Attachment 'H'

Preliminary Stormwater Management Plan

Project Lola
Council Bluffs, Iowa

Project No. 169987

April 16, 2024

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Prepared for:

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INDEX AND CERTIFICATION

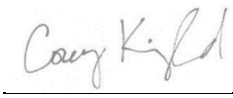
EDC Omaha Landco, LLC
Stormwater Management Plan
Project No. 169987

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Certification

I hereby certify, as a Professional Engineer in the state of Iowa, that the information in this document was assembled under my direct personal charge. This report is not intended or represented to be suitable for reuse by EDC Omaha Landco, LLC or others without specific verification or adaptation by the Engineer.



Corey Kingsland, P.E. P28427

Date: 04/16/2024

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I. Project Description

This project is a 92-acre greenfield site proposed for industrial development, including two approximately 450,000 SF buildings that each are surrounded by generator yards, ring access roads, and employee parking areas. In the northwest corner of the site a substation will be constructed to support this development. This project is intended to provide stormwater management/treatment to the approximate ~80-acres of land being disturbed. The site is bounded to the west by College Road, to the north by E Kanesville Boulevard, to the east by Interstate 80, and to the south by a private shared driveway.

The existing site currently features seven stormwater outlet points along the east and west sides of the site. There are four existing drainage areas on the west side of the site that drain to a series of curb inlets along College Road and there are three existing drainage areas on the east side of the site that drain to the ditch alongside Interstate-80. Refer to Table 1 below for a summary of the existing watershed and Appendix D for the delineation of each drainage area.

After review of the existing site hydrology, it appears that no upstream, off-site water is being routed through the site. The site's elevation is substantially higher than College Road and has minimal elevation fluctuations apart from the perimeter of the site where the topography ties back into the College Road grades. Therefore, only the flows produced from the site itself are being considered as part of this study.

The Council Bluffs Municipal Code for stormwater ordinance requires that the site address the below listed Unified Sizing Criteria (USC) defined in the Iowa Stormwater Management Manual (ISWMM). USC requirements are as follows:

- Water Quality Volume (WQ_v): Capture and treat runoff from the 1.25" rainfall event.
- Channel Protection Volume (CP_v): Provide extended detention of the 1-year storm event, with a 24-hour drawdown period. Refer to Section V, Table 6 for the depth of all exceedance probability storm events.
- Overbank Flood Protection (Q_p) – Extreme Flood Protection (Q_f): For the 2-year through 100-year storm events (24-hour duration), limit peak runoff rates to the lesser of the

peak rate from the site based on natural conditions (maximum CN=58, Tc for natural conditions) or the peak rate from the site based on existing site conditions caused by a 5-year storm event.

Table 1. Existing Watershed Overview

Parameter	On-Site Area (acre)
Existing Drainage Area 1	19.27
Existing Drainage Area 2	12.16
Existing Drainage Area 3	17.74
Existing Drainage Area 4	8.98
Existing Drainage Area 5	12.26
Existing Drainage Area 6	14.69
Existing Drainage Area 7	8.69

II. Summary of Project Impacts

The project will employ several non-structural and structural BMPs which are intended to address small storm requirements (i.e., 10-year events and smaller) and comply with the local release rate requirements for larger storm events (i.e., events larger than 25-year events). See section IV of this report for more information about the BMPs used. Four of the existing outlets will be studied in this report—Outlet 2, Outlet 4, Outlet 5, and Outlet 6—as these are the outlets that the developed, impervious surface runoff water will be conveyed to. The remaining outlets will not be disturbed apart from smaller resulting contributing areas and flow rates. Refer to Appendix D for the labeled map of outlets and drainage areas.

Table 2a. Stormwater Management Summary for Outlet 2

Outlet 2			
		Required	**Provided**
WQv	Water Quality Volume	27,008 CF	64,832 CF
CPv (1-year)	Maximum Peak Release Rate (at outlet) *	0.608 cfs	0.701 cfs ***
	Max. Storage – site watershed total (CF)		96,338 CF
	High Water Elevation within Stormwater BMP		1.6 ft
10-year	Maximum Peak Release Rate (at outlet) *	7.082 cfs	4.434 cfs
	Max. Storage – site watershed total (CF)		137,409 CF
	High Water Elevation within Stormwater BMP		2.84 ft.
100-year	Maximum Peak Release Rate (at outlet) **	13.9 cfs	13.8 cfs
	Max. Storage – site watershed total (CF)		228,080 CF
	High Water Elevation within Stormwater BMP		5 ft

**Peak required release rate obtained from Natural Condition storms. See Appendix A for more detail.*
***Peak required release rate obtained from the 5-yr Existing Condition storm. See Appendix A for more detail.*
****See Table 10.b for more detail.*

Table 2b. Stormwater Management Summary for Outlet 4

Outlet 5			
		Required	**Provided**
WQv	Water Quality Volume	25,280 CF	111,382 CF
CPv (1-year)	Maximum Peak Release Rate (at outlet) *	0.402 cfs	0.401 cfs
	Max. Storage – site watershed total (CF)		158,643 CF
	High Water Elevation within Stormwater BMP		0.57 ft
10-year	Maximum Peak Release Rate (at outlet) *	4.951 cfs	2.105 cfs
	Max. Storage – site watershed total (CF)		202,079 CF
	High Water Elevation within Stormwater BMP		1.26 ft
100-year	Maximum Peak Release Rate (at outlet) **	9.767 cfs	6.174 cfs
	Max. Storage – site watershed total (CF)		286,129 CF
	High Water Elevation within Stormwater BMP		2.6 ft

**Peak required release rate obtained from Natural Condition storms. See Appendix A for more detail.*
***Peak required release rate obtained from the 5-yr Existing Condition storm. See Appendix A for more detail.*

Table 2c. Stormwater Management Summary for Outlet 5

Outlet 5			
		Required	**Provided**
WQv	Water Quality Volume	114,511 CF	146,367 CF
CPv (1-year)	Maximum Peak Release Rate (at outlet) *	0.669 cfs	0.578 cfs
	Max. Storage – site watershed total (CF)		203,215 CF
	High Water Elevation within Stormwater BMP		1.51 ft
10-year	Maximum Peak Release Rate (at outlet) *	7.26 cfs	2.789 cfs
	Max. Storage – site watershed total (CF)		430,451 CF
	High Water Elevation within Stormwater BMP		3.08 ft
100-year	Maximum Peak Release Rate (at outlet) **	16.12 cfs	9.719 cfs
	Max. Storage – site watershed total (CF)		842,503 CF
	High Water Elevation within Stormwater BMP		5.3 ft

**Peak required release rate obtained from Natural Condition storms. See Appendix A for more detail.*
***Peak required release rate obtained from the 5-yr Existing Condition storm. See Appendix A for more detail.*

Table 2d. Stormwater Management Summary for Outlet 6

Outlet 6			
		Required	**Provided**
WQv	Water Quality Volume	64,628 CF	74,223 CF
CPv (1-year)	Maximum Peak Release Rate (at outlet) *	1.186 cfs	0.579 cfs
	Max. Storage – site watershed total (CF)		51,566 CF
	High Water Elevation within Stormwater BMP		0.59 ft
10-year	Maximum Peak Release Rate (at outlet) *	12.861 cfs	2.714 cfs
	Max. Storage – site watershed total (CF)		128,872 CF
	High Water Elevation within Stormwater BMP		1.43 ft
100-year	Maximum Peak Release Rate (at outlet) **	28.410 cfs	7.450 cfs
	Max. Storage – site watershed total (CF)		293,084 CF
	High Water Elevation within Stormwater BMP		3.01 ft

**Peak required release rate obtained from Natural Condition storms. See Appendix A for more detail.*
***Peak required release rate obtained from the 5-yr Existing Condition storm. See Appendix A for more detail.*