# H 100 Introduction

## Table of Contents

<table>
<thead>
<tr>
<th>Section No.</th>
<th>Subject</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 110</td>
<td>General Responsibility and Function</td>
<td>June 1988</td>
</tr>
<tr>
<td>H 111</td>
<td>Design Function</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 111.1</td>
<td>Design Activities</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 111.2</td>
<td>Functional Responsibilities</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 112</td>
<td>Definitions</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 113</td>
<td>Abbreviations</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 114</td>
<td>Additional Abbreviations</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 120</td>
<td>Standards, Codes and Specifications</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 121</td>
<td>Structural Design</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 122</td>
<td>Construction Specifications</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 122.1</td>
<td>Permits</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 122.2</td>
<td>Special Provisions</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 122.3</td>
<td>Plans</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 122.31</td>
<td>Details</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 122.32</td>
<td>Notes</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 122.4</td>
<td>Standard Plans</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 122.5</td>
<td>Standard Plan S-610</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 122.6</td>
<td>Standard Specifications</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 122.7</td>
<td>Reference Specifications</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 130</td>
<td>Cost Studies</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 131</td>
<td>Classes of Cost Estimates</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 132</td>
<td>Cost Study, Work Program</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 133</td>
<td>Cost Study, Economic Alternative</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 140</td>
<td>Advance Planning</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 141</td>
<td>Requests for New Projects</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 142</td>
<td>CAO-39 Package (Preparation and Updating)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 142.1</td>
<td>Capital Improvement Project Request Forms</td>
<td>&quot;</td>
</tr>
<tr>
<td></td>
<td>(CAO-39)</td>
<td></td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION NO.</th>
<th>SUBJECT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 142.2</td>
<td>PRELIMINARY ESTIMATE SHEET AND WORK ORDER FORM</td>
<td>June 1988</td>
</tr>
<tr>
<td>H 142.3</td>
<td>PROJECT SKETCHES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 142.4</td>
<td>INITIAL STUDY, EIR</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 142.41</td>
<td>PREPARATION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 142.42</td>
<td>PROCESSING</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 143</td>
<td>FIELD REVIEW, FEDERAL AID PROJECTS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 150</td>
<td>STRUCTURAL DESIGN PROCESS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 151</td>
<td>ENVIRONMENTAL IMPACT STUDY</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 151.1</td>
<td>NOTICE OF EXEMPTION AND ENVIRONMENTAL STUDY</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 151.2</td>
<td>DRAFT AND FINAL EIR</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 152</td>
<td>PRELIMINARY DESIGN</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 154.31</td>
<td>LACDPW (FLOOD CONTROL FACILITIES) PERMIT</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 154.32</td>
<td>CORPS OF ENGINEERS PERMIT</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 154.33</td>
<td>STATE ENCROACHMENT PERMIT</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 154.34</td>
<td>CITY BUILDING DEPARTMENT PERMIT</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 154.35</td>
<td>COASTAL DEVELOPMENT PERMIT</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 154.4</td>
<td>DRAFT SPECIAL PROVISIONS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 160</td>
<td>PLAN PREPARATION, CHECKING AND PROCESSING PROCEDURES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161</td>
<td>PLAN PREPARATION STANDARDS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.1</td>
<td>PLAN SHEETS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.2</td>
<td>DRAFTING</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.21</td>
<td>MATERIAL</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.22</td>
<td>LETTERING</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.23</td>
<td>SCALES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.24</td>
<td>LINES</td>
<td>&quot;</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION NO.</th>
<th>SUBJECT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 161.25</td>
<td>NOTICE TO CONTRACTOR NOTES</td>
<td>June 1988</td>
</tr>
<tr>
<td>H 161.26</td>
<td>DETAILS</td>
<td></td>
</tr>
<tr>
<td>H 161.27</td>
<td>SYMBOLS AND ABBREVIATIONS</td>
<td></td>
</tr>
<tr>
<td>H 161.3</td>
<td>PLAN FORMAT</td>
<td></td>
</tr>
<tr>
<td>H 161.4</td>
<td>TITLE SHEET FORMAT</td>
<td></td>
</tr>
<tr>
<td>H 161.5</td>
<td>DETAILING PRACTICE</td>
<td></td>
</tr>
<tr>
<td>H 162</td>
<td>PLAN CHECKING</td>
<td></td>
</tr>
<tr>
<td>H 162.1</td>
<td>SUBMITTALS FOR CHECKING</td>
<td></td>
</tr>
<tr>
<td>H 162.2</td>
<td>CHECKING PROCEDURE</td>
<td></td>
</tr>
<tr>
<td>H 163</td>
<td>PLAN PROCESSING, PRIME OFFICE</td>
<td></td>
</tr>
<tr>
<td>H 163.1</td>
<td>PLAN CIRCULATION AND APPROVAL PROCESS</td>
<td></td>
</tr>
<tr>
<td>H 163.11</td>
<td>ROUTINE PLAN CIRCULATION</td>
<td></td>
</tr>
<tr>
<td>H 163.12</td>
<td>EXPEDITED PLAN CIRCULATION</td>
<td></td>
</tr>
<tr>
<td>H 163.2</td>
<td>PREADVERTISING CHECK</td>
<td></td>
</tr>
<tr>
<td>H 163.21</td>
<td>TUNNEL CLASSIFICATIONS</td>
<td></td>
</tr>
<tr>
<td>H 163.22</td>
<td>UTILITY SERVICE HOOKUPS</td>
<td></td>
</tr>
<tr>
<td>H 163.3</td>
<td>PROJECT REVISION METHODS</td>
<td></td>
</tr>
<tr>
<td>H 163.31</td>
<td>PREADVERTISING PERIOD</td>
<td></td>
</tr>
<tr>
<td>H 163.32</td>
<td>OUT TO BID PERIOD</td>
<td></td>
</tr>
<tr>
<td>H 163.33</td>
<td>BIDS RECEIVED PERIOD</td>
<td></td>
</tr>
<tr>
<td>H 163.34</td>
<td>AFTER CONTRACT IS AWARDED</td>
<td></td>
</tr>
<tr>
<td>H 163.35</td>
<td>REVISION OF ASSESSMENT PROJECTS</td>
<td></td>
</tr>
<tr>
<td>H 163.4</td>
<td>PLAN REVISION PROCEDURE</td>
<td></td>
</tr>
<tr>
<td>H 163.41</td>
<td>SHEET ELIMINATION</td>
<td></td>
</tr>
<tr>
<td>H 163.42</td>
<td>SHEET SUBSTITUTION</td>
<td></td>
</tr>
<tr>
<td>H 163.43</td>
<td>SHEET ADDITIONS</td>
<td></td>
</tr>
<tr>
<td>H 163.5</td>
<td>DISPOSITION OF PLANS AND FILES</td>
<td></td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION NO.</th>
<th>SUBJECT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 163.51</td>
<td>DISPOSITION OF PLANS</td>
<td>June 1988</td>
</tr>
<tr>
<td>H 163.52</td>
<td>DISPOSITION OF FILES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 163.53</td>
<td>DISPOSITION OF PLANS – FLOOD CONTROL PROJECTS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 163.54</td>
<td>DISPOSITION OF PLANS – FAU PROJECTS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 164</td>
<td>OTHER PROCESSING PROCEDURES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 164.1</td>
<td>PLAN PROCESSING – NOT PRIME OFFICE</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 164.2</td>
<td>CLOSURE OF WORK ORDERS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 170</td>
<td>PERMITS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 171</td>
<td>SPECIAL DEPOSIT EXCAVATION PERMITS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 171.1</td>
<td>PERMIT PROCESSING</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 171.2</td>
<td>SUBMITTALS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 171.3</td>
<td>RECORDS AND FILES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 171.4</td>
<td>STRUCTURAL CHECK</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 171.41</td>
<td>SOIL REPORT</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 171.42</td>
<td>STRUCTURAL CALCULATIONS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 171.43</td>
<td>PLANS AND SPECIFICATIONS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 171.5</td>
<td>STRUCTURAL PLAN APPROVAL AND DISTRIBUTION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 172</td>
<td>CLASS A AND B PERMITS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 172.1</td>
<td>B PERMIT ISSUANCE</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 172.11</td>
<td>DESIGN CHECKING (NO CONSTRUCTION)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 172.12</td>
<td>CONSTRUCTION OR COMBINATION (CHECKING AND CONSTRUCTION) PERMITS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 172.2</td>
<td>B PERMIT CONSTRUCTION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 172.3</td>
<td>PERMIT EXPIRATION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173</td>
<td>OVERLOAD PERMITS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.1</td>
<td>PERMIT ISSUANCE AND PERMIT JURISDICTION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.2</td>
<td>INSPECTION AND ENFORCEMENT</td>
<td>&quot;</td>
</tr>
</tbody>
</table>
### TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION NO.</th>
<th>SUBJECT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 173.3</td>
<td>STRUCTURAL APPROVAL</td>
<td>June 1988</td>
</tr>
<tr>
<td>H 173.4</td>
<td>RATING OF BRIDGES AND STRUCTURES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.5</td>
<td>RATING OF LOADS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.51</td>
<td>RED LOADING</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.52</td>
<td>ORANGE LOADING</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.53</td>
<td>GREEN LOADING</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.54</td>
<td>PURPLE LOADING</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.55</td>
<td>MAXIMUM LOADS ON BRIDGES AND STRUCTURES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.56</td>
<td>MAXIMUM LOADS ON PAVEMENTS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.6</td>
<td>OVERLOAD PERMITS AND AGREEMENTS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.61</td>
<td>PERMIT TYPES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.62</td>
<td>DESCRIPTION OF VEHICLES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.63</td>
<td>DESCRIPTION OF LOAD</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.64</td>
<td>DESCRIPTION OF ROUTE</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.65</td>
<td>ADDENDA TO PERMITS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.7</td>
<td>OVERLOAD PERMIT CHECKING</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.71</td>
<td>CHECKING PROCEDURE</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.72</td>
<td>VERIFICATION OF WEIGHTS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.73</td>
<td>STRUCTURAL ANALYSIS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.74</td>
<td>ALLOWABLE STRESSES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.75</td>
<td>ANNUAL PERMITS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.8</td>
<td>OPTIONS FOR DISAPPROVED PERMITS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.9</td>
<td>SPECIAL VEHICLES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.91</td>
<td>TRUCK CRANES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.92</td>
<td>EARTHMOTERS AND SPECIAL CONSTRUCTION</td>
<td>&quot;</td>
</tr>
<tr>
<td></td>
<td>VEHICLES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.93</td>
<td>NONRUBBER - TIRED VEHICLES</td>
<td>&quot;</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>SECTION NO.</th>
<th>SUBJECT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 180</td>
<td>STRUCTURE INSPECTION AND MAINTENANCE</td>
<td>June 1988</td>
</tr>
<tr>
<td>H 181</td>
<td>MAINTENANCE AGREEMENTS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 181.1</td>
<td>STATE FREEWAY VEHICULAR AND PEDESTRIAN OVERCROSSINGS AND UNDERCROSSES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 181.2</td>
<td>STATE HIGHWAY VEHICULAR AND PEDESTRIAN OVERCROSSINGS AND UNDERCROSSES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 181.3</td>
<td>RAILROAD GRADE SEPARATIONS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 181.4</td>
<td>STRUCTURES UNDER LACDPW (FLOOD CONTROL FACILITIES) JURISDICTION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 181.5</td>
<td>MISCELLANEOUS STRUCTURES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 182</td>
<td>BUREAU INSPECTION RESPONSIBILITIES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 183</td>
<td>STRUCTURES INSPECTED</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 184</td>
<td>FREQUENCY OF INSPECTION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 185</td>
<td>DEFECTS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 185.1</td>
<td>CLASSIFICATION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 185.2</td>
<td>REPORTS AND REQUESTS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 185.3</td>
<td>FOLLOW-UP OF REPAIRS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 186</td>
<td>STRUCTURE RECORDS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 190</td>
<td>COMPUTER APPLICATIONS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 191</td>
<td>TSO REMOTE ACCESS TERMINAL</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 192</td>
<td>AVAILABLE COMPUTER PROGRAMS</td>
<td>&quot;</td>
</tr>
</tbody>
</table>
## LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE NO.</th>
<th>TITLE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 142A</td>
<td>CAPITAL IMPROVEMENT PROJECT REQUEST (CAO-39)</td>
<td>June 1988</td>
</tr>
<tr>
<td>H 142B</td>
<td>PROJECT ESTIMATE AND FUNDING SHEET</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 142C</td>
<td>WORK ORDER REQUEST FORM</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 142D</td>
<td>VICINITY MAP</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 142E</td>
<td>PROJECT SKETCHES</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 143A</td>
<td>FIELD REVIEW ATTENDANCE ROSTER</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 143B</td>
<td>FIELD REVIEW FORM (3 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 143C</td>
<td>PRELIMINARY ENVIRONMENTAL STUDY FORM</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 143D</td>
<td>PRELIMINARY CLASSIFICATION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 143E</td>
<td>CATEGORICAL EXCLUSION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 143F</td>
<td>STRUCTURE INVENTORY AND APPRAISAL SHEET</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 143G</td>
<td>MAJOR STRUCTURE DATA</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 151A</td>
<td>NOTICE OF EXEMPTION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 151B</td>
<td>GUIDE FOR AN ENVIRONMENTAL IMPACT ANALYSIS (2 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 152.2</td>
<td>PROJECT CONTROL CHECKLIST (3 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 152.31</td>
<td>REQUEST FOR FIELD WORK</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 152.33</td>
<td>SOILS REPORT REQUEST (4 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>A, B</td>
<td></td>
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<tr>
<td>H 152.42</td>
<td>STRUCTURE TYPE SELECTION FORM (STSF)</td>
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<tr>
<td>H 153A</td>
<td>COASTAL DEVELOPMENT BOUNDARY MAP (2 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 153B</td>
<td>COASTAL DEVELOPMENT APPLICATION FOR PERMIT (7 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 153C</td>
<td>COASTAL DEVELOPMENT APPROVAL IN CONCEPT (2 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 153D</td>
<td>COASTAL DEVELOPMENT PERMIT (2 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 154.141</td>
<td>BUILDING PERMIT APPLICATION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 154.2</td>
<td>UTILITY LOCATION LETTER</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.22</td>
<td>DRAFTING STANDARDS: CROSS-SECTION SYMBOLS; TYPE AND SIZE OF LETTERING</td>
<td>&quot;</td>
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## LIST OF FIGURES

<table>
<thead>
<tr>
<th>FIGURE NO.</th>
<th>TITLE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>H 161.24</td>
<td>LINE CONVENTION</td>
<td>June 1988</td>
</tr>
<tr>
<td>H 161.27A</td>
<td>DRAFTING STANDARDS: SUBSTRUCTURE SYMBOLS</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.27B</td>
<td>STANDARD WELDING SYMBOLS (2 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.5A</td>
<td>STRUCTURAL DETAIL DRAFTING STANDARDS (3 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.5B</td>
<td>UNIFIED SOIL CLASSIFICATION SYSTEM</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 161.5C</td>
<td>SAMPLE LOG OF BORING</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 163</td>
<td>FLOW CHART, CIP PROJECT PROCESSING AND CONSTRUCTION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 163.1A</td>
<td>INDEX NUMBERING REQUEST FORM</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 163.1B</td>
<td>VAULT REQUISITION FORM</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 163.1C</td>
<td>PHOTO REPRODUCTION ORDER</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 164.2</td>
<td>WORK ORDER CLOSING NOTICE</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173</td>
<td>LEGAL LIMITS OF VEHICULAR LOADS (2 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.4</td>
<td>MAXIMUM AXLE LOADINGS ON TYPICAL 7-AXLE RIG</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.5</td>
<td>OVERLOAD RATING CHART</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.6A</td>
<td>OVERLOAD PERMIT AND REQUIREMENTS (3 SHEETS)</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 173.6B</td>
<td>APPLICATION FOR ANNUAL OVERLOAD PERMIT</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 185.2A</td>
<td>REPAIR REQUEST LETTER, STATE INSPECTION</td>
<td>&quot;</td>
</tr>
<tr>
<td>H 185.2B</td>
<td>REPAIR REQUEST LETTER, CITY INSPECTION</td>
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</tr>
</tbody>
</table>
H 100 INTRODUCTION

H 110 GENERAL RESPONSIBILITY AND FUNCTION

The Bureau of Engineering is responsible for the structural engineering required for Public Works facilities within its jurisdiction. Structural engineering shall be performed in compliance with the Bureau's structural standards and other controlling or reference codes, specifications, and design manuals.

The codes, specifications, and manuals are periodically updated by the responsible agencies or committees. It is the responsibility of the designer to obtain the latest edition approved by the Bureau for use in design and construction. The designer should note the edition used on the project plans.

From time to time, Bureau staff may perform design work for other agencies. When this occurs, the design standards, codes, and specifications of the concerned agency should be used.

Structural engineering includes the following functions:

a. Design, construction engineering, and maintenance inspection of structures.

b. Checking the structural aspects in the process of issuing permits which allow work on or adjacent to a public way, or the operation of any vehicle or combination of vehicles exceeding the City Code limitations of weight, height, width, or length.

The design function depends on other support disciplines, such as Research and Standards; Data Processing; Geology; Permits; Soils Engineering; Street, Storm Drain; and Sewer Designs; etc. The general aspects of the support disciplines are covered in the appropriate parts of the Bureau Manual. Specific aspects of these disciplines, as they relate to structural design, are discussed in this Part H.

Construction engineering pertains to the necessary engineering work that is performed after the award of a contract. It entails activities such as reviewing the required shop drawings, preparation of change orders, and interpreting the plans.

Maintenance inspection is performed for bridges and other important structures in the public way in order to insure that these structures are maintained properly for the convenience and safety of the public.

H 111 DESIGN FUNCTION

The structural design includes the design activities and functional responsibilities listed below.
H 111.1 DESIGN ACTIVITIES

Bridge Design - Includes the design of vehicular, railroad, bikeway, pedestrian, and other bridges.

Storm Drain and Sewer Structure Design - Includes the design of structures related to the storm drain and sewer systems of the City, such as pumping plants, culverts, conduits, and channels.

Building Design - Includes the design of buildings for City facilities, such as sewage treatment and water reclamation plants.

Miscellaneous Structures Design - Includes the design of structures such as tunnels and earth retaining structures incidental to the design of streets and other Public Works facilities.

H 111.2 FUNCTIONAL RESPONSIBILITIES

Structural Design - Includes the design or design review of structures within the Bureau's jurisdiction in conformance with Bureau standards, codes, and specifications.

The design process produces detailed structural analysis, architectural features, contract plans, and special provisions. The designer is also responsible for performing many of the support disciplines such as cost studies, advance planning, obtaining permits, construction engineering, etc.

H 112 DEFINITIONS

The following is a list of commonly used structural terms which supplements the listing in the Standard Specifications and Standard Plan S-610. Items preceded by an asterisk(*) are State of California terminologies that are used when referring to State structures within the City for maintenance by agreement.

Bridge - A structure that carries traffic, utilities, conduits, etc., over an obstruction such as a watercourse, street, etc.

Bulkhead - A structure that retains a mass of soil and consists of soldier beams embedded in soil (with or without anchors) and lagging between them.

Culvert - A closed conduit passing under a roadway or embankment. A culvert has a span of less than 20 feet, or if multispans, the individual spans are 10 feet or less.

Grade Separation - A structure which separates railroad from intersecting vehicular traffic.

Maintenance - The procedure of timely inspection and repair structures for the purpose of keeping them in good physical condition and aesthetic appearance.
*Overcrossing* - A bridge structure which carries a City street or walkway over a State Highway.

**Pedestrian Bridge** - A structure that carries pedestrian traffic over an obstruction such as a street, watercourse, railroad, etc.

**Pedestrian Subway** - A City-owned tunnel under a City street with approach stairways at each end.

**Railroad Bridge** - A structure which carries railroad traffic over an obstruction such as a street or a watercourse.

**Retaining Wall** - A wall providing lateral support to keep a bank of earth from sliding or water from flooding.

*Separation* - A bridge structure which carries traffic of one State Highway over another State Highway.

**Traveled Way** - The portion of the street dedication available for vehicular use.

**Tunnel** - An underground passageway for vehicles, pedestrians, utilities, etc.

**Undercrossing** - A bridge structure which carries a City street under a State Highway.

**Vehicular Bridge** - A structure designed to carry vehicular traffic over an obstruction such as a watercourse, street, or railroad.

**Viaduct** - A long bridge consisting of several spans supported on piers and abutments and crossing over several obstructions such as channels, railroads, and roadways.

**H 113 ABBREVIATIONS**

The following abbreviations supplement the listing in the Standard Specifications and *Standard Plan S-610*. When used in plans or other contract documents, these abbreviations should be defined on the plans. Refer to Part E, Street Design, for additional abbreviations and acronyms.

<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA</td>
<td>Aluminum Association</td>
</tr>
<tr>
<td>AAR</td>
<td>Association of American Railroads</td>
</tr>
<tr>
<td>ACI</td>
<td>American Concrete Institute</td>
</tr>
<tr>
<td>AITC</td>
<td>American Institute of Timber Construction</td>
</tr>
<tr>
<td>AOC</td>
<td>Amalgamated Oil Company</td>
</tr>
</tbody>
</table>
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Words</th>
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</thead>
<tbody>
<tr>
<td>ARCO</td>
<td>Atlantic Richfield Company</td>
</tr>
<tr>
<td>Assoc. Oil</td>
<td>Associated Oil Company (Salt Lake Oil Company)</td>
</tr>
<tr>
<td>A.T. Co.</td>
<td>Associated Telephone Company</td>
</tr>
<tr>
<td>ATSF or A.T. &amp; S. F. RY. (ATSF-SP)</td>
<td>Atchison, Topeka and Sante Fe Railway Company</td>
</tr>
<tr>
<td>BPDM</td>
<td>Bridge Planning and Design Manual (State)</td>
</tr>
<tr>
<td>Bureau</td>
<td>Bureau of Engineering</td>
</tr>
<tr>
<td>BPL</td>
<td>Bureau of Power and Light, DWPPS (current)</td>
</tr>
<tr>
<td>BWS</td>
<td>Bureau of Water Service, DWPWS (current)</td>
</tr>
<tr>
<td>CEQA</td>
<td>California Environmental Quality Act of 1970</td>
</tr>
<tr>
<td>Cgc</td>
<td>Center of gravity of concrete</td>
</tr>
<tr>
<td>Cgs</td>
<td>Center of gravity of steel</td>
</tr>
<tr>
<td>C-I-P</td>
<td>Cast-in-place</td>
</tr>
<tr>
<td>CRSI</td>
<td>Concrete Reinforcing Steel Institute</td>
</tr>
<tr>
<td>DOT</td>
<td>United States Department of Transportation</td>
</tr>
<tr>
<td>EGC</td>
<td>Economic Gas Company</td>
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<tr>
<td>EIR</td>
<td>Environmental Impact Report (CEQA)</td>
</tr>
<tr>
<td>EIS</td>
<td>Environmental Impact Statement (NEPA)</td>
</tr>
<tr>
<td>FAA</td>
<td>Federal Aviation Agency</td>
</tr>
<tr>
<td>FAP</td>
<td>Federal-Aid Primary (Program)</td>
</tr>
<tr>
<td>FAS</td>
<td>Federal-Aid Secondary (Program)</td>
</tr>
<tr>
<td>FAU</td>
<td>Federal-Aid Urban (Program)</td>
</tr>
<tr>
<td>FHWA</td>
<td>Federal Highway Administration (Agency within DOT)</td>
</tr>
<tr>
<td>F &amp; S</td>
<td>City of Los Angeles Fire and Signal Division</td>
</tr>
<tr>
<td>Gen. Pet.</td>
<td>General Petroleum Corporation of California</td>
</tr>
<tr>
<td>Gen. Pipe</td>
<td>General Pipe Line Company</td>
</tr>
<tr>
<td>GOC</td>
<td>Getty Oil Co.</td>
</tr>
<tr>
<td>J.P.C.</td>
<td>Julian Petroleum Corporation</td>
</tr>
<tr>
<td>K</td>
<td>Kips (1000 pounds)</td>
</tr>
<tr>
<td>Ksf</td>
<td>Kips per square foot</td>
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<tr>
<td>LABC</td>
<td>Los Angeles Building Code (City)</td>
</tr>
<tr>
<td>LACSD</td>
<td>Los Angeles County Sanitation District</td>
</tr>
<tr>
<td>LAG</td>
<td>Los Angeles Gas Company</td>
</tr>
<tr>
<td>LAG &amp; E</td>
<td>Los Angeles Gas and Electric Company (SCG;DWPPS)</td>
</tr>
<tr>
<td>LAI &amp; C.S. Co.</td>
<td>Los Angeles Ice and Cold Storage Company</td>
</tr>
<tr>
<td>L.A.M.P.</td>
<td>Los Angeles Midway Pipe Line Company</td>
</tr>
<tr>
<td>LA Ry</td>
<td>Los Angeles Railway (RTD)</td>
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<tr>
<td>LATL</td>
<td>Los Angeles Transit Lines (RTD)</td>
</tr>
<tr>
<td>LAWD</td>
<td>Los Angeles Water Department (DWPWS)</td>
</tr>
<tr>
<td>MCD</td>
<td>Multiple Concrete Duct</td>
</tr>
<tr>
<td>MO</td>
<td>Mobil Oil Corporation</td>
</tr>
<tr>
<td>Abbreviations</td>
<td>Words</td>
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<tr>
<td>MTA</td>
<td>Metropolitan Transit Authority (RTD)</td>
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<tr>
<td>MTD</td>
<td>Multiple Tile Duct</td>
</tr>
<tr>
<td>NEPA</td>
<td>National Environmental Protection Agency</td>
</tr>
<tr>
<td>NEQA</td>
<td>National Environmental Quality Act</td>
</tr>
<tr>
<td>PAP</td>
<td>Pan American Petroleum Company (Rich. Oil)</td>
</tr>
<tr>
<td>PCA</td>
<td>Portland Cement Association</td>
</tr>
<tr>
<td>Pef</td>
<td>Pounds per cubic foot</td>
</tr>
<tr>
<td>PCI</td>
<td>Prestressed Concrete Institute</td>
</tr>
<tr>
<td>P.E. Ry</td>
<td>Pacific Electric Railway Company (RTD)</td>
</tr>
<tr>
<td>P.G.C.</td>
<td>Producers Gasoline Company</td>
</tr>
<tr>
<td>Plf</td>
<td>Pounds per linear foot</td>
</tr>
<tr>
<td>PLC</td>
<td>Pacific Lighting Corporation</td>
</tr>
<tr>
<td>PMC</td>
<td>Petroleum Midway Company</td>
</tr>
<tr>
<td>P.M.O.</td>
<td>Petroleum Midway</td>
</tr>
<tr>
<td>PPC</td>
<td>Phillips Petroleum Company</td>
</tr>
<tr>
<td>P.T. &amp; C. Co.</td>
<td>Postal Telegraph and Cable Company (WUT)</td>
</tr>
<tr>
<td>PTT</td>
<td>Pacific Telephone and Telegraph Co. (Pac-Bell)</td>
</tr>
<tr>
<td>PUC</td>
<td>Public Utilities Commission</td>
</tr>
<tr>
<td>Rich. Oil</td>
<td>Richfield Oil Corporation</td>
</tr>
<tr>
<td>SCE</td>
<td>Southern California Edison Company</td>
</tr>
<tr>
<td>ScoG</td>
<td>Southern Counties Gas Company</td>
</tr>
<tr>
<td>SCT</td>
<td>Southern California Telephone Company (Pac Bell)</td>
</tr>
<tr>
<td>SCWC</td>
<td>Southern California Water Company</td>
</tr>
<tr>
<td>SFC</td>
<td>Southern Fuel Company</td>
</tr>
<tr>
<td>SOG</td>
<td>Signal Oil and Gas Company</td>
</tr>
<tr>
<td>SPTC</td>
<td>Southern Pacific Transportation Company (ATSF-SP)</td>
</tr>
<tr>
<td>SP Ry</td>
<td>Southern Pacific Railway Company (ATSF-SP)</td>
</tr>
<tr>
<td>Std. Oil</td>
<td>Standard Oil Company</td>
</tr>
<tr>
<td>STG</td>
<td>Standard Gas Company</td>
</tr>
<tr>
<td>TC</td>
<td>Theta Cable</td>
</tr>
<tr>
<td>TI</td>
<td>Texaco Inc.</td>
</tr>
<tr>
<td>TS</td>
<td>Traffic Signal (Los Angeles Department of Transportation)</td>
</tr>
<tr>
<td>UHC</td>
<td>Union Hollywood Water Company</td>
</tr>
<tr>
<td>UO</td>
<td>Union Oil Company</td>
</tr>
<tr>
<td>UPRR</td>
<td>Union Pacific Railroad</td>
</tr>
<tr>
<td>Vlt</td>
<td>Vault</td>
</tr>
<tr>
<td>WGO</td>
<td>Western Gulf Oil Co.</td>
</tr>
<tr>
<td>WUT</td>
<td>Western Union Telegraph</td>
</tr>
<tr>
<td>WW</td>
<td>Wall-to-Wall Measurement</td>
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</tbody>
</table>
## H114 ADDITIONAL ABBREVIATIONS

Following are some previously used utility abbreviations found on older drawings listed opposite the currently used abbreviations:

<table>
<thead>
<tr>
<th>Current City Abbreviations</th>
<th>Words</th>
<th>Previously Used Utility Abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACD</td>
<td>Transite duct (asbestos cement duct)</td>
<td>TR</td>
</tr>
<tr>
<td>BCa</td>
<td>Buried cable or conduit</td>
<td>Bur Ca</td>
</tr>
<tr>
<td>CD</td>
<td>Cement conduit</td>
<td>Cem or B-Cem</td>
</tr>
<tr>
<td>CIP</td>
<td>Cast Iron Pipe</td>
<td>C or CI</td>
</tr>
<tr>
<td>FC</td>
<td>Fibre conduit</td>
<td>FD or CD</td>
</tr>
<tr>
<td>PD</td>
<td>Plastic Duct</td>
<td>PLD or ABS</td>
</tr>
<tr>
<td>SS</td>
<td>Sanitary Sewer Pipe</td>
<td>SP</td>
</tr>
<tr>
<td>TD</td>
<td>Vitrified clay duct</td>
<td>D</td>
</tr>
</tbody>
</table>
H 120  STANDARDS, CODES AND SPECIFICATIONS

The Bureau's structural design standards and other controlling or reference codes, specifications and manuals which are used in the design and construction of Public Works structures are set forth in this Section.

H121  STRUCTURAL DESIGN

The structural design standards and controlling criteria are covered in H 200 through H 500 of this Manual. In addition, the design standards outlined therein are supplemented by the current editions of the following publications:

Buildings - City of Los Angeles Building Code (LABC).


Railroad Bridges - American Railway Engineering Associations' (AREA) Manual for Railway Engineering as modified by the requirements of the concerned railroad company.

H 122  CONSTRUCTION SPECIFICATIONS

For construction of all Public Works projects, the plans, Special Provisions, Standard Specifications, and other contract documents will govern the work to be done and the materials to be furnished. These documents are listed in Subsection 2-5.2 of the Standard Specifications for Public Works Construction and are discussed here in the order of precedence. Change orders, supplemental agreements, and approved revisions to the plans or specifications will take precedence over the documents which they supersede.

H 122.1  PERMITS

Any encroachment permit or building permit which is required should be listed under "Notice to Contractors" on the plans or in the Special Provisions. These are further explained in H 154.3 and under Subsection 7-5, Standard Specifications.
H 122.2 SPECIAL PROVISIONS

The Special Provisions are any provisions which supplement or modify the project plans, Standard Plans, Standard Specifications, and reference specifications.

In the preparation of the Special Provisions, the following is suggested:

a. The provisions should be clear, accurate, brief, and complete.

b. Avoid the use of indefinite, indeterminate, or ambiguous words and statements. The contractor is to be held responsible for the safe, thorough completion of the project and it should not be relieved of its responsibilities through the use of indefinite specifications.

c. Unnecessary or unreasonable restrictions should be avoided, since they result in expense to the City. It is the purpose of the specification writer to see that the City is reasonably protected, and anything beyond this should be avoided.

d. The provisions should not reiterate that which is already included in the Standard Specifications or Standard Plan S-610.

H 122.21 TRADE OR BRAND NAMES, FEDERALLY-FUNDED PROJECTS

The California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) have placed restrictions on the use of trade names.

In cases where Federal funds are involved, approval of plans and specifications must be obtained from Caltrans and FHWA prior to advertising. If trade names are used, complete justification may be required.

A material or item may be identified by listing three or more alternate trade or brand names in lieu of performance specifications. Acceptable justification for the use of less than three trade or brand names may be similar to the following examples:

a. The material, equipment, or method is new and promising and time has not permitted development of performance specifications.

b. When modifying or enlarging an existing facility, it is necessary for maintenance or safety reasons to duplicate portions of the existing work.

c. The design can only tolerate the use of certain material, equipment, or methods of such a complicated nature or so rarely used that it is impractical to fully describe its desired performance characteristics. This probably will only occur in the limited number of cases involving mechanical or electrical control apparatus.
d. The items specified are of such a minor nature as to have no significant effect on project cost and should be specified by trade name for the purpose of saving time in specification writing or avoiding costly testing.

H 122.3 PLANS

H 122.31 DETAILS

The construction plans should clearly delineate the structure, including its extent, location, materials of construction, and all obstructions and existing facilities affecting the project. Sufficient details must be included so that the intent of the plans, the Standard Specifications, and the Special Provisions can be understood clearly.

H 122.32 NOTES

Notes on the title sheet, under "Notice to Contractors", should be general in nature (see Standard Plans S-620 and S-621). Construction notes of specific application should be placed on the sheet where the construction is shown. All notes should supplement or supersede the Standard Specifications or the Standard Plans. Avoid repeating requirements that are covered in other contract documents, such as Standard Plan S-610, "Notice to Contractors-Comprehensive".

H 122.4 STANDARD PLANS

Standard Plans should be used, when available, for standard structures on a project. These are listed on the title sheet, under "Notice to Contractors", by number and title. Only those applicable to the project should be listed. Standard Plans or drawings of other agencies may be incorporated with the final plans, provided copies are furnished with the plans by the City. The use of Standard Plans should be maximized to avoid unnecessary design and detailing cost and to reduce construction cost.

H 122.5 STANDARD PLAN S-610

City Standard Plan S-610 "Notice to Contractors-Comprehensive" is an amendment to the Standard Specifications. This Standard Plan refers to specific sections of the Standard Specifications which are to be revised, deleted, or augmented for City Public Works projects.

Reference to the latest edition of this Standard Plan should be included in the reference to the Standard Specifications and in the list of Standard Plans on the title sheet of the plans.
H 122.6 STANDARD SPECIFICATIONS

The Standard Specifications for Public Works Construction is published to provide cities, counties, and other public agencies in Southern California with uniform specifications governing public works construction. It is authored by a Joint Cooperative Committee of the Southern California Chapters of the American Public Works Association and the Associated General Contractors of California. This publication is popularly known as the "Green Book", and is referred to herein as the "Standard Specifications".

An entirely new updated book is published every third year, and supplements are published in intervening years. The latest editions of the Standard Specifications and supplements, to which the plans should comply, should be noted on the plans. Although the current edition of the Standard Specifications (and corresponding Standard Plan S-610) is always used for design, the edition specified in the contract documents governs during construction. Plans should be updated prior to award of contract to specify the latest edition. Revisions subsequent to award of contract would not apply unless authorized by change order.

H 122.7 REFERENCE SPECIFICATIONS

Reference specifications are those bulletins, standards, rules, methods of analysis or tests, codes, and specifications of other agencies, engineering societies, or industrial associations referred to in the contract document. Reference specifications include ASTM tests, Federal specifications, State specifications, and numerous others. They should be thoroughly investigated prior to their inclusion in the Special Provisions. Their use is encouraged to minimize design cost. Because they are familiar to contractors and suppliers, they make the job of bidding more precise and thereby minimize construction cost. Because they have been extensively used and refined, they provide the necessary quality control at least cost.
H 130  COST STUDIES

Cost studies relating to structural engineering are usually performed for the following reasons:

   a.  To provide cost estimates as a part of the CAO-39 packages for the Bureau's Work Program proposals or other advance planning studies (Advance Planning, H 140).

   b.  To determine economic alternatives as a part of Project Type Selection (H 152.4).

H 131  CLASSES OF COST ESTIMATES

Cost estimates are categorized into classes as A, AB, B, and C. The class used will depend upon the purpose of the particular cost estimate.

Class A Estimate - This is a detailed estimate prepared by the Construction Division after the plans have been signed by the City Engineer. It is used for budgeting construction funds and evaluating bid proposals.

Class AB Estimate - This estimate is based on preliminary plans when definite dimensions and type of construction have been determined and the basic design features have been established. It is prepared by the prime division (or by the Construction Division upon request). Class AB estimates should be used when comparing alternatives for type selection. This cost estimate may be prepared using preliminary quantity estimates. Unit prices supplied by the Construction Division are normally used for these estimates, but prices may be obtained from other sources, such as suppliers or contractors. These estimates may also be prepared using recent bid prices from similar projects; however, adjustments for cost increases due to inflation and location should be included.

Class B Estimate - This cost estimate is normally prepared for fund appropriation. It may be prepared when the overall layout of the project has been fairly well established but there has not been adequate investigation to determine the details of construction and other features of design. A Class B estimate should be made using current unit prices.

All preliminary estimate sheets prepared for submittal with a Capital Improvement Project Request (CAO-39) should be Class B. However, whenever a Class A or AB estimate is available, it should be used to prepare or revise the preliminary estimate sheet.

Class C Estimate - This estimate may be made to indicate the cost of a structure when only preliminary sketches or schematic plans are available. It should not be used for fund appropriation.
H 132 COST STUDY-WORK PROGRAM

Cost studies which are performed to compile and update the CAO-39 Package (Form CAO-39, Bureau of Engineering Preliminary Estimate Sheet/Work Order and Sketch) for the City's Five-Year Capital Improvement Program require a Class B estimate. These cost studies should be updated at least every two years and whenever there is a change in scope or other factor which could affect the cost significantly.

For these cost studies, the project layout is usually fairly well established, but the construction details have not been investigated. As a guide, for bridge widening projects the type of structure can be assumed as being similar to the existing bridge. For new bridge projects, the type of structure can be approximately determined based on span lengths as discussed in the Caltrans Design Aids, Section 10. For projects which are more complex, such as grade separations, a more comprehensive cost study may be necessary in order to establish a sufficiently accurate cost estimate.

Unit prices for preliminary estimates are furnished by the Construction Division. These unit prices are for "average" conditions. The nature and scope of the project should be discussed with the personnel of that Division, in order to adjust the unit prices, if necessary.

The direct charges such as construction engineering, inspection, and survey are usually calculated as percentages of estimated cost. Percentage values can be obtained from an "Engineering Cost Schedule" which is compiled, updated periodically, and distributed by the Administration Division. The structural design and environmental impact report costs will be dependent also upon the complexity of the project, and should be adjusted by comparison to a past project of similar complexity.

Whenever possible, design and construction costs for work controlled in other offices should be obtained from that office.

The suggested financing should be shown in each CAO-39 package and will vary with the type of project and the various sources of funds currently available. Use of funds is regulated by various codes and ordinances.

Outside sources of financing available include the State Grade Separation Fund and the various Federal Highway Administration programs. Inasmuch as the various programs under FHWA change periodically, consult the Grants, Advance Planning, CIP Section of the Project Management Division as to the financial eligibility of the project.
H 133  COST STUDY, ECONOMIC ALTERNATIVE

Cost studies are performed to compare design alternatives as part of the project type selection procedure discussed in H 152.4. It is desirable to select a structure type that will furnish the greatest benefit to the public at a minimum cost. It is necessary to consider design, construction, right-of-way, and maintenance costs to arrive at the optimum selection.

Realistic cost comparisons between alternatives are difficult because of the large number of possible variations in design, construction materials, environmental impact, and methods of construction. Those alternatives which would prove unacceptable from the point of view of aesthetics, safety, convenience to the public, and maintenance, or those which are obviously uneconomical, should be first eliminated. After the alternatives have been reduced to a manageable number, the actual cost comparison may begin. Class AB estimates should be used for this cost comparison study.

The following items should be considered when preparing cost studies of alternatives:

a. The unit prices should be accurate. Unit prices obtained as recently as 6 months ago may not be satisfactory today. Changes in wages, availability of materials, and the general economic situation may significantly affect the cost of a structure.

b. The unit prices should fit the job. Anything which affects the efficiency of the contractor's operations will be reflected in its bid price. Construction which permits simplicity of forming, reuse of forms, easily accessible work areas, repetition of details, and large quantities of like materials will lead to lower unit prices, while construction involving close tolerances, variable form details, groundwater problems, and small quantities of material will lead to higher unit prices.

c. The cost comparison should reflect as many of the variables as possible. For example, for grade separation projects, the saving realized in reduced right-of-way cost and street and track work should be included when comparing girders of different depths. The capitalized cost of periodic painting of steel structures should be included when comparing steel and concrete structures.

d. The cost to other agencies should be considered. For example, the cost of relocating utilities is a cost to the public and should not be ignored.

Appendix, Section No. A-1 contains many quantity estimate charts for bridges which may be used for preliminary quantity estimates.
H 140     ADVANCE PLANNING

Advance planning consists of a variety of activities necessary to the processing of requests for new projects and the preparation and updating of the Five-Year Capital Improvement Program. Evaluations of construction costs, community plans, environmental impact, political viability, and funding sources and eligibility are but a few of the necessary tasks involved.

H 141     REQUESTS FOR NEW PROJECTS

A request for a new project may originate internally (from the Structural Engineering Division's Bridge Inspection Section or other Bureau office) or externally (from the City Council, City departments, private citizens, or other agencies). All such requests should be studied to determine project need, feasibility, and comparability with the Five-Year Capital Improvement Program. This study usually includes an investigation of the project site and the surrounding area; a review of the plans and records of existing improvements; a review of the plans and records of existing improvements; a review of the Five-Year Capital Improvement Program and other information available. If the request is considered viable, an initial environmental study, cost study (see H 130), and a CAO-39 package are prepared. Particular attention should be focused on incorporating documented data such as recent traffic counts, pedestrian counts, and accident statistics for the past three to ten years, if available, from the Department of Transportation. If aerial photographs could aid in showing the scope of the project, reducing the number of field investigations, or reducing drafting time where existing culture has to be shown, they should be ordered so that they will be available when needed.

When a proposed project is not viable, the reasons should be forwarded to the source of the request.

The nature of a project will determine how it will be programmed, as follows:

a. Recommended Five-Year Capital Improvement Program projects are routinely submitted for consideration by the Council's Technical Committee for Capital Programming and the City Administrative Officer through the Project Management Division.

b. Under special conditions, a project may merit immediate financing as a new mid-year Capital Improvement Project, and should be promptly submitted to the Council for consideration. A Board Report requesting immediate financing for a project should include justification and a discussion of how the funding of the project would affect the Capital Program.

Additional information on Capital Programming may be found in the Bureau's standard for advance planning: "Five-Year Capital Improvement Program - Review Guide and Procedures". This standard is available from the staff member handling advance planning work.
H 142 CAO-39 PACKAGE (PREPARATION AND UPDATING)

A CAO-39 "package" will usually consist of the elements discussed in this Subsection. These items are illustrated by Figures H 142A, B, C, D, E, and F.

H 142.1 CAPITAL IMPROVEMENT PROJECT REQUEST FORM (CAO-39)

The CAO-39 form contains the "Project Title and Description"; "Project Justification" which is based on a preliminary study; and "Estimated Project Costs" and "Suggested Financing" which are based on the "Preliminary Estimate Sheet".

The "Project Justification" should be reasonably concise, but as comprehensive as possible. Emphasis should be placed on safety related data (such as accident statistics and traffic counts), geometric deficiencies (such as horizontal and vertical alignments, width, and sight distance), and on master plan needs. A "Supplementary Information Sheet" similar to Figure H 142B may be attached for inclusion of additional data and information.

If a project is determined to be categorically exempt, a note such as the following should appear under "Project Justification":

"This project has been determined to be categorically exempt as defined by the City of Los Angeles Guidelines for the Implementation of the California Environmental Quality Act of 1970, as adopted by the City Council on April 4, 1973."

Project identification information should be shown on the form in accordance with the following example (also, see Figure H 142A):

CD 7 E-6850 M3 54 (see Figure H 142A)

Where:

CD 7 The Council District in which the project is located. Show more than one Council District, if applicable (e.g., 7, 2), beginning with the one containing the greatest portion of the project.

E-6850 The Bureau of Engineering Project ID number which is assigned by the Project Management Division. (Allow 9 typing spaces for this number.)

M3 Project type (see Preface of current Five-Year Capital Improvement Program for code explanation).

54 Engineering District initiating the project.
H 142.2 PRELIMINARY ESTIMATE SHEET AND WORK ORDER FORM

The Preliminary Estimate Sheet is a computer printout (Figure H 142C) listing estimated costs and suggested sources of financing for the design and construction of a project. The computer program title is "Remote Access Terminal Estimating System (RATES)". The preliminary estimate should be Class B as discussed in H 132. It must be updated every year to reflect an increase in cost due to inflation or any other changes.

The Bureau of Engineering Work Order form (Eng. 3.351) is shown in Figure H 142D. When a project is approved by the Board of Public Works, this sheet becomes the Approved Work Order, with a Work Order Number assigned by the Administration Division (see A 760, Work Orders).

H 142.3 PROJECT SKETCHES

The project sketch is an important element of the CAO-39, showing graphically the concept and scope of a project. Sketches are prepared on one or more 8-1/2" x 11" sheets (Eng. 3.155-A). They should include a vicinity map, plan view, typical cross sections, and elevations, if applicable (Figures H 142E).

Sketches should be presented with simplicity and clarity for ease of understanding. However, they should be sufficiently complete so that, in conjunction with the CAO-39 project description, the user can assess the project benefits and impact on the community.

H 142.4 INITIAL STUDY, EIR

An Initial Study is required for a project which falls within the scope of the California Environmental Quality Act of 1970 (CEQA) and which does not qualify for a Categorical Exemption. See the "City of Los Angeles Guidelines for the Implementation of CEQA" as amended. Projects not within the jurisdiction of CEQA (such as Emergency and Ministerial Projects) are also listed in these guidelines.

For preparation and processing of the Initial Study, the following procedures should be used. Refer also to Appendix A-9, Initial Study Checklist Form (ISF).
**H 142.41 PREPARATION**

**Format** - Prepare the Initial Study on one or more sheets of plain white paper using the following format:

**A. Heading:**

CITY OF LOS ANGELES  
CALIFORNIA ENVIRONMENTAL QUALITY ACT  
INITIAL STUDY  
(Article IV - City CEQA Guidelines)  
Council District: Date:

Lead City Agency:

Project Title:

**B. Body of the Report:**

1. **Project Description:**
   a. Location
   b. Purpose
   c. Description
   d. Planning Expenses

2. Existing Environments (natural setting)

3. Environmental Effect (Sections I & II of the ISF)

4. Environmental Evaluation (impact and significance)

5. Mitigation Measures

6. Compatibility with Existing Zoning and Plans

7. Name of Preparer

8. Determination - Recommended Environmental Documentation:
   a. Summary
   b. Recommended Documentation

On the basis of this initial evaluation:

I find the proposed project COULD NOT have a significant effect on the environment, and a NOTICE OF EXEMPTION will be prepared.
I find that, although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described in Section (5) have been added to the project. A NOTICE OF EXEMPTION will be prepared.

I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date________________
City Engineer
by______________

ATTACHMENTS:

1. ISF (Sections I and II)
2. Maps, Sketches, etc.

H 142.42 PROCESSING

The completed CAO-39 package should be forwarded to the Project Management Division for review and processing.

Initial Studies for CIP projects proposed for funding in the subsequent year require approval of the Technical Review Committee for Capital Programming. All projects of any other status requiring an Initial Study must be approved by the City Council. Final design should not begin before City Council approval of environmental documents.

H 143 FIELD REVIEW, FEDERAL AID PROJECTS

A project which may qualify for funding under the various transportation programs of the 1976 Federal-Aid Highway Act requires a field review in order for the FHWA to determine project eligibility. This field review is performed by Caltrans and FHWA with representatives of the design offices. The Project Management Division is responsible for scheduling field review meetings.

In preparation for a field review, the design office completes the Project Report/Field Review Forms and forwards them to the Project Management Division for its processing (see Figures H 143A, B, C, D, E, F, and G). It is suggested that these forms be completed routinely during the advance planning process. The forms are available from the Advance Planning staff or from the Project Management Division.
H 150   STRUCTURAL DESIGN PROCESS

When a project has been approved, budgeted, and a Work Order Number assigned, the design process is activated. The design process usually follows a well defined sequence of activities: Environmental Impact Study and approval (for projects which are not exempt under CEQA); preliminary design; Coastal Development Permit (when required); and final design. For larger projects, such as grade separations, funds are usually budgeted for the environmental impact study in early years and funds for preparation of plans are budgeted later.

During the environmental study phase, "design" should be limited to preliminary considerations needed to provide data for the EIR. After EIR approval by the City Council, formal preliminary design may begin. This phase produces the type selection and schedule of work to be done. During this phase, if the project comes under the control of the California Coastal Act of 1976, a Coastal Development Permit should be requested from the South Coast Regional Commission. The final design phase includes production of the contract plans and Special Provisions for signature by the City Engineer, at which time they are forwarded to the Project Management Division for its processing (see Plan Processing, H 163).

H 151   ENVIRONMENTAL IMPACT STUDY

When a project is not exempt from the requirements of CEQA, then, based on the findings of the Initial Study and in conformance with the City's EIR Guidelines, one of the following is prepared:

a. For a project which may not have a significant effect on the environment: a "Notice of Exemption".

b. For a project which may have a significant effect (substantial adverse impact) on the environment: an "Environmental Impact Statement" (EIS) or "Report" (EIR). "Environmental Impact Reports" are retitled "Environmental Impact Statements" for FAU projects only.

Since State and Federal environmental requirements change from time to time, the writer should verify with the Environmental Engineering Section of the Project Management Division that the latest supplemental guidelines are being used.

H 151.1   NOTICE OF EXEMPTION AND ENVIRONMENTAL STUDY

A "Notice of Exemption" is prepared by completing City Form Gen. 153 (latest rev.), which is also in the Appendix of the City EIR Guidelines. (See Figure H 151A.)
An environmental study (environmental impact analysis) contains a description of the project, a
determination of the significant effects on the environment, mitigation measures to be
implemented and other data as outlined in the guidelines (see Figure H 151B, sheets 1 and 2, and
Los Angeles City CEQA Guidelines, Section V).

A copy of the "Initial Study", H 142.4, should be included as supporting data in this package.

**H 151.2 DRAFT AND FINAL EIR**

The procedure for preparation and processing of EIR's is outlined in the Los Angeles City CEQA
Guidelines, Article VI.

The design office usually initiates the EIR process by preparing a preliminary Draft EIR. The
Draft is typed, should be well organized, thoroughly documented, and clearly marked "Draft".

A copy of the Draft is sent to the Environmental Engineering Section, which reviews and
distributes a Draft to the general public and the various agencies and organizations which may be
concerned for their review and written comments. A listing of the agencies and organizations
which are generally involved can be obtained from the Environmental Engineering Section.
Questions raised during the review period should be addressed in the final EIR.

After the review and comment period, the Environmental Engineering Section schedules a public
hearing for the project, at which time the members of the community can ask questions about the
project as it might affect them. Questions raised in the hearing should be addressed in the EIR.

Usually 30 to 90 days are allowed for the review of the Draft EIR. The time allowance should be
determined by the complexity, size, and importance of the proposed project as well as the need
for a thorough review and the needs of the reviewing agencies. Comments received during the
review period and in the hearings are compiled by the Environmental Engineering Section for
review and preparation of the Final EIR.

**H 152 PRELIMINARY DESIGN**

During the preliminary design phase, the engineer's activities should include:

- Preparation of a proposed schedule of design.
- Compilation of a project control checklist.
c. Gathering site information from field investigations and, when required, making the necessary requests for survey, right of entry to obtain soil borings, geology and soils report, title search, right-of-way map, substructure data, utility information, design by other offices, etc.

d. Preparing and recommending a project type selection.

H 152.1 SCHEDULE OF DESIGN

The main function of a design schedule is to estimate and control the utilization of manpower, material, and facilities. The schedule establishes mandays required for the project design, manpower requirements at any period during the project design, dates of completion of design elements, and other major checkpoints during design. The format used can be a bar chart or a diagram using the critical path method (CPM). Any activity of other offices or agencies which could affect the time schedule of the project should be included. Usually the major activities listed begin with the Initial Study and end with the award of contract.

The time estimated for each activity is based on past experience with similar projects. Where other offices or agencies are involved, the estimated activity time should be verified with them. The advantage of CPM is that it provides a method of readily evaluating which path of activities may be critical during any given period within any limits of the diagram.

H 152.2 PROJECT CONTROL CHECKLIST

This checklist tabulates many activities which are usually necessary for a typical project in a chronological order from preliminary phase until the project has been completed (see Figure H 152.2). It serves as a check against overlooking required activities and a record of the dates completed.

H 152.3 SITE INFORMATION

In order to obtain pertinent visual information about a project site, field investigations are performed individually or jointly with personnel from other offices, agencies, and concerned individuals. This may help to expose or resolve problem areas, such as with overhead utilities or with adjacent improvements. Information should be compiled in the file, including relevant field measurements, photographs, and a record of the people in attendance and items of interest discussed by them.
**H 152.31 SURVEY INFORMATION**

When a project is assigned for design, all available survey information should be examined and a field investigation made to determine whether additional field work is necessary. Usually within 30 days after assignment, the design office submits a **Request for Field Work** (Form Eng. 3.856, see Figure H 152.31) to the Survey Division. Other offices doing design work on the project should be contacted and their needs included in the request. The scope of field data needed for design should be determined in advance and clearly described in the request form.

**Type of Survey:** After the field investigation, it should be determined which of the standard surveys, if any, will meet the requirements of the project. If none of them will give all the needed information, the word "special" should be underlined on the request form (almost all structure surveys are special). Only the information needed for design and plan preparation should be requested. Whenever special features of survey are required, sketches should be provided to insure that there is no doubt in the mind of the surveyor as to what information is needed. On major projects, for example, an aerial survey may be required.

**Benchmarks and Elevations:** If structural work is to be included as part of another design office's set of plans, the bench marks referenced by the other office should be used. The elevations shown on City plans and records are record elevations only, and are correct only in relation to the particular bench marks used at the time the structure was built. Earthquakes and subsidence may have caused changes in the location of marks.

The designer may need to request that a bench circuit for the project be established so that the location of structures can be accurately determined by field measurements in the future.

Bench marks in the circuit should be referenced on the project plans. At least two of the bench marks closest to the proposed project should be shown.

**H 152.32 RIGHT-OF-ENTRY, SOIL BORINGS**

In cases where preliminary work (such as soil borings) encroaches on private property or on another agency's right-of-way, permission must be obtained prior to doing this work. A sketch showing locations of proposed work should be included with a memo requesting the Real Estate Division to obtain written right-of-entry permits from each property owner.

**H 152.33 GEOLOGY AND SOILS REPORT**

Early in the preliminary design stage, when needed soil data and structure location can be tentatively identified, soils information should be requested from the Geotechnical Services Engineering Section of the Construction Division. The information requested should be sufficient to complete the design of the project. Excess information that cannot be used should not be requested.
If final soil data are not available when final design begins, a tentative report should be requested. However, the final report should be obtained and information implemented prior to completion of the plans.

Soils Report Request Form: A standard Office Memorandum (Figure H 152.33A) and attached forms (Figure H 152.33B, Sheets 1, 2, and 3) should be used to request a soils report. The following information should be included:

a. Vicinity map with project location indicated.

b. Plan and elevation of proposed structures and substructures with approximate dimensions and footing elevations.

c. Suggested bore hole locations (overhead, underground, and traffic interference should be checked).

d. Elevations of appropriate field reference points to allow calculation of top of bore hole elevations (provide print of survey notes if available).

e. Approximate elevations of future ground line.

f. Approximate location of proposed slopes (fills or cuts, both temporary and permanent).

g. Locations of existing utilities or substructures. Those scheduled for removal should be indicated.

h. Locations of existing and proposed right-of-way lines.

i. Special or unusual problems.

j. References to prior subsurface investigations, if available.

k. Approximate loads on footings or pile caps (live and dead).

l. Approximate magnitude and location of significant construction loads.

m. Pile types and design loadings required.

n. Allowable settlements.

H 152.4 PROJECT TYPE SELECTION

Before design work begins on any project, an investigation should be made to determine methods and materials of construction available. Based on this study, a determination of the most feasible type of structure can be made. The purpose of this section is to provide a description of the type selection procedure, and forms to be prepared, for all new projects.
H 152.41 FACTORS TO CONSIDER

Usually, the primary factor which should be considered is economy. There are many instances, however, where other considerations are at least as important as economy. Some other considerations might be:

a. **Aesthetics:** It is difficult to put a price tag on this. In many cases, aesthetics may contribute more to the overall success of a project than any other single factor. However, the use of unusual design criteria or complex construction methods to achieve architectural features should be carefully weighed against additional construction or maintenance costs. Unless architectural features are readily visible from the public way or other public or private areas of substantial population, they should be minimized. For example, fascias of bridges over channels are usually not easily viewed from adjacent areas and should be treated minimally if at all.

b. **Time Limitations:** A limitation of the time available for construction may dictate the need for a certain type of structure which, although not most economical, can be constructed in a minimal time.

c. **Similarity to Adjacent Structures:** If a new structure is to be built adjacent to an existing structure, the compatibility of the two must be considered. In the case of bridges or retaining walls, the desirability of providing similar deflection characteristics may be more important than economy alone.

d. **Convenience to the Public:** Direct costs to property owners, businessmen, motorists or pedestrians must also be considered. Loss of time or business and the secondary costs associated with such losses may in some cases negate any savings which had been anticipated.

e. **Maintenance and Structure Life:** When comparing costs of types of structures, the capitalized cost of maintenance should be included as well as the life and replacement costs. In many cases, it may be economically advantageous to construct a permanent structure now, rather than construct a temporary structure, which would be reconstructed at a later date.

f. **The Effect on the Environment:** The effect of the proposed structure on the environment must be considered. The need to meet certain environmental goals may dictate methods or materials of construction. For the scope and timing of any required reports, see Environmental Impact Study, Subsection H 151.
H 152.42 SELECTION PROCEDURE

The basic responsibility for preparation of the Project Type Selection Package lies with the Project Engineer. The Project Engineer shall ensure the proper integration of structural and architectural considerations.

The procedure involved in completing the Project Type Selection is as follows:

a. The Project Engineer determines what structural considerations have the overriding influence on the structure.

b. The Project Engineer should recommend one alternative of the structural type which is considered the most desirable, and forward the Structure Type Selection Form (STSF) for the Division Engineer's approval prior to starting structural design (see Figure H 152.42).

H 153 COASTAL DEVELOPMENT PERMIT

When a development lies within a boundary that extends inland approximately 5 miles from the mean high tide line (see Figure H 153A, 2 sheets), it falls under the control of the California Coastal Act of 1976 and will require a permit from the South Coast Regional Commission. An "Application for Permit" should be completed and filed with the Commission in preparation for a hearing (Figure H 153B, 7 sheets, and Figure H 153C, 2 sheets). It is recommended that an Environmental Impact Report be approved (for projects not exempt under CEQA) prior to applying for a Coastal Development Permit.

A notice will be received from the Commission indicating the scheduled date and the proposed agenda of the hearing. The Project Engineer and representatives of other offices which might be involved should be present at the hearing in order to answer questions or to better define the project.

A Coastal Development Permit (see Figure H 153D, 2 sheets) is issued when the Commission determines that the development conforms to the provisions of Chapter 3 of the California Coastal Act of 1976 and will not prejudice the ability of local government to prepare a local coastal program in conformity with said chapter.
H 154  FINAL DESIGN

During this period, the Project Engineer is responsible for coordinating many activities in conjunction with performing the final structural design and preparation of the contract plans and specifications. These will depend on the scope and type of project and may include any of the following: Request right-of-way investigation; prepare cut-and-shore plans; obtain Cultural Affairs Department approval (see H 600); determine utility locations; obtain permits; process plans to other agencies or offices for their review and approval (when required); draft Special Provisions; answer public inquiries; and others.

H 154.1  RIGHT-OF-WAY

Right-of-way availability and cost often dictate the type selection and final design criteria for a project. The Bureau is involved in right-of-way procedures from advance planning through final design and construction.

The process of design determines what rights-of-way or interests must be acquired. Some of these are listed in H 154.11. They are obtained through negotiation by the Real Estate Division. If negotiation is not successful, the City may use eminent domain proceedings (cemeteries, County, State, and Federal properties are exempt).

H 154.11  RIGHTS-OF-WAY OR INTERESTS

Following is a list of rights-of-way or interests that can be acquired by fee title or as an easement for a specific right:

   a. Public street in fee simple.
   b. Public street in fee simple with limited access.
   c. Public street easement.
   d. Public alley easement.
   e. Public street easement with limited access.
   f. Permanent construction easement.
   g. Temporary construction easement.
   h. Temporary detour road easement.
   i. Underground storm drain easement.
   j. Open storm drain easement.
   k. Underground sanitary sewer easement.
   l. Traffic signal easement.
m. Street lighting easement.

n. Reservation (1-foot) (buffer strip in fee, or excess land in fee).

o. Permanent slope easement.

p. Temporary slope easement.

q. Wall easement.

In addition, the City may have to acquire an agreement of subordination from public utility interests; quitclaim deeds to the City of oil interests where the surface use is doubtful; leasehold interests, reservation by prior owners, clouds upon title, or consents to grant of easement by loan holders; etc.

The designer, in determining the rights-of-way or interests to be acquired, should be aware of costs due to demolition, remodeling, or cut-and-shore (when parts of buildings are to remain), or severance damages due to creating substandard lots by partial acquisition. It may be less economical to acquire a portion of a lot and pay severance damages than to acquire the entire lot in fee title. An offsetting cost to be considered, however, is relocation allowance, which may be avoided by partial acquisition.

**H 154.12 RIGHT-OF-WAY JOINT FIELD TRIP**

At the start of final design, the originating design office should schedule a joint field trip with the Real Estate Division and representatives of other design offices which may require right-of-way. They should be furnished preliminary plans and other information in advance so they will be familiar with the project and can evaluate right-of-way needs during the joint field trip.

The purpose and scope of the project should be reviewed and discussed at the site. Comparative costs of alternates, probable availability of parcels, severance damages, prior rights of utility companies, construction easements, relocation costs (including availability of comparable nearby replacement property), and other right-of-way matters should be discussed.

**H 154.13 RIGHT-OF-WAY PROCEDURE**

The prime design office should forward, usually within 30 days after the joint field trip, to the Land Developing and Mapping Division a preliminary sketch with a request that a preliminary right-of-way activity be started. The sketch should show the Tract Number, Parcel Number, existing buildings or structures which may be affected, and the extent of the right-of-way required. The memorandum should ask that the Real Estate Division be requested to provide title searches and furnish appraisals of land parcels and existing buildings to be partially or entirely removed from the right-of-way.
The Land Developing and Mapping Division prepares the preliminary right-of-way map and requests the Real Estate Division to make a title search on the property. After the title search, the Land Developing and Mapping Division will parcel (by type of easement) the right-of-way map. On larger projects, prints of the parceled maps are sent to the design office for review. If the required right-of-way is accurately described, the Land Developing and Mapping Division is notified to proceed with the acquisition. The final right-of-way map with legal descriptions is prepared and sent to the Real Estate Division for appraisal and negotiation with property owners.

Condemnation proceedings are lengthy and should begin as soon as their need is established. The Land Developing and Mapping Division should be consulted as to the latest procedure for condemnation, especially as it affects buildings which are to be relocated, demolished, or cut-and-shored. Ample lead time is required to properly design cut-and-shore plans, whether to be included with the project plans or to be constructed under separate contract. The Real Estate Division notifies the Project Management Division which parcels are in refusal (negotiation with property owners has failed), and the Project Management Division then requests cut-and-shore plans from the Structural Engineering Division.

**H 154.14 CUT-AND-SHORE**

During negotiation for right-of-way acquisition, agreement may not be reached between the Real Estate Division and the owner of a building to be remodeled. The City then obtains this needed right-of-way by condemnation proceedings and provides for building remodeling work as part of the public improvement. This remodeling work is referred to as cut-and-shore.

**Cut** - To "cut off" and demolish a portion of an existing building or other structure, usually because it is within the proposed right-of-way required for public use.

**Shore** - To remodel portions of the remaining building or structure in compliance with the Los Angeles City Building Code (LABC).

The decision to cut-and-shore rather than demolish a structure usually is made jointly by the design office and the right-of-way negotiator. In cases where City cut-and-shore is required, the design office notifies the Project Management Division, which requests the Structural Engineering Division to prepare cut-and-shore plans for all refusal parcels.

The need for cut-and-shore plans may be eliminated at any time because of late settlements with property owners. Therefore, it is best to first complete plans for those parcels for which settlement is least likely. The Right-of-Way Negotiator should be consulted on this matter.
H 154.141 CUT-AND-SHORE PLAN PROCEDURE

The usual procedure for the design and preparation of cut-and-shore plans is as follows:

a. The Project Management Division or the prime design office sends a request to the Structural Engineering Division to prepare cut-and-shore plans. A right-of-way plot plan or sketch should be included with the request memo.

b. Supplementary design data such as survey, street plans, substructure, and utility information are obtained.

c. Cut-and-shore plans are prepared in compliance with the controlling code (H 120) utilizing the design features set forth in H 154.142.

d. A building permit is obtained if required (see Division 1 of the LABC). The steps for obtaining this permit are as follows:

1. Request the Project Management Division to prepare an IDO (Interdepartmental Order) to the Department of Building and Safety for building permit and plan checking fees.

2. Complete building permit application (see Figure H 154.141).

3. Submit 2 sets of prints of plans and calculations and the application to the Department of Building and Safety. Plan check fees will have to be paid at this time (give cashier IDO Number).

4. The plans are checked by Building and Safety's Plan Checking Section. Allow 2 weeks unless the work is minor and checking can be done over the counter.

5. After plans are signed by the City Engineer for construction plans (or the Division Engineer for change order sketches), the building permit is obtained and the final prints stamped and signed by the plan checker. Building and Safety keeps the original building permit application and one set of the stamped prints.

6. A permit expires after 180 days if construction has not started. Therefore, the building permit should not be obtained until the date of start of construction is definitely known or before the plan check expires, otherwise the Permit must be renewed each 180 days.

7. One set of stamped prints and a copy of the building permit application are kept by the Structural Engineering Division. The Special Provisions or Notice to Bidders should state that the building permit has been obtained by the City and will be given to the Contractor at the preconstruction meeting.
H 154.142  DESIGN FEATURES

The designer should initially determine, in conjunction with the Project Management Division, whether the cut-and-shore plans are to be included with the project contract plans or to be awarded as a separate contract. The designer can then decide the format and size of plans that will be required.

The following factors should be considered in design and plan preparation for cut-and-shore:

a. **Temporary Wall or Closure** - If the property owner has definite plans for the remodeling of his building within 180 days after cutting and shoring, a temporary wall or closure may be constructed for the interim. The main purpose of this wall is to protect the building's interior adjacent to the work from pilferage and the elements. A 2 x 4 standard frame with a plywood covering is usually adequate for minor structures which will not be occupied.

   The City may be liable for certain damages which occur during the time this temporary wall is in place. There are no clear-cut solutions to this problem, so each case must be studied separately. In the case of a major structure or a structure which will be occupied, temporary walls should be designed to resist all vertical and lateral loads (such as earthquakes and wind) just as for a permanent wall. This should be considered before making a decision to construct a temporary wall.

b. **Permanent Wall** - If the remodeling is expected to be permanent, a permanent structural wall shall be constructed which meets all the requirements of the LABC and is architecturally compatible with the remaining building.

   The Real Estate Division provides a survey of the existing building, including dimensions of the suggested remodelings. Building materials, openings, architectural treatment, and finishing should be replaced with their equivalent. The following is a list of items to consider:

   1. **Building Materials** - Use material that will result in equivalent fire rating and structural strength and in conformance with the LABC.

   2. **Openings** - Windows and door openings should be located to serve the same function at about the same location as in the original wall.

   3. **Existing Materials and Fixtures** - Existing windows, doors, and other items should be reused when feasible. Installation of new or relocated fixtures should be included in the cut-and-shore plans.
4. **Finish and Architectural Treatment** - The new wall should be finished to match the original finish or architectural treatment. If it is known that the owner has plans to change the finish or architectural treatment from the original wall, the finish or architectural treatment should be omitted from the cut-and-shore plans or the new material specified.

c. **Party Wall Remodeling** - A party wall is a wall common to two buildings. Party wall remodeling is necessary when one of the buildings is demolished, thus changing the party wall from an interior wall to an exterior wall. The party wall must then be remodeled to conform to an exterior wall. (See Section 91.2306 of the LABC.) This often occurs in old buildings with brick walls, constructed prior to the early 1930's, when lateral force requirements were initiated. The walls and floors of these buildings were seldom anchored for lateral force transfer. Note that Section 91.2306(b) of the LABC requires anchorage between masonry walls and any roof or floor.

The following references should be consulted whenever there are doubts as to whether a "party wall" exists or what the existing conditions are:

1. The Conservation Bureau of the Department of Building and Safety keeps records on a number of old buildings, especially those in the downtown and major business areas.

2. Title searches made by the Real Estate Division frequently reveal information on whether a "party wall" exists.

d. **Zoning Requirements** - Some requirements of the Zoning Code are waived for lots affected by acquisition for public uses as covered in Section 12.22 (c), paragraph 13 of Article 2, Chapter 1 of the LAMC. One which is not waived is the offstreet parking requirement. If the existing offstreet parking area is preserved, it does not have to meet current parking requirements. If the existing offstreet parking area cannot be preserved, parking requirements may be fulfilled in one of two ways:

1. Provide the required number of spaces calculated from floor area or number of dwelling units as specified in Section 12.21 (A), Chapter 1, of the LAMC.

2. Request a waiver or variance from the Code from the City Planning Commission.

e. **Utilities** - All utilities should remain in service during construction if the building is being used or is occupied. Electrical and plumbing lines and fixtures within the building should not be shown on City plans because placement of these items is a matter of personal preference. The installation of these items can be negotiated between the contractor and property owner prior to construction.
f. **Access Shown on Plans for Special Cases** - The Standard Specifications, Subsection 7-10.1, Traffic and Access, provides for access to the building during construction. Special cases may require notes on the plans providing for access to the building at a specified location. This would be done only as a matter of public relations, since temporary access to the property is not a compensable item. Each case should be studied separately.

g. **Protection of Private Property During Construction** - The contractor shall be responsible for the protection of the building's interior adjacent to the work from pilferage and from the elements.

h. **Plan Notes** - The following sample notes are suggested for cut-and-shore plans:

1. The Contractor shall comply with all building regulations, laws, and ordinances; and shall furnish protection for the building's interior adjacent to the work from pilferage and the elements.

2. The Contractor shall be responsible for disconnecting and capping all utilities and service lines to the portion of the building to be removed. The Contractor shall notify the responsible utility companies or public agencies to perform these operations when applicable. Service to the remaining portion of the building shall be maintained in continuous operation.

3. Electrical and plumbing permits required by the Department of Building and Safety shall be obtained by the Contractor at its expense.

4. All materials and debris resulting from demolition shall become the property of the Contractor, unless otherwise shown on the plans, and shall be promptly removed from the site.

**H 154.2 UTILITY LOCATION**

Utilities may interfere with or be affected by the proposed structure, and the feasibility of their removal or relocation should be determined prior to the completion of the plans. The placement of the various facilities should be in conformance with Council Policy, dated March 24, 1971. Guidelines are listed in H 154.22 and supplemented by H 728.

During the design phase of a project, the design office shall identify and determine the location of all substructures that may conflict with or be affected by any proposed improvement. All available substructure records shall be checked, including unposted "as-built" utility plans and pending utility permits. All such substructures shall be shown on the project plans. Preliminary plans shall be transmitted to substructure owners for verification of location and identity of their facility. Substructure owners shall also be requested to advise of their future plans and needs for the area involved.
The substructure owner shall be requested to pothole any substructure carrying unstable substances to determine depth and location where the proposed excavation is crossed, and at intervals of not more than 100 feet when the proposed excavation is parallel to and within 6 feet of the substructure. A "no-fee" excavation permit shall accompany the request. When the design office considers it necessary or advisable, the potholing of other substructures may be requested. Potholing shall include exposing the substructure sufficiently to determine the horizontal and vertical location and limits. All information determined by potholing shall be shown on the project plans.

Prior to advertisement for bids, the design office, in connection with thepreadvertisement check, shall review the substructure records to determine if there are recent or proposed installations that affect the design or are within the proximity indicated above. Appropriate action shall be initiated by the design office to either pothole recently installed substructures carrying unstable substances, and show their location and depth on the plans by revision, or request the Construction Division to include a suitable provision in the Special Provisions or in the Notice to Bidders requiring the contractor to perform the potholing of such substructures. The provision should limit the use of power tools to pavement breaking.

The Construction Division or District offices (for B Permits) shall continue to be responsible for utility coordination through the use of Utility Notices and Construction Coordinating meetings. The design office and Bureau of Contract Administrationshall be invited to all such meetings.

Where abandonment or relocation of substructures is required to resolve conflicts, permits should be carefully reviewed for adequacy. Adherence to permit requirements shall be verified in the field by monitoring the work, and the prime design office is assigned this responsibility.

Relocated or abandoned utilities will be reflected in the substructure records through the filing of "as-built" plans by the substructure owner.

**Utility Company and Franchise Facilities** - These include water lines, other fluid lines, gaseous material lines, communication lines, power lines, and railroad tracks. Contact the companies for information.

**Public Works Facilities** - These include storm drains, channels, and sewers. Contact the appropriate public agency for information.

**Miscellaneous Utilities** - These include smaller facilities such as Fire and Police signal systems, street lighting circuits, and traffic sign and signal circuits. They are usually located in the parkway, within the 4-foot area reserved next to the curb (except where they cross streets). Relocation is seldom a problem, but the owner should be contacted for information.
H 154.21 REQUEST FOR INFORMATION

A typical form letter which is sent to the utility offices or agencies to obtain information about their facilities is shown in Figure H 154.2. Drawings should accompany the request letter, and include the following data:

a. A vicinity map of the project location.

b. A plan of the proposed structures showing approximate dimensions and elevations and all known existing and proposed utilities.

c. An elevation view, indicating heights of structures or substructure elevations where appropriate.

d. House numbers, street names, centerlines, property lines, easements, and any other information that might aid in the utility location or relocation.

H 154.22 UTILITY LOCATION GUIDELINES

On March 24, 1971, the Council adopted a policy statement which reads in part: "The preferred location for utilities, when practical, shall be between the curb and property line, or in a center island if one is available. The next most desirable location would be in a parking lane. Due consideration will be given by the City Engineer's office to alternate location requests, should such locations prove to be impractical."

To provide uniformity in administration of the Council Policy, the following guidelines should be followed:

a. Private company utilities should be located in the parkway outside the 4-foot area next to the curb, which is usually reserved for governmental use.

b. Generally, utility distribution mains providing local service should be in the parkway, especially those with a high volume of access, e.g., telephone conduits with access manholes.

c. Generally, transmission pipelines (e.g., oil pipelines) with no service connections should be in the roadway. The roadway locations for these mains preserve the limited parkway space for utilities serving the area.
d. Generally, large facilities of water, power, communications, gas, etc., (3-inch diameter pipelines or larger) should be exempted from a parkway location if they are transmission mains with very few, if any, service connections. Smaller mains should be located in parkways. There may be compelling reasons for not following this general guideline, some of which are listed below:

1. Congested parkways - e.g., encroaching shallow basements, numerous existing utilities, etc).
2. Possible damage to trees or to a landscaped area.
3. Narrow parkways - insufficient space outside the 4-foot reserved area.
4. Man-made or natural interference - encroaching basement or retaining walls, steep slopes, etc.
5. Damage to decorative sidewalks or other special improvements.
6. Proposed installation is a replacement, which is parallel and adjacent to the existing facility.
7. Required use of sand-cement slurry backfill to minimize resurface time and pavement damage.
8. Demonstrated difficulty, if not impossibility, of utilizing regular construction equipment.
9. Willingness to voluntarily use cut-and-bore or some other method whereby open trenching is kept to a minimum.

e. Where a roadway location is permitted in a street with a high traffic count, require a sand-cement slurry backfill. The permittee should also be required to make arrangements with the Bureau of Street Maintenance to have permanent resurfacing placed soon after backfilling with a request for proportionate reduction of charges. (See the Standard Specifications, Section 201.)

f. If it is not practical to place a utility in the parkway and the road has been recently resurfaced, or a very high traffic count makes it desirable to maintain all traffic lanes open, the engineer should suggest that the permittee investigate an alternate alignment.

g. When a parkway location is used, the utility company may request approval to resurface under a Class A Permit. Most such requests can be granted if full width replacement of 5 feet or more is provided, in accordance with established procedures.

h. The designer should consult with the District office regarding locations of existing utilities. For additional guidelines, refer to H 728.
H 154.3 PERMITS FROM OTHER AGENCIES

Permits required by other agencies generally are of two types. One is for City projects that affect another agency's right-of-way. The other is for buildings or structures under the jurisdiction of the LABC, in accordance with the LAMC.

H 154.31 LACDPW (FLOOD CONTROL FACILITIES) PERMIT

An LACDPW (Flood Control Facilities) permit is required for any work in an LACDPW easement or for connecting to or remodeling of existing LACDPW (Flood Control Facilities) drainage facilities in City streets. Permit acquisition is discussed further in Part G, Storm Drain Design.

H 154.32 CORPS OF ENGINEERS PERMIT

A Corps of Engineers Permit is required where its right-of-way is affected. The LACDPW (Flood Control Facilities) acts as the liaison in this process. (See Part G, Storm Drain Design.)

H 154.33 STATE ENCROACEMENT PERMIT

A State Encroachment Permit is required for any work within State highways and freeways or in other State property. The Central Engineering District office serves as liaison in the acquisition of State Encroachment Permits for City projects. (See Part G, Storm Drain Design.)

H 154.34 CITY BUILDING DEPARTMENT PERMIT

When a building or structure requires a building permit (see Division 1 of the LABC), the permit should be obtained following the procedure discussed in H 154.141(d).

H 154.35 COASTAL DEVELOPMENT PERMIT

See H 153.

H 154.4 DRAFT SPECIAL PROVISIONS

During design, or immediately afterward, applicable Special Provisions should be forwarded to the Construction Division for inclusion in the bid documents. An updated "Standard Special Provisions" (structural) is available from the Structural Engineering Division, which includes standardized versions of those provisions most commonly needed.

In conjunction with the plans, the Special Provisions should clearly indicate what is expected of the contractor in the conduct and sequence of its operations. See H 720, Supplemental Guidelines for Construction Controls, and H 122.2, Special Provisions.
H 160  PLAN PREPARATION, CHECKING AND PROCESSING PROCEDURES

The purpose of this section is to discuss standard procedures for the preparation or revision of structural plans, plan checking, and plan processing. Included are procedures for disposition of plans and files after the project is completed.

Construction plans should clearly delineate the nature, extent, location, and materials of construction. Obstructions and existing facilities affecting the project should be shown. Sufficient details should be included to clarify the intent of the Plans, the Standard Specifications, and the Special Provisions.

H 161  PLAN PREPARATION STANDARDS

Standards herein are for drafting sheets, material, layout format, and detailing practices in current use.

H 161.1  PLAN SHEETS

Structural plans for Bureau of Engineering projects should be prepared only on the standard sheets currently approved for use by the Bureau. Structural plans prepared for inclusion in the plan set of another agency should be prepared on the standard sheets currently in use by that agency, e.g., the Los Angeles County Department of Public Works (Flood Control Facilities), the Department of Airports, etc.

The standard sheets are of two types: "First Sheet" and "Second Sheet". The "First Sheet" is the title sheet for the set of plans. The title sheet layout shown on Standard Plan S-621 should be used as a guide, supplemented by H 161.4, Title Sheet Format. The "Second Sheet", which is used for all other sheets in the set of plans, has dimensions and borders as shown on Standard Plan S-622.

The title sheet is often prepared by an office or agency responsible for the project, other than the Structural Engineering Division, and this sheet may not be available for general structural information. Structural information should be placed on the first structural sheet of the plans.

For plans which are principally structural, Standard Plan S-621 should be modified so that the title sheet follows the format outlined in H 161.3. Limits or reaches of streets as shown on Standard Plan S-621, "Index to Sheets", are usually not necessary for structural plans.

H 161.2  DRAFTING

The drafting standards discussed in this section should be used on City projects as well as on projects for other agencies.
H 161.21  MATERIAL

Sheets - Drafting sheets used shall be matte surface polyester (mylar) drafting films, such as Cronaflex, Estar, Mylar or Herculene.

Mylar sheets have a matte surface on one side only and accept pencil or ink lines with no special preparation. Pounce, an abrasive normally used on linen sheets, should not be used on mylar since it will strip the matte surface.

In order to keep the sheet clean, it is advisable to cover it with a layer of powder from a dry cleaning pad, by kneading the pad while holding it above the sheet. Occasionally, rub the dry cleaning pad over the fresh pencil lines. The pad acts as a blotter and will absorb excess carbon from the lines. It is good practice to cover parts of the sheet which are not being drafted because grease buildup from unnecessary contact of hands or arms will fill the voids in the matte surface and pencil or ink will fail to "take".

For mylar, if graphite lead pencil is used, a light coat of fixative should be sprayed over the surface of completed plans. This coating will protect the linework and prevent smearing. If corrections are required, the coating may be easily erased. After erasing, a light coat of fixative should be applied prior to drafting on the erased area. This will provide a roughened surface to "take" the pencil or ink. Again, after corrections have been made, the corrected area should be sprayed with fixative.

Pencils - Standard graphite lead pencils can be used on polyester or linen sheets. However, plastic lead pencils are preferred with polyester, since the graphite leads will smear and will require additional care. The type of pencil and hardness of lead used depend on individual preference, but all completed line work should be clear and reproduce well.

Inks - The ink used should be opaque black. The brands used are Higgin's Black Magic, Pelikan's Drawing Ink T, or Kohinoor's Rapido Ink. An advantage of Rapido Ink is that it remains flexible. Black Magic is used on linen cloth.

Conventional rubber stamps and stamp pad ink may be used, but immediately following the stamping the surface should be sprayed with a light coat of fixative to prevent smearing.

Erasers - Erasures should be made with a vinyl eraser. This type eraser is also available for use in erasing machines. For mylar, a light touch should be used to prevent stripping the matte surface. For pencil line removal and clean up, use the eraser dry. For ink line removal, moisten the eraser with water.
H 161.22 LETTERING

The style and size of lettering to be used on structural plans should be as indicated on Figure H 161.22 unless other standards are used by the agency for which the plans are being prepared. The designations used in Figure H 161.22 are:

- f freehand lettering
- m mechanical lettering (Leroy)
- p press-on lettering
- t typewriting

**Freehand lettering** should be Reinhardt style, inclined to the right approximately 20 degrees from the vertical, of a size equal to the No. 5 Ames Lettering Guide, with the body of lower case letters two-thirds the size of the upper case letters.

**Mechanical lettering** style should be vertical Leroy.

**Press-On letter** should be used only with the Division Engineer's approval and of an approved style pressure-sensitive decal. The procedure involves positioning the decal sheet on the plan and rubbing over the decal with a blunt pencil to transfer the letter or symbol. After transfer, the figures should be burnished by rubbing firmly on the backing sheet placed over the transferred figures. Because of the tendency for press-ons to fall off after a certain amount of time and plan usage, a Cronaflex shall be made of a plan sheet before indexing or approval by the City Engineer.

**Typewritten lettering** is recommended for general notes, especially on title sheets, because it is a time-saving technique. Four methods of application are available: (a) one is "Mactac", a transparent decal sheet, which is self-adhered to the tracing after typing is completed (and which also requires that a Cronaflex be made); (b) another method is to attach pretyped sheets, which can be Cronaflexed onto a plan sheet; (c) a Computer Aid Drafting (CAD) system can be utilized, information on which may be obtained from the Structural Engineering Division's Computer Application Section; and (d) a fourth method is typewriting directly on the tracings. This last method is not recommended, as it reproduces poorly.
H 161.23  SCALES

The scales listed below are recommended for structural plans. They may be varied to accommodate a particular drawing. The use of split scales (different horizontal and vertical scales) should be avoided in structural work.

- **Key Map**: 1" = 400', 1" = 1000'
- **Plan, Elevation**: 1" = 10', 1" = 20'
- **Details**: 3/8" = 1'-0", 1/2" = 1'-0", 3/4" = 1'-0", 1" = 1'-0"

All scales should be indicated on the plans directly below the drawing title. If no scale is used, this should be indicated by the words: "Not to Scale".

H 161.24  LINES

The line convention used on structural plans is shown in Figure H 161.24. The use of different drafting instruments and media results in variations in line widths. It is therefore recommended that line widths be tested prior to plan preparation. The line widths in Figure H 161.24 are in inches, and equivalent Rapidograph pen numbers are also shown.

H 161.25  NOTICE TO CONTRACTOR NOTES

In addition to the standard general notes shown on Standard Plan S-621, supplementary and structural notes should be placed under "Notice to Contractors". A typical supplementary note is as follows:

> All provisions of the LACDPW Flood Control Facilities Permit shall be complied with. This permit is on file in the office of the City Engineer.

Structural notes will depend upon the materials used (i.e., reinforced concrete, prestressed concrete, steel, timber, etc.). If reinforced concrete is used on the plans, the following typical notes should be placed under "Notice to Contractors":

**STRUCTURAL NOTES**

1. All bar reinforcement shall conform with the requirements of ASTM Designation A 615, Grade 60.

   (This note should be omitted if design is based on Grade 40, which is specified in the Standard Specifications.)

2. Bar spacing is center-to-center of bars. Bar cover is the clear distance between surface of bar and face of concrete and shall be 2 inches unless otherwise noted. Reinforcement shall terminate 2 inches from concrete surfaces unless otherwise noted.
3. Unless otherwise detailed herein, or approved by the Engineer, splices of Grade 60 reinforcing bars made by lapping shall comply with the following requirements (#11 bars or smaller):

   a. Bars shall be lapped 45 diameters of the smaller bar spliced, up to #8 bars, and 60 diameters for bars larger than #8's, up to #11 bars.

   b. Bars may be continuous in lieu of splicing.

   c. Bars shown as spliced shall be continuous at all other locations.

   d. Splices in adjacent bars shall be staggered at least one splice length.

   e. Bars detailed as continuous and longer than 60 feet may be spliced in 60-foot lengths at locations determined by the Contractor.

(Note: Note 3 does not apply to "top bars" with a "d" value greater than 12 inches nor to bundled bars. See Caltrans' Bridge Planning and Design Manual, Vol. IV for those cases.)

H 161.26  DETAILS

Standard Detail Sheets - Whenever they apply, the standard detail sheets (e.g. Joint Seal Details, Pile Details, etc.) should be incorporated into the set of plans. A listing of standard structural detail sheets is available from the Structural Engineering Division.

Standard Details - Whenever possible, for the purpose of uniformity, economy, and ease of drafting, incorporate standard details into the plans. Refer also to Caltrans' Bridge Planning and Design Manual (Vol. IV) and to City Standard Plans.

H 161.27  SYMBOLS AND ABBREVIATIONS

The symbols and abbreviations used in structural plans should be those in current use by the construction industry. Any symbol or abbreviation used, which is not listed in the Standard Specifications or in Standard Plan S-610, should be defined on the plans, usually under Notice to Contractors.

Bureau of Engineering Symbols - Commonly used symbols are listed in Standard Plan S-623, "Drafting Symbols for Existing Culture", and in Figures H 161.22, H 161.27A, H 161.27B, H 161.27C, and H 161.5B.
Bureau of Engineering Abbreviations - Those commonly used are listed in H 113.

Construction Industry Symbols and Abbreviations - Standard symbols and abbreviations used by the construction industry are those set forth in current editions of the publications listed below:

a. **Structural Steel** - *Steel Construction Manual*, by the American Institute of Steel Construction, and the *Welding Handbook*, by the American Welding Society (Figure H 161.27B).

b. **Concrete** - The various manuals published by the American Concrete Institute, the Concrete Reinforcing Steel Institute, and the Prestressed Concrete Institute.


d. **Aluminum** - The various manuals published by the Aluminum Association.

e. **Miscellaneous** - The manuals and handbooks published by various construction industry associations, such as the Tile Council of America and Western Wood Products Association.

H 161.3 PLAN FORMAT

Structural plans should be arranged in a logical sequence based on the sequence of construction of the project. Following is a sequence for a typical bridge project:

a. Title Sheets
b. General Plan, Typical Section, and Elevation
c. Foundation Plan
d. Abutments
e. Pier or Bent Plan, Sections, and Details
f. Wingwalls, Retaining Walls, and Details
g. Girder and Bearing Details
h. Framing Plan and Diaphragms
i. Deck Reinforcement and Details
j. Deck Elevations and Details
k. Miscellaneous Details
1. Standard Sheets
   1. Piles
   2. Prestressed Girders, Steel Girders, etc.
   3. Railings
   4. Joint Seal Details
m. Utilities
n. Log of Test Borings
o. Landscaping Plan and Details
p. Street and Storm Drain Plans
q. Street Lighting Plans

Each sheet in this sequence shall be tentatively laid out on 8-1/2" x 11" sheets with schematic sections and details before the actual drafting is begun. It is advisable to leave ample space on the sheets so that additional details may be included during drafting without crowding. Avoid repetition of information, sections, and details but without sacrificing the clarity or the intent of the plans.

In general, the north arrow is oriented in accordance with Standard Plan S-621. However, the designer should coordinate the structural and civil plan layouts for uniformity in orientation. Detail plans should be generally orientated the same as the "General Plan".

**H 161.4 TITLE SHEET FORMAT**

The title sheet is the first sheet in the plans and serves as the introduction to the project. Refer to Standard Plan S-621 for general format and to H 161.1 for additional clarification.

**Notice to Contractor** - Under "Notice to Contractor" all general requirements and special notices are called to the contractor's attention. Standard notes to be placed here are discussed in H 161.25. Notes pertaining to specific details or conditions should be placed on the sheet delineating the detail.

All of the standard plans referred to on the plans should be listed numerically. Standard plans or drawings of other agencies incorporated in the plans should be listed.

**Legend** - All drafting or construction symbols not defined in the Standard Specifications, Standard Plan S-610, or the Special Provisions, or not in common usage, shall be listed and defined.

(For example, drafting notations for sections or details, Figure H 161.5A, Sheet 1, should be defined on the title sheet.)
Design Data - The following information should be noted on the structural plans under the heading of DESIGN DATA:

Design Code: (cite title and edition date).

Design Loads: (list all applicable loads).

Design Stresses: (list all applicable stresses).

FAUP, and LA DOT Project Designations - For these and other Federal-aid projects, place the project designation above the "Index to Sheets" as shown on Standard Plan S-621.

Index to Sheets - A listing of the sheet numbers and titles. The sequence is shown in H 161.3.

Location Map - A small scale map which shows the general location of the project. It should be placed with the north arrow oriented in accordance with Standard Plan S-621. Show major cross streets in the proximity of the project and identify the project site.

References - Those applicable to the project should be listed. The numbers of District and Drainage Maps into which this project extends should be shown. The plan numbers superseded by this project should be listed. The right-of-way number is shown on the right-of-way map. The Division numbers of the City's Index to Records into which the project extends should be shown.

Project Disposition - This data should not be entered by the designer.

Survey Information - The survey field books used on the project should be listed by book number, first and last reference page numbers, and date of survey.

Bench Marks - Those required for control should be listed with their location. Bench marks subject to removal or damage by construction should not be used.

H 161.5 DETAILING PRACTICE

In order to maintain uniformity in structural plan detailing, the section and detail callouts, dimension and leader lines, section drawings, and reinforced concrete details illustrated in Figure H 161.5A should be used. These should be supplemented with the up-to-date detailing practices of the construction industry. For an example of detailing practice, the detailer should refer to a recent set of plans for a similar project.

Recommended standard detailing manuals include the following:

a. Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI 315), by the American Concrete Institute.


d. Drafting Standards Aluminum Extruded and Tubular Projects, by the Aluminum Association.

Log of Test Borings - On projects where a soil report is available, the test hole information should be shown on the plans. The location of each boring should be indicated on the foundation plan, general plan, or another plan on which the borings can be easily located. The log of borings should be copied verbatim from the soil report, using the Unified Soil Classification System illustrated in Figure H 161.5B. The log of test borings shows a cross section of the soil, the number of the hole, and the date bored as shown in the soils report. An example of one such log is shown in Figure H 161.5C.

Pile Length Designations - When piles are required on a project, pile lengths should be designated on the "Foundation Plan". Refer to H 510, Piles.

H 162 PLAN CHECKING

The contract drawings provide information for a variety of people, many of whom may be unfamiliar with the construction site and the type of construction. Information must be clear, accurate, and complete, such that only one interpretation is likely. The designer and checker work cooperatively to this end in the preparation of final plans.

Plan checking is an independent verification of the general requirements, design, and detailing of the contract plans. The procedure for checking structural plans is discussed below and in H 170.

H 162.1 SUBMITTALS FOR CHECKING

The Project Engineer is responsible for reviewing the drawings prior to submitting them for checking to ensure that the overall design concept and the detailed design of individual elements are in conformance with City standards and that the plans are essentially complete and ready for checking.

The calculations must verify the structural adequacy of all members. Those which are analyzed "by inspection" should be so referenced in the calculations. The plans must be in agreement with the calculations and any significant changes made in the plans should be noted in the calculations.

The following material should be included with submittals for checking:

a. One complete set of prints of the structural plans and calculations.

b. The project file.

c. One copy of the survey notes.
d. One copy of the soils report.

e. Prints of all pertinent street plans, sewer plans, street lighting plans, traffic plans, etc.

f. Prints of utility company plans showing existing and proposed facilities.

g. Any other materials, such as photographs, that might expedite the checking of the plans.

h. One copy of the Special Provisions, if any.

i. Correspondence and any other data pertinent to the project but not included in the project file.

j. Plans of any existing structures which might be affected by construction of the project.

H 162.2 CHECKING PROCEDURE

Preliminary Review - The overall design concept should be reviewed before starting a detailed check. The minimum list of items to be reviewed should include:

a. Origin and purpose of the project.


c. Aesthetics - Cultural Affairs Commission approval, if required.

d. Survey data.

e. Right-of-way requirements.

f. Soils and Foundation Reports.

g. Utility requirements and coordination.

h. Requirements or requests of other offices and agencies.

i. Field conditions (site investigation, if necessary).

j. Reasons for type selection.

k. Practicability of construction.

l. Economy of construction.

m. Interpretation of the plans.

n. Coastal Development Permit, if required.
Design - Prior to checking the calculations, the design assumptions, design loads, allowable stresses, and supporting capacity of soils should be reviewed and verified. The general integrity of the structure should then be verified by an independent check of critical elements of the structure under critical conditions of loading. Finally, a review of the calculations in sufficient detail to verify analysis procedures should be performed.

Detailing - The detailing of structural plans should be checked for consistency, clarity, accuracy and completeness. The sheets should be organized in a sequence that will make the proposed construction easily understood. The first sheet or sheets should provide an overall picture of the proposed construction, and subsequent sheets should be organized in the sequence of construction. The number of details should be adequate, ensuring that nothing essential is omitted, but over-detailing, needless repetition of details, or overcrowding should be avoided. All details should be checked for conformance with current standards. Details should be checked against corresponding details on all other related plans for consistency.

Special Provisions - Any provision which is not covered by the Standard Specifications as supplemented by Standard Plan S-610 should be included in the Special Provisions. This includes requirements and restrictions imposed by other offices and agencies affected by the project. Permits, letters, or agreements from other agencies should be reviewed along with the Special Provisions as part of the plan check. Refer to H 122.2 for other aspects of the Special Provisions.

H 163 PLAN PROCESSING, PRIME OFFICE

Plan processing (for other than permit projects) from plan completion through closing of the work order and disposition of plans and files is outlined in this section. A flow chart, Figure H 163, illustrates this process. The Structural Engineering Division (SED) is assumed to be the prime office. For structural plan processing when the prime office is other than SED, see H 164. Plan processing for permit plans is discussed in H 170.

H 163.1 PLAN CIRCULATION AND APPROVAL PROCESS

During the circulation of the plans for final approval, the design office should monitor the location of the plans in cooperation with the Plan Circulation Section, Project Management Division.

H 163.11 ROUTINE PLAN CIRCULATION

When the final plans have been signed by the Division Engineer, they should be transmitted to the Project Management Division for processing. The following should be done before transmittal:

a. Retain one set of prints for the design office.

b. Transmit one set of prints to each office or agency that will review and sign the tracings during circulation. This will allow the involved offices to review the completed plans before the tracings arrive for their signatures and thereby help expedite plan processing.
c. Complete the following forms to be transmitted with the tracings:

1. Index Numbering Request Form, Figure H 163.1A.
2. Vault Requisition Form, Figure H 163.1B.
3. Photocopy Work Request Form, Figure H 163.1C. The design office retains one copy of this form.

d. The completed forms, together with the original tracings, are then transmitted to the Plan Circulation Section, Project Management Division for further processing:

1. Indexing.
2. Microfilming.
3. Circulation of the original tracings to involved offices for review and approval.
4. Approval by the City Engineer.
5. Distribution of prints of the approved final plans to all involved offices and return of tracings to the Vault in accordance with the Photocopy Work Request Form completed by the prime office.
6. Transmittal of plans to the Construction Division for preparation of its estimate and bid documents.

H 163.12 EXPEDITED PLAN CIRCULATION

An expedited processing procedure for full processing within 8 working hours is permitted for certain specific groups of projects (such as the "Go" projects) in order to meet deadlines involving monetary losses to the City or as a part of disaster relief. This procedure involves plan processing, indexing, microfilming, and production of prints for Bureau plans. The use of this procedure should be authorized by a Deputy City Engineer.

The procedure is as follows:

*Step 1  The prime design office should hand-carry the plans to obtain all approval signatures other than Deputy City Engineer and City Engineer.

*Step 2  The design office should then deliver the plan to the Plan Processing Unit with photocopy orders, indexing requests, and vault requisition forms attached.

Step 3  Plan Processing will:

a. Log in the plan and prepare a record card;
b. Walk it immediately to the Index Unit.

**Step 4** The Index Unit will:

a. Assign all possible personnel to the indexing and numbering of the plan;

b. Immediately upon completion return the plan to Plan Processing;

c. Telephone the assigned number to the design office, if requested on the index slip or by note.

**Step 5** Plan Processing will:

a. Obtain the signatures of the Deputy City Engineer and City Engineer on the indexed plans;

b. Deliver the signed plans directly to the Photoreproduction Section for microfilming.

**Step 6** The Photoreproduction Section will:

a. Immediately microfilm the plan, ahead of all other work in the shop;

b. Immediately, without waiting to check film, transport the plan to Photocopy for reproducing the most urgent prints;

c. Upon production of the most urgent prints, deliver those prints to the Bureau office designated;

d. After production of the most urgent prints, produce other prints in the time limits arranged;

**e. Return the tracing to the Vault, or other office as arranged.**

* Steps 1 and 2 can be used without special authority and can reduce processing to about one week.

** The plans for projects involved in expedited contract proceeding programs will be returned to the Vault and released only with Project Management Division approval.
Advance Index Numbers - Advance Index Numbers should not be requested to speed up the plan circulation process. However, if the number is required for extensive and unusual cross-referencing, and the plan is two or three weeks away from the City Engineer's approval, a number may be issued. Contact the Index Unit for instructions.

H 163.2     PREADVERTISING CHECK

Project plans should be reviewed by the prime design office approximately 30 days prior to advertising for bids for construction of the project. This review is to ensure that the plans reflect current field conditions and design standards, and is especially important for those projects not recently designed or where changes in job conditions have occurred. The "Project Preadvertising Check List" (Figure H 163.2) should be used as a guide in performing this review. The procedure is as follows:

a. The Project Management Division requests the review by phone or by memorandum when bid documents are nearly complete.

b. The design office conducts the review, verifying current field conditions and design standards and determining whether revisions to the plans are necessary, the extent, and how they are to be made; i.e., by Special Provisions, Notice to Bidders, plan revision, or Change Orders.

c. If there is no need for revision, the design office notifies the Project Management Division.

d. If revisions are necessary, the design office proceeds as follows:

   1. It advises the Project Management Division and the Construction Division of the proposed revisions and discusses the methods for making the changes.

   2. If the revision requires more than 15 man-days of design time, a memorandum to the City Engineer with a copy to the Project Management Division is submitted. The memorandum describes the revision, the reasons for the change, the estimated cost or savings, if any, and the estimated time the project will be delayed.

When approved by the City Engineer, or the revision requires less than 15 man-days of design time, the prime office performs the revision and returns the tracings to Project Management for plan circulation. Changes in special provisions are forwarded to the Construction Division.
H 163.21  TUNNEL CLASSIFICATION

Many projects include tunneling or jacking operations. At the time of preadvertising check, the need for tunnel classification, which is a requirement of the State Division of Industrial Safety, should be evaluated. The classifications should be obtained prior to advertising for bids.

The Tunnel and Mine Safety Act of 1972, A.B. 1157, requires the Division of Industrial Safety to classify all proposed tunnels or major tunnel repair projects as to the potential of encountering flammable gas. This classification should be made before contracts are awarded in order that this classification can be used to bid on the jobs. For the purpose of classifications, "tunnel" means an underground passageway, excavated by men and equipment working below the earth's surface, that provides a subterranean route along which men, equipment, or substances can move. This excludes open-cut trenches.

Notify the Division of Industrial Safety of any proposed tunnel as required in Tunnel Safety Order 8422(d) which states: "When the preliminary investigation of a tunnel project is conducted, the owner or agency proposing the construction of the tunnel shall submit the geological information to the Division for review and classification relative to flammable gas or vapors. The preliminary classification shall be obtained from the Division prior to bidding and in all cases prior to actual underground construction. In order to make the evaluation, the following will be required:

   a. Plans and specifications.
   b. Geological report.
   c. Test bore hole and soil analysis log along tunnel alignment.
   d. Recommendation from owner, agency, lessee, or their agent relative to the possibility of encountering flammable gas or vapors.
   e. The Division may require additional drill holes or other geologic data prior to making gas classification.

Contact: Division of Industrial Safety, 3460 Wilshire Boulevard, Room 307, Los Angeles, California 90010, Telephone (213) 386-8536."

H 163.22  UTILITY SERVICE HOOKUPS

During the preadvertising check, determine if all utility hookups shown on the plans or called for in the special provisions can be provided in order to prevent possible delay in construction.

H 163.3  PROJECT REVISION METHODS

The method of project revision depends upon the extent and type of change and
the status of the project (i.e., whether the project is in the preadvertising stage, out to bid, bids received, or after contract is awarded). Also refer to Administration Manual Section A 632.24 as to restriction of release of Vault plans.

H 163.31  PREADVERTISING PERIOD

Plan revisions during the preadvertising period should be made in accordance with H 163.2(d). The procedure for elimination, substitution, or addition of plan sheets is explained in H 163.4.

Special Provisions - If a revision is minor and the Special Provisions are in draft form, the merits of incorporating the change in the Special Provisions should be considered. Confer with the Construction Division regarding this alternative.

H 163.32  OUT TO BID PERIOD

If the changes are minor, revisions can be handled by issuing a Notice to Bidders or Addendum. The design office initiates the issuance of a Notice to Bidders or Addendum through the Construction Division.

Notice to Bidders - This method is used when the plans or Specifications need clarification rather than changing.

Addendum - An Addendum is a formal supplement to the Special Provisions issued only after approval by the Board of Public Works.

It may be necessary to postpone the bid date for a job that is already out to bid (Deferred Bid) in order to permit a revision in the plans, Specifications, or Proposal. Board of Public Works approval is required. Any bids received are returned unopened.

H 163.33  BIDS RECEIVED PERIOD

If bids are unattractive, it may be advisable to reject all bids received and readvertise the project after revising the plans, Specifications, or Proposal. Board of Public Works action is required.

H 163.34  AFTER CONTRACT IS AWARDED

Change Orders - Once the contract is awarded, revision is made through issuance of a change order. A supplemental agreement is required if cumulative change orders increase or decrease the contract price by more than 25 percent. Supplemental agreements are costly and time consuming and should be avoided if at all possible. It may be necessary to revise plans and re-estimate the project in addition to renegotiation of the contract cost. The options should be carefully assessed before recommending renegotiation of a new agreement. Change orders are discussed further in H 770.
H163.35 PLAN REVISION PROCEDURE

Changes on plans for Assessment projects are subject to special statutory requirements which are covered in Part C, Operations and Control. Confer with the Assessment Division before initiating any plan revisions.

H 163.4 PLAN REVISION PROCEDURE

The procedure for elimination, substitution, or addition of plan sheets is described in this subsection. For a plan revision requiring time in excess of 15 man-days, see H 163.2(d). Revisions to Assessment Act projects, including combination projects, must be approved by the Project Management Division prior to implementing this procedure.

H 163.41 SHEET ELIMINATION

a. The sheet that is removed should be marked "VOID" and filed in the design office until the construction is complete, after which it may be destroyed.

b. In the revision block of the first sheet, describe the change similar to the following:

"Sheet No. ___ removed and subsequent sheets renumbered. Revised total number of sheets. Index to sheets, location map, sheet cross references (as appropriate) revised."

c. It is not necessary to make entries in the revision block of each sheet just to change the sheet number. To change a sheet number, cross out the old number with one line and enter the new number adjacent to it.

d. Obtain the Division/District Engineer's signature for the revision.

e. Send the revised plans with a memo describing the changes to the Plan Circulation Section, Project Management Division for the City Engineer's approval.

f. If the above procedure is unduly complicated due to complex cross-referencing and numerous sheet number changes required, the following procedure may be used:

1. Draw a large "X" through the entire sheet and write the word "VOID" in large letters across the sheet. Indicate "Sheet Voided" in the revision block.

2. In the revision block on Sheet No. 1, state: "Sheet No. ___ voided".
3. Revise index to sheets, key map and/or sheet cross-references as necessary.

4. Sheet numbers and total number of sheets need not be changed.

H 163.42  SHEET SUBSTITUTION

   a. Replace the obsolete sheet and file it until construction is complete.

   b. In the revision block on Sheet No. 1, state: "Sheet No. ______ removed and replaced by a new sheet". If appropriate, also state: "Index to sheets and key map revised".

   c. Obtain the Division/District Engineer's signature on the substituted sheet and the revision block.

   d. Obtain the City Engineer's signature as described in H 163.41(e).

H 163.43  SHEET ADDITIONS

   a. The preferred way to add a sheet is to make it the last sheet in the set. However, if this location is not appropriate, a sheet may be added elsewhere within the plan set.

   b. In the revision block of the first sheet, state: "Added Sheet No. ___ and revised subsequent sheet numbers. Revised total number of sheets. Index to sheets, key map, sheet cross-references (as appropriate) revised". Sheets other than Sheet No. 1 need not have any entry in the revision block if the only change was renumbering.

   c. Obtain the Division/District Engineer's signature on the added sheet and on the revision on Sheet No. 1.

   d. Obtain the City Engineer's signature as described in H 163.41(e).

H 163.5  DISPOSITION OF PLANS AND FILES

After a project has been accepted as completed by the Board of Public Works and listed under "Contracts Accepted" in the Bureau of Engineering - Notice of Closed Work Orders (issued by the Administration Division), disposition of the plans and file can begin. The time spent for this process should be charged to the appropriate general work order.

H 163.51  DISPOSITION OF PLANS

The prime office should use the following procedure in the disposition of plans after completion of a project:
a. Following the listing of a project in the "Contracts Accepted" list, the project plans should be requested from the Vault.

b. The serial number of the last change order should be verified with the Change Order Section of the Construction Division. A copy of all change orders issued should be obtained for use in the "as-built" plan preparation.

c. When tracings are received, compare the latest date of the tracing revision on each sheet against the date of the certification in the image of the corresponding microfilm card of the plan. If the revision date is past the date on the film, the latest revision has not been filmed. If this is the case, the entire plan set should be sent to the Microfilm Unit to be refilmed. Note on the order: "FINAL AS-BID FILMING". This microfilm becomes the City's legal record of the preconstruction plans. Do not make any changes in the tracings until a microfilm has been made of the plan as bid upon. If in doubt, request new microfilm.

d. Revisions to the tracings should be made to reflect all changes made during construction of the project. These revisions may include change orders, deviations from details, option used when optional construction is indicated on the contract plans, pile information (including tip elevation, bearing capacities and type), and shop drawings. All revisions should be made in black ink or pencil, whichever was used on the original tracings. In general, revisions should be made by crossing out the superseded portion of the plan and entering the revision adjacent to it. If necessary for clarity, erasures may be made. (On Assessment and Combination project plans, erase all superseded work--do not cross out.) The change order serial number should be indicated in the general area of a change order revision. For revisions other than change order revisions, the phrase "Construction Changes for Structural Work made on ________ (date) by _______________ (full name)" shall be entered in the "Project Disposition" block of the first sheet. Do not make entries in the revision blocks for "as-built" changes.

Shop drawing should be compared with the contract plans and, if there are differences, these should be included in the "as-built" changes.

If there are extensive differences, or if the shop drawings may be of future value, they may be added to the "as-built" plans. To accomplish this, the shop drawing information should be superimposed on a standard City sheet either by tracing or by photographic reproduction process. The sheet is then added to the "as-built" plans.
e. If a revision requires the elimination of a sheet, place a large "X" through the entire sheet and letter the phrase "This sheet voided -- see Change Order No. ____" in 1/4-inch letters above the revision block. No other changes need be made.

f. If a revision requires the substitution of a sheet, replace the sheet and on the new sheet letter the phrase "This sheet substituted for original Sheet No. ____ -- see Change Order No. ____" in 1/4-inch letters above the revision block. The index to sheets should be revised if necessary.

g. If a revision requires the addition of a sheet, insert the new sheet at the end of the plan set and letter the phrase "This sheet added -- see Change Order No. ____" in 1/4-inch letters above the revision block. The index to sheets, key map, references, total number of sheets, etc., should be revised.

h. If other offices have written change orders, then with the approval of those offices the prime office may elect to make the "as-built" changes. If the prime office does not elect to make these changes, the complete set of tracings should be transmitted by memorandum to the office responsible for the change order so that the revisions can be made. After the revisions have been made, the complete set of tracings should be returned to the prime office. **A set of tracings should not be split up.** (On Assessment projects, the prime office should make the "as-built" changes for all Bureau work, including structural work.)

i. The words "Work Accepted" followed by the date and serial number of the "Notice of Closed Work Orders" and the name of the person who made the revisions shall be entered in the "Project Disposition" block in the margin of the first sheet. If no revisions were made, it should be so stated. (On Assessment projects, forward the "as-built" tracings to the Project Management Division. That office will enter the date of work acceptance and the serial number of the "Notice of Closed Work Orders" in the Project Disposition box. The Project Management Division will also prepare any "photocopy work requests" necessary, and retransmit the plans to the Index Unit.)

j. The word "AS-BUILT", 3/10-inch high, shall be lettered on the first sheet directly below the revision block.

k. A computer program input form for the "Computer File of Structures" should be completed. This file is maintained by the Structural Engineering Division for structures to be inspected on a routine basis. (See **H 180**.)
1. The revised "as-built" tracings should be transmitted by memorandum to the Index to Records Section, Administration Division for processing. The memorandum should describe revisions made to the tracings. Completed "Request for Microfilm Services" and "Photocopy Work Request" forms should be transmitted. The microfilm "as-built" records will then be made by the Microfilm Section of the Administration Division: two for security purposes; one for the City Vault; one for the City Satellite (Central District office) Vault; and one for the prime design office. "As-built" plans are sent to the City Vault for storage.

H 163.52  DISPOSITION OF FILES

Following the disposition of the plans, the project file should be closed.

a. All design material not pertinent to the completed project, such as check prints and preliminary layouts, should be discarded.

b. Construction field notes and other records pertinent to construction should be neatly assembled, labeled, and added to the project file.

c. The following folders should be compiled and included in the project file:

   1. Project Photographs - Photographs that may be of future use should be mounted on paper sheets, labeled, and bound in a labeled folder.

   2. Correspondence - All letters, memos, board reports, records of pile driving, agreements, and other pertinent documents or correspondence should be bound in a labeled folder.

   3. Calculations - The final calculations for all major structures should be indexed and neatly bound in a labeled folder with a title sheet. Calculations for minor structures which can be readily recalculated should be discarded.

d. The final calculations should be microfilmed in "jacketed" form (sheet form). Specify on the request form that the microfilms and the calculations are to be returned to the Structural Engineering Division when the microfilming is completed. The microfilming number and a description of the calculations should be entered on the Job Status File Card. The microfilm is then indexed and placed in the Microfilm Inspection File.

e. A copy of the project specifications should be bound, labeled, indexed, and filed in the Bridge Inspection File.
The project file is then placed in the Inactive Files. These files are held by the Structural Engineering Division for a period of five years, after which they are sent to the City Records Retention Center, City Clerk.

g. Update the Job Status File Cards, both numerical and alphabetical, and transfer them to the inactive card files.

**H 163.53 DISPOSITION OF PLANS - FLOOD CONTROL PROJECTS**

The Los Angeles County Department Of Public Works (LACDPW) (Flood Control Facilities) makes "as-built" changes on its plans and forwards a copy to the Central District Office for transmittal to the City Vault for indexing and storage. The City makes "as-built" changes on LACDPW (Flood Control Facilities) projects if the City administers the construction contract for them. In this case, the City forwards one set of "as-built" plans to LACDPW.

**H 163.54 DISPOSITION OF PLANS - FAU PROJECTS**

In accordance with the State Department of Transportation (CALTRANS) "Local Programs Manual", Volume II, Section 2-19, on "Locally Administered" projects the Project Engineer shall be responsible for providing to CALTRANS a set of microfilms of the "as-built" plans. The microfilms should be sent to: CALTRANS, District 7 Office, P.O. Box 2304, Terminal Annex, Los Angeles, California 90051.

**H 164 OTHER PROCESSING PROCEDURES**

Following are other processing procedures to consider.

**H 164.1 PLAN PROCESSING - S.E.D. NOT PRIME OFFICE**

The procedure for structural plan processing when the prime or coordinating office is other than the Structural Engineering Division should be as follows:

a. Following the completion of the structural sheets, including the Division Engineer's approval, the tracings should be transmitted to the prime office.

b. A print of the sheets to be transmitted should be retained in the project file until the plans have been approved by the City Engineer.

c. The letter of transmittal should list the work completed and what remains to be done (such as sheet number revisions, cross-reference additions, etc.).

d. Procedures for the disposition of plans and files are similar to those in H 163.51 and H 163.52.
H 164.2  CLOSURE OF WORK ORDERS

Most work orders are closed automatically by the Administration Division immediately upon acceptance of the construction by the Board of Public Works. Projects which are abandoned or cancelled, B Permit projects, and projects designed for other departments are closed at the request of the prime office. See Administration Manual A 764.1 for work order closure procedures and for other types of projects which are and are not closed automatically.
H 170 PERMITS

The Los Angeles Municipal Code (LAMC) requires that permission from the Board of Public Works be obtained for any work in or adjacent to a public way, or any operation upon a public way of any vehicle or combination of vehicles exceeding the limitations of weight, height, width, or length set forth in Division 15 of the Vehicle Code of California (LAMC, Ch. VI, Section 62.105). Permission is granted in the form of a permit, which is processed and issued for the Board by the appropriate office. The location and nature of the work determines which office processes and issues the permit.

Permits which involve the Structural Engineering Division include Excavation Permits, Class A and B Permits, and Overload Permits. All Class A Permits, Class B Permits, and Excavation Permits which involve the Central District and all Excavation Permits within the City limits which do not require B Permits are reviewed by the Excavation Permits Section of the Central District. Although the City checks the permit plans, the private engineer representing the permittee is responsible for the design and construction of the project to completion. During construction, the City provides inspection services and processes change orders or plan revisions initiated by the permittee.

Plans for retaining walls to be constructed by private developers shall be signed by a California Registered Civil Engineer and checked and approved for structural requirements by the Structural Engineering Division or Excavation Permits Section of the Central District prior to approval by the responsible District/Division office whenever:

a. The wall would provide lateral support for the public way; or

b. The wall excavation would remove lateral support from the public way; or

c. Any portion of the retaining wall abuts or encroaches into the public way and does not require a building permit, even though the wall may not fall under categories "a" or "b".

EXCEPTION: Walls which have a height of 12 feet or less from top of wall to top of footing may be checked and approved by the responsible District/Division office if the wall is designed and constructed using a Bureau of Engineering standard plan.
The removal of lateral support is considered to exist whenever:

a. The excavation exposes any adverse geological formations which would affect the lateral support of the public way or of an adjacent structure.

b. The excavation extends below a plane extending downward at an angle of 45 degrees from the edge of the public way.

EXCEPTION: Normal footing excavations not exceeding two feet in depth below the 45-degree plane will not be construed as removing lateral support.

c. The excavation extends below a plane extending downward at an angle of 45 degrees from the bottom of a footing of an existing structure.

**Architectural Approval** - Approval of the Cultural Affairs Commission shall be obtained when any portion of the wall stem is within the public way. The necessary renderings and plans shall be prepared and submitted to the Cultural Affairs Commission by the permittee. Should the permittee need reasonable assistance with respect to the procedures for procuring Cultural Affairs Commission approval, the Architectural Division will provide such assistance upon request of the responsible District/Division office.

**Structural Requirements** - Retaining walls shall comply with the general structural requirements of the Bureau of Engineering.

A soils report shall accompany the wall calculations whenever the height exceeds 6 feet. The necessary evaluation and approval of the soil report shall be obtained from the Geotechnical Services Engineering Section, Construction Division.

Retaining walls should be provided with top of wall drains when required (see H 544).

Outlets from drains shall be as inconspicuous as possible and shall not outlet into areas that would cause property damage or public inconvenience. Weepers or other drainage devices should not outlet onto sidewalks. (Standard Plans for details of curb outlets are available.)

There are other permits which can involve structural engineering: one example is for encroachment of private development into, or removal of lateral support from, a sewer or drainage easement which could require blanketing or other protection of any existing or planned future public improvement. Access for future maintenance may also be a consideration. Each of these special cases must be considered individually after the City's special interests have been determined.
H 171  SPECIAL DEPOSIT EXCAVATION PERMITS

An Excavation Permit is required for removal of lateral support from a public way. Lateral support is considered to have been removed when the excavation exceeds 2 feet or more below a plane extending downward at an angle of 45 degrees from the edge of a public way. Provisions should be made to provide temporary and permanent support for the public way when this condition exists. See also H 746.

H 171.1  PERMIT PROCESSING

Excavation Permits are issued by the appropriate District office for construction work in its district.

The permittee is usually referred to the permit office of this Bureau by the Department of Building and Safety, as a prerequisite to issuing a building permit involving the lateral support of a public way. If a permittee inadvertently brings plans to the Structural Engineering Division prior to an issuing office, SED should refer the permittee to the proper permit office.

The permit office is responsible for notifying the permittee of the City's policy on tieback shoring systems, fees, and LAMC requirements such as insurance, bonds, and waiver of damages.

Where tunnel or jacking work is shown on the plans, inform the permittee of the necessity of submitting data to the State Division of Industrial Safety for classification of the tunnel.

Classification must be shown on the plans prior to approval by the City Engineer.

The permit office is responsible for obtaining approvals and recommendations from other City offices. Such approvals or recommendations may include:

a. Board and/or Council approval where required for encroachments.

b. City Attorney approval of liability insurance.

c. City Attorney approval of surety or cash bond deposit sufficient to insure repair of existing City improvements which might be damaged.

d. Bureau of Street Maintenance approval of temporary occupation of public way, such as for construction barricades (Street Use Permit).

e. Executed standard approved Waiver of Damages when permanent structure encroaches into public way.

f. Approvals from appropriate Bureau design offices when existing or proposed City improvements are affected.

g. Real Estate Division approval when permanent encroachments are proposed.
h. Department of Transportation recommendations for establishing work area pedestrian and vehicular traffic control provisions.

i. Utility company coordination when work imperils any existing utility such as gas, electric, water, telephone, etc.

The permit office collects the fees and transmits copies of final approved plans to the appropriate offices and to the Department of Building and Safety. Changes in the plans, specifications, or conditions during construction should be processed through the permit office.

**H 171.2 SUBMITTALS**

If a structural design check is desired, the permit office will forward to the Central District, Substructures and Lateral Support Section, the submittals received from the permittee. Submittals should include the following items, which must be prepared and signed by a California Registered Civil Engineer:

a. Two sets of **structural plans** showing:

1. Job address.

2. Location of street property lines relative to all proposed construction.

3. Limits of excavation, including existing and proposed grades.

4. Details of temporary shoring, including methods of construction and removal.

5. Details of proposed permanent structures, including all structural elements which will provide vertical or lateral support for the public way.

6. All existing substructures, utilities, and other affected improvements adjacent to or within the project site.

b. One set of **structural calculations** for the design of temporary and permanent structures supporting the public way.

c. One copy of **soil reports**, including all addenda, approved either by the Department of Building and Safety or the Geotechnical Services Engineering Section, Construction Division, should be submitted (when required). A soil report should be required for excavations deeper than 10 feet.
H 171.3 RECORDS AND FILES

Records of design and construction activities and communications concerning Excavation Permit structures should be maintained in the Log Book, Card File, and Project File for at least 2 years after the Work Order is closed. The project file is then stored in the City Records Retention Center, City Clerk.

H 171.4 STRUCTURAL CHECK

The structural check verifies that the design is in compliance with the governing codes, specifications, soil reports or other approved design criteria and that the proposed structures are adequate to provide vertical or lateral support for the public way.

H 171.41 SOIL REPORT

The soil report should be reviewed in detail, including boring locations, soil test results, calculations, and recommended soil parameters. The checker should verify this report with the Geotechnical Services Engineering Section of the Construction Division. The following is a minimum list of items to be checked:

a. Compare the soil parameter recommendations with typical textbook values.

b. Review the calculations of the Soils Engineer who prepared the soil report. Request calculations if they are not submitted with the report. Items such as lateral earth pressure should be reviewed for adequacy.

c. Where soil cohesion is used in calculations (e.g., unshored cuts or reduced lateral pressures), review time limit specifications for service life and verify that construction can be completed in the allowed time.

d. Verify that the calculations provide 1.5 minimum gross slope stability safety factor for all unshored and externally braced (tieback) systems. The "critical slip circle" should pass through the center of gravity of the working portion of all anchors or closer to the excavation. The working portion of all anchors should lie beyond the "sliding wedge" (a plane sloping away from the toe of cut at an angle above the horizontal of 45 degrees plus half the soil friction angle).

e. Evaluate the subsurface drainage provisions, considering soil permeability and water table location.

f. Evaluate the surface drainage provisions, considering the effects on embankments and any flow interruptions in adjacent streets.
g. Evaluate reductions in loads on lagging as a function of soldier beam spacing.

h. Verify the anchor test procedure and performance criteria. Anchors should be proof-tested to 150 percent of design load for 15 minutes with no evidence of yield, using calibrated hydraulic rams certified by an approved testing laboratory. Maximum allowable yield before test should be 12 inches. All loads should be imparted solely to the working portion of the anchor.

i. Evaluate the recommended survey or other shoring movement monitoring procedure. Monitoring is required where the excavation exceeds 10 feet in depth. After installation, representative soldier piles should be monitored weekly for line and grade during service life. Any cumulative movement of 1 inch or more shall be analyzed by the Soils Engineer who prepared the soil report, and his remedial recommendations should be submitted for approval. Any cumulative movement of 2 inches or more is cause for remedial shoring to prevent further movement prior to additional excavation. (More restrictive tolerances may be established for any adjacent existing structures as required.) Anchors in the affected area should be retested and reset if loads have changed by 25 percent or more.

j. Obtain a general letter of concurrence with the soil report from the Geotechnical Services Engineering Section for special surcharge loads, unusual geologic conditions (e.g., oil-bearing sands, fractured bedrock, steep bedding planes), unusual soil types, etc.

k. Request the Soils Engineer who prepared the soil report to amend the report, if necessary, to cover unanticipated design conditions.

H 171.42 STRUCTURAL CALCULATIONS

The calculations shall be checked by reviewing the following minimum list of items:

a. Verify that soil loadings and support values used in the calculations are compatible with the approved soil report and that all surcharge and other superimposed loadings are included. In those cases where no soil report is required, the following design criteria apply:

1. Divisions 23 and 38 of the City of Los Angeles Building Code should be used for limiting values of soil parameters where soils have been classified by the Civil Engineer who signed the plans.

2. Shoring should be designed for the minimum lateral loadings discussed under the following Subsections of this Manual:

   (a) Cantilever Shoring, H 373.1 and H 374.2.

   (b) Braced and Tieback Shoring, H 373.2, H 374.21, and H 374.22.
b. Verify that conditions such as depth of cut, locations of borings, and rate and height of sloping surcharge assumed for design are those anticipated in the soil report and shown on the plans, and that maximum loading conditions, both during and after construction, are considered.

c. Verify that calculations are complete. Request submittal of additional calculations where required.

d. Verify that the correct codes, specifications, and manuals are utilized, e.g., LABC for buildings and AASHTO for bridges (H 121).

Exceptions:

Allowable stresses may be increased one-third for structural or reinforcing steel and one-fourth for timber where service life will not exceed six months. No increases should be allowed for concrete, tieback anchors, or shoring structures more than 30 feet deep without authorized approval. Allowable design stress for high strength steel tieback anchors should be 40 percent of certified ultimate tensile strength.

e. Verify that structures encroaching into the public way are designed to withstand vehicular and pedestrian live loads and any additional loadings, such as earth and building dead and live loads.

f. Verify that permanent structures are designed in such a manner that they are independent of the public way, so as to permit future excavations therein. For example, tieback anchors within the public way should not be permitted as permanent structural elements.

H 171.43  PLANS AND SPECIFICATIONS

The plans and specifications should be reviewed in detail for all structures within the public way or those which provide lateral or vertical support of the public way. All construction of City-owned or City-maintained improvements shall be governed by the latest Standard Specifications for Public Works Construction and Standard Plan S-610. The following is a minimum list of items to be checked:

a. Verify that the plans are completed and that all required structures are clearly detailed and specified. Request additional details if needed.

b. Verify that the sequence of construction is indicated clearly and that continuous support of the public way is provided throughout construction. Provision should be made for removal of all shoring in
the public way within 20 feet of gutter grade. Encroaching soldier beams located at or adjacent to the property line shall be removed to a depth of at least 12 feet below the gutter grade. All tieback anchor rods in the public way within 20 feet of the gutter grade shall be removed. All other tiebacks shall be detensioned and verified as such by the Public Works Inspector.

c. Verify that all materials and design data are specified, that all stresses are compatible with the calculations, and that soil data are consistent with the soil report.

d. Verify that all structural elements are dimensioned and located consistent with the design calculations and the soil report loadings.

e. Verify that structural support conditions are consistent with the calculations, including footing, wall, and floor diaphragm continuity. Openings and other discontinuities must be designed and detailed clearly, and supporting elements, such as floor slabs, should transmit all loads into foundations or other adequate resisting elements.

f. Verify that applicable requirements of the soil report and calculations are indicated on the plans. For tieback shoring, all drilling and installation of soldier beams, anchors, and lagging should be inspected and certified by the Soils Engineer who prepared the soil report.

g. Verify that structural backfill is specified in accordance with the soil report and that backfill in the public way or between permanent walls and the public way is in accordance with the latest Standard Specifications for Public Works Construction and Standard Plan S-610. Backfill above the working portion of the tieback anchors should be: (1) lean sand-cement slurry (1 sack per cubic yard), pumped or otherwise placed so as to fill all voids, or (2) sand or other granular soil, compacted to 90 percent of optimum density. All backfill shall be placed under the continuous inspection and testing by the Soils Engineer and the Public Works Inspector.

h. Verify that all surcharge loadings, including street live loads, construction equipment and materials storage, are prohibited unless provided for in the design.

i. Verify that all affected existing utilities, surface structures, and substructures are shown on the plans with elevations and sections when closer than 6 feet clear of drilled holes; that a minimum of 4 feet of clear distance to excavations is provided; and that adequate protection is specified for all existing structures in the public way. Casing or other means should be used to prevent caving in drilled holes.
In determining the clearances for drilled holes, consideration should be given to the distance between the shoring wall and the utility as well as other possible physical factors, e.g.: (1) where the utility is less than 5 feet from the shoring wall, a clearance of 2 feet may be adequate, whereas, if the utility is more than 40 feet away, a clearance of more than 6 feet may be necessary; or, (2) greater clearances may be required from utilities in important traffic arteries, where street cuts to repair damaged utilities may result in major traffic disruption.

From experience, a drilling tolerance of 5 degrees deviation appears reasonable. The following equation, for clearance requirements, is based on this tolerance and the fact that nearly all tiebacks are installed at between 15 and 30 degrees inclination:

\[ C = 2' + 0.1D \]

Where:  
- **C** = Required clearance between tieback drill hole and outside of the utility.  
- **D** = Horizontal distance between shoring wall and utility.

In order to permit adequate checking of clearances, the shoring plans should include cross sections showing utilities which may be affected by the drilling operations. In addition, potholing or open excavation of utilities to verify their location and elevation may be required of the permittee. All utilities carrying "unstable substances" shall be located by potholing. The approved shoring plans should clearly indicate (by some form of prominent or underscored note) which of the anchors are critical. It may be necessary to require a Public Works Inspector to be present during the entire drilling operation at each critical location.

j. Verify that the plans provide for monitoring of shoring during construction in accordance with the approved soil report and that provision for future adjustment of the shoring system, such as retensioning of anchors, is sufficient.

k. Verify that an emergency procedure is outlined on the plans for excavations over 10 feet deep and for excavations which remove support from existing structures. An emergency procedure includes posting telephone numbers of responsible agencies, such as Fire, Police, Traffic, Street Maintenance, Sewer Maintenance, utility companies, City Engineer, etc. Alternate routing of traffic, emergency pumping of sewage, and location of water and gas shut-off valves should also be noted on the plans where necessary.
1. Verify that any requirements of reports adopted by the Board of Public Works are indicated on the plans.

m. Provisions shall be made to immediately dispose of all ground and surface runoff water.

n. Dewatering wells within 10 feet of shoring system or within the public way must be approved by the City Engineer prior to installation.

o. Heavy loads shall not be allowed within 10 feet of the top of the excavation except where the shoring design provides for the proposed surcharge. Calculations shall be submitted.

p. All changes in the drawings and permit specifications must have prior approval of the Bureau of Engineering. Phone (213) 485-3877 for procedural requirements.

q. "As-built" shoring plans shall be submitted to the City Engineer within 60 days of completion of the permanent lateral support construction (Los Angeles Municipal Code 62.03).

r. Lagging shall be required unless otherwise noted. Lagging shall be 3-inch No. 2 or better, placed and backfilled with sand or slurry, in 5-foot maximum lifts.

H 171.44 STRUCTURAL NOTES ON PLANS

The following requirements may best be met by requiring the notes to be put on the plans:

A. CONTRACTOR RESPONSIBILITIES

1. UNDERGROUND SERVICE ALERT, Inquiry Identification Number (USA II No.): Before commencing any excavation, the Contractor shall obtain a USA II Number by calling 1-800-422-4133. Two working days shall be allowed after the USA II Number is obtained and before the excavation work is started so that utility owners can be notified. The USA II Number must be reported to the Bureau of Contract Administration when calling for inspection: Metro, (213) 485-3002; Valley, (818) 989-8335. USA II Numbers will not be given more than 10 days prior to starting excavation work.

2. ADVANCE INSPECTION IS REQUIRED 72 HOURS PRIOR TO THE START OF SHORING CONSTRUCTION. NOTIFY THE DEPARTMENT OF PUBLIC WORKS INSPECTOR AND JOB SUPERINTENDENT, TELEPHONE (213) 485-3002.
3. The Contractor shall locate all utilities and structures within the proposed excavation and make appropriate arrangements for their relocation prior to the start of construction.

4. The Contractor shall locate and cap off all sewer laterals behind the proposed location of soldier beams prior to the installation of soldier beams.

5. Existing underground installations carrying unstable substances shall be "potholed" as required by the Los Angeles Municipal Code 62.03.01 (Ordinance No. 150,478) and Bureau of Engineering requirements (Compliance with Ordinance Requirements for Unstable Substance Installations -- Guidelines Implementations).

B. CONSTRUCTION PROCEDURES

1. All backfill between the permanent wall and the public way shall be cohesive material, compacted to a minimum 90 percent relative compaction, or 1-sack sand-cement slurry mix, under the continuous inspection and testing by the project's private soils engineer and the Public Works Inspector.

2. All soldier beams and lagging placed in the public way shall be removed to a minimum of 12 feet below gutter grade. All tieback anchor rods in the public way within 20 feet of the gutter grade shall be removed. All other tiebacks shall be detensioned and shall be verified by the Public Works Inspector.

C. TIEBACK INSTALLATION

1. Lighting shall be provided for visual inspection of drilled holes.

2. Where caving occurs, drilled holes shall be cased and all backfill shall be pressure pumped so that all voids are filled.

3. All drilled holes to be left open more than 12 hours shall be cased.

4. Anchor holes shall be free of loose material and concrete shall be placed immediately after placing anchor in hole.

5. Anchors shall be tensioned straight and true. Kinking or sharp curvature in anchors under tension shall be cause for rejection.

6. Rods or stranded cables shall remain extended and exposed to permit retensioning throughout the service life of the shoring and detensioning following completion of the permanent building structure.
7. Basement walls shall be designed to facilitate removal and detensioning of tieback rods.

D. TESTING OF TIEBACKS

1. Anchor holes shall be logged and certified by the Soils Engineer.

2. Hydraulic rams shall be calibrated and certified by a testing laboratory.

3. All anchors shall be tested at 150 percent of design load for 15 minutes with less than 0.1 inch yield. Ten percent of anchors at each level, as selected by the Soils Engineer, shall be tested at 200 percent of design loads. Total yield of 12 inches is acceptable. Total yield of 36 inches is unacceptable. Total yield of 12 to 36 inches shall require the Soils Engineer to assign partial anchor values and install remedial anchors with the approval of the City Engineer.

E. JOB SAFETY

1. The Contractor shall establish initial control points for the purpose of monitoring the soldier beams prior to the start of any excavation. Shoring piles shall be survey monitored weekly for line and grade by a licensed Surveyor. One set of the data obtained shall be maintained at the job site for the Inspector of Public Works. A second set of this data shall be promptly submitted to the City Engineer, Central Engineering District (the Public Works Inspector may require monitoring of open excavations). Any 1 inch movement shall be analyzed by the Soils Engineer and an approved remedial shoring plan prepared. Any movement of 2 inches or more require that remedial shoring installation be made to prevent additional movement prior to further construction. All affected anchor rods shall be retensioned.

2. Anchor tie rods shall not be welded nor used for grounding welding equipment.

H 171.5  STRUCTURAL PLAN APPROVAL AND DISTRIBUTION

After plan check corrections have been made, 7 sets of corrected plans should be provided by the permittee. These are "approved for structural adequacy" by the Division Engineer. One approved set should be retained on file and 6 approved sets forwarded to the permit office. The permittee may personally deliver two of these to the permit office to expedite issuance of the permit. The 4 remaining sets of plans should be transmitted by messenger. Distribution of approved plans is as follows: Structural Engineering Division - 1; Permit office - 1; Bureau of Contract Administration - 2; Department of Building and Safety - 1; permittee - 1.
H 172 CLASS A AND B PERMITS

A Class A or B Permit is required for private development of public improvements on existing or future City property and rights-of-way.

**Class A Permits** are issued for the repair, construction, or removal of curbs, sidewalks, or driveways, and for other minor appurtenant work where a Vault record set of plans is not required. They are issued for work within public property which is so limited in extent and of such simplicity of design that the standard fees established by the LAMC will compensate the City for the costs of inspection and supervision. Class A Permits are issued by the District office for construction work in its engineering district.

Under the provisions of the "City of Los Angeles Guidelines for Implementation of CEQA", Art. III, Sec. 2b(6), Class A Permits are considered as "Ministerial Projects" and therefore exempt from CEQA requirements.

**Class B Permits** are issued for public improvement work not included under Class A Permits. B Permits checked by the Structural Engineering Division are generally for construction of bridge or tunnel structures within a City street, alley, or right-of-way. Permits are issued by the District offices. Structural checking of B Permits issued in District offices is performed by the Structural Engineering Division or by the Excavation Permits Section of the Central Engineering District during plan circulation or at the request of the issuing office.

A general discussion of Class B Permit procedures is presented in C 200, Operations and Control, which should be used in conjunction with the procedures discussed below. The permittee assumes all costs of design, processing, and construction, including inspection.

An "Initial Study" is required for these projects which come under the jurisdiction of CEQA and are not "categorically exempt" (see H 142.4). In accordance with CEQA, Art. 1, Sec. 6a(2), the lead City agency is responsible for the adequacy and objectivity of draft and final EIR's. The permittee may be required to furnish data and information or it may furnish a draft EIR (see H 151).

The permittee is responsible for obtaining a Coastal Commission Permit, if required (see H 153, Coastal Development Permit).

Prior to the construction of a private bridge, tunnel, or other structure within a City street or alley right-of-way, the City Council must adopt an ordinance granting permission to construct. The permittee should file a written request with the Board of Public Works. The Board refers this to the Bureaus involved -- usually Engineering and Street Maintenance for preparation of a Joint Board Report. After the Report is adopted by the Board, a BD Permit for checking may be issued.
The Board Report typically requires the permittee to provide sufficient information to the City Engineer for the preparation of a legal description and EIR (when required) and deposit funds to cover the costs of preparing a Revocable Permit Agreement. After the permittee has fulfilled these requirements, the Board will transmit the Permit Agreement to the City Council with the recommendation that the Council adopt an ordinance authorizing the issuance of a permit.

When the Revocable Permit Agreement is executed by the permittee and the ordinance is adopted, a B Permit for construction may be issued. If a BD Permit has not been previously issued, a combination (checking and construction) B Permit should be issued at this time.

The B Permit procedure described above is for private structures in City right-of-way. These will be maintained by the owner and inspected annually by Structural Engineering Division personnel if necessary (see H 180, Structure Inspection and Maintenance). In the case of public structures to be dedicated to the City for maintenance, no Board Report is required. However, it is recommended that Board approval be obtained for any work that substantially changes existing street access or "neighborhood architecture", such as high walls, bridges, etc.

Subsequent parts of this Section apply to all B Permits, including those for structures to be dedicated as well as for private structures.

**H 172.1 B PERMIT ISSUANCE**

Types of B Permits issued are: design (no construction), construction, and combination (checking and construction).

**H 172.11 DESIGN CHECKING (NO CONSTRUCTION)**

A design Class B Permit is issued for plans designed by private engineers and checked by Bureau of Engineering forces, or, in some cases, for both design and checking of plans by Bureau of Engineering forces. The permit number is of the form BD-xxxx and may be issued any time after adoption of the Board Report by the Board of Public Works. If no Board Report is required, the permit may be issued as soon as sufficient information is submitted by the permittee to complete the application. The procedure for issuance is as follows:

a. Project cost estimate:

The estimated cost of the project is obtained from either the private engineer or the Construction Division. Private engineers' estimates should be reviewed by the permit office and adjusted if necessary before the fees are estimated. Two costs should be determined:

1. Total cost of project.
2. Cost of portion of project within street easement.

b. **Permit fee deposit:**

1. The basic fee is based on the total cost of the portion of a project that encroaches into public right-of-way.

2. An additional fee is based on the complexity of the project. It is recommended that the fee be not less than the basic fee.

c. **Permit application preparation:**

1. Original and two copies are typed by the permit office.

2. Original and two copies are forwarded for the permittee's original signature.

3. If a corporation is the permittee, the corporate seal should be affixed to all copies of the application.

4. Governmental agencies may have the contractor sign the permit.

d. **Payment of fees:**

1. Permittee submits signed application and fee deposits to the permit office.

2. Checks are made payable to "City of Los Angeles, Department of Public Works".

3. Application is approved by the Division Engineer.

4. Permit is taken to the Cashier (One Stop Public Counter, City Hall, Room 460) by the permit office personnel.

5. Fee is deposited.

6. BD number is placed on application.

e. **Distribution of forms:**

1. Cashier retains original.

2. One copy to permittee.

3. One copy to Administration Division.

4. One copy for the permit office. (Two processed copies of permit will be sent to the permit office.)
f. **Plan check submittals**

Permittee should bring to the permit office the following information prepared by a California Licensed Civil Engineer:

1. Two sets of prints of structural plans.
2. One set of calculations.
3. Two copies of soil report.
4. One set of specifications.
5. Sufficient information to prepare a legal description of vertical and horizontal alignment of the structure (forward to the Land Development and Mapping Division).

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**Corrections should include notes requiring approval by the City Engineer of construction drawings as necessary. Falsework drawings involving traffic openings or major structures and structural steel shop drawings involving critical welds or major steel fabrication are examples where such approval is recommended (see H 172.2).**
h. **Cultural Affairs Commission Approval**

If approval of the Cultural Affairs Department is required, it should be obtained by the permittee and a set of approved prints stamped.

i. **Plan Circulation**

Approved tracings should be forwarded to the Plan Circulation Section, Project Management Division (PMD) for further processing:

1. A **Photocopy Work Request Form** is filled out, requesting one ozalid print and one ozalid transparency for the permit office (similar to Figure H 163.1C).

2. An **Index Numbering Request Form** and a **Vault Requisition Form** are completed (similar to Figures H 163.1A and B).

3. The tracings, the original, and one copy each of the Photocopy Work Request Form, the Index Numbering Request Form, and the Vault Requisition Form are sent to PMD.

4. When the ozalid transparency is received, it may be released to the permittee for use.

5. When the construction permit is issued, an IDC is written to the Administration Division requesting that the checking permit be closed. The fee deposit is then transferred to the construction permit account by the Bureau of Accounting. If a deficit exists, the permittee is billed. Deficits are not transferred.

**H 172.12 CONSTRUCTION OR COMBINATION (CHECKING AND CONSTRUCTION) PERMITS**

A **construction** or **combination permit** is issued for construction inspection or for a combination of both design checking and construction inspection, respectively. The permit number is of the form B-xxxx. This permit may not ordinarily be issued until the required ordinance is adopted by the City Council approving the Revocable Permit Agreement. However, in cases of urgency the permit may be issued if the City Council has indicated tentative approval by directing the City Attorney to draft the ordinance. If Council action is not required, a construction permit may be issued after the City Engineer has signed the plans.

Issuing a construction or a combination permit is similar to a checking permit with these additional activities:

a. **Instructions to Permittee**

   Give permittee the pamphlet **Procedure for Public Works Improvements by Private Developers**, available at all Bureau public counters. This pamphlet explains the procedure for filing bonds and insurance.
b. **Posting of a Bond**

1. Refer to D955, Land Development.

2. Amount of bond shall cover the cost of that portion of a project within the street easement or the cost of its removal, whichever is greater.

3. Bond may be cash, negotiable securities, or a surety bond.

4. If a surety bond is to be posted, the issuing office will prepare one original and three copies of the bond (Form Eng. 4.107B), Figure D955.1, Land Development.

5. The permit office retains one copy and sends the original and two copies to the permittee for execution. The permittee takes the executed bonds to the City Attorney's office.

6. A copy of the approved bond will be returned to the permit office by the Land Development and Mapping Division.

c. **Posting of Liability Insurance**

1. See Operations and Control Manual, Part C.

2. The permit office is not involved in the posting of insurance, except to make the permittee aware of the requirement.

3. No permit can be issued until the insurance is certified by the Board of Public Works (a copy of the certification slip is sent to the permit office).

d. **Posting of Waiver of Damages:**

1. See Operations and Control Manual, Part C.

2. One original and three copies of the following forms are prepared by the permit office:

   First sheet - Waiver of Damages, Indemnification Agreement and Right of Ingress and Egress. Second sheet - Corporation or Private.

3. On second sheets, the name of the owner or corporation should be typed next to the owner's or the corporation officer's signature.

4. Obtain the legal description from the Revocable Permit Agreement or from the Land Development and Mapping Division, Right of Way Engineering Section.
5. Obtain advance "W" number from the Administration Division, Index to Records Section.

6. Place District Map number on second sheet.

e. **Prepare Permit Application** (see H 172.11c)

1. Place the City Attorney's number for insurance and bonds on the application. Call the Board of Public Works for the insurance CA number.

2. If a bond has been posted but the permit office has no record of it, call the Land Development and Mapping Division, Bond and Permit Control Section, to obtain a file copy.

f. **Payment of Fees:**

Permittee submits a signed application and construction fee deposit to the permit office (checking and construction fee for combination permit). Permit is taken by permit office personnel to the Cashier (One Stop Public Counter) with the Insurance Certification. If Insurance Certification slip has not been received from the Board of Public Works, a copy should be obtained.

1. Fee is deposited.

2. "B" number is placed on application.

3. Permit is completed.

g. **Distribution of Forms:**

Copies of application are distributed as follows:

1. One Stop Public Counter retains original.

2. One copy to permittee.

3. One copy to Administration Division.

4. One copy for permit office.

h. **Construction Permit**

1. Tracing is checked out of the Vault, Records Section, Administration Division.

2. Checking permit number is crossed out and construction permit number is added.
3. A Photocopy Work Request Form is filled out requesting 6 sets of ozalid prints (one set for the permit office and five sets for Contract Administration).

4. The tracings are forwarded for blueprinting with instructions that they be returned to the Vault.

H 172.2 B PERMIT CONSTRUCTION

When the contractor is ready to construct, it notifies the Bureau of Contract Administration of the need for inspection.

During construction, the private engineer has primary responsibility for the preparation of change orders. Shop drawings should be checked and approved by the private engineer and no further review or approval by the Bureau of Engineering is required unless specifically noted on the plans or in the Special Provisions. Four copies of approved shop drawings should be transmitted by the private engineer directly to the Bureau of Contract Administration.

Change orders should be submitted to the permit office for approval. Ordinary changes requested by the permittee should be prepared (by the private engineer) on the form "Interim Change Authorization Class 'B' Permit Projects", Figure H 775.2. Final approval is given by the Division/District Engineer. For major revisions in excess of 10 percent of the original estimated cost, the permittee should be required to apply for a new permit, deposit additional fees, and post a new bond.

Upon completion of construction, the Bureau of Contract Administration schedules a final field inspection and notifies the permit office. The Final Inspector should notify the permittee of any additional work required for acceptance by the Board of Public Works (refer to H 713.5, Permit Construction).

When all the work on the project is completed, the permit office notifies the Land Development and Mapping Division by IDC that the work, either the entire project or that portion for which it is responsible, has been completed in accordance with the plans and specifications.

"As-built" corrections should be made on the plans by the private engineer from Change Orders and field data prior to releasing the bond and closing the permit work order. The tracings are ultimately destroyed and a microfilm of the "as-built" plans are maintained in the Vault.

H 172.3 PERMIT EXPIRATION

The LAMC (Section 62-114) states that B Permits shall expire six months from the date of issuance. However, permits are never closed solely because they have expired, but are left open as long as there are unexpended fees on deposit and the permittee is making a reasonable attempt to perform the work. A B Permit may be abandoned by the permittee.
H 173 OVERLOAD PERMITS

An overload permit is required for the operation on any City street of a vehicle or a combination of vehicles, whose size, weight, or load exceeds the limitations set forth in Division 15 of the Vehicle Code of California (as amended). The general limitations are those listed in Figure H 173 and as follows:

a. **Maximum Weights:**

   - Per axle (except front steering) 20,000 lb.
   - Per axle, front steering 12,500 lb.
   - Per wheel 10,500 lb.
   - On solid rubber tires 600 lb./in of channel base width

b. **Maximum Lengths:**

   - Single vehicle 40 feet
   - Combination of vehicles 65 feet
   - Load on combinations 75 feet
   - Poles or pipes on dollies 80 feet
   - Load may extend to front 3 feet
   - Load may extend to rear 2/3 of wheelbase

c. **Maximum Widths:**

   - Body or load 96 in.
   - Out-to-out, pneumatic tires 108 in.
   - Special mobile and construction 120 in.
   - Equipment

d. **Maximum Height:**

   - Body or load 14 feet

Vehicles that do not conform to these limitations are referred to as "Overloads". The LAMC Section 62.135 to 62.148 provides for the operation of overloads on City streets under an Overload Permit only if they cannot be transported by another means, dismantled, reduced in size, or otherwise made to conform to the Vehicle Code at a reasonable cost. Movement of overloads is restricted to prevent undue damage to pavements, bridges, underground and overhead utilities, or any other public or private improvements within the public way. In addition, these restrictions provide for the safety and convenience of the public. The movement of overloads upon the public way is not permitted if it cannot be restricted.

For the following a City inspector is required, unless waived:

a. If the body or load exceeds 18 feet in height.
b. If the body or load exceeds 18 feet in width.

c. If the body or load exceeds 75 feet in length.

d. If the gross weight exceeds 50 tons.

e. If the body or load exceeds 1/2 the width of the narrowest roadway on the route.

H 173.1 PERMIT ISSUANCE AND PERMIT JURISDICTION

Permit Issuance - Overload Permits are issued for the Board of Public Works by the Street Use Inspection Division of the Bureau of Street Maintenance. In addition, the District offices of the Bureau of Engineering may issue Overload Permits for vehicles of 45 tons or less gross weight. The District permit offices when issuing Overload Permits are acting for and with the telephone clearance of the Street Use Inspection Division, Street Maintenance, and use their permit forms.

Permit Jurisdiction - Overload Permits may be issued for routes within the City boundaries over all State highways and City streets, except the following:

a. Freeways.

b. Pacific Coast Highway (State Route 1 north of the Santa Monica City boundary).

c. Topanga Canyon Boulevard (State Route 27) where it passes through a portion of Los Angeles south of the community of Topanga.

d. Los Angeles Harbor Department lands, including the Vincent Thomas Bridge, approaches in San Pedro and East San Pedro, and on Terminal Island.

e. Los Angeles Department of Airports land.

f. Los Angeles Department of Recreation and Parks land.

\text{g. Private streets and all other undedicated streets.}

Overloads moving on the excepted streets are subject to regulation by the agencies or owners responsible for their maintenance. Only those routes under the Board's jurisdiction may be shown on the Permit. State highways not excepted above are under City jurisdiction by maintenance agreement.
H 173.2  INSPECTION AND ENFORCEMENT

The Street Use Inspection Division shall provide all necessary en route inspection. Enforcement of the Overloads Ordinance is the responsibility of special officers of the Police Department and of Street Use Inspectors, who make random checks of large vehicles while on patrol of City streets. Vehicles can be required to obtain a certification of weight from the weigh-master at public scales at any time, and dimensions are measured in the field for comparison with the Overload Permit or with the Vehicle Code if no permit has been obtained. Violations are subject to citation and prosecution in the courts. The Street Use Inspection Division shall approve or deny permits relating to height. That Division shall also receive information from the Structural Engineering Division regarding any changes in bridge clearances and in turn will relay the information to the District Engineering offices.

The Street Use Inspection Division mails notifications of all loads over 18 feet in height to utility companies in accordance with Sections 62.85 (notification to utilities) and 62.148(a) of the Los Angeles Municipal Code. Utilities have 4 days within which to protest the move.

H 173.3  STRUCTURAL APPROVAL

By mutual agreement between the Bureaus of Engineering and Street Maintenance, approval of the Structural Engineering Division is a prerequisite to issuance of permits for all overloads heavier than 75 tons gross weight and all Annual Overload Permits regardless of weight. Structures within the public way must be checked to ensure that they will safely support the axle weights and gross weight of the proposed overload and that overhead clearance between vehicles and bridges is adequate. Permittees are referred to the Structural Engineering Division by the Street Use Inspection Division.

In addition to permit checking, the Structural Engineering Division shall assist the Street Use Inspection Division in updating its "Restricted Route List", a list of routes over which overloads should not be allowed. Routes over bridges which are posted for maximum gross weight or are otherwise unsuitable for overloads are included on this list. As bridge deficiencies are found by the Structural Engineering Division, or as deficiencies are corrected or deficient bridges upgraded, the Restricted Route List shall be updated. The list shall be reviewed annually by the Structural Engineering Division at the request of the Street Use Inspection Division. Revisions shall be transmitted to the Street Use Inspection Division for incorporation in the next publication.

H 173.4  RATING OF BRIDGES AND STRUCTURES

Bridges and other major structures shall be given a general overload rating by the Structural Engineering Division in accordance with a four-color code defined as follows:

b. **Orange:** Overloads are limited by the structure. Loadings exceed those specified in Division 15 of the Vehicle Code.

c. **Green:** Green overloads allowed routinely. Timber bridges in good condition designed for AASHTO H-15 or greater loading are generally rated Green.

d. **Purple:** Purple overloads allowed routinely. Concrete and steel bridges in good condition designed for AASHTO H-15 or greater loading are generally rated Purple.

Ratings shall be based on structural analysis under a 7-axle maximum overload (see Figure H 173.4). Overload ratings should be reduced by the Structural Engineering Division when warranted by the deteriorating condition of the structure.

All City bridge ratings shall be plotted on the Bridge Record Maps and listed in the Computer File of Structures. It is the responsibility of the Structural Engineering Division to keep these maps and records up to date and complete.

A route may be rated Purple if no structure with a lesser rating is known to exist along that route. Evidence of any substandard existing structure in the public way should be forwarded to the Structural Engineering Division so that the Record Maps and Restricted Route List can be revised as necessary.

**H 173.5 RATING OF LOADS**

Loaded vehicles shall be rated using the same color code used to rate bridges. This system (which is the same as the California Department of Transportation system unless otherwise noted) simplifies permit processing by grouping overloads with corresponding structure capacities to eliminate as much checking of individual overloads on individual structures as possible. Thus, an overload rated Purple or lower can safely pass over any structure rated Purple without the need for lengthy structural analysis. The Overload Rating Chart for an Orange, Green or Purple Loading is shown in Figure H 173.5.

**H 173.51 RED LOADING**

Red shall designate a vehicle of gross weight equal to or less than the posted maximum for any structure on the proposed route. This vehicle is usually an overload because of height, length, or width, rather than weight. No load heavier than posted shall be permitted to move over any structure rated Red without a careful structural analysis (see H 173.73).
H 173.52 ORANGE LOADING

Orange shall designate an overload vehicle which has a maximum load heavier than a legal loading. (Note: This designation differs from Caltrans designation.) The sum of axle weights within any 18 feet shall not exceed:

a. Single axle 20,000 lb.

b. Tandem axles (spacing less than 6 feet) 32,000 lb.

c. Group of axles (any combination of axles within a length "L") as follows:

"L" = 13 feet or less 700(L+40) lb.
"L" = 14 feet or more 800(L+40) lb.

H 173.53 GREEN LOADING

Green shall designate an overload vehicle which is a maximum load heavier than a legal loading. The sum of axle weights within any 18 feet shall not exceed:

a. Single axle 24,000 lb.

b. Tandem axles 40,000 lb.

c. Group of axles (any combination of axles within a length "L") as follows:

"L" in feet 910 (L+40) lb.

Exceptions: See exceptions under Purple Loading following.

H 173.54 PURPLE LOADING

Purple shall designate an overload vehicle which is a maximum of 20 percent heavier than a Green Loading. The sum of axle weights within any 18 feet shall not exceed:

a. Single axle 28,000 lb.

b. Tandem axles 46,000 lb.

c. Group of axles (any combination of axles within a length "L") as follows:

"L" in feet 1050 (L+40) lb.

Exceptions: Green and Purple Overloads may be allowed a "bonus" as follows: Add 15 percent to axles having 8 tires or 25 percent to axles having 8 tires and at least 10 feet of width. For axle gage less than 8 feet, multiply by the fraction of: axle gage divided by 8.
H 173.55  MAXIMUM LOADS ON BRIDGES AND STRUCTURES

The following loads should not be exceeded unless structural analysis verifies that the structure will safely support the greater loading (see H 173.73).

a. **Rated structures** - No more than 7 axles should be simultaneously applied to any structure unless the Bridge Records show that a load of more than 7 axles is approved. No axle group should be rated heavier than the structure rating.

b. **Unrated structures** - No axle or group of axles rated heavier than Purple should be applied.

H 173.56  MAXIMUM LOADS ON PAVEMENTS

Single axle loads on pavements should not exceed Purple Loading unless the requirements of H 173.73 are met.

H 173.6  OVERLOAD PERMITS AND AGREEMENTS

Overload Permit Form 958 (958F for Annual Permits) - Figures H 173.6A and B - after validation by the Street Use Division, must accompany all overload vehicles en route. Permits for vehicles over 75 tons gross weight and all Annual Permits must be stamped "Structural Engineering Division", dated, and signed by the reviewer approving the permit. To obtain this approval, the permittee shall complete Form 958 and attach any supplementary drawings required to provide the information indicated below.

H 173.61  PERMIT TYPES

Three types of permits may be issued for a specific vehicle:

a. Single Trip Permit - valid for a single trip and date over a specific route.

b. Thirty-Day Permit - valid for continuous movement of identical overloads over a single route for 30 days.

c. Annual Permit - valid for 1 year over any unrestricted route. This permit is limited to mobile homes, oil well service equipment, cranes, and miscellaneous construction equipment.

H 173.62  DESCRIPTION OF VEHICLES

The description of the vehicle shall consist of:

a. Make, model, license and equipment serial numbers of vehicles and trailers.

b. Number of axles.
c. Number of wheels per axle, if 8 or more. (For cranes, number of wheels and tire width if 4 or more.)

d. Width of axles (out-to-out of tires), if more than 8 feet.

e. Spacing of axles.

f. Axle tare and loaded weights.

g. Vehicle tare and gross loaded weights.

h. Hydraulic operating pressure and calibration chart for any load transfer devices (such as loadsters).

i. Dimensions and height of hauling bed.

j. Reference to all addenda to permit (see H 173.65).

k. Counterweight attachments.

**H 173.63 DESCRIPTION OF LOAD**

The description of load shall consist of:

a. Dimensions of load, including height.

b. Location of center of gravity of load and distance to vehicle axles.

c. Weight of load and distribution of weight to axles.

**H 173.64 DESCRIPTION OF ROUTE**

The origin and destination of the route, as well as the limits of all streets to be traveled over, should be specified on Form 958 for all permits except Annual Permits.

**H 173.65 ADDENDA TO PERMITS**

a. **Supplementary Drawings** - Where supplementary drawings are required to describe the overload, Form 958 should be stamped:

    "Vehicle diagram showing axle weights, dimensions, and the location of load center of gravity must accompany this permit."

Three copies of each sketch are stamped, dated, and signed by the Structural Engineering Division. Two copies are attached to Permit Form 958. One copy is filed.
b. **Speed on Bridges** - Where bridges are crossed en route and the vehicle has 8 or more axles or exceeds 75 tons gross weight, Form 958 should be stamped:

"This Permit subject to the following conditions: Pilot car required, 5 mph maximum speed, no other vehicles on bridges simultaneously with this overload."

c. **Unladen Vehicles** - Note on permit:

"Vehicle shall move unladen."

d. **Addenda to Annual Permits** - The following addenda, published by the Street Use Inspection Division, should be attached to all Annual Permits prior to their approval:

1. Attachment No. 1, Restricted Route List, shall be attached to all permits where a specific route is not designated.

2. Attachment No. 2, Equipment to be Hauled on Annual Blanket Moving Permit, shall be attached to all Annual Permits for 5- or 6-axle trucks hauling miscellaneous construction equipment. Any additions to this list should be checked and approved by the Structural Engineering Division. This list is valid only for conventional trailers. All equipment to be hauled on tilt-bed or other unusual trailers should be checked and listed on a separate attachment.

3. Attachment No. 3, Overweight, Overwidth, and Overheight Equipment to be Moved Under Annual Permit, shall be attached to all Annual Permits, except those for truck cranes.

4. Attachment No. 4, Single and Combination Truck Cranes, shall be attached to all Annual Permits for truck cranes.

5. The following note shall be added to all Annual Permits for vehicles over 45 tons gross weight:

"This vehicle shall not cross bridge structures simultaneously with other heavily laden vehicles. Before entering upon any bridge structure, the vehicle driver shall observe approaching traffic from both directions and, should it appear that a second heavily laden vehicle would pass in the opposing lane of traffic or overtake the vehicle, the driver shall pull the unit clear of the traveled way and wait until the unregulated loads have crossed the bridge structure before entering thereon."
H 173.7 OVERLOAD PERMIT CHECKING

In order to facilitate the checking of Overload Permits for trucks that are used repeatedly, an Overload File shall be maintained by the Structural Engineering Division. This Overload File should contain copies of previously approved truck rigs. These should be listed by name of owner and make and type of truck. The reviewer should check this file to see if the truck being considered has been previously approved as shown on the sketch.

H 173.71 CHECKING PROCEDURE

The following procedure should be followed in checking of Overload Permits:

a. Verify that the overload cannot be dismantled, reduced in size, transported by another means, or otherwise made to conform to the Vehicle Code at reasonable cost.

b. Verify that Form 958 and addenda are complete. Checking should not proceed until the permittee submits all required information.

c. Verify weights of vehicle and payload.

d. Verify computation of axle weights by summing statical moments and vertical forces. (This is not necessary if axle weights are verified by weight certificates.)

e. Verify vehicle overload rating.

f. Verify rating of any bridge or structure crossed along entire route, using Bridge Records. If any structure rating is exceeded by the overload rating, or if the vehicle has more than 7 axles, or if the load is greater than Purple Loading, see H 173.73.

g. Verify overhead clearances from highest point of load to lowest points of bridges along the entire route. The permittee is responsible for overhead and side clearances. However, to further reduce the possibility of damage to City bridges, no route should be approved where clearance is less than 3 inches.

h. Approve permit after all conditions have been complied with.

H 173.72 VERIFICATION OF WEIGHTS

Prior to approval of any Overload Permit, the reviewer should verify the axle loadings and gross weight shown on the permit form by one of the following methods:

a. Certification by payload manufacturer in the form of engineering drawings and/or calculations showing payload weight, dimensions, and location of center of gravity. In this case, axle loads must be calculated according to payload position as diagrammed on the Permit.
b. Original bill of lading from steamship or railroad company shipper. Calculate axle loads as in H 173.71(a).

c. State of California transportation permit for the same load and vehicle showing measured axle weights.

d. Previously approved City permit for the same load on a similar vehicle. Use sketch from Overload File.

e. Manufacturer's catalog description of standard equipment. Calculate axle loads as in item a., above.

f. Certified axle weights from a local public scale. Weight certificates may be waived while en route to a public scale. File all weight certificates with copy of sketch in Overload File.

H 173.73 STRUCTURAL ANALYSIS

For all bridges, structures, and substructures which are loaded with greater than Purple Overloads, loaded simultaneously with more than 7 axles, or rated less than the vehicle overload rating, the permittee should comply with the following requirements prior to permit approval:

a. A structural analysis signed by a California Registered Civil Engineer should be submitted. The structural analysis is checked for conformance with the requirements of H 173.74 and filed in the Overload File.

b. A written statement from owners of affected utilities and other private structures should be obtained by the permittee and filed in the Overload File. The statement should verify that the subject structures are adequate to support the proposed load. Using utility record maps, it should be verified that all affected structures have been evaluated.

c. A transportation permit from the California Department of Transportation should be obtained by the permittee for crossing over any State bridge (Bridge Number Prefix 53), regardless of City jurisdiction.

H 173.74 ALLOWABLE STRESSES

Structural analysis based on the "as-built" structural drawings should verify that stresses caused by overloads do not exceed the limits outlined. When the condition of a structure is known to be deficient, allowable stresses should be reduced accordingly. For condition of structure, see H 186, "Structure Records."
Bridges - Stresses are limited by and computed in accordance with AASHTO, except that allowable stresses (used in original design) should not be increased by more than 33 percent. Impact loadings may be neglected if vehicle speed is limited to 5 mph. (Amend permit as per H 173.65(b).)

Stresses need not be calculated if moments and shears due to the overload are shown to be less than original design moments and shears. For example:

a. A bridge designed to carry railroad or street car loadings need not be analyzed for lesser loads if the overload route follows the track route.

b. A vault top slab need not be analyzed for single wheel loading less than the maximum Purple Loading unless more than one wheel can load the slab simultaneously.

Underground Conduits - Loads should be distributed to underground conduits in accordance with H 370, Earth Pressures. Allowable stresses may be increased as follows:

a. Pipes:
   1. Load factors or allowable stresses may be increased by a maximum of 33 percent over design values.
   2. Trench condition shall be assumed in all cases, except that other conditions used in the original design may be used if known.
   3. Unreinforced concrete pipe, brick arch, or other conduits which are substandard, not in good condition, or of unknown design basis shall not be subjected to stresses greater than would be caused by a Purple Loading.
   4. Stresses need not be checked if design loadings were greater than the overload.

b. Box Culverts - Maximum stress increases for box culverts shall be the same as for bridges.

H 173.75 ANNUAL PERMITS

Annual Overload Permits (Form 958F, Figure H 173.6B) shall be subject to the following additional restrictions, unless otherwise approved:

a. Maximum height should not exceed 13'-6". Exception: Mobil homes should not exceed 14'-6".

b. Maximum width should not exceed 12'-0".
c. Maximum overload rating shall be Green. Exception: Truck cranes (including load transfer devices) may be rated Purple (see H 173.91). Trailers towed behind cranes for carrying boom and counterweight not used as load transfer devices should have Orange axle loadings.

**H 173.8 OPTIONS FOR DISAPPROVED PERMITS**

Overloads which fail to conform to the above requirements shall not be approved until modified to conform. The following modifications are commonly employed:

a. **Rerouting** - New routes which avoid critically stressed structures, clearance deficiencies, or other problems may be investigated. Critical substructures can often be avoided by crisscrossing the street. Other modes of transportation, such as railroad, should also be considered.

b. **Vehicle modification** - The load may be carried on a different vehicle or shared with an additional parallel or tandem vehicle to further reduce and spread axle weights.

c. **Load reduction** - The load may be dismantled or otherwise reduced.

d. **Vehicle speed reduction** - Where vehicle speed is limited to 5 mph, impact loads may be neglected. (Amend permit per H 173.65(b)).

e. **Roadway modification** - Where pavement materials or underground structures are overstressed, gravel blankets or planking may be used to further spread wheel loads. Installation, removal, and cleanup shall be done at the expense of the permittee under inspection of the Street Use Division and in conformance with applicable portions of the Standard Specifications.

f. **Structure modification** - Temporary or permanent bracing, shoring, repair, or other strengthening may be employed to eliminate overstress in critical structures. All such work shall be done at the expense of the permittee under either A or B Permit (see H 172).

**H 173.9 SPECIAL VEHICLES**

Certain construction equipment and other large vehicles shall be governed by the additional criteria in the three subsections that follow.

**H 173.91 TRUCK CRANES**

Self-propelled truck crane overloads should conform to the rating requirements of H 173.5, except that cranes having rear axle combinations of 4 or more tires measuring 14 inches in width per axle spaced at least 120 inches out-to-out of tires may be allowed a "bonus" or "load transfer" as follows:
a. **Two-axle cranes** - No bonus or load transfer.

b. **Three-axle cranes** - Bonus rear tandem 6000 lb. (Green) or 7000 lb. (Purple).

c. **Four-axle (or more) cranes** - Allow a load transfer from front axle group to rear axle group of 6000 lb. (Green) or 7000 lb. (Purple). Maximum allowable load on front axle group shall be reduced by the amount the rear axle group is increased.

Truck cranes having an axle whose suspension is dependent on pneumatic or hydraulic devices to carry any part of its weight shall not be allowed a bonus or load transfer.

The position of boom and counterweights should be noted on the permit if significant in determining axle loads. Examples: "Boom shall be in rear position en route." "Counterweight is not to be carried under this permit."

**H 173.92  EARTHMOVERS AND SPECIAL CONSTRUCTION VEHICLES**

Earthmovers and other special construction overloads having 24-inch or wider tires may be allowed the following single axle maximum loads, provided no group of axles within 18 feet exceeds the values given in Figure H 173.5:

<table>
<thead>
<tr>
<th></th>
<th>Purple</th>
<th>Green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trailing axle</td>
<td>32,500 lb.</td>
<td>27,600 lb.</td>
</tr>
<tr>
<td>Drive axle</td>
<td>35,600 lb.</td>
<td>32,500 lb.</td>
</tr>
</tbody>
</table>

**H 173.93  NONRUBBER-TIRED VEHICLES**

Permits for tracked, cleated, lugged, or other nonrubber-tired vehicles shall not be approved unless planking, blanketing, or other pavement protection is provided (see **H 173.8(e)**).
H 180 STRUCTURE INSPECTION AND MAINTENANCE

The Department of Public Works is responsible for the inspection and maintenance of all structures in the public way unless other agencies or private owners have agreed to perform this maintenance. The Bureau provides periodic inspections of structures within its jurisdiction in order to ensure that they are in good structural condition. When minor repairs are required, they are usually performed by the City's Bureau of Street Maintenance, Bureau of Street Lighting, other appropriate agencies, or private owners (private structures under Revocable Permit). Major repairs are performed under contract using funds budgeted specifically for bridge and tunnel maintenance in the Five-Year Capital Improvement Program.

Aspects of structure inspection and maintenance discussed in this Section include maintenance responsibilities, Bureau inspection responsibilities, type and frequency of inspection, types of defects, and structure records.

H 181 MAINTENANCE AGREEMENTS

The scope of maintenance responsibility for City-owned structures, and also by agreement with other agencies, is discussed in this section. For definitions of commonly used terms in these agreements, see H 112.

H 181.1 STATE FREEWAY VEHICULAR AND PEDESTRIAN OVERCROSSINGS AND UNDERCROSSINGS

Although there are specific agreements for each stretch of State freeway that is constructed, they all typically incorporate the following requirements in connection with bridges:

a. **Vehicular Overcrossings** - The State will maintain, at State expense, the entire structure below the deck surface except as specifically agreed otherwise. The City will maintain, at City expense, the concrete deck surface and wearing surfaces and will perform such work as may be necessary to ensure an impervious and/or otherwise suitable surface. The City will also maintain all portions of the structure above the bridge deck, as well as all traffic service facilities, that may be required for the benefit or control of City street traffic.

b. **Vehicular Undercrossings** - The State will maintain the structure proper. The roadway section, including the traveled way, shoulders, curbs, sidewalks, walls, drainage installations, lighting, and traffic service facilities, will be maintained by the City. Any major repair work to the structure is normally performed by the State. (See H 185.1(b).)

c. **Pedestrian Overcrossings** - The State will maintain, at State expense, the entire structure below the top of the concrete deck surface, exclusive of any surface treatment thereon. The City will maintain, at City expense, the top of the concrete deck surface, together with
any surface treatment thereon, and all portions of the structure above the concrete deck surface, and shall perform such other work as may be necessary to ensure an impervious and otherwise suitable surface. The City will also maintain all traffic service facilities provided for the benefit or control of pedestrian traffic.

d. **Pedestrian Undercrossings** - The State will maintain, at State expense, the structure from a structural standpoint. The City will maintain, at City expense, all drainage and lighting installations and will be responsible for all cleaning and painting as may be required to keep the structure free of debris and graffiti.

**H 181.2 STATE HIGHWAY VEHICULAR AND PEDESTRIAN OVERCROSSINGS AND UNDERCROSSINGS**

The State has delegated to the City, by agreement, the maintenance of designated bridges on State highways in the City. The agreement provides for the City to be reimbursed by the State for monies expended for routine maintenance work performed. The repair work is restricted to minor defects and the amount allowed is stated in the agreement. Major bridge repair work is normally performed by the State.

**H 181.3 RAILROAD GRADE SEPARATIONS**

a. **Bridges Supporting City Streets or Pedestrian Walks** - The City has full maintenance responsibility for bridges spanning over railroad tracks.

b. **Bridges Supporting Railroad Tracks** - In the case of a railroad bridge over a street, the City maintains, by agreement, only the substructure portions below the bottom of the bearing assemblies or otherwise below the bottom face of the slab or beams. The railroad company maintains the superstructure.

**H 181.4 STRUCTURES UNDER LACDPW (FLOOD CONTROL FACILITIES) JURISDICTION**

a. A bridge deck independently supported and not a part of the drainage facility is maintained as follows:

1. The bridge is maintained by the City.

2. The drainage facility is maintained by the LACDPW (Flood Control Facilities).

b. A bridge deck supported on abutments which also serve as channel walls (except boxes) is maintained as follows:

1. The bridge deck and all portions of the structures above the deck are maintained by the City.
2. Piers, abutments, invert slabs, and other supporting elements that are necessary for the stability of the bridge are maintained by the City.

3. Portions of the drainage facility not a part of items 1 or 2 above shall be maintained by the LACDPW (Flood Control Facilities).

c. Box-type structures are maintained as follows:

1. Box culverts connected to open channels on one or both sides of the public way are maintained by the City if: (a) any cell of the conduit has a span of at least 10 feet from face-to-face of supports, or (b) the distance from face-to-face of abutments for multicell boxes is at least 20 feet.

2. Box culverts smaller than those noted in item 1 and continuous box conduits are maintained by the LACDPW (Flood Control Facilities).

3. Street improvements above box culverts, including railings, will be maintained by the City.

H 181.5 MISCELLANEOUS STRUCTURES

a. Private Structures - Private structures under revocable permits which encroach in the City's right-of-way are maintained by their owners.

b. Bridges and Tunnels - Vehicular and pedestrian bridges and tunnels strictly in the City's rights-of-way and extensions of superstructures on private property, where no other agency is involved, are maintained by the City. Structures (columns, spandrels, slabs, struts, etc.) on private property which provide lateral or vertical support for City-owned structures are maintained by the private property owner.

c. Stairways, Retaining Walls, and Bulkheads - The City is responsible for maintaining all these structures within the City's rights-of-way or installed in easements dedicated to the City, except as indicated for private structures, item a. above.

H 182 BUREAU INSPECTION AND MAINTENANCE RESPONSIBILITIES

The Bureau's Structural Engineering Division is responsible for the following, as a minimum:

a. Inspects structures for all defects, regardless of cause, for potential sources of defects and for unsafe conditions. The checklist in Figure H 182 (2 sheets) is a guide. Inspection should be confined to only the area within the City's maintenance jurisdiction and includes private structures in the City's right-of-way and City-owned structures on or over private property.
b. Makes final construction inspection of structures the City will be responsible for inspecting, including new or repaired structures. The Project Engineer of the prime office, or Central District Office's design engineer on State freeway projects, notifies the Division's Structure Inspection and Maintenance Section of the final inspection.

c. Performs periodic inspection and maintains records of existing structures listed in H 183. Following are some typical field book entries:

1. Bridge No.
2. Date of inspection.
3. Name and location of structure.
4. Progress of work previously requested.
5. General condition of structure.
6. Description of defects, if any, documented by sketches or photographs.
7. Urgency of repair and, if defect constitutes a hazard to pedestrians or motorists, record of immediate request to the Bureau of Street Maintenance for barricades.
8. Notice to permit checking offices of change in bridge overload rating.
9. Reference to examination of plans of structure.
10. Referral of major defects for inclusion in Bridge and Tunnel Maintenance list of projects.

d. Writes repair requests for minor repairs or recommends major repairs or replacement of structures.

e. Makes recommendation for posting a load limit on vehicular structure when condition of structure is deficient.

When a bridge structure will no longer safely carry the maximum weight allowed by the Vehicle Code, the City must post the bridge to limit vehicle weight. Authority to post bridges has been delegated by the State to the City of Los Angeles (and some other cities and counties) by Division 15, Article 5, Section 35751 of the State Vehicle Code.

In cases of emergency, the City Engineer, acting through the Board of Public Works, can post a bridge for a period of 90 days. After 90 days, unless there is a clear and imminent danger, the following steps should be taken to comply with the requirements of the Vehicle Code:
1. The Structural Engineering Division prepares a letter for the City Engineer's signature (indicating need for permanent posting) to the Transportation and Traffic Committee of the City Council.

2. The Transportation and Traffic Committee schedules a public hearing and Structural Engineering Division inspectors post notices at the site with the time and place of the hearing at least 5 days prior to the hearing.

3. The Council takes action on a Resolution prepared by its Transportation and Traffic Committee after the public hearing.

4. When the City Council adopts a resolution authorizing posting, the Structural Engineering Division contacts the Department of Transportation to request that the proper signs be prepared and posted.

5. Prior to posting, the Structural Engineering Division notifies in writing the Fire Department, Police Department, and Department of Transportation.

The Structural Engineering Division shall establish special inspection schedules and procedures for all posted structures. In addition, it shall initiate Five-Year Capital Improvement projects as required to correct posted structure deficiencies.

f. Makes recommendation for closure of a structure when necessary to protect the public. This is done by contacting the Emergency Service Section of the Bureau of Street Maintenance. They provide necessary equipment, barricades, and signs.

g. Notifies owners of private structures in City rights-of-way of needed repairs.

h. Notifies private property owners of needed repairs of structures in private property which provide lateral or vertical support for City-owned structures and of access stairways, ramps, pedways, etc., on private property in "air rights" easements. Private maintenance requests should be forwarded directly to the property owner with a copy of the request to the Land Development and Mapping Division and the Department of Building and Safety.

i. Notifies lessors of City-owned space under bridges of fire hazards and unsanitary or other deficient conditions.

The Fire Department's Bureau of Fire Prevention should be requested to investigate fire hazards and assist in notification and enforcement procedures.
A copy of the Structural Engineering Division's Notice of Deficient Conditions to the lessor shall be forwarded to the Real Estate Division of the Bureau of Engineering.

j. The Structural Engineering Division is responsible for the evaluation of damage to bridges and other structures after a major earthquake or other disaster.

k. In accordance with an agreement between the City and the State of California, Department of Transportation, the State has agreed to reimburse the City for the investigation and inspection of certain City structures (bridges and tunnels).

Supplementary Bridge Reports which tabulate the results of the engineering investigation and inspection of these structures are prepared by the Structural Engineering Division. These reports are submitted to the State of California, Department of Transportation, for reimbursement of all work performed by the City under this agreement.

**H 183  STRUCTURES INSPECTED**

Following is a list of structures periodically inspected by the Structural Engineering Division.

a. Private bridge, tunnel or box structures in City right-of-way with a span length of 10 feet or more face-to-face of supports.

b. Public bridge, tunnel or box structures (except structures carrying freeway traffic) as follows:

1. With a single span length of 10 feet or more face-to-face of supports or abutments regardless of the type of construction.

2. With a combination of span lengths of at least 20 feet and with at least one span of 3 feet or more from face-to-face of supports or abutments.

3. Of timber construction with a combination of span lengths of at least 10 feet and with at least one span of 3 feet or more face-to-face of supports or abutments.

4. Having special conditions or features that warrant regular inspection regardless of construction type or span length.

5. Within the public way or within dedicated easements.

NOTE: For bridges over freeways, only the walkway or roadway surface and the railings are inspected. Structures carrying freeway traffic are not inspected.

c. Timber stairways.
d. Critical bulkheads. These are usually constructed with timber or steel piles and timber lagging or with deadman tiebacks, tensioned or detensioned. Those requiring frequent structural maintenance or that are critical in nature due to size, unstable soil conditions, or importance of supported roadway should be inspected regularly.

**H 184 FREQUENCY OF INSPECTION**

The minimum frequency of inspection is outlined below. This frequency may be increased for structures in a deteriorated state, requiring frequent maintenance, or located where conditions are changing rapidly or where hazards may develop.

<table>
<thead>
<tr>
<th>STRUCTURE</th>
<th>FREQUENCY OF INSPECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Bridges, Tunnels, Box Structures:</td>
<td></td>
</tr>
<tr>
<td>1. General</td>
<td>2 years</td>
</tr>
<tr>
<td>2. Subject to erosion or scour*</td>
<td>1 year(spring)</td>
</tr>
<tr>
<td>3. Subject to earthquake damage</td>
<td>following event</td>
</tr>
<tr>
<td>4. Timber Structure</td>
<td>6 months</td>
</tr>
<tr>
<td>5. Part Timber Structure**</td>
<td>6 months</td>
</tr>
<tr>
<td>6. Structure other than timber with known rapid deterioration of structural elements or with special problems*</td>
<td>1 year</td>
</tr>
<tr>
<td>7. Posted Structure</td>
<td>6 months</td>
</tr>
<tr>
<td>b. Bulkheads:</td>
<td></td>
</tr>
<tr>
<td>1. Constructed in known landslide areas</td>
<td>6 months</td>
</tr>
<tr>
<td>2. Timber posts and timber lagging</td>
<td>6 months</td>
</tr>
<tr>
<td>3. Steel posts and timber lagging</td>
<td>1 year</td>
</tr>
</tbody>
</table>
c. Timber Stairways: 6 months

*Structure is given a complete inspection every 2 years and a partial inspection every 2 years (inspections are alternated) to inspect known deteriorated structural elements or to check known problems, such as scouring, constant railing damage by motor vehicles, and debris piling up under bridge.

**Timber part of structure is inspected at 6-month frequencies. Structure is given a complete inspection every 2 years (every fourth inspection).

H 185 DEFECTS

The classification of defects and preparation of reports or requests for repairs are discussed in this Section. Refer also to the Bridge Inspector's Training Manual, published by the U.S. Department of Transportation, Federal Highway Administration, Bureau of Public Roads, and the Maintenance Manual of Instructions, published by the State of California Department of Transportation.

H 185.1 CLASSIFICATION

Defects are classified as minor or major in accordance with the following criteria:

a. **Minor Defects** - can be repaired or replaced with little or no risk of structural collapse or damage to adjacent or related members (such as spalls, bent railings, etc). Repairs can usually be made at relatively low cost without specialized knowledge, skills, or equipment.

b. **Major Defects** - may affect the stability or structural capacity of the structure, are complex or costly to correct, and require specialized skills or equipment. Painting an entire bridge structure, foundation underpinning, and column or girder replacement are examples of major repairs.

H 185.2 REPORTS AND REQUESTS

Defects are usually detected by the inspector. Repair work is requested as follows:

a. **State Inspection** - Reports of defects found by State inspection personnel are sent to the Bureau of Engineering by the State of California Department of Transportation and are forwarded to the Structural Engineering Division. These reports normally show minor defects in connection with State highway and freeway bridges. The Structure Inspection and Maintenance Section sends copies of these reports to the Bureau of Street Maintenance or the Bureau of Street Lighting, requesting that repairs be made (see Figure H 185.2A).
b. **City Inspection** - The Structure Inspection and Maintenance Section determines the magnitude of the defect and requests repairs as follows:

1. **Minor defects** - Determines the best method and materials for repair and requests the Bureau of Street Maintenance or the Bureau of Street Lighting to make the repairs (see Figure H 185.2B).

2. **Major defects:**
   
   (a) Determines what effect the defects have on the safety and load capacity of the structure.

   (b) Prepares a report including a full description of the defects and recommendations for repair and for posting or closing of the structure, if necessary.

   (c) Requests the City Department of Transportation to post any necessary signs and barricades for closure or load limits.

   (d) Follows up to see that necessary repairs are added to the Bridge and Tunnel Maintenance Program or the 5-Year Capital Improvement Program list of structures and that they are programmed for funding within a reasonable time. Depending upon cost and degree of complexity of repairs, the Bureau of Street Maintenance may be requested to make the repairs.

3. **Structural Maintenance or General Maintenance**

   Deficiencies (defects) noted in Bridge Inspection letters (repair requests) from the Structural Engineering Division to the Bureau of Street Maintenance are prioritized under the categories of Structural Maintenance or General Maintenance. Structural Maintenance deficiencies require early scheduling of repairs or in some cases immediate action. General Maintenance deficiencies are corrected by routine maintenance scheduling.

**H 185.3 FOLLOW-UP OF REPAIRS**

Upon receipt of a notice from the Bureau of Street Maintenance or from the Bureau of Street Lighting indicating that repairs have been made, or after final inspection of repairs made by contract, the Structure Inspection and Maintenance Section jointly with the Project Engineer should:

a. File the notice of repairs made or the contract acceptance notice in the Structure File and update the Bridge Record Maps if required.
b. Update the "Computer File of Structures" (H 186) indicating the date repairs were completed and revise the structure ratings and other data as affected.

c. Record significant structure modifications in the structure file if the repair was not performed under contract with a formal plan signed by the City Engineer. Minor modifications need not be recorded. The original "as-built" construction drawings should not be altered.

To record a structure modification, proceed as follows:

1. Prepare a sketch, on a sheet 24" x 40" or smaller, or obtain full-scale prints of the structure plans, and plot the maintenance data upon it.

2. In the lower right hand corner of the sketch or print, place the street limits of the modification. Allow a blank 3/4-inch x 2-inch block for the new index number.

3. Obtain approval of the District/Division Engineer and date the drawing.

4. Transmit the drawing directly to the Index to Records Section, Administration Division, together with an Indexing Request and a Microfilm Request which identify the drawing as a Maintenance Modification Sketch. The Index Section assigns a plan number prefixed by the letter E and the sketch will be indexed in the Division Index File and cross-referenced to the original construction plan number. The sketch is microfilmed and returned to the prime office for final disposition. The microfilm cards are distributed (one copy to each) as follows:

   (a) Vault Library.

   (b) Bureau Security.

   (c) City-wide Security.

   (d) City Satellite, Central District office.

   (e) Prime office.

   In addition to the E number and film date, the cards will also show the index number of the original, cross-referenced construction plan and the abbreviation "MAINT". (Example: P-12345 MAINT.)
H 186  STRUCTURE RECORDS

a. Computer File of Structures Data Management System

The basic description and engineering data for major structures is stored in the "Computer File of Structures Data Management System". Sorted structure listings used by the Structure Inspection and Maintenance Section and others are generated from this system. The system can be used to list structures by use, type, materials, location, and a wide variety of other parameters. Three commonly used listings are:

1. The Inspectors Field Book is a computer printout giving the inspector the necessary data for inspection, including the last and next inspection dates, location, frequency of inspection, inspection ratings, and comments.

2. The Numerical Listing of Structures - All structures in use or abandoned-in-place are assigned a number for the purpose of identification and for input to the computer. City structures start from No. 1 and proceed consecutively. State structures are listed with State numbers of the form 53xxxx.

3. The Alphabetical Listing of Structures is a complete printout of all stored data information for each structure (such as physical dimensions, design loads, condition of structure, inspection dates, Thomas Guide location, plan numbers, etc.). The first few pages of the printout contain an explanation of the symbols used in the listing.

b. Maintenance of Structural Records - In order to maintain the quality of structure records, the following scheduling and prompt reporting procedures for inspectors are emphasized:

1. Schedule - All structures are inspected promptly as scheduled in the computer printout.

2. Field Book - A field entry is shown for each structure element at the time of inspection, even when there has been no appreciable change since the last inspection.

3. Field Reports - Field reports should be submitted for each structure within 1 week of inspection.

4. Letters to Street Maintenance - When inspection reveals that a structure needs either structural or general maintenance, letters should be written within 1 week of inspection requesting such maintenance.
5. **Completing Records** - An attempt should be made to correct inaccuracies and to complete all missing items of information in the structure inventory either by field inspection or by researching the appropriate plans.

6. **Inspection data and record correction information** should be promptly entered in the "Computer File of Structures".

7. **Construction Final Inspections** - All information on final inspections should be placed in the computer program the day of the final inspection. Place a copy of paint specifications and other future maintenance data in the Bridge File.

8. **End of Year** - At the end of the year, field books should be completed in a neat manner, labeled by year, and stored.
H 190  COMPUTER APPLICATIONS

All data processing is done using IBM Systems which are maintained by the Information Services Department (ISD). Data normally is entered through a TSO (time sharing option) terminal or IBM-AT micro-computer.

Most of the structural engineering programs have been written so that the data can be processed inter-actively. The results can be checked at the terminal, changes made in the input parameters, program flow controlled, and the output printed as desired.

A few programs require such extensive data and computer time that inter-active processing is not practical. Data for these programs normally is keyed into a data file, using a full-screen editor. This data can be viewed and edited using the TSO terminal. The terminal can be used to submit the data in a "batch job".

H 191  TSO REMOTE ACCESS TERMINAL

The TSO system consists of IBM cathode ray tube (CRT) remote terminals located in the design offices and connected to the IBM System in the ISD. In this system, the user has direct control of the input to the computer system and as the information is typed in corrections can be made on the video display. Output also is displayed visually. Printed output is obtained from a printer next to the CRT or a data collection center in the ISD.

Instructions for operation of remote terminals are given in the IBM User's Guide. Training sessions also are given by the Computer Applications Section in the Structural Engineering Division.

H 192  AVAILABLE COMPUTER PROGRAMS

Computer programs available for use in solving structural engineering design or analysis problems are listed in the Structural Engineering Division's Memos to Designers Section 80-1, Computer Program Library. This listing is updated frequently.

The Structural Engineering Division maintains the Computer File of Structures where data is filed on approximately 1700 Public Works structures in the City of Los Angeles. This data is a good source for preliminary design information, such as type selection and initial trial member sizing data. For example, data can be retrieved for all vehicular bridges with a span between 100 and 130 feet. The plan number of each bridge can be listed so the designer can review bridges of a similar type. In addition, all records of bridges with the phrase "FWY" or "SEPULVEDA BLVD", for example, in the title can be retrieved. The Division's Computer Applications Section should be contacted for this type of information.
City of Los Angeles

CAPITAL IMPROVEMENT PROJECT REQUEST

Department: Public Works
Bureau or Division: Structural Engineering

Project Title and Description:
COLLEGE STREET BRIDGE WIDENING OVER PASADENA FREEWAY

Project Justification:
College Street is a Minor Arterial Street in the FAU system. A 1983 traffic count on College Street at Yale Street showed a total of 7,435 vehicles per day. A 1986 pedestrian count on the bridge showed a total of 5,800 pedestrians using the bridge per day. The sidewalks narrow to 3'-10" at the street light pylons, creating a congested condition for pedestrians.

This is a "Bottleneck bridge", with a 36-ft. roadway on the approaches, but only a 24-ft. roadway on the bridge. This project will widen the bridge roadway to 36-feet, widen sidewalks, and reduce vehicular accident potential due to the limited sight distance from the southbound approach of Chavez Ravine Place at the west end of the bridge. It will be eligible for FAU reimbursement.

<table>
<thead>
<tr>
<th>Estimated Project Costs</th>
<th>Amount</th>
<th>Fiscal Year Required</th>
<th>Suggested Financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plans (Direct &amp; Indirect Chgs.)</td>
<td>$150,700</td>
<td>0</td>
<td>Gas Tax</td>
</tr>
<tr>
<td>Land Acquisition</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>1,186,900</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Other Costs</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total Estimated Costs</td>
<td>$1,337,600</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Funds Available or Expended</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Balance Required</td>
<td>$1,337,600</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Estimated Operation and Maintenance Costs</th>
<th>Fiscal Year Required</th>
<th>Amount Required</th>
<th>1st Year</th>
<th>Subsequent Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance, Repair and Operation</td>
<td>$</td>
<td>$</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Additional Staff (if any)</td>
<td>$</td>
<td>$</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Additional Equipment — not indicated above</td>
<td>$</td>
<td>$</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Recommended by: ROBERT S. HOKI, City Engineer
(General Manager or Bureau or Division Head)

Requested by: ____________________________
(Department Head)

Date: ____________________________

TRANSMIT IN DUPLICATE — LETTER OF TRANSMITTAL NOT NECESSARY

FIGURE H 142A
**PROJECT ESTIMATE AND FUNDING 05-16-86 EFFECTIVE 12-31-87**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>CITY FEES</th>
<th>W.O.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Envir.</td>
<td>0*</td>
<td></td>
</tr>
<tr>
<td>Rel. Sur.</td>
<td>12,700</td>
<td></td>
</tr>
<tr>
<td>Oils</td>
<td>5,000*</td>
<td></td>
</tr>
<tr>
<td>Geology</td>
<td>2,000*</td>
<td></td>
</tr>
<tr>
<td>Process</td>
<td>9,300</td>
<td></td>
</tr>
<tr>
<td>Subttl</td>
<td>29,000</td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trees</td>
<td>1,400</td>
<td></td>
</tr>
<tr>
<td>Evals</td>
<td>500*</td>
<td></td>
</tr>
<tr>
<td>Tructs</td>
<td>64,200</td>
<td></td>
</tr>
<tr>
<td>Lights</td>
<td>1,600</td>
<td></td>
</tr>
<tr>
<td>Raunes</td>
<td>500*</td>
<td></td>
</tr>
<tr>
<td>Subttl</td>
<td>68,200</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>97,200</td>
<td>97,200</td>
</tr>
<tr>
<td>N/Indirect</td>
<td></td>
<td>53,500</td>
</tr>
<tr>
<td>Total Plans</td>
<td>150,700</td>
<td>150,700</td>
</tr>
<tr>
<td>R/W</td>
<td></td>
<td>55.0%</td>
</tr>
<tr>
<td>Const</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Streets</td>
<td>10,080</td>
<td>10,080</td>
</tr>
<tr>
<td>Evals</td>
<td>8,400</td>
<td>8,400</td>
</tr>
<tr>
<td>Tructs</td>
<td>1,007,000</td>
<td>1,007,000</td>
</tr>
<tr>
<td>Lights</td>
<td>12,000</td>
<td>12,000</td>
</tr>
<tr>
<td>Raunes</td>
<td>25,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Total</td>
<td>1,062,400</td>
<td>1,062,400</td>
</tr>
<tr>
<td>Cons. Sur.</td>
<td>18,800</td>
<td></td>
</tr>
<tr>
<td>Cons. Eng.</td>
<td>16,900</td>
<td></td>
</tr>
<tr>
<td>Inspect</td>
<td>44,600</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>80,300</td>
<td>80,300</td>
</tr>
<tr>
<td>N/Indirect</td>
<td>44,200</td>
<td>44,200</td>
</tr>
<tr>
<td>Total Const</td>
<td>1,186,900</td>
<td>1,186,900</td>
</tr>
<tr>
<td>Total Job</td>
<td>1,337,600</td>
<td>1,337,600</td>
</tr>
</tbody>
</table>

**TOTAL PLANS 150,700**

**R/W 55.0%**

**TOTAL CONST 1,186,900**

**TOTAL JOB 1,337,600**

---

EST: MDB

Philip H. Skarin
Structural Engineering Div.

**Figure H 142B**
# BUREAU OF ENGINEERING WORK ORDER

<table>
<thead>
<tr>
<th>DATE ORIG.</th>
<th>EST. DATE BEGIN ENG.</th>
<th>W.O. NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 2, 1984</td>
<td>July, 1984</td>
<td></td>
</tr>
</tbody>
</table>

**REVISED**

<table>
<thead>
<tr>
<th>BEGIN CONST.</th>
<th>END CONST.</th>
</tr>
</thead>
<tbody>
<tr>
<td>July, 1985</td>
<td></td>
</tr>
</tbody>
</table>

**CLOSED**

<table>
<thead>
<tr>
<th>SUPERSESSED W.O. NO.</th>
<th>ACTIVITY DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TITLE**

SEISMIC STRENGTHENING OF EXISTING BRIDGES—GROUP E

**DESCRIPTION, AUTHORIZATION, COMMENTS:**

Group E: 1. Riverside Drive Bridge over Los Angeles River between Sonora Avenue and Zoo Drive.
2. Fletcher Drive Bridge over Los Angeles River.
3. First Street Viaduct over Glendale Boulevard.

This project provides retrofitting of earthquake resistant devices to prevent the deck girders being displaced from their support during an earthquake. Also included is required maintenance and repair work for these structures.

**ESTIMATED COSTS**

(Enter amount for every item; if zero, so indicate.)

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plans</td>
<td></td>
</tr>
<tr>
<td>Project Surveying (Prelim.)</td>
<td>$0</td>
</tr>
<tr>
<td>Design—Street Design</td>
<td>$0</td>
</tr>
<tr>
<td>Sewer Design</td>
<td>$0</td>
</tr>
<tr>
<td>Storm Drain Design</td>
<td>$0</td>
</tr>
<tr>
<td>Bridge or Structural Design</td>
<td>$33,200</td>
</tr>
<tr>
<td>O&amp;W</td>
<td>$0</td>
</tr>
<tr>
<td>Right of Way</td>
<td>$0</td>
</tr>
<tr>
<td>Geology and Soils</td>
<td>$0</td>
</tr>
<tr>
<td>U &amp; E</td>
<td>$0</td>
</tr>
<tr>
<td>Est., Specs., Blueprint, etc.</td>
<td>$5,600</td>
</tr>
<tr>
<td>Sub-Total</td>
<td>$38,800</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right of Way</td>
<td>$0</td>
</tr>
<tr>
<td>Construction</td>
<td>$275,600</td>
</tr>
<tr>
<td>Construction Engineering</td>
<td>$7,900</td>
</tr>
<tr>
<td>Inspection</td>
<td>$21,400</td>
</tr>
<tr>
<td>Total Estimated Cost</td>
<td>$343,700</td>
</tr>
</tbody>
</table>

**PREPARED**

PHILIP H. SKARIN

DIV. OR DIST. ENG.

**FILE COPY**

**DATE APPROVED: SD. OF PUB. W.O. OR PETITION FILED**

**SUBMITTED**

CITY ENGINEER

W.O. NO.
VICINITY MAP

Scale: 1" = 1000'

COLLEGE ST. BRIDGE
OVER PASADENA FREEWAY

CITY OF LOS ANGELES
BUREAU OF ENGINEERING

COLLEGE STREET
BRIDGE WIDENING
OVER PASADENA
FREEWAY

REFERENCE PLANS: SERIAL, SKETCH NO. SHEET OF
D-4351 1 2

FIGURE H 1420
SECTION
No Scale

ELEVATION
No Scale
### FIELD REVIEW ATTENDANCE ROSTER

<table>
<thead>
<tr>
<th>NAME</th>
<th>ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FIWA</td>
</tr>
<tr>
<td></td>
<td>CALTRANS - LOCAL ASSISTANCE</td>
</tr>
<tr>
<td></td>
<td>- EPB</td>
</tr>
<tr>
<td></td>
<td>CITY OF LOS ANGELES - Coordinating</td>
</tr>
<tr>
<td></td>
<td>- PROJECT ENGINEER</td>
</tr>
<tr>
<td></td>
<td>- Environmental</td>
</tr>
</tbody>
</table>

**REMARKS:** Section 176(a): Category I-Exempt, A-Safety, 7 Bridges

176(a) Justification (if required)

Risk analysis is not required per field review on Group B
**FIELD REVIEW FORM**

**Local Agency:** CITY OF LOS ANGELES  
**Field Review Date:** 6-5-85

**Area:** Urban

**Bridge Name(s):** Fletcher Drive Bridge over the Los Angeles River  
**Federal No.:** M-L 456 (003)

**Bridge Number(s):** 53C 0096

**Road Name:** Fletcher Drive

1. **PROJECT LIMITS** Fletcher Drive between Larga Avenue and Crystal Street

2. **PROPOSED IMPROVEMENT** Replace handrail, Repair cracks and spalls.

   **St.Dr. , Land. T.Sig. , St.Leg Net Length:** 0.1 Miles (0.0)

3. **PROPOSED FUNDING:** Federal-Aid (FAU, HES, PMS, ERP, -G) FAU ( )

   **State Highway Funds Yes/No**

   **Matching (X): State City County Other**

4. **COST BREAKDOWN ESTIMATE**

<table>
<thead>
<tr>
<th>Costs ($1,000) Fed. Partic. (-$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Engineering</td>
</tr>
<tr>
<td>Preliminary R/W Work</td>
</tr>
<tr>
<td>Design</td>
</tr>
<tr>
<td>Advertise and Award</td>
</tr>
<tr>
<td>Construction</td>
</tr>
<tr>
<td>Construction Engineering (&lt;15)</td>
</tr>
<tr>
<td>R/W Acq. No. of Pcs</td>
</tr>
<tr>
<td>RAP No. of Pals</td>
</tr>
<tr>
<td>No. of Bus</td>
</tr>
<tr>
<td>Utilities (not contract items)</td>
</tr>
<tr>
<td>Total Project Costs</td>
</tr>
</tbody>
</table>

5. **PROJECT ADMINISTRATION:** x City of Los Angeles

<table>
<thead>
<tr>
<th>Prepare P.S. &amp; E.</th>
<th>R/W Acquisition</th>
<th>Advertise &amp; Award</th>
<th>Provide R.E.: Road</th>
<th>Pay Contractor</th>
<th>Maintain</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
<td></td>
<td>x</td>
<td>TGF</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

   **Remarks**

   **City Forces:**

6. **TRAFFIC DATA:** 21,900 Year 1984 Future ADT 24,100 Year 2004

   **Design Speed** 35 MPH 2233 Percent Trucks 4.7%
7. GEOMETRIC INFORMATION

<table>
<thead>
<tr>
<th>Proposed Year Constr.</th>
<th>Minimum Curve Radius</th>
<th>No. Lanes</th>
<th>Surf Width</th>
<th>Surf Type</th>
<th>P=parking</th>
<th>PT=part-time</th>
<th>R=raised</th>
<th>P-paint</th>
<th>F=median Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing 1927</td>
<td></td>
<td>4</td>
<td>46</td>
<td>AC</td>
<td>NP</td>
<td>P-10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Design Standard Exceptions MTEB URBAN LANE DIMENSIONS, LA CITY POLICY

Remarks: Railings and expansion joints will be replaced; racks and spalls will be replaced.

8. DEFICIENCIES OF EXISTING FACILITY

- Structural Alteration
- Alignment
- Grade
- Culverts CAPACITY
- Bridge
- Accident Record (Attach Collision Diagram)

Remarks: Railings and expansion joints will be replaced; racks and spalls will be replaced.

9. TRAFFIC SIGNALS New ( ) Modified ( ) RELOCATED ( ) UPGRADED

10. NO. OF MAJOR STRUCTURES (Attach Structure Data Sheet)

11. OTHER TRANSPORTATION FACILITIES - Name
    - Railroads No ( )
    - Airports No ( )
    - Transit No ( )
    - Bicycle No ( )

12. PUBLIC HEARING PROCESS Required (Circle One)

Remarks:

13. PERMITS REQUIRED
    - Fish and Wildlife Resources
    - Corps of Engineers (404)
    - Navigable Stream (Coast Guard)
    - Coastal Protective Zone
    - State Land Commission
    - State Encroachment
    - Other LACFCD

FIGURE H 1438
SHEET 2 OF 3
4. AGENCIES AFFECTED:

Utilities:
- Telephone
- Water
- Electrical
- Gas
- Other St Highway
- City Flood Control

Major Utility Adjustments: N/A

High Risk Facilities: Electric, Volts, Gas, psig

Petroleum

Remarks:

Other:

5. PLANNING DATA:

Congressional District: 25

T.I.P. (Urbanized Area) Being added by amendment

R.T.P.A. SCAG F.Y. 1986-90

TIP (Urbanized Area Ring Added by require amendment)

Required/Not Required (Circle One)

STATE: Exempt, TIP, SF424 Required

AREA: Exempt, TIP, SF424 Required

6. PROPOSED ADVERTISING DATE: 1983

7. FIELD REVIEW REPRESENTATIVES / CONCURRENCE

Local Agency: CALTRANS District: 07

CALTRANS District: Date 6-5-82

FHWA: Date 6-5-82

Remarks: Initial Approval is for Environmental Studies.

Detail design will not begin until environmental clearance.

8. LIST OF ATTACHMENTS

MANDATORY:
- Preliminary Environmental Study (4(f), 106)
- Vicinity Map (Xerox from Thomas Brothers)
- Typical Section (Sketch of the Design)
- Location Map
- FAU System Map Reference (Indicate FAU No.)

IF APPLICABLE:
- Protection of Wetlands Statement
- Major Structure Data Sheet
- Railroad Grade Crossing Data Sheet
- Airport Data Sheet (if within 2 miles)
- A Sketch of Each Alternative of the Proposed Improvement
- Signal Warrants
- Public Interest Statement to Do Work Other than Contract
  (See Section 22 of this Manual)
- Collision Diagram
- Supplementary Report for 'G' funded signals
- MTEB Urban Street Lane Dimensions

Supplemental Information

FIGURE H 1438

SHEET 3 OF 3
PRELIMINARY ENVIRONMENTAL STUDY FORM

SEISMIC STRENGTHENING OF EXISTING ROAD BRIDGES- GROUP D


Fed No. 3041

1. Does the project have the potential to affect significantly the quality of, or entail the risks of, the environment? 
   Yes No Determined

2. Does the project have any feature which will generate public controversy or is the project likely to be controversial on environmental grounds? 
   Yes No Determined

3. Does the project affect properties protected by Section 4(f) of the DOT Act and Section 106 of the National Historic Preservation Act? 
   Yes No Determined

4. Is the Project inconsistent with any Federal, State or local law or administrative determination relating to the environment? 
   Yes No Determined

5. Are there any rare or endangered plants or animals in the project area and, if so, does the project reduce the number or restrict the range? 
   Yes No Determined

6. Will the project require more than minor amounts of right of way or require housing or business relocation? 
   Yes No Determined

7. Will future construction be required in order to fully utilize the designed capability of the proposed facility? 
   Yes No Determined

8. Will the project:
   a. Be growth-inducing? 
      Yes No Determined
   b. Cause a division or disruption of an established community? 
      Yes No Determined
   c. Be inconsistent with plans or goals that have been adopted by the community? 
      Yes No Determined
   d. Result in the need for public services, including utilities, beyond those presently available or proposed? 
      Yes No Determined

9. Will the project:
   a. Involve changes in access control? 
      Yes No Determined
   b. Involve disruption of or changes in local traffic patterns? 
      Yes No Determined
   c. Cause an increase in traffic congestion (within or outside the project area)? 
      Yes No Determined

10. Will the project affect the habitat of a fish or wildlife species? 
    Yes No Determined

11. Is the project inconsistent with the State Implementation plan regarding air quality? 
    Yes No Determined

12. Will the project affect water quality? 
    Yes No Determined

13. Will the project result in design year noise levels near or above the design noise levels in Figure 3-1 of FDCV III or result in design year noise levels substantially higher than those expected without the project? 
    Yes No Determined

14. Does this project involve the destruction or modification of wetlands? 
    Yes No Determined

15. Does this project involve an unconsented hazardous or incompatible encroachment on a flood plain? 
    Yes No Determined

16. Does this project involve a coastal area? 
    Yes No Determined

17. Will the project affect the Wild and Scenic Rivers System? 
    Yes No Determined

18. Does the project involve conversion of prime and unique farmland to other uses in excess of the minimum amount consistent with other essential public needs? 
    Yes No Determined

Data, as required, to support the conclusions of this checklist should be attached.

FIGURE H 143C
Preliminary Classification

Based on the evaluation of the project, the proper environmental document should be a:

☐ Categorical Exclusion (Determination to be made on attached form)

☐ Environmental Assessment

☐ Environmental Impact Statement

Signature - FHWA ___________________________ Date ____________

Signature - Caltrans 07 ___________________________ Date ____________

Signature - City of Los Angeles ___________________________ Date ____________

FIGURE H 143D
CATEGORICAL EXCLUSION

Road Fletcher Drive Fed. No. M-L 456

Limits over Los Angeles River

I. Based on the Preliminary Environmental Study, this project meets the criteria for a Categorical Exclusion.

Signature - City of Los Angeles Date

Signature - Caltrans District 07 Date

II. Based on evaluation of this project, it is determined that the project is a "Categorical Exclusion".

Signature - FHWA* Date

*If wetlands are involved, the FHWA District Engineer must endorse categorical exclusions.

FIGURE H 143E
**STRUCTURE INVENTORY & APPRAISAL SHEET**

<table>
<thead>
<tr>
<th>STRUCTURE DATA</th>
<th>STRUCTURE LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type: Reinforced Concrete</td>
<td>Los Angeles</td>
</tr>
<tr>
<td>Story: 1</td>
<td>Building</td>
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<tr>
<td>Length: 19500</td>
<td>Tour of the River</td>
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<tr>
<td>Base: 10</td>
<td>Approach</td>
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<th>CONDITION</th>
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<tr>
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<td>Structural Stability</td>
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<tr>
<td>Substructure</td>
<td>Channel &amp; Connection</td>
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<td>Substructure</td>
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<td>Understructure</td>
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<th>APPRAISAL</th>
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<td>Structural Condition</td>
<td>1</td>
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<tr>
<td>Understructure</td>
<td>1</td>
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<tr>
<td>Immediate Adequacy</td>
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<td>Approach Roadway Alignment</td>
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<table>
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<tr>
<th>PROPOSED IMPROVEMENTS</th>
<th>PROPOSED IMPROVEMENTS</th>
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<tr>
<td>Type: Retrofitting</td>
<td>To correct seismic deficiencies by installing restrainers.</td>
</tr>
<tr>
<td>Description: Epoxy repairs, waterproof deck, fix spalls and cracks</td>
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<td>Cost: $6,500</td>
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<td>B6. Demolition</td>
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<td>B7. Substructure</td>
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<tr>
<td>B8. Superstructure</td>
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**FIGURE 1-1**

**FIGURE H 143F**
**ATTACHMENT 2**

**MAJOR STRUCTURE DATA**  
(Separate sheet for each structure)

<table>
<thead>
<tr>
<th>BRIDGE NAME</th>
<th>Washington Boulevard Bridge Over Los Angeles River</th>
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<tbody>
<tr>
<td>ROAD NAME</td>
<td>Washington Boulevard</td>
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<tr>
<td>LOCATION</td>
<td>City of Los Angeles</td>
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**STRUCTURE:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Existing</th>
<th>Proposed</th>
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<tbody>
<tr>
<td></td>
<td>reinf. conc I beam</td>
<td>no change</td>
</tr>
<tr>
<td>Width</td>
<td>71 (56 roadway)</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>312</td>
<td></td>
</tr>
<tr>
<td>Spans (No. &amp; Length)</td>
<td>5 span 62'</td>
<td></td>
</tr>
<tr>
<td>Sidewalks or bikeways</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Rail Type</td>
<td>conc</td>
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<tr>
<td>APPRAOCH WIDTH</td>
<td>80'</td>
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**APPLICATIONS AT SITE:**  not available

**HIGH RISK UNDERGROUND FACILITIES AT SITE:** na

**FOUNDATION INVESTIGATION BY:** na

**HYDROLOGY STUDY BY:** na

**DETOUR, STAGE CONSTRUCTION, OR CLOSE ROAD:** stage construction

**ESTIMATED STRUCTURE RELATED COSTS:**

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<th>Item</th>
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<tr>
<td>*Right-of-Way Acquisition</td>
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<td>*Utility Relocation</td>
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<tr>
<td>*Preliminary Engineering</td>
<td>$ 12,000</td>
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<td>*Approach Roadway Touchdown</td>
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<td>Structure Items (retrofitting)</td>
<td>96,000</td>
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<td>Detour/Stage Construction</td>
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<td>Bridge Removal</td>
<td>10,000</td>
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<td>*Construction Engineering</td>
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<tr>
<td><strong>Total</strong></td>
<td>$ 118,000</td>
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</table>

**PROPOSED ADVERTISING DATE:** FY 83-84

**AGENCY PROVIDING R.E. FOR BRIDGE WORK:** City of Los Angeles

**REMARKS:**

*Complete when funded by Highway Bridge Replacement and Rehabilitation Program.

FIGURE H 1436
Submit this form is optional. The form shall be filed with the County Clerk, 111 No. Hill St., Los Angeles, California 90012, pursuant to Public Resources Code Section 21152(b). Pursuant to Public Resources Code Section 21166(d), the filing of this notice starts a 35-day statue of limitations on Court challenges to the approval of the project. Failure to file this notice with the County Clerk results in the statue of limitations being extended to 180 days.

### Lead City Agency

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Log Reference</th>
</tr>
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### Project Location

**Description of Nature, Purpose, and Beneficiaries of Project:**

### Name of Person or Agency Carrying Out Project, If Other Than Lead City Agency:

### Contact Person

<table>
<thead>
<tr>
<th>Area Code</th>
<th>Telephone Number</th>
<th>Ext.</th>
</tr>
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</table>

### Exempt Status: (Check One)

- **Ministerial**
  - Art. III, Sec. 2b
  - Sec. 15073
- **Declared Emergency**
  - Art. III, Sec. 2a(1)
  - Sec. 15071(a)
- **Emergency Project**
  - Art. III, Sec. 2a(2) & (3)
  - Sec. 15071(b) & (c)
- **General Exemption**
  - Art. III, Sec. 1
  - Sec. 15060
- **Categorical Exemption**
  - Art. VII, Sec. 1
  - Sec. 15100
  - Class Category (City CEQA Guidelines)
- **Other**
  - (See Public Resources Code Sec. 21080(b) and set forth state and city guideline provision.)

### Justification for Project Exemption:

### If Filed by Applicant, Attach Certified Document of Exemption Finding.

<table>
<thead>
<tr>
<th>Signature</th>
<th>Title</th>
<th>Date</th>
</tr>
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</table>

**Fee:** $25.00

**Receipt No.**

**Rec’d By**

**Date**
GUIDE FOR AN ENVIRONMENTAL IMPACT ANALYSIS

The environmental impact analysis should conform to the City guidelines for Notice of Exemption.

The minimum elements of an EIA are:

1. **Project Description**
   
   Included in this section would be the location of the project, description of existing improvements, street classification, description of proposed improvements and R/W requirements. Maps (8½" X 11"), typical sections and photographs should be included when needed for adequate clarity.

2. **Purpose of Project**
   
   Explain why the project is necessary. Make reference to the existing adverse conditions that will be improved by project implementation. State how the project will improve existing conditions.

3. **Environmental Impact**
   
   Describe the area adjacent to and around the proposed project. Make reference to the type and extent of development in the area of the project (include zoning). State and support what effects the project will have on local air quality, noise, and traffic (quantity and composition). State what effects there will be on existing structures (removals, relocations, condemnations, etc.). State what vegetation will be removed (state name, size and quantity to be removed). State what steps are being taken to mitigate loss of structures or vegetation (relocation assistance, payment, tree or shrub...
planting, etc.). State the effects of the construction phase of the project (how will these effects be minimized). Discuss growth inducing effects.

4. **Basis for Notice of Exemption**

   State reasons why the project will not have a significant effect upon the environment.

Prepared by: Name
Title
Office

FIGURE H 151B
Sheet 2 of 2
## PROJECT CONTROL CHECKLIST

### PROJECT:

---

### W.O.

---

### PROJECT ENGR:

(DESIGN)

---

### PROJECT ENGR:

(CONST.)

---

### PLAN NO.:

---

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<th>SUBMITTED OR REQUESTED</th>
<th>APPROVED OR COMPLETED</th>
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### DESIGN PHASE:

Begin Design
R/W Joint Field Trip
Prelim. R/W Req.
Prelim. Cultural Affairs
# PROJECT CONTROL CHECKLIST

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**PROJECT CHECKLIST COMPLETED:**

(SECTION LEADER) ___________________________ (DATE) ___________________________

Sheet 2 of 3
## FILING OF OTHER ITEMS REGARDING THIS PROJECT

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<thead>
<tr>
<th>Item</th>
<th>Where and If Filed</th>
<th>Date of Item</th>
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<td>Preliminary Engineering Report</td>
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<td>Work Order Request Form</td>
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<td>Preliminary Cost Estimate</td>
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<td>Structural Calculations</td>
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<td>Project Construction Plans</td>
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<td>Project Reference Material</td>
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<td>Correspondence</td>
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<tr>
<td>Contact Memos (telephone &amp; personal)</td>
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<td>Quantity Take-Offs</td>
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</table>

Sheet 3 of 3
REQUEST FOR FIELD WORK

(Survey No. __________) 2 January 17, 1988

ENGINEER OF SURVEYS

In connection with [Russ Canyon Boulevard Bridge Widening over Dry Wash]

Between Fagnan Drive and Humor St. Work Order No. 00001

Please make [Preliminary, Control, Construction, Special] Activity 42.101 Sub Activity __________

The existing bridge and channel as follows:

1. Profiles along lines 40 feet east and west of the street centerline from 75 feet south of bridge to 75 feet north of bridge.
2. Elevations of the north and south bridge abutments including portions of channel walls adjoining them on each side as shown on the enclosed sketch.

Purpose of Survey: Data necessary for bridge widening.

References DL 2231
Field Book 29835, 29836
Profile P-26531
District Map 7353, 7354
Division No. 1060
Footage __________
Cadastral Dist. __________

Project Engineer: (Name) Tel. 485-4567

Division Engineer, Struc. Eng. Div. (Name) Phone Extension 3871

INSTRUCTIONS

1. To be filled in by Survey Office.
2. Date requested by Design Office.
3. Official Work Order Title and Number.
4. Refer to "Major Activity Manual" No. 5.910.
5. Job Limits, by station, intersecting streets, etc. If intersecting streets are used to describe limits, the survey will begin and end at the centerline of mentioned streets unless otherwise requested. Include limits of width, such as curb to curb or west half only, etc. State Profile Plan stationing if desired.
6. Brief description of purpose, such as: replace concrete gutters, design fire station, etc. Also any information that may save field time. Preferably attach sketch.
7. Field Book numbers of existing horizontal control.
8. Field Book numbers of existing Survey Profiles or Al Topo Maps.
9. Signature, Division/District, and phone number of requesting office.
Date:  

To: William R. Hansen, Division Engineer  
Construction Division  
Attention: Geotechnical Services Engineering Section  

From: Rodney K. Haraga, Division Engineer  
Structural Engineering Division  

Subject: W.O.  

This project provides for the construction of the following:  

Attached are plans showing layouts and details, as well as, pertinent design information, for the proposed construction as follows:  

1.  
2.  
3.  
4.  
5.  
6.  

Please prepare a soil report furnishing the information checked on the attached form(s).  

The priority of this project is ( ) routine  
( ) emergency  

Please return a preliminary report to this Division by  

Please return the final report to this Division by  

Access to the project site is controlled by:  

Name:  

Address:  

Permission for access ( ) must be applied for by your office.  
( ) has been obtained; three copies included.  
( ) has been applied for and is pending.  

For further information, please contact _______ of this Division, extension _______.  

FIGURE H 152.33A
REQUESTED SOIL REPORT INFORMATION AND RECOMMENDATIONS

ORINGS

) Complete boring logs, giving locations, top elevations with datum, soil description according to the Unified Soil Classification System, ground water data, and significant field observations.

AB TEST DATA

) In-place field density
) Chemical analysis for sulfates
) Chemical analysis for chlorides
) Angle of internal friction for design
) Other:

SLOPES OF CUTS AND FILLS

) Max. allowable height of temporary vertical cuts in exist. soils
) Max. allowable (temporary/permanent) cut slope in exist. soils
) Max. allowable slope for fills
) Slope stabilization or special slope treatments
) Recommended treatment of incompetent soils
) Other:

WATER

) Necessity and method of dewatering for construction
) Necessity and method of permanent site drainage and subdrainage
) Measures to prevent erosion damage
) Use of flooded or jetted backfill
) Other:

DESIGN SOIL PROPERTIES (Both above and below GWT when applicable)

) Passive E.F.P. for (temporary shoring/permanent retaining walls)
) Active E.F.P. for (temporary shoring/permanent retaining walls)
(backend slopes are: )
) Coefficient of friction for base of footing
REQUESTED SOIL REPORT INFORMATION AND RECOMMENDATIONS

SPREAD FOOTINGS

( ) Bearing pressure per foot of depth and maximum allowable
  (exclusive of weight of earth over footings and displaced
  earth)
( ) Minimum depth of spread footings
( ) Other:

PILE FOUNDATIONS

( ) Recommended pile types
( ) Anticipated problems in drilling or driving piles
( ) Vertical load capacity vs. depth of embedment curves
( ) Uplift load capacity vs. depth of embedment curves
( ) Minimum depth or penetration of piles
( ) Allowable skin friction for drilled cast-in-place piles
  (exclusive of weight of pile)
( ) Lateral soil pressure values for short, stiff piles
( ) Lateral pile load capacity (DL+LL shears and bending moments)
  for flexible piles using 1/4-inch maximum lateral deflection
( ) Lateral pile load capacity (seismic shears and bending moments)
  for flexible piles based on shear strength of soil (please
  indicate estimated deflection and recommend a factor of safety
  for (credible/probable/Building Code/State spectra) earthquakes
  and whether maximum or average peak acceleration
( ) Minimum pile spacing and group action reduction in load capacity
( ) Other:

SETTLEMENT AND CONSOLIDATION

( ) Total anticipated (fill/foundation) settlement due to
  (a) Live Load
  (b) Dead Load
( ) Time interval for initial and final settlement of the (fill/
  foundation)
( ) Other:
REQUESTED SOIL REPORT INFORMATION AND RECOMMENDATIONS

ZOLOGICAL DATA

) Geological conditions affecting project (adverse bedding planes, competency of bedrock and overlying soils, etc.)
) Special geological properties of site (oil bearing sands, compressible layers, groundwater intrusion, etc.)
) Archaeological or natural environmental characteristics (fossils, relics, historical or natural features)
) Other:

SEISMIC DESIGN DATA

) Seismicity of site (proximity of faults, degree of ground shaking, potential for liquefaction, etc.)
) Design response spectra for (probable/credible) earthquakes
) Depth to bedrock for use in Caltrans design response spectra
) Other:

RKH
## STRUCTURE TYPE SELECTION FORM (STSF)

**Project Title**

**W.O.** Date

**Types Considered** (Include numbered sketch of each type)

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**Type Selected** 1 2 3 4 5 6

**Reason for Selection** (If bridge structure, give reasons for selection of foundation and superstructure type)

---

Submitted by: ____________________________

Project Engineer Date

Reviewed by: ____________________________

Senior Engineer Date

Approved by: ____________________________

Division Engineer Date

Structural Engineering Division

2B:15

FIGURE H 152.42
APPLICATION FOR PERMIT

STATE OF CALIFORNIA

CALIFORNIA COASTAL COMMISSION
SOUTH COAST REGIONAL COMMISSION
666 E. OCEAN BOULEVARD, SUITE 3107
P.O. BOX 1450
LONG BEACH, CALIFORNIA 90801
(213) 590-5071 (714) 846-0648

INTRODUCTION: Every question in this application must be answered. Only this form will be accepted. No individual typed versions will be accepted.

SECTION I. Applicant
1. Name, address and telephone number of applicant:

______________________________
______________________________
______________________________
Zip (Area Code/Telephone Number)

2. Name, address and telephone number of applicant's representative, if any:

______________________________
______________________________
______________________________
Zip (Area Code/Telephone Number)

SECTION II. Summary of Proposed Development and Project Location
3. Describe the proposed development, also all improvements such as utilities, roads, etc. as well as demolition or removal of existing structures.

______________________________
______________________________
______________________________

4. Description of project location (street address, city or county, nearest roads, etc.) and assessor's parcel numbers.

______________________________

5. Has this property ever had an application submitted to the Coastal Commission? If yes, state previous application number(s).______________________________

TO BE FILLED IN BY COMMISSION:

APPLICATION NUMBER __________________________

FILING FEE $ __________________________

DATE RECEIVED __________________________

PUBLIC HEARING DATE
(Not less than 21 days nor more than 42 days after filing date.)

DATE FILED __________________________

8-24-77

Figure H 153B
Sheet 1 of 7
SECTION III. Description of Proposed Development

6. Present use of property. If residential state number of units.

7. If construction requires demolition and/or removal of existing structures state type and age of structure to be demolished.

8. Nature of proposed development. If residential state number of units and unit mix, (number of 1-bedroom, 2-bedroom, etc. units).

9. Describe present zoning and general plan designations of the property. Explain whether the proposed project is consistent with zoning and local plans.

10. Project Height: From average finished grade (AFC) ft.
     From centerline of frontage road (CFR) ft.
     Height of any structure above roofline of highest habitable floor ft.

11. Total number of floors including subterranean floors, lofts and mezzanines.

12. Gross structural area including parking and accessory buildings.

13. Lot area (within property lines) sq. ft.

14. Number of parking spaces covered open
     primary size tandem size

15. The setbacks required by the local agency for development on the property:
     Front: Rear: Sideyard:
     Explain any variance issued for compliance with above requirements.

16. Estimated cost of the development.

SECTION IV. Detailed Description of Development

The relationship of the development to applicable items below should be explained fully. Attach additional sheets if necessary.

17. Will the development extend onto or adjoin any beach, tidelands, submerged lands or public trust lands?

18. Will the development maintain, enhance, or conflict with public access to the shoreline and along the coast?
19. Will the development protect existing lower cost visitor and recreational facilities? Will it provide public recreational opportunities?

20. Will the development protect or provide low and moderate income housing opportunities? Will it displace low or moderate income housing?

21. Will alternatives to private vehicle use be provided or facilitated? How will the development affect traffic on coastal access roads?

22. Describe current location of service lines for necessary utility connections and any necessary extensions or relocations of service lines.

23. What water conservation features are included in the project?

24. Does the development involve diking, filling or dredging of open coastal waters, wetlands, estuaries or lakes? What alternatives are available? How will the adverse environmental effects of this be minimized?

25. How will the development affect biological productivity of coastal waters?

26. Describe how grading will be conducted so as to minimize alteration of landforms? If on a bluff or in an area of high geologic risk, how will the project design assure stability and minimize erosion? (See Item 9, page 6)

27. Is the development proposed within or in close proximity to an existing developed area? Will it be visually compatible with the character of surrounding areas? If in a special community or neighborhood, how will it protect unique local character?

28. Is the proposed development coastal dependent? Will it displace any coastal-dependent facilities?
Is the development proposed near sensitive habitat areas, parks or recreation areas? How will the project design prevent adverse environmental impacts on these areas?

Is the development proposed within or adjoining land suitable for agriculture? Will it convert agricultural land to another use? How is the project consistent with continued local agricultural viability?

Is the development proposed within or near a known archeological or paleontological site? If the project will adversely impact such a site, what mitigation measures are proposed?

List all permits, permissions or approvals required from public agencies for this development and indicate those applied for or granted. (See Item 4, page 4.)

V. California Environmental Quality Act/Project Status

Check one of the following:

a. Categorically Exempt Class: Item:
   Describe exemption status and date granted:

b. Date Negative Declaration Status granted:

c. Date Environmental Impact Report approved:

VI. Attachments

The following items must be submitted with this form as part of the application.

Verification of the applicant's interest in the property, such as a copy of current tax bill, grant deed, leasehold agreements, escrow instructions signed by both parties (buyer and seller) or certified escrow instructions, or title report.

An assessor's parcel map of the property.

Local government verification of consistency with local requirements, such as an issued building permit, letter or Regional Commission "Preliminary Approval" form completed by an appropriate local government official, and, for all land divisions or condominium conversions, an approved tentative tract map including minutes of the Planning Commission meeting with conditions assigned. Any use permit or variance granted as part of this approval as well as all conditions imposed on it must be included with this verification.

In addition to verification of local government approval in Item 3 above, documentation of all other permits, permissions or approvals granted by public agencies must be attached to this application. All conditions imposed on these approvals must be included. "Public Agencies" include cities, counties, regional agencies, redevelopment agencies, air pollution control districts, State Regional Water Quality Control Boards, State Lands Commission and U.S. Army Corps of Engineers. Where septic systems are proposed local health department or Regional Water Quality Control Board approval should be provided.
5. Materials for notification of nearby property owners/occupants:

a. Notification for owners of record:
   1. A separate list of all property owners of record within 100 feet from all boundary edges of the applicant's property.
   2. A sketch as per the attached sample which depicts the surrounding properties within 100 feet as noted above (show correct dimensions of each lot), and indicate thereon the name and address of each property owner. (Note: Streets and other public right-of-ways are not to be included as part of the 100 feet.)
   3. A list of names and addresses of all other parties known to the applicant to have an interest in the proposed development.
   4. One stamped, plain business-letter sized envelope addressed to each of the above owners of record and other interested parties. Each address shall include zip code. No meter stamps will be accepted.

b. Notification for occupants:
   1. A separate list of all known addresses including each apartment, suite, business location, lease space, leasehold, etc., within 100 feet from all boundary edges of the applicant's property.
   2. One stamped, plain business-letter sized envelope addressed to "Occupant" at each of the above noted locations. Each address shall include zip code. No meter stamps will be accepted.

The applicant shall also place a legend on the front of each and every envelope including the words "IMPORTANT. PUBLIC HEARING NOTICE". The Executive Director has provided an appropriate stamp for the use of applicants in the Regional Commission office. The legend shall be legible and of sufficient size to be reasonably noted by the recipient of the envelope.

These lists shall be part of the public record maintained by the Regional Commission for the application.

Names and addresses of property owners are available in County Assessors' offices and some Recorders' offices. Applicants should make every effort to verify that the names of present property owners are provided to the Regional Commission staff. Public copies of assessors' tax rolls sometimes do not reflect recent sales. Inability of the staff to notify present owners and occupants of your application and scheduled hearing may result in delay of the hearing or in the voiding of any permit issued to you as a result of that hearing.

The shaded lots on each example indicate those lots that must be notified due to the relative location of the lots from the applicant's property (100' not including public easements). Lots which are only partially within the 100' notification distance have been shaded completely to indicate that notification is required.
Development location and vicinity maps. Maps should show precisely where the development is proposed and present land and water uses in the project vicinity. U.S. Geological Survey 7 1/2 minute series quadrangle map, Thomas Brothers map, road map, or any area map prepared by local governments may provide a suitable base map.

LAND DIVISIONS ONLY: To determine the average size of the surrounding parcels, submit county engineer lot maps and/or county assessor maps of all legally subdivided parcels lying all or in part within a half-mile perimeter of the proposed land division.

Project plans (2 sets each), for all work proposed including:

a. A site plan of all proposed work, including structures to be removed or demolished and parking plan.

b. Floor plans for all proposed buildings and elevations of all proposed structures. Floor plans of entire existing structures are required where additions are proposed. Show all dimensions on floor and elevation plans.

c. Grading and drainage plans. Grading plan should show existing and proposed contours, state amount of proposed excavation and fill and specify any necessary borrow or deposition sites. Drainage plans should show drainage pattern for all runoff from the site, location of swales, ditches and culverts, and specify size of all drainage structures.

d. Plans for all necessary utility service line extensions and any proposed energy conservation measures.

e. For properties which front the water (except Redondo Beach, Hermosa Beach, Manhattan Beach and El Porto): Submit a dimensioned plot plan drawn to scale (1/8" = 1' or 1" = 10') delineating the proposed development in relationship to adjacent developed parcels (plot all undeveloped parcels between the proposal and next developed site).

On the seaward side of the projects (proposed and adjacent) detail the following: pile and foundation locations, structural walls, decks, and roof extensions (overhangs). Dimensions which relate to the seaward extension of the projects (proposed and adjacent) must be referenced to the landward property line.

A single copy Negative Declaration and 18 copies of any Environmental Impact Report or Environmental Impact Statement prepared for the project. Comments of all reviewing agencies and responses to them should be included.

If the development is proposed on a bluff face, bluff top or in an area of high geologic risk, a comprehensive, site-specific geology and soils report must be submitted. This specifically includes, but is not limited to, the following areas: Santa Monica Mountains, Pacific Palisades, Palos Verdes Hills, Orange County coastal hills, and all developments that are to be constructed within 50 feet of the ocean bluff edge of properties in both Los Angeles and Orange Counties.

FOR MALIBU ONLY: Submit a Geologic Review Sheet from Los Angeles County.

SECTION VII. Development's Consistency With California Coastal Act of 1976

The California Coastal Act of 1976 provided in Public Resources Code Section 30604(a) that a coastal development permit shall be issued if the Regional Commission finds that the proposed development is in conformity with the provisions of Chapter 3 of the Act and will not prejudice the ability of the local government to prepare a local coastal program that is in conformity with the provisions of Chapter 3 of the Act.

Please explain whether the proposed development is consistent with these requirements of law. Use additional paper if necessary.
2. In your opinion does this application qualify for an administrative permit (project does not exceed $25,000 for alterations or modifications; does not exceed $20,000 for new projects) pursuant to Section 30624 of the Public Resources Code? If so why?

SECTION VIII. Certification

1. I hereby certify that I or my authorized representative will complete and post the "Notice of Intent" form furnished me by this Commission in a conspicuous place on the development property upon receipt of said notice from the Regional Commission.

2. I hereby certify that to the best of my knowledge the information in this application and all attached exhibits is full, complete, and correct, and I understand that any misstatement or omission of the requested shall be grounds for denying the permit, for suspending or revoking a permit issued on the basis of these or subsequent representations, or for the seeking of such other and further relief as may seem proper to the Commission.

Signature of Applicant(s) or Agent

SECTION IX. Authorization of Agent

I hereby authorize _______________________________ to act as my representative and bind me in all matters concerning this application.

Signature of Applicant(s)
APPROVAL IN CONCEPT

as required for permit application to the California Coastal Commission, South Coast Region pursuant to California Administrative Code, Sections 13210 and 13211.

COMPLETE Description of Proposed Development:

Property Address:

Legal Description:

Zone:

Applicant(s):

Applicant's Mailing Address:

Applicant's Telephone Number:

I have reviewed the plans for the foregoing development including:

1. The general site plan, including any roads and public access to the shoreline,
2. The grading plan, if any,
3. The general uses and intensity of use proposed for each part of the area covered in the application,

and find,

They comply with the current adopted City or County General Plan, Zoning Ordinance, Subdivision Ordinance, and any applicable specific or precise plans, or

That a variance or exception has been approved and is final.

A copy of any variance, exception, conditional use permit, or other issued permit is attached together with all conditions of approval and all approved plans including approved tentative tract maps. On the basis of this finding, these plans are approved in concept and said approval has been written upon said plans, signed, and dated.

Figure H 153C

Sheet 1 of 2
uld this City or County adopt an ordinance deleting, amending, or adding the Zoning Ordinance or other regulations in any manner that would affect use of the property or the design of a project location thereon, this approval in concept shall become null and void as of the effective date of this said ordinance.

accordance with the California Environmental Quality Act of 1970, and site and local guidelines adopted thereunder, this development:

_____ Has been determined to be ministerial or categorically exempt.

_____ Has received a final Exemption Declaration for final Negative Declaration (copy attached).

_____ Has received a final Environmental Impact Report (copy attached)

is concept approval in no way excuses the applicant from complying with applicable policies, ordinances, codes, and regulations of this City County.

I hereby certify that all information contained in this approval in concept is correct and that all discretionary approvals legally required of this City or County prior to issuance of a building permit have been given and are final. The development is not subject to rejection in principal by this City or County unless a substantial change in it is proposed.

______________________________
Planning Director

BY: ____________________________

Printed Name and Title of Individual Signing

DATE: __________________________

Attachments:

Figure H 153C
Sht. 2 of 2
COASTAL DEVELOPMENT PERMIT

Application Number: P-2-25-77-26

Name of Applicant: City of Los Angeles, Department of Public Works

200 North Main Street, Room 600, Los Angeles, CA 90012

Permit Type: □ Emergency
☒ Standard (Amendment)
□ Administrative

Development Location: Pacific and Bel Corso, Marina Peninsula area of Venice, CA

Development Description: Amendment to previously approved permit with conditions. Permit was to construct chain link fence barricades at each end of Lighthouse Street and Outrigger Street bridges over Ballona Lagoon at Pacific Avenue. Permit amended to permit demolition of Outrigger Street bridge and change type of barricade to effective and feasible barricade to Lighthouse Bridge:

I. The South Coast Commission finds that:

A. The proposed development, or as conditioned, is:

1. In conformity with the provisions of Chapter 3 of the California Coastal Act of 1976 and will not prejudice the ability of local government to prepare a local coastal program in conformity with said chapter.

2. If located between the nearest public road and the shoreline of any body of water in the coastal zone is in conformity with public access and public recreation policies of Chapter 3, California Coastal Act of 1976.

3. That there are/are no feasible alternatives, or feasible mitigation measures, as provided in the California Environmental Quality Act, available which would substantially lessen any significant adverse impact that the development as finally proposed may have on the environment.

Figure H 153D
Sheet 1 of 2
The proposed development is subject to the following conditions imposed pursuant to the California Coastal Act of 1976:

Prior to issuance of permit, and in order to comply with the public access requirements of Section 30213 of the Coastal Act, the applicant shall, by a signed agreement, agree to repair the bridges within two years and reopen them to pedestrian traffic. Amended to apply only to the Lighthouse Bridge.

Condition/s Met On June 24, 1977 By 1h

Whereas, at a public hearing, held on April 25, 1977 at Torrance by a 9 to 0 vote permit application number P-2-25-77-26 is approved.

This permit may not be assigned to another person except as provided in Section 13170, Coastal Commission Rules and Regulations.

This permit shall not become effective until a copy of this permit has been returned to the Regional Commission, upon which copy all permittees or agent(s) authorized in the permit application have acknowledged that they have received a copy of the permit and have accepted its contents.

Work authorized by this permit must commence within two years from the date of the Regional Commission vote upon the application. Any extension of time of said commencement date must be applied for prior to expiration of the permit.

Issued on behalf of the South Coast Regional Commission on June 24, 1977.

M. J. Carpenter
Executive Director

Permittee/agent, hereby acknowledge receipt of Permit Number P-2-25-77-26 and have accepted its contents.

(date) (signature)
STEPS FOR COMPLETING A BUILDING PERMIT APPLICATION

1. Fill out application (numbered items 2 through 15)
2. Take application to Room 460, Counter M for address approval
3. Take application to Room 460, Counter T for zoning approval
4. Take completed application to Counter C for filing of plan approval

APPLICATION FOR INSPECTION

TO ADD-ALTER-REPAIR-DEMOLISH AND FOR CERTIFICATE OF OCCUPANCY

APPLICATION CITY OF LOS ANGELES DEPT. OF BUILDING AND SAFETY

INSTRUCTIONS: 1. Applicant to Complete Numbered Items Only.

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| 14. VALUATION TO INCLUDE ALL FIXED |
| EQUIPMENT REQUIRED TO OPERATE |
| AND USE PROPOSED BUILDING |

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| GROUP |
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| FLOOR AREA |

| TOTAL |
| PLANS CHECKED |
| APPLICATION APPROVED |
| FILE WITH |

| PLANS CHECKED |
| APPLICATION APPROVED |
| FILE WITH |

| INVESTIGATION |
| ACTIVITY |
| INSPECTOR |

| P.C. |
| G.P. |
| CONT. |
| INSP. |

| 3. P.C. |
| P.M. |
| SPRINKLERS |
| REQ. |
| SPECIFIED |

| 8.P. |
| E.I. |

| 1.F. |
| F. |

| 0.R. |
| S.S. |

| DIST OFFICE |
| 5.0.5.5. |

| P.C. NO. |
| 5.0 |

| ENERGY |
| CONSERVATION |
| APPROVED FOR ISSUE |
| NO FILE |
| FILE CLOSED |

FIGURE H 154.141
Date:
RE:

This Bureau is currently preparing plans for bridge construction at the location indicated above. The scope of this work is shown on the two enclosed prints of a preliminary plan.

Please indicate your existing facilities. Show the desired locations of any proposed facilities in the area or any relocations needed for the construction of this project. Return one marked print as soon as possible to the Structural Engineering Division, Room 600, City Hall East, 200 North Main Street, Los Angeles, California 90012.

Sincerely,

ROBERT S. HORII
City Engineer

By

RODNEY K. HARAGA, Division Engineer
Structural Engineering Division

RKH
Enclosure

cc: Letter File (1)
### DRAFTING STANDARDS

#### CROSS-SECTION SYMBOLS

<table>
<thead>
<tr>
<th>Material</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>![Steel Symbol]</td>
</tr>
<tr>
<td>Concrete block</td>
<td>![Concrete Block Symbol]</td>
</tr>
<tr>
<td>Aluminum</td>
<td>![Aluminum Symbol]</td>
</tr>
<tr>
<td>Sand</td>
<td>![Sand Symbol]</td>
</tr>
<tr>
<td>Timber</td>
<td>![Timber Symbol]</td>
</tr>
<tr>
<td>Rock</td>
<td>![Rock Symbol]</td>
</tr>
<tr>
<td>Brick (common)</td>
<td>![Brick Symbol]</td>
</tr>
<tr>
<td>Earth</td>
<td>![Earth Symbol]</td>
</tr>
</tbody>
</table>

#### TYPE AND SIZE OF LETTERING

<table>
<thead>
<tr>
<th>Subject</th>
<th>Type</th>
<th>Letter Size</th>
<th>Pen Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titles on first sheet (including Structural Notes, Design Data, Key Map, Index to Sheets, Notice to Contractor, etc.)</td>
<td>m,p</td>
<td>240</td>
<td>3</td>
</tr>
<tr>
<td>Text of the following on first sheet:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Notes</td>
<td>f,t</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Data</td>
<td>f,t</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index to Sheets</td>
<td>m,p,t</td>
<td>120</td>
<td>0</td>
</tr>
<tr>
<td>Project Title, Work Order Number</td>
<td>m,p</td>
<td>175</td>
<td>2</td>
</tr>
<tr>
<td>Sheet Title</td>
<td>m,p</td>
<td>175</td>
<td>2</td>
</tr>
<tr>
<td>Sheet numbers</td>
<td>m,p</td>
<td>175</td>
<td>2</td>
</tr>
<tr>
<td>North arrow</td>
<td>p</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Street and channel names (all capitals)</td>
<td>f,p</td>
<td>200</td>
<td>2</td>
</tr>
<tr>
<td>Detail titles:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual titles</td>
<td>m,p</td>
<td>200</td>
<td>2</td>
</tr>
<tr>
<td>General title for more than one detail</td>
<td>m,p</td>
<td>240</td>
<td>3</td>
</tr>
<tr>
<td>Scales</td>
<td>m,p</td>
<td>120</td>
<td>0</td>
</tr>
<tr>
<td>Notes on structural details</td>
<td>f</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Refer to Subsection H161.22 for explanation of lettering types.

Figure H.161.22
## LINE CONVENTION

<table>
<thead>
<tr>
<th>LINE SIZE</th>
<th>TYPE</th>
<th>SYMBOL</th>
<th>USES OF LINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2' dash + 1/8&quot; dash</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Centerline and transitline (label except L on plan)</td>
</tr>
<tr>
<td>2' dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Extension, dimension, and leader lines</td>
</tr>
<tr>
<td>3/4&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Station lines</td>
</tr>
<tr>
<td>3/4&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Existing contours</td>
</tr>
<tr>
<td>3/4&quot; dashes</td>
<td>Dashes as shown</td>
<td>N — N</td>
<td>Radial lines, match lines, pavement elevation section lines</td>
</tr>
<tr>
<td>1/4&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Proposed contours</td>
</tr>
<tr>
<td>1/4&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Non-street easement lines</td>
</tr>
<tr>
<td>1/4&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Cross hatching or screen</td>
</tr>
<tr>
<td>Various</td>
<td>Various</td>
<td>See Std. Plan &amp; Fig. H 512.3A</td>
<td>Surface culture and improvements, existing substructures</td>
</tr>
<tr>
<td>1/2&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Steel reinforcement (dots not within line break)</td>
</tr>
<tr>
<td>1&quot; dash + 2-1/6&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>City boundary line (label)</td>
</tr>
<tr>
<td>2&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Existing or proposed non-street easement lines (label)</td>
</tr>
<tr>
<td>2&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Structural outline, gutter, walk, driveway, pavement</td>
</tr>
<tr>
<td>3/4&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Log of test boring, proposed ground line</td>
</tr>
<tr>
<td>1/8&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Existing structures, hidden lines</td>
</tr>
<tr>
<td>1/8&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Property lines, street easement lines</td>
</tr>
<tr>
<td>1/8&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Existing sewers and storm drains</td>
</tr>
<tr>
<td>2&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Future curb (label)</td>
</tr>
<tr>
<td>2&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Existing or proposed ground line (label)</td>
</tr>
<tr>
<td>3/4&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Existing ground line (label)</td>
</tr>
<tr>
<td>2&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>IDENTICAL line</td>
</tr>
<tr>
<td>3/4&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Existing house connections, drains</td>
</tr>
<tr>
<td>3/4&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Existing or proposed street property lines (label)</td>
</tr>
<tr>
<td>2&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Future property lines (label)</td>
</tr>
<tr>
<td>2&quot; dash + 2-1/8&quot; dashes</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>City boundary line (label)</td>
</tr>
<tr>
<td>2&quot; dash + 1/8&quot; dash</td>
<td>Solid</td>
<td>— — — — — — — — —</td>
<td>Assessment boundary line (label)</td>
</tr>
</tbody>
</table>

**NOTE:** Line sizes are given in millimeters, inches, and Rapidograph numbers.