ELEMENT LEVEL INSPECTION MANUAL

September 2000

Caltrans Metric

Engineering Service Center
Division of Structure Maintenance and Investigations

Quick Reference

Key Word	Description
Environment	The environmental or operating factors that effect the deterioration rate of the element. See Appendix, page A-1and A-2 for detailed descriptions and guidelines for environment determination. 1 – Benign 2 – Low 3 – Moderate 4 – Severe
Feasible Actions	A listing of typical actions that would be taken for an element in that condition state.

Element Measurement Conventions	See...
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Spandral Arches	Appendix p. A-3
Accounting for Skew	Appendix p. A-3
Elements Not Visible During Inspection	Appendix p. A-3
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Determining the Number of Girders	Appendix p. A-4
Timber Abutments	Appendix p. A-4
Pile Bents	Appendix p. A-5
Stringers and Girders (Which is Which?)	Appendix p. A-5
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Trusses (Total Quantity Determination)	Appendix p. A-6
Trusses/Arches (Deteriorated Portions)	Appendix p. A-6
Rail Length Limits	Appendix p. A-6
Other Conventions	Element

Metric Conversion	Factor
Feet to Meters	Feet ´ 0.3048 = Meters
Inches to Millimeters	Inches ´ 25.4 = Millimeters
Square Feet to Square Meters	Square Feet ´ 0.093 = Square Meters

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Decks/Slabs

Item	Units	Decks	Slabs
Concrete (Bare)	sq. m	**12** *(14)*	**38** *(14)*
Concrete Unprotected with AC Overlay	sq. m	**13** *(15)*	**39** *(15)*
Concrete Protected with AC Overlay	sq. m	**14** *(16)*	**40** *(16)*
Concrete Protected with Thin Overlay	sq. m	**18** *(17)*	**44** *(17)*
Concrete Protected with Rigid Overlay	sq. m	**22** *(18)*	**48** *(18)*
Concrete Protected with Coated Bars	sq. m	**26** *(19)*	**52** *(19)*
Concrete Protected with Cathodic Protection	sq. m	**27** *(20)*	**53** *(20)*
Open Grid – Steel	sq. m	**28** *(21)*	
Concrete Filled Grid – Steel	sq. m	**29** *(22)*	
Corrugated/Orthotropic/Etc.	sq. m	**30** *(23)*	
Timber (Bare)	sq. m	**31** *(24)*	**54** *(26)*
Timber with AC Overlay	sq. m	**32** *(25)*	**55** *(27)*
Prestressed Concrete Slab (Bare)	sq. m		**60** *(28)*
Prestressed Concrete Slab – Unprotected with AC	sq. m		**61** *(29)*

Note

- *Number in* **boldface** *indicates Element Number.*
- *Italicized number within parentheses (##) indicates the page number of the condition state language.*

Superstructure

Item	Units	Steel Unpainted	Steel Painted	Prestressed Concrete	Reinforced Concrete	Timber	Other
Closed Web/Box/Girder	m	**101** *(3)*	**102** *(5)*	**104** *(7)*	**105** *(9)*		
Open Girder	m	**106** *(3)*	**107** *(5)*	**109** *(7)*	**110** *(9)*	**111** *(11)*	
Stringer (Stringer-Floor Beam System)	m	**112** *(3)*	**113** *(5)*	**115** *(7)*	**116** *(9)*	**117** *(11)*	
Thru Truss (Bottom Chord)	m	**120** *(3)*	**121** *(5)*				
Thru Truss (Excluding Bottom Chord)	m	125 *(3)*	**126** *(5)*				
Deck Truss	m	**130** *(3)*	**131** *(5)*				
Timber Truss/Arch	m					**135** *(11)*	
Arch	m	**140** *(3)*	**141** *(5)*	**143** *(7)*	**144** *(9)*		**145** *(13)*
Cable (Not Embedded in Concrete)	EA						**146** *(30)*
Floor Beam	m	**151** *(3)*	**152** *(5)*	**154** *(7)*	**155** *(9)*	**156** *(11)*	
Pin and Hanger Assembly	EA	**160** *(31)*	**161** *(32)*				
Railroad Car Frame	EA						**170** *(33)*
Miscellaneous Steel Superstructure	EA						**171** *(34)*

Smart Flags

Item	Units	Element No.
Steel Fatigue	EA	**356** *(63)*
Pack Rust	EA	**357** *(64)*
Deck Cracking	EA	**358** *(65)*
Soffit, Under Surface of Decks	EA	**359** *(66)*
Settlement	EA	**360** *(67)*
Scour	EA	**361** *(68)*
Traffic Impact	EA	**362** *(69)*
Steel Section Loss	EA	**363** *(70)*

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Substructure

Item	Units	Steel Unpainted	Steel Painted	Prestressed Concrete	Reinforced Concrete	Timber	Other
Column or Pile Extension	EA	**201** *(3)*	**202** *(5)*	**204** *(7)*	**205** *(9)*	**206** *(11)*	
Pier Wall	m				**210** *(9)*		**211** *(13)*
Abutment	m				**215** *(9)*	**216** *(11)*	**217** *(13)*
Submerged Pile Cap/Footing	EA				**220** *(9)*		
Submerged Pile	EA	**225** *(3)*		**226** *(7)*	**227** *(9)*	**228** *(11)*	
Cap	m	**230** *(3)*	**231** *(5)*	**233** *(7)*	**234** *(9)*	**235** *(11)*	
Culvert	m	**240** *(35)*			**241** *(36)*	**242** *(37)*	**243** *(38)*
Tunnel	m						**250** *(39)*
Steel Shell Filled with Concrete	EA						**251** *(40)*
CIDH Piles	EA						**252** *(41)*
Other Piles	EA						**253** *(41)*
Seismic Column Shells (Full Height)	EA						**254** *(42)*
Seismic Column Shells (Partial Height)	EA						**255** *(43)*
Slope Protection	EA						**256** *(44)*

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Other Super/Substructure Elements

Item	Units	Metal	Prestressed Concrete	Reinforced Concrete	Timber	Other
Strip Seal Expansion Joint	m					**300** *(45)*
Pourable Joint Seal	m					**301** *(46)*
Compression Joint Seal	m					**302** *(47)*
Assembly Joint/Seal (Modular)	m					**303** *(48)*
Open Expansion Joint	m					**304** *(49)*
Elastomeric Bearing	EA					**310** *(50)*
Movable Bearing (Roller, Sliding, etc.)	EA					**311** *(51)*
Enclosed/Concealed Bearing	EA					**312** *(52)*
Fixed Bearing	EA					**313** *(53)*
Pot Bearing	EA					**314** *(54)*
Disk Bearing	EA					**315** *(55)*
Approach Slab	EA		**320** *(56)*	**321** *(57)*		
Bridge Railing	m	**330** *(58)*		**331** *(59)*	**332** *(60)*	**333** *(61)*
Bridge Railing Cont.	m	**336-338** *(58)*		**339** *(59)*		**334-335** *(61)*
Type "M" Joint	m					**340** *(62)*
Joint – Steel Finger (Sealed)	m					**341** *(48)*
Joint – Waboflex	m					**342** *(48)*
Joint – Wabo Aluminum Strip	m					**343** *(48)*
Joint – Delastiflex RV	m					**344** *(48)*
Joint – Delastiflex DL	m					**345** *(48)*
Joint – Aluminum	m					**346** *(48)*
Joint – Mauer	m					**347** *(48)*
Open Joint – Steel Sliding Plates	m					**349** *(49)*
Open Joint – Steel Finger (Not Sealed)	m					**350** *(49)*

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