degradation, and local scour. Figure C2.6.4.4.2-1 shows a typical spread footing foundation.



**Figure C2.6.4.4.2-1 Spread Footing Location**

Add the following after the 4<sup>th</sup> paragraph:

Foundations should be designed to withstand the conditions of scour. In general, this will result in deep foundations. Figure C2.6.4.4.2-2 shows a typical deep foundation.



**Figure C2.6.4.4.2-2 Deep Foundation Location**

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**2.6.6.3—Type, Size, and Number  
of Drains****C2.6.6.3**

Replace the 1<sup>st</sup> paragraph with the following:

For further guidance or design criteria on bridge deck drainage, see the *Caltrans Highway Design Manual, Memo to Designers, and Bridge Design Aids*.

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