IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLORADO
Senior District Judge Richard P. Matsch

Civil Action No. 1:16-cv-02745-RPM

UNITED STATES OF AMERICA and
THE STATE OF COLORADO,

Plaintiffs,

LOWER ARKANSAS VALLEY WATER CONSERVANCY DISTRICT and
THE BOARD OF COUNTY COMMISSIONERS OF THE COUNTY OF PUEBLO,

Intervenor Plaintiffs,

v.

CITY OF COLORADO SPRINGS, COLORADO,

Defendant.

FINDINGS, CONCLUSIONS, AND ORDER FOR JUDGMENT

INTRODUCTION

The Federal Water Pollution Control Act (also known as the "Clean Water Act" or "CWA") prohibits the discharge of pollutants into navigable waters, except those discharges that comply with the environmental provisions of the Act. 33 U.S.C. § 1311(a). The Act's environmental provisions include Section 402, 33 U.S.C. 1342(a), which authorizes the Environmental Protection Agency ("EPA") to issue permits called National Pollution Discharge Elimination System ("NPDES") permits. NPDES permits authorize discharges of pollutants into navigable waters subject to the conditions and limitations set forth in those permits.

Section 402 also authorizes states to establish their own permit programs for pollutant discharges into waters within their jurisdiction and, with the EPA's approval, issue NPDES permits. 33 U.S.C. § 1342(b). The Colorado Water Quality Control Act ("CWQCA") establishes Colorado's NPDES program. *See* C.R.S. §§ 25-8-101 to 25-8-803. With the approval of the EPA, obtained in 1975, Colorado issues NPDES permits. The EPA retains concurrent authority to enforce NPDES permits issued by the State of Colorado (the "State"). 33 U.S.C. §§ 1319, 1342(i).

NPDES permits can include permits for municipal stormwater discharges. *See* 33 U.S.C. § 1342(p). Stormwater is the water that falls to the ground as precipitation. That which does not percolate into the ground runs over the surface of the land and is collected in lakes, ponds, streams, and rivers. As it flows across the ground it collects and conveys sediment and other pollutants. Urban development affects percolation and adds pollutants. NPDES permits include terms and conditions requiring municipalities to reduce pollutants to the minimum amount practicable before discharging stormwater to streams and rivers.

The City of Colorado Springs, Colorado (the "City") has established and operates a municipal separate storm sewer system ("MS4") designed and used for collecting and conveying stormwater to outlets that discharge to creeks within the Arkansas River watershed. Those creeks are "state waters" as defined in the CWQCA and "navigable waters," *i.e.*, "waters of the United States" as defined in the CWA. *See* C.R.S. § 25-8-103(19); 33 U.S.C. § 1362(7); 40 C.F.R. § 122.2. The Arkansas River is also a "navigable water" within the definition of "waters of the United States" in the CWA. 40 C.F.R. § 122.2.

The City has had NPDES permits issued by the State since 1997. The City's current Permit No. COS-000004 (the "Permit") was issued effective November 1, 2011 through October 31, 2016, and has been administratively extended to be the permit currently in effect. [Permit, SX001.[1]]

On November 9, 2016, the United States, by authority of the Attorney General acting at the request of the Administrator of the EPA, and the State of Colorado, on behalf of the Colorado Department of Public Health and Environment, filed this civil action against the City alleging violations of the Permit. [Compl., Doc. 1.] An Amended Complaint was filed on January 26, 2017. [Am. Compl., Doc. 21-1.] The Lower Arkansas Valley Water Conservancy District and the Board of Commissioners of the County of Pueblo intervened as additional plaintiffs for the purpose of participating in any injunctive relief. [Order Granting Mots. to Intervene, Doc. 30; Order Overruling Objections to Interventions, Doc. 32.] The EPA and the State allege ten claims for relief from multiple violations of the Permit, for which the Court is asked to enjoin ongoing and future violations and to assess statutory civil penalties. [Am. Compl., Doc. 21-1 at 9-51.]

After a period of discovery, the parties agreed to proceed with a trial limited to a declaratory judgment with respect to three sites as exemplars of six of the claims alleged. [Scheduling Order, Doc. 50 at 2-3.] These exemplar sites represent three categories of claims: (1) the City's waiver of permanent stormwater quality controls at single-family residential developments; (2) the City's failure to enforce requirements for temporary

[1] In this decision, exhibit numbers will be cited as "SX___" for "stipulated exhibit ___" and "PX___" for "plaintiffs' exhibit ___." No defendant's exhibits were admitted at trial. Where possible, pinpoint citations will be made to both the original internal document page number and the Bates number.

stormwater controls at construction sites; and (3) the City's approval of an improperly designed and constructed permanent stormwater quality control called an extended detention basin ("EDB"). [*Id.*] A Final Pretrial Order was entered on July 2, 2018 [Doc. 108], and a nine-day bench trial was held beginning on September 5, 2018. The Court's findings of fact and conclusions of law as required by Federal Rule of Civil Procedure 52(a)(1) are made in this narrative form.

The core of the plaintiffs' claims is that the City's program "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." 33 U.S.C. § 1342(p)(3)(B)(iii). The statutory requirement to reduce the discharge of pollutants to the "maximum extent practicable" is also in the Permit. [Permit, SX001 at Part I(B), Bates US_00402637.] The Permit requires the City to develop, implement, and enforce a Stormwater Management Program ("SMP") designed to effectuate this goal [*id.* at Part I(B)(1), Bates US_00402637-646], and the case against the City is that as administered the City has failed to follow its SMP that was approved by the State.

The City's SMP is found in several documents, which include a Drainage Criteria Manual ("DCM") comprised of two volumes, a Subdivision Policy Manual ("SPM"), and parts of the City's Municipal Code. Primarily at issue in this case are the 2002 DCM Vol. 2 [SX005] and the 2010 SPM [SX010]. A newer version of the DCM was issued and took effect in 2014. [2014 DCM Vol. 1, SX008; 2014 DCM Vol. 2, SX009.]

Liability for a violation of the terms and conditions of an NPDES permit is strict, and the plaintiffs are not required to prove any level of culpability or actual injury. To prevail on

their claims, the plaintiffs need only show that (1) a discharge permit was issued to the City; (2) the permit had a condition; and (3) there was a violation of the permit condition. *Sierra Club v. Cripple Creek & Victor Gold Min. Co.*, No. 00-CV-02325-MSK-MEH, 2006 WL 2882491, at *12 (D. Colo. Apr. 13, 2006); *see also* 33 U.S.C. § 1319(b), (d); C.R.S. §§ 25-8-607, 25-8-608. In this case, the State issued the City's NPDES permit authorizing the City's MS4 discharges, and the State approved the City's SMP documents, including the DCMs.

The factual and legal issues to be adjudicated in this case arise out of the manner in which the City has construed and applied its SMP as established in the documents approved by the State in compliance with the Permit. The plaintiffs are not challenging the adequacy of these documents to meet the goals of the Permit.

INDIGO RANCH NORTH AT STETSON RIDGE FILINGS 11, 13, AND 14

Indigo Ranch North at Stetson Ridge is a development consisting of 150.84 acres of single-family housing, multi-family housing, commercial use, and portions of a park. [Master Dev. Drainage Plan for Indigo Ranch, SX045 at 1, Bates CS_00129226.] The development is located within the Sand Creek drainage basin. [*Id.* at 2, Bates CS_00129227.] Stormwater runoff from the development is collected into a municipal storm sewer system that discharges "directly into Sand Creek Channel." [*Id.* at 3, Bates CS_00129228.] Sand Creek flows into Fountain Creek, which flows into the Arkansas River. [Sand Creek Drainage Basin Planning Study, SX A-9 at 4, Bates US_00098449.] The Indigo Ranch development has proceeded in phases called "filings." At issue in this case are three single-family residential filings, Filings 11, 13, and 14. These filings are the chosen exemplar site to evaluate the City's liability with respect to the plaintiffs' Fourth Claim for Relief. [*See* Am. Compl., Doc. 21-1 at ¶¶ 118-143.] The plaintiffs contend that the City failed to require the developer to implement permanent stormwater best management practices ("BMPs") for these filings as required by the City's SMP documents, specifically the DCM Vol. 2 and City Code § 7.7.906. The City contends that it properly granted a waiver of permanent BMP requirements for these filings, which is authorized under the terms of the 2002 DCM Vol. 2 and the City Code.

The City requires developers to follow a four-step stormwater planning process for new site developments, which is set out in the DCM Vol. 1.[2] [*See* 1994 DCM Vol. 1, SX004 at 1-4 to 1-5, 1-12, 4-2, 4-4, Bates CS_00233601-602, 609, 629, 631; 2014 DCM Vol. 1, SX008 at 4-1 to 4-7, Bates CITY_5G_0363292-298; 2010 SPM, SX010 at 31-32, Bates CS_00053233-234.]

The first step is a drainage basin planning study ("DBPS"), which is an engineering study of an entire drainage basin that is tributary to a major receiving stream, of which the proposed new development may be only a small part. [1994 DCM Vol. 1, SX004 at 1-4 to 1-5, Bates CS_00233601-602; 2014 DCM Vol. 1, SX008 at 4-3 to 4-4, Bates CITY_5G_0363294-295.] In this case, a DBPS for the Sand Creek drainage basin was completed in the 1990s, with the last revision made in March 1996. [Sand Creek DBPS, SX A-9 at Bates US_00098441.] While the Sand Creek DBPS does contain a short discussion of stormwater quality concerns, its primary purpose is to analyze the anticipated quantity of stormwater runoff and provide planning alternatives for flood control within the basin. [*See id.* at 1, Bates US_00098446.]

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[2] As noted above, the City's DCM is comprised of two volumes. The DCM Vol. 1 was first adopted in 1987, and a revised version that became effective in 1994 was the version in effect at the time the City's first MS4 permit was issued in 1997. [*See* 1994 DCM Vol. 1, SX004 at CS_00233571.] The formal title of this document was *The City of Colorado Springs/El Paso County Drainage Criteria Manual* [*id.* at A, Bates CS_00233579], but it came to be known as the DCM Vol. 1. The DCM Vol. 1 is primarily directed toward stormwater *quantity* issues, *i.e.*, flood control. The DCM Vol. 2, which addresses stormwater *quality* issues, was drafted to comply with the City's MS4 permit requirement to implement a SMP, and was first adopted in 2002. [*See* 2002 DCM Vol. 2, SX005 at US_00402208.] The DCM Vol. 1 was not revised or reissued at that time. Thus, the 1994 DCM Vol. 1 and the 2002 DCM Vol. 2 were the applicable DCM volumes in effect until both volumes were revised together in 2014. [*See* 2014 DCM Vol. 1, SX008; 2014 DCM Vol. 2, SX009.]

The second step in stormwater planning for new developments is a master development drainage plan ("MDDP") that is specific to the proposed development. [1994 DCM Vol. 1, SX004 at 1-5, 4-6 to 4-7, Bates CS_00233602, 633-634; 2014 DCM Vol. 1, SX008 at 4-4, Bates CITY _5G_0363295.] "The purpose of the MDDP is to complete drainage planning for the proposed development before embarking on individual phases," and it must be approved by the City. [1994 DCM Vol. 1, SX004 at 1-5, Bates CS_00233602; 2014 DCM Vol. 1, SX008 at 4-4, Bates CITY _5G_0363295.] In this case, the developer completed an MDDP for the Indigo Ranch development in December 2012, which was approved by the City on December 21, 2012. [Indigo Ranch MDDP, SX045 at Bates CS_00129223-224.]

The third and fourth steps in the stormwater planning process for new developments are preliminary and final drainage reports for each individual phase or filing within the development. [1994 DCM Vol. 1, SX004 at 1-5, 4-7 to 4-13, Bates CS_00233602, 634-640; 2014 DCM Vol. 1, SX008 at 4-4 to 4-7, Bates CITY _5G_0363295-298.] The preliminary drainage report must include detailed planning for the stormwater drainage within each filing. [1994 DCM Vol. 1, SX004 at 1-5, Bates CS_00233602; 2014 DCM Vol. 1, SX008 at 4-4 to 4-6, Bates CITY _5G_0363295-297.] The final drainage report must include analysis of "all drainage features of the proposed platted development in the detail necessary to complete construction plans." [1994 DCM Vol. 1, SX004 at 1-5, Bates CS_00233602; *see also* 2014 DCM Vol. 1, SX008 at 4-6, Bates CITY _5G_0363297.] Preliminary drainage report requirements may be combined with either an MDDP or a final drainage report [2010 SPM, SX010 at 31-32, Bates CS_00053233-234], and the City's engineer Elizabeth Nijkamp testified that stand-alone preliminary drainage reports are not often utilized. In this case, the

Indigo Ranch MDDP also served as the preliminary drainage report for all filings within the development. [Indigo Ranch MDDP, SX045 at 5, Bates CS_00129230.] The MDDP document also contained the final drainage report for three filings within the development, Filings 8, 9, and 10. [*Id.*] However, it specifically stated that "[a]ll future filings of Indigo Ranch North at Stetson Ridge will require separate Final Drainage Reports/Letters." [*Id.*] The final drainage reports for Filings 11, 13, and 14 that are at issue in this case were submitted and approved at a later date, as discussed in more detail below.

The City's Permit requires the City to implement and enforce a program to address stormwater runoff from new development and redevelopment projects through the use of BMPs. [Permit, SX001 at Part I(B)(1)(a)(2)(a), (c), Bates US_00402638-639.] The City's DCM Vol. 2 sets forth criteria for selection and design of BMPs for new development projects, including when certain types of BMPs are required. At issue with respect to Indigo Ranch is whether the City properly approved the final drainage reports for Filings 11, 13, and 14 without requiring a type of BMP called water quality capture volume ("WQCV"). WQCV BMPs address stormwater quality by capturing a specific volume of stormwater and allowing it to drain slowly over a period of time so that sediment particles settle out of the stormwater before it is discharged into creeks and streams. [*See* 2002 DCM Vol. 2, SX005 at 4-4, Bates US_00402294.]

The 2002 DCM Vol. 2 provides that "all sites requiring stormwater quantity detention, as listed above in the section titled *Definition of New Development and Significant Redevelopment/BMP Requirements*, must address stormwater quality by providing the WQCV." [*Id.*] The above-titled section provides that, for the purpose of determining when BMPs are required, "New Development and Significant Redevelopment" are defined as:

- All sites zoned . . . PUD . . . that include total development/redevelopment areas of one (1) acre or larger. Water Quality Capture Volume (WQCV), as discussed later in this section, shall be provided for the total site or individual lots/ parcels. Other permanent BMPs may also be required as appropriate.

. . . .

- All sites zoned R (Estate), R-1 6000, R-1 9000, R-2 and DFOZ, that include total development/ redevelopment areas of two (2) acres or larger will be reviewed on a case by case basis that will include an assessment of impacts from stormwater runoff from the new development/ redevelopment to State Waters and a determination of the need for any additional permanent water quality BMPs. **Sites for which City Engineering determines [(1)] water quality impacts to State Waters are minimal and [(2)] permanent water quality BMPs are impractical will be granted a waiver, based on the submittal of sufficient justification.** Written waiver requests from requiring permanent storm water quality BMPs will be considered by the City Engineer or his designated representative.

[*Id.* at 4-1, Bates US_00402291 (emphasis added); *see also* City Code § 7.7.906(B)(1), (3), Bates CITY_5G_0318075.] The DCM Vol. 2 further provides that "[w]henever practical, the City of Colorado Springs promotes permanent water quality BMPs on all sites." [2002 DCM Vol. 2, SX005 at 4-2, Bates US_00402292.]

The City's DCM was revised in 2014. The "waiver" provision highlighted in bold above was removed at the direction of the State. The 2014 DCM Vol. 2 states as follows:

- All sites that include total development/redevelopment areas for which construction activities disturb greater than or equal to one (1) acre, including projects less than one acre that are part of a larger common plan of development or sale that discharge to the MS4. WQCV shall be provided for the total site or individual lots/parcels. Other treatment BMPs may also be required as appropriate.

- All other sites that do not meet the above requirements may be required to provide treatment water quality BMPs, if significant water quality impacts are anticipated or observed as a result of development/redevelopment of the site.

[2014 DCM Vol. 2, SX009 at 4-1 to 4-2, Bates CS_00051110-111.]

> The 2014 DCM Vols. 1 and 2 were adopted via City resolution, and made
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> effective for use in all planning, design, construction and maintenance of new development and redevelopment activities as designated in the Drainage Criteria Manual and beginning with any applicable reports, studies, and plans submitted to the City for review and approval thirty (30) days after [this 27th day of May, 2014].

[City Resolution No. 49-14, PX059.] The City resolution further provided that the 2014 DCM "supersedes all prior Volumes 1 and 2 of the City of Colorado Springs Drainage Criteria Manual as amended through December 31, 2012." [*Id.*]

As noted above, the City approved the MDDP for Indigo Ranch, which also served as the preliminary drainage report for all filings, on December 21, 2012. With respect to whether WQCV BMPs were required for each filing, the MDDP stated that "[p]ermanent storm water quality facilities **<u>are not required for the proposed single-family development</u>**, but shall be provided for the commercial and multi-family land use parcels." [Indigo Ranch MDDP, SX045 at 4, 25, Bates CS_00129229, 250 (emphasis added).]

On August 22, 2013, the developer submitted to the City a letter titled "Drainage Letter for Indigo Ranch North at Stetson Ridge Filing No. 11." [Filing 11 Drainage Letter, SX046.] The letter stated that Filing 11 was 12.782 acres and was planned to create twenty-four single-family lots. [*Id.* at 1, Bates CS_00129524.] The letter further stated that "[n]o changes to the previously approved drainage outfall location or quantity are proposed[, and b]ased upon this Development Plan being previously approved, stormwater quality treatment will not be required." [*Id.* at 1, 2, Bates CS_00129524, 525.] Although titled "Drainage Letter," the City's engineer Elizabeth Nijkamp testified that such letters were considered

"small format drainage reports." The City approved this letter as the final drainage report for Indigo Ranch Filing 11 on October 7, 2013. [*Id.* at Bates CS_00129523.]

On November 17, 2014, *i.e.*, nearly five months after the 2014 DCM took effect, the developer submitted to the City a letter titled "Drainage Letter for Indigo Ranch North at Stetson Ridge Filing No. 12 & Filing No. 13." [Filing 13 Drainage Letter, SX047.] The letter stated that Filing 13 was 11.32 acres and was planned to create twenty-two single-family lots. [*Id.* at 1, Bates CITY_1X_000876.] The letter further stated that

> [N]o changes to the previously approved drainage outfall location or quantity are proposed . . . . This is only a Minor Amendment to the previously approved Development Plan. The original Development Plan was approved prior to the City of Colorado Springs requirement of storm water quality for single family residential and therefore storm water quality treatment will not be required.

[*Id.*] The City approved this letter as the final drainage report for Indigo Ranch Filing 13 on November 25, 2014. [*Id.* at Bates CITY_1X_000875.]

On April 13, 2015, the developer submitted to the City a letter titled "Drainage Letter for Indigo Ranch North at Stetson Ridge Filing No. 14 Amendment." [Filing 14 Drainage Letter, SX048.] The letter stated that Filing 14 was 14.09 acres and was planned to create fifty-one single-family lots. [*Id.* at 1, Bates CITY_1X_001130.] The letter further stated that

> [N]o changes to the previously approved drainage outfall location or quantity are proposed . . . . This is only a Minor Amendment to the previously approved Development Plan. The original Development Plan was approved prior to the City of Colorado Springs requirement of storm water quality for single family residential and therefore storm water quality treatment will not be required.

[*Id.*] The City approved this letter as the final drainage report for Indigo Ranch Filing 14 on June 30, 2015. [*Id.* at Bates CITY_1X_001129.]

Because the final drainage reports for Indigo Ranch Filings 13 and 14 were submitted after the effective date of the 2014 DCM, the BMP waiver provision that appears in the 2002

DCM Vol. 2 was not available for those two filings. The City contends that because those filings were part of the overall Indigo Ranch MDDP, which was submitted in December 2012 and approved under the 2002 DCM Vol. 2, they are "grandfathered in" to the provisions of the 2002 DCM Vol. 2 under the City's "drainage letter rule." Both the 1994 and 2014 DCM Vol. 1 contemplate a type of smaller format drainage report referred to alternately as a "Small Subdivision Drainage Report Format," "Letter Type" drainage report, "Drainage Letter Report for Small Subdivisions or Resubdivisions," or "Drainage Letter." [1994 DCM Vol. 1, SX004 at 4-12 to 4-13, Bates CS_00233639-640; 2014 DCM Vol. 1, SX008 at 4-7, 4-19, Bates CITY_5G_0363298, 310.] However, the letters that were submitted for Indigo Ranch Filings 13 and 14 do not fall within the scope of those DCM provisions. The SPM states that a "Drainage Letter" may be used in place of a final drainage report only when "a complete [final drainage report] has previously been approved." [2010 SPM, SX010 at 32, Bates CS_00053234.] Here, no final drainage report had previously been approved for Filings 13 and 14—the MDDP expressly stated that it was *not* the final drainage report for any filings except Filings 8, 9, and 10 and that separate final drainage reports or letters would be required for all future filings. [Indigo Ranch MDDP, SX045 at 5, 25, Bates CS_00129230, 250.]

The letters submitted for Filings 13 and 14 were the first and only final drainage reports submitted for those filings, and were submitted to the City for review and approval on November 17, 2014 and April 13, 2015, respectively. The express language of the City resolution adopting the 2014 DCM made the 2014 DCM Vol. 2 effective "beginning with any applicable reports, studies, and plans submitted to the City for review and approval" on or after June 26, 2014. [City Resolution No. 49-14, PX059.] Accordingly, the 2014 DCM

Vol. 2 applied to Filings 13 and 14, and the City's failure to require the Indigo Ranch developer to provide WQCV BMPs for those filings is a violation of the City's Permit.[3]

The final drainage report for Indigo Ranch Filing 11 was submitted on August 22, 2013, while the 2002 DCM Vol. 2 was still in effect. As noted above, the 2002 DCM Vol. 2 provided that sites zoned "R (Estate), R-1 6000, R-1 9000, R-2 and DFOZ" could be granted a BMP waiver, if "City Engineering determines [(1)] water quality impacts to State Waters are minimal and [(2)] permanent water quality BMPs are impractical . . . based on the submittal of sufficient justification." [2002 DCM Vol. 2, SX005 at 4-1, Bates US_00402291.] The parties dispute whether Filing 11 was eligible for the waiver based on its zoning designation, and whether the City properly approved a waiver after an analysis of water quality impacts and practicality based on submittal of sufficient justification by the developer.

With respect to Filing 11's zoning designation, the plaintiffs contend that because Indigo Ranch was zoned "PUD" and not "R (Estate), R-1 6000, R-1 9000, R-2 [or] DFOZ," it was not eligible for the BMP waiver. The City contends that Filing 11 was waiver-eligible because it had a more specific "PUD" zoning designation that is equivalent to "R-1 6000." Specifically, the 119.2-acre single-family residential portion of the overall 150.84-acre Indigo Ranch development was zoned "PUD/AO/SS (Planned Unit Development: Single-

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[3] [*See* Permit, SX001 at Part I(B)(1)(a)(2)(a), Bates US_00402638-639 ("The permittee must . . . [i]mplement and document strategies which include the use of . . . BMPs appropriate for the community . . . . Minimum technical requirements for required structural BMPs shall be documented and be based on those specified in the Drainage Criteria Manual Volume II or equivalent . . . ."); 2014 DCM Vol. 2, SX009 at 4-1 to 4-2, Bates CS_00051110-111 ("[For a]ll sites that include total development/redevelopment areas for which construction activities disturb greater than or equal to one (1) acre . . . . WQCV shall be provided for the total site or individual lots/parcels.").]

Family Residential, maximum building height of 30 feet, density of 4.03 dwelling units per acre with Airport and Streamside Overlays)." [City Ordinance No. 12-109, SX061, Bates CITY_5G_0310637.] The City's witness Piotr Wysocki testified that "Single-Family Residential, maximum building height of 30 feet, density of 4.03 dwelling units per acre" is the functional equivalent of "R-1 6000."[4] However, the Court need not reach the issue of whether Filing 11's specific zoning designation was waiver-eligible, because the evidence shows that the City failed to make the required determination that Filing 11 met the other requirements for the waiver, namely that (1) water quality impacts to State Waters would be minimal in the absence of permanent water quality BMPs, and (2) permanent water quality BMPs would be impractical.

The 2002 DCM Vol. 2 required that, to be granted a BMP waiver, a developer must submit "sufficient justification" in the form of a "[w]ritten waiver request[] from requiring permanent storm water quality BMPs." [SX005 at 4-1, Bates US_00402291; *see also* 2010 SPM, SX010 at 43, Bates CS_00053245 ("Sufficient justification shall be submitted in the project's final drainage report (or in a letter of waiver request) . . . .").] No such justification was ever submitted for Indigo Ranch Filing 11. The Indigo Ranch MDDP and the Filing 11 drainage letter state only the conclusion that permanent stormwater quality facilities would not be required for the single-family residential portions of the development. They contain no

[4] The City has also argued that its adoption of the 2010 SPM clarified that *all* single-family residential developments, regardless of zoning designation, were eligible to request the BMP waiver. [*See* 2010 SPM, SX010 at 43, Bates CS_00053245.] However, the SPM merely supplements the DCM Vol. 2—it does not replace or supersede the DCM Vol. 2 requirements. [2002 DCM Vol. 2, SX005 at 1-1, Bates US_00402222 ("If there are any conflicts or discrepancies between the criteria and requirements of this *Manual* and those in the [DCM Vol. 1], [SPM,] or the City Engineering Standard Specifications, the criteria and requirements in this *Manual* take precedence.").]

justification for this conclusion—no analysis regarding water quality impacts to Sand Creek in the absence of such permanent BMPs, and no analysis regarding whether installation of such permanent BMPs at Indigo Ranch would be impractical. However, the City contends that the required justification exists (1) in the Sand Creek DBPS; and (2) in the experience and judgment of its design review engineers.

With respect to the Sand Creek DBPS, as noted above, its primary purpose was to analyze the anticipated quantity of stormwater runoff and provide planning alternatives and recommendations for flood control within the Sand Creek drainage basin. [*See* Sand Creek DBPS, SX A-9 at 1, Bates US_00098446.] Although it contains a brief high-level discussion of stormwater quality concerns [*see id.* at 52-53, Bates US_00098497-498], it contains no specific analysis regarding whether or how stormwater runoff from any particular development within the basin might impact the water quality in Sand Creek. Moreover, its limited recommendations regarding water quality treatment are not directed toward compliance with the City's MS4 permit or the requirements of the DCM Vol. 2. Indeed, the DBPS, last revised in 1996, predates the City's first MS4 permit, which issued in 1997, as well as the 2002 DCM Vol. 2.

At trial, the City focused on the DBPS recommendation for regional rather than on-site stormwater detention basins:

> it was determined that the onsite detention concept has a low feasibility relative to a regional concept. This is because, (1) onsite detention has a unpredictable impact upon lowering peak discharges from urbanized areas to historic conditions, (2) an onsite concept has little impact upon maintaining or enhancing water quality, (3) the number of onsite detention basins, their locations and size cannot be accurately determined in the undeveloped portions of the basin at this time, and (4) onsite detention would present a substantial maintenance responsibility to the jurisdictions involved. For these reasons the

> onsite detention concept was eliminated and regional detention basin concepts were developed.

[*Id.* at 38, Bates US_00098483 (citation omitted); *see also id.* at 53, Bates US_00098498 (recommending regional detention basins include water quality pools for sediment trapping).] The City suggested that the regional detention basins that are located downstream of the Indigo Ranch development provide sufficient water quality treatment of stormwater runoff from the development. These downstream regional detention basins have been built within the Sand Creek channel. [*See* Sept. 5, 2018 M. Boeglin Testimony; Sept. 6, 2018 N. Moore Testimony.]

The regional detention basins do not provide sufficient justification for the conclusion that water quality impacts to Sand Creek would be minimal in the absence of permanent on-site water quality BMPs at Indigo Ranch. The DBPS analysis recommending the regional detention ponds was made with respect to overall drainage planning for the entire Sand Creek basin—the DBPS does not provide any case-by-case analysis of stormwater runoff specific to Indigo Ranch. [*See* 2002 DCM Vol. 2, SX005 at 4-1, Bates US_00402291 (waiver-eligible sites "will be reviewed on a case by case basis"); City Code § 7.7.906(B)(3), Bates CITY_5G_0318075 (same); 2010 SPM, SX010 at 43, Bates CS_00053245 (same).] Further, the 2002 DCM Vol. 2 provides that "[t]he intent of permanent water quality BMPs is that they be placed prior to the stormwater runoff being discharged to State Waters." [2002 DCM Vol. 2, SX005 at 4-2, 4-19, Bates US_00402292, 309.] Downstream BMPs are only acceptable "if there are minimal impacts to State Waters between the downstream BMP and the area of new development/ redevelopment." [*Id.* at 4-2, Bates US_00402292.] Neither the Sand Creek DBPS, the Indigo Ranch MDDP, or the Filing 11 final drainage report provide

any analysis regarding whether or how stormwater runoff from Indigo Ranch impacts the waters of Sand Creek between the downstream in-channel regional detention ponds and the points of discharge at the Indigo Ranch development.

The City also attempts to rely on the experience and judgment of its design review engineers as justification for the decision to waive permanent water quality BMPs at Indigo Ranch Filing 11. Ms. Nijkamp testified that prior to her review of the Indigo Ranch MDDP in 2012, she walked the length of Sand Creek adjacent to the Indigo Ranch development. She observed the Sand Creek channel to be stable and in good condition. She testified that in her judgment, stormwater quality treatment was not necessary for the single-family residential portions of the development because there was less impervious area in those portions than in other parts of the development; the houses backed up against a large grassy slope; and the heavily vegetated wetlands in Sand Creek would help to settle out sediment particles by slowing the velocity of the stormwater flow and would also remove dissolved pollutants via biological uptake. Thus, in her opinion, installation of on-site water quality BMPs would provide little to no benefit. However, she also testified that there were no topographical features or constraints that would make it difficult to install a permanent WQCV BMP at Indigo Ranch.

Even if Ms. Nijkamp was correct in her assessment that water quality impacts from the single-family residential portions of Indigo Ranch would be minimal in the absence of permanent BMPs, it is still the case that the MDDP and the Filing 11 final drainage report lacked any written justification to support that assessment, or an assessment that permanent BMPs would be impractical. As noted above, the waiver provision in the 2002 DCM Vol. 2 could be applied if the City engineers made the determination of minimal impacts to state

waters and impracticality of permanent water quality BMPs *based on the developer's submittal of sufficient justification*. [2002 DCM Vol. 2, SX005 at 4-1, Bates US_00402291.] The City never developed a process or procedure for a developer to make such a submittal, or to document its engineers' findings.[5] The City asks that deference be given to its engineer's decision. There is little evidence of Ms. Nijkamp's qualifications to make the determination of minimal water quality impacts, and without any documentary support for her explanation of a decision she made five years ago, such deference is not warranted.

In sum, the evidence shows that the City waived permanent water quality BMPs at Indigo Ranch Filing 11 without sufficient justification. This is a violation of the City's Permit. The same conclusion would apply to Indigo Ranch Filings 13 and 14 had they been waiver-eligible, because the final drainage reports for those filings were similarly conclusory and did not provide the required justification for a BMP waiver.

The evidence further indicates that stormwater runoff from the Indigo Ranch development has resulted in erosion and sediment buildup in Sand Creek. [*See, e.g.*, Photograph, PX007, Bates US_00014460 (showing sediment deposits in one of two Indigo Ranch stormwater "outfalls" adjacent to Sand Creek); Photograph, PX013, Bates US_00014465 (showing stormwater conveyance pipe flowing away from Indigo Ranch and toward Sand Creek with buildup of sediment); Photograph, PX011, Bates US_00014455 (showing channel that leads from pipe shown in PX013 into Sand Creek prone to erosion due to stormwater flow).] However, whether the City's failure to require permanent water quality

[5] The only process or procedure the City had in place was a statement in the SPM that "[s]ufficient justification shall be submitted in the project's final drainage report (or in a letter of waiver request) and [the Engineering Development Review Division's] acceptance of the report (or request letter) shall constitute a waiver." [2010 SPM, SX010 at 43, Bates CS_00053245.]

BMPs for Filings 11, 13, and 14 has actually resulted in impacts to state waters or waters of the United States is not at issue in this first trial. The question presented is whether the City violated its MS4 permit, and the Court finds that it did.

STAR RANCH FILING 2

Star Ranch Filing 2 is a 26.3-acre development for the preparation of thirty-two single-family residential lots for building custom-designed houses. The development is located on the southwest side of Colorado Springs, in the high foothills near Cheyenne Mountain on a steep slope in a dense forest of coniferous trees, scrub oak trees, and native grasses. Stormwater runoff from the development is collected into the City's municipal storm sewer system that outpours into Fountain Creek and ultimately the Arkansas River. Star Ranch Filing 2 is the chosen exemplar site to evaluate the City's liability with respect to the plaintiffs' Eighth, Ninth, and Tenth Claims for Relief. [*See* Am. Compl., Doc. 21-2 at ¶¶ 203-255.] The plaintiffs contend that the City violated the "Construction Sites" provisions of the Permit by (1) approving a grading and erosion control plan ("GEC plan") that did not comply with the City's SMP documents, specifically the 2002 DCM Vol. 2, the 2010 SPM, and City Code § 7.7.1504; (2) failing to require the developer to implement temporary BMPs that complied with the DCM Vol. 2 and City Code § 7.7.1505; and (3) failing to provide adequate oversight and inspection of temporary BMPs and to follow the enforcement procedures set forth in the 2014 DCM Vol. 2 and City Code §§ 7.7.1507-1509 when noncompliance was found. The City contends that (1) the Star Ranch GEC plan included all required information; (2) the temporary BMPs installed at Star Ranch were generally adequate; and (3) the City diligently inspected the Star Ranch construction site and required the developer to make corrections whenever noncompliant BMPs were found or the BMPs at the site were inadequate to control erosion and sedimentation.

The original Star Ranch developer planned to construct roads, install utilities, grade lots, and then sell the lots to individual buyers who would build custom-designed houses.

Construction began near the close of 2006. After rough grading the dirt roads and clearing some lots, construction stopped because a bank foreclosed on the developer's loans and took possession of the property. The work done by the original developer was approved by the City as a stabilized site in a Final Inspection Report dated September 19, 2011. [Final Inspection Report, SX103 at 1, Bates CITY_3X_000858.] The initial 2006-2011 phase of construction is not at issue in this case.

In the spring of 2014, Lorson South Land Corporation ("Lorson"), a subsidiary of the Landhuis Company ("Landhuis"), purchased the site at a bank auction. It also purchased Star Ranch Filing 1, a site to the east that had been partially built out with occupied residences and paved roads with inlets into the municipal storm sewer system.

To comply with the Permit's requirement that the City "implement requirements for the selection, implementation, installation, and maintenance of appropriate BMPs at construction sites" [Permit, SX001 at Part I(B)(1)(d)(2), Bates US_00402643], the City adopted and the State approved the 2002 DCM Vol. 2, which includes a section on construction stormwater management that details requirements for planning, selecting, installing, and maintaining temporary BMPs at construction sites to control erosion, sedimentation, and stormwater quality during construction. [2002 DCM Vol. 2, SX005 at 3-1 to 3-54, Bates US_00402230-283.]

The DCM requires the developer to submit an Erosion and Stormwater Quality Control Plan, often referred to as a grading and erosion control plan ("GEC plan"), before construction begins. [2002 DCM Vol. 2, SX005 at 3-2 to 3-17, Bates US_00402231-246.] The 2010 SPM provides a Grading, Erosion And Stormwater Quality Control Plan Checklist ("GEC checklist") for the developer's use in preparing the GEC plan and planning the

temporary BMPs required during construction. [2010 SPM, SX010 at 45-50, Bates CS_00053247-252.]

The original GEC plan for Star Ranch Filing 2 was approved by the City in 2005. After final stabilization of the site was approved by the City in 2011, nothing was done on the site until Lorson purchased the property in spring 2014, and the City apparently did not inspect the site during that time. After it purchased the property, Lorson submitted a revised GEC plan on June 5, 2014, which the City Engineer approved on August 11, 2014.[6] [Star Ranch Revised GEC Plan, SX089 at Bates CITY_3X_000703.] The plaintiffs assert that the City should have rejected the revised GEC plan because it was incomplete. In particular, they contend that the site map in the plan does not adequately show the types and locations of BMPs to be installed during construction. The plan narrative describes the use of silt fencing, erosion logs, wattles, rock socks, a vehicle tracking control pad, straw bales, control blankets, and re-seeding to mitigate the potential for erosion across the site and states that BMPs will be installed as required during the stages of construction as it proceeds. [*Id.* at Bates CITY_3X_000708.] Many of those BMPs are also shown on the site map.

There are springs that flow at times across the site. They surfaced during construction, in particular on Lot 23 in the southeast corner of the project. No springs are shown on the GEC plan site map. Jeff Mark, president of the developer, testified that he was not aware of any springs when the plan was prepared, having seen no sign of them when he walked the

[6] The parties agree that the 2002 DCM Vol. 2 governs the GEC plan criteria for this exemplar site, as well as the technical criteria for the construction BMPs at the site, because the developer submitted the revised GEC plan on June 5, 2014, and the 2014 DCM Vol. 2 did not become effective until June 26, 2014. The parties further agree that the 2014 DCM Vol. 2 governs BMP inspection and enforcement procedures at the Star Ranch construction site, because the developer did not begin active construction until October 2014.

site. Frank Helme, the City inspector for Star Ranch, testified that the City did know that springs had previously flowed from the site and that a pond on Lot 23 had been drained by piping water underground to the aquifer in 2005, during the development of Star Ranch Filing 1. The developer had no obligation to prevent the runoff of spring water. Rather, its duty was to prevent sediment and other contaminants from going into that water during construction. The City should have called the existence of the springs to the developer's attention and required the GEC plan to provide for protection of the spring water before approval.

The plaintiffs' claims of other deficiencies on the map are minor considering the content of the narrative and the expectation that BMPs would be installed and shown on the map with Mr. Helme's approval during the stages of construction work on this site as the need arose. The appearance of the springs would be such an adjustment. The Court finds that the City's initial approval of the GEC plan was not, in itself, a violation of the Permit.

Mr. Helme first inspected the construction site on October 10, 2014. His report states that pipe crews had put up berms to slow flows down the streets, that piles from trench work were being replaced as the work was done, and that utility work was the first order of business. [Oct. 10, 2014 Inspection Report, SX105 at 1-2, Bates CITY_3X_000861.] Mr. Helme was informed of Lorson's plan to phase construction work, beginning with installing sanitary sewer lines, then water lines, each in different trenches at different depths. Gas, electric, and cable installation was scheduled to be done later.

Frequent and sometimes heavy rainfall was a persistent problem during construction. A central issue is whether the City was lax in requiring adequate responses to the effects

from those storms by requiring the developer to install new BMPs and to repair those that had been installed but damaged by storms and construction activity.

The City has a stated policy of working with developers and contractors in adapting to changing conditions as construction goes forward. [2014 DCM Vol. 2, SX009 at 7-22, Bates CS_00051143.] That is a reasonable recognition of residential construction as a dynamic process with economic consequences for both parties. But it does not absolve the City from its duty to protect state waters from harmful effects to the extent practicable as required by both federal and state statutes and the Permit. That protection is of paramount importance.

The preponderance of the evidence shows that the City failed to meet its oversight responsibility almost from the beginning of construction in October 2014, and that there have been recurrent releases of sediment from the Star Ranch Filing 2 construction site into the water flowing into the City's municipal storm system.

The State has its own requirements for protection of water quality from construction runoff. They are somewhat different from the City's requirements. The developer must obtain a State permit separate and apart from City approval of the GEC plan under the NPDES Permit. The State also requires that the developer prepare and keep on site a document called a Stormwater Management Plan ("SWMP"). [*See* Star Ranch SWMP, SX098 at 2-3, Bates CITY_3X_000284-285.]

On June 12, 2015, a state inspector, Rik Gay, conducted an inspection of the site after his supervisor had received a citizen complaint about runoff in May. Mr. Gay gave Lorson twenty-four hours advance notice of this inspection, and also notified the City. He was met at the site by Jeff Mark along with Trevor Terrell and Ron Van Dyke, construction supervisors, and Steve Kuehster, City Engineer, also attended the inspection. After paper review and

interviews, Mr. Gay went on a tour of the site and took many pictures of what he saw. They are included in his report. [July 20, 2015 State Inspection Report, SX099.]

That report cited many deficiencies. It was sent to Lorson and to the City. On July 27, 2015, Mr. Kuehster sent an email to Mr. Helme and others in which he stated:

> The CDPHE noted violations in their field visits of the developers SWAMPs. **These violations are generally also violations of our Grading and Erosion control and stormwater mgmt. permits (GEC plans)**[.] Jeff believes we need to follow up and make sure the Developers are fixing their sites, which I know we are.

[Email Chain Between S. Kuehster and F. Helme et al., SX183 at Bates CITY_3X_000426-427 (emphasis added).]

Mr. Helme responded as follows on August 4, 2015:

> The Landhuis Development Co hired CMS Environmental to help them with their SWMP repairs and response to the state.
>
> They sent their letter back to the state yesterday.
>
> They have added documents of all the bmp's that they are using, updated the maps and have implemented them throughout the site. This morning we (Jeff Mark, Ron VanDyke, Trevor and I) walked the site w/ Josh from CMS he pointed out a few items that he felt they should rectify-how to write proper notes on the SWMP map and reports, suggestions of where to add a couple of berms and the removal of broken or unneeded BMP's, but his overall assessment was that they were doing a very good job . . . **now**.

[*Id.* at CITY_3X_000426 (emphasis added).]

In response to the deficiencies observed by Mr. Gay, Lorson revised its SWMP on June 24, 2015. [*See* Star Ranch Revised SWMP, SX085.] The updated map referred to by Mr. Helme in his email is a part of that revision, and it does show the BMPs being used at that time. [*Id.* at Bates CITY_3X_000278.]

Mr. Helme had inspected the site on June 5, 2015, one week prior to Mr. Gay's inspection on behalf of the State. His report observed that inlets to the City's storm sewer system on the paved road east of the site needed to be cleaned, as shown in his photos, and that hills were "oozing water- swales are diverting it away from rough cut roads as much as possible." [June 5, 2015 Inspection Report, SX117 at 2, Bates CITY_3X_000894.] This report did not mention the deficiencies found by Mr. Gay and shown in Mr. Gay's photographs.

Mr. Helme's inspection report of his visit on June 17, 2015, five days after Mr. Gay's inspection, again repeated that these inlets need to be cleaned. [June 17, 2015 Inspection Report, SX118 at 2, Bates CITY_3X_000898.] He did not mention the deficiencies that Mr. Gay had found. There had been rain on June 15, 2015, and sediment had washed out onto the paved street between this site and Star Ranch Filing 1. [*Id.* at 1-2, Bates CITY_3X_000897-898.]

The findings in Mr. Gay's report should not have come as a surprise to Lorson. On June 9, 2015, Ron Van Dyke, as Lorson's SWMP inspector, wrote an inspection report of his observations three days before the state inspection, in which he commented: "Although no storm events since last report, steady occurring rains are finally taking the[ir] toll. Need all streets swept and BMP's replaced. Streets are bad." [Star Ranch SWMP, SX098 at Bates CITY_3X_000287.]

The failure to have adequate controls of sediment at the stormwater inlets on the City streets at the boundaries of the site is of critical importance because the water flowing into those inlets flows into the City's storm sewers with outlets into Fountain Creek.

All of the City's inspection reports are in evidence. They, the photographs in them, and the state photographs show a pattern of the City tolerating delays in correcting the problems reported.

For example, a natural vegetation barrier is an accepted BMP in the 2002 DCM Vol. 2, and the density of the forest surrounding Star Ranch Filing 2 was relied on in the GEC plan and during the construction work. But the developer failed to use adequate protection of the sides of the rough-cut roads, resulting in runoffs which cut channels in the vegetative cover and placed large deposits of sediment on top of grasses and shrubs. Examples are shown in the photographs in Mr. Gay's report. Mr. Helme called this deficiency to Mr. Mark's attention in an email on July 1, 2015, observing that most of the BMPs looked at on that day had installation issues and that "[t]here are no BMP's in the rough cut streets - the plan shows Straw Bale checks - I would use something else - but something needs to be put in - the streets are too steep to be left alone." [July 1, 2015 Email from F. Helme to J. Mark, SX193 at Bates CITY_3X_000408.] This observation was made more than seven months after construction began. It should be expected that such protection would have been a priority before any work on the site.

Mr. Helme's July 1, 2015 report noted many other deficiencies, including the need to clean the inlets, the need to compact berms, the liner ripped up at the vehicle tracking control pad, and this comment: "walked site w/ Trevor - BMP installer. pointed out many were not installed to spec. there are many springs still leaching into site, need to get a plan in place to contain/divert this water. ditches need to be stabilized." [*Id.* at Bates CITY_3X_000409-410.]

As another example, deposits of soil from excavations are not on the GEC plan site map or the SWMP, including the June 24, 2015 revision, and were not anticipated because

the expectation was that back filling the utility trenches would be done as they were dug. Yet in late 2016, a builder excavating a lot in Filing 1 was permitted to pile dirt from the excavation on Lot 23 in Filing 2, which became a very large pile. This dirt pile was not adequately protected both as to vehicle tracking and sediment control. Mr. Helme first noted the pile, saying it should be monitored, in October 2016. [Oct. 3, 2016 Inspection Report, SX150 at 2, Bates CITY_3X_001050.] Two weeks later, Mr. Helme reported that BMPs would be required to protect the pile, and his photographs show some dirt in the street from the pile. [Oct. 17, 2016 Inspection Report, SX153 at Bates CITY_3X_001063-065.]

On November 3, he noted that some BMPs had been installed. [Nov. 3, 2016 Inspection Report, SX154 at 2, Bates CITY_3X_001067.] But on November 28, he noted that these BMPs were in need of repair and additional BMPs were needed, and sediment can again be seen in the street. [Nov. 28, 2016 Inspection Report, SX155 at Bates CITY_3X_001069-074.] A month later, the BMPs were still in need of repair. [Dec. 27, 2016 Inspection Report, SX156 at Bates CITY_3X_001076, 080-081.] And they still needed repair or maintenance a week later in early January 2017. [Jan. 3, 2017 Inspection Report, SX157 at 2, Bates CITY_3X_001085.]

The 2014 DCM Vol. 2 and the City Code provide enforcement options for violations of the construction BMP requirements set forth in the City's SMP documents. [*See* 2014 DCM Vol. 2, SX009 at 7-22 to 7-24, Bates CS_00051143-145; City Code § 7.7.1509, Bates CITY_5G_0005036-037.] City Code provides that when noncompliance is found, "the City Engineer shall cause enforcement measures and/or other remedies to be undertaken." [City Code § 7.7.1508, Bates CITY_5G_0005035.] The first step is a verbal notice of violations found during an inspection, next is a verbal notice of any failure found during the required

follow-up inspection. [2014 DCM Vol. 2, SX009 at 7-23, Bates CS_00051144.] The record is not sufficient to determine what verbal notices were given by Mr. Helme or others from the City. However, it is clear that in many instances when Mr. Helme found deficiencies that needed to be addressed, he did not conduct a follow-up inspection within five business days as required by the DCM. [*Id.* at 7-22, Bates CS_00051143.]

The succeeding steps in the enforcement process are a letter of noncompliance, a stop work order/cease and desist, permit revocation, and finally a summons to appear in Municipal Court. [*Id.* at 7-22 to 7-23, Bates CS_00051144-145; *see also* City Code § 7.7.1509(B)-(H).] The City never issued a letter of noncompliance to Lorson. At least at the time of the inspection by Mr. Gay, the deficiencies he found—which the City acknowledged were generally also violations of the City's construction BMP requirements under the Permit—should have been the subject of a letter of noncompliance, and successive enforcement actions should have been taken if Lorson did not respond to that notice adequately and timely.

It cannot be known what might have been done if the City had insisted on remedial action when deficiencies were observed. What is known is that sediment did escape from the Star Ranch Filing 2 construction site during the months of construction, and the City violated the Permit by failing to require implementation of adequate temporary BMPs and failing to

take enforcement action when deficiencies were found.[7] The deficiencies should have been corrected in time to prevent those sediment releases. The City's inspections were incomplete and inadequate as shown by a comparison of Mr. Helme's reports with that of Mr. Gay.

[7] [*See* Permit, SX001 at Part I(B)(1)(d), Bates US_00402643 ("The permittee shall continue to implement and enforce the Construction Sites Program to reduce the discharge of pollutants from public and private construction sites . . . . [T]he permittee must provide adequate project oversight to prevent inadequate stormwater control site plans from being implemented and resulting in degradation of state waters. . . . The permittee shall continue to implement requirements for the selection, implementation, installation, and maintenance of appropriate BMPs at construction sites. . . . Minimum technical requirements for all required BMPs shall be documented and be based on those specified in the Drainage Criteria Manual Volume II or equivalent . . . . The permittee shall document and continue to implement procedures for inspection and enforcement of control measures at construction sites . . . .).]

MORNINGSTAR AT BEAR CREEK EXTENDED DETENTION BASIN

MorningStar at Bear Creek is a memory care facility built on 4.98 acres in western Colorado Springs. [MorningStar Final Drainage Report, SX218 at 1, Bates CITY_2X_000187.] It has a private stormwater sewer system of which a key component is an extended detention basin ("EDB") on the southeast corner of the lot. [*Id.* at 2-3, App'x, Bates CITY_2X_000188-189, 258.] The purpose of the EDB is to remove pollutants from the water before it flows onto City streets that drain into Bear Creek, a tributary of Fountain Creek, which flows into the Arkansas River. [Sept. 14, 2018 D. Krickbaum Testimony.] The MorningStar EDB is the chosen exemplar site to evaluate the City's liability with respect to the plaintiffs' Fifth and Sixth Claims for Relief.[8] [*See* Am. Compl., Doc. 21-1 at ¶¶ 144-183.] The plaintiffs contend that (1) the City improperly approved the design and installation of the EDB, which does not meet the minimum technical criteria set forth in the DCM Vol. 2; and (2) the City failed to ensure adequate long-term operation and maintenance of the EDB as required by the Permit, the DCM Vol. 2, and City Code. The City contends that (1) although the EDB does not comply with certain recommended technical criteria in the DCM Vol 2, it meets all the required technical criteria; and (2) the EDB is being operated and maintained appropriately, and is functioning well with respect to water quality treatment.

[8] The portion of the Sixth Claim for Relief directed toward tracking of BMPs has been reserved for a later phase of the case.

An EDB is one of the WQCV BMPs identified in the 2002 DCM Vol. 2.[9] [*See* 2002 DCM Vol. 2, SX005 at 4-14, 4-61 to 4-74, Bates US_00402304, 351-364.] This is a permanent structure with maintenance responsibility placed on the owner pursuant to a maintenance agreement with the City, recorded as a burden on the title. [City Code § 7.7.1527(C), Bates CITY_5G_0005044.]

An EDB is a sedimentation basin designed to slowly drain dry through an outlet that releases the designed WQCV over a forty-hour period after stormwater runoff ends. [2002 DCM Vol. 2, SX005 at 4-61, Bates US_00402351.] This enables particulate pollutants to settle into sediments that can be removed by cleaning. [*Id.* at 4-61, 4-62, 4-68, Bates US_00402351, 352, 358.] The outlet is protected from clogging by a trash rack, and has an orifice plate with the size and number of orifices designed to release the WQCV over a forty-hour period, with no more than fifty percent of the WQCV being released in twelve hours. [*Id.* at 4-63 to 4-65, Bates US_00402353-355.]

The inlets into the EDB should be designed to dissipate flow energy as the stormwater flows into a forebay that has a solid-surface bottom, which facilitates mechanical sediment removal. [*Id.* at 4-66, Bates US_00402356.] A rock berm is constructed between the forebay and the main basin. [*Id.*] Water flows out of the forebay via a pipe through the berm, and then

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[9] The parties agree that the 2002 DCM Vol. 2 is the applicable technical manual for this exemplar site given the timing of the developer's submissions of the required planning documents. The Final Drainage Report for MorningStar at Bear Creek was submitted and approved in June 2013. [MorningStar Final Drainage Report, SX218 at ii, Bates CITY_2X_000185.] The initial GEC plan for the site was submitted and approved in September 2013. [MorningStar Initial GEC Plan, SX219 at 1, Bates CITY_2X_000281.] A revised GEC plan was submitted by the developer on January 14, 2014. [MorningStar Revised GEC Plan, SX220 at 1, Bates CITY_2X_000332.] The record is unclear as to whether and when the City formally approved the revised GEC plan, but the design engineer David Gibson testified that the revised plan is the one logged as the approved plan in the City's records. The 2014 DCM Vol. 2 did not become effective until June 2014.

flows through a low-flow channel that leads into a pool in front of the EDB outlet structure. [*Id.* at 4-65 to 4-66, Bates US_00402355-356.] The forebay outlet pipe should be sized to drain the forebay volume in five minutes. [*Id.* at 4-66, Bates US_00402356.] The low-flow channel should either be completely lined with concrete, or lined on the bottom with concrete and on the sides with riprap. [*Id.* at 4-65, Bates US_00402355.]

An EDB should have a "two-stage design," where (1) the "top stage" is a shallower basin that contains the low-flow channel and only fills during less frequent storms; and (2) the "bottom stage" is a deeper basin in front of the outlet structure that fills often with frequently occurring runoff. [*Id.* at 4-65, Bates US_00402355.] The bottom stage, which stores five to fifteen percent of the WQCV, helps to keep the top stage dry, improving the aesthetics of the basin and minimizing mud and standing water. [*Id.* at 4-62, 4-65, Bates US_00402352, 355.]

The bottom stage should also have a small "micro-pool" in front of the outlet structure. [*Id.* at 4-65, Bates US_00402355.] The trash rack should extend to the bottom of the micro-pool, at least two feet below the lowest opening in the orifice plate. [*Id.* at 4-65, 4-72 to 4-73, 4-126 to 4-128, 4-130 to 4-132, Bates US_00402355, 362-363, 416-418, 420-422.] This configuration helps ensure that water can still flow through the trash rack and the EDB outlet even when there is floating debris blocking the trash rack at the water surface level. [Sept. 14, 2018 D. Krickbaum Testimony.] The micro-pool is the only place where water should remain after an EDB has drained dry—an EDB should be "designed not to have a significant permanent pool of water remaining between storm runoff events." [2002 DCM Vol. 2, SX005 at 4-61, Bates US_00402351.]

The DCM Vol. 2 provides a schematic drawing of a typical EDB. [*Id.* at 4-69, Bates US_00402359.]

As designed and built, the MorningStar EDB has two inlets, one on the north side and another on the west side of the basin, each with a concrete forebay. [*See* MorningStar Revised GEC Plan, SX220 at 2A, Bates CITY_2X_000334; MorningStar EDB As-Built Drawings, SX224.] The north forebay is always under water, including the inlet pipe. [*See, e.g.*, Photograph, SX271, Bates PGENV0016216 (showing submerged north forebay with pool and outlet structure in background).] That is due to a faulty design placing the north inlet at an elevation lower than the EDB outlet. [MorningStar Revised GEC Plan, SX220 at 2A, Bates CITY_2X_000334 (as designed, inlet approximately 11 inches below outlet); MorningStar EDB As-Built Drawings, SX224 at 1, Bates CITY 2X_000403 (as built, inlet approximately 23 inches below outlet).] Sediment collects in the inlet pipe, and some sediment remains in the forebay with algae growing in it. [*See* Photograph, SX270, Bates PGENV0016215 (showing submerged north forebay with green stagnant water).] The west forebay was properly designed and functions adequately.

From the west forebay there is a low-flow channel, also called a "trickle channel," that is covered with grass and is subject to erosion, leading into the pool of water in the basin. [*See* Photograph, SX265, Bates PGENV0016209 (showing trickle channel with west inlet and forebay in background); Photograph, SX263, Bates PGENV0016200 (showing west forebay, rock berm, and trickle channel leading to pool of water in front of outlet structure in background).]

The EDB's design flaw was noted by City inspector Joel Mackey when he reviewed the plans. Mr. Mackey testified that when he reviewed the design, he was concerned that the

placement of the north forebay would put it always under water, which would make maintenance difficult without draining the pool. On January 14, 2014, Mr. Mackey wrote the following in his inspection report:

> Received construction details for EDB to be built on site. Plans received will not work and doesn't meet our BMP requirements. Had review engineer contact design engineer and explain the issues with the design. Design engineer is going to correct the issues with the EDB design. Contacted super for site and explained what is going on with the plans and that the design engineer would be getting him new plans for EDB.

[Jan. 14, 2014 Inspection Report, SX234 at 1, Bates CITY_2X_000511.]

After inspecting the ongoing EDB construction on June 13, 2014, Mr. Mackey wrote in his report with respect to the outlet pipe installation that the "pond will hold water with the outlet pipe set where it is. Informed design eng of issue." [June 13, 2014 Inspection Report, SX237 at 1, Bates CITY_2X_000514.] And again on July 9, 2014, Mr. Mackey's inspection report contained the following observation: "outlet pipe install - pond will hold water with the outlet pipe set where it is. . . . Informed design engineer of issue [b]ut to date no action to address issues." [July 9, 2014 Inspection Report, SX238 at 1, Bates CITY_2X_000515.]

After his inspection on August 14, 2014, Mr. Mackey reported that the "OS and east forebay[10] [were] installed with out meeting to address my concerns. OS opening is set higher than forebay causing the forebay to be under water. Called and left a message with design engineer but never heard back." [Aug. 14, 2014 Inspection Report, SX240 at 1, Bates CITY_2X_000517.] Mr. Mackey testified that after notifying his boss, the EDB designer, and the contractor, he felt that his hands were tied in in trying to get this problem corrected.

The 2002 DCM Vol. 2 describes an EDB as follows:

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[10] Mr. Mackey testified that this reference to the "east forebay" was an error, and that he meant the north forebay.

> An extended detention basin (EDB) is a sedimentation basin designed to totally drain dry sometime after stormwater runoff ends. It is an adaptation of a detention basin used for flood control. The primary difference is in the outlet design. The EDB uses a much smaller outlet that extends the emptying time of the more frequently occurring runoff events to facilitate pollutant removal. The EDB's drain time for the brim-full water quality capture volume (i.e., time to fully evacuate the design capture volume) of 40 hours is recommended to remove a significant portion of fine particulate pollutants found in urban stormwater runoff. Soluble pollutant removal can be somewhat enhanced by providing a small wetland marsh or ponding area in the basin's bottom to promote biological uptake. The basins are considered to be "dry" because they are designed not to have a significant permanent pool of water remaining between storm runoff events. However, EDB may develop wetland vegetation and sometimes shallow pools in the bottom portions of the facilities.

[2002 DCM Vol. 2, SX005 at 4-61, Bates US_00402351.]

The plaintiffs contend that the MorningStar EDB does not meet the DCM Vol. 2 technical criteria for several reasons.

First, the MorningStar EDB has a large permanent pool of water due to the inverted elevations of the outlet and north forebay. The size of the permanent pool at the outlet structure is not limited to the micro-pool described in the DCM, and because there is no bottom-stage storage basin above the permanent pool, the EDB does not have a two-stage design as specified. [*See id.* at 4-65, Bates US_00402355.] The plaintiffs' witnesses criticized the large pool of standing water because it can breed mosquitos and makes maintenance difficult. Gary Bayer, the maintenance director at MorningStar, testified that he has no difficulty keeping the basin clean and sprays for mosquitos.

The plaintiffs next contend that the MorningStar EDB fails to meet the DCM Vol. 2 requirements because the outlet structure as installed is different from the design. The approved design shows the trash rack extending to the bottom of the outlet box structure. [MorningStar Revised GEC Plan, SX220 at 3A, Bates CITY_2X_000336.] However, the

initial design had called for the trash rack opening to end approximately two feet above the bottom of the structure, a problem that was noted by Mr. Mackey. [Jan. 13, 2014 Email from J. Mackey to S. Gardner, SX288 at Bates CITY_5G_0222666.] Although the design was corrected, the outlet box had been pre-fabricated with the too short opening of the initial design. David Gibson, the design engineer, testified that to order and install a new outlet box would have delayed the project. He requested and received permission from the City to install the pre-fabricated outlet box. [May 2014 Email Chain Between D. Gibson and P. Morris, SX291 at Bates CITY_5G_0238107-108; *see also* MorningStar EDB As-Built Drawings, SX224 at 2, Bates CITY_2X_000404.] The plaintiffs' witnesses criticized this installation because it requires more maintenance to ensure that the trash rack is not clogged after a major storm—if the trash rack gets clogged, it will severely decrease or even completely stop the flow of water out of the EDB, decreasing the WQCV and possibly causing the basin to overflow. Mr. Bayer testified that he has no problems cleaning the trash rack as needed.

The plaintiffs next contend that the MorningStar EDB violates the 2002 DCM Vol. 2 technical criteria because the north forebay is permanently under water. The DCM requires that the forebay volume drain in five minutes. [2002 DCM Vol. 2, SX005 at 4-66, Bates US_00402356.] Mr. Gibson testified that the grading of the EDB was changed from the original design because of the location of an electric conduit that necessitated moving the service road. [*Compare* MorningStar Final Drainage Report, SX218 at App'x, Bates CITY_2X_000258, *with* MorningStar Revised GEC Plan, SX220 at 2A, Bates CITY_2X_000334.] He stated that that even though this change put the north forebay under water, to move the north forebay or change its elevation would have required additional

grading changes that would have caused erosion over time. The plaintiffs' witnesses testified that because the north forebay is under water it does not function as intended, and maintenance is more difficult. Mr. Bayer testified that he simply puts on waders whenever it is necessary to shovel out accumulated sediment in the north forebay.

Finally, the plaintiffs contend that the low-flow channel in the MorningStar EDB does not comply with the 2002 DCM Vol. 2 technical criteria. The EDB's trickle channel does not have a concrete bottom as required. [2002 DCM Vol. 2, SX005 at 4-65, Bates US_00402355.] There has been some erosion of this channel, and the photographs in evidence show some stagnant water pools in the channel. [*See* Photograph, SX263, Bates PGENV0016200; Photograph, SX265, Bates PGENV0016209; Photograph, SX269, Bates PGENV0016214.] Mr. Bayer testified that he maintains the trickle channel by mowing the grass and weeds that grow in it, and by shoveling accumulated dirt out of it a couple of times per year.

The City contends that the 2002 DCM Vol. 2 criteria requiring a small micro-pool, a two-stage design, a trash rack that extends to the bottom of the micro-pool, a forebay drain time of five minutes, and a concrete-bottomed low-flow channel are merely recommendations. The City argues that the only EDB technical criteria *required* by the 2002 DCM Vol. 2 are (1) a basin storage volume that meets the WQCV criteria; and (2) a drain time of forty hours or more. The City argues that because the MorningStar EDB exceeds the required storage volume and drain time, it is in compliance with the DCM. The Court disagrees.

While the DCM's narrative description of an EDB could be read to imply that certain of the described features are optional,[11] each of the technical criteria noted above appears in the DCM under the heading "Design Procedure and Criteria" (or in the "Structural Details" section referenced therein), indicating that these criteria are design requirements, not mere recommendations. [*See* 2002 DCM Vol. 2, SX005 at 4-64 to 4-67, 4-118 to 4-132, Bates US_00402354-357, 408-422.] The requirements for a micro-pool, a two-stage design, and forebay drain time also appear in the EDB design forms in the DCM appendix. [*Id.* at A-8 to A-10, Bates US_00402435-437.] Accordingly, the Court finds that the City's approval of the design and installation of an EDB that does not meet these required technical criteria is a violation of the Permit.[12]

The plaintiffs also contend that the City has violated the Permit by failing to ensure the long-term operation and maintenance of the MorningStar EDB. The City has emphasized the fact that the MorningStar EDB has been fully functional. There has been no evidence that any sediment has escaped the MorningStar site, and as noted above the WQCV and drain time of the EDB are greater than what is required. Mr. Bayer testified that his maintenance has not been difficult and that he observes the EDB's condition daily.

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[11] [*See, e.g.*, 2002 DCM Vol. 2, SX005 at 4-62, Bates US00402352 ("[I]t is suggested that the designer provide a lower stage basin as suggested in the Two Stage Design procedure.").]

[12] [*See* Permit, SX001 at Part I(B)(1)(a)(2)(a), (c), Bates US_00402638-639 ("The permittee must . . . [i]mplement and document strategies which include the use of . . . BMPs appropriate for the community . . . . Minimum technical requirements for required structural BMPs shall be documented and be based on those specified in the Drainage Criteria Manual Volume II or equivalent and be in accordance with good engineering, hydrologic and pollution control practices. . . . [The permittee must] [i]mplement and document procedures to determine if the BMPs required . . . are designed and installed in accordance with program requirements . . . .").]

However, the DCM technical criteria that are not met by the MorningStar EDB are primarily intended to assure proper maintenance by making it as easy as practicable for the owner. The fact that Mr. Bayer's maintenance methods have thus far been effective to prevent the discharge of sediment-laden stormwater does not excuse the City's approval of an EDB that fails to meet those criteria. It is fortunate that Mr. Bayer is employed by the present owner, but this facility may not always be operated by such diligent employees. The maintenance required to keep this EDB functioning as a stormwater quality control measure must be ensured and monitored by the City. The City has failed to do so.

The City's witness Richard Mulledy acknowledged that the MorningStar EDB has increased maintenance needs compared to other EDBs as a result of the EDB's lack of the maintenance features required by the 2002 DCM Vol. 2. Not only did the City approve an EDB that lacks these features, it then compounded the problem by failing to require an inspection and maintenance plan ("IM plan") for the EDB that accounts for its increased maintenance needs. When the City approved installation of the outlet box with the too short trash rack in May 2014, it instructed the design engineer to include "a special/highlighted statement" in the MorningStar IM plan "stating the box will need to be inspected more frequently due to the box design." [May 2014 Email Chain Between D. Gibson and P. Morris, SX291 at Bates CITY_5G_0238107-108.] But the MorningStar IM plan had previously been approved in October 2013 and contains no such statement. [MorningStar IM Plan, SX221; Engineering Review Database Entry for MorningStar IM Plan, SX282.] The City approved and recorded the MorningStar Maintenance Agreement in 2015 without requiring the owner to make this modification to the IM plan, or any other modifications that

would address the increased maintenance needs of the MorningStar EDB. [*See* MorningStar Maintenance Agreement, SX223.]

Accordingly, the Court finds that the City has violated the Permit provision requiring it to "[i]mplement and document procedures, including procedures to enforce the requirements to maintain BMPs when necessary, to ensure adequate long-term operation and maintenance of BMPs consistent with the [City's] program requirements." [Permit, SX001 at Part I(B)(1)(a)(2)(d), Bates US_00402639.]

CONCLUSION

Upon the foregoing, it is ORDERED and ADJUDGED that Defendant City of Colorado Springs, Colorado has violated NPDES Permit No. COS-000004 issued effective November 1, 2011, as follows:

1. For Indigo Ranch North at Stetson Ridge, the City granted a waiver of permanent stormwater quality best management practices at Filing 11 without making the findings required by the 2002 Drainage Criteria Manual, Volume 2, and the City granted a waiver of permanent stormwater quality best management practices at Filings 13 and 14 after the 2002 Drainage Criteria Manual, Volume 2 had been replaced by the 2014 Drainage Criteria Manual, Volume 2.
2. For Star Ranch Filing 2, the City failed to provide adequate project oversight and failed to enforce compliance with the requirements of the City's Stormwater Management Plan documents during construction.
3. For the MorningStar at Bear Creek Extended Detention Basin, the City approved the design and installation of an extended detention basin that did not

meet the requirements of the 2002 Drainage Criteria Manual, Volume 2, and consequently failed to ensure adequate long-term operation and maintenance of the extended detention basin.

DATED: November 9th, 2018

BY THE COURT:

s/Richard P. Matsch

Richard P. Matsch, Senior District Judge