



MEMO

To: Los Angeles Regional Water Quality Control Board

From: Rio Hondo and San Gabriel River Water Quality Group

Date: 12/17/2018

Subject: LA County MS4 Permit – Revised Rio Hondo / San Gabriel River Water Quality Group EWMP – Response to Comments

On October 17, 2018, the Regional Water Quality Control Board issued comments to the Permittees of the Rio Hondo/San Gabriel River Water Quality Group (Group) regarding the revised Enhanced Watershed Management Program (Program) that was submitted for consideration on March 30, 2018. The following attachment presents the Permittees' responses to the received comments. Also attached is a revised version of the Program incorporating the Group's responses where applicable.

The Group would like to again express gratitude for the Regional Board's continued collaboration on this effort. Should you need further clarification or information, please reach out to the Group by contacting Alex Tachiki at 626-932-5553 or atachiki@ci.monrovia.ca.us.

Attachments (2):

- Response to Regional Board Comments
- Revised Enhanced Watershed Management Program

ATTACHMENT 1 – RESPONSE TO REGIONAL BOARD COMMENTS

EWMP Reference	Comment	Response
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EWMP Reference	Comment	Response
<p>Section 5, Enhanced Outcomes</p>	<p>The Group should clearly identify the Permittees collaborating on each of the regional projects and/or responsible for green streets projects. Although this information is included in Attachment B, this information should be presented in the main Revised EWMP document.</p> <p>Per Part VI.C.5.b.iv.(4).(e) of the LA County MS4 Permit, “[t]he plan shall clearly identify the responsibilities of each participating Permittee for implementation of watershed control measures.”</p>	<p>Table 1 was added to Chapter 6 and Table 3-3 was added to Attachment C, which detail the lead agency and all participating agencies for the regional projects. Section 3.2.3 of Attachment C states that the green street projects will be led by the County.</p>
<p>Section 6, Compliance Story</p>	<p>The Revised EWMP main document should clearly provide the control measure (e.g. Non-Structural BMPs; Multi-Benefit Regional Projects; Distributed BMPs – Green Streets; etc.) implementation responsibilities for each Permittee in relation to each milestone and watershed. Although some of this information is summarized in Section 6, further detail is necessary. The group may consider presenting this information in tables; and incorporating cost estimates, load reduction numbers, BMP information, and/or other metrics.</p> <p>EWMP implementation responsibilities for each Permittee should be clearly summarized and outlined for readers of the document such that EWMP implementation and milestone progress can be tracked.</p>	<p>Table 1 was added to Chapter 6 and Table 3-3 was added to Attachment C, which detail the lead agency and all participating agencies for the regional projects. Section 3.2.3 of Attachment C states that the green street projects will be led by the County.</p>

Revised Rio Hondo / San Gabriel River Water Quality Group EWMP – Response to Comments

EWMP Reference	Comment	Response
Attachment A, Section 2.0	<p>In several instances, Attachment A notes sections, tables, and other material that is "SUPERSEDED BY THE 2018 REVISED EWMP, EXCEPT MATERIAL PERTAINING TO THE CITY OF AZUSA." The Group should revise these references as follows:</p> <ul style="list-style-type: none"> • If the City of Azusa intends to participate in the proposed revised EWMP, the amendments should be revised accordingly. • If the City of Azusa does not intend to participate in the proposed revised EWMP, the amendments should be revised such that the existing EWMP analyses and targets no longer apply to the City of Azusa-i.e. the proposed 2018 revised EWMP should supersede material pertaining to the City of Azusa. 	Attachment A and the main document were revised to omit the City of Azusa from the program.

Revised Rio Hondo / San Gabriel River Water Quality Group EWMP – Response to Comments

EWMP Reference	Comment	Response
Attachment A, Section 2.0	<p>The Revised EWMP can be difficult to follow as a standalone document since several sections from the current EWMP document would still apply if the Revised EWMP is approved. To help streamline the document, the Group should consider fully superseding the following sections in the current EWMP with sections in the Revised EWMP and its attachments (new language may be necessary):</p> <ul style="list-style-type: none"> • Executive Summary • 3.4 Proposed Control Measures • 4 Reasonable Assurance Analysis • 5 Proposed Control Measure Implementation Schedule • 6.1-6.4 Non-Structural BMPs, Regional Projects, Distributed BMPs (Green Streets), Cost Estimate Summary • Attachments Q-U, W-Z <p>Also see earlier comment regarding superseding except for material pertaining to Azusa.</p>	<p>As suggested, the listed sections were noted in Attachment A to be fully superseded by the revised EWMP.</p>
Attachment A, Revision to Section 3.4.1.1	<p>The Revised EWMP makes a revision in Table 3-19 that changes the weighted average from 5.2% to 5%, however the 7% percent reduction for Unincorporated County area does not change. The Group should clarify if there are any changes to enhanced street sweeping implementation and/or any changes to the percent reduction assumptions for each group member.</p>	<p>Section 3.1.1 of Attachment C clarifies that the weighted average load reduction of 5.2% was adjusted to 5% in the rEWMP for consistency with other EWMPs throughout the region. This was also a more conservative assumption, which was a general principle of the plan to help provide greater confidence in the achievability of water quality objectives. There are no changes to the assumed MCM changes in the permit and the enhanced street sweeping for each jurisdiction.</p>

Revised Rio Hondo / San Gabriel River Water Quality Group EWMP – Response to Comments

EWMP Reference	Comment	Response
Attachment B, Exhibit B.2.2	<p>Table 3-1 in Attachment C, Section 3.3 (p. 45) lists a "Constant Cost(\$)" for the Rio Hondo Wetland. The Group addresses this stating, "[n]ote the high Rio Hondo Wetland constant cost due to land acquisition requirements." This cost does not appear to be consistent with Section 6, Compliance Story (p. 26), which lists a \$80.8M cost or the Fact Sheet Attachment B, Exhibit B.2.2, which has a planning-level cost estimate of \$57,994,145 (\$3,030,000 for land acquisition). The Group should address these differences in cost estimates.</p>	<p>The cost functions referenced in Attachment C were used in earlier stages of the plan development for project optimization and sizing (based on a conceptual land acquisition cost of \$141.74 per square foot, adjusted to 2016 costs); whereas, the detailed cost estimates in Section 6 and Attachment B were developed after the projects were sized using local property value data. The discrepancy was clarified in Section 3.3 of Attachment C and now refers to the other sections for the detailed cost estimates.</p>

<p>Attachment C, Section 2.5</p>	<p>Attachment C, Section 2.5 describes the Group's proposed approach to determine required reductions in Rio Hondo, San Gabriel River, and Big Dalton Wash drainage areas. Please address the following comments and/or provide justification for the approaches that were used.</p> <p><u>Required Reduction</u></p> <p>For the Rio Hondo drainage, Table 2-17 and Figure 2-28 indicate that there were 46 wet days during the "critical water year" of 2002/2003, in which there were 13 "exceedance days" -i.e. days wherein the simulated load from the watershed exceeded the calculated allowable load. As the Group notes, "[t]he required load reduction for each wet day exceeding the allowable load were totaled to determine the annual load reduction required." The Group's required zinc load reduction of 1,163 lbs/yr for the Rio Hondo drainage subsequently becomes the final milestone target that the Group uses to plan and propose EWMP control measures. The resulting EWMP control measures are estimated to provide 1,187 lbs/yr of zinc load reduction during the critical water year-145 lbs/yr from redevelopment LID; 188 lbs/yr from enhanced MCMs; and 854 lbs/yr collectively from the Arboretum Wetland Pond, Arboretum Recharge Ponds, and Rio Hondo Wetland. Staff has the following concerns for this method for determining the Group's required reductions. These concerns also apply for the corresponding analyses in the San Gabriel River and Big Dalton Wash drainages:</p> <ol style="list-style-type: none"> 1. The Group is looking at a different timeframe (year) compared to the Los Angeles River Metals TMDL (day). The proposed EWMP expresses the required load reduction for zinc in lbs/yr. However, the Los Angeles County MS4 Permit's WQBELs for discharges of metals to the Los Angeles River are expressed in kg/day. Section C of the Los Angeles Water Board's RAA Guidelines¹ notes that required reductions should be consistent with applicable TMDLs with respect to the TMDL's relevant 	<p>As discussed with the Regional Board staff on November 14, 2018, the Group expressed their compliance target using a longer-term (annual) condition as a more robust and achievable basis for project planning. To validate the compliance targets, the Group evaluated the plan over a long term period of time using a daily critical condition consistent with the TMDL to demonstrate that the water quality objectives are expected to be met greater than 90 percent of wet days (96% and 94.5% of all wet days in Rio Hondo and San Gabriel River, respectively).</p> <p>Also note that the selected annual period required the greatest load reduction of multiple annual conditions investigated (including based on average rainfall or wettest year), and is thus considered conservative – as demonstrated by the validation exercise.</p> <p>Section 2.3 and Section 4.4 of Attachment C were revised to clarify that the annual condition was used for planning purposes, however the validation demonstrates the critical condition in terms of meeting water quality criteria is managing 96% and 94.5% of wet days in Rio Hondo and San Gabriel River, respectively (which adheres to the same critical condition expressed in the TMDL and goes beyond the 90th percentile recommended by the RAA guidelines). The validation section also provided the percent of wet days and absolute number of wet days exceeding WQOs for each year within WY2002 – WY2011.</p>
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averaging period: "Estimated allowable loading and required reductions should be expressed on a pollutant-by-pollutant basis consistent with the relevant averaging period(s)/duration (including the selected critical condition) consistent with the TMDL and Attachments LQ."

2. By summing the required load reductions for each "exceedance day" to determine the annual required reduction, the Group is adding days that have small required load reductions (in lbs/day) with days that have large required load reductions.

$$\text{Required Reduction} \left[\frac{\text{lb}}{\text{day}} \right] = \sum (\text{Load}_i - \text{Allowable Load}_i)$$

Because of this, there is concern that the exceedance days with higher required load reductions may not be addressed. Furthermore, since control measure reductions are estimated cumulatively for the critical water year, it is presumed that this means that the Revised EWMP's estimated control measure load reductions are the sum of daily estimated control measure load reductions for the 46 wet days during the critical water year.

$$\text{Estimated EWMP Load Reduction} \left[\frac{\text{lb}}{\text{day}} \right] = \sum (\text{Load Reductions from BMPs})_i$$

This implies that load reductions from the proposed BMPs achieved on all 46 wet days-including days that were previously not exceeding-are being used to achieve the required reductions for the subset of 13 "exceedance days" previously defined in Section 2.5.

3. Given the above, there is concern that the Group is not using an appropriate critical condition since implementing all the control measures as described in the EWMP does not address all the exceedance days identified in Section 2.5 (the Group notes this in Tables 4-12 and 4-13 in Section 4.4).

Previously Approved WMPs/EWMPs

EWMP Reference	Comment	Response
	<p>Permittees with approved WMPs and EWMPs that use an RAA approach similar to that proposed by the Group in the proposed revised EWMP would be expected to take the above concerns into account when they revise their RAA per Part VI.C.8b of the LA County MS4 Permit.</p>	
<p>Attachment C, Section 4.4</p>	<p><u>Integration of Control Measures into Watershed Model</u></p> <p>San Gabriel River compliance points. As these tables indicate, there are still 3 total wet exceedance days (out of 46 wet days or 6.5%) in the Rio Hondo assessment area and 6 total wet exceedance days (out of 49 wet days, or 12.2%) in the San Gabriel River assessment area. This appears to imply that the critical condition is not addressed.</p> <p><u>Concentration Curves</u></p> <p>Figures 4-4 and 4-5 are concentration frequency curves that indicate that over the period October 1, 2001 through September 30, 2011, zinc concentrations would meet CTR criteria in 96.0% and 94.5% of all wet days at the Rio Hondo and San Gabriel River compliance points, respectively.</p> <p>The Group notes that this "provides an additional layer of reasonable assurance that the strategies outlined in this RAA will achieve clean water goals." Please provide further information on how these concentration curves were calculated and why the assumptions used are appropriate. There is concern that annual load reduction estimates converted to daily concentration reduction estimates may be overestimated.</p>	<p>Overall, this demonstrated that, over the most recent 10-year period (based on the calibrated watershed model, which was analyzed at a daily interval, and explicitly modeled control measures), the Program could be expected to meet the WQOs for wet weather during 96% and 94.5% of wet days in Rio Hondo and San Gabriel River.</p> <p>Additional details were provided on the methodology for the RAA validation and explanation of the concentration curves (including refined x-axis label for concentration frequency plots in terms of "daily wet weather concentration frequency").</p>

EWMP Reference	Comment	Response
Attachment C, Figure 2-27 (pg. 35)	The Groups RAA approach is based on downstream compliance points which were chosen to ensure that the Group’s program addresses downstream water quality impairments per applicable TMDL requirements. The Group should be aware that if data indicate that discharges are causing or contributing to exceedances in upstream waterbodies, the Group may need to develop additional control measures to protect upstream water quality.	The Group acknowledges that if data indicates discharges are causing or contributing to exceedances in upstream waterbodies, the plan will be appropriately adjusted to address these exceedances in the adaptive management process.
C.P. Lai Comments on the Revised RAA		
	The model calibration results for water quality as presented in the load duration plots shown in Figure 2-16, Figure 2-19, Figure 2-22 and Figure 2-25 indicated that the model underpredicted the water quality of TSS, copper, lead and zinc for lower flow conditions between flow exceedance percentiles of 20% and 30%. In addition, the R2 of the model prediction for the comparison of simulated results and observed data at S14 for water quality range from 0.06 to 0.23, which is not good for certain conditions. Therefore, additional discussion should be provided regarding the greater error between modeled and observed values for TSS, copper, lead, and zinc and potential explanations should be provided for this discrepancy. Furthermore, applicable model parameters should be revised to improve model calibration for water quality, especially for zinc if possible.	<p>We acknowledge not all events in terms of sediment and metal loads were captured by the model, but to capture these in the model would drastically mis-represent the remaining data. Model calibration first focuses on correctly representing flows, where we have more confidence due to larger data sets, then sediment, and then the specific pollutants which are limited in terms of data available. Table 2-5 demonstrates the lower error in modeled hydrology. There are modeling limitations and unpredictable phenomena that cannot be mechanistically captured in the model, thus in the calibration process overall trends are prioritized over single events, where supporting causal data to incorporate in the model is not available.</p> <p>Further discussion was added in Section 2.1 of Attachment C on the potential causes and implications of the model uncertainty and where the model particularly seems to be lacking in accuracy. However, note that the Group completed a thorough calibration effort and additional calibration without additional data would likely not result in significant improvement of modeling accuracy and certainty. Future recalibration of the model when sufficient additional data is available will be addressed in the adaptive management process.</p>

EWMP Reference	Comment	Response
	<p>The model results of the baseline condition indicated in Table 2-17 through Table 2-19 are not consistent with baseline and reduction loads presented in Figure 2-28 through Figure 2-30 for required load reduction. The baseline loads should be clearly defined in terms of runoff volume, pollutant concentration, and pollutant loads. The duration curves or frequency curves of runoff volume, pollutant concentration and pollutant loads for baseline condition at each analysis region for each pollutant of concern should be presented in the rEWMP report as well to demonstrate that the baseline condition model results are based on the 90th percentile critical condition.</p>	<p>Further clarification of the figure was added to the text of Section 2.5 of Attachment C. Plots were added to Section 2.5 of Attachment C for report the baseline runoff volume, pollutant concentration, and pollutant loads over the critical condition.</p> <p>Frequency curves over the long-term period (WY2002 – WY2011) for runoff, concentration and load were provided to the Regional Board on 12/3/2018. However, note an annual critical condition was used for planning purposes, thus the baseline condition model was not based on the daily 90th percentile critical condition for reasons previously defended; nevertheless, the RAA validation demonstrates the program meets the water quality criteria in terms of the daily 90th percentile critical condition.</p>
	<p>The required load reductions obtained from existing load and allowable load listed in Table 2-16 through Table 2-19 should be recalculated based on the maximum required load reductions in lbs/day for the wet days in the selected critical year or based on the 90th percentile of 10-year continuous simulation results of the required load reductions in lbs/day for the critical condition.</p>	<p>See response to similar comment on the critical condition above and potential uncertainties of using a daily critical condition.</p> <p>Section 2.3 and Section 4.4 of Attachment C were updated to clarify that the annual critical condition was used for planning purposes, however the validation demonstrates the critical condition in terms of meeting water quality criteria is managing 96% and 94.5% of wet days in Rio Hondo and San Gabriel River, respectively (which goes beyond the 90th percentile recommended by the RAA guidelines). The validation section also provided the percent of wet days and absolute number of wet days exceeding WQOs for each year within WY2002 – WY2011.</p>

EWMP Reference	Comment	Response
	<p>The estimated allowable loads and required load reductions for each sub-watershed area should be provided to demonstrate that the estimated allowable loads and load reductions are obtained from the 90th percentile critical condition of runoff volume and allowable pollutant concentration specified in receiving water limitations (RWLs). It is recommended that the allowable loads and required load reductions be provided in the same duration curves for baseline condition to demonstrate that the estimated allowable loads and load reductions meet the 90th percentile critical condition.</p>	<p>The allowable loads and required load reductions over the annual critical condition for each subwatershed are presented in Table 2-17, Table 2-18, and Table 2-19. The validation section demonstrates the 90th percentile critical condition is met and exceeded for the LA River watershed and San Gabriel River watershed.</p> <p>Frequency curves over the long-term period (WY2002 – WY2011) for runoff, concentration and load were provided to the Regional Board staff on 12/3/2018. However, note these should not be used to check if meeting the 90th percentile condition in terms of the load, as the target load reductions were determined based on the annual critical condition and the RAA validation proved the 90th percentile critical condition in terms of meeting the water quality criteria (metal concentration limits established by the CTR criteria) was met (i.e. 90th percentile condition more appropriately in terms of the concentration – which is the water quality criteria).</p>

EWMP Reference	Comment	Response
	<p>In the report, summary statistics of load reduction and percent reduction for different control measures are provided in Table 4-1 and Table 4-8. However, some of the information used to derive the modeled load reduction values are missing such as the modeled load reduction of 854 and 64.3 lbs/yr for regional projects. In addition, the modeled results of watershed load reductions under the "Baseline" condition and "After Implementation" condition in Table 4-12 and Table 4-13 did not demonstrate the ability of the proposed BMPs to achieve the required load reductions. There was not sufficient information provided in these two tables to show how the model values were calculated. Accordingly, a detailed reasonable assurance analysis for the proposed BMPs for each analysis region should be provided and the detailed model results should be presented in terms of 1) capture volume; 2) pollutant concentration; and 3) watershed load through a system of BMPs at the downstream of BMP systems for the selected critical year in the rEWMP report to demonstrate the effectiveness of the proposed BMPs.</p>	<p>Section 3.2 details the methods to model the load reductions from each control measure. In terms of the proposed BMPs achieving the required load reductions, this was show in the validation section as the required annual load reduction was achieved, and the validation section also showed the 90th percentile critical condition over the long-term was met in terms of water quality criteria. We acknowledged there were still exceedance days over the selected water year after implementation, however over the long-term period greater than 90% of wet days met CTR criteria, which is the critical condition addressed by the proposed BMPs. Section 4.2 and Section 4.3 of Attachment C included the load reduction for the critical year (at the downstream of the BMP systems) which was the target for planning purposes and then the capture volume from the regional projects was presented for the long-term period. The RAA validation section 4.4 also presents the concentrations over the long-term at the downstream compliance points after implementation of the BMPs.</p> <p>A footnote was added to Table 4-2 of Attachment C for the breakdown of load reductions for each individual regional project within the subwatersheds. Also, included additional details on the methods for the RAA validation in Section 4.4 and how the outputs provided in Table 4-12 and 4-13 were modeled.</p>

ATTACHMENT 2 – REVISED ENHANCED WATERSHED MANAGEMENT PROGRAM

See digital attachment emailed on 12/17/2018