

Response to Comments Submitted by the Public on Draft Model BMP Design Manual for San Diego Region

Id	Comment Topic	Agency	Comment	Response
1	Alternative Compliance	BIA	Alternative compliance has two categories: Copermittee and Developer initiated. A developer can propose an alternative compliance plan independently of a public agency	The scope of Model BMP Design Manual was to develop guidance for implementing onsite BMPs. As such, the Model manual only refers to the circumstances leading toward participation (subject to agency discretion and approval) in an alternative compliance program, and therefore references to potential alternative compliance program are not specific (neutral) to the identity of the project originator. Jurisdictions that elect to have an alternative compliance program will be developing additional guidance for alternative compliance.
2	Alternative Compliance	BIA	The alternative compliance programs can be initiated by an entity other than a Copermittee. This figure is confusing and should more closely mirror the County summary on this subject.	Figure 1-3 in Section 1.8 is updated to provide additional clarity. Also see response to Public Comment #1.
3	Alternative Compliance	BIA	A summary of the WMAA analysis that was done regionally and what it does and does not contain would be helpful. An outline of what is needed to be added to the WMAA should be added in order for alternative compliance should be included. In short, there needs to be more guidance on this subject	The scope of the Model BMP Design Manual was to develop guidance to implement onsite BMPs. A brief description of the relationship of the Manual to the WMAA is provided in Section 1.9. It is anticipated that future Alternative Compliance program guidance developed at a jurisdictional level will address WMAA as it pertains to the respective Watershed Management Area.
4	Alternative Compliance	BIA	2.2.7 - Describe what happens if the applicant has to use flow through BMPs and there is no alternative compliance program in place or available to use.	The scope of the Model BMP Design Manual was to develop guidance to implement onsite BMPs. Brief description for alternative compliance is included in section 1.8 with a grey box for jurisdictions to add additional guidance for participating in alternative compliance. It is anticipated that jurisdictions will add guidance in Section 1.8 on what options are available when there is no alternative compliance program in that jurisdiction.
5	Alternative Compliance	BIA	SD-8 can function as an Alternative Compliance program if done on a master plan scale.	Comment noted
6	Alternative Compliance	BIA	Figure 5-2 - what does an applicant do when there is no alternative compliance program? This should be identified	See response to Public Comment #4.
7	Alternative Compliance	BIA	Section 5.5.4: Alternative Compliance MAY be proposed by a private entity	See response to Public Comment #1.
8	Alternative Compliance	BIA	Alternative Compliance options are allowed to be privately proposed. There should be some guidance as to what this entails for a jurisdiction to fill in the gray box to ensure consistency of application regionally	See response to Public Comment #1.
9	Alternative Compliance	BIA	Many of the BMPs can be leveraged into Alternative Compliance Programs - these should be indicated	Comment noted. The scope of the Model BMP Design Manual was to develop guidance for implementing onsite BMPs.
10	Alternative Compliance	BIA	The feasibility analysis does not need to be completed prior to going to alternative compliance. This issue was discussed with the SDRWQCB several times and clarified	Manual scope was to develop guidance for designing onsite BMPs, in this case the applicant (both private and public) need to perform feasibility analysis to determine what type of BMP they need to implement; Section 1.8 has a flow chart that shows an offramp to participate in alternative compliance program without proving infeasibility analysis. Each jurisdiction that elects to have an alternative compliance program will be developing guidance for participation in alternative compliance.
11	Alternative Compliance	BIA	3.3.4 Page 38, item 7. An applicant can use alternative compliance without going through an exhaustive infeasibility analysis per the SDRWQCB . This is not clear	See response to Public Comment #10.
12	Alternative Compliance	CONTECH	This section contains a good definition of the alternative compliance path showing that treatment via "flow through treatment control BMPs" on-site is required where off-site alternative compliance projects are pursued.	Comment noted.
13	Alternative Compliance	CONTECH	This section potentially allows a PDP in an area with a WQIP including a WMAA to "supplement or replace the requirement for onsite structural BMP implementation" All PDP's should have to provide a baseline level of stormwater treatment even where a WQIP includes a WMAA. Otherwise, pollutants will be transported through the MS4 system where they will accumulate and can cause issues for downstream runoff retention or treatment BMPs.	The following text is removed from Section 1.9: "supplement or replace the requirement for onsite structural BMP implementation"
14	Alternative Compliance	PDC	Finally, why was the word "may" (from the MS4 Permit) replaced with the word "shall" (in the BMP Design Manual) in the first sentence of Section 2.2.1 (a) (ii) of the BMP Design Manual? This relates to the requirement for on-site mitigation even though a project participates in an off-site alternative compliance project. Is there a circumstance where on-site mitigation can be entirely replaced by an off-site mitigation option?	Onsite mitigation cannot be entirely replaced by an offsite mitigation option according to the MS4 Permit. If an applicant either cannot implement the retention and/or biofiltration requirements as demonstrated through feasibility evaluation or at the discretion of the local jurisdiction is allowed to satisfy the onsite retention/biofiltration obligations and proceed to an offsite alternative compliance project in lieu of the full onsite requirements, then flow-thru BMPs must still be implemented onsite for the portion of the DCV that the applicant needs/elects to participate in an offsite project. Refer to Section 1.8 for additional guidance on this topic.
15	Alternative Compliance	REC	The section is confusing in terms of how and when a project can participate in an alternative compliance program. Consider this pathway first proposed by the author of this comments as an interpretation of alternative compliance participation according to Order R9-2013-001. Although this was approved in a small city as an alternative compliance project, the County and the RWQCB considered such alternative compliance not yet fully applicable until the adoption of the new BMP Manual. This path is not explained in this Manual, and the Alternative Compliance Section seems very brief. Please determine if the Alternative Compliance pathway proposed here in blue font is satisfactory, and if it is, include it as an alternative within the Manual. Commentor provided language for inclusion in the Model BMP manual.	The scope of the Model BMP Design Manual is limited to development of guidance to implement onsite BMPs. A brief description of the pathways leading to alternative compliance is included in section 1.8, as well as prompts in the Model BMP Design Manual where jurisdictions can add jurisdiction-specific guidance for participating in alternative compliance at such time when the information and guidance is developed in jurisdictional BMP Manuals or associated guidance.
16	Biofiltration BMPs	BIA	Appendix F: these should be discretionary by the agency as an adopted standard. App F needs to be reconciled with conflicting statements in the Body of the manual. While these are specific to the point of excluding what may be the only option in existing redevelopment areas, there is also a lack of specificity as to what is identified as High, Medium or Low (Table F.1)	Appendix F has been revised to allow alternative method of demonstrating that the performance standards in Table F.1-1 are met. However, it is at the Permittee's discretion whether or not to allow data or performance claims from outside of a recognized certification process (TAPE, TARP, NJCAT) to be submitted. Certified technologies are readily available; therefore there should be limited need for project-specific data submittals and BMP performance review.
17	Biofiltration BMPs	Bio Clean Environmental Services	It says that biofiltration must be provided to satisfy performance standards. What precisely are these performance standards for each pollutant category provided by bioretention? What test data/reports are used to support these claims that biofiltration meets these standards? Also, how is biofiltration defined? Is it referring only to bioretention and if so how is bioretention defined? Is there an issue with nutrient leaching?	Section 2.2.1 and Appendix F describe the Model Manual's "biofiltration standard." A cross reference has been added from the Summary section of the Manual to clarify where this can be found. The term "performance standard" was a misnomer and has been changed to "biofiltration standard". The biofiltration standard consists of a set of selection, sizing, design, performance, and O&M criteria that must be met for a BMP to meet the numeric and qualitative requirements considered "biofiltration." These criteria are derived from Provision E.3.c.(1); Page 85 of 127. Appendix F allows project proponents to utilize (1) traditional biofiltration meeting the design criteria in the associated fact sheets (INF-2, BF-1, PR-1), (2) alternative non-proprietary designs meeting the criteria of Appendix F at the discretion of the permittee, or (3) proprietary biofiltration systems meeting the criteria of Appendix F at the discretion of the permittee. Regarding performance of traditional biofiltration, the MS4 Permit does not establish specific numeric performance expectations associated with biofiltration; however the Permit language implies that the use of a traditional bioretention/biofiltration BMP designed to contemporary design standards is consistent with what is intended. Additionally, there is not currently a testing protocol that accepts and certifies to non-proprietary BMP designs. As such, it is not possible to require a priori performance certifications for bioretention designs as part of the plan approval process. Practically, reviewers must base their acceptance on adherence to accepted design standards and calculations to document adequate sizing. Underperforming systems and potential issues with pollutant export have been observed in some studies in the literature. These issues can be minimized through the Permittee's ongoing efforts to monitor bioretention systems to provide feedback for continual improvement of non-proprietary BMP design standards and specifications. The current biofiltration media specifications in place in County and City LID Manuals were developed with consideration of the potential for pollutant export. These specifications include criteria for individual component characteristics and quality in order to control the overall quality of the blended mixes. If determined to be necessary by the permittees, biofiltration media specifications become increasingly rigorous over time.
18	Biofiltration BMPs	Bio Clean Environmental Services	It states in section 2.2.1 that biofiltration BMPs must be designed to maximize pollutant removal, how is the pollutant removal established? Can these numbers be provided through a third party testing agency like TAPE protocols?	Yes, Appendix F provides a pathway that allows for proprietary BMP technologies to demonstrate performance via reciprocity with the TAPE program (WA State) at the discretion of the permittee; this appendix also allows the reviewer to accept alternate forms of demonstration at their discretion.
19	Biofiltration BMPs	Bio Clean Environmental Services	Can you please explain why 1.5 times the design capture volume must be treated? Is this simply a safety factor and if so what is the reasoning for requiring this extra amount of runoff to be treated? Is this requirement supported by the permit? The impact of this will be substantial cost increases to developers in order to meet the requirements.	This is a 2013 MS4 permit requirement.
20	Biofiltration BMPs	Bio Clean Environmental Services	Why does a flow through design have to hold at least 0.75 times the portion of the design capture volume? What are the grounds for this requirement? What benefit does it have? Can not a storage system with a downstream treatment BMP such as a sand filter when used in combination meet these requirements?	This is a 2013 MS4 permit requirement.
21	Biofiltration BMPs	Bio Clean Environmental Services	Does testing of the media need to be done prior to install to verify it does not leach nutrients? The San Diego LID Manual references a mix of 85% sand, 10% fines and 5% organic matter. Has this media been independently tested in the field? What is the definition of fines and organic matter? Can any type of organic matter be used? Does the mix have to have TAPE approval? The same approval being required of proprietary BMP.	See response to Public comment #17. The San Diego County and City of San Diego LID Manual specifications are expected to be revisited from time to time, however these documents are not open for public comment at this time.
22	Biofiltration BMPs	Bio Clean Environmental Services	The statement is made that "biofiltration BMPs can be sized to achieve approximately the same pollutant removal as retention BMPs". We are not aware of any third party testing showing this.	The Permit Fact Sheet cites the Ventura County Technical Guidance Manual as the basis for this statement. Ventura County Technical Guidance Manual performed an analysis that demonstrated that long term average performance of bioretention with underdrains (sized at 150%) is reasonably consistent with performance of infiltration systems on average, when taking into account typical hydrologic losses as well as treatment performance. This analysis was based on long term hydrologic performance (based on SWMM modeling and the results of monitoring studies in the International Stormwater BMP Database) and average treatment performance (based on performance data from the International Stormwater BMP Database).
23	Biofiltration BMPs	Bio Clean Environmental Services	Is bioretention with an underdrain considered a flow-thru treatment BMP since runoff flow thru is and is not retained but rather treated and discharged? Could this be considered MEP?	Bioretention with an underdrain at the bottom of the profile is considered an biofiltration BMP.
24	Biofiltration BMPs	Bio Clean Environmental Services	If a proprietary BMP is proven to have better pollutant removal capabilities than non-proprietary bioretention, under the MEP rule wouldn't that proprietary BMP be technically more feasible than bioretention?	Appendix F and Fact Sheet BF-3 provides guidance on when it's allowed to use proprietary biofilter systems (at the discretion of the reviewer) and how to size these systems.
25	Biofiltration BMPs	Bio Clean Environmental Services	How is biofiltration different than a sand filter? Both are designed basically the same. The only difference is biofiltration has some organics mixed in with the sand and are planted. How does bioretention get a higher priority than sand filters?	Model BMP Design Manual follows the BMP identification and hierarchy indicated the 2013 MS4 permit

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26	Biofiltration BMPs	CONTECH	<p>The default values provided in this table are appropriate for conventional biofiltration. However, proprietary biofilter systems can flow at a higher rate while providing similar pollutant removal. Since biofiltration systems are only applicable where infiltration rates are marginal, the difference in incidental infiltration between a smaller high rate biofilter and a larger conventional biofilter will also be marginal. Where there is no significant performance difference between BMPs, cost and site suitability should dictate selection at the owner and engineers discretion.</p> <p>Where biofilters have been tested and approved by the WA Department of Ecology and have General Use Level Designations for treatment levels corresponding to the pollutants of concern on site, they should be allowed at the approved infiltration rate in line 15 of the worksheet.</p>	Appendix F and Fact Sheet BF-3 provides guidance on when it's allowed to use proprietary biofilter systems (at the discretion of the reviewer) and how to size these systems.
27	Biofiltration BMPs	CONTECH	<p>The conventional biofiltration design requirements in the permit are reasonable. A 5"/hr, landscape based design is described in Appendix F and in PR-1 and BF-1 with sufficient detail. Alternative biofiltration systems can be used at the discretion of the City engineer in section 5.5.4. This section should be strengthened by specifying that only those systems meeting the Appendix F, section F.1 "Pollutant Treatment Performance Standard" can be accepted. Currently the section requires that alternative BMPs meet the "minimum design criteria" in Appendix F. This is somewhat confusing because the seven design criteria in appendix F are very prescriptive and are intended to produce a specific biofilter design. It is more appropriate to require alternative designs to meet a performance standard than a prescriptive standard.</p>	Appendix F describes the underlying "biofiltration standard" including certain key design criteria that are essential to this standard, but it does not describe a specific complete design; specific designs are described in Fact Sheet BF-1 and PR-1. As part of Appendix F, any BMP that deviates from the standard media specification associated with BF-1 or PR-1 must comply with Appendix F.1. To clarify, a new sentence has been added to Section 5.5.3.
28	Biofiltration BMPs	CONTECH	<p>This section reads "Other BMPs that meet the minimum design criteria listed in Appendix F can be classified as a biofiltration BMP if determined, at the discretion of the [City Engineer], to provide equal or greater performance. The applicant may be required to provide additional studies and/or required to meet additional design criteria beyond the scope of this document in order to demonstrate equal or greater performance." A lack of specificity regarding the level of performance documentation required will lead to a fragmented approval process with likely approval of BMPs without adequate performance vetting.</p> <p>This section is unclear. If a system meets the minimum design criteria in Appendix F, it would seem to have to be a biofilter since those criteria are very prescriptive. I think this section is intended to give a path for the use of innovative biofilters that can demonstrably meet a performance standard. Clarify that it must meet appendix F, section F.1 "Pollutant Treatment Performance Standard" instead of "minimum design criteria."</p>	This comment has been addressed via text edits in Section 5.5.3 and Appendix F.
29	Biofiltration BMPs	CONTECH	<p>This section states, "New and proprietary BMP technologies may be available that meet the performance standards in Chapter 2 but are not discussed in this BMP Design Manual. Use of these alternative BMPs to comply with permit obligations is at the discretion of the [City Engineer]." New and innovative BMPs should also go through formal performance verification following the TAPE protocol or a similarly robust field testing program.</p> <p>Suggest removing this section and making the suggested changes to section 5.5.4. Alternatively this section should be amending to require that new and innovative BMPs go through a formal performance verification process following the TAPE protocol or similarly robust field testing protocol and be selected for projects based on their demonstrated effectiveness for pollutants of concern following Table F.1.1.</p>	Performance criteria is added in Section 5.5.5 to address this comment.
30	Biofiltration BMPs	CONTECH	<p>This section is good as is, however it should be specific with regard to the level of certification required by Ecology. There are three Use Level Designations. Only the General Use Level Designation (GULD) demonstrates adequate field performance and operational feasibility of a BMP. The other two designations are preliminary and are designed to facilitate further testing.</p> <p>This section should be amended to require General Use Level Designation by the Washington State Department of Ecology for biofilters that don't conform to the design specifications in Appendix F.</p>	GULD has been specified in Appendix F.1.
31	Biofiltration BMPs	CONTECH	<p>Bacteria removal in natural systems occurs by a variety of processes including filtration, predation and photoinactivation. Chemical sorption is not an important removal process. There are engineered materials and chemical coatings that have antimicrobial properties that are not natural systems and require registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). These systems are not biofilters and could be considered separately. For the purposes of this table, General Use Level Designation for Basic Treatment is sufficient to indicate adequate performance for Bacteria and Virus treatment.</p> <p>Amend table F.1.1 to require Basic Treatment for Bacteria and Virus control.</p>	Some devices that are certified for "basic treatment" rely solely on gravity/density separation of particles. These systems would address TSS but have limited effect on most forms of bacteria. This section has been changed to require basic treatment certification plus treatment processes that address bacteria (filtration, physical sorption, predation, reduced redox conditions, and/or photoinactivation).
32	Biofiltration BMPs	Oldcastle Stormwater Solutions	<p>"Biofiltration BMPs must be designed to promote appropriate biological activity to support and maintain treatment processes." Last section: "If plants are not applicable to the biofiltration design, other biological processes are supported as needed to sustain treatment processes."</p> <p>Specify that vegetation shall be required as part of the "Biofiltration" category. In fact, it is required as part of the checklist on page F-3, bullet #3: "The Biofiltration BMP is sited to allow for maximum infiltration of runoff volume based on the feasibility factors considered in site planning efforts. It is also designed to maximize evapotranspiration through the use of amended media and plants." If no plants or vegetation are provided, BMP shall follow the requirements for flow-through media filters (Section E.14 FT-2 Media Filters).</p>	The internal inconsistency noted between bullet #3 and bullet #5 has been corrected. It is correct that vegetation is the default approach for promoting and sustaining biological processes associated with biofiltration, as described in BMP Fact Sheet PR-1 and BF-1. However the MS4 Permit does not specifically require vegetation as part of biofiltration, therefore this Model Manual does not presume that vegetation must always be provided to sustain viable biological treatment processes. For example, subsurface flow wetlands are known to provide high performance for multiple pollutants of concern and do not necessarily rely on vegetation as part of this process. Rather, biological films formed on gravel serve as one of the primary treatment processes. The underlying biofiltration standard in appendix F allows for variations on non-vegetated biofiltration to be proposed, with justification, and accepted at the discretion of the permittee.
33	Biofiltration BMPs	Oldcastle Stormwater Solutions	<p>"For BMPs that do not meet the biofiltration media specification and/or range of acceptable media filtration rates described in Fact Sheets PR-1 and BF-1..."</p> <p>If a range of media filtration rates is acceptable, provide that range. Those fact sheets in fact do not provide a "range of acceptable rates" but rather provide only a minimum rate.</p>	Range of filtration rates added to PR-1 and BF-1
34	Biofiltration BMPs	Oldcastle Stormwater Solutions	<p>"Biofiltration BMPs can be designed with or without vegetation, provided that biological treatment processes are present throughout the life of the BMP via maintenance of plants, media base flow, or other biota-supporting elements."</p> <p>In order to be considered biofiltration, vegetation shall be provided and vegetation shall be substantially connected to the stored water in order to assure viability of vegetation. Otherwise, treatment process shall be considered media filtration. BMP Fact Sheets in Appendix E, for both Bioretention and Biofiltration, state that vegetation is required. Appendix F (page F-2) also states that one of the primary objectives of biofiltration shall be: "Biofiltration BMPs must be designed to promote appropriate biological activity to support and maintain treatment processes."</p>	Please see response to Public comment #32. A new sentence has been added after the subject sentence to explain that vegetation is the default approach for sustaining effective biological treatment processes when designing per fact sheet BF-1.
35	Biofiltration BMPs	Oldcastle Stormwater Solutions	<p>Biofiltration BMPs must be designed to have an appropriate hydraulic loading rate to maximize storm water retention and pollutant removal, as well as to prevent erosion, scour, and channeling within the BMP, and must be sized to:</p> <p>a) Treat 1.5 times the design capture volume not reliably retained onsite, OR</p> <p>b) Treat the design capture volume not reliably retained onsite with a flow-thru design that has a total volume, including pore spaces and pre-filter detention volume, sized to hold at least 0.75 times the portion of the design capture volume not reliably retained onsite.</p> <p>This section implies that the designed would size the biofiltration BMP for either the biofiltration volume or the storage volume. Worksheet B.5-1, however, specifies that the designer shall use the footprint that is the "minimum of option a, b, or 3% of the impervious area". If the footprint of the system must also consider a certain percentage of the impervious area, include that requirement in this section as well. Ensure that the sizing criteria here and in Worksheet B.5-1 are consistent and equivalent.</p>	<p>The permit also has a requirement to provide guidance for hydraulic loading rates and other biofiltration design criteria necessary to maximize storm water retention and pollutant removal. In order to meet this requirement, the 3% criteria was added.</p> <p>Appendix B.5.2 provides the basis for the 3% criteria.</p>
36	Biofiltration BMPs	Oldcastle Stormwater Solutions	<p>Biofiltration BMPs must be sized using acceptable sizing methods.</p> <p>Provide clarification on "acceptable sizing methods". This point requires that biofiltration BMPs be sized to meet one of the biofiltration sizing options available in Appendix B. However, Appendix B does not clearly specify whether the required media infiltration rate of 5 in/hr is a minimum or required value.</p>	Worksheet B.5-1 provides sizing parameters for non proprietary BMPs. A media filtration of 5 in/hr is recommended for sizing these BMPs. For selection and sizing of proprietary biofiltration BMPs please refer to Appendix F and Fact Sheet BF-3; Proprietary biofiltration BMPs are allowed only when certain feasibility criteria and performance standards are met
37	Biofiltration BMPs	Oldcastle Stormwater Solutions	<p>Alternatively, for proprietary designs and custom media mixes not meeting specifications per City or County LID Manual, media selected for the biofiltration BMP meets the pollutant treatment performance criteria in Section F.1 below.</p> <p>Specify the maximum filtration rate allowable for biofiltration BMPs.</p>	Media filtration rate is intentionally not specified in the biofiltration standard described in Appendix F. If a BMP complies with each of the 7 underlying criteria in Appendix F and achieves the pollutant treatment performance benchmarks in Appendix F.1, then the BMP is acceptable as biofiltration regardless of its media filtration rate.
38	Biofiltration BMPs	Oldcastle Stormwater Solutions	<p>"Project applicants may provide evidence that the BMP has been certified for use as part of the Washington State Technology Assessment Protocol – Ecology (TAPE) certification program..."</p> <p>There are various levels of certification under TAPE. Suggest defining what level of certification is required. Are Pilot or Conditional Use Level Designations (PULD or CULD) acceptable or only General Use Level Designation (GULD)? Suggest clearly defining that GULD is required.</p>	Appendix F.1 has been revised to clarify that GULD certification is required.
39	Biofiltration BMPs	Oldcastle Stormwater Solutions	<p>"The applicant must demonstrate that BMP is being used in a manner consistent with all conditions of the TAPE certification (i.e., treatment media flow rate, etc.) while meeting the flow rate or volume design criteria."</p> <p>Provide clarification on the phrase "while meeting flow rate or volume design criteria". What "flow rate or volume design criteria" do you intend to be met? If a system is designed according to the conditions of the TAPE criteria, would it still need to meet the conditions outlined on page F-1, which require BMPs to be sized to treat 1.5 times the DCV or to hold 0.75 times the DCV? Expectations for sizing criteria need to be more clearly defined.</p>	Clarification has been added in this section; additionally fact sheet BF-2 has been added to provide more specific guidance and references for sizing of flow-based biofiltration BMPs to meet the 1.5xDCV sizing criteria (proprietary BMPs will not typically meet the 0.75 pre-filter detention volume criteria).
40	Biofiltration BMPs	Oldcastle Stormwater Solutions	<p>This table listed the "Required TAPE Certifications" for each project pollutant of concern. It refers to certifications as "Basic Treatment or higher". The TAPE certifications do refer to specific pollutants of concern (Basic, Enhanced, etc). However they do not clearly indicate a "higher" hierarchy. Suggest clearly delineating which certifications are acceptable for which pollutants of concern.</p>	This suggestion has been incorporated in Appendix F.1.

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41	Biofiltration BMPs	Oldcastle Stormwater Solutions	"Other BMPs that meet the minimum design criteria listed in Appendix F can be classified as a biofiltration BMP if determined, at the discretion of the [City Engineer], to provide equal or greater performance." Define "equal or greater performance terms". Provide clarification on how performance is defined, so that it is clearly understood what is "equal or better"	Performance is defined in terms of long term pollutant load reduction. This has been clarified in Section 5.5.3.
42	Biofiltration BMPs	PDC	Why is routing time selected as 6 hours? Provide justification.	Routing Period of 6 hours was based on 50th percentile storm duration for storms similar to 85th percentile rainfall depth. It was estimated based on inspection of continuous rainfall data from Lake Wohlford, Lindbergh and Oceanside rain gages.
43	Biofiltration BMPs	PDC	Is 3% rule strictly based on impervious area, or is it total area times adjusted runoff factor (similar to previous 4% rule)?	Both are functionally equivalent, within the uncertainty that underlies this factor. It was revised to total area times adjusted runoff factor in the updated manual to be similar in approach to Model SUSMP
44	Biofiltration BMPs	PDC	Suggest adding option for proprietary mix, per page F-5	This option has been added to INF-2, PR-1, and BF-1.
45	Biofiltration BMPs	PDC	How can proprietary or "compact" biofiltration BMPs meet criteria? More detail needed.	Appendix F and Fact Sheet BF-3 provides guidance on when it's allowed to use proprietary or compact biofiltration BMPs (at the discretion of the reviewer)
46	Biofiltration BMPs	PDC	Suggest adding liner or "" NO INFILTRATION" note to graphic for clarity	No infiltration note is added to Figure 5-9.
47	Biofiltration BMPs	SWEMA	SWEMA recognizes that the Draft Manual must conform to the requirements of the Regional MS4 permit. However, we are concerned that the manual makes performance assumptions for biotreatment best management practices (BMPs) that have not been substantiated following a standard testing protocol. This makes direct comparisons and trend analysis difficult. One way to address this would be to reference studies that utilize a biomedium composition and hydraulic loading rate similar to that required in the San Diego Manual. If casting a wide net for biotreatment BMP research is the only way to collect enough data, this suggests that future study is needed and a wide margin of error on any performance assumptions should be noted.	The MS4 Permit does not establish specific numeric performance expectations associated with biofiltration; however the Permit language implies that the use of a traditional bioretention/biofiltration BMPs designed to contemporary design standards (e.g., bioretention with underdrains; bioretention with elevated underdrains/internal water storage) is consistent with what is intended by biofiltration. The Permit Fact Sheet cites the Ventura County Technical Guidance Manual which demonstrated that long term average performance of bioretention with underdrains (sized at 150%) is reasonably consistent with performance of infiltration systems on average, when taking into account typical hydrologic losses as well as treatment performance. This analysis was based on long term hydrologic performance (based on SWMM modeling and the results of monitoring studies in the International Stormwater BMP Database) and average treatment performance (based on performance data from the International Stormwater BMP Database). While it is recognized that treatment performance may vary on a site-specific and design specific basis, there is not currently a testing protocol that accepts and certifies to non-proprietary BMP designs and specifications. As such, it is not possible to require a priori performance certifications for non-proprietary biofiltration designs as part of the plan approval process. Practically, reviewers must base their acceptance on adherence to accepted design standards and calculations to document adequate sizing. Underperforming systems and potential issues with pollutant export have been observed in some studies in the literature. These issues can be minimized through the Permittee's ongoing efforts to monitor bioretention systems to provide feedback for continual improvement of non-proprietary BMP design standards and specifications. The current biofiltration media specifications in place in County and City LID Manuals were developed with consideration of the potential for pollutant export. These specifications include criteria for individual component characteristics and quality in order to control the overall quality of the blended mixes. If determined to be necessary by the permittees, biofiltration media specifications become increasingly rigorous over time. Appendix F requires the use of "nutrient sensitive media design" when a project discharges to a water body that is impaired for nutrient. A new fact sheet (BF-2) has been added to describe "nutrient sensitive media design" for biofiltration systems. A cross reference has been added from PR-1 and BF-1.
48	Biofiltration BMPs	SWEMA	As you may be aware, there are a number of recent laboratory and field based bioretention studies showing that these treatment systems can export soluble pollutants. How has this information been incorporated in this manual? SWEMA respectfully requests that statements be added the Manual that clarify the conditions under which these BMPs should not be used. For example, if there are TMDLs in the receiving waters for pollutants that are known to be exported from a BMP, such as nitrates, that BMP should have a lesser ranking in the decision tree for BMPs to be selected.	See response to Public comment #47.
49	Biofiltration BMPs	SWEMA	Although the permit requires that BMPs be designed to "maximize storm water retention and pollutant removal", large bioretention BMPs tend to require substantial irrigation during the summer and in extended drought conditions. Has there been any consideration to this issue and coordination with regional water supply entities regarding the increased demand on the public water supply?	The plant list referenced from the Model Manual was developed with consideration of local climate and plant irrigation needs. Additionally, each of the vegetated BMP fact sheets (SD-5, INF-2, PR-1, BF-1) include the requirement that "Drought tolerant species should be selected to minimize irrigation needs." Given these factors, the mix of plants in biofiltration, when selected following this list and the fact sheet criteria, should have relatively low irrigation needs. The water demand for this plant pallet should be reasonably consistent with the water demands of the plant pallets used in other parts of the site, which must be designed to comply with California state water efficient landscape ordinance. In the absence of vegetated BMPs, it is likely that low water use landscaping would be used in at least a portion of the areas that would be taken up by vegetated BMPs. Therefore the incremental water demand exerted by vegetated BMPs should be minimal. Additionally, the term "large footprint bioretention" is intended to refer to size in relation to compact systems such as some proprietary systems, however the typical size of "large footprint" biofiltration for pollutant treatment is typically only 3 to 5 percent of the tributary impervious area; typically 1.5 to 4 percent of a site. In most development projects, at least 3 to 5 percent landscaping is provided. Therefore, while water use of any landscaping is recognized to be an important consideration, the potential impact of biofiltration on water demands of a site are relatively minor. Finally, with appropriate basis, the Model Manual allows the use of biofiltration without vegetation. Irrigation demand could be one factor used to justify the use of biofiltration without vegetation or with reduced vegetation.
50	Biofiltration BMPs	SWEMA	SWEMA supports the current reference in Appendix F regarding technologies recognized by the Technology Assessment Protocol – Ecology (TAPE) program. However, the language in this section clearly states this is only applicable to "...BMPs that do not meet the biofiltration media specification and/or the range of acceptable media filtration rates..." This requirement for technologies should be applied to all alternative and/or innovative technologies in order to confirm performance claims.	This clarification has been added in Appendix F.
51	BMP Fact Sheets	Bio Clean Environmental Services	What infiltration rate can be used for designing street trees?	Street trees are allowed for all soil types as the credits are assigned based on the pore space in the soil volume provided for the tree.
52	BMP Fact Sheets	Oldcastle Stormwater Solutions	Provide language to clarify that subsurface concrete infiltration basins are acceptable and meet the intent of the infiltration section. This information should be included in the Description section as well as the Design Criteria section.	This information is indicated in Appendix E; E.8 INF-1 Infiltration Basin. Also Section 5.5 has the following text "Other BMP types and variations on these designs may be approved at the discretion of the [City Engineer] if documentation is provided demonstrating that the BMP is functionally equivalent or better than those described in this manual."
53	BMP Fact Sheets	Oldcastle Stormwater Solutions	Side slopes are stabilized with vegetation and are 3H:1V or shallower The figure in Section B.7.5 – Sizing Factors for Biofiltration with Impermeable Liner clearly indicates that biofiltration within precast concrete structures with vertical sides is an acceptable configuration. Suggest that Appendix E, Section E.12 Biofiltration Fact sheet should clearly state that precast concrete with vertical sides is acceptable. For this Biofiltration check list, add "...unless provided in a concrete structure with vertical sides" to the surface ponding side slope requirements, or otherwise indicate acceptability of concrete structures.	Section G.2.5 (Section B.7.5 in public draft) is a schematic from the Final HMP and was included in the model manual to show the terms in the sizing factor tables. BF-1 and PR-1 factsheets are for typical non-proprietary BMPs. Deviations for these are allowed at the discretion of the [City Engineer] Proprietary BMPs (with concrete walls) are allowed if they meet the selection criteria and performance standard in Appendix F and BF-3 fact sheet.
54	BMP Fact Sheets	PDC	Suggest adding 12" max (before any surface outlet structures or flow-control orifices are provided). In this way, it is clear that if 100-year detention storage is on top of bioretention surface, 12" maximum is the level of ponded water that will drain via infiltration only. Clarification is needed to ensure outlet structures can be designed above shallow ponded surface for peak flow attenuation or additional hydromodification control. (Comment applies to all other locations in the manual where this is specified).	The following additional criteria is added to the fact sheets to allow for additional depths for flow attenuation and/or hydromod sizing: Surface ponding depth greater than 12 inches may be allowed at the discretion of the [City Engineer] if the following conditions are met: 1) surface ponding depth drawdown time is less than 24 hours; and 2) safety issues and fencing requirements are considered (typically ponding greater than 18" will require a fence) and 3) potential for elevated clogging risk is considered.
55	BMP Fact Sheets	PDC	Can a project elect to use underground pre-treatment device instead of forebay? If so, clarify in the document.	The manual allows for flexibility in design if approved by the [City Engineer], and if allowed by the jurisdiction, underground forebays are indicated in Section 7.6 Measures to Control Maintenance Cost.
56	BMP Fact Sheets	PDC	Suggest changing maximum contributing drainage area to 5 acres, unless pre-treatment BMPs are employed. (If pretreatment is included, no maximum drainage area limit). Or, suggest removing maximum drainage area requirement all together. If not corrected, this manual would preclude the use of bioretention basins as regional facilities. Is it the intent of the Design Manual to not allow bioretention BMPs to be designed as combined water quality/hydromodification/peak flow attenuation facilities?	The purview of this manual is design criteria for onsite facilities. Adding additional pretreatment criteria to allow for regional facilities may burden smaller projects. The fact sheets as written allow for deviations from the criteria at the discretion of the [City Engineer]. This is not listed as a mandatory requirement in the Model BMP Design Manual. But considering the current drought in California it might be beneficial to design biofiltration BMPs for water quality only and have a separate storage BMP for peak attenuation/hydromod as this will limit the amount of water use to establish and maintain vegetation.
57	BMP Fact Sheets	PDC	Add a fact sheet for infiltration trench, or allow its use under INF-1 or INF-3.	They are added to the description in INF-1 as an alternative to a basin. Also Section 5.5 has the following text "Other BMP types and variations on these designs may be approved at the discretion of the [City Engineer] if documentation is provided demonstrating that the BMP is functionally equivalent or better than those described in this manual."
58	BMP Fact Sheets	PDC	Suggest modifying graphic to eliminate gutter flow into street tree	Schematic that was copied from another manual was removed from the Model BMP manual.
59	BMP Fact Sheets	PDC	What is option T-3?	It was a carry over from another manual; It is removed from the Street Tree Fact Sheet (Appendix E.2).
60	BMP Fact Sheets	PDC	In addition, we are having difficulty understanding the various "pathways" associated with alternative compliance, i.e. Figure 1-3 on page 12. The bold statements on page 12 make it pretty clear that if you participate in alternative compliance, you MUST also provide flow-through treatment BMPs onsite. However, item #5 on the following page states "...potentially allowing PDPs to supplement or replace the obligation for onsite structural BMP implementations..." This seems contradictory. We can envision small projects where flow-through BMPs are the only option because both infiltration/retention AND biofiltration BMPs are infeasible, AND no alternative compliance pathway exists. In this case, would flow-through BMPs potentially be allowed with the agency's discretion?	Figure 1-3 has been updated based on copermitees interpretation of the permit; implementing flow-thru BMPs onsite will require participation in alternative compliance project and vice versa. Copermitees have discussed with the Regional Water Board staff and have clarified that the requirement, as stated in the Model Manual, is consistent with the Regional Water Board's intent.
61	BMP Fact Sheets	PDC	Can 2:1 side slopes be used if conditions warrant?	It will be allowed at the discretion of the [City Engineer]. The following is added to all fact sheets with design criteria "Deviations from the below criteria may be approved at the discretion of the [City Engineer] if it is determined to be appropriate."

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62	BMP Fact Sheets	REC	Bio-retention should be given the option to provide surface ponding in excess of 1 ft to allow the design of surface outlet structures for hydromodification and flood control functions. Limiting the surface ponding to 1 ft greatly reduces the use of bioretention as a hydromodification control feature. Consider revising to 2 ft when slope is reduced to 4:1. Also, consider the use of larger ponding depth when a fence is provided, (assuming that the bio-retention facility will satisfy the surface draining condition of 24 hours).	The following discretionary criteria are added: Surface ponding depth greater than 12 inches may be allowed at the discretion of the [City Engineer] if the following conditions are met: 1) surface ponding depth drawdown time is less than 24 hours; and 2) safety issues and fencing requirements are considered (typically ponding greater than 18" will require a fence) and 3) potential for elevated clogging risk is considered.
63	BMP Fact Sheets	REC	Previous comment applies to page E-51 as well, and in general to graphs and discussion about the 12" maximum pond topic.	The following discretionary criteria are added: Surface ponding depth greater than 12 inches may be allowed at the discretion of the [City Engineer] if the following conditions are met: 1) surface ponding depth drawdown time is less than 24 hours; and 2) safety issues and fencing requirements are considered (typically ponding greater than 18" will require a fence) and 3) potential for elevated clogging risk is considered.
64	City Municipal Code	BIA	Comment letter submitted by the BIA also included comments on the San Diego Municipal Code: 1) Comments from Legal Group 2) Combination of Getechnical Consultant #1(Black) & 2(Red)	These comments do not pertain to the Model BMP Design Manual. As such, these comments will be forwarded to the appropriate staff to be addressed elsewhere.
65	Flow-thru BMPs	BIA	2.2.24 - Vegetated swales do not meet most of the permit requirements without the infiltration component and should not be referenced	Vegetated swales are listed as an example of a flow-thru treatment control BMP. Even when designed on poor infiltration capacity soils they undergo incidental infiltration and satisfy the Medium to High removal efficiency for some pollutants of concern so they are considered acceptable flow-thru treatment control BMPs.
66	Flow-thru BMPs	BIA	Section 5.5.4: Proprietary BMPs are indicated to be at the discretion of the City, however, the appendices do not appear to be consistent and are prescriptive to the point of not allowing a jurisdiction discretion based on its own judgment and changing technology. Flexibility with agency determined documentation should be included. Additionally, nationally recognized approvals (Washington State, New Jersey) should be accepted and relied upon. Why take tools out of the tool box?	This flexibility is provided via the pathways that currently exist in Appendix B.6 and Appendix F. Appendix B.6 (as modified) and Appendix F are based upon the nationally recognized certification protocols (WA TAPE, TARP, NJCAT) that this comment mentions. Additionally, there is discretion for a reviewer to allow other third party testing information to be submitted to support a performance claim. Based on our review of existing vendor certifications, options are readily available (with existing third party certifications) that would address all potential pollutants of concern and can fit within very constrained project sites. Multiple products meet this criteria, which should help control cost. Lists of certified technologies will continue to evolve with evolving technology. Therefore, the main body and appendices are considered to be consistent, and we do not see a technical justification for providing allowances for additional discretion in this area.
67	Flow-thru BMPs	Bio Clean Environmental Services	If flow-thru control BMPs must be sized and designed to: remove pollutants to the Maximum Extent Practicable, I assume this hold true for a Bioretention system and if so how is it sized? I again go back to third party testing to define removal rates for Bioretentions systems.	Section 2.2.1 is intended to describe the underlying standard that must be met but is not intended to provide standalone guidance. Sizing criteria and selection guidance for flow-thru treatment control BMPs to meet this standard are provided in Appendix B.6. Cross references have been added. Response to comments about third party testing of bioretention is provided in response to Public comment #17.
68	Flow-thru BMPs	Bio Clean Environmental Services	It states in Section 2.2.1 that a BMP be ranked high or medium for pollutant removal efficiency. Please define medium and high in terms of a pollutant removal percentage and also define the expected influent concentrations? Using medium and high is very ambiguous and does not provide appropriate guidance.	More specific and quantitative performance criteria for flow-thru treatment have been specified in Appendix B.6; criteria for ranking non-proprietary BMP categories have been set to the same TAPE criteria that apply to proprietary BMPs. TSS performance (based on TAPE Basic Treatment standards) has been used as the metric to determine ranking of BMPs. For non-proprietary BMPs, rankings have been established based on review of performance data from the International BMP Database, accounting for typical treatment performance and volume reduction. For non-proprietary BMPs, certified testing results from TAPE or TARP are acceptable. A single (TSS-based) metric is used for flow-thru BMPs because it is a consistently tested parameter that is supported by both TAPE and TARP. Additionally, flow-thru BMPs must always be accompanied by mitigation that addresses the full range of pollutants of concern from the site.
69	Flow-thru BMPs	Bio Clean Environmental Services	In section 2.2.2 it states that "Flow thru treatment BMPs may only be implemented to address onsite storm water pollutant control requirements if coupled with an offsite alternative compliance project that mitigates for the portion of the pollutant load in the design capture volume not retained/biofiltered onsite." Why must flow-thru treatment BMPs be coupled with offsite alternative compliance? It seems the purpose of this statement is to indirectly prevent the use of any flow-thru treatment BMPs and deny developers the ability to use these BMPs which may treat runoff to the MEP. What is the rationale behind this? Where in the permit is this required?	The use of flow-thru treatment BMPs plus alternative compliance is required in the Permit Section E.3.c.(1)(a)(ii) and E.3.c.(1)(b). The Permittees have discussed with the Regional Water Board staff and have clarified that the requirement, as stated in the Model Manual, is consistent with the Regional Water Board's intent. Note that it is possible for some proprietary BMPs to be classified as "biofiltration" under some conditions if they meet the criteria described in Appendix F. Unlike flow-thru treatment BMPs, biofiltration BMPs do not need to be accompanied by participation in alternative compliance.
70	Flow-thru BMPs	CONTECH	Treatment controls must be selected to treat POC to the MEP, treat flow from 0.2"/hr and have high or medium pollutant removal for PDP POC. Where med or high removal is infeasible, low removal is accepted. Any proprietary BMP used in San Diego should have full scale field monitoring conducted for it following a recognized testing protocol such as TAPE. Products that have this level of documentation should be prioritized over those without it. This section should be amended to requiring that manufactured treatment systems with General Use Level Designation by the Washington Department of Ecology be used where they are available. Where there are no approved BMPs available, non-approved BMPs can be approved provided that they are tested following the TAPE protocol or an equivalent protocol.	Appendix B.6 describes the specific method for selecting, and sizing flow-thru BMPs. A cross reference has been added to clarify that this is the method that shall be followed. Appendix B.6 has been substantially revised in response comments and includes specific requirements related to treatment performance standards and third-party testing protocols.
71	Flow-thru BMPs	CONTECH	This section requires that effectiveness of treatment control BMPs be established, however there is no guidance regarding how this is to be established. Require that treatment control BMPs be sized per their approvals under the TAPE program and following "Table F.1-1 Required TAPE Certifications" which links specific pollutants with Ecology use level designations	This section includes a cross reference to Appendix B.6 which provides the specific details associated with selecting and sizing flow-thru BMPs.
72	Flow-thru BMPs	CONTECH	Flow through treatment BMPs are to be selected that have a "high or medium pollutant removal efficiency for the most significant pollutants of concern". This is an appropriate requirement that is consistent with the previous model SUSMP, however, section B.6.3, which would give BMPs pollutant removal ratings for priority pollutants, is incomplete. This is a crucial section that must be completed. Table 2-3 in the SUSMP needs to be included here, but with significant updates. Complete section B.6.3 by including an updated version of Table 2-3 from the previous model SUSMP with the following updates: 1) All BMPs with fact sheets in Appendix E should be listed in the table and it should be clear that performance expectations apply only to systems designed and sized per the fact sheets. 2) Performance ratings for all BMPs should be based on current full scale field performance data. 3) Proprietary systems should only be allowed when there is independently verified evidence of their full-scale in-situ performance in the form of a TAPE General Use Level Designation. These systems must be used in a manner consistent with an active TAPE certification.	Appendix B.6 has been substantially revised in response to comments. 1) this table only applies to flow-thru treatment BMPs; other BMPs described in Appendix E are intentionally not included. 2 and 3) The new rankings/acceptance approach is based on the TAPE performance standard for basic treatment (i.e., TSS). For proprietary systems, BMP selection must be substantiated by current TAPE or TARP certifications/verifications, or equivalent. This section notes that BMPs must be used in a manner consistent with the basis of their current certification/verification.
73	Flow-thru BMPs	CONTECH	This section states that "Relative effectiveness rankings are currently under development." These effectiveness rankings must be completed.	Appendix B.6 has been substantially revised in response to comments. Effectiveness rankings for non-proprietary BMPs are added and protocol for selecting proprietary BMPs is included in Appendix B.6
74	Flow-thru BMPs	CONTECH	There is no selection or sizing guidance given for media filters. This section needs to be amended to include a requirement that media filters be selected that have medium or high effectiveness for pollutants of concern as demonstrated in independently verified full-scale field testing. General Use Level Designation by the Washington Department of Ecology TAPE program should be required and Media filters should be used in a manner consistent with their TAPE certifications. The Design criteria and selection section should be amended to include a requirement that media filters be selected that have medium or high effectiveness for pollutants of concern as demonstrated in independently verified full-scale field testing. General Use Level Designation by the Washington Department of Ecology TAPE program should be required and Media filters should be used in a manner consistent with their TAPE certifications.	Appendix B.6 applies to the selection of all flow-thru treatment BMPs, including FT-2. Clarification has been added in this fact sheet via a cross reference to Appendix B.6. Appendix B.6 now specifies a TAPE/TARP/NJCAT-based process for accepting proprietary BMPs.
75	Flow-thru BMPs	CONTECH	When it comes to selection and design of individual BMPs, the BMP design manual must be more explicit. The 2011 SUSMP provided tables 2-1, 2-2 and 2-3 to walk the user through the treatment BMP selection process. The first two tables were useful; however the lack of specificity in table 2-3 has been frequently exploited. The main issue is that the table rates the pollutant removal of various BMP types without linking performance ratings to any specific design or sizing criteria for those BMPs. The common result has been a process of BMP effectiveness estimation that revolves mainly around which unit processes are present in a system instead of taking a critical look at how those processes are designed. For example, sand filters, cartridge based media filters and catch basin inserts have all been grouped into the "Filter" category on some projects and considered equivalent based on table 2-3. In reality, the difference in hydraulic loading rate of these systems spans several orders of magnitude. Performance and maintenance burden presumably also span a wide range. Where this ambiguity exists, decisions are typically made on the basis of lowest installed cost which opens the door for untested, inadequately sized BMPs.	Appendix B.6 has been substantially revised in response to comments.
76	Flow-thru BMPs	CONTECH	Section B.6.3 in appendix B is incomplete in the current draft but is expected to provide an update to Table 2-3 in the 2011 SUSMP. This table should be completed and should include the following updates: · All BMPs with fact sheets in Appendix E should be listed in the table and it should be clear that performance expectations apply only to systems designed and sized per the fact sheets. · Performance ratings for all BMPs described in Appendix E should be based on current full-scale field performance data of systems with similar design and sizing characteristics. Preferably this field data would be from similar climatic regions. References for those studies should be provided. · Proprietary and/or innovative systems not described in the fact sheets should not be rated unless specific designs and/or product names and sizing criteria are given along with performance ratings that are based on full scale field tests under typical conditions. Preferably, in place of proprietary BMP ratings, a section would be included stating that these BMPs should be selected based on independently verified field testing results following a recognized testing protocol such as the Technology Assessment Protocol – Ecology (TAPE)1 or the Technology Acceptance Reciprocity Partnership (TARP) Tier II Protocol for Stormwater Best Management Practice Demonstrations2. Suitability of these BMPs for various pollutants of concern should be based on their TAPE certification level according to Table F.1.1. Where there is not a feasible BMP that has a general use level designation for the pollutants of concern on a site, a BMP with conditional approval may be used.	Appendix B.6 has been substantially revised in response to comments.

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77	Flow-thru BMPs	CONTECH	<p>Proprietary BMPs can be classified as a flow-thru treatment control BMP if determined, at the discretion of the [City Engineer], to provide equal or greater performance. The applicant may be required to provide additional studies and/or required to meet additional design criteria beyond the scope of this document in order to demonstrate equal or greater performance."</p> <p>Any proprietary BMP used in San Diego should have full scale field monitoring conducted for it following a recognized testing protocol such as TAPE. Products that have this level of documentation should be prioritized over those without it. Suggest requiring that manufactured treatment systems with General Use Level Designation (GULD) by the Washington Department of Ecology be used where they are available provided that they are moderately or highly effective for pollutants of concern according to Table F.1.1. Where there are no GULD certified BMPs available, conditionally approved BMPs can be approved. If BMPs are not approved by Ecology they should only be installed for the purpose of full scale field monitoring following the TAPE protocol or an equivalent protocol.</p>	This comment has been addressed via text edits in Section 5.5.4 and Appendix B.6.
78	Flow-thru BMPs	Oldcastle Stormwater Solutions	<p>we recommend that you develop the relative effectiveness rankings of treatment facilities (Table B.6-3) and share this table with the public for review and comment. These relative effectiveness rankings should be more specific than the general treatment categories currently shown and should include manufactured BMPs as well as a process for updating the table as new BMPs are developed. We suggest that one of the nationally recognized programs be used for guidance and reference to establish the relative effectiveness rankings.</p>	See response to Public comment #68.
79	Flow-thru BMPs	Oldcastle Stormwater Solutions	We suggest that you consider whether Appendix B.6 provides enough tools for developers whose only option is to use flow-through treatment BMPs	Appendix B.6 has been substantially revised to address this comment.
80	Flow-thru BMPs	Oldcastle Stormwater Solutions	<p>This section provides a worksheet (Worksheet B.6-1) that outlines how to calculate the design capture volume or flow rate for flow-through treatment control BMPs. However, there are often many ways of sizing flow-through BMPs for a calculated flow rate. Suggest adding detail on how flow-through BMPs – specifically manufactured BMPs – shall be designed to treat the specified flow rate. In particular, suggest references an established testing protocol (TAPE or TARP) to ensure BMPs are designed on an equivalent basis. Suggest adding a new appendix for flowthrough BMPs that would be equivalent to the Appendix F – Biofiltration Standard and Checklist.</p>	Appendix B.6 has been substantially revised to address this comment.
81	Flow-thru BMPs	Oldcastle Stormwater Solutions	<p>Provide table with relative effectiveness rankings for review and comment. Will this table provide broad categories as indicated? The table should be as specific as possible for all types of BMPs, including manufactured BMPs. Relative effectiveness for BMPs should be based on proven performance of BMPs and/or should reference established BMP performance evaluation programs, such as Washington's Technology Assessment Protocol – Ecology (TAPE) or the Technology Acceptance Reciprocity Partnership (TARP) Tier II Protocol.</p>	See response to Public comment #68. Manufactured BMPs are not listed because this list may potentially change over time. This section requires project proponents to submit documentation of current TAPE or TARP/NJCAT certifications to justify selection of flow-thru BMPs.
82	Flow-thru BMPs	SWEMA	<p>Section 2.2.1 illustrates how a BMP can be ranked as high or medium for pollutant removal efficiency. Please define medium and high in terms of a pollutant removal percentage and also define the expected influent concentration range. SWEMA requests clarification on what "high or medium" effectiveness means for BMP ranking. This terminology is very similar to that used in the City of San Diego's previously proposed Guidance Manual for Evaluating Proprietary Treatment Control BMPs, March 2014 Draft Manual. SWEMA provided comments on that document last year. We continue to have concerns with the use of such subjective language. That being said, SWEMA would prefer to see the comparative approach outlined in the 2014 Guidance Manual utilized.</p>	See response to Public comment #68. Section 2.2.1 is intended to introduce the underlying performance standards from the Permit, but this section is not intended to describe the specific methods of complying with these standards. This guidance is provided in Section 3.4.2, 5.5.4, and Appendix B.6. A cross reference to B.6 is provided from Section 2.2.1.
83	Flow-thru BMPs	SWEMA	<p>Section B.6.3 in appendix B is incomplete in the current draft but is expected to provide an update to Table 2-3 in the 2011 SUSMP. This table should be completed and should include the following updates:</p> <ol style="list-style-type: none"> All BMPs with fact sheets in Appendix E should be listed in the table and it should be clear that performance expectations apply only to systems designed and sized per the fact sheets. Performance ratings for all BMPs described in Appendix E should be based on current full scale lab or field performance data of systems with similar design and sizing characteristics. Preferably field data would be from similar climatic regions. References for those studies should be provided. Proprietary and/or innovative systems not described in the fact sheets should not be rated unless specific designs and/or product names and sizing criteria are provided along with performance ratings that are based on full scale lab or field tests. Preferably, in place of proprietary BMP ratings a note would be included stating proprietary and/or innovative systems should be selected based on independently verified lab or field testing results following a recognized testing protocol such as the Technology Assessment Protocol – Ecology (TAPE) or the Technology Acceptance Reciprocity Partnership (TARP) Tier II Protocol for Stormwater Best Management Practice Demonstrations. Please see comment 6 above. Related to this, Table D.5-2 (Design Related Considerations for Infiltration Facility Safety Factors) includes reference to hydrodynamic separators (HDS) as pretreatment for infiltration, but provides no reference for assuring how a selected HDS unit can meet a baseline performance standard. As noted in comments 6 and 7.d, SWEMA recommends the addition of language referring to authoritative verification/certification programs such as TAPE and TARP. 	<ol style="list-style-type: none"> This table only applies to flow-thru treatment BMPs; other BMPs described in Appendix E are intentionally not included. See response to Public comment #68 Agreed; these types of systems are only acceptable with BMP-specific information meeting that demonstrate that their performance conforms to applicable treatment criteria. This note has been provided; specific proprietary BMP names and manufacturers are not listed (see response to Public comment #81) Reference to TAPE/TARP/NJCAT "pre-treatment" level of performance has been added to this section and Appendix D.
84	Flow-thru BMPs	SWEMA	<p>Last, SWEMA would like to reiterate a recommendation we made to the City of San Diego last year. We request that a Technical Advisory Committee be created which would be comprised of representatives from the BMP Manufactured Treatment Device (MTD) industry, the Building Industry Association, localities, local Environmental Non-Profit Organizations and a representative from the Engineering community to guide the future iterations and implementation of the BMP Manual. This approach is sound and will not only create stakeholder engagement opportunities, but provide for compromise and collaboration between the regulated community and our regulators.</p>	This recommendation is noted.
85	Front Matter	BIA	Clarify "other projects"	Name revised to "Not a development project". These are projects that do not require post construction storm water BMPs and hence do not need to meet the requirements in the Model BMP Design Manual.
86	Front Matter	BIA	Redevelopment is not mentioned in the table	<p>The intent of this table is to group project types by the type of post construction storm water requirements they need to meet. The table was reorganized to have the following:</p> <ol style="list-style-type: none"> 1) Not a development project: Requirements in the BMP Design Manual do not apply; 2) Standard Project: Source control and site design BMPs; 3) PDPs with only pollutant control requirements: source control and site design BMPs and pollutant control BMPs; and 4) PDPs with pollutant control and hydromodification management requirements: source control and site design BMPs, pollutant control BMPs and hydromodification management BMPs <p>Redevelopment project can fall in any of the 4 types listed above.</p>
87	Front Matter	BIA	<p>The table also needs to add Green Streets, as a specific project type - green streets is specifically broken out in the permit along with related projects and was a key discussion point throughout the permit workshops. This needs to be added and acknowledged.</p>	<p>The intent of this table is to group project types by the type of post construction storm water requirements they need to meet. The table was reorganized to have the following:</p> <ol style="list-style-type: none"> 1) Not a development project: Requirements in the BMP Design Manual do not apply; 2) Standard Project: Source control and site design BMPs; 3) PDPs with only pollutant control requirements: source control and site design BMPs and pollutant control BMPs; and 4) PDPs with pollutant control and hydromodification management requirements: source control and site design BMPs, pollutant control BMPs and hydromodification management BMPs <p>Projects that qualify for green street exemption in the permit will fall in the standard project category in the table that was referenced in the comment. Also as stated in the summary this Model BMP Design Manual is not intended to serve as a guidance document for participation in alternative compliance program nor is intended to serve as a Green Streets design manual.</p>
88	Front Matter	BIA	<p>The beginning steps table on page xi is confusing and misleading to applicants - the addition of the chapters in the columns would significantly assist with clarity in the use of the manual.</p>	Chapter numbers added to the columns
89	Front Matter	BIA	It is suggested that a more frequent use of graphical flow chart use would be helpful, especially on page xii	A graphical flow chart has been added to the "How to Use This Manual" section.
90	General Comments	BIA	<p>This Manual needs to be cross checked with other complimentary and supportive documents to ensure consistency of technical references and implementation by public agencies (examples would be):</p> <ol style="list-style-type: none"> WQIP WMAA Alternative Compliance Equivalency TAC Technical Findings and Direction to date (acknowledgement and/or summary) Alternative Compliance Permit Language Consistency 85th percentile language consistency Prior Lawful Approval or Grandfathering of projects from one permit to another 	<p>The following briefly explains the relationship of the Model manual with other regional efforts:</p> <ol style="list-style-type: none"> WQIP: Section 1.9 describes the relationship of the Model manual and WQIPs WMAA: Section 1.9 describes the relationship of the Model manual and WMAA. Also regional information from WMAA that is applicable for development projects on a regional scale is incorporated in the model manual. For example, Appendix H: Guidance for Investigating Potential Critical Coarse Sediment Yield Areas Alternative Compliance Equivalency TAC Technical Findings and Direction to date (acknowledgement and/or summary): Scope of the model manual was to develop guidance for implementing post-construction storm water BMPs onsite. Section 1.8 provides the pathways available to the development project. Additional implementation details will be developed by each jurisdiction separately. Alternative Compliance Permit Language Consistency: Scope of the model manual was to develop guidance for implementing post-construction storm water BMPs onsite. Section 1.8 provides the pathways available to the development project. Additional implementation details will be developed by each jurisdiction separately. 85th percentile language consistency: County of San Diego staff updated the 85th percentile map for the San Diego region, included as Figure B.1-1. County staffs are working on a white paper to document the methodology used. This white paper, once completed will be included as part of the Model manual. Prior Lawful Approval or Grandfathering: A grey box is included in Section 1.10 for each Copermitee to add requirements within its jurisdiction during local adoption. Regional guidance was not developed as it might be different from one jurisdiction to the other.

Response to Comments Submitted by the Public on Draft Model BMP Design Manual for San Diego Region

Id	Comment Topic	Agency	Comment	Response
91	General Comments	BIA	The draft focuses heavily on the term "applicant" which implies focus solely on private development - it is suggested that up front that there be acknowledgement that these permit requirements are required of all public and private projects that meet the thresholds for standard and priority projects.	Applicant in the context of this manual is for both public and private development. The usage of this term is consistent with how its used in the 2013 MS4 permit. The following statement is part of the summary "At the local level, the intended users of the BMP Design Manual include project applicants, for both public and private developments, and their representatives responsible for preparation of Storm Water Quality Management Plans (SWQMPs) and Copermitee personnel responsible for review of these plans"
92	General Comments	BIA	Consistency of terms and technical meanings are not carried through the document. This is vague and/or confusing- for example an initial reference is made of PDP with only pollutant control requirements and then not explained, defined, or mentioned as to what this is. This inconsistency is throughout the document and it is strongly suggested that a QA/QC on a sample project be used to ensure this manual makes sense both on a user friendly implementation basis as well as a technical basis. This appears to be missing in this document.	Added clarification text and reorganized the table in How to Use this BMP Manual section
93	General Comments	BIA	The three categories of projects are standard, priority, and exempt. This is not clear throughout the document	Table 1-3 summarizes the sections of the manual applicable to each of the three project types. The third type in the manual is referred to as "Not a development Project"
94	General Comments	BIA	There are two requirements to meet - Water Quality and HMP. This needs to be clear from the start. It is not	Clarification added in Section 1.5
95	General Comments	REC	All equations should be numbered to easily reference them An equation editor should be used to facilitate writing the equations	Equation editor was used unless the equation was in a worksheet. Equations are not numbered in the current version of the Model Manual.
96	Geotechnical Appendices	BIA	2.2.1: This is a vague: High, Medium or Low pollutant removal efficiency . If applicants are held to such high levels of numeric levels, this needs to be resolved in this manual and left to the discretion of the agency with guidelines provided here	See response to comment Public comment #68 and #82.
97	Geotechnical Appendices	BIA	The NRCS standard infiltration rates should be able to be used - for small developments this may be cost prohibitive. Explain why this method cannot be used. What is allowed at the state level should be allowed in this manual. What makes the most sense based on our regional soil types	NRCS standard infiltration rates are allowed for planning level screening. But for designing infiltration BMPs a more robust method is required to ensure proper design and performance of the BMP. Appendix D provides the list of approved methods for planning level screening and for design level testing.
98	Geotechnical Appendices	BIA	Factors of Safety - a caution should be placed on these, as many equations and methods already have a safety factor as part of their calculation or method of calculation	Comment noted. Proposed approach was developed taking this into consideration.
99	Geotechnical Appendices	BIA	Sheets C-10 and C-12 discuss the geotechnical engineer should evaluate the change of seasonality of ephemeral streams. This is not a geotechnical issue and we would not be able to sign anything on this issue	This requirement has been removed from the geotechnical engineer responsibilities and the following subsection is added in Appendix C: Reporting Requirements by the Project Design Engineer: Project design engineer has the following responsibilities: 1) Complete criteria 4 and 8 in Worksheet C.4-1; and 2) In the SWQMP provide a concluding opinion whether or not proposed infiltration BMPs will affect seasonality of ephemeral streams
100	Geotechnical Appendices	BIA	Sheet C-14 discusses if infiltration can be allowed without violating downstream water rights. This also is not a geotechnical issue.	See response to Public Comment #99
101	Geotechnical Appendices	BIA	Appendix D provides a series of acceptable test methods for infiltration. As long as the city agrees that other test methods are acceptable, this section would be ok. However, some of the test methods presented use a fair amount of water and smaller scaled tests should be considered, since we are in a drought.	Applicant has an option to pick 1 of the 11 methods for planning level screening and 1 of 7 methods for design level testing.
102	Geotechnical Appendices	BIA	Is this screening analysis required for every project? Can we, as the humble geotechnical engineer/geologist, simply state in a letter that infiltration is not feasible due to our experience in the area?	Infeasibility analysis is not required if a project elects to participate in an alternative compliance program at the discretion of the jurisdiction. For projects that have to or elect to implement BMPs onsite the screening analysis is mandatory to meet the requirements in the MS4 permit
103	Geotechnical Appendices	BIA	Basically, this comes down to a civil engineer needing to voice the concern. The discussion on Page G-12 is correct in saying that compaction reduces the infiltration rate. However, the numbers pertain to run-off coefficients that get into the civil realm. I can understand why a reduction may be necessary for compacted fill but if you are in a natural (non-compacted) area, these reductions should not apply	Section G.1.4.3 has been revised in its entirety. The purpose of revised Section G.1.4.3 is to distinguish between compacted fill soils and undisturbed soils in the post-project condition, and provide incentive for compacted areas to be re-tilled and/or amended in the post-project condition.
104	Geotechnical Appendices	BIA	In addition to the previous comments, we have the lack of discussion in regards to the new RWQCB 2013 permit and the inability to account for existing impervious area. The discussion needs to be included in the BMP manual that clearly states that while existing impervious areas are not to be accounted for, the compacted nature of the soil located underneath this non accountable impervious area must be accounted for in the pre-developed condition	A pre-developed condition should not include compaction that occurred as a result of development.
105	Geotechnical Appendices	BIA	A guidance outline for geotechnical engineers on what needs to be included in their studies to support the new permit requirements . This has been an issue for over a decade and was discussed as a need early on in the process.	See Appendices C and D of the Model BMP Design Manual for geotechnical guidance. Worksheets from Appendices C and D should be included in project submittals as applicable.
106	Geotechnical Appendices	PDC	Suggest re-downloading HSG data set from most up to date source (NRCS's Web Soil Survey). SanGIS soils data hasn't been updated since 2002 and is out of date.	Soils data will be updated in the final version.
107	Geotechnical Appendices	PDC	Suggest re-ordering soil groups in order (A, B, C, D) for the legend	Figure C.1 legend was re-ordered per comment
108	Geotechnical Appendices	PDC	Typo "the following summary"	Text has been amended in Appendix D to address this comment.
109	Local Guidance	BIA	Add Prior Lawful Approval or Grandfathering into definitions	As these definitions will likely be different from one jurisdiction to another, it is proposed this be added during local adoption.
110	Graphics/Examples	SB&O	Please provide examples or guidance on applicability/infeasibility. How much is enough?	Feasibility/infeasibility examples are not included in the model manual. It is anticipated that these will be developed and presented in the workshops that will be organized prior to the effective date of BMP Design Manual.
111	Graphics/Examples	BIA	1.4.1-a - please define an acre of disturbance and provide a graphical example of how to calculate	Graphical example project was not included in the model manual. It is anticipated that these will be developed and presented in the workshops that will be organized prior to the effective date of BMP Design Manual. This will be circulated for inclusion in the local manuals prior to adoption.
112	Graphics/Examples	BIA	Provide a graphical example project to show how to use this figure properly	Graphical example project was not included in the model manual. It is anticipated that these will be developed and presented in the workshops that will be organized prior to the effective date of BMP Design Manual. This will be circulated for inclusion in the local manuals prior to adoption.
113	Graphics/Examples	BIA	The figures are poor and need to be legible	Native files (higher resolution graphics) were not available for inclusion in the model manual. Comment is noted and jurisdictions may develop new figures during local adoption.
114	Graphics/Examples	REC	The example points out the division of the 9,000 ft3 by 1.5 using section 3.c(1)(a)(i)[a] page 86 of Order R9-2013-0001. However, the Manual fails to point out that there is another alternative using section 3.c(1)(a)(i)[b] on which the volume of the bioretention facility can be 75% of the portion of the volume not captured In the example, the portion not captured is 8,000 ft3 and 75% of it is 6,000 ft3, so if the volume of the bio-retention is equal or larger than 6,000 ft3 (as it is the case) there is no need for larger bio-retention than 6,000 ft3 or also additional flow-thru planter. Please provide explanation as to why 3.c(1)(a)(i)[b] cannot be used in this case.	This is a hypothetical example to show selection of a BMP following the permit hierarchy. Note 3.c(1)(a)(i)[a] allows the applicant to route the 85th percentile storm to size the BMP whereas 3.c(1)(a)(i)[b] requires providing a total static (i.e. non-routed) storage volume of 0.75 times the untreated DCV. Based on procedures established in the BMP manual 3.c(1)(a)(i)[a] results in a smaller footprint BMP. 9,000 cubic feet in this hypothetical example is treated in an allowable routing time of 6 hours.
115	Hydromodification Management BMPs	SB&O	Vector Management Plan – are there any agency examples available	Text of Section 6.3.7 has been amended to reference sources of additional guidance. See http://www.sandiegocounty.gov/dplu/docs/Vector_Report_Formats.pdf and http://www.sandiegocounty.gov/deh/pests/vector_disease.html .
116	Hydromodification Management BMPs	BIA	The SCWRP Stream Susceptibility Manual should be in the Appendices	The Channel Screening Tools developed by SCCWRP in Technical Report 606 can be accessed through SCCWRP's website, or in Appendix B of the March 2011 Final HMP, therefore it is not copied to the BMP Design Manual.
117	Hydromodification Management BMPs	BIA	The HMP categories for .3 Q2 and 0.5Q2 cannot be used without THE SCWRPP STUDY. A flow chart needs to be added here to identify this process in a yes no format	Text has been added to Section 6.3.4 to clarify that use of a low flow threshold of 0.3Q2 or 0.5Q2 must be supported with a channel screening report.
118	Hydromodification Management BMPs	PDC	If upstream area is developed and drains through project boundary and is commingled, does low flow threshold for hydromod analysis have to be analyzed with pre-development conditions for entire drainage area? Similarly, for redevelopment sites with the <50% impervious rule applicable, if only the new impervious areas are considered the boundary for the PDP, can the existing impervious areas that are commingled with new impervious surfaces be modeled as existing impervious for the pre-project scenario for the hydromodification requirements?	Text has been added to Section 6.3.3 to clarify that offsite impervious areas that are not a part of the project may be modeled as impervious in the pre- and post- condition models.
119	Hydromodification Management BMPs	PDC	Why would cumulative analysis be required if a project uses a downstream POC? Regarding last sentence of first paragraph under 6.3.1, does "cumulative impacts of development" mean cumulative impacts of existing development (compared to pre-development), cumulative impacts of proposed development for the project, or cumulative impacts of future development anticipated in watershed?	Text of Section 6.3.1 has been amended to clarify when runoff from the project site does not meet a natural or un-lined channel onsite, instead traveling some distance downstream of the project in storm drain systems or lined channels prior to discharge to natural or un-lined channels, the POC(s) for flow control analysis shall be placed at the project boundary (i.e., comparing the pre-development and post-project flows from the project area only). The original text regarding cumulative impacts analysis is no longer applicable.
120	Hydromodification Management BMPs	PDC	Suggest changing "whenever feasible" to "whenever feasible and desirable" after first sentence. Parallel storm drain systems are most often not practical.	No changes made to address this comment in Section 6.3.2. The intent of this restriction is to prevent trapping sediment from offsite undeveloped areas in structural BMPs because the sediment presents an on-going maintenance need, and trapping the natural sediment may be detrimental to downstream channels.
121	Hydromodification Management BMPs	PDC	Suggest removing bolded sentence starting with "Structural BMPs for flow control must be designed to avoid trapping sediment". It is impossible to have a structural BMP that is designed for flow control that doesn't trap sediment. Doesn't make sense. Most often natural areas will be commingled with other runoff.	No changes made to address this comment in Section 6.3.2. The intent of this restriction is to prevent trapping sediment from offsite undeveloped areas in structural BMPs because the sediment presents an on-going maintenance need, and trapping the natural sediment may be detrimental to downstream channels.
122	Hydromodification Management BMPs	PDC	Last paragraph: suggest defining GLU acronym on this page instead of the next page.	Text has been amended in Section 6.2 to address this comment.
123	Hydromodification Management BMPs	SDRWQCB	when we did the 2015 update of the permit, we eliminated the reference to alternative compliance as it relates to protecting the sediment yield areas. This was done by adding the subsection "(a)" to references in the text to Provision E.3.c.(2). So, reading this section of the BMP Design Manual, I don't think it is consistent with the permit.	Chapter 6.2.4.3 discussing potential measures for offsite alternative compliance for protection of critical coarse sediment yield areas has been removed in response to this comment.
124	Hydromodification Management BMPs	REC	It is not clear why the 96 hour criterion applies to water retained in biofiltration facilities that is not accessible to mosquitoes: for example, water ponding in the gravel layer, water retained in the amended soil, etc. This criterion should only apply to water ponding at surface level, accessible to mosquitos.	For biofiltration BMPs surface ponding and the top 12 inches of the media need to drain within 24 hours to support plant health. The gravel below the underdrain needs to drain within 36 hours to get credit for retention (to account for back to back storms). There is no restriction for drawdown from 12 inches below the top to the invert of underdrain (if applicable).
125	Local Guidance	BIA	Lack of guidance for jurisdictional place-holders the "grey boxes" throughout the documents - while it is understood that each jurisdiction has specific tailored information that needs to be input to this document, the lack of guidance as to what goes in these locations will result in inconsistent applications region wide of criteria and standard for both the implementing staff of each agency as well as applicants. It would serve the region if some outline was provided to ensure a consistent application within these grey boxes.	Grey boxes are mostly limited to policies and procedural items. There was no guidance included in the grey boxes in the model manual because it is anticipated that requirements might be different from one jurisdiction to the other. The intent of the grey boxes in the model manual is to indicate to the user sections to check when they are working in multiple jurisdictions.
126	Local Guidance	BIA	Section 3.5 "loopholes": - this is known already and predominately addressed in the permit. This conflicts with the prior section on the whole of the project discussion	Section 3.5 is a placeholder that may be used to identify any special requirements within a jurisdiction. The Section name has been changed to "Project Planning and Design Requirements Specific to Local Jurisdiction"
127	Local Guidance	BIA	Temporary projects are not exempt from requirements - for example - temporary parking lots and should be included in the PDP list	This comment refers to text that was within a gray box that has been removed from the document.
128	Local Guidance	BIA	Shared onsite facilities need to be addressed	It is anticipated that these requirements might vary from one jurisdiction to the other so regional guidance was not developed in the Model BMP Design Manual

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Id	Comment Topic	Agency	Comment	Response
129	Local Guidance	BIA	This chapter needs to add the subject of project grandfathering.	Section 1.10 has a grey box for each jurisdiction to address prior lawful approval/grandfathering prior to local adoption.
130	Local Guidance	BIA	Phased projects should have discussions on Prior Lawful Approval or grandfathering, how to structure a master document and requirements for future permit compliance. This subject is not new and determinations have been made over the last permit cycle and an outline should be provided.	Section 3.6 and 1.10 is a placeholder for local guidance regarding this topic because procedures may vary by jurisdiction.
131	Local Guidance	BIA	Guidance on how to construct a master document for a phased community should be added to the appendix	Section 3.6 is a placeholder for local guidance regarding this topic because procedures may vary by jurisdiction.
132	Local Guidance	BIA	The obligation of the Copermittee to confirm the BMP has been constructed and is still present even though they are relying on an engineer's written statement . This has been proven by the SDRWQCB so it is suggested that this be touched upon in this section.	Section 1.12 lists the responsibilities of the project applicant. Copermittees obligations might be addressed in internal procedural documents.
133	Permit Interpretation	BIA	The MEP discussion needs to be placed in a flow chart and this portion placed in the appendix	Permit MEP definition is removed from the Model Manual
134	Permit Interpretation	BIA	Table 1-1- should be expanded to include parking areas, private driveways, and the SIC codes (i.e. drive through - especially restaurants under those SIC codes)	Based on feedback received, Table 1-2 (Table 1-1 in public draft) hasa been revised to only indicate projects for which permanent, post-construction storm water requirements do not apply.
135	Permit Interpretation	BIA	A complete descriptive table of the SIC codes should be added	Hyperlink to SIC search function is added to the manual in Section 1.4.
136	Permit Interpretation	BIA	New Sidewalks etc. - they do not apply only if they meet certain requirements described in the permit	Based on feedback received Table 1-2 (Table 1-1 in public draft) is revised to only indicate projects for which permanent, post-construction storm water requirements do not apply.
137	Permit Interpretation	BIA	Routine replacement - this should have visual cross section on what this is - in general it is if you go below the placed base into native the project has gone into REPLACEMENT and is subject to the requirements .The long standing confusion is the VERTICAL definition of replacement	The model manual was not scoped to develop a cross-section to graphically depict what qualifies as replacement. There is an opportunity to develop this information during local adoption.
138	Permit Interpretation	BIA	One change in this permit is the CUMULATIVE square foot factor - this should be added to the table	The intent of Table 1-2 (Table 1-1 in public draft) is to determine if the project is a development project or not a development project. Cumulative square foot factor is discussed in Section 1.4.
139	Permit Interpretation	BIA	Section 1.4: web links should be added for the SIC codes or provided as definitions.	Hyperlink to SIC search function is added to the manual in Section 1.4.
140	Permit Interpretation	BIA	1.4.3 - the term EXEMPTION is misleading - the permit is clear - there are no exemptions on these project types, they do not require treatment control requirements IF THEY MEET THE DESIGN CRITERIA. This is contradictory with the beginning of this manual where no mention of EXEMPTION is explained . An exempt project is one that does NOT TRIGGER ANY REQUIREMENTS	Model BMP Manual section heading was based on the permit heading from provision E.3.b.(3); A note that the source control and site design storm water requirements that are applicable to all projects will still apply even if a project is exempt from PDP requirements (i.e., a project that has been exempted from PDP requirements will be a Standard Project subject to Standard Project requirements) will be included in the grey box for jurisdictions to include in this section during local adoption.
141	Permit Interpretation	PDC	If existing roadway is widened slightly to expand beyond existing impervious footprint, would this still trigger PDP requirements even if the net change in impervious surface is less than 5000 SF (but the total replacement is over 5000SF)? Would hydromod requirements still be required to mitigate to pre-development conditions? (Concern is difficulty in accomplishing this for retrofit situations.)	Yes, based on PDP definitions in 2013 MS4 permit. Project may qualify for green street exemption if designed accordance with USEPA green street criteria and the jurisdiction the project is located in allows for this exemption.
142	Permit Interpretation	REC	The Manual should clarify if natural terrain corresponds to current topographic conditions under the assumption that the entire area is in natural conditions. For example, a project in a 12,000 sq-ft lot, with 1,000 sq-ft impervious area (to be removed) and that creates 4,500 sq-ft of impervious area, adds and/or replaces a total of 5,500 sq-ft. If the existing topography of the project is flat (5%) and was graded years ago, the project is not in a hillside condition, even if the past topography (which probably is unknown) was larger than 25%. In other words, the manual should clarify natural slope definition (the slope on 2010, as the HMP document suggests?). The definition of natural slope will help to clarify if this project is a PDP or not.	The following is included in Section 6.3.3 for the purposes of hydromod sizing: "Use available maps or development plans that depict the topography of the site prior to development, otherwise use existing onsite grades if historic topography is not available."
143	Permit Interpretation	REC	The manual should clarify what happens when a project is adjacent to an ESA but does not discharge to the ESA because the ESA is upstream. There have been different interpretations by different cities, and if the project does not discharge to the ESA, then the 2,500 sq-ft threshold does not apply, as long as the project does not physically disturbs the ESA.	The following permit criteria is included in the manual which clarifies the question: "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands).
144	Permit Interpretation	REC	The definition here seems to contradict the example given in page 5, section 1.4.1. Does the double accounting of imperviousness (replacing and creation) is necessary for the 50% rule? Follow this example: A 20,000 sq-ft existing lot with 18,000 sq-ft of impervious area will be redeveloped by less than 50% (8,000 sq-ft, 40%). In those 8,000 sq-ft, 7,500 sq-ft of existing impervious surfaces will be removed, and the remaining 10,500 sq-ft of impervious area in the remaining 12,000 sq-ft of exiting project will be left untouched. Also 6,500 sq-ft of new impervious area will be constructed (in those 8,000 sq-ft of project). The total replacing and creation is 7,500 + 6,500 = 14,000 sq-ft. In this example, 14,000 sq-ft/18,000 sq-ft is 78%, which implies the total area must be treated has the project does not satisfy the 50% rule. However, the project is reducing by 1,000 sq-ft the total imperviousness. In previous interpretations, only the new portion is subject to hydromodification and water quality, but per section 1.4.1, it seems that the total project is now subject to hydromod and water quality. Question: Does the applicant needs to count both the impervious area removed and the impervious area created to calculate the 50% rule? Please clarify.	In this example, the calculation of 14,000 sq-ft appears to include erroneously overlapping portions of the project site. It appears that the same 6,500 sq-ft of lot that is counted as "created" overlaps, in whole or part, with the 7,500 sq-ft that is counted as "replaced." These two categories are mutually exclusive. It is impossible for given area to be both "replaced" and "created" at the same time. Also, the question appears to use the term "removed" interchangeably with "replaced," which is not correct. Impervious area that is removed but not replaced with new impervious surface is not considered to be "replaced." In this example, the correct tabulation should be 6,500 sq-ft of impervious surface that qualifies as "created or replaced," which is less than 50% of the existing impervious surface. Therefore, only the "created or replaced" impervious surface must be addressed.
145	Permit Interpretation	REC	There should be a transition time between the effective date of the BMP Design Manual and the submittal of a project for approval because a project may have been designed with previous SUSMP guidelines. The BMP Manual says: "For project applications that have received approval before the effective date of the updated BMP Design Manual, the Copermittee may allow previous land development requirements under the local SUSM to apply". It should say: "For project applications that have received approval before the effective date of the updated BMP Design Manual or that can be approved before x days after the effective date of the BMP Design Manual, the Copermittee may allow previous land development requirements under the local SUMP to apply". Note: x must be selected per agreement between parts (30 days maybe?).	The statement from the public draft in Section 1.10 is moved to the grey box. It is anticipated that these requirements might vary from one jurisdiction to the other so these requirements will be developed at a local level prior to local adoption.
146	Policies & Procedural Requirements	BIA	This figure is missing constructed BMP verification associated with standard projects for source control and site design	Construction BMP verification associated with standard projects is not added to Figure 1-1 and the MS4 permit requires structural BMP verification for PDPs only.
147	Policies & Procedural Requirements	BIA	Table 1.2 needs to be revised to reflect the prior comments	Table 1-3 (Table 1-2 in public draft) is updated per comments.
148	Policies & Procedural Requirements	BIA	Section 1.2 - it would be helpful to add some examples of what entails the whole of an action - i.e. is there a development agreement for a street widening or park it would be - then this needs to be included.	Additional information from the CEQA definition has been added to Section 1.3 to address this comment.
149	Policies & Procedural Requirements	BIA	It would be helpful to provide a basic CEQA outline that supports this permit requirement	Additional information from the CEQA definition has been added to Section 1.3 to address this comment.
150	Policies & Procedural Requirements	BIA	Define unified BMP approach	This term refers to the standardized process for site and watershed investigation, BMP selection, BMP sizing, and BMP design that is outlined and described in the Model BMP Design Manual with associated appendices and templates. This approach is considered to be "unified" because it represents a pathway for compliance with MS4 Permit requirements that is anticipated to be reasonably consistent across the local jurisdictions in San Diego County. In contrast, applicants may choose to take an alternative approach where they demonstrate to the satisfaction of the Copermittee, in their submittal, compliance with applicable performance standards without necessarily following the process identified in the Model BMP Design Manual. This discussion is added as a footnot and included in the glossary of the Model BMP Design Manual
151	Policies & Procedural Requirements	PDC	End of page 14 - missing text.	No text identified as missing in page 14
152	Pollutant Control BMPs	SB&O	250 sf for an individual DMA seems very small. For a 10 acre parcel, the 2% threshold would equate to 8,700 sf. A wide driveway entry for a multifamily or commercial project could easily exceed 250 sf if the adjacent street is steep. Could the 250 sf limit exclude driveway aprons within the public right-of-way?	No changes proposed to the criteria for De minimis included in the public draft; The intent for de minimis is to use for driveway aprons
153	Pollutant Control BMPs	BIA	Table 5-1and Section 5-5 needs to be coordinated with the technical appendices. Statements and information is conflicting with preceding chapters and technical information	Enhancements were made to Table 5-1 and Section 5.5 to provide additional clarity.
154	Pollutant Control BMPs	Bio Clean Environmental Services	Why do standard projects have no pollutant control requirements? Only LID requirements? Is LID not a means of controlling pollutants and thus other pollutant control options being available to developers? Why isn't the option of using structural BMPs being offered as a viable solution? Rain gardens are offered and rain gardens are a structural BMP. It appears there is a double standard on options available of treatment of runoff between standards projects and projects that falls under PDP. Can you please the reasoning behind this?	This is because of the performance standards established by the MS4 permit for different types of projects; LID does mitigate pollutant discharges but is not considered a structural facility that has to be verified and tracked for perpetual O&M.
155	Pollutant Control BMPs	Bio Clean Environmental Services	Is biofiltration required prior to infiltration? Can structural BMPs be used for pre-treatment and if so what level of treatment is required prior to infiltration for each pollutant category (TSS, oils, metals, nutrients)? Some level of pollutant removal should be required to prevent ground water contamination thus making infiltration infeasible.	Pretreatment is required prior to infiltration. Refer to Appendix D for pretreatment requirements.

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Id	Comment Topic	Agency	Comment	Response
156	Pollutant Control BMPs	Bio Clean Environmental Services	We suggest the City to accept the DOE TAPE testing protocols and not utilize the NJCAT TARP protocols. No other states currently review or provide verification of BMPs tested under the TARP Tier II protocol. Since New Jersey no longer accepts this protocol there is no longer a state or agency that provides verification and certification for this outdated protocol. Historically only a handful of BMPs were ever tested under the TARP Tier II Protocol, and none since 2011. After December 1, 2016 the BMPs that were tested under the old TARP Tier II protocol will expire. Those BMPs will be required to test under the new protocol.	It is correct that the TARP partnership has dissolved and New Jersey has revised its approach for BMP acceptance. The expiration dates noted in this comment pertain only to the state of New Jersey and do not pertain to whether or not the BMP performance evaluation was conducted per valid protocols at the time it was conducted. The TARP Tier II protocol is no longer used, however it was/is considered to be a rigorous protocol and was approved by the State of California as a TARP member. Overall, its criteria were relaxed slightly as part of the modified New Jersey Criteria to reduce challenges for applicants that were observed during operation under this protocol. Therefore, field scale verification obtained under the TARP Tier II protocol are considered to be a valid verification of expected field scale performance. As long as product models have not changed, the age of the certification is not considered to be a significant factor in evaluating the adequacy of BMPs. NJCAT continues to conduct performance verification, now operating under the modified New Jersey Protocols. The most recent certification was in 2015. Appendix F.1 provides clarification of the difference between TARP and NJCAT and provide specific guidance for which categories of TAPE and NJCAT verified technologies are acceptable as part of accepting proprietary biofiltration and flow-thru BMPs.
157	Pollutant Control BMPs	Bio Clean Environmental Services	Why hasn't any performance data for biofiltration or bioswales been provided? In appendix F it says that "Standard biofiltration BMPs that are designed following the criteria in Fact Sheets PR-1 and BF-1 are presumed to meet the pollutant treatment performance standard associated with biofiltration BMPs." How can the City of San Diego presume how a BMP will perform without any testing support? If the City of San Diego is requiring proprietary BMPs to have Washington TAPE approval shouldn't require the same for biofiltration and the precise media mix being recommended?	See response to Public Comment #47.
158	Pollutant Control BMPs	CONTECH	The statement "Retention of the required design capture volume will achieve 100 percent pollutant removal efficiency" only applies to trash, sediment and those pollutants that are bound to sediment. Other pollutants like nitrates, chlorides, bacteria can be mobilized by infiltration. Additionally, pollutants present in soil, whether naturally occurring like selenium or as a result of industrial activities or spills can be mobilized. <u>Clarify that infiltration does not remove pollutants from the environment, it simply eliminates a point source discharge of those pollutants.</u>	Retention BMPs achieving 100 percent pollutant removal efficiency statement is from the MS4 Permit fact sheet.
159	Pollutant Control BMPs	CONTECH	The diamond shape box says "Can the BMP be designed for the remaining DVC?" Need to be clear that the "BMP" refers to biofiltration. <u>Change the diamond shaped box text to "Can the portion of the DCV that is not retained be biotreated?"</u>	The diamond box addresses three types of BMPs 1) infiltration which could potentially have no biofiltration component; 2) biofiltration with partial retention - this has partial retention and partial biofiltration and 3) biofiltration. So the proposed edit is not made
160	Pollutant Control BMPs	CONTECH	The relationship between the steps described in this section and the preceding flow charts (Figs. 5-1 and 5-2) is unclear. The steps are numbered, but there are no corresponding step numbers in the flow charts. The narrative and Figures 5-1 and 5-2 should be reconciled. <u>Reconcile steps described with preceding flow charts.</u>	Numbered steps are added to Figure 5.1 and 5.2
161	Pollutant Control BMPs	CONTECH	This step directs the engineer to determine rainwater harvesting feasibility but also allows infiltration to be used instead if it is feasible. This is no consistent with the flow charts where rainwater harvesting is to be implemented where feasible. In the Step 2 narrative if an applicant finds rainwater harvest to be feasible they can skip to step 3 and consider infiltration feasibility. In steps 3 and 4 there is no statement that directs applicants that rainwater harvesting must be implemented where infiltration is infeasible. An applicant following the narrative could find rainwater harvesting to be feasible, skip to step 3, find infiltration infeasible and end up at treatment controls. <u>Reconcile Step narrative with flow charts to require implementation of rainwater harvesting where feasible.</u>	This is addressed as Setp 2C and footnote in Figure 5.1
162	Pollutant Control BMPs	CONTECH	Where the BMP doesn't fit, additional options must be considered. "Examples include potential design revisions, reconfiguring DMAs, evaluating other or additional BMP locations and evaluating other BMP types." It needs to be more clear that biofiltration systems are a viable option here. <u>Clarify what type of BMPs are being evaluated for the site in this step. Infiltration should be considered first, including underground infiltration BMPs that require no exclusively dedicated site area. If infiltration is infeasible, it should be clarified that biofiltration BMP siting should be evaluated.</u>	This will be based on the results of the infiltration feasibility analysis for onsite BMPs. Step 3 in Figure 5.2 explains the process for this comment.
163	Pollutant Control BMPs	CONTECH	Where infiltration is infeasible, "Other pollutant control BMPs should be considered e.g. biofiltration or flow-thru treatment control BMPs. See Section 5.5.3 and 5.5.4". This should be clarified by noting that if flow-through treatment BMPs are used, off-site mitigation is also required. <u>Add "Other pollutant control BMPs should be considered e.g. biofiltration, or flow-thru treatment control BMPs and off-site mitigation e.g. the portion of the DCV that is not retained or biofiltered on site. See Section 5.5.3 and 5.5.4"</u>	Text has been amended to address this comment in Section 5.4.2.
164	Pollutant Control BMPs	CONTECH	Lower right box includes a suggestion that rainwater harvest be considered if infiltration is infeasible. According to figures 5.1 and 5.2, rainwater harvesting should have already been considered and used if it is deemed feasible. <u>Remove reference to rainwater harvesting in flow chart box in lower right corner.</u>	Harvest and Use and Infiltration are both retention BMPs and hence based on the MS4 permit they are in the same level of hierarchy. If both options are feasible then the BMP manual provides the applicant an option to choose the option that is preferred by the applicant. In an event only one of the two is feasible and the applicant elects to meet the performance standard onsite then the applicant needs to choose the one feasible option and this is what is being conveyed in Figures 5.1, 5.2 and 5.5
165	Pollutant Control BMPs	CONTECH	Subsurface retention is not included as a BMP here and should be. It is a common design in the San Diego area, especially on constrained sites. <u>Add "Infiltration gallery" to the table in the Retention row. Add a fact sheet for "Infiltration Gallery" to appendix E.</u>	Infiltration gallery is listed as an allowable BMP as part of INF-1. Also Section 5.5 has the following text "Other BMP types and variations on these designs may be approved at the discretion of the [City Engineer] if documentation is provided demonstrating that the BMP is functionally equivalent or better than those described in this manual."
166	Pollutant Control BMPs	PDC	Suggest eliminating 250 SF maximum. This limit is too restrictive to be practical. For example, a one foot wide area between a retaining wall and a right-of-way may run 300' long and exceed the 250 SF maximum, but practically speaking, this situation should fall within a De minimus area classification.	The criteria required to qualify for De minimis DMA is proposed to remain unchanged
167	Pollutant Control BMPs	PDC	Confirm landscaped areas with area drains can be classified as self-retaining areas. Previous SUSMP required inlets elevated 3" above low point, which was not practical due to tripping hazards and vector issues.	This example does not qualify as self-retaining areas. Refer to Section 5.2.3 for definition of self-retaining area per the model manual requirements.
168	Pollutant Control BMPs	REC	The Manual says "Impervious surfaces greatly affect the natural hydrology of the land because they do not allow natural infiltration and treatment of storm water runoff to take place." The previous sentence does not include evapotranspiration that usually originates as a consequence of canopy intersection, retention of precipitation in the soil and ponded areas, and adsorption of water by the vegetation root system. Considering revising as: "Impervious surfaces greatly affect the natural hydrology of the land because they do not allow natural infiltration, retention, evapotranspiration and treatment of storm water runoff to take place."	Text has been amended to address this comment in Section 2.1.2.
169	Pollutant Control BMPs	SWEMA	Section 2.2.2 states that retention of the required design capture volume will achieve 100 percent pollutant removal efficiency. SWEMA is concerned with the use of such absolute statements. Retention BMPs designed for the 85th percentile design storm will not treat runoff from larger or back to back storms. Additionally, if runoff is infiltrated, then those pollutants not bound in the soil may be transported to groundwater. Pollutants will accumulate within the BMP and adjacent soil which can trigger future remediation requirements. SWEMA requests that not only such language be removed from the manual, but that additional language be added to address the long term viability of such systems in order to prevent future groundwater and soil contamination.	Retention BMPs achieving 100 percent pollutant removal efficiency statement is from the MS4 Permit fact sheet. 36 hour draw down requirement or sizing to achieve 80% average annual capture is added in the model manual to treat back-to-back storms
170	Pollutant Control BMPs	BIA	Figure 1.1- this should include which permit is applicable for design requirements - i.e. the 2007 permit or the 2013 permit. Under the 2007 permit there is the permit prior to January 2011 for HMP and after for HMP. Clarify "only pollutant control requirements"	If a project qualifies for 2007 permit or needs to meet 2013 permit is a special requirement and as such are included in the "Do Special Requirements Apply?" box. The requirements for this might vary from one jurisdiction to the other, unless guidance is released by the RWQCB so Section 1.10 for now has a grey box for completion by each jurisdiction during local adoption. Only pollutant control requirements refer to projects that do not have to design hydromodification management BMPs because they drain to an exempt water body.
171	Pollutant Control BMPs	Bio Clean Environmental Services	It is referenced that BMPs be used that maximize evapotranspiration. We are not aware of any third party field data that summarizes the amount of evapotranspiration potential from various BMPs being recommended?	It is as MS4 permit requirement to maximize retention when implementing BMPs onsite. Generally surface area of the BMPs is proportional to the amount of evapotranspiration from that BMP.
172	Pollutant Control BMPs	Bio Clean Environmental Services	In section 2.2.2 is stated that retention of the required design capture volume will achieve 100 pollutant removal efficiency. If the runoff is infiltrated, then those pollutants not accumulated in the soil will be transferred to the ground water. Runoff that is evapotranspired can leave pollutants in the soil which will bio accumulate, eventually to levels that may become toxic leading to soil contamination and the need for soil remediation. There is a difference between pollutant removal and pollutant transport?	Retention BMPs achieving 100 percent pollutant removal efficiency statement is from the MS4 Permit fact sheet.
173	Sizing of BMPs	SB&O	Rain barrel – confirm exemption from 36 hour draw down (Cistern).	Rain barrels that meet the criteria in B.2.2.2 are exempt from the 36 hour draw down criteria

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174	Sizing of BMPs	BIA	I had just reviewed a little more into the document - particularly in regards to their interpretation of soil compaction. And while it's true that for D soils, things actually improve given they are not discerning between natural and developed for D class soils, the same cannot be said for the other soil classes. In the 2015 Manual, development will cause a class A soil to be analyzed as a type B, etc. This leads to the following reduction in soil conductivity: Type A = 0.3 --> Type A "developed" (Type B) = 0.2 (33% reduction) Type B = 0.2 --> Type B "developed" (Type C) = 0.1 (50% reduction) Type C = 0.1 --> Type C "developed" (Type D) = 0.025 (75% reduction) Currently, standard modeling practice was to assume a 25% loss of conductivity due to compaction - this maintained a uniform loss over the soil classes. Class C soils will definitely be hit hardest under this new permit. (red highlighting for effect above)	Section G.1.4.3 has been revised in its entirety. The purpose of revised Section G.1.4.3 is to distinguish between compacted fill soils and undisturbed soils in the post-project condition, and provide incentive for compacted areas to be re-filled and/or amended in the post-project condition.
175	Sizing of BMPs	CONTECH	Irrigation demand over 36 hours is considered when establishing the on-site water demand. However, this section states: "In the absence of a detailed demand study, it should be assumed that irrigation demand is not present during days with greater than 0.1 inches of rain and the subsequent 3 day period." This effectively eliminates all irrigation demand and makes rainwater harvest infeasible on any site unless there is adequate indoor demand. While the landscape may not need water, it can be irrigated in excess of the design landscape irrigation rate after a storm to recover cistern volume. Planned irrigation rates are intended to conserve potable water while providing enough water to keep climate appropriate landscaping alive. But, in the case of rainwater cistern irrigation, there is no need to use water sparingly. This section should be amended to require consideration of irrigation at a rate equal to the landscape's ability to infiltrate and/or evapotranspire that water without producing runoff as is allowed in the last bullet of this section. This change would make rainwater harvesting feasible on many more sites and would boost runoff retention rates in the region. It is also worth noting that increasing evapotranspiration in this way brings the developed site water balance closer to predevelopment conditions.	As stated the proposed planning level approach is for scenarios where there is no detailed demand study. Based on analysis of Lake Wohlford, Lindbergh and Oceanside precipitation patterns, irrigation would not be applied during approximately 30 percent of days from November through April. As written the manual provides the applicant an option to perform a detailed demand study for landscape irrigation and use it size harvest and use BMPs.
176	Sizing of BMPs	Kimley-Horn	Rain Gage. Otay has been known to have issues due to incomplete data. Should this rain gage be removed? We recommend considering using a scaling factor for the rainfall for certain areas. The Otay area will have a very tough time meeting requirements because of the rain gage inadequacy.	A separate workgroup outside of the BMP Design Manual will evaluate this comment. Currently all rain gages provided on Project Clean Water are approved for use, including the Otay rain gauge (Lower Otay Reservoir gage).
177	Sizing of BMPs	Kimley-Horn	Weibull plot versus Cunnane. For SWMM, a Weibull plot is recommended. SDHM uses Cunnane -- will Cunnane be accepted?	The text of Section G.1.6.1 has been revised to be consistent with the Final HMP, which does not specifically require one or the other. Either Weibull or Cunnane may be used.
178	Sizing of BMPs	Kimley-Horn	Please provide recommended Drain Coefficient equation since it is an empirical formula.	Refer to SWMM User's Manual for equations and determine the drain coefficient based on the project-specific low-flow orifice size.
179	Sizing of BMPs	Oldcastle Stormwater Solutions	This worksheet contains a number of background assumptions. Provide clarification on how Biofiltration BMPs should be designed if any of the assumptions are changed. For example, what if a different media filtration rate is used? Also, clarify the final criteria in Line 25 - 3% of Line 24. Where did this come from? Is it defined somewhere? Does this value vary with changing biofiltration characteristics, and if so, how? Finally, clarify whether this table should also be used for manufactured biofiltration BMPs that operate with a higher media filtration rate. If so, how should other parameters be adjusted?	The MS4 permit has a requirement to provide guidance for hydraulic loading rates and other biofiltration design criteria necessary to maximize storm water retention and pollutant removal. In order to meet this requirement, the 3% criteria was added. Appendix B.5.2 provides the basis for the 3% criteria. For selection and sizing of proprietary biofiltration BMPs please refer to Appendix F and Fact Sheet BF-3; Proprietary biofiltration BMPs are allowed only when certain feasibility criteria and performance standards are met
180	Sizing of BMPs	Oldcastle Stormwater Solutions	Provide clarification on the thickness of the gravel/aggregate storage layer. Line 13 of Worksheet B.5-1 specifies that aggregate storage of 12 inches is typical, yet on Page B-47, the sizing factors for Biofiltration specifies a storage layer of 30 inches, with 18 inches active storage above the underdrain. Provide clarification on the thickness of the storage layer, the height of the underdrain within the storage layer, and most importantly, ensure that the calculations in the worksheet provide the necessary flexibility to adjust for different acceptable designs.	Worksheet B.5.1 is for pollutant control sizing. Appendix G.2.4 (B.7.4 in public draft - page B47) is for hydromod sizing and the cross sections are what were used to develop hydromod sizing factors in Appendix G.2. 12 inches is recommended in Worksheet B.5.1 but the manual provides applicant the flexibility to select a different thickness of aggregate layer.
181	Sizing of BMPs	Oldcastle Stormwater Solutions	Bullet #1 specifies Media Filtration Rate = 5 in/hr; minimum required filtration rate. Suggestion: If 5 in/hr is a minimum required rate, is there a range of acceptable rates? If so, specify range of acceptable media filtration rates. Also, indicate how changes in media filtration rate affects sizing factors and sizing calculations.	Range of filtration rates added to PR-1 and BF-1; For non-proprietary BMPs the minimum rate of media of 5 in/hr is recommended for sizing. For selection and sizing of proprietary biofiltration BMPs please refer to Appendix F and Fact Sheet BF-3; Proprietary biofiltration BMPs are allowed only when certain feasibility criteria and performance standards are met
182	Sizing of BMPs	Oldcastle Stormwater Solutions	Provide clarification on the basis for this table. How were the minimum required surface areas calculated? What are the assumptions behind the calculations? Are they based on a specific media filtration rate, and if so what? How should these be adjusted if a different media infiltration rate is used?	The table was developed for sizing PR-1 and BF-1. It used a media filtration rate of 5 in/hr. For selection and sizing of proprietary biofiltration BMPs please refer to Appendix F and Fact Sheet BF-3; Proprietary biofiltration BMPs are allowed only when certain feasibility criteria and performance standards are met
183	Sizing of BMPs	Oldcastle Stormwater Solutions	Step 3: "Use the sizing worksheet to determine flow-through treatment sizing of the vault storage..." Specify operating rates from flow through media filters, or provide guidelines for how those filters shall be sized, since many manufactured filters can be operated at varying flow rates.	The proposed BMP shall be designed and maintained in a manner consistent with its performance certifications (see explanation below). Also refer to Appendix B.6 for additional details. Practically, what this means is that the BMP must be used in the same way in which it was tested and certified. Certifications or verifications issued by the Washington Technology Acceptance Protocol-Ecology program and the Technology Acceptance Reciprocity Partnership or New Jersey Corporation for Advance Testing programs are typically accompanied by a set of guidelines regarding appropriate design and maintenance conditions that would be consistent with the certification/verification. It is common for these approvals to specify the specific model of BMP, design capacity for given unit sizes, type of media that is the basis for approval, and/or other parameters. The applicant must demonstrate conclusively that the proposed application of the BMP is consistent with the basis of its certification/verification.
184	Sizing of BMPs	PDC	Was the adjustment to the pervious area parameters to account for compaction included in the standard spreadsheet-based flow control BMP sizing approach? If not, why would this be required for the use of detailed continuous simulation studies?	Section G.1.4.3 has been revised in its entirety. The purpose of revised Section G.1.4.3 is to distinguish between compacted fill soils and undisturbed soils in the post-project condition, and provide incentive for compacted areas to be re-filled and/or amended in the post-project condition. This procedure was not a part of the sizing factor development, which is a simplified procedure that modeled only impervious areas to develop the sizing factors. Project-specific continuous simulation models are expected to capture more detailed site conditions.
185	Sizing of BMPs	PDC	Add a note that explains that continuous simulation modelers can use one of the 3 gages per Figure B.7-1 as an alternative to using the closest rain gage to the site. Because the spreadsheet sizing tool is based on the three gages, it follows that a continuous simulation should be able to utilize the same data set.	Project-specific continuous simulation models must use the most appropriate rainfall data set from the 19 rainfall record files provided on the Project Clean Water website. Determine the most appropriate data set based on the criteria presented in Section G.1.3.1. Do not substitute one of the three gages from Figure G.2-1 (formerly Figure B.7-1) if it does not meet the criteria presented in Section G.1.3.1. All of the rainfall record files published on Project Clean Water are approved for use.
186	Sizing of BMPs	PDC	Suggest adding typical graphic to graphically show air, water, and soil particles showing the difference between saturated soil, field capacity, wilting point, etc. (Available from agricultural extension documents)	Graphics have been added to Appendix G in response to this comment.
187	Sizing of BMPs	PDC	Can non-street trees be counted for this credit? For example, can this credit apply to trees within parking lots? Can this credit apply to any tree that is planted in an area that is surrounded by impervious cover?	Yes the credit is applicable to all trees, provided the minimum soil requirement in the fact sheet is met
188	Sizing of BMPs	PDC	Is 80% equivalency limited to only infiltration, or could it also apply to the combined total of infiltration + evapotranspiration?	It is applicable to all retention BMPs (infiltration + evapotranspiration).
189	Sizing of BMPs	PDC	Add this 80% equivalency elsewhere in document and in fact sheets as an alternative to the standard sizing methods.	Fact Sheets for infiltration refer to Appendix B.4 for sizing which has both the simple sizing and percent capture method
190	Sizing of BMPs	PDC	5th bullet: Adjusted Runoff Factor (Ca) is not defined in Appendix B.1-B.2. Suggest clarifying the difference between C and Ca.	Note the Section referenced in this comment (page B-34) has been moved from Appendix B.7 to Appendix G.2. Text has been revised to indicate that area-weighted runoff factor (C) defined in Table G.2-1 should be used. Runoff coefficients and adjustments presented in Appendices B.1 and B.2 will not be applied in the sizing factor method.
191	Sizing of BMPs	PDC	Can we distinguish between cistern per HU-1 and this type of Cistern? "Cistern" implies harvesting and re-use, but in this case, it is not a "cistern" it is a detention facility. I realize that the term comes from the HMP manual, but a clarification note would be helpful.	Note the Section referenced in this comment (page B-57) has been moved from Appendix B.7 to Appendix G.2. Text of Appendix G.2.6 has been amended to address this comment.
192	Sizing of BMPs	PDC	Last sentence: If cistern is selected in combination with another downstream BMP, how can the downstream BMP be sized based on cistern orifice outflow if all BMPs are now sized based on volume instead of flow rate (in absence of alternative compliance)? Previously, in the "cistern" plus "bioretention" model with the HMP, the cistern orifice flow was calculated and then used to size the footprint of the bioretention facility (based on the flowrate and infiltration rate). If flow-based sizing is no longer available to us without alternative compliance, then how can these BMPs in series be properly designed?	Note the Section referenced in this comment (page B-57) has been moved from Appendix B.7 to Appendix G.2. Text of Appendix G.2.6 has been amended to address this comment.
193	Sizing of BMPs	PDC	Why is V2 term now N/A?	For A and B soils, V2 term shown as N/A in Table G.2-4 (formerly Table B.7-3) is N/A in the original data presented in the "San Diego BMP Sizing Calculator Methodology". Only V1 and 18 inches of bioretention soil is required for this BMP in A and B soils. For C and D soils, A, V1, and V2 were all presented as N/A for "Bioretention" (Table G.2-4, formerly Table B.7-3) because the actual models of this BMP include an underdrain so it could not be classified as a retention BMP. For C and D soils refer to Table G.2-5, in Section G.2.4 (formerly Table B.7-4 in Section B.7.4).
194	Sizing of BMPs	PDC	Missing "the" after "For" under second sentence under B.3.1.	Text has been amended in Appendix B.3.1 to address this comment.
195	Sizing of BMPs	PDC	Typo: NRCS stands for Natural Resources Conservation Service	Text has been amended in Appendix G.2 (Appendix B.7 in public draft) to address this comment.
196	Sizing of BMPs	PDC	If the infiltration rate in the partial retention section is high, the required gravel section in Line 6 becomes very large. Can the user specify the minimum gravel section that is reasonable for the site instead of the depth being dictated by the 36 hour drawdown goal? For small bioretention basins, it would be infeasible to include such a large slope for the cut for a deep gravel section	Line 6 is the maximum allowable depth. For onsite BMPs MS4 permit requires maximizing retention prior to implementation biofiltration BMPs, so recommend selecting infiltration BMPs when the infiltration rate is high.
197	Sizing of BMPs	PDC	Is the footprint criteria based on the minimum or the maximum? Elsewhere in the document, the 3% rule is shown as the minimum footprint area (page E-52). If the infiltration rate in the partial retention section of Worksheet B.5-1 is high, the required footprint in Lines 21 or 23 can be substantially less than the 3% rule. Does the 3% rule govern, or is the sizing flexible? What benefit do you get for providing the additional partial retention volume?	It is a minimum criterion. The basis for the 3% criteria is explained in Appendix B.5.2. If the infiltration rate is high recommend designing an infiltration BMP. The surface criterion is to minimize clogging of the filter bed by regulating hydraulic loading rates.

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198	Sizing of BMPs	PDC	filters are sized by rate, not volume. Clarify the difference.	Clarification added in Appendix B.6.3 that sand filter and Media filter can be designed either by remaining DCV (surface ponding or storage unit that equalizes the flow prior to treatment - need to drawdown in 36 hours to provide for back to back storms) or flow rate (instantaneous treatment capacity = bed surface area * filtration rate or Number of units *unit treatment capacity)
199	Sizing of BMPs	REC	It is necessary to define the shape of the 85th percentile storm (intensity distribution during the 24 hour duration of the 85th percentile storm) as to allow the designer to route the 85th percentile storm into the proposed facilities using basic hydraulic equation of continuity and Darcy's law (volumetric routing or Modified Puls Method). For example, the occurrence of 0.8 inches in 1 hour is not hydraulically equivalent than the occurrence of 0.8 inches in 24 hours.	As an alternate to defining a shape of an 85th percentile storm, the Model BMP Design Manual developed a percent capture method (Appendix B.4.2) for sizing retention BMPs (uses rainfall data, BMP drawdown time, and estimates capture using SWMM) and allowable routing time (Appendix B.5) for sizing biofiltration BMPs. These methods are anticipated to provide the flexibility needed for the designer and will be easier for a plan reviewer to check the submitted design. Another reason the Model Manual does not define a shape of the hydrograph is that typical 24-hour design storm hyetographs, such as those used in flood modeling, have not been demonstrated to be reliable for smaller water quality-sized storms. The average duration of actual precipitation within 24-hour periods with rainfall similar to the 85th percentile rainfall has been calculated to be around 6 to 8 hours. A hyetograph that distributes precipitation over the entire 24 hour period would not be consistent with these actual storm event observations and would potentially be unreliable as it would allow a greater period for routing than exists in real storm events of this size.
200	Sizing of BMPs	REC	It should say: The standard for storm water pollutant control (formerly treatment control) is retention of the 85th percentile storm volume, defined as the event that has a precipitation total greater than or equal to 85 percent of all daily storm events larger than 0.01 inches over a given period of record in a specific area or location. <u>Note: if the events are not daily, then an hourly threshold to separate events must be defined</u>	Text has been amended in the Summary section to address this comment.
201	Sizing of BMPs	REC	In regards to the method to obtain the 85th percentile 24-hour event, by always dividing the precipitation data in 24 hour intervals many events will be cut (for example a storm starting at night and ending the next day will be analyzed as two storms). A more appropriate methodology similar to the one used in the CASQA Manual could be appropriate (for example separating the storms by a threshold of 6 hours with no rain, and then dividing those storms larger than 24 hours into blocks of 24 hours of continuous rainfall). Why was the method selected as described?	The method was selected as described to follow USEPA current working definition, which is to define the 24-hour period as 12:00:00 am to 11:59:59 pm; "Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act" . Note: County of San Diego staff updated the 85th percentile for the Model Manual . County staff are working on a white paper that will document the approach used to develop the update map. This white paper will be included in the final manual.
202	Sizing of BMPs	REC	The method to determine the 85th percentile is inaccurate because the precipitation is divided in 24 hours intervals regardless if a storm is broken in 2 or more and the duration of 24 hours has not been exceeded. The method should be readjusted by separating the hourly records into different storms with a threshold of hours without rain of 6 hours or similar (other threshold could be selected such as 3 hours, 9 hours or 12 hours; typically the 6 hour threshold is the average, see CASQA Manuals among other references) and then determine the storm total and duration. For those storms larger than 24 hours in duration, then the storms should be broken in 24 hours intervals. <u>Differences of more than 50% in the value of the 85th percentile storm can be obtained.</u>	See response to Public Comment #201.
203	Sizing of BMPs	REC	Consider revising the minimum infiltration recommended for Soil A. The table shows more than 2 orders of magnitude of infiltration for this soil (from 0.02 in/hr to 9.3 in/hr); in other words, the higher infiltration is 453 times larger than the lower one which makes a preliminary analysis too variable. A minimum value of 0.15 in/hr is suggested (which is still very conservative for soils type A, and half of the value recommended for Green-Ampt routing of Soil A).	The table has been revised to change the maximum infiltration rate for the sensitivity analysis to 2.4 inches per hour for Type A soils, which is expected to be more consistent with requirements to adjust measured infiltration rates with a factor of safety. Table G.1-5 is for use when the site-specific infiltration rate has not yet been measured, and the intent is for the engineer to understand what the impact will be if the measured infiltration rate is not as good as the estimated infiltration rate. For final design, measured infiltration rate is required.
204	Sizing of BMPs	REC	Modify the selection of peaks per the Santa Margarita Region Criteria, which establishes peaks independently of the 0.002 cfs/acre criteria. New San Diego BMP Manual Criteria: 1. Parse the continuous hourly flow data into discrete runoff events. The following criteria shall be used for separation of flow events: flow events should be considered separate when the flow rate drops below a threshold value of 0.002 cfs/acre for a period of at least 24 hours. 2. Rank the peak flows from each discrete flow event, and compute the return interval using the Weibull plotting position method. Santa Margarita Region Criteria: For the statistical analysis of the rainfall record, partial duration series events have been separated into discrete unrelated rainfall events assuming the following criteria. 1. A minimum interval of 24 hours between peaks is applied to capture those peaks generated from back-to-back storms. 2. The Weibull plotting method is used to rank the selected peaks as the method was specifically developed for California-based streams, where wet-weather and dryweather years produce two populations of flood events. Dr.Parra was able to convince the Santa Margarita Region to remove 2011 San Diego HMP following a technical memorandum of the statistical error associated with the 0.002 cfs/acre threshold.	The text of Section G.1.6.1 has been revised to not preclude other methods of parsing the data into discrete storm events. Applicants should clearly state the separation criteria used in their HMP documentation.
205	Sizing of BMPs	REC	It says: "Other site design BMPs can be considered self-retaining if the long term annual runoff volume (estimated using continuous simulation following guidelines listed in Appendix G) from the DMA is reduced to a level equivalent to pervious land and the applicant provides supporting analysis and rationale for the reduction in long term runoff volume." It should say: "Other site design BMPs can be considered self-retaining if the post-development Flow Duration Curve FDC (estimated using continuous simulation following guidelines listed in Appendix G) from the DMA is reduced to a level equivalent to the Flow Duration Curve of pervious land, satisfying hydromodification conditions, and the applicant provides supporting analysis and rationale for the reduction in FDC".	Self retaining DMA concept presented in chapter 5 is only applicable for pollutant control BMP sizing. Self retaining DMA concept is currently not proposed for hydromodification management sizing, as these DMAs could be modeled and presented as needing no additional structural measures as part of the project specific continuous simulation developed and submitted for review by the applicant.
206	Sizing of BMPs	REC	First equation should be also given simplified as DCV = 3630·C·d·A	Text has been amended in Appendix B.1 to address this comment.
207	Sizing of BMPs	REC	The variables in the second equation should be explained (Cx, Ax)	Text has been amended in Appendix B.1 to address this comment.
208	Sizing of BMPs	REC	A persistent error carried on the original SSUMP documents has been included here - Impervious surfaces do not have C coefficient values of 1, especially when considering that the storm analyzed is the 85th percentile storm which is not as large as the extreme events. C = 0.9 for impervious surfaces when analyzing the 100 year storm event, for example. Physically, at least a portion of the rain is lost by the water attaching to the surface. A value C = 0.9 is suggested, as accommodates better with hydrology references for C determination - No distinction between C coefficients for landscapes areas under different Hydrologic Soil Groups is presented, when by definition the difference between hydrologic soil groups is precisely the C coefficient. C = 0.1 should be used for soils type A, while other coefficients should be used for soils type B, C and D.	Updated manual now has two runoff factor tables. Table B.1-1 for sizing pollutant control BMPs and Table G.2-1 for sizing Hydromod BMPs using sizing factors. The following revisions/additions were made to Table B.1-1 to address the comment: Impervious surfaces runoff factor was adjusted to 0.90 Natural (A soil) = 0.06 (Riverside County LID manual) Natural (B soil) = 0.14 (Riverside County LID manual) Natural (C soil) = 0.23 (Riverside County LID manual) Natural (D soil) = 0.30 (Riverside County LID manual)
209	Sizing of BMPs	REC	The use of linear interpolation equations is more accurate and adequate than the use of 4 different values per impervious to pervious Ratio R. The use of the continuity equation should be used for the excess of infiltration capacity of each soil (explanation out of the scope of this review). Another alternative could be the use of power law equations so the reduction factor decreases gradually (as in the physical combination of an area draining to another area with additional infiltration capacity) and designers are not pressed to be in the boundary of applicability. The following equations are proposed (other could be suggested in a TAC): Soil Type A: if R < 2: Af = 0; if 2 ≤ R ≤ 42: Af = 0.23·(R-2)0.393; if R ≥ 42, Af =1. Soil Type B: if R < 1: Af = 0; if 1 ≤ R ≤ 16.2 : Af = 0.226·(R-1)0.53; if R ≥ 16.2, Af =1. Soil Type C: if R ≤ 12.3 : Af = 0.39·R0.375; if R ≥ 12.3, Af =1. Soil Type C: if R ≤ 11.1 : Af = 0.74·R0.125; if R ≥ 11.1, Af =1. Notice that in those equations starts the attenuation factor Af starts in 0 and gradually increases to 1; from there, it no longer increases. The coefficients of the power law equations were chosen in such a way that the center of the interval gives approximately the values shown in Table B.2.1.	The adjustment factors in Appendix B.2.1.1 were developed by performing continuous simulations in USEPA SWMM. At this time linear interpolation equations are not included in the Model manual.
210	Sizing of BMPs	REC	The relationship 2:1 in HSG A and 1:1 in HSG B does not satisfy hydromodification conditions in a continuous simulation modelling setting. For example, if 2 acres of impervious area drain to 1 acre of pervious area in a soil type A with an average slope of 5%, the Flow Duration Curve (FDC) created in post-development conditions exceeds the FDC of pre-development conditions beyond the allowed values permitted. The manual should clarify that such self-retaining definition only applies for projects exempt of hydromodification compliance.	Clarification added that impervious area dispersion coefficients are only applicable for pollutant control sizing. These are not intended for use in hydromodification sizing.
211	Sizing of BMPs	REC	Parentheses in the example are incorrectly displayed. Calculation [(1*1)+(0.5*0.1)/1.5] = 0.7 should be shown as [(1*1+0.5*0.1)/1.5] = 0.7 and calculation =[(1*0.28)+(0.5*0.1)/1.5] = 0.22 should be shown as [(1*0.28+0.5*0.1)/1.5] = 0.22	Text in Appendix B.2 has been amended to address this comment.
212	Sizing of BMPs	REC	Please add the number of the Table It says: "Biofiltration Footprint for 1 acre impervious catchment estimated using Worksheet B-5.1 Surface Ponding = 6"; Media Thickness = 18" " It should say: "Biofiltration Footprint for 1 acre impervious catchment = 3%; Surface Ponding = 6"; Media Thickness = 18" " A note should be added to the bottom: per Worksheet B-5.1 and the 85th percentile rainfall of the stations analyzed, the minimum biofiltration size criteria is the dominant criteria. Different surface ponding values and/or different 85th percentile storms may lead to higher values than those shown in this table.	Text has been amended in Appendix B.5.1 to address this comment.
213	Source Control and Site Design	SB&O	Based upon the language, all projects must be xeriscaped. What about exemption for athletic fields or golf courses. What about the homeowner who wants turf after the home is purchased?	SD-7 Landscape with Native or Drought Tolerant Species is a requirements of the 2013 MS4 permit
214	Source Control and Site Design	BIA	Buffer zones have specific other regulatory agency requirements and should be included. For example, BMPs generally cannot be located in buffer zones if the resource agency prohibits maintenance or activity in the area.	Section 2.1.1.3 presents the requirement from the MS4 Permit [Provision E.3.a.(3)(b)]. The following statement is added in Chapter 4 under requirements of SD-1: "Structural BMPs cannot be located in buffer zones if a State and/or Federal resource agency (e.g. RWQCB, California Department of Fish and Wildlife; U.S. Army Corps of Engineers, etc.) prohibits maintenance or activity in the area."
215	Submittal Requirements	SB&O	DCV and other calculations in the Discretionary phase (or when detailed DMA mapping in unavailable or subject to change) may be calculated using % imperviousness ratios.	Comment noted

Response to Comments Submitted by the Public on Draft Model BMP Design Manual for San Diego Region

Id	Comment Topic	Agency	Comment	Response
216	Submittal Requirements	SB&O	Provide guidance on Preliminary vs Final SWQMP	A submittal template has been created and circulated to the BMP Design Manual Sub-Workgroup for review as of May 6, 2015. Draft Templates that were circulated to the sub-workgroup are included in the Final Draft. Where applicable, the submittal template provides guidance related to the project status (preliminary or final design).
217	Submittal Requirements	SB&O	Require Co-Permittees to formally approve SWMP and retain official copy. Please provide template that may be edited and personalized/customized. Hopefully available by the time the Manual is finalized.	A submittal template has been created and circulated to the BMP Design Manual Sub-Workgroup for review as of May 6, 2015. Draft Templates that were circulated to the sub-workgroup are included in the Final Draft. The SWQMP approval process varies by jurisdiction therefore procedures should be addressed at local level.
218	Submittal Requirements	BIA	Field changes should not be allowed without the approval of the City Engineer	Section formerly titled, "Field Changes" is now titled, "Changes During Construction". The text of the Section indicates that any changes that affect the design of storm water management features must be reviewed and approved.
219	Submittal Requirements	BIA	Figure 1.2 should be revised into a checklist format. Applicants do NOT read the fine print and it should be made clear that all of the foot note requirements must be met prior to moving onto the next criteria.	Form I-1, Applicability of Permanent, Post-Construction Storm Water BMP Requirements has been added.
220	Submittal Requirements	BIA	A checklist for the PDP needs to be included	See Forms I-1 through I-6 added to the Model BMP Design Manual.
221	Submittal Requirements	BIA	Agencies should be able to adopt at their discretion alternative mechanisms than the template SWQMP	Sections 8.1 and 8.2 of the Model BMP Design Manual include gray box placeholders for local jurisdictions to insert alternative procedures if applicable.
222	Submittal Requirements	BIA	Submittal Templates need to be included for public review - this is the most utilized portion of the document by agencies and applicants	A submittal template has been created based on review of forms and templates that the BMP Design Manual Sub-Workgroup provided for this purpose and has been circulated for Sub-Workgroup review as of May 6, 2015. Since the submittal template is a tool that is an optional addition to the BMP Design Manual rather than policy required by the MS4 Permit, preparation of the template was not tied to the schedule of the BMP Design Manual. Draft Templates that were circulated to the sub-workgroup are included in the Final Draft.
223	Submittal Requirements	PDC	Suggest removing Lines 15 & 16. Redundant information because the form is for PDPs.	Checklist I-3 has been revised in its entirety. See Forms I-3A for Standard Projects and I-3B for PDPs. The specific item referenced in the comment has been removed.
224	Submittal Requirements	REC	The Manual says: "The [City Engineer] may require the professional in responsible charge for the design of the project to inspect the structural BMPs at each significant construction stage and at completion." There may be a conflict with this statement as the professional responsible of the design is usually not the professional responsible for the construction or inspection. In many cases, a specialized sub-consultant prepares the advanced hydromodification and water quality design while a civil prepares the documentation for approval, and later on a construction firm is in charge to follow construction plans. Consider revising the statement.	Text has been revised in Chapters 1.12 and 3.1 to indicate that the project owner will be responsible to provide the certification that the site improvements for the project have been constructed in conformance with the approved storm water management documents and drawings. Therefore the owner must identify and engage someone who will inspect the structural BMPs during construction for the purpose of certification.
225	Submittal Requirements	REC	As Appendix A is not included yet, an opportunity to provide comments to this appendix should be given to reviewers once this appendix is completed.	A submittal template has been created based on review of forms and templates that the BMP Design Manual Sub-Workgroup provided for this purpose and has been circulated for Sub-Workgroup review as of May 6, 2015. Since the submittal template is a tool that is an optional addition to the BMP Design Manual rather than policy required by the MS4 Permit, preparation of the template was not tied to the schedule of the BMP Design Manual. Draft Templates that were circulated to the sub-workgroup are included in the Final Draft.