

2-2.6 Construction Details

The construction detail sheet supplies supplementary information that cannot be shown on the layout plan sheets because of complex and extensive details required. Drawings on the construction detail sheets should typically depict greater details of items shown on the layouts. Do not use the construction detail sheets as a way of creating a second set of complete layout plan sheets. Utilize construction details to enlarge spot locations to more clearly show the pertinent information. The details shown on the construction detail sheet are unique to a specific project and are those for which there are no Standard Plans or may be a detail from a standard plan which must be modified to fit site conditions. If the project requires only a small number of plan sheets and space is available on the layouts, then the construction details can be shown on the layouts.

Standard Plan details are never to be included as part of the contract plans unless a Standard Plan detail is being modified. When a small part of a Standard Plan drawing must be modified and included in the project plans, only the affected dimensioning should be shown and a reference made to the applicable Standard Plan sheet. If a Standard Plan drawing needs substantial modification and is included in the project plans, the modified detail should be fully dimensioned and no reference made to the associated standard plan for additional dimensioning.

Some drawings on the construction detail sheets are not drawn to a specific scale. Drawings are usually drawn at a one to one proportion, but then enlarged to fit the border sheet. These sheets are typically labeled "No Scale," except for the possible

inclusion of construction details such as curb returns (usually at a scale of 1"= 20'). Each curb return is to be shown as a construction detail. Items need to be fully dimensioned so that they are buildable and the quantities are calculable. For information on curb ramps, see the section on curb ramps in this chapter.

Curb return staking intervals for each curb return must include BCR and ECR. Depending on the length of curve, ¼, ½ and ¾ delta lines will need to be shown. See Table 12-2 in Section 12.5-8 of the Caltrans Construction Surveys Manual for additional information about staking intervals for various curve lengths at the curb flow line.

Examples of other construction items that may require construction details are curb and dike transitions, sidewalks, curbs, pavement surfacing conforms, and driveways. Details for other work (for example: drainage, signing, pavement delineation, etc.) are usually shown on their own detail sheets.

Pavement elevations may be shown on the construction detail sheets when it is pertinent to the detail. Pavement elevations generally will be required at large curb returns, some speed-change lanes and at transition areas that cannot be defined with information on the profiles and superelevation diagrams.

Standard drawings of other agencies, when applicable to the project, shall be included as part of the project plan set. If there is specification information on the standard drawings from other agencies, it must be removed to the specifications portion of the PS&E submittal. Referencing to a standard drawing number from another agency is not acceptable.

Curb Ramps

The design of curb ramps must meet current design policy and standards developed in accordance with the Americans with Disabilities Act of 1990. The design of curb ramps should meet the conservative design standards shown in the Caltrans Standard Plans. If site condition constraints do not allow meeting these conservative design standards, then the design standards set forth in Design Information Bulletin 82 (DIB 82) "Pedestrian Accessibility Guidelines for Highway Projects" provides the maximum accessible pedestrian design guidance for public rights of way applicable to the State Highway System (SHS).

The Department of Transportation is authorized to certify accessibility design compliance for all projects on State Rights-of-Ways (see DIB 82). For highway projects (where there is no building work) the project engineer and project manager are responsible for certifying accessibility design compliance at Ready To List (RTL). For transportation buildings and facilities on State Rights-of-Ways, the Office of Transportation Architecture (OTA) and/or the Office of Electrical, Mechanical, Water & Wastewater Engineering (TAEMWW) is responsible for certifying accessibility design compliance (see TAEMWW Memo To Designers 7-7.1).

The type of curb ramp used at each location in the project is to be identified and labeled on the layout plan sheets.

If the design of a curb ramp deviates from the Standard Plans, the design information is to be included with the associated curb return detail. Sometimes this detail will show obstacles or constraints that have to be

addressed (relocated) during the design phase. The modified slope and dimensions of the curb ramp must be shown. The necessary information to call out for each curb ramp on the construction detail will vary depending on the design complexity of the curb ramp and the existing site conditions. The following information is usually shown for curb ramps:

- Centerline of curb ramp
- Offsets shown with respect to BCR, ECR, $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$ delta lines (usually associated with the curb return)
- Slopes
- Elevations
- Cross slopes
- Pertinent dimensions for ramp, sidewalk and curbs

In most cases, it is not necessary to design to the maximum slopes and minimum dimensions of the accessibility standards (see Standard Plans for recommended and conservative curb ramp design). Do not use the term "maximum slope" or "minimum distance" on plan or detail sheets. Survey data should provide accurate design parameters.

If a curb ramp is modified from the Standard Plans, it must have a detail and be identified in tabular format. The curb ramp must be labeled as "modified." All modified curb ramps (except those odd shaped curb ramps that still meet the conservative design slopes and dimensions shown in the standard plans) will now have a new additional bid item associated with the construction of it. The bid item is "PRE/POST CONSTRUCTION SURVEYS." The specifications require that a minimum of three survey measurements be performed for the post construction survey for each dimension and slope requirement shown. See the Construction Policy Bulletin

on "American with Disabilities Act (ADA) Facilities Construction Inspection Guidance" for specifics on the type of equipment recommended to conduct the surveys. The Construction Inspection Guidance states "for both slope and dimension checks, take representative measurements equally dispersed across the surface in question." The contractor should work closely with the resident engineer to determine the exact locations/intervals when conducting the pre/post construction surveys.

Driveways

The design of driveways must be in accordance with the Highway Design Manual (HDM), Topic 205 – Road Connections and Driveways and the Standard Plans for driveways.

Typical design information that is usually shown for driveways:

- Driveway width
- Sidewalk width, if different from driveway width
- Elevations – top of driveway at beginning and ending, back of sidewalk at beginning and end of driveway, and at joins (see Standard Plans)
- X-dimension (see Standard Plans)
- Slope of driveway
- Cross slope of the pedestrian path on the driveway

For driveway details do not use the terms "maximum slope" or "minimum distance" on plan or detail sheets. Survey data should provide accurate design parameters.

For driveway crossings designed as part of the pedestrian route, the specifications

require that a minimum of three survey measurements be performed during the construction phase of the project for the appropriate driveway features. See the Construction Policy Bulletin on "American with Disabilities Act (ADA) Facilities Construction Inspection Guidance" for specifics on the type of equipment recommended to conduct the surveys. The Construction Inspection Guidance states "for both slope and dimension checks, take representative measurements equally dispersed across the surface in question." The contractor should work closely with the resident engineer to determine the exact locations/intervals when conducting the pre/post construction surveys.

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