CHAPTER 2
PROJECT PLANS

The purpose of Chapter 2 is to provide the designer with the policies and procedures to present design information on a final set of project plans.

This manual not only covers drafting standards for the presentation of the design of a project but also the policy and procedures related to the design and construction of a project. For more detailed information, refer to "Contract Plan Files" in Section 1-1.8 of this manual.

SECTION 2-1
POLICIES AND PROCEDURES FOR PREPARING PROJECT PLANS

2-1.0 Application of Plan Preparation Standards

The categories of plan preparation standards, as used in this manual, are defined as:

- *Boldface Standards* - Standards that are essential to produce a complete, concise and legal set of project plans. Boldface standards use the words "shall" or "must."
- *Underlined Standards* - Standards that are also important, but allow some flexibility to be compatible with the procedures and practices for the preparation of project plans. Underlined standards use the word "should."
- *Permissive Standards* - All standards other than boldface or underlined. Permissive standards use the word "may."

For a more detailed clarification of manual standards, see Section 1-1.2 of this manual.

2-1.1 Composition of Project Plans and General Preparation Procedures

Project plans contain plan sheets that are specific to that advertised project. Project plan sheets contain details and dimensions specific to the project work. Project plans are supplemented by the Caltrans Standard Plans. Do not include the drawing of a standard detail as it is shown in the Caltrans Standard Plans.

The project plans need only call out the name of that particular standard detail (example: HMA Dike, Type A), when applicable to the project. If a standard detail needs to be modified and included in a specific project, follow the instructions in "Use of Standard Plans" in Section 2-1.4 of this manual.

A set of project plans needs to be complete and concise and to clearly identify all bid items that a competent contractor can easily interpret and build. Eliminate extraneous information not directly related to that specific project plan sheet. Background topography should not generally be shown much beyond the right of way unless the design or construction of the project (or specific sheet) requires it. The ultimate goal is to communicate clearly with bidders, contractors, and the Resident Engineer.

All projects must have at least two sheets, a title sheet and one other sheet showing proposed work. A utility plan sheet may be a third sheet required for all projects, see Sections 2-1.8 and 2-2.13 of this manual.

The layouts are the base plan sheets and all plan sheet information can be shown on them. If the layouts become too crowded or cluttered, other plan sheets are to be used to clearly show the proposed work (i.e. drainage, pavement delineation, signing, etc).

Some projects do not need layouts to show the proposed work. If the typical cross sections, details and quantity sheets (along with the special provisions) clearly and concisely convey and explain the proposed work, then layouts (or any other plan sheets) may not be necessary.

When possible, group similar or inter-related bid items on the same plan sheets (i.e. pavement delineation and signing). The fewer and simpler the sheets, the more concise and understandable the final plans will be. However, avoid placing too much information on a plan sheet just to save paper. Make sure that all of the bid items shown on the plan sheet are under the purview of the individual signing and approving the sheet. If not, separate the bid items so each licensed individual is signing for the bid items under his/her purview.

Do not include plan sheets that do not contain work to be performed as part of the project, not even layouts, since it adds no value to the bidder or contractor and may cause confusion. Use break line symbols and gaps in stationing on the plan sheets to reflect the length of highway where no work is to be performed. Not all layout sheets will have corresponding drainage, utility, and pavement delineation sheets. If there is no work of that nature being performed on that portion of the project, do not show that kind of sheet for that length of highway. A good key map eliminates any confusion on the number of sheets for each type of plan sheet work (layout, drainage, pavement delineation, signing, etc.), and shows how these sheets are arranged.

All bid items must be clearly identified so quantities can be determined from the labeling and dimensioning on plan, profile or detail sheets. A bidder or contractor shall never be required or expected to scale from a hard copy print of the project plans in order to determine a quantity.

Labeling of bid items identified on plan, profile, and detail sheets must be consistent with the labeling as it appears in the quantity tables, the bid item list and special provisions. Quantities should be easy to identify, calculate and locate for all bid items.

In general, when identifying physical features, first describe the item, then the spacing, and then the total number of items (i.e. 10' steel poles @ 20' centers, total 4). See Section 2-1.3 for additional instructions for dimensioning and locating construction features.

Where stationing identifies bid items, plan sheets must include alignment lines so that plus stations or offset distances can be referenced to known stationing. Minor projects, designed using only post miles in place of stationing, must identify locations to a hundredth of a post mile. An alignment line labeled with post miles is to be shown in place of showing stationing.

If the quantity for the same bid item is shown on more than one type of plan sheet or quantity table (i.e. roadway, landscape or structures), the sub-totals from each quantity table are to be added together and displayed as a grand total on the quantity table most logically associated with that bid item (usually on the summary of quantities).

If there is a discrepancy between the project plans and the special provisions, the special provisions take precedence in any claim or disagreement between the contractor and the Department. When developing a set of project plans, the project engineer must keep in mind the special provisions and how these two parts complement each other. Do not add specifications on the plans. They belong in the project special provisions. Plans graphically show bid items and identify their locations. Specifications identify how a bid item is to be paid for and how it is to be constructed, installed, placed, etc.

Right of Way

Except for indeterminate right of way, as described herein, defined right of way must be shown on:

- The layout sheets of the project plans or if there are no layouts, the first set of plan view sheets. If there are no plan view sheets, then on the typical cross sections or first detail sheets.
- Other plan view sheets (in addition to the layouts), if the defined right of way has an impact on the work shown on those specific sheets.

Defined right of way, except indeterminate right of way, shown on a plan view sheet shall be depicted with a solid line and the R/W label above or below the line (not within Caltrans right of way) with no leader line and arrow.

With the exception of indeterminate right of way, plan view sheets that depict defined right of way lines are to include the following note, "FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE." Use of this note on all plan view sheets is necessary to notify subcontractors who typically perform work shown only on one particular type of plan sheet (example: Electrical Systems). These subcontractors typically do not receive the project layout sheets that include this note.

In some instances, the right of way will be indeterminate (i.e. right of way is by implied dedication – which basically means Caltrans does not own the property on which the highway is located). In these instances, the right of way lines are not to be shown, and the following note is to be placed on the layout sheets: "RIGHT OF WAY LIMITS ARE INDETERMINATE, AND ARE NOT SHOWN. THE CONTRACTOR MUST CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE FOR CONDITIONS OF USE PRIOR TO COMMENCING WORK."

The defined right of way note or the indeterminate right of way note, as applicable to the project, should be placed in the upper left corner of the plan view sheet. Do not use the indeterminate right of way note just because sufficient time was not allotted to properly research the right of way.

Railroad Involvement

Negotiations with railroad companies are usually long and involved. The District Right of Way Railroad Agent must be contacted early in the project design phase, if:

- An existing railroad facility (example: at-grade crossing, underpass, or overhead) is within the project limits or immediately adjacent to the project
- A new railroad facility is to be constructed within the project limits.

In most instances, when a railroad facility is shown on the title sheet of the project, it is generally for the purpose of geographical reference (identifiable point or landmark), but it may also indicate that railroad clearances need to be addressed. If a railroad facility is shown on the layout sheets of the project plans, then it would definitely indicate railroad involvement, directly or indirectly.

Railroad clearance will need to be addressed in those situations where project construction:

- Will impact traffic at any railroad grade crossing that is adjacent to or within the limits of highway construction
- Requires entry of railroad property for access to the work
- Involves the attachment of guard railing to the abutment of an underpass, jacking of a pipe beneath the railroad roadbed, or construction of fences adjacent to railroad property

If a railroad is shown on the title sheet of the project plans and project construction does not impact the railroad facility, as determined by the District Right of Way Railroad Agent, then railroad clearance could be in the form of a single page letter stating that there is no railroad involvement.

2-1.2 Drafting Standards

Good drafting can enhance and clarify the readability of the project plans. A perfectly engineered project is only perfect if it can be easily read and understood by the bidders, winning contractor and the construction inspector. While developing the project, the designer must always keep in mind the people who will read and interpret the plans.

Clarity and consistency are two of the important aspects of good drafting practices.

Consistency statewide in following Caltrans drafting standards (which augments basic drafting standards) when developing project plans will promote clarity and familiarity with all Caltrans advertised projects.

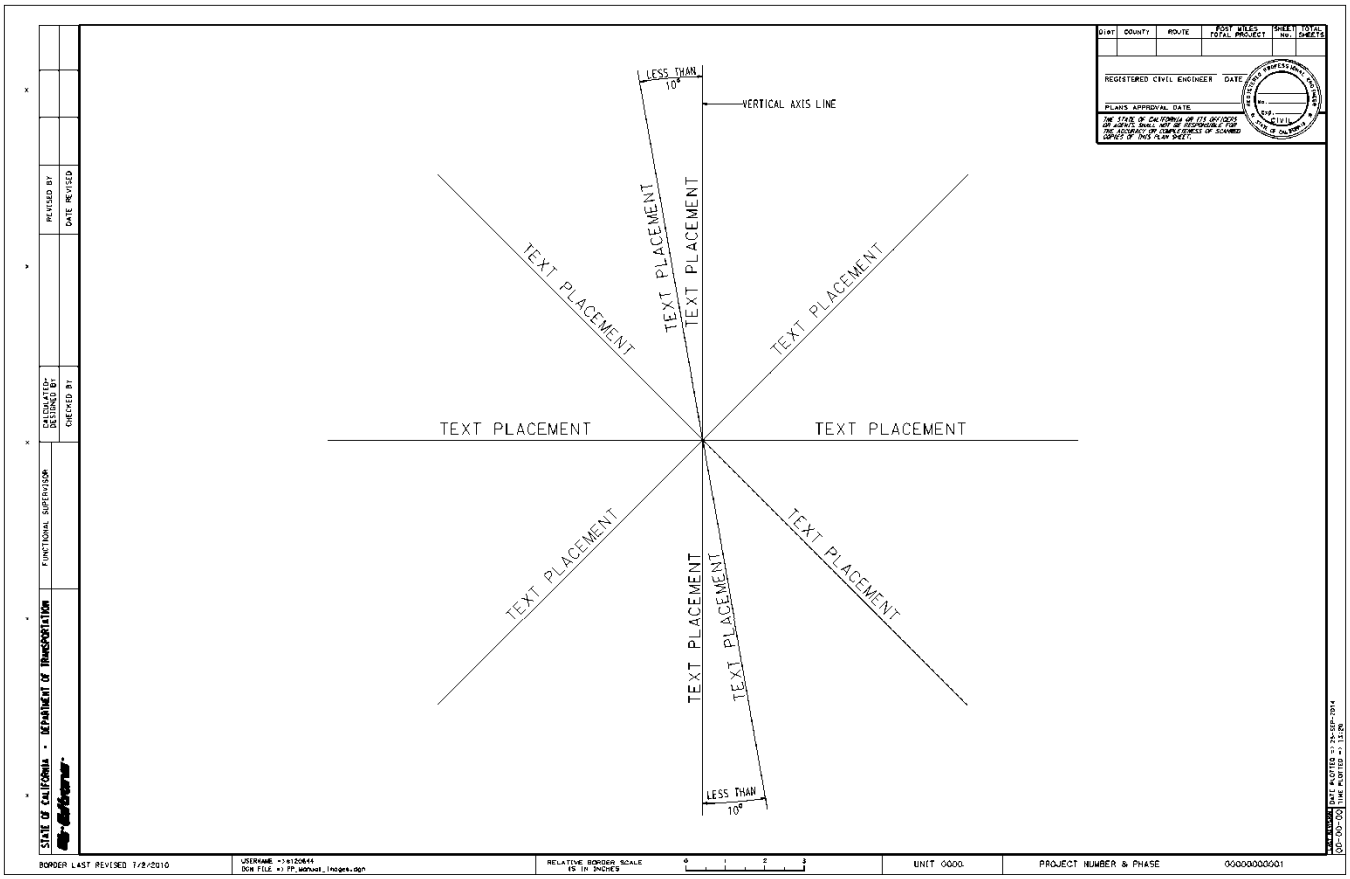
Drafting standards include:

- Line weights, line styles and graphical representations of features conforming to the CADD Users Manual, the Standard Plans and this manual.
- Abbreviations, acronyms, symbols and symbologies are to conform to Standard Plans A3A through A3C (formally A10A through A10E, H1 and H2, and ES-1A through ES-1C). Caltrans has established, by long-standing practice, the use of an uppercase letter at the beginning of a single word abbreviation followed by lowercase letter(s). In the case of multiple word abbreviations or acronyms, Caltrans uses all uppercase letters.
- Text sizes conform to Section 2-6 of the CADD Users Manual. Caltrans uses uppercase text for projects. Use of uppercase text makes it easier to distinguish characters within the callouts, dimensioning, and labeling in the contract plans.
- Placement of text, as shown in Figure 2-1, typically reads left to right. Some numeric text is placed along vertical lines (i.e. BC and EC alignment annotation and matchlines). This text reads bottom to top.
- Placement of text is to be consistent and legible throughout the project. Text is generally placed above the line work, if a leader line is not used. Where a leader line is used to label a bid item or the limits of a bid item, place the leader line so that the text will read from left to right.
- Placement of text should not break line work or shapes, or interfere with other text or annotation.
- Sheet match lines are to be placed perpendicular to the alignment line (station line or layout line). Sheet match lines are not to be placed at a full station, because the match line would obscure the station annotation and station tick mark. The match line break should be located halfway between station tick marks (i.e. +50).
- Placement of legends, notes or disclaimer information on plan sheets should be consistent for all projects.
- Leader lines with or without arrowheads are used to label bid items. Use of arrowheads should be dependent on whether their addition would create more clutter and reduce the legibility of the information to be shown. Leader lines without arrowheads are generally used to identify station limits of an item of work. Be consistent in the use of leader lines and arrowheads.

- Begin and end points of bid items are to be shown on the plans. Identify begin and end points of bid items using plus stations and offset distances from the alignment control line. If the alignment of the bid item coincides with the alignment control line, offset distance is not used. Plus stations and offset distances are to be shown to the nearest foot or tenth of a foot depending on the type of work. In those cases where a greater degree of accuracy is needed, identify begin and end limits of bid items or offset distances to hundredths of a foot. Where multiple bid items begin or end at the same plus station, use one extension line from the plus station to identify each bid item in a stacked group. If sheets are really cluttered, an alternative method is to identify only the begin point of the bid items and include the overall actual length of each bid item. Be consistent within each plan set type (layouts, drainage, signs, pavement delineation, etc.) in the method used to identify locations of the bid items.

FIGURE 2-1

TEXT PLACEMENT AND READING DIRECTION



2-1.3 U.S. Customary Unit Standards

Dimensions

Dimensions of existing features should reflect their actual values. Dimensions of new features should reflect the required values to accurately construction the feature. Dimensioning, in general, should reflect the accuracy of the equipment required to construct the feature.

The use of feet and decimals of a foot for dimensions versus the use of feet and inches should be based on the bid item involved. Pavement structure work is to be dimensioned by the foot and decimals of foot (see Section 2-2.3 Typical Cross Sections).

Formed concrete construction features (bridges, walls, drainage features, curbs, sidewalks, etc.) are dimensioned in feet, inches and fractions of inches. Generally, manufactured or fabricated items are dimensioned in feet, inches and fractions of inches. The Caltrans Standard Plans should be used as a guide to determine whether a dimension should be expressed in feet and decimals of a foot or feet and inches.

Dimensions in feet, tenths of a foot or hundredths of a foot are to be shown with an accompanying apostrophe (symbol for foot). Where a dimension is to be displayed in tenths or hundredths of a foot and the dimension is less than one foot, use a zero in front of the decimal point (example: 0.2', 0.35').

Dimensions in inches are to be shown with an accompanying quotation mark (symbol for inch). Where a dimension is to be displayed in feet and inches and the dimension is one foot or greater, place a hyphen between the foot and inch values, (example: 1'-0", 2'-3", 10'-$^1/_2$"). Where a dimension is displayed in inches and the dimension is less than one foot, do not use the foot designation or hyphen in advance of the inch value, (example: 6", not 0'-6"). Do not use notes such as, "ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN," on the project plan sheets.

Fractions of a foot are not to be used in dimensioning (example: 10$^1/_2$'). Fractions of an inch are acceptable but decimal inches are not used on project plan sheets.

Locations of Construction Features

With the exception of those instances where construction is located by post miles or in those more rare instances where construction features are located by distance offsets from fixed objects, construction features are to be located using stationing and, as applicable to the bid items, plus stations and offset distances from alignment lines. Depending on the accuracy required, construction features are shown to the nearest foot, tenths of foot or hundredths of foot.

Horizontal dimensions and offset distances from an alignment line are to be shown with an accompanying apostrophe (symbol for foot).

Elevations

Accompanying foot tick marks are not used for existing or new contour lines, spot elevations, or for datum elevations shown on the grid lines of profiles. Depiction of elevations without a foot tick mark has been established by long-standing engineering practice. The basis for vertical control is to be included within the project plans when elevations are shown.

Bearings of Lines and Angular Identification

Bearings for all alignments shall be Degree-Minute-Second (plus the direction). Angles used to depict a detail shall be shown in the conventional mode (i.e. 57.5^o).

Cross Slopes

Pavement cross slopes and superelevations shall be shown as percents.

Side Slopes

Side slopes shall be expressed in a nondimensional ratio. The horizontal component is shown first and then the vertical (X:Y). When a side slope becomes steeper than 1:1, the horizontal component shall be shown as a fraction such as 3/4:1.

Flares and Tapers

Flares and tapers shall be expressed in a nondimensional ratio. The longitudinal component is shown first and then the lateral offset component (example: 20:1, 15:1, etc.).

Scales

For plan sheets, a horizontal scale of 1" = 50' (Caltrans standard base scale) should be used in urban areas and some rural areas. A horizontal scale of 1" = 20' is used where greater detail is required than can be shown on the plan layouts. These sheets would typically be used for Electrical Systems plans, etc. For projects in rural areas, a horizontal scale of 1" = 100' may be used. Where a horizontal scale of 1" = 50' is used and just a few bid items are involved, the roadway layout information may be stacked one above the other on the same plan sheet. <u>The above three scales are the only scales to be used for plan view sheets</u>.

For roadway profile sheets, the following scales are commonly used for the condition described:

- Rural sections in hilly or mountainous terrain: 1" = 10' vertical and 1" = 100' horizontal
- Rural or urban with gentle rolling terrain: 1" = 5' vertical and 1" = 50' horizontal
- Rural or urban with level terrain: 1" = 2' vertical and 1" = 20' horizontal

Vertical to horizontal scale ratios producing roadway profile grade line plots steeper than 1:1 should be avoided because it overly distorts the actual field conditions. Scale ratio of horizontal to vertical (H/V) = 10 is typically used for roadway profiles.

Contour lines are to be as follows:

Plotting Scale	Index Contours	Intermediate Contours
1" = 20'	5'	1'
1" = 50'	10'	2'
1" = 100'	20'	4'
1" = 200'	50'	10'
1" = 400'	100'	20'

The index contour line will be every fifth contour and will be a heavier weight than the intermediate contour lines. In very steep terrain (at any scale), the intermediate contours may be eliminated if the contour lines are so close together that they affect the readability of the mapping or plans.

When developing geographically oriented drawings, use state plane coordinate values. Caltrans does not draw to scale; it only plots to a given scale.

Individual nongeographical oriented drawings, such as typical cross sections and detail sheets, do not need to be drawn to scale. The details are drawn proportionally, but the dimensions shown will govern over the image. These sheets are labeled "No Scale." If objects of different sizes are to be shown on the same detail sheet, one or both of the details may be enlarged or reduced to provide a balanced appearance on the sheet. If an object cannot be shown in its entirety and the elements of the object are repeated uniformly, then a break line may be used, but the total length or width must be shown.

Earthwork design cross section plotting scales, both horizontal and vertical, should be 1" = 10' for rural projects and 1" = 5' for urban projects. Cross section intervals are not to be greater than 50 feet.

Stationing

Plan sheet stationing is to be based on 100 feet per station with full annotation at 500-foot stations (multiple of 5). Annotation at 100 foot stations is a single digit number (the ones column). With the exception of precise stationing required at equations, BCs, ECs, and POCs, annotation for whole stations shall not include plus stations (i.e. +00). Refer to the plan sheet examples in Section 2-2 of this manual for stationing annotation examples. Precise stationing in U.S. customary units is expressed to the hundredth of a foot.

Stationing for preliminary drawings shall also be based on 100 feet per station and with full annotation at 500 foot stations for both 1" = 200' and 1" = 400'. The 100-foot stations do not need to be annotated.

The length of a station tick mark (in a MicroStation design file) is 2.8' at 1" = 20' scale, 7.0' at 1" = 50' scale and 14.0' at 1" = 100' scale. Station tick marks are centered on the alignment line. Annotation is placed below the alignment line. Station annotation is generally located one-half the height of the text below the tick mark. For those situations when station annotations would obscure a construction feature, the interfering annotations may be placed further below the tick mark or if necessary above the station tick mark.

Units of Measurement

The units of measurement as shown on Standard Plan A3C (formerly A10B) are to be used for bid items shown on a plan sheet, the quantity summaries and the Bid Item List so that they will match those used in the Basic Engineering Estimating System (BEES). **NOTE**: The BEES has field limitations and will not accept upper and lower case units of measurement so there may be some differences between the plans and BEES, but the contract plans are to follow the convention set forth in the Standard Plans.

2-1.4 Use of Standard Plans

Caltrans Standard Plans are approved standardized details that are applicable to the construction of highway facilities. The Standard Plans are divided into sections designated by an alpha prefix:

- "A"- Pavement delineation, excavation and backfill details, barriers, guard railing, crash cushions, fencing, curbs, dikes and curb ramps
- "P" - Pavements
- "C" - Crib walls
- "D" - Drainage items
- "H" - Planting and Irrigation
- "T" - Temporary facilities
- "B" - Bridge related work, retaining walls, and sound walls
- "RS" - Roadside signs
- "S" - Overhead signs and sign panels
- "ES" - Electrical systems

All engineers and detailers should have a copy of the current Standard Plans book and be familiar with its contents.

The Standard Plans book is updated and issued at regular intervals, usually between 3-5 years by the Division of Engineering Services-Office Engineer (DES-OE). In between the official releases of the Standard Plans book, revisions, additions or deletions may occur and are called a revised standard plan (RSP) that supplements the current edition of the book. All project specific applicable RSP sheets must be included in the advertised contract plan set.

The Standard Plans applicable to a specific project are indicated by the use of the "Standard Plans List" that is included in the project special provisions. This list is updated in conjunction with the issuance of any revised standard plans. Where revised standard plans are applicable to a project, they are to be indicated on the "Standard Plans List." DES-OE will insert the indicated applicable revised standard plans as plan sheets into the project plan set. For AADD projects, the district will be responsible for the insertion of applicable revised standard plan sheets as part of the project plan set.

The design section responsible for the project is to verify that the applicable revised standard plans are identified on the current "Standard Plans List" sent to either DES-OE or DOE as part of the PS&E submittal.

Caltrans standard plans are available via the Caltrans DES-OE Internet web site in several electronic formats.

Unsigned MicroStation design files for each standard plan are provided on the web site to assist project designers where a standard plan detail does not fit a given situation and must be modified. Only the individual modified detail or details from the standard plan, not the entire standard plan detail sheet, are to be included on the applicable detail sheet within the project plans (construction details, drainage details, etc.) and labeled "MODIFIED." These detail sheets containing the individual modified detail or details based on a standard detail are to be signed by the licensed individual who made the decision that a modification was necessary. If minimal changes are made, show only the dimensions for the modified portion with a reference to the applicable standard plan. If significant changes are made, show all of the dimensions of the detail. When all dimensions are shown, reference to the standard plan sheet is not necessary.

For AADD projects, Caltrans personnel may access signed tiff file formats of revised standard plans via the Caltrans internal network for the submittal of a complete project plan set in electronic format.

All revised standard plans (RSP) must be included as part of the advertised project plan set. This helps ensure that the policy for including all RSP in the As-Built plans is met, see Section 4.3 of the CADD Users Manual.

THIS PAGE INTENTIONALLY LEFT BLANK

2-1.5 Plan Border Sheets

Plan border sheets contained in the Caltrans CADD English Cell Library are to be used for project plan preparation. Access to the English Cell Library for consultants is available at this web site:

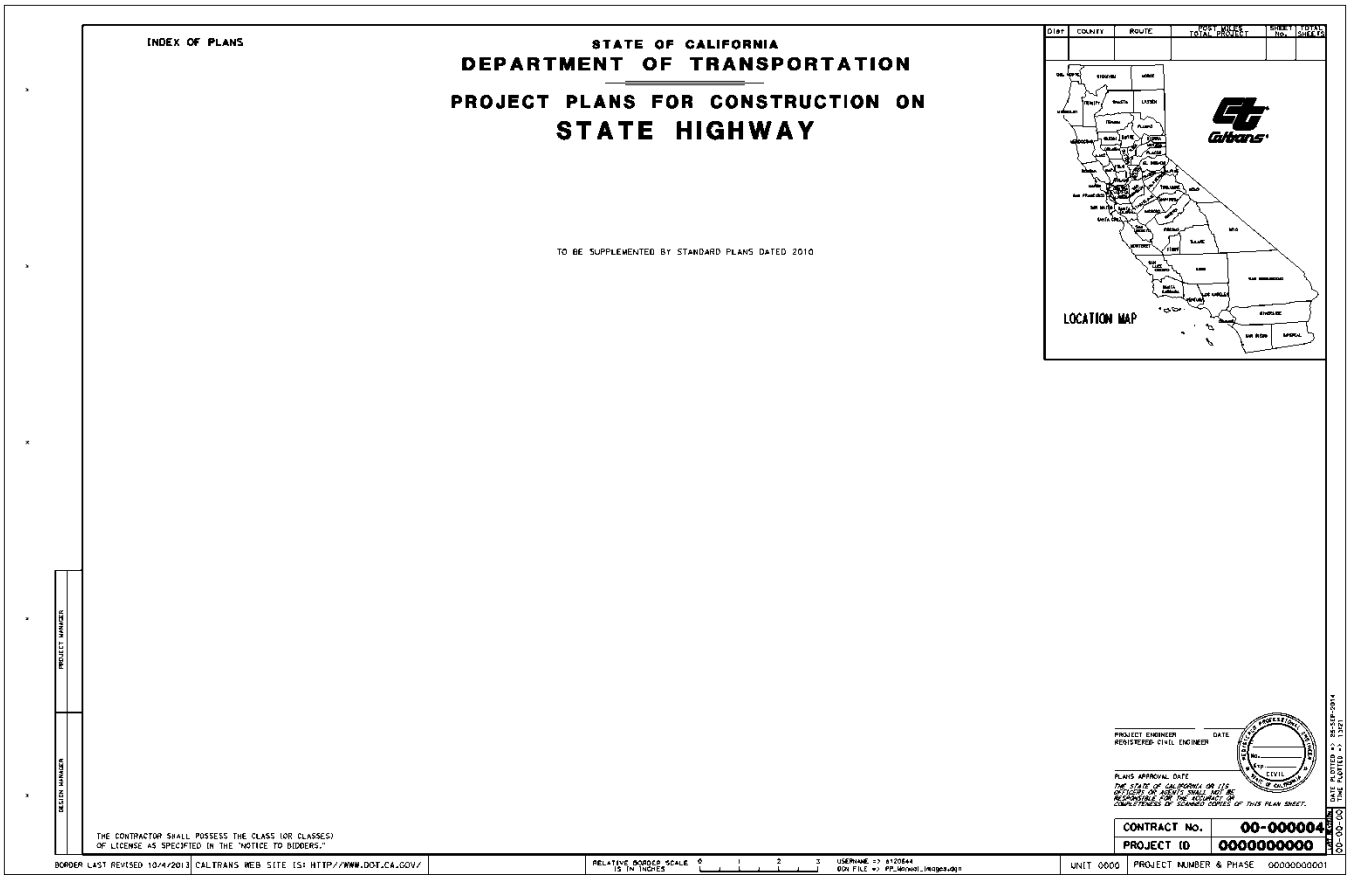
http://www.dot.ca.gov/hq/oppd/cadd/rsc_files/webpage.htm

The figures contained herein depict the various plan border sheets. There may be newer border sheets than those depicted. Updated border sheets are contained in the Caltrans English Cell Library.

BASIC BORDERS FOR THE PREPARATION OF PROJECT PLANS

FIGURE 2-2A

Border for Title Sheet of Caltrans Prepared Projects

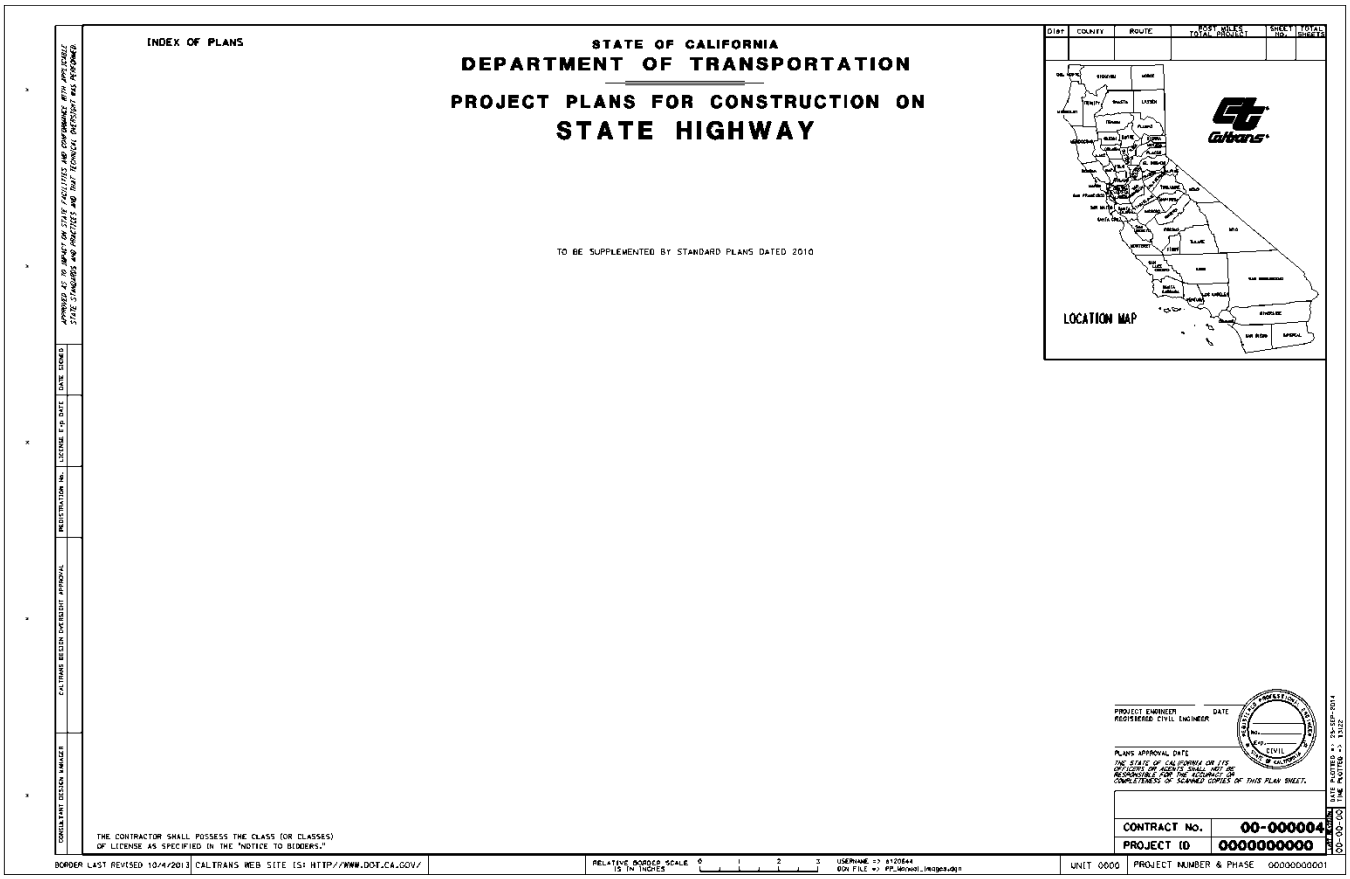


The name of the cell for this title sheet border is AC = TITLE.

BASIC BORDERS FOR THE PREPARATION OF PROJECT PLANS

FIGURE 2-2B

Border for Title Sheet of Consultant Prepared Project for Caltrans

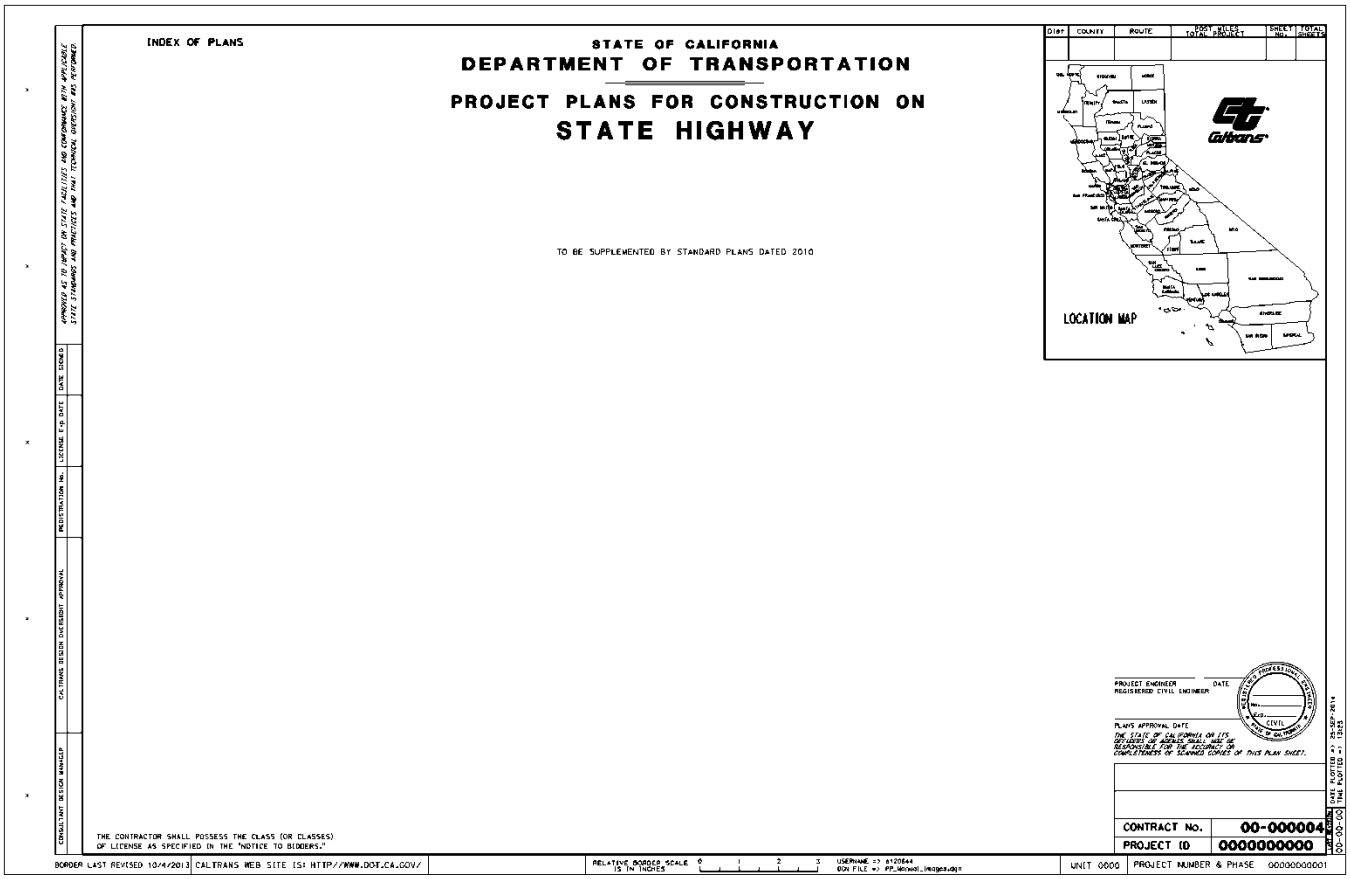


The name of the cell for this title sheet border is AC = TITLE2.

BASIC BORDERS FOR THE PREPARATION OF PROJECT PLANS

FIGURE 2-2C

Border for Title Sheet of Consultant Prepared Project for Local Agency

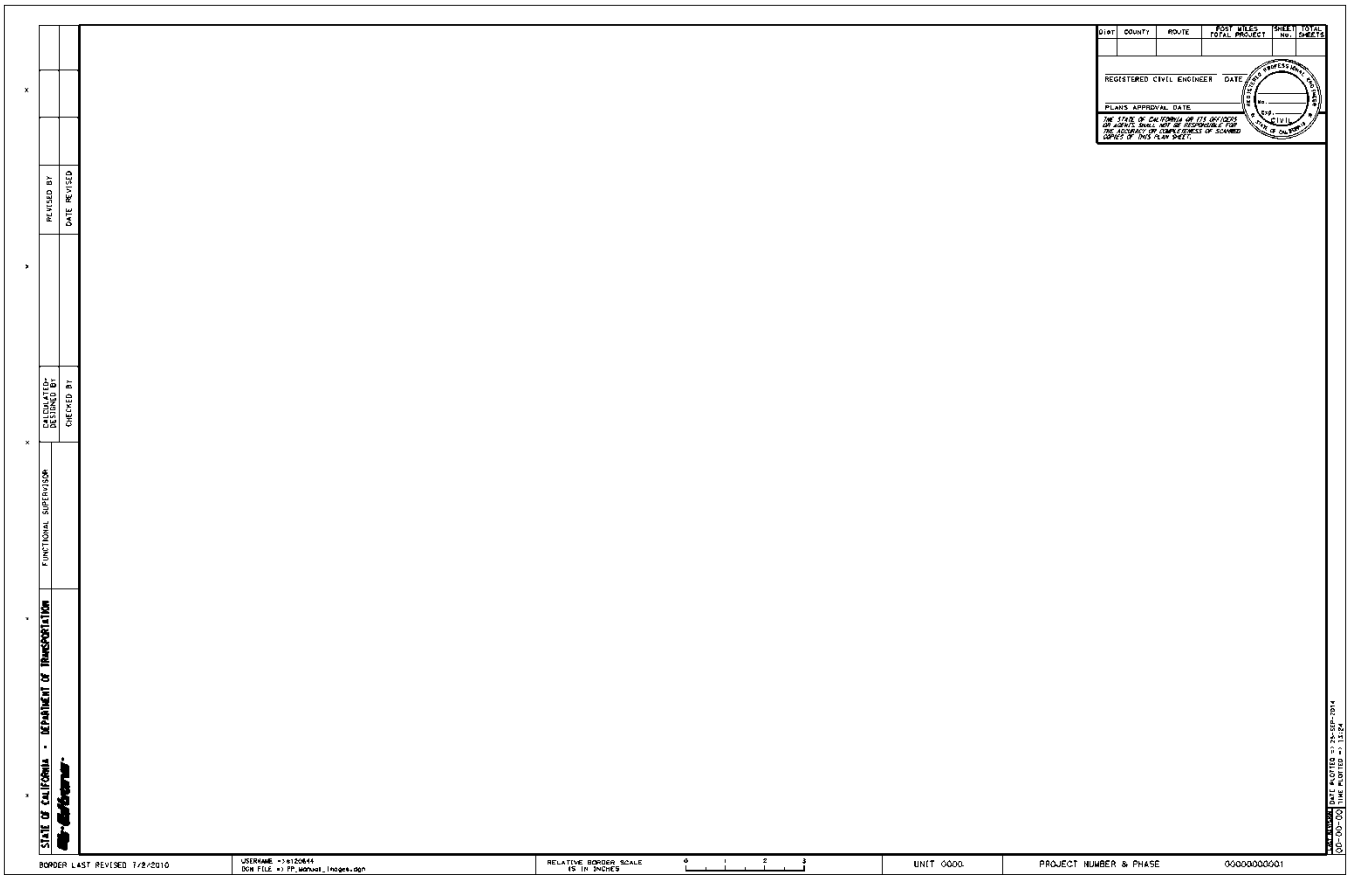


The name of the cell for this title sheet border is AC = TITLE3.

BASIC BORDER FOR THE PREPARATION OF PROJECT PLANS

FIGURE 2-2D

Border for Most Plan Sheets Prepared by Caltrans

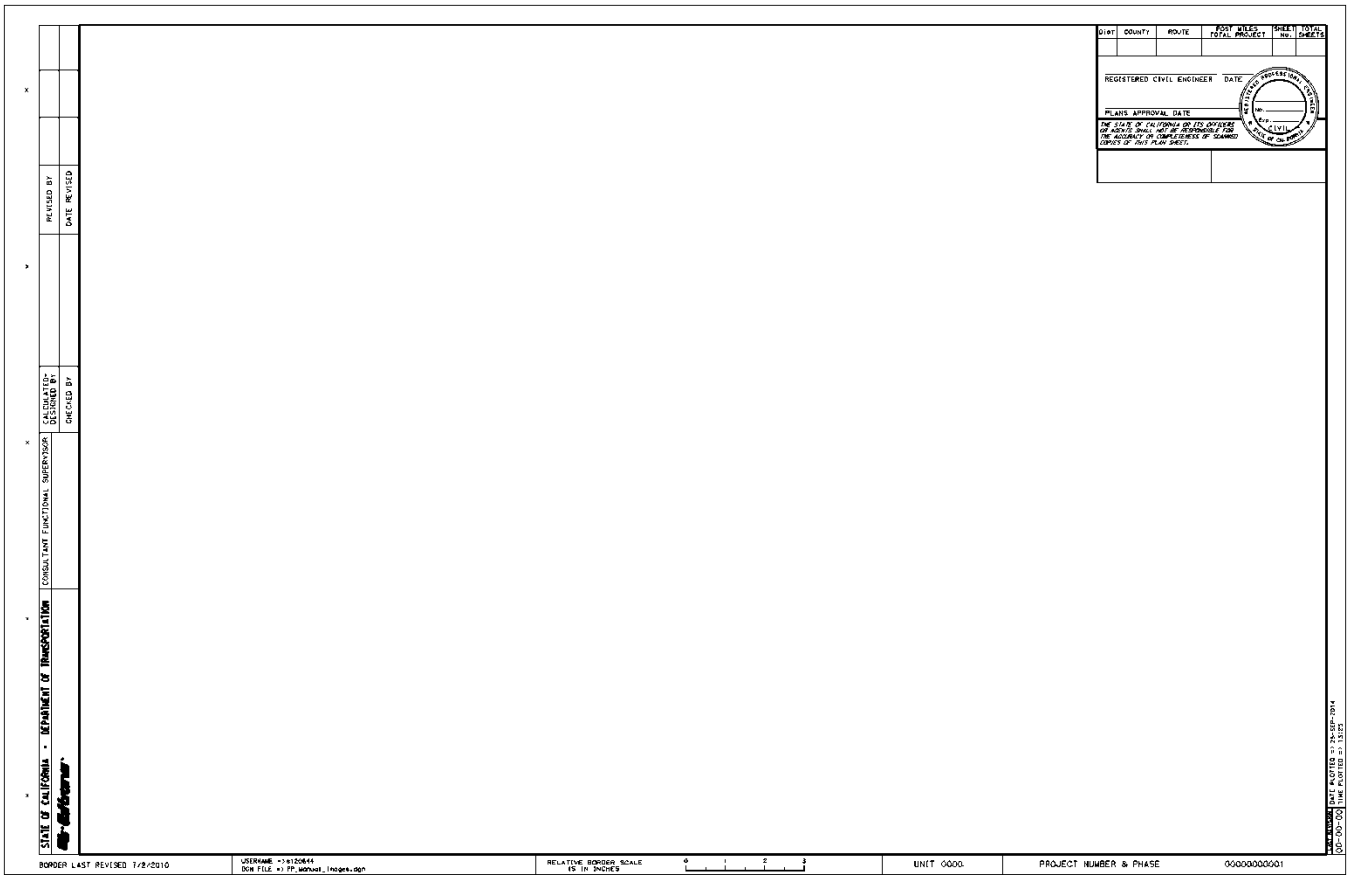


The name of the cell for this border sheet is AC = FULPLN. Use for layouts, typical cross sections, drainage details, construction details, contour grading, sign plans, quantity sheets, etc.

BASIC BORDER FOR THE PREPARATION OF PROJECT PLANS

FIGURE 2-2E

Border for Most Plan Sheets Prepared by a Consultant for Caltrans or a Local Agency

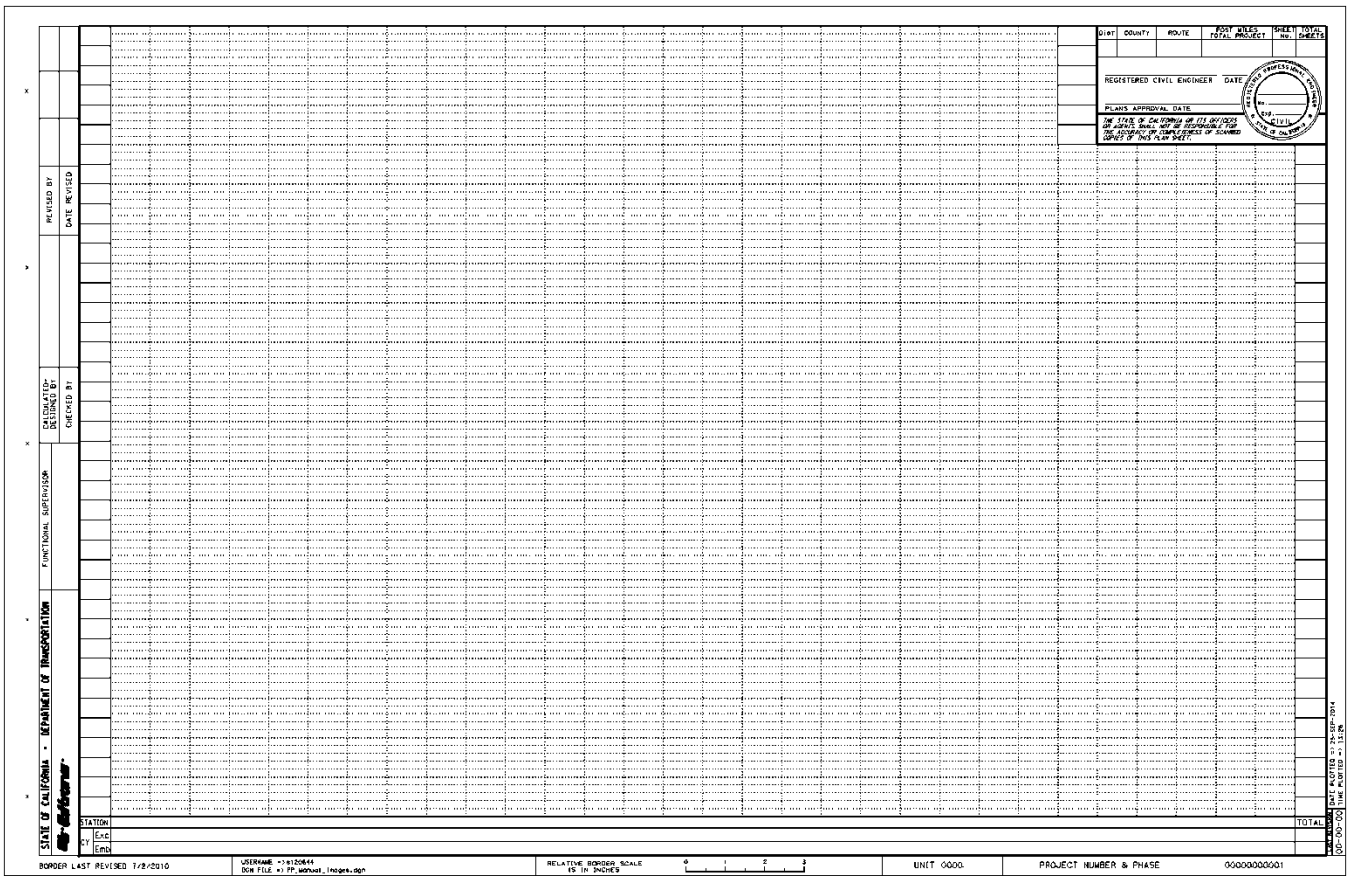


The name of the cell for this border sheet is AC = FUPLN2. Use for layouts, typical cross sections, drainage details, construction details, contour grading, sign plans, quantity sheets, etc.

BASIC BORDER FOR THE PREPARATION OF PROJECT PLANS

FIGURE 2-2F

Border Sheet with Full Profile Grid Insert for Caltrans Prepared Projects



The name of the cell for this border sheet is AC = FULPLN. The name of the cell shown for this full profile grid insert is AC = PROFIL and it is used for the 1" = 50' Caltrans base scale. Two separate profile grid inserts for the other allowable Caltrans plotting scales are available. These grid inserts are for use with the 1" = 100' plotting scale (cell name AC = PRF100) and the 1" = 20' plotting scale (cell name PRFL20). Use these grid inserts for roadbed profiles and superelevation diagrams. Where these grid inserts are used for roadbed profiles, show earthwork quantities along the bottom of the sheet.

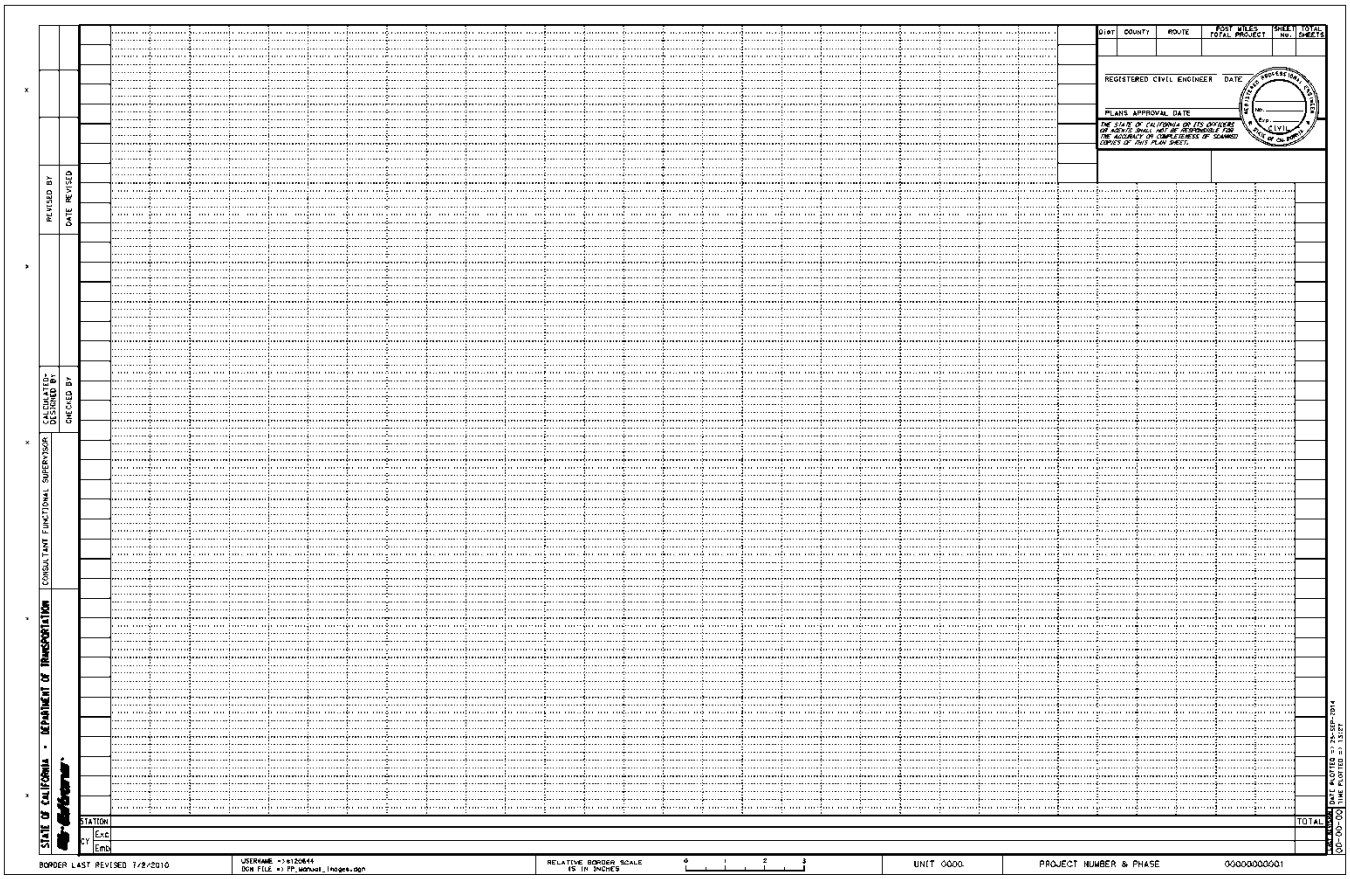
Two additional grid inserts are available for use with this border sheet to depict drainage profiles, sewer profiles, etc. Their cell names are; AC = GRID1 and AC = GRID2.

There are three cells that have stacked grid inserts when there is a need to stack one profile above another. The three cells are; AC = PROFLS, PRF10S and PRF20S.

BASIC BORDER FOR THE PREPARATION OF PROJECT PLANS

FIGURE 2-2G

Border Sheet with Full Profile Grid Insert for Consultant Prepared Projects for Caltrans or a Local Agency



The name of the cell for the border sheet is AC = FUPLN2. The name of the cell shown for this full profile grid insert is AC = PROFL2 and it is used for the 1" = 50' Caltrans base scale. Two separate profile grid inserts for the other allowable Caltrans plotting scales are available. These grid inserts are for use with the 1" = 100' plotting scale (cell name AC = PROFL3) and the 1" = 20' plotting scale (cell name PROFL4). Use these grid inserts for roadbed profiles and superelevation diagrams. Where these grid inserts are used for roadbed profiles, show earthwork quantities along the bottom of the sheet.

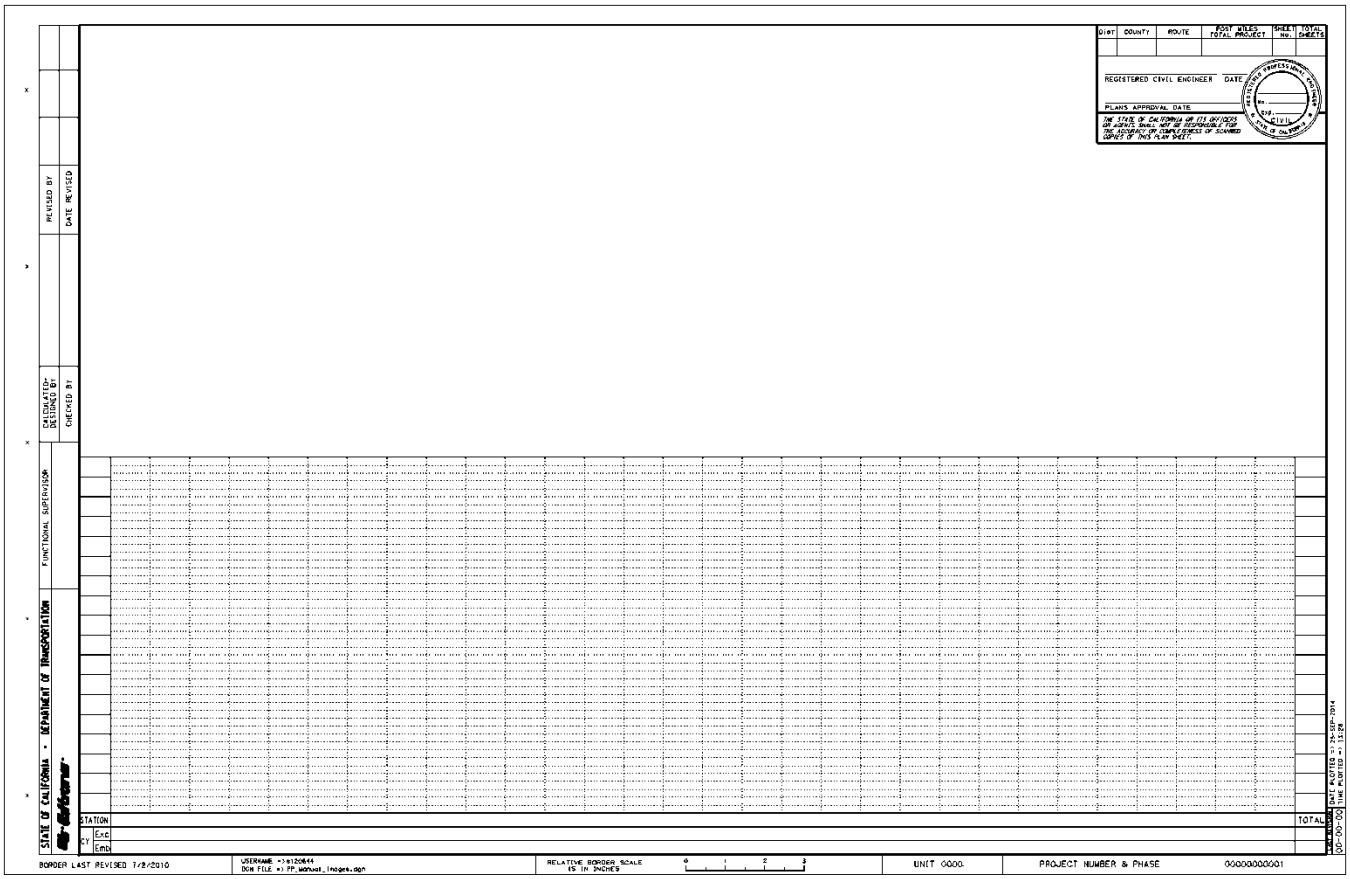
Two additional grid inserts are available for use with this border sheet to depict drainage profiles, sewer profiles, etc. Their cell names are AC = GRID1C and AC = GRID2C.

There are three cells that have stacked grid inserts when there is a need to stack one profile above another. The three cells are; AC = PROFL5, PROFL6 and PROFL7.

BASIC BORDER FOR THE PREPARATION OF PROJECT PLANS

FIGURE 2-2H

Border Sheet with Partial Profile Grid Insert



NOTES:

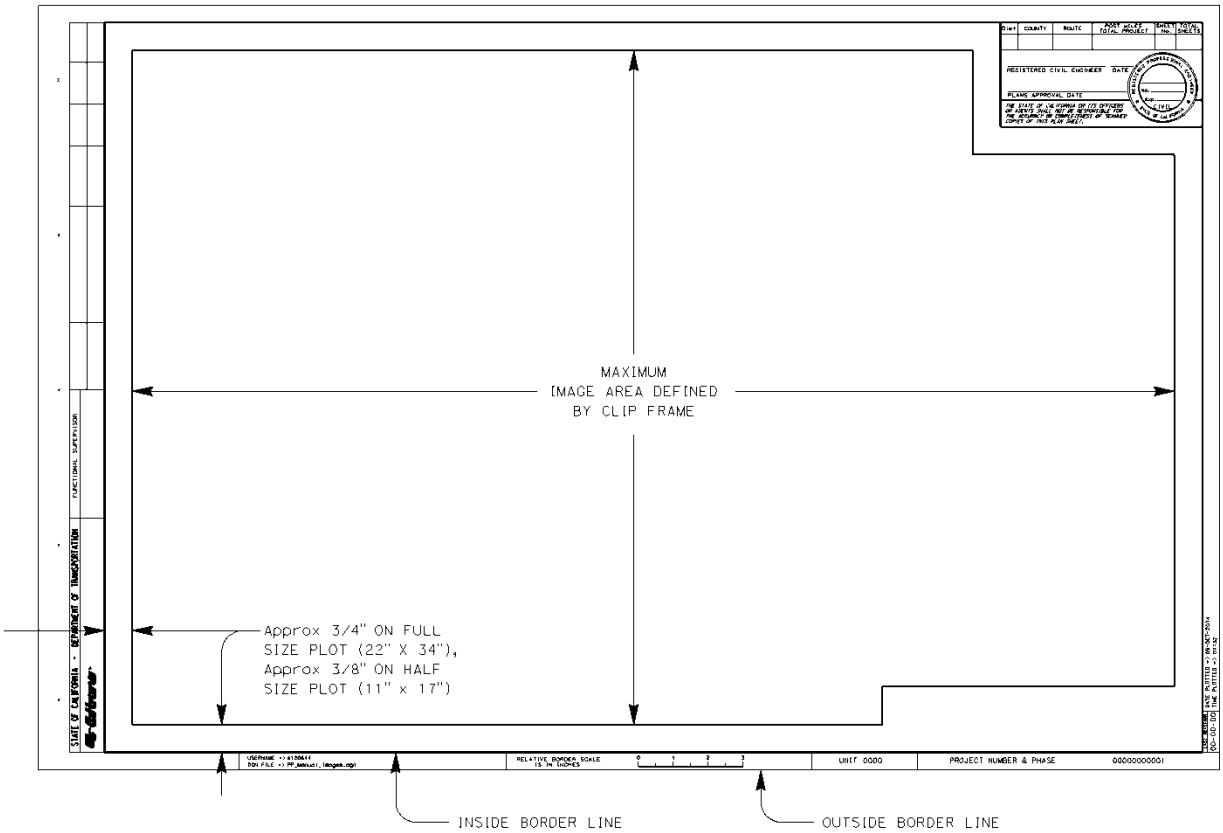
1. The name of the cell shown for this border sheet for Caltrans prepared projects is AC = FULPLN. The name of the cell for the partial profile grid insert shown is AC = PLNPRO. It is used for the 1" = 50' Caltrans base scale. Two separate partial profile grid inserts for the other allowable Caltrans plotting scales are available. These grid inserts are for use with the 1" = 100' plotting scale (cell name AC = PLP100) and the 1" = 20' plotting scale (cell name PLPR20). Use these grid inserts for roadbed profiles and superelevation diagrams. Superelevation diagrams may be included on the grid profile portion of the sheet where sufficient space is available and such addition will not produce sheets which are cluttered, unreadable or confusing. Where these grid inserts are used for roadbed profiles, show earthwork quantities along the bottom of the sheet.

2. For consultant prepared projects for Caltrans or local agency, use the cell named AC = FUPLN2 for the border sheet. For the partial profile grid inserts, use the cells described in Note 1.

3. Two additional grid inserts are available for use with these border sheets to depict drainage profiles, sewer profiles, etc. Their cell names are AC = GRID3 and AC = GRID4.

BASIC CONFIGURATION FOR FULL USE OF GENERIC BORDER SHEETS

FIGURE 2-2I

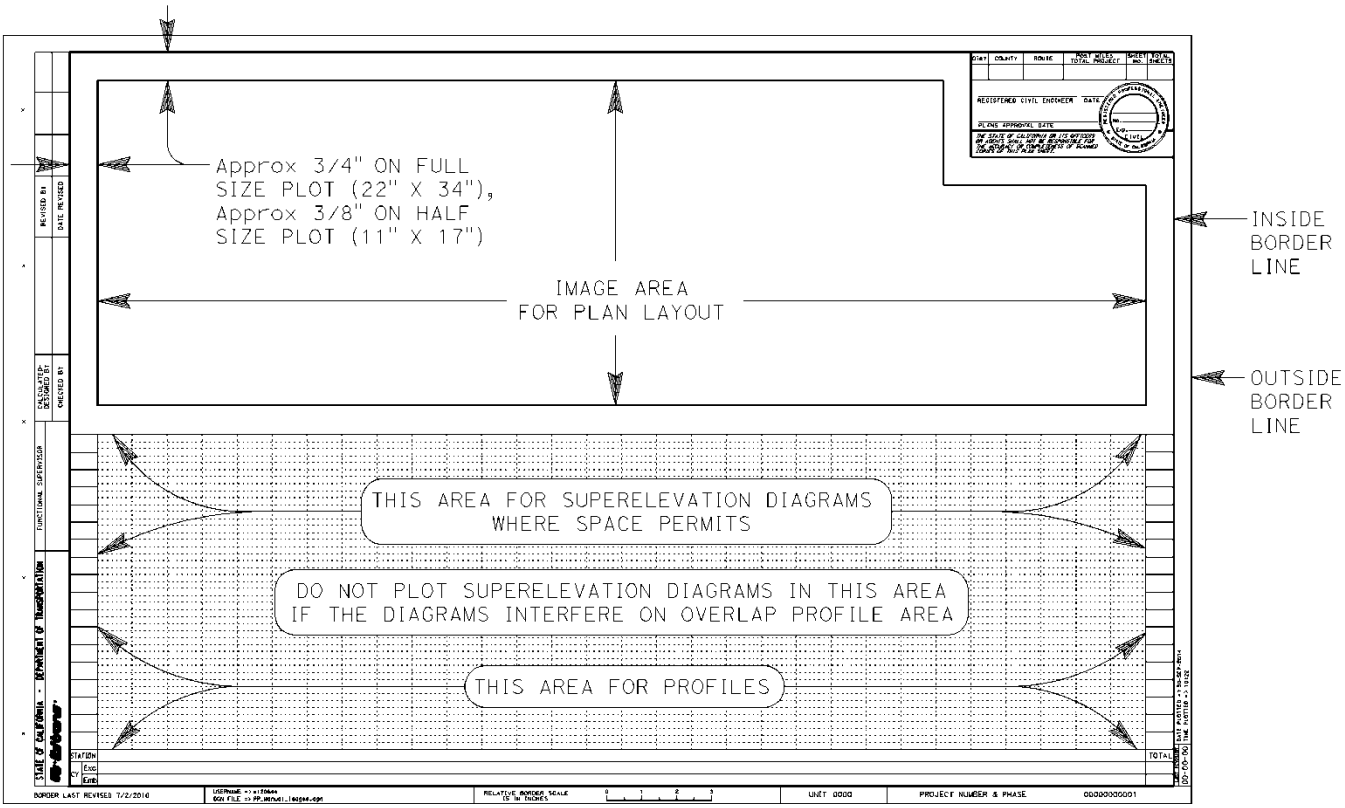


GENERIC BORDER SHEET

- 22" x 34" outside border line dimension for a full-size plot
- Never extend the drawing, details, tables or notes beyond sheet border or into the margin area
- Use the area in the lower right corner of sheet for the approved sheet name and sheet identification code as provided in Section 2.1 of the CADD Users Manual. Do not enclose sheet name, sheet ID code and number in a box. Two other items may be used in this area: a sub-title (or modifier) if pertinent to the plan sheet, and the plot scale
- Use match lines with no overlap from sheet to sheet where plan layouts are shown
- Do not place the border at various scales to accommodate stationing (for the three allowable scales at Caltrans, see Section 2-1.3 of this manual)
- The length of stationing that can be shown within the horizontal image area at a plot scale of 1" = 50' scale is approximately 1500 feet
- Underneath the outside border line is a plot marker and plot shape. These can help automate plotting. The attributes associated with these are Level 10, Color 252, Line Code 7, Weight 0 and a Construction Element. The outside border line on all contract bid plan sheets, regardless of format (tiff, pdf or hard copy) **must** be visible

BASIC CONFIGURATION FOR USE OF COMBINATION PLAN AND PROFILE SHEET

FIGURE 2-2J



PLAN AND PROFILE SHEET

- 22" x 34" outside border line dimension for a full-size plot
- Never extend the drawing, details, tables or notes beyond sheet border or into the margin area
- Use match lines with no overlap from sheet to sheet where plan layouts are shown
- Use the area in the lower right corner of sheet for the approved sheet name and sheet ID code as provided in Section 2.1 of the CADD Users Manual. Do not enclose sheet name, sheet ID code and number in a box. Two other items may be used in this area: a sub-title (or modifier) if pertinent to the plan sheet, and the plot scale. The grid lines do not need to be removed where this listed information is placed
- Do not place the border at various scales to accommodate stationing (for the three allowable scales at Caltrans, see Section 2-1.3 of this manual)
- The length of stationing that can be shown within the horizontal image area at a plot scale of 1" = 50' scale is approximately 1500 feet
- The grid portion (lower half) of the sheet is to be used for profiles, superelevation diagrams and the listing of earthwork quantities along the bottom of the sheet
- See Figure 2-2I of this manual regarding sheet plotting

2-1.6 Electronically-Generated Plan Sheet Signatures and Project Development Names

General

The California Board for Professional Engineers, Land Surveyors and Geologists recognizes electronically generated seals as an acceptable form of the professional seal. Federal and State laws allow the use of electronically generated signatures. Electronically generated seals and signatures include those affixed to documents through the use of CADD programs and digital methods.

Title Sheet Signatures

Signature and license seal information on the title sheet of the project plans identifies the licensed professional assigned responsibility for coordinating the effort to produce a complete set of project plans for construction. Depending on the type of project, the person signing the title sheet typically is a licensed civil engineer, electrical engineer, or landscape architect.

The title sheet serves as a cover sheet for the project to identify the location(s) where the work will occur. This sheet is not considered an engineering document, as no item of work is to be shown on the sheet (this also applies to the Locations of Construction sheet). Items of work are to be shown on other sheets within the project plans (e.g. Layouts, Drainage, Electrical Systems, etc.).

Except for the Caltrans design oversight approval information (signature, license number and license expiration date) required on consultant prepared projects for Caltrans (see Figure 2-7), only one license seal shall appear on the title sheet. Title sheet borders with the seal and associated signature information are available in the Caltrans English Cell Library. The signature must be electronically affixed to the title sheet. In all cases, the words "Registered Civil Engineer," "Registered Electrical Engineer," "Licensed Landscape Architect," or equivalent designation must appear with the signature. See Figures 2-3, 2-4, and 2-5 for title sheet signature and license seal information.

Where a consultant prepares a project for Caltrans or where a firm or local agency finances and prepares the entire project, their name and address is to be placed in the lower right-hand corner of the title sheet (see Figure 2-4).

The prime consultant, that prepares the entire project for a permittee or local agency, shall place the company name and address in the location shown in Figure 2-5 or Title Sheet, Example "B." Logos, telephone numbers, or artwork are not permitted.

Title Sheet Project Development Names

For projects prepared by Caltrans, the printed name of the individual providing oversight of the Caltrans person assigned responsibility for coordinating the effort to produce a complete set of project plans shall be placed in the "Design Manager" name block space located in the lower left margin of the title sheet. The printed name of the Caltrans project manager shall be placed in the "Project Manager" name block space located in the lower left margin of the title sheet. See Figure 2-6 for project development names required on the title sheet of Caltrans prepared projects. Printed names included in the name blocks shall not have any designation indicating professional status.

For projects prepared by consultants for Caltrans or local agencies, the printed name of the individual in the prime consultant's company responsible for providing oversight of the person assigned responsibility for coordinating the effort to produce the complete set of project plans shall be placed in the "Consultant Design Manager"

name block space located in the lower left margin of the title sheet. The Caltrans engineer providing design oversight approval shall have their printed name, signature, license number, license expiration date, and date of signature included in the block spaces located in the left margin of the title sheet. The signature must be electronically affixed to the title sheet. The design oversight approval note must not be removed. See Figure 2-7 for project development names required on the title sheet of consultant prepared projects.

Individual Plan Sheet Signature

Individual project plan sheets, other than the title sheet, must have the license seal and signature of the licensed civil engineer, electrical engineer, mechanical engineer, geologist, architect or landscape architect who has the technical expertise and is in responsible charge for the preparation of the individual plan sheet. Licensed traffic engineers can sign traffic plans (traffic handling, pavement delineation sheets, etc.). Only one license seal and number with associated signature shall appear on the sheet. For all disciplines except Landscape Architecture, the printed name, license number and license expiration/renewal date must appear within the license seal. The registrant's signature and date signed for the completion of the sheet shall go outside the license seal but within the signature block on the line provided in the upper right hand corner of the sheet border (see Figure 2-8 or the "Generic Project Border Sheet" example under the Section 2-2.5 examples).

For Landscape Architecture, the signature, license renewal date and the date signed for the completion of the sheet by the licensed landscape architect shall be within the license seal. The printed name and license number is arched above the signature within the seal. A second signature of the licensed Landscape Architect shall go outside the license seal but within the signature block on the line provided in the upper right hand corner of the sheet border (see Figure 2-9a).

All advertised project plan sheets (including the Title Sheet) **MUST** include the license expiration date of the person signing and sealing the sheet. Refer to the December 22, 2009 Memorandum "Inclusion of Expiration Date on Engineering and Land Surveying Documents" for the Caltrans business practice of including the expiration date.

The signature must be electronically affixed to the plan sheet. In all cases, the words "Registered Civil Engineer" or equivalent designation must appear with the registrant's signature. Do not add job titles such as "Utility Engineer," "Project Studies Engineer," etc. See Figure 2-8 for individual plan sheet signature and license seal information for Caltrans prepared projects.

Where a consultant prepares the individual plan sheet for Caltrans, a permittee or local agency or the individual plan sheet is prepared by a local agency, their company name and address shall be placed in the location shown in Figure 2-9. Logos, telephone numbers, or artwork are not permitted.

Where the work shown on the individual plan sheet is financed and prepared by a permittee or local agency, their name and address shall be placed in the location shown in Figure 2-9. Logos, telephone numbers, or artwork are not permitted.

Individual Plan Sheet Development Names

For projects prepared by Caltrans, individual project plan sheets, other than title sheets, shall have the printed name of the person in the functional unit providing oversight of the registered engineer or other licensed person and other individuals involved in the development of the plan sheet. The printed name shall be placed in the "Functional Supervisor" name block space located in the left margin of the plan sheet. The intent of including the functional supervisor's name is to identify the individual that assisted the project engineer in the project delivery process, including acquisition of documents to assure that the project meets the Ready-To-List requirements. See Figure 2-10 for project development names required on individual roadway plan sheets prepared by Caltrans. For Caltrans Office of Structure Design plan sheets, the printed names of individuals involved in the development of the plan sheet are to be placed in the spaces provided on the structure plan sheet borders. Printed names included in name blocks of individual plan sheets shall not have any designation indicating professional status. Do not place additional name blocks other than those shown on the approved sheet borders.

For projects prepared by consultants for Caltrans or local agencies, the printed name of the individual in the consultant company responsible for providing oversight of the consultant project engineer or other licensed person involved in the development of the individual plan sheets shall be placed in the "Consultant Functional Supervisor" name block space located in the left margin of the plan sheet. See Figure 2-11 for project development names required on individual roadway plan sheets of consultant prepared projects.

Structure plans for externally developed projects have specific sheet borders to provide design oversight information.

Structure General Plan Sheet Signature and Structure Development Names

The general plan for a structure shall have the license seal and signature of the lowest classification licensed person in responsible charge for preparation of the plans for an entire structure. Only one licensed seal and number with associated signature shall appear on the sheet. The printed name, license number and license expiration date shall appear within the generic license seal. The licensed professional's signature and date signed shall be outside the license seal and within the signature block on the line provided in the upper right hand corner of the sheet. The signature shall be electronically affixed to the general plan sheet. In all cases, the words "Registered Civil Engineer" or equivalent designation must appear with the licensed professional's signature. The signature of the design engineer and the printed names of individuals involved in the development of the general plan sheet are to be placed in the spaces provided on the structure general plan sheet.

Caltrans Standard Plan Sheets

Standard Plan sheets are signed and sealed by the licensed person with the technical expertise and in responsible charge of the preparation of the individual standard plan sheet (which are published in the Standard Plans book). The standard plan sheets shall not be included as part of the advertised project plans. The revised standard plan (RSP) sheets are also signed by the licensed person with the technical expertise and in responsible charge of the preparation of the individual standard plan sheet but must be included as part of the advertised project plans. When RSP sheets are applicable to the project without any modification, the signed and sealed sheets are available in TIFF format for inclusion in the project plans. Any detail from a standard plan sheet or RSP that is modified by the project engineer for his/her project, must be included on a detail sheet as part of the advertised project

plans. Unsigned DGN files for both standard plan and RSP sheets are available for the project engineer to utilized portions as it pertains to his/her project. The project engineer takes full responsibility for all modifications and must sign and seal the detail sheet.

Standard Drawings from Other Agencies

When standard details from another agency are applicable to the project, they shall be included on a detail sheet as part of the project plans. Making only a reference to another agency's standard drawing number or name instead of including the detail in the project plans **is not acceptable**. Such incorporated standard details shall be legible when reduced to the contract bid document size of 11" x 17". The detail sheet shall have the signature, date signed and seal of the lowest classification licensed person with the technical expertise and knowledge of the design and use of the standard detail. Generally, the Caltrans project engineer will sign these plan sheets.

In some cases, another agency's standard detail may be included in the project plans and signed by the licensed individual from the local agency that has the technical expertise. If included, the detail(s) must be on a separate sheet (with the appropriate Caltrans border) and signed by the forementioned licensed individual from the local agency. These sheets must adhere to the Caltrans standard naming convention for files. If local agency specifications are included with the standard detail, **they must be removed** and included in the Caltrans special provisions.

Bridge Standard Detail Sheets (XS)

Bridge Standard Detail Sheets (XS) are developed and maintained by the Division of Engineering Services (DES). The detail sheets are intended to be inserted directly into either the District PS&E package or the Structure PS&E package. The details are considered to be "Project Plans" for contract administration purposes in accordance with Section 5-1.02 "Contract Components", of the 2015 Standard Specifications (the same as in the 2010 Standard Specifications).

For additional or updated information concerning the XS sheets, go to the following website:

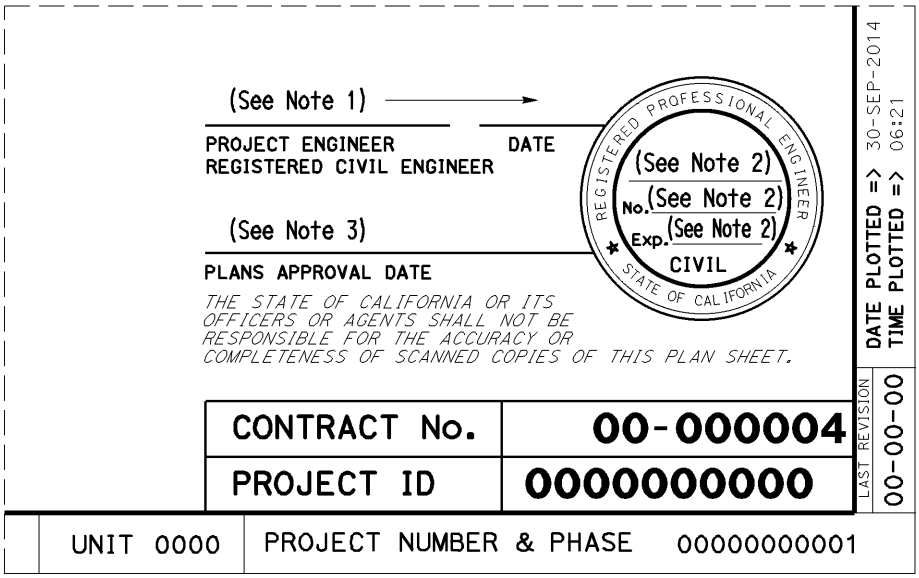
http://www.dot.ca.gov/hq/esc/techpubs/manual/bridgemanuals/bridge-standard-detail-sheets/index.html

THIS PAGE INTENTIONALLY LEFT BLANK

THIS PAGE INTENTIONALLY LEFT BLANK

TITLE SHEET SIGNATURE FOR CALTRANS PREPARED PROJECTS
(Lower Right Corner of Title Sheet)

FIGURE 2-3



GENERAL:

Signature and license seal information on the title sheet of the project plans shall be the licensed professional assigned responsibility for coordinating the effort to produce a complete set of project plans for construction. Depending on the type of project, the licensed professional signing the title sheet typically would be a civil engineer, electrical engineer, or landscape architect. Only one seal with associated signature shall appear on the title sheet. Additional seal, license number and signature of supervisors and managers shall not be placed on the title sheet.

NOTES:

1. Signature and date signed of licensed professional assigned responsibility for coordinating the effort to produce the complete set of project plans. Use (month/day/year, e.g. 4-8-13 or 10-10-13) for date signed.

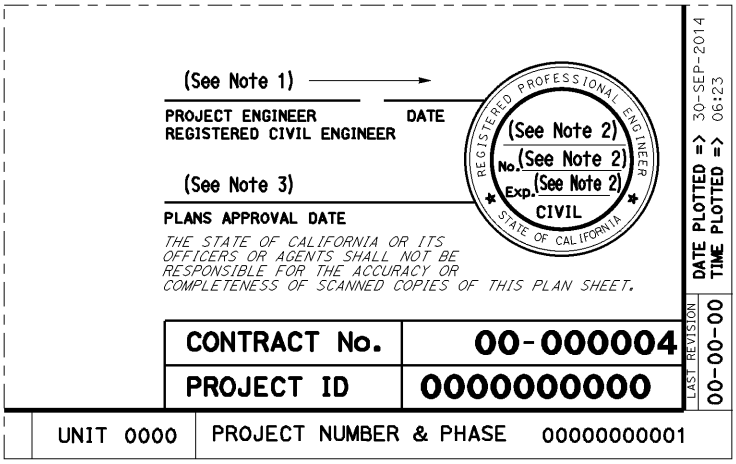
2. Printed name, license number and license expiration date of person whose signature is affixed to this sheet (See Note 1). Use FT =3, TH = 7, TW = 5 or less depending on the length of the name. The name of individuals with long first and last names may be placed as two lines within the space provided. **Note**: the license expiration date must be included on each plan sheet. This has been and will continue to be a business practice by Caltrans. This practice also applies to local agency or consultant projects on the state highway system.

3. For the plans approval date see Title Sheet Examples "A" and "C."

TITLE SHEET SIGNATURE FOR A PROJECT PREPARED BY CONSULTANT FOR CALTRANS OR A PROJECT PREPARED BY A LOCAL AGENCY

(Lower Right Corner of Title Sheet)

FIGURE 2-4



GENERAL:

Signature and license seal information on the title sheet of the project plans shall be the licensed professional assigned responsibility for coordinating the effort to produce the complete set of project plans for construction. Depending on the type of project, the person signing the title sheet typically is a licensed civil engineer, electrical engineer, or landscape architect. Only one signature and license seal shall appear on the title sheet. The only other name, signature, professional license number and license expiration date (NO SEAL) on the title sheet is for the Caltrans Design Oversight Approval (see Figure 2-7).

NOTES:

1. Signature and date signed of the licensed professional assigned responsibility for coordinating the effort to produce the complete set of project plans. Use (month/day/year, e.g. 4-8-13 or 10-10-13) for date signed.

2. Name, license number and license expiration date of person whose signature is affixed to this sheet (See Note 1). Use FT =3, TH = 7, TW = 5 or less depending on the length of the name. The name of individuals with long first and last names may be placed as two lines within the space provided.

3. For the plans approval date see Title Sheet Examples "A" and "C."

4. Where a prime consultant develops the entire project for Caltrans, the name and address of the prime consultant shall be placed in this location. Use FT =3, TH = 6, TW = 6.

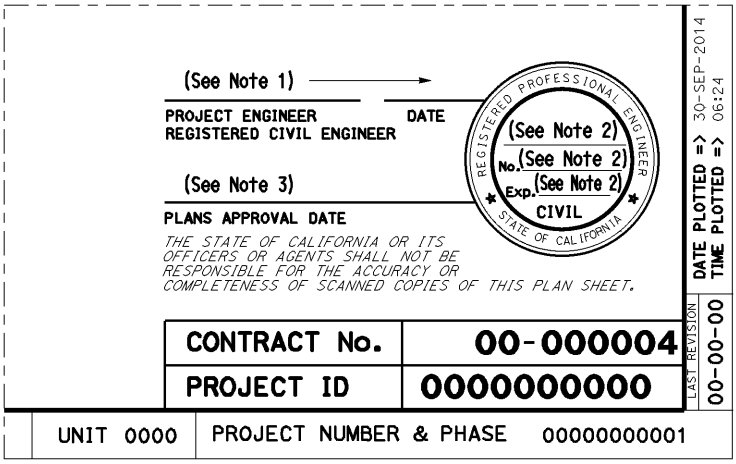
5. Where the entire project is financed and prepared by a permittee or agency, the name and address of the permittee or agency shall be placed in this location. Use FT =3, TH = 6, TW = 6.

6. Only the name and address of the permittee or agency or prime consultant, as applicable, responsible for the project shall be shown. No logos, phone numbers or artwork.

TITLE SHEET SIGNATURE FOR A PROJECT PREPARED BY A CONSULTANT FOR A PERMITEE OR LOCAL AGENCY

(Lower Right Corner of Title Sheet)

FIGURE 2-5



GENERAL:

Signature and license seal information on the title sheet of the project plans shall be the licensed professional assigned responsibility for coordinating the effort to produce the complete set of project plans for construction. Depending on the type of project, the licensed professional signing the title sheet typically is a licensed civil engineer, electrical engineer, or landscape architect. Only one signature and license seal shall appear on the title sheet. The only other name, signature, professional license number and license expiration date (NO SEAL) on the title sheet is for the Caltrans Design Oversight Approval (see Figure 2-7).

NOTES:

1. Signature and date signed of licensed professional assigned responsibility for coordinating the effort to produce the complete set of project plans. Use (month/day/year, e.g. 4-8-13 or 10-10-13) for date signed.

2. Name, license number and license expiration date of licensed professional whose signature is affixed to this sheet (See Note 1). Use FT =3, TH = 7, TW = 5 or less depending on the length of the name. The name of individuals with long first and last names may be placed as two lines within the space provided.

3. For the plans approval date see Title Sheet Examples "A" and "C."

4. Where a prime consultant develops the entire project for a permittee or agency, the name and address of the prime consultant shall be placed in this location. Use FT =3, TH = 6, TW = 6.

5. The name and address of permittee or agency that hired the prime consultant shall be placed in this location. Use FT =3, TH = 6, TW = 6.

6. Only names and addresses of the permittee or agency or prime consultant responsible for the project shall be shown. No logos, phone numbers or artwork.

TITLE SHEET PROJECT DEVELOPMENT NAMES
(Left Margin of Title Sheet)

Projects Prepared by Caltrans

FIGURE 2-6

DESIGN MANAGER	PROJECT MANAGER
(See Note 1)	(See Note 2)

(Do not add additional project development name blocks)

NOTES:

1. Printed name (minimum first and last) of the individual providing oversight of the Caltrans project engineer or other licensed person involved in the development of the entire project. Use FT =3, TH = 6, TW = 6. The word "MANAGER" may be removed and the appropriate word placed in the name block (e.g., "ARCHITECT"), if the licensed individual providing oversight is not an engineer.

2. Printed name of Caltrans project manager. Use FT =3, TH = 6, TW = 6.

Projects Prepared by Consultants

FIGURE 2-7

CONSULTANT DESIGN MANAGER	CALTRANS DESIGN OVERSIGHT APPROVAL	REGISTRATION No.	LICENSE Exp DATE	DATE SIGNED	APPROVED AS TO IMPACT ON STATE FACILITIES AND CONFORMANCE WITH APPLICABLE STATE STANDARDS AND PRACTICES AND THAT TECHNICAL OVERSIGHT WAS PERFORMED.
(See Note 3)	(See Note 4)	←	(See Note 5)	→	

NOTES:

3. Printed name of the individual in the prime consultant's company responsible for providing oversight of the prime consultant project engineer involved in the development of the entire project. Use FT =3, TH = 6, TW = 6. The word "MANAGER" may be removed and the appropriate word placed in the name block (e.g., "ARCHITECT"), if the licensed individual providing oversight is not an engineer.

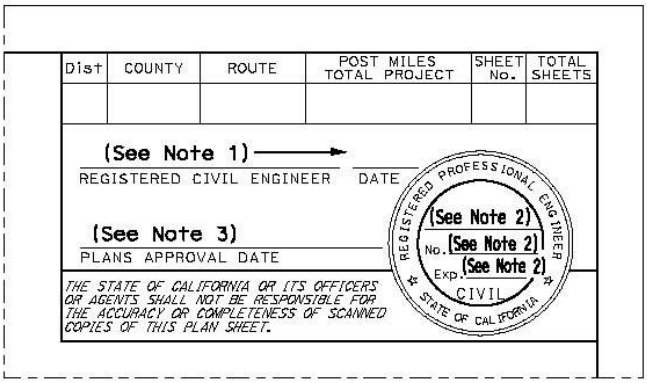
4. Printed name (use FT =3, TH = 6, TW = 6) and signature of Caltrans licensed professional providing design oversight approval (for any project on a state highway).

5. License number, license expiration date, and date of signature of Caltrans licensed professional whose signature is in the Caltrans design oversight approval name block. Use FT =3, TH = 6, TW = 6. Use (month/day/year, e.g. 4-8-13 or 10-10-13) for date signed.

INDIVIDUAL PLAN SHEET SIGNATURE FOR PROJECTS PREPARED BY CALTRANS

(Upper Right Corner of Border Sheet)

FIGURE 2-8



GENERAL:

Only one seal and signature of the appropriate licensed professional in responsible charge for developing the plan sheet shall appear on each individual plan sheet.

NOTES:

1. Signature and date signed of licensed professional in responsible charge for preparation of the plan sheet. Use (month/day/year, e.g. 4-8-13 or 10-10-13) for date signed. NOTE: for a licensed Landscape Architect see Figure 2-9a.

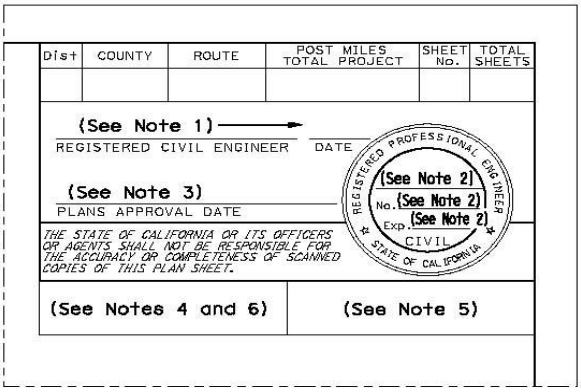
2. Name, license number and license expiration date of person whose signature is affixed to this sheet (See Note 1). Use FT =3, TH = 7, TW = 5 or less depending on the length of the name. The name of individuals with long first and last names may be placed as 2 lines within the space provided.

3. For the plans approval date see Title Sheet Examples "A" and "C."

INDIVIDUAL PLAN SHEET SIGNATURE FOR A PROJECT PREPARED BY A CONSULTANT FOR CALTRANS, OR A PROJECT PREPARED BY A LOCAL AGENCY, OR A PROJECT PREPARED BY A CONSULTANT FOR A PERMITEE OR LOCAL AGENCY

(Upper Right Corner of Border Sheet)

FIGURE 2-9



GENERAL:

Only one seal and signature of the appropriate licensed professional in responsible charge of developing the plan sheet shall appear on each individual plan sheet.

NOTES:

1. Signature and date signed of licensed professional in responsible charge for preparation of the plan sheet. Use (month/day/year, e.g. 4-8-13 or 10-10-13) for date signed.

2. Name, license number and license expiration date of person whose signature is affixed to this sheet (See Note 1). Use FT =3, TH = 7, TW = 5 or less depending on the length of the name. The name of individuals with long first and last names may be placed as 2 lines within the space provided.

3. For the plans approval date see Title Sheet Examples "A" and "C."

4. Where the prime consultant or sub consultant prepares the plan sheet for Caltrans or a permittee or local agency, the name and address of the **one** consultant responsible for the sheet shall be placed in this location. Use FT =3, TH = 6, TW = 6.

5. The name and address of the permittee or local agency that hired the consultant shall be placed in this location. Use FT =3, TH = 6, TW = 6. Not for the name of a second consultant. This space is reserved for permittee or local agency use only.

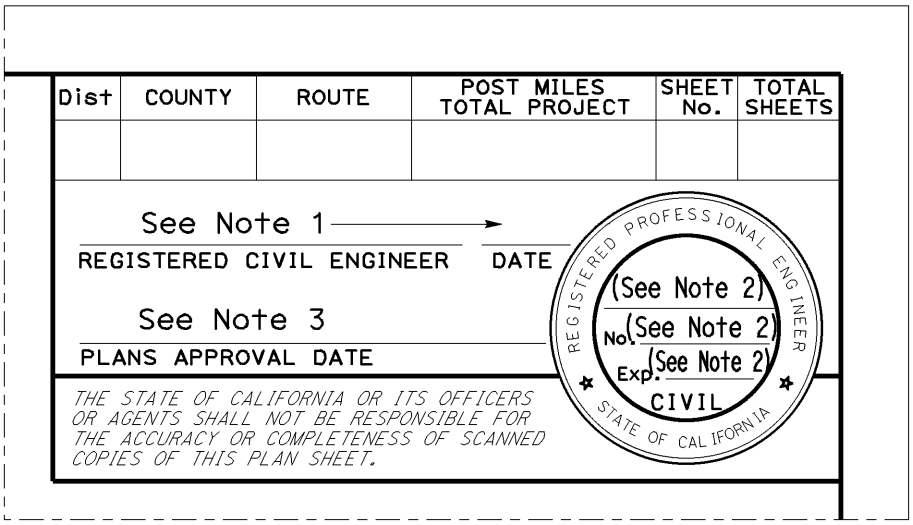
6. Where the work shown on the plan sheet is financed and prepared by a permittee or agency, the name and address of the permittee or agency shall be placed in this location. Use FT =3, TH = 6, TW = 6.

7. Only names and addresses of the local agency and consultant responsible for each specific sheet shall be shown. No logos, phone numbers or artwork

LANDSCAPE TITLE SHEET OR INDIVIDUAL LANDSCAPE PLAN SHEET SIGNATURE FOR A PROJECT PREPARED BY A CALTRANS, OR A CONSULTANT FOR CALTRANS, OR A PROJECT PREPARED BY A LOCAL AGENCY, OR A PROJECT PREPARED BY A CONSULTANT FOR A PERMITEE OR LOCAL AGENCY

(Lower Right Corner of Title Border Sheet)
or
(Upper Right Corner of Border Sheet)

FIGURE 2-9a



GENERAL:

Only one seal and signature of the appropriate licensed Landscape Architect in responsible charge for developing the plan sheet shall appear on the title sheet or each individual plan sheet.

NOTES:

1. A second signature of the licensed Landscape Architect in responsible charge for preparation of the plan sheet.

2. Signature, date of signature, license number, printed name and license renewal date of Landscape Architect whose signature is affixed to this sheet. Use FT =3, TH = 5, TW = 5 and WT = 1 for signature date and renewal date. Use FT = 3, TH = 3, TW = 3 and WT = 0 for printed name and license number (arched above the signature within the seal).

3. For the plans approval date see Title Sheet Examples "A" and "C."

INDIVIDUAL PLAN SHEET PROJECT DEVELOPMENT NAMES
(Left Margin of Border Sheet)

Projects Prepared by Caltrans

FIGURE 2-10

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	(See Note 3)	REVISED BY	(See Note 4)
Caltrans (See Note 1)	(See Note 2)	CHECKED BY	(See Note 3)	DATE REVISED	(See Note 4)

NOTES:

1. Name of the functional area responsible for development of the plan sheet, e.g., DESIGN, TRAFFIC OPERATIONS, etc. If one Caltrans district develops the plan sheet for another Caltrans district, the functional area shall be preceded with the preparer's district number, e.g., 01-DESIGN. Use FT =43, TX = 10, WT = 0. For Landscape Architecture, use FT=43, TH = 10, TW=8, WT=0.

2. Printed name (minimum first and last) of the licensed professional in the functional unit responsible for providing oversight of the licensed engineer or other licensed professional who developed the plan sheet. Use FT =3, TH = 6, TW = 6.

3. Printed name (minimum first and last) of individual who calculated or designed the information on the sheet. Printed name of individual who checked the designed information and/or quantities on the sheet. The names in these blocks must be two different individuals. The name of the individual responsible for the work indicated **must** be placed in each name block. Use FT =3, TH = 6, TW = 6.

4. Printed initials of the person responsible for any design or quantity revisions on the sheet. Use (month, day and year, e.g., 4-8-13 or 10-10-13) for date revised. Use FT =3, TH = 6, TW = 6.

5. Structure plan sheet borders have other name block formats for Caltrans prepared projects.

Projects Prepared by Consultants

FIGURE 2-11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	(See Note 8)	REVISED BY	(See Note 9)
Caltrans (See Note 6)	(See Note 7)	CHECKED BY	(See Note 8)	DATE REVISED	(See Note 9)

NOTES:

6. No entry is to be made in this name block when a consultant prepares the plan sheet.

7. Printed name of the individual in the consultant's functional unit responsible for providing oversight of the licensed engineer or other licensed person who developed the plan sheet. Use FT =3, TH = 6, TW = 6.

8. Printed name of individual in the consultant's company who calculated or designed information on this sheet. Printed name of individual in the consultant's company who checked the designed information and/or quantities on this sheet. The names in these blocks must be two different individuals. The name of the individual responsible for the work indicated must be placed in each name block. Use FT =3, TH = 6, TW = 6.

9. Printed initials of the individual responsible for any design or quantity revisions on the sheet. Use (month, day and year, e.g., 4-8-13 or 10-10-13) for date revised. Use FT =3, TH = 6, TW = 6.

10. Structure plan sheet borders and seed files for consultant prepared projects are available at this web site: http://www.dot.ca.gov/hq/oppd/cadd/rsc_files/webpage.htm

THIS PAGE INTENTIONALLY LEFT BLANK

2-1.7 Project Identification Block and County Abbreviations

Project Identification Block

The project identification block (see Figure 2-12) must contain these items specific to each project:

- Caltrans District Number (two District Numbers on very rare occasions)
- Standard abbreviation for county or counties where the project is located (see Table 2-1.6)
- Route or routes where project construction is to take place
- Post mile limits of construction (except for those specific projects described herein)
- Individual sheet number
- Project total number of sheets

The sheet number and total number of sheets are to be left blank for projects which are not AADD. Division of Engineering Services-Office Engineer (DES-OE) will insert the sheet number and total number of sheets. For AADD projects, the districts will include both sheet number and total number of sheets.

FIGURE 2-12

PROJECT IDENTIFICATION BLOCK
(Upper Right Corner of each Border Sheet)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Project Case Designation Numbers

For the purpose of referencing instructions related to the development of each title sheet project description and its associated project identification block, the various types of projects have been assigned case designation numbers. These case identification numbers apply to both this section of the manual and to the subsection titled, "Title Sheet Project Descriptions," in Section 2-2.2 of this manual.

Project Construction on One Route

Case 1A Project - One location on one route in one county with a continuous length of construction that is 0.2 mile or greater

In the project identification block, use a slash between the associated post miles for begin and end of construction. (In the title sheet project description use the "From…To…" format to describe the location.)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	74.9/79.3		

Project Construction on One Route (Continued)

Case 1B Project - One location on one route in more than one county with a continuous length of construction that is 0.2 mile or greater

In the project identification block, list the counties in order of the direction of construction. Use a comma between counties. A slash is used between the associated post miles for each county and a comma is used between the two sets of post miles. The order of listing the post miles is to match the order of listing the counties. (In the title sheet project description, use the "From…To…" format to describe the location.)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM, SF	1	R78.1/R78.2, R0.0/R0.7		

Case 1C Project - Two locations on one route in one county with both locations having a length of construction that is 0.2 mile or greater in length

In the project identification block, use a slash between the associated post miles for begin and end of construction for each location and a comma between the two sets of post miles. (In the title sheet project description, use the "From…To…" format to describe each location.)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	74.9/79.3, 81.2/83.5		

Case 1D Project - Two locations on one route in one county with one location 0.2 mile or greater in length and one location less than 0.2 mile (spot location)

In the project identification block, use a slash between the associated post miles for begin and end of construction for the location 0.2 mile or greater in length followed by a comma and a single post mile to describe the spot location. (In the title sheet project description, describe the location 0.2 mile or greater in length using the "From…To…" format and describe the location less than 0.2 mile in length by using a spot location description "At…".)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5	74.9/77.6, 78.9		

Project Construction on One Route (Continued)

Case 1E Project - Two locations on one route in one county with individual lengths of construction less than 0.2 mile (spot locations)

In the project identification block, use a single post mile to describe each location separated by a comma. (In the title sheet project description, describe the two locations by using spot location descriptions "At…" and "At…".)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	99	43.9, 45.7		

Case 1F Project - One location on one route in one county with an individual length of construction less than 0.2 mile (spot location)

In the project identification block, use a single post mile to describe the location. (In the title sheet project description, describe the location by using a spot location description "At…".)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Men	1	80.8		

Case 1G Project - One or more locations in one county with all locations within a 0.6-mile radius of the center of a route separation

In the project identification block, use a single post mile for each route to describe the location (post miles at route separation). The order of listing the post miles is to match the order of listing the routes. (In the title sheet project description, describe the location by using a spot location description "At Route XX/XXX Separation.")

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	5, 118	63.4, 18.3		

Project Construction <u>on One Route</u> (Continued)

Case 1H Project - Three or more locations on the same route in one county where each location's length of construction is less than 0.2 mile; 0.2 mile or greater; or a combination of these lengths

In the project identification block, use a slash between the associated post miles for begin and end of construction. In the title sheet project description, use the "From…To…" format to describe the beginning of the first location as the begin point of construction and the end of the last location as the end point of construction. Begin and end points of work are also to be shown.

If the distance between two successive locations of construction exceeds 3 miles, begin and end points of construction and work at those particular locations of construction may need to be shown (see Title Sheet Example "P"). Discussion with District Traffic should occur before deciding on the need of having advanced traffic signs for each location of construction. **NOTE**: Caltrans maintenance forces <u>do not</u> conduct routine maintenance between begin and end points of work. <u>Arbitrarily adding advanced traffic signs may not be in the best interest of conducting routine maintenance</u> on the route under construction or the route adjacent (where there is no work occurring) to the route under construction.

Example:

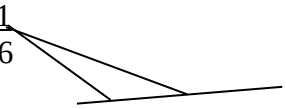
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	101	0.2/7.2		

The following applies to the <u>identification of construction on the title sheet mapping for Case 1H projects:</u>

Method 1 Identification

Identify each location on the Title Sheet strip map graphically. Identify each location that is less than 0.2 mile in length with a leader line displaying its location number and specific post mile. Identify each location that is 0.2 mile in length or greater with leader lines displaying its location number and its post mile limits.

Example: <u>Location 1</u>
PM 0.2/0.6



See Title Sheet Example "I"

Method 2 Identification

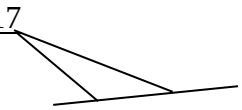
When the magnitude of the number of locations of construction does not allow room for post mile(s) to be shown at each individual location number on the title sheet mapping, identify each location graphically with a leader line and specific location number enclosed in a circle (see Title Sheet Example "J"). There is not to be numerical gaps in the location numbers nor is there to be an addition of alpha designation to the location numbers. Include a table on the Title Sheet with a heading of "Locations of Construction" and a listing within the table of all project location numbers and associated post miles. When the magnitude of locations does not allow room for the tabulation on the Title Sheet (typically more than 15 locations - see Title Sheet Example "X"), the tabulation of all of the locations of construction must be placed on a separate sheet or sheets. The name of the sheet or sheets is to be "LOCATIONS OF CONSTRUCTION" and the sheet identification code is to be "LC." The "Locations of Construction" sheet(s) must immediately follow the Title Sheet.

When the "Locations of Construction" sheet(s) are used in the project plan set, a note is to be placed on the Title Sheet directing attention to the sheet(s). Example: "THE TABLE OF LOCATIONS OF CONSTRUCTION IS SHOWN ON THE LOCATIONS OF CONSTRUCTION SHEET." If more than one sheet is used, change "SHEET" to "SHEETS." DO NOT include any bid item information within the "Locations of Construction" table (this table is for identifying work locations only).

Method 3 Identification

When the magnitude of locations does not allow room for each individual location number to be shown on the title sheet mapping (typically more than 100 locations), identify the locations by sequential grouping on the route. Use leader lines to identify the limits of the locations within each grouping (see Title Sheet Example "K"). Label the origin of the leader lines with the specific location numbers. Example:

Locations of Construction Nos. 1 thru 17



A table with a heading of "Locations of Construction" must be used to list all of the project's location numbers and associated post miles. The "Locations of Construction" table is to be placed on a separate sheet or sheets. The name of the sheet or sheets is to be "LOCATIONS OF CONSTRUCTION." The "Locations of Construction" sheet(s) must immediately follow the Title Sheet.

When the "Locations of Construction" sheet(s) are used in the project plan set, a note is to be placed on the Title Sheet directing attention to the sheet(s). Example: "THE TABLE OF LOCATIONS OF CONSTRUCTION IS SHOWN ON THE LOCATIONS OF CONSTRUCTION SHEET." If more than one sheet is used to list "Locations of Construction," change the word "SHEET" in the note to "SHEETS."

Project Construction on Two Routes

Case 2A Project - Two locations - Each location is on a different route in one county. The length of construction for each location is 0.2 mile or greater

In the project identification block, both routes are shown with a comma between them (routes are listed in numerical order); a slash is used between the associated post miles for begin and the end of construction for each location and a comma is used between the two sets of post miles. The order of listing the post miles is to match the order of listing the routes. (In the title sheet project description, describe each location using the "From…To…" format.)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	8, 67	26.2/26.5, 0.2/0.5		

Case 2B Project - Two locations - Each location is on a different route in one county. The length of construction on one route is 0.2 mile or greater and the length of construction on the other route is less than 0.2 mile

In the project identification block, both routes are shown with a comma between them (routes are listed in numerical order); a slash is used between the associated post miles for begin and end of construction for the location 0.2 mile or greater in length followed by a comma and a single post mile to describe the spot location. The order of listing the post miles is to match the order of listing the routes. (In the project description, describe the location which is 0.2 mile or greater in length using the "From…To…" format and describe the location less than 0.2 mile in length by using a spot location description "At…".)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	8, 67	26.2/26.5, 0.5		

Project Construction on Two Routes (Continued)

Case 2C Project - Two locations - Each location is on a different route in one county. Each construction location is less than 0.2 mile in length

In the project identification block, both routes are shown with a comma between them and a single post mile is used to describe each location separated by a comma. Routes are listed in numerical order. The order of listing the post miles is to match the order of listing the routes. (In the project description, describe each location using a spot location description "At…".)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	8, 67	26.5, 0.5		

Case 2D Project - Two locations - Each location is on a different route. Each route is in a different county. The length of construction for each location is 0.2 mile or greater

In the project identification block, list the routes in numerical order and list counties to match associated routes. Use a comma between counties. A slash is used between the associated post miles for each route and a comma is used between the two sets of post miles (post miles for begin and end of construction for each location). The order of listing the post miles is to match the order of listing the routes. (In the title sheet project description, describe each location using the "From…To…" format.)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd, Riv	18,71	11.3/12.1, 0.0/R3.4		

Case 2E Project - Two locations - Each location is on a different route. Each route is in a different county. The length of construction on one route is 0.2 mile or greater and the length of construction on the other route is less than 0.2 mile

In the project identification block, list the routes in numerical order (use a comma between route numbers). List the counties to match their associated routes. Use a comma between counties. Use a slash between the associated post miles for begin and end of construction for the location 0.2 mile or greater in length followed by a comma and a single post mile to describe the spot location. The order of listing the post miles is to match the order of listing the routes.

(In the project description, describe the location which is 0.2 mile or greater in length using the "From…To…" format and describe the location less than 0.2 mile in length by using a spot location description "At …".)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd, Riv	18,71	11.3/12.1, R3.4		

Case 2F Project - Two locations - Each location is on a different route. Each route is in a different county. Each construction location is less than 0.2 mile in length

In the project identification block list the routes in numerical order (use a comma between route numbers). List the counties to match their associated routes. Use a comma between counties. The order of listing the post miles is to match the order of listing the routes. (In the project description, describe each location using a spot location description "At…".)

Example:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	SBd, Riv	18,71	11.3, R3.4		

Project Construction is:

- At three or more locations on two or more routes
- At three or more locations in two or more counties

The following applies to the project identification block for these projects:

- Counties, in which the project is located, are listed in alphabetical order with a comma between them. The order of listing the counties may not always match the order of listing of the routes. When the number of counties exceeds six, see instructions herein.
- Routes are listed in numerical order. When the number of routes exceeds six, see instructions herein.
- Up to six counties or routes can be shown in the project identification block.
- No post miles are to be listed in the "Post Mile Block." "Var" is to be used in the "Post Miles Block." "Var" represents the various post miles of the different routes.

Example I.D. Block for project in two counties on five routes:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	18, 71, 138, 173, 189	Var		

Number of counties exceeds six:

If a project is in more counties than can be listed in the county identification block (more than six), then list the first five counties alphabetically and include "etc." at the end of the county listings in the county identification block. Use lowercase and italic text for "*etc*.", see example below. Do not use the "Var" designation in the identification block for "County." The Title Sheet project description must include the listing of all counties involved. Do not use abbreviations for the county names in the title sheet project description. The special provisions for the project must list all counties as well. If there isn't enough room to list the six counties in the identification block, see Title Sheet Example "X" for acceptable text size variation.

Example I.D. Block for project with more than six counties on two routes:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
03	But, ED, Nev, Pla, Sut, *etc.*	49, 99	Var		

Number of routes exceeds six:

If a project is on more than six routes, list the first five routes in numerical order and include "etc." at the end of the route listings in the route identification block. Use lowercase and italic text for "*etc*.", see example below. For a project with more than six routes, see Title Sheet Example "X." Do not use the "Var" designation in the identification blocks for "Route." The special provisions for the project must list all routes as well. If there isn't enough room to list the six routes in the identification block, see Title Sheet Example "X" for acceptable text size variation.

Example I.D. Block for project in two counties on six or more routes:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
08	Riv, SBd	18, 71, 138, 173, 189, *etc*.	Var		

The following applies to the identification of construction on the title sheet mapping for project construction at:

- Three or more locations on two or more routes
- Three or more locations in two or more counties

Case 3A Project - Three locations on two or more routes in one county - The length of construction for each location is 0.2 mile or greater.

Use a solid line on each route to represent the limits of construction on that route or local roads. Identify begin and end points of construction and begin and end points of work for each location on state highway (see Title Sheet Example "F"). Also identify limit of work for each local road where construction occurs.

Case 3B Project - Three or more locations on two or more routes in one county - The length of construction for each location is less than 0.2 mile.

Identify each location graphically. Use a leader line and specific location number enclosed in a circle to identify each location. There is not to be numerical gaps in the location numbers nor is there to be an addition of alpha designation to the location numbers. Begin and end points of construction and begin and end points of work do not have to be identified on the title sheet mapping for Case 3B projects. See instructions herein regarding tabulation of locations of construction for Case 3B projects.

Case 3C Project - Three or more locations on two or more routes in two or more counties - Each location's length of construction is less than 0.2 mile, 0.2 mile or greater, or a combination of these lengths

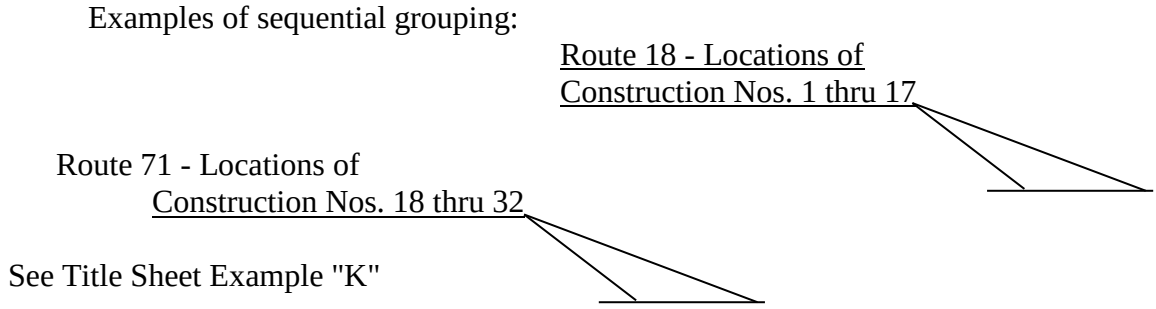
If there is sufficient space available on the title sheet mapping, identify each location graphically. Use a leader line and specific location number enclosed in a circle to identify each location. There is not to be numerical gaps in the location numbers nor is there to be an addition of alpha designation to the location numbers. See Title Sheet Example "J."

Begin and end points of construction and begin and end points of work are not identified on the title sheet mapping for Case 3C projects. See instructions herein regarding tabulation of locations of construction for Case 3C projects.

Case 3D Projects - The magnitude of locations (typically more than 100 locations) does not allow room for each individual location number to be shown on the title sheet mapping as in a Case 3C project. Each location's length of construction is less than 0.2 mile, 0.2 mile or greater, or a combination of these lengths

Identify the locations by sequential grouping on each route. Do not repeat construction location numbers from route to route. Use leader lines to identify the locations within each grouping. Label the origin of the leader lines with the specific route and locations of construction numbers.

Examples of sequential grouping:



See Title Sheet Example "K"

Begin and end points of construction and begin and end points of work are not identified on the title sheet mapping for Case 3D projects. See instructions herein regarding tabulation of locations of construction for Case 3D projects.

Case 3B, Case 3C, and Case 3D Projects- Tabulation of Locations of Construction

When the locations of construction are shown individually (Case 3B and Case 3C) or by sequential grouping (Case 3D) on the Title Sheet mapping, a table with a heading of "Locations of Construction" must be included in the project plans. The table must list each location of construction (whether it is a spot location or "To…From" format) by location number, county, route, and post mile(s).

The "Locations of Construction" table is to be placed on the Title Sheet when sufficient space is available. When the magnitude of locations does not allow room for the table on the Title Sheet (typically more than 15 locations), the tabulation of all of the locations of construction must be placed on a separate sheet or sheets. The name of the sheet or sheets is to be "LOCATIONS OF CONSTRUCTION." Since this table is part of the title sheet (<u>and bid items ARE NOT to be included on the title sheet</u>) DO NOT include bid items with this table.

The "Locations of Construction" sheet(s) must immediately follow the Title Sheet. When the "Locations of Construction" sheet(s) are used in the project plan set, a note is to be placed on the Title Sheet directing attention to the sheet(s). Example: "THE TABLE OF LOCATIONS OF CONSTRUCTION IS SHOWN ON THE LOCATIONS OF CONSTRUCTION SHEET." If more than one sheet is used, change "SHEET" to "SHEETS."

Case 4 Project - The locations of construction are on a large number of routes and sufficient space is not available on the Title Sheet mapping to identify the locations of project construction by use of individual location of construction numbers (Case 3B or Case 3C) or by numbered sequential grouping of locations of construction for each route (Case 3D)

The following applies to Case 4 projects:

- Use a solid line on each route to represent the limits of the locations of construction on that route. Do not show begin and end points of construction and begin and end points of work.
- Use an alpha designation enclosed in a circle and a leader line pointing to the solid line used on each route to indicate that there are locations of construction on that route.
- Include a table on the Title Sheet that lists the alpha designations and their corresponding locations of construction for each route. Use the title "LOCATIONS SUMMARY" for this table. This should avoid any confusion between the table on the title sheet and the required listing of individual locations on the table titled "Locations of Construction" on the "Locations of Construction" sheet(s). The "Locations of Construction" sheet(s) must immediately follow the Title Sheet.
- The "Locations of Construction" table on the "Locations of Construction" sheet(s) must list (at a minimum) locations of construction by each individual location number, county, route, and post mile(s). The "Locations of Construction" sheet(s) must immediately follow the Title Sheet.
- Include a note on the Title Sheet directing attention to the locations of construction sheet(s). Example: "THE TABLE OF LOCATIONS OF CONSTRUCTION IS SHOWN ON THE LOCATIONS OF CONSTRUCTION SHEET." If more than one sheet is used to list "Locations of Construction," change the word "SHEET" in the note to "SHEETS."

THIS PAGE INTENTIONALLY LEFT BLANK

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE 2-1.6

COUNTY ABBREVIATIONS

COUNTY	COUNTY ABBREVIATION
Alameda	Ala
Alpine	Alp
Amador	Ama
Butte	But
Calaveras	Cal
Colusa	Col
Contra Costa	CC
Del Norte	DN
El Dorado	ED
Fresno	Fre
Glenn	Gle
Humboldt	Hum
Imperial	Imp
Inyo	Iny
Kern	Ker
Kings	Kin
Lake	Lak
Lassen	Las
Los Angeles	LA
Madera	Mad
Marin	Mrn
Mariposa	Mpa
Mendocino	Men
Merced	Mer
Modoc	Mod
Mono	Mno
Monterey	Mon
Napa	Nap
Nevada	Nev

COUNTY	COUNTY ABBREVIATION
Orange	Ora
Placer	Pla
Plumas	Plu
Riverside	Riv
Sacramento	Sac
San Benito	SBt
San Bernardino	SBd
San Diego	SD
San Francisco	SF
San Joaquin	SJ
San Luis Obispo	SLO
San Mateo	SM
Santa Barbara	SB
Santa Clara	SCl
Santa Cruz	SCr
Shasta	Sha
Sierra	Sie
Siskiyou	Sis
Solano	Sol
Sonoma	Son
Stanislaus	Sta
Sutter	Sut
Tehama	Teh
Trinity	Tri
Tulare	Tul
Tuolumne	Tuo
Ventura	Ven
Yolo	Yol
Yuba	Yub

Use the above list for the correct abbreviation of each county. Use upper and lower case lettering as shown.

2-1.8 Sheet Identification Codes, Sheet Names, and Plan Order

A coding system maintains sheet order during the design and construction of the project. The larger the project, the more important a coding system becomes because it facilitates sorting out specific data and is used extensively for cross-referencing.

Coding consists of identifying each sheet of plans by the appropriate sheet identification code letter(s) and by numbering those sheets consecutively, e.g., L-1, L-2, L-3, etc. The codes such as L-1, D-1, etc., identify individual project plan sheets for cross-referencing. The title sheet does not require a sheet identification code.

The sheet name such as layout, drainage plan, etc., identifies the plan for indexing.

Refer to Section 2.1 of the CADD Manual for additional instructions for the sheet naming convention (sheet identification codes, sheet names, print sequence codes (part of the DGN file name), and order of sheets in a project plan set).

The project plan sheet name and sheet identification code is required on every sheet, except the title sheet. They are to be placed inside the sheet border at the lower right-hand corner of each sheet.

When Office of Structure Design prepared plans (e.g. sign structure, retaining wall, sound wall, etc.) are included in the roadway portion of the plans, the sheet name, sheet identification code, print sequence code and file name must be those listed for roadway plans. Office of Structure Design may use their border sheet for such plans. The project plan sheet name, sheet identification code and any appropriate modifier shall be the only sheet identification shown.

Where the project consists of work at various locations, the work location number unique to that sheet is to be shown in the lower right-hand corner under the sheet name (as a modifier). A modifier is also to be included on the Stage Construction sheets identifying which stage or sequence of work. Any modifier used is not to be considered part of the sheet name.

The official project description, as it appears on the title sheet, is not to be repeated on individual plan sheets. The project description shall appear only on the title sheet of the project set of plans.

Where more than one type of work is being shown on an individual sheet, the combined sheet name shall follow the plan sheet name order in Section 2.1 of the CADD Manual (example: "Pavement Delineation and Sign Plan"). The sheet identification code for a plan sheet with more than one type of work shown is to be the code letter for the first type of work shown in the plan sheet name (example: "PD" for Pavement Delineation and Sign Plan). One exception; when contour grading and drainage information is combined, use the drainage sheet identification code. Combining types of work on an individual plan view sheet should be limited to two types of work, with the exception of layout sheets. The layout sheet may include all types of work, depending on the complexity of the project. Regardless of the various types of work included on the layout sheet, the sheet name is to be "Layout" and the sheet identification codes are to be L-1, L-2, L-3, etc.

The sheet name for an Electrical Systems plan is handled differently than the other plan sheets in the project. Various individual bid items may appear on the layout, drainage, signing, etc. plan sheets. Whereas, Electrical Systems work is usually paid for on a lump sum basis. The plan sheet name is to be the same as the bid item on the Bid Item List. The sheet name for an Electrical Systems plan is the lump sum bid item that appears in the bid item list. The plan sheet can contain various materials and components, but it is paid for by the name of the plan sheet.

Do not use the non pay symbol (N) for components of the lump sum bid item. For further information on Electrical Systems plans see Section 2-2.23 of this manual.

Showing Design Information on Multiple Plan View Sheets.

Layout sheets provide much of the background (base topographic and roadbed information) for all other plan view sheets (e.g. drainage, pavement delineation, utilities, signing, electrical systems, etc.). The statement "*APPROVED FOR ..... WORK ONLY*" is needed to clarify that the "other" plan view sheets (e.g. drainage, pavement delineation, signing, electrical systems, etc.) are only to be utilized for the specific work approved on that specific sheet. The statement above is not to be placed on the layout sheet as most all bid items can be shown on the layout sheet if space allows. The statement "APPROVED FOR ..... WORK ONLY" is not to be placed on profile, detail or quantity sheets (since there usually isn't "plan view" background information shown on these sheets).

The statement for utility plan sheets is slightly different than all other plan view sheets. The statement to be used is "*THIS PLAN TO BE USED FOR UTILITY INFORMATION ONLY.*" The word "*APPROVED*" is not included in the statement so that it will not imply that an exception to the utility policy had already been granted. **NOTE**: do not confuse the above statement with the two standard Caltrans utility notes that might also appear on the plans.

When there is sufficient justification to vary from the statutory requirements of providing all utility information on the plans, such an exception must first be approved by HQ Division of Design. Once a variance is approved by HQ Division of Design, then one of the two standard Caltrans utilities notes can be placed on the plans (see Section 2-2.13 for the exact wording of the notes).

Discovery of undisclosed subsurface facilities during construction can have a major impact to the cost and schedule of completing any project. Thus all utilities owned by others must be shown on the "Utility Plans." Subsurface facilities owned by Caltrans must either be shown on the utility plans or the Electrical Systems plans. This will depend on the type of subsurface facility, the size and type of project and the most appropriate individual responsible for the depiction of the subsurface facilities on the project plans he/she is responsible for. Existing Caltrans drainage facilities are to be shown on the drainage plans (or layouts on a small project). Utilities or subsurface facilities may also be shown on other plan view sheets for reference purposes only when these facilities are in close proximity to identified work in the project. Some Caltrans owned electrical subsurface facilities may be shown on the electrical systems plan sheets.

Design information identified as a bid item should only be shown on one plan view type sheet. If there is a need to show the bid item on another plan view sheet for reference purposes only, then it must **not** be identified (labeled) as a bid item. It must be clear to the bidder/contractor, for estimating and payment purposes, on what plan sheet a bid item is paid for (so an item doesn't get missed or counted twice). Example: an irrigation conduit paid for on the layout sheet, is also necessary to show on the irrigation plan sheet, in order to show where and how the irrigation system connects at the irrigation conduit. In this example, the irrigation conduit on the irrigation plan sheet may either be dropped out or the weight of the line reduced to avoid confusion.

2-1.9 Project Plan Submittals

The plans portion of the PS&E submittal sent to DES-OE or any district Office Engineer for AADD projects, are to be electronic files consisting of a DGN and Iparm for each project plan sheet. Use the appropriate "PS&E CADD Submittal Form" and a "Project Plan Review Checklist" (contact district Office Engineer to obtain the form and checklist). Fill in all the information on both forms completely and accurately to process the project in a timely manner.

Prints of the electronically transmitted CADD files are not required as part of the PS&E submittal unless requested by district Office Engineer.

The regional center or each district, not within a regional center, is to submit the roadway portion of the project plans to DES-OE, for all non AADD projects, using the above-specified procedures. Roadway plans prepared by local agencies or consultants must be sent to the appropriate regional center or district for final processing.

Office of Structure Design is to submit their portion of the project plans (DGN files and Iparms) to DES-OE, for all non AADD projects, following the same procedures specified above. For all AADD projects, the Office of Structure Design will send the DGN files and Iparms to each district for final processing. Structure plans prepared by local agencies or consultants must first be sent to Office of Structure Design for technical review before the final processing by the district.

Office of Transportation Architecture and The Office of Electrical, Mechanical, Water and Wastewater (TAEMWW) is to submit their portion of the project plans (DGN files and Iparms) to DES-OE, for all non AADD projects, following the same procedures specified above. For all AADD projects, TAEMWW will send the DGN files and Iparms to each district for final processing. Building plans prepared by local agencies or consultants must first be sent to TAEMWW for technical review before the final processing by the district.

2-1.10 Project Plan File Formats

Standard Acceptable File Format

Caltrans only accepts 100 percent electronic submittals. The standard file format for all submissions of plans is a MicroStation design file or DGN.

The following variations, with prior written approval at approximately 60 percent completion from the Division of Design, Office of CADD and Engineering GIS Support, will be considered for PS&E submittal, under these specific circumstances:

- DGN format files with imbedded or imported raster data (aerial photographs or digital pictures). Raster data should be limited to detail sheets that require enhancing or emphasizing of a detail or a unique location (i.e. toll plaza at the San Francisco/Oakland Bay Bridge) that the contractor might need to see. The need for imported raster data should be based on an engineering need, not for aesthetics or a location identification need. Project plans should first and foremost be engineered plans not photogrammetric plans. Aerial photographs were designed for preliminary plans not final project plans. If aerial mapping is needed for identifying specific locations, plan sheets have been established to handle the raster data. These sheets are called "Aerial Identification" and follow the "Key Map and Line Designation" sheets. Raster data is not be used as background for other plan sheets such as layouts, drainage, utilities, pavement delineation, etc.

- Tiff or tagged image file format are acceptable where legacy plans are being considered for submission as part of a new CADD submittal. Legacy plan sheets, such as existing log of test boring and as-built data of existing structure or roadway plans for reference or location purposes, which are not available as electronic files, may be scanned into raster (Tiff) format and submitted for purposes of establishing a 100 percent electronic PS&E submittal. This is a single, complete plan sheet with borders intact, submitted as a tiff raster image. The legacy sheet is to be scanned, sized (cropped), de-speckled and de-skewed before submittal. The preferred size of the finished Tiff plot is 22 inches x 34 inches and for special circumstances the maximum allowable size is 23 inches x 35 inches. These files will be raster edited.

Unacceptable Formats:

- Hard Copy Originals
- Reference Files (neither vector nor raster)
- Cadd Generated Raster - Any file that was created as a ***DGN*** file, but converted to raster for convenience or expediency, will not be accepted for PS&E Submittal.
- Models- (submittals must be only one DGN file for each project plan sheet.) Design models containing multiple sheet models are not acceptable.
- AutoCad Files - Files started with AutoCad (.dwg or .dxf) must be converted into a MicroStation file (DGN) under the direction of the engineer of record.

For additional information regarding project plan formats, see Section 4.1 of the CADD User's Manual.

THIS PAGE INTENTIONALLY LEFT BLANK