



**Evaluation of Storm Water Data Reports  
for Fiscal Year 2015/2016**

**CTSW-RT-16-314.13.2**

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**California Department of Transportation  
Division of Environmental Analysis, Storm Water Program  
1120 N Street  
Sacramento, California 95814**

<http://www.dot.ca.gov/hg/env/stormwater/index.htm>



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Please call or write to:

Storm Water Liaison, Caltrans Division of Environmental Analysis  
MS 27, P.O. Box 942874, Sacramento, CA 94274-0001

(916) 653-8896 Voice or dial 711 to use a relay service.





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## List of Abbreviations

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ACD	advertised contract documents
BMP	best management practice
CGP	Construction General Permit
cfs	cubic feet per second
DPP	design pollution prevention
FY	fiscal year
GSRDs	gross solids removal devices
HQ	Headquarters
MOU	Memorandum Of Understanding
NPDES	National Pollutant Discharge Elimination System
PAED	Project Approval/Environmental Document
PE	project engineer
PID	Project Initiation Document
PPDG	Project Planning and Design Guide
PS&E	Plans, Specifications, and Estimates
QA/QC	quality assurance/quality control
RUSLE2	Revised Universal Soil Loss Equation 2
RWQCB	Regional Water Quality Control Board
SMARTS	Storm Water Multi Application and Report Tracking System
TBMP	Treatment BMP
TMDL	Total Maximum Daily Load
SWC	Storm Water Coordinator
SWDR	Storm Water Data Report
SWMP	Storm Water Management Plan
WDRs	Waste Discharge Requirements
WQV/WQF	Water Quality Volume/Water Quality Flow



## 1. Background

This report summarizes the independent quality assurance/quality control (QA/QC) reviews on Storm Water Data Reports (SWDRs) prepared by or for Caltrans District staff. The SWDRs evaluated for this 2016 report were prepared during the 2015/16 fiscal year (FY). The reviews were performed as part of the design self-audit program to evaluate whether the SWDRs have been prepared in accordance with the Project Planning and Design Guide (PPDG, May 2012), which facilitates compliance with the Caltrans National Pollutant Discharge Elimination System (NPDES) Permit (Order No. 99-06-DWQ, NPDES No. CAS000003) (1999 Permit), the 2003 Storm Water Management Plan, and the Construction General Permit (CGP) (Order No. 2009-0009-DWQ, NPDES No. CAS000002 as amended by 2010-0014-DWQ, NPDES No. CAS000002).

The PPDG was updated in February 2016 to incorporate the requirements of the updated Caltrans NPDES Permit (Order No. 2012-0011-DWQ, NPDES No. CAS000003) (2012 Permit) which became effective on July 1, 2013. Projects included in this QA/QC review that were in the Project Initiation Documents (PID) phase and signed after July 1, 2013, were reviewed for compliance with the 2012 Permit. In addition to the SWDR reviews, 13 of the projects were reviewed to evaluate whether the advertised contract documents (ACD) (i.e., plans, specifications, and estimates) had been prepared in accordance with the project PS&E SWDR.

In general, a SWDR is required for every project. Depending on the extent of soil disturbance and degree of stormwater impacts, a “Long Form” or a “Short Form” SWDR is required. Typically, projects that do not have the potential to create stormwater impacts, and have little or no soil disturbance may utilize the “Short Form” SWDR.

The reviews included in this report have been conducted on SWDRs that District staff submitted to Headquarters (HQ) for evaluation. The information provided in each SWDR has been evaluated to determine if there are areas of the stormwater evaluation process that can be improved. Ratings were solely based on the information provided to HQ at the time of the review. If information was missing, either in the SWDR or the ACDs, the reports were rated accordingly.

It should be noted that a rating of “Poor” does not necessarily mean that the project is out of compliance.

An Implementation Memo from the Office of Stormwater Management and Design (OSWMD) dated April 15, 2016 (2016 PPDG Implementation Memo) is available on the Caltrans website. The memo gives direction to project delivery staff to use the 2016 PPDG and applicable SWDR templates, and provides guidance on how to transition from the old SWDR forms. Some references to the 2016 PPDG are provided for guidance during this transition period throughout this document.

### 1.1 SWDR Reviews Comparison: 2013-2016

To evaluate the trend of SWDR reviews over the years, Figure 1-1 compares the results of SWDR reviews in 10 categories from 2013 through 2016 to come up with an Overall Review rating. The comparison chart generally shows that the rankings over the years have become consistent across the majority of review categories. This result is most likely due to on-going efforts to incorporate stormwater evaluations and documentation into everyday business practices. The reports are becoming more complete, consistent, and streamlined throughout the state. The Overall Review rating shows over 95 percent of the SWDRs reviewed are acceptable or outstanding; an improvement over the two years prior.

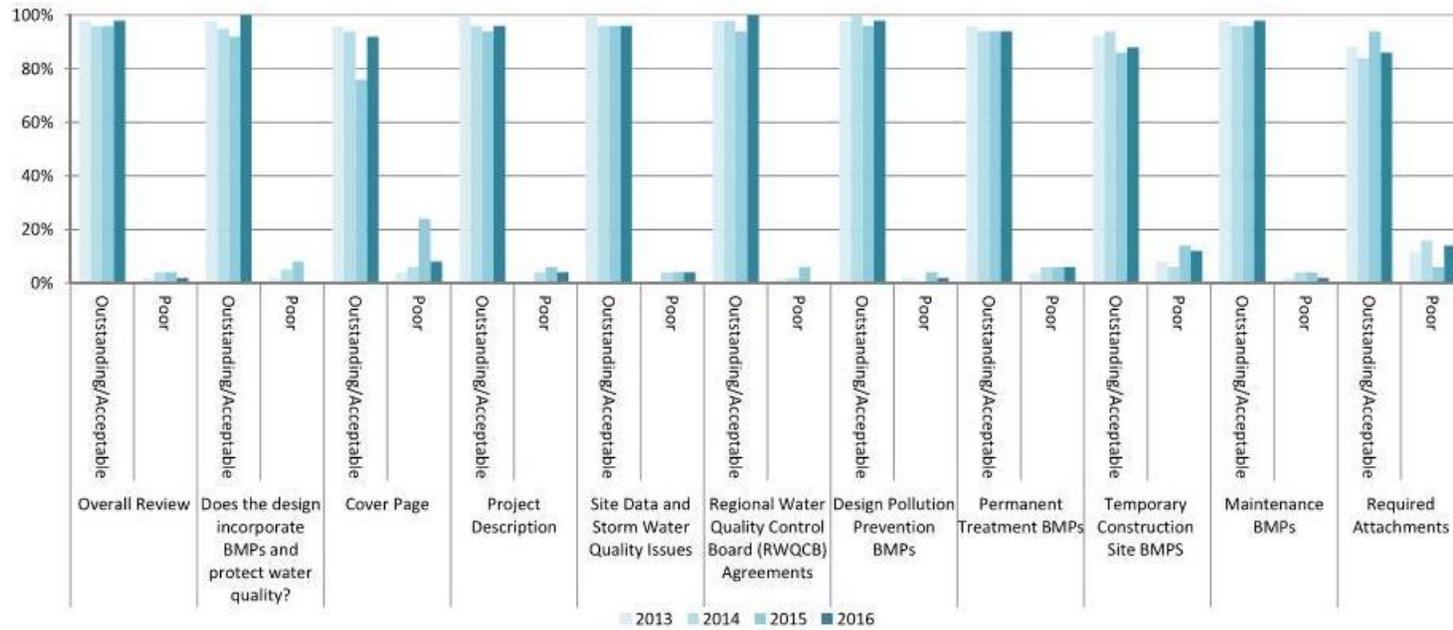


Figure 1-1. SWDR Review Rankings by Category (2013-2016)

## 2. Overview of SWDR Review Findings

This section summarizes the independent QA/QC reviews conducted on a total of 50 SWDRs prepared during FY 2015/16. Based on this sampling, 98 percent of the SWDRs prepared by or for Caltrans conform to the requirements of the Caltrans NPDES and CGP permits and PPDG.

The 50 SWDRs reviewed represented the following:

- Project Initiation Document (PID) phase, (18 projects),
- Project Approval/Environmental Document (PAED) phase, (7 projects),
- Project Approval/Environmental Document/ Plans, Specifications, and Estimates (PAED/PS&E) phase (1 project)
- Plans, Specifications, and Estimates (PS&E) phase (24 projects),
- Long Form (29 projects), and
- Short Form (21 projects).

In addition to evaluating the SWDRs against the categories shown in Figure 1-1, another review focus was to confirm that Districts used the current T-1 Checklist and included additional monitoring requirements based on project risk level (as defined by the CGP).

The SWDRs evaluated showed the following general trends:

- The reports are concise and informative.
- In most Districts, project engineers (PEs)<sup>1</sup> have included BMP quantities in the SWDR narrative sections and costs in the supplemental attachments.
- PEs are using the current PPDG and incorporating permit requirements into the reports and cost estimates (e.g., Storm Water Sampling and Analysis, Additional Water Pollution Control, Rain Event Action Plan, Storm Water Annual Report, etc.).
- PEs are documenting use of the design tools created by Caltrans (e.g., the Infiltration Tool).

Validating the final soil stabilization design compared to the original conditions is described in Section 8.1.10 of the PPDG and supported within the CGP. One validation method involves using the Revised Universal Soil Loss Equation 2 (RUSLE2) computer program to estimate soil erosion loss and sediment transport in natural and disturbed construction sites. If this method is used, the RUSLE2 summary sheet must be provided with the SWDR at PS&E for SWPPP projects (those disturbing an acre or more of soil). The method of final soil stabilization must be described in the narrative of the SWDRs. Six of the SWDRs reviewed described the basis of soil stabilization in the narrative. Validating final soil stabilization continues to be an important area to be documented during design and represents an area for future improvement.

When designing BMPs to meet the post construction treatment requirements, the PE must treat the water quality volume/water quality flow (WQV/WQF) generated by the project's impervious area. Projects developed under the 1999 Permit maximize the area treated with a goal of providing 100 percent treatment. Projects developed under the 2012 Permit have a requirement of 100 percent treatment.

Twenty of the reports reviewed were non-exempt from treatment. Nine of these non-exempt projects had narrative documenting that 100 percent of the WQV/WQF will be treated by the project BMPs in the

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<sup>1</sup> Use of PE in this report is based on a registered engineer or landscape architect, as identified on the cover page of the SWDR.

narrative. Eight of the nine reports providing at least 100 percent treatment of the WQV/WQF reported that the following BMPs were incorporated:

- Biostrips (1 report)
- Bioswales (2 reports)
- Combination of Biostrips and Bioswales (4 reports)
- Infiltration Basin (1 report)
- Detention Basin (2 reports)
- Media Filter (2 reports)

The Caltrans Infiltration Calculation Tool is available to PEs through the Caltrans website. While it is not a requirement, this tool can be used to calculate the total amount of stormwater infiltrated by project BMPs. Seven of the reports reviewed documented use of the infiltration tool.

The SWDRs have been evaluated against information expected in 10 categories that comprise a fully developed SWDR and contribute to the overall rating of the report. Rating summaries and general recommendations are included in the following sections for each category of evaluation.

Table 2-1 summarizes ratings for each of the review categories further presented in Table 3-1 through Table 3-11 of this report. The Overall Review considers all 10 categories.

<b>Table 2-1. Summary of All Ratings</b>			
<b>Category</b>	<b>Percentage of Reports By Rating</b>		
	<b>Outstanding</b>	<b>Acceptable</b>	<b>Poor</b>
<b>Overall Review</b>	2%	96%	2%
<b>Does the design incorporate BMPs and protect water quality</b>	4%	96%	0%
<b>Cover Page</b>	0%	92%	8%
<b>Project Description</b>	6%	90%	4%
<b>Site Data and Storm Water Quality Issues</b>	2%	94%	4%
<b>Regional Water Quality Control Board (RWQCB) Agreements</b>	0%	100%	0%
<b>Design Pollution Prevention BMPs</b>	4%	94%	2%
<b>Treatment BMPs</b>	6%	88%	6%
<b>Temporary Construction Site BMPs</b>	0%	88%	12%
<b>Maintenance BMPs</b>	0%	98%	2%
<b>Required Attachments</b>	4%	82%	14%

### 3. SWDR Review Findings by Review Category

The results of the FY 2013/14 report evaluations by category are summarized in the following subsections.

#### 3.1 Overall Review Rating

Table 3-1 summarizes the overall results of the 50 reviewed reports.

Table 3-1. Summary of Overall SWDR Review Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	1	48	1
Percentage of Reports Receiving Score	2%	96%	2%

The “Outstanding” rating was associated with a report that provided most of the required information in a clear and concise manner with backup data to substantiate the statements in the narrative. In general, most of the SWDRs reviewed were consistent among the various Caltrans districts, particularly in regard to narratives for the project description, completion of checklists, and consideration of BMPs.

The “Poor” rating was assigned to a project that was required to provide treatment and stated that soil amendments and LID design would provide treatment. However, calculations showing the amount of infiltration achieved through soil amendments were not attached to the SWDR. Additionally, the project states that the expected flow increase is not significant to the existing drainage system without substantiation of the statement. The drainage report findings could be presented to validate this statement.

**General Recommendations** – Overall the SWDR process works well. The Design Stormwater Coordinator (SWC) is encouraged to support the Project Design Compliance Evaluation process by providing Supplemental Attachments that document calculations and supporting information for sizing treatment BMPs (TBMPs) including plan sheets. When TBMPs are implemented in a project it is recommended to attach these Supplemental Attachments to the PS&E SWDR for proper TBMP documentation.

#### 3.2 Does the Design Incorporate BMPs and Protect Water Quality

Table 3-2 summarizes the SWDR review results related to incorporating BMPs and protecting water quality.

Table 3-2. Summary Ranking of Designs that Incorporate BMPs and Protect Water Quality			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	2	48	0
Percentage of Reports Receiving Score	4%	96%	0%

The “Outstanding” ratings were assigned to SWDRs that considered all applicable BMPs in detail and provided backup data to substantiate the statements in the narrative.

**General Recommendations** – The Design SWC should verify that the PE is correctly and completely documenting stormwater design decisions and the amount of area being treated in the SWDR narrative.

### 3.3 Cover Page Information Rating

Table 3-3 summarizes SWDR review results related to cover pages.

Table 3-3. Summary of Cover Page Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	0	46	4
Percentage of Reports Receiving Score	0%	92%	8%

The “Poor” ratings were based on cover sheets that were missing significant or critical information, or where the Design SWC was not the last to sign off on the SWDR.

**General Recommendations** – The Design SWC should continue to be the last person signing the cover page to ensure the significant and critical project information is included. It is the responsibility of the Design SWC to ensure other disciplines have reviewed and approved the content of the SWDR specific to their area of expertise and concern, including the design approach, prior to signing the SWDR. Care should be taken to ensure the correct date is listed with all signatures.

### 3.4 Project Description Information Rating

Table 3-4 summarizes SWDR review results related to project descriptions.

Table 3-4. Summary of Project Description Information Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	3	45	2
Percentage of Reports Receiving Score	6%	90%	4%

The “Outstanding” ratings were assigned to SWDRs with a complete and concise project description.

The “Poor” ratings were assigned to a project that listed contradictory project information and on a project that provided an incomplete project description so that the scope was unclear.

**General Recommendations** – PEs are to use the project description section of the SWDRs to briefly describe the project scope and site conditions and if Treatment BMPs are required or not. If Treatment BMPs are required, the PE should document the PID approval date and significance. Consider using the sample text in Section 6.4.2 of the 2016 PPDG. In several of the SWDRs reviewed it was unclear if the project was required to implement the 2012 Permit requirements.

The Design SWC should continue to verify that complete, concise narratives are included with the SWDRs prior to approval.

### 3.5 Site Data and Storm Water Quality Issues Information Rating

Table 3-5 summarizes SWDR review results related to site data and storm water quality issues.

Table 3-5. Summary of Site Data and Storm Water Quality Issues Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	1	47	2
Percentage of Reports Receiving Score	2%	94%	4%

The “Outstanding” rating was based on all pertinent information being provided in a concise narrative, along with substantiation or a source for significant or decisive statements.

The “Poor” ratings were assigned to projects with incomplete documentation of pertinent site data to be considered in design.

**General Recommendations** – Design SWC should verify that complete narratives are included with the SWDRs, including data that is pertinent to design, prior to approval.

### 3.6 RWQCB Agreements Information Rating

Table 3-6 summarizes SWDR review results related to RWQCB agreements.

Table 3-6. Summary of RWQCB Agreements Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	0	50	0
Percentage of Reports Receiving Score	0%	100%	0%

**General Recommendations** – Design SWC should be diligent in identifying and documenting agreements with RWQCBs, including BMPs required for compliance with permits other than the Caltrans NPDES permit.

If no project-specific PLACs or other communication or coordination with the RWQCB apply to the project, then state “No project-specific PLACs, or other communication or coordination with the RWQCB apply to the project.” (2016 PPDG Section 6.4.6).

### 3.7 Design Pollution Prevention BMPs Information Rating

Table 3-7 summarizes SWDR review results related to Design Pollution Prevention BMPs.

Table 3-7. Summary of Design Pollution Prevention BMPs Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	2	47	1
Percentage of Reports Receiving Score	4%	94%	2%

The “Outstanding” ratings were based on well-documented design pollution prevention (DPP) approaches that included clear identification of downstream effects related to potentially increased flow, validation of final soil stabilization, emphasis on infiltration BMPs, and identification of WQV infiltrated.

The “Poor” rating was assigned to a project that lacked calculations substantiating the statement that soil amendments will mitigate increased flows.

Seven of the reports reviewed documented qualitative infiltration treatment credit, including the use of roadside ditches, soil amendments, and existing vegetated areas. Seven of the reports documented use of the Caltrans Infiltration Tool.

**General Recommendations** – Continue to document strategies used for BMPs in the narrative, including the documentation of infiltration treatment provided by DPP BMPs. Design SWCs need to ensure that appropriate elements of this section are addressed in SWDRs, including: validation of final soil stabilization design, downstream effects based on drainage calculations, and emphasis on infiltration.

Note that there is new direction for this section based on the 2016 PPDG (see Section 6.4.7.2). The 2016 PPDG states “The PE is to describe the DPP BMPs that are being used for TMDL CUs (stabilized areas only). Other DPP BMPs that are infiltrating stormwater and being used for post construction treatment, Alternative Compliance, or CUs will be documented under the Treatment BMP strategy section.”.

### 3.8 Permanent Treatment BMPs Information Rating

Table 3-8 summarizes SWDR review results related to Treatment BMPs.

Table 3-8. Summary of Treatment BMPs Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	3	44	3
Percentage of Reports Receiving Score	6%	88%	6%

The “Outstanding” ratings were based on reports that fully considered and documented consideration of applicable Treatment BMPs along with complete documentation of the Treatment BMP design approach.

The “Poor” ratings were assigned to a project that did not provide calculations or documentation of the percent WQV treated by BMPs, a project that states treatment will be provided through an MOU with the City of Sacramento but does not include any information on the MOU or details on any agreements made specifically for the project, and a project that incorrectly states that treatment is not required because there is no need for a 401 Certification on the project.

**General Recommendations** – PEs should continue to document Treatment BMPs strategies in the narrative. All reports providing treatment must clearly and concisely document the areas being treated. Projects requiring Treatment BMPs must use the T-1 Checklist; as such, Design SWCs need to ensure that the T-1 Checklist is being used correctly prior to signing SWDRs. PEs must document the percentage of the WQV/WQF to be treated by the preferred BMPs and justify the BMPs strategy if treatment is less than 100 percent. Projects covered by the 2012 Permit that have less than 100 percent treatment provided must document the shortfall, so that an equivalent area can be sought or addressed through other means. A tool has been developed to assist PEs with completing calculations to answer infiltration

questions within the T-1 Checklist; however, this tool is not required to be used. If the tool is not used, then the PE will need to use computations or other supporting information that can reliably answer the infiltration questions to complete the T-1 Checklist and meet permit requirements.

Per the 2016 PPDG Implementation Memo, the implementation of the 2016 PPDG and SWDR templates should occur as soon as possible for projects with a PID date after July 1, 2013. In future SWDRs the Design SWC should ensure that:

- Table E-1 is used to document Post Construction Treatment, Compliance Units, and /or Alternative Compliance.
- Table E-2 is used to document Individual Treatment BMPs.

If DPP or Treatment BMPs are not deployed then state “No [type] BMPs apply to this project.” ( 2016 PPDG Section 6.4.7.1)

### 3.9 Temporary Construction Site BMPs Information Rating

Table 3-9 summarizes SWDR review results related to Temporary Construction Site BMPs.

Table 3-9. Summary of Temporary Construction Site BMPs Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	0	44	6
Percentage of Reports Receiving Score	0%	88%	12%

The “Poor” ratings were based on the following missing information:

- Coordination and concurrence from the Construction Division.
- Identification or quantification of the items designated as separate bid items or as lump sum items, including items required for Risk Level 2 and 3 sites.
- Monitoring activities and locations for Risk Level 2 and 3 sites.
- Construction BMP quantities being based on similar project types rather than Caltrans current cost estimating procedures at the PS&E phase.

In general, PEs have done a good job clearly documenting the strategy for implementing Construction Site BMPs and the necessary coordination/concurrence from Construction personnel.

**General Recommendations** – Continue to document Construction Site BMP strategy, coordination, and concurrence with Construction. Design SWC should ensure that the PE is including information related to the CGP requirements in the narrative and in the quantities for construction site BMPs and monitoring (e.g., Storm Water Sampling and Analysis Day). SWC should verify that PE documents monitoring activities, as well as monitoring locations in the report narrative or on project plans if plans are included as a supplemental attachment to the report.

### 3.10 Maintenance BMPs Information Rating

Table 3-10 summarizes SWDR review results related to Maintenance BMPs.

Table 3-10. Summary of Maintenance BMPs Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	0	49	1
Percentage of Reports Receiving Score	0%	98%	2%

The “Poor” rating was assigned to a project that did not include a description of maintenance BMPs when, based on the project description, drain inlet stenciling would have been applicable to the project.

**General Recommendations** –Design SWC should continue to verify that complete narratives are included with the report prior to approval and subsequent submittal to HQ for evaluation.

If Maintenance BMPs are not deployed, then state “No Maintenance BMPs independent of other Treatment BMPs apply to this project”. (2016 PPDG Section 6.4.5)

### 3.11 Required Attachments Information Rating

Table 3-11 summarizes SWDR review results related to required attachments.

Table 3-11. Summary of Required Attachments Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of Reports Receiving Score	2	41	7
Percentage of Reports Receiving Score	4%	82%	14%

The “Outstanding” ratings were based on SWDRs that provided complete and concise information on all of the required attachments.

The “Poor” ratings were based on more than one of the following required attachments being incomplete or missing as follows:

- Vicinity Map (3 reports)
- RUSLE2 Summary Sheet (6 reports)
- Risk Level Determination documentation (4 reports)
- Permanent Treatment BMPs summary spreadsheets (2 reports)
- Quantities for Construction Site BMPs (5 reports)
- SMARTS Form (7 reports)

Eight of the reports reviewed attached the SWDR Attachment for SMARTS input. Fifteen of the reports reviewed required this attachment.

It is important that the Design SWC verify that all applicable attachments are submitted to HQ to ensure a complete review. These quality assurance reviews are based on the project information provided at the time of the review; missing or incomplete data can lead to a “Poor” rating.

**General Recommendations** –Design SWC should verify that complete attachments are included with the SWDRs prior to approval and subsequent submittal to HQ for evaluation.

Per the 2016 PPDG, the Design SWC should ensure that the SWDR Summary Spreadsheets which supersede the Treatment BMP Summary Spreadsheets are included in all SWDRs.

## 4. Advertised Contract Documents Review Findings

Thirteen project SWDRs along with their advertised contract documents (ACD) have been evaluated to determine whether the elements identified in the project SWDR were consistent with the contract documents. Those elements include but are not limited to: CGP requirements, treatment BMPs (when required), construction windows, and appropriate information on final soil stabilization, erosion control, and infiltration.

Table 4-1 summarizes the overall results of the 13 reviewed Contract Documents.

Table 4-1. Summary of Advertised Contract Documents Review Ratings			
Category	Rating		
	Outstanding	Acceptable	Poor
No. of ACDs Receiving Score	0	11	2
Percentage of ACDs Receiving Score	0%	85%	15%

The ACDs provided most of the required information identified in the SWDR in a clear and concise manner. In general, the ACDs were consistent among the various Caltrans districts, particularly in regard to providing CGP requirements and including treatment BMPs in construction plans.

The following list is a summary of the general findings:

- Ten of the advertised documents were signed within 6-months of the SWDR approval date.
- Most projects had general write ups in the SWDRs for erosion control; however, the contract documents included specific line items and quantities not documented in the SWDR.
- The disturbed soil area quantities listed in the SWDRs were able to be verified using the advertised documents for seven projects.
- Many of the projects had discrepancies in their risk level determination (as required by the CGP) between the SWDR and the advertised documents.

**General Recommendations** –The PE should verify that the information contained in the project SWDR is incorporated into the corresponding PS&E documents including: risk level, erosion control measures, final soil stabilization, construction begin and end dates, and documentation of infiltration measures.

Per the 2016 PPDG, Design SWC should make sure that all permanent BMPs used for post construction treatment or CUs are identified on the project plans (2016 PPDG Section 6.4.9.3).

## 5. Summary

### 5.1 Stormwater Design Compliance Improvements

The ability to comply with stormwater design requirements continues to improve by updating existing guidance, training curricula for staff, and special provisions. Recent updates include the following:

- The PPDG has been updated to reflect the requirements of the Caltrans NPDES Permit that was re-issued in 2012 (Order No. 2012-0011-DWQ) and became effective on July 1, 2013. The current PPDG is dated February 2016 and is available on the Caltrans Office of Stormwater Management Design website. The 2016 PPDG Implementation Memo is available on Caltrans website giving direction to project delivery staff to use the 2016 PPDG and applicable SWDR templates.
- Stormwater standard specifications are revised periodically to reflect changes to regulatory requirements and to provide clarity for elements causing issues in the field.
- On-going discussions with Design SWCs to discuss allowable variations from the siting and design requirements of the approved stormwater Best Management Practices such as non-vegetated treatment BMPs.

### 5.2 Conclusions and Findings

This report has been prepared as part of the design self-audit program conducted to ensure compliance with NPDES Permit requirements and adherence to the SWMP. This report focuses on the target audience; PEs and others involved in the SWDR preparation which includes selection of Design Pollution Prevention, Construction, Treatment and Maintenance BMPs, as well as documenting knowledge and data gaps to ensure improvements as outlined in Section 5.3 of this report.

This evaluation has determined that the preparation of the SWDRs are becoming more standardized and streamlined. While this annual evaluation has determined that improvements can still be made when documenting stormwater decisions in the SWDR process, Caltrans fulfills stormwater requirements by incorporating stormwater management strategies throughout the project delivery process. The reports reviewed adequately document the stormwater design processes and decisions made by the Caltrans designers.

Based on the SWDR reviews conducted in this evaluation, the revisions to the PPDG and training curriculum, including revisions to standard specifications, have facilitated a consistent awareness of stormwater design requirements throughout the Caltrans districts. It is recommended that the SWDR Workshop slides posted on the Caltrans website be updated to reflect the new Caltrans Permit requirements and other specific procedures as described in the 2016 PPDG. Consideration should be given to updating the example SWDRs to describe the pervious and impervious areas within the project, describe how the areas affect project treatment requirements, and describe proper documentation of all areas in the SWDRs.

Based on the review and comparison of ACDs to SWDRs, PEs should ensure that project risk level determination and requirements described in the SWDRs are included in specifications and plans. Water quality permit conditions (401 certifications, Waste Discharge Requirements [WDRs], or dewatering permits), where required, should be mentioned in the specifications as well. Treatment BMPs and their contributing drainage areas should be identified and included in the PS&E SWDR or as a supplemental attachment for the purposes of verifying areas that are being credited to meet post construction or TMDL Compliance Unit (CU) requirements.

The following are specific areas of documentation that can be improved when preparing SWDRs:

- Address all updated requirements including documenting any planned monitoring activities and discharge locations for Risk Level 2 and 3 sites.
- Provide information related to the method used for the validation of final soil stabilization and include documentation of this validation at the PS&E phase (such as RUSLE2).
- The total WQV/WQF that will be treated by the preferred permanent Treatment BMPs (i.e. including DPP Infiltration areas) should be quantified and documented in the SWDR. Documentation should include the total area (impervious and pervious) treated by the project BMPs and should include the contributing drainage areas for each BMP shown on a map and summarized in a table.
- Ensure that the Design SWC is last to sign the SWDR.
- Ensure that only quantities are listed in the narrative. Costs are for Caltrans internal use only and therefore should only be included in the supplemental attachments.
- Describe Regional Water Quality Control Board (RWQCB) specific agreements and other permit agreements, such as a 401 certification (as applicable to water quality issues) and waste discharge requirements (for dewatering). Document any important dates of agreements with the RWQCB.
- Provide the 401 certification or WDR along with relevant contract language to SW Coordinators for their review to ensure project documents are compliant when available.
- Document discharge locations in the SWDRs.
- Include all required SWDR attachments for PS&E submittal, such as treatment BMP spreadsheets and SMARTS form.

The following are specific areas of documentation that can be improved when preparing contract documents for advertisement:

- Include bid items pertinent to project risk level (e.g., rain event action plans, stormwater sampling and analysis day) and ensure items match the calculations in the SWDR.
- Review 401 certifications and dewatering permits and ensure that relevant conditions are included in specifications, such as additional water quality monitoring, dewatering parameters, construction windows, etc.
- Identify all permanent BMPs used for post construction treatment or CUs on the project plans.

## 5.3 Recommendations

Caltrans NPDES Permit was re-issued in 2012 (Order No. 2012-0011-DWQ) and became effective on July 1, 2013. The SWMP is currently being updated to comply with the 2012 Permit. All documents that relate to the 2012 Permit are being revised accordingly such as the SWMP, training programs, etc. The PPDG, SWDR forms, and special provisions have been updated to comply with the 2012 Permit.

The following recommendations should be considered while updating any training programs:

- Require BMP footprint and contributing drainage area mapping be submitted with the calculations and require that the mapping be submitted with the SWDR, at all phases, for BMPs that generate treatment credit.
- Require documentation of the PID date in the Project Description section of all SWDRs, at all phases.
- Update the Plans Preparation Manual to show how treatment BMPs can be incorporated on the project plans.
- Update the SWDR examples to include the 2016 PPDG treatment documentation requirements which include the SWDR Summary Spreadsheet, TBMP plans, calculations, and contributing drainage area mapping for each BMP.
- Update all existing Caltrans approved Treatment BMP design guidance to support the 2016 PPDG.
- Prepare a new design guidance for DPP Infiltration Areas, including incorporating use of the Infiltration Tool.
- Provide new cost estimating procedures to assist the Department to track overall stormwater implementation costs.
- Update the Infiltration Tool to support the 2016 PPDG (e.g., Rv, new soil amendment types).