

Stormwater Management Report

The Station
Mankato, Minnesota

June 23, 2025

Project No. 25-32735



Architecture
Engineering
Environmental
Planning
ISGInc.com

REPORT FOR:
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SIGNATURE SHEET

I HEREBY CERTIFY THAT THESE CALCULATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Nathan J. Hermer, **P.E.**
Project Engineer
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ISG
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The Station
Mankato, MN

Engineer's Project Number: 25-32735

Dated this 23rd day of June 2025

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INTRODUCTION

This stormwater management report was prepared to facilitate improvements for the Station in Mankato, MN. The project site is located in the southwest quadrant of the CSAH 23 and CSAH 12 intersection, west of the railroad tracks. The property area is 13.39 acres. The proposed development will include a new Rickway Carpet warehouse, office, and showroom, along with 66 commercial condo units. The improvements will include grading, underground utility installation, curb and gutter, stormwater management basins, and pavement surfacing.

In concurrence with the production of site plans, hydrologic and hydraulic models were developed to generate the data presented within this report. Given that the project will disturb more than one acre of land, a NPDES Construction Stormwater Permit will be required. This project is also subject to the City of Mankato's stormwater rate control and water quality requirements.

DRAINAGE CONDITIONS

Existing Site

The project property has been historically farmed and has a drainage ditch along the east, south, and south third of the west property line. There is one wetland located along the southern property line that accepts runoff from the east ditch and area directly north of the wetland, identified as the "South Drainage Area" on the existing drainage map located in Appendix A. The existing wetland discharges into the south ditch via overland flow.

There are three remaining drainages; the "Northern Drainage Area" generally flows from west to east discharging into the existing east ditch; the "Central Drainage Area" generally flows from east to west discharging into the existing west ditch; and the remaining area is within the existing ditch.

An existing conditions drainage map is available in Appendix A.

Table 1. Existing Drainage Areas

Drainage Area	Total Area [ac]	Impervious Area [ac]	Pervious Area [ac]	Discharge Point
North	6.10	0.0	6.10	East Ditch
Central	3.60	0.0	3.60	West Ditch
South	3.01	0.0	3.01	Wetland – South Ditch
Ditch	0.68	0.0	0.68	-
Total	13.39	0.0	13.39	-

Proposed Site

The proposed project will provide traffic circulation and parking for a commercial condo development and Rickway Carpet warehouse, office, and showroom, supporting utilities, and stormwater management basins. The project will result in a net increase in impervious area of 7.19 acres.

Wetland impacts have been avoided, and the wetland buffer will be provided per local regulations. The existing east ditch currently discharges into the existing wetland, which has a low pool before discharging to the south ditch. The proposed project will not change the existing east ditch and it will continue to discharge into the existing wetland.

There are five proposed drainage areas as outlined in Table 2 below. A proposed drainage map is located in Appendix A.

Table 2. Proposed Drainage Areas

Drainage Area	Total Area [ac]	Impervious Area [ac]	Pervious Area [ac]	Discharge Point
North Pond	4.08	2.18	1.90	East Ditch
South Pond	6.40	5.01	1.39	East/West Ditch
Wetland	0.64	0.00	0.64	South Ditch
East Ditch	1.39	0.00	1.39	-
West Ditch	0.88	0.00	0.88	-
Total	13.39	7.19	6.2	-

Soil Conditions

The USDA's websoil survey was used to review the existing soils and the project site is predominately clay loam. Therefore, the site was modeled using Hydraulic Soil Group (HSG) D soils.

STORMWATER MANAGEMENT

Stormwater Regulations

The location of the project involves two agencies with stormwater management requirements: the Minnesota Pollution Control Agency (MPCA NPDES Construction Stormwater Permit) and the City of Mankato. The project exceeds all agencies' disturbance thresholds, and as such, must meet all applicable stormwater rate control and water quality requirements. The City of Mankato standards are more stringent than the MPCA requirements; thus, meeting the City of Mankato's requirements indicates that the site inherently complies with MPCA regulations.

Stormwater System Overview

Hydrologic and hydraulic calculations were performed for the existing and proposed drainage conditions using the rainfalls depths obtained for the City of Mankato and the MSE-3 24-hour rainfall distribution curve. The stormwater management system consists of three basins that were modeled in HydroCAD to ensure the site meets rate control and water quality standards. Given the poor soils, infiltration was deemed infeasible for the site and each basin will be a wet detention basin.

Basin discharge points are shown on the Proposed Drainage Map in Appendix A and final design elevations, discharge rates, and high-water levels (HWL) for each storm event will be provided with the final design.

Water Quality

WATER QUALITY VOLUME

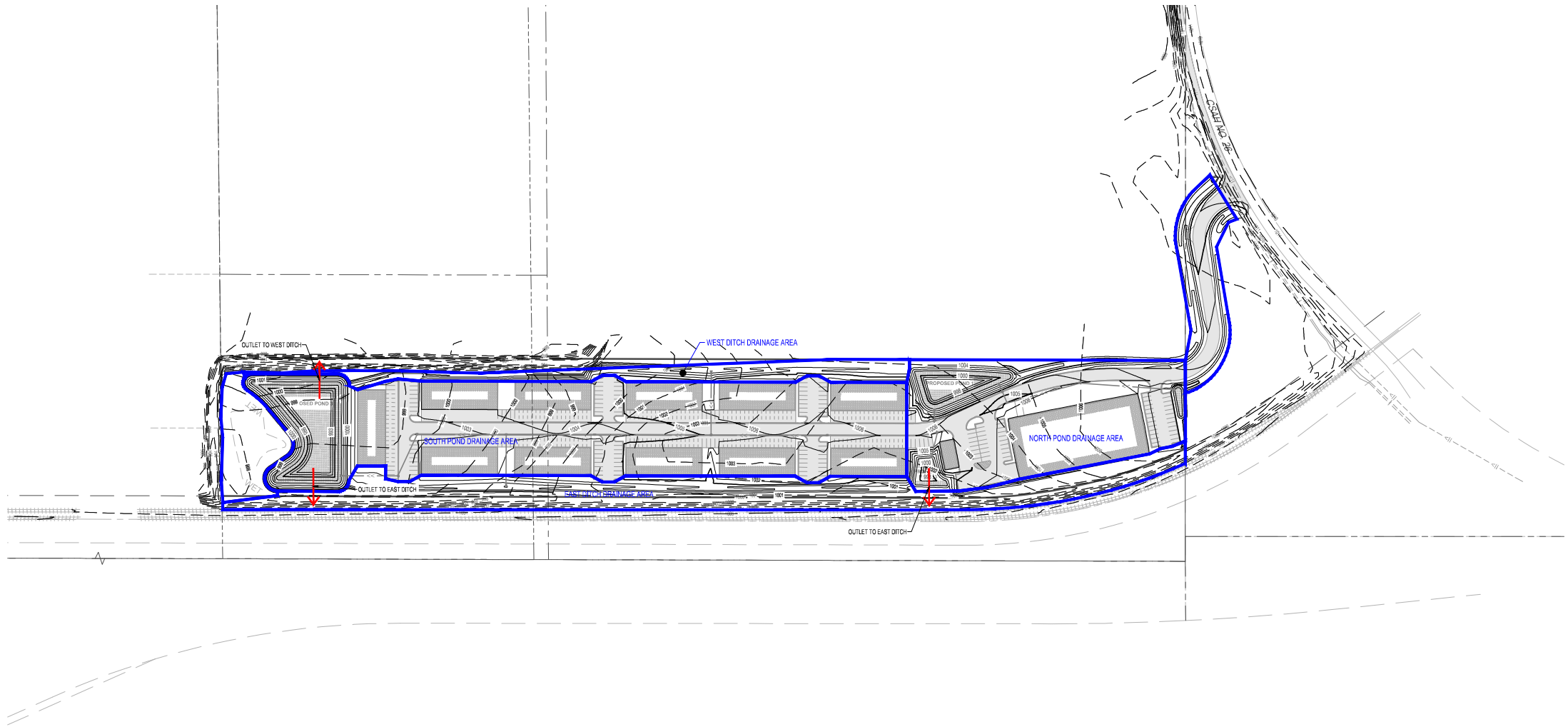
The City of Mankato requires that 1.1 inches of runoff across new and reconstructed impervious surfaces be retained as the water quality volume. If the volume requirement is met, then Total Suspended Solids (TSS) and Total Phosphorus (TP) requirements shall be considered met.

Due to the predominately clay soils, multiple wet detention basins are proposed to meet the water quality requirements. Appendix B shows the calculations of dead storage and water quality discharge rate for the northern two basins and the southern basin.

CONCLUSION

The proposed project provides a stormwater management system that meets all MPCA NPDES and City of Mankato requirements. The NPDES Construction Stormwater Permit will be applied for prior to construction and available as soon as the permit is obtained. The proposed project as designed provides volume abstraction, water quality volume, and detention requirements.

Appendix A: Existing + Proposed Condition Drainage Maps



Proposed Drainage Map



Appendix B: Basin Calculations



MPCA Storage Calculations

Project No. 25-32735
Date 6/23/25
By NJH

Project Name: The Station
Pond ID: Pond 1 + 2

DETENTION BASIN

Amount of Dead Storage 11492.00 Cubic Feet
Total Drainage Area to Basin 177593 Square Feet

Total Required Dead Storage 7338.55 Cubic Feet
Dead Storage Check Ok

New Impervious Area to Basin 94953.00 Square Feet

Required Water Quality Volume (1.1") 8704.03 Cubic Feet

Pond elevation at 20196.03 cubic feet of total storage 1001.2

Pond Surface Area at elevation 1001.2 8497 Square Feet

Pond Discharge at elevation 1001.2 1.05 cfs

Allowable discharge 1.10 cfs
Discharge Check Ok



MPCA Storage Calculations

Project No. 25-32735
Date 6/23/25
By NJH

Project Name: The Station
Pond ID: Pond 3

DETENTION BASIN

Amount of Dead Storage 53326.00 Cubic Feet
Total Drainage Area to Basin 278632 Square Feet

Total Required Dead Storage 11513.72 Cubic Feet
Dead Storage Check Ok

New Impervious Area to Basin 218420.00 Square Feet

Required Water Quality Volume (1.1") 20021.83 Cubic Feet

Pond elevation at 73347.83 cubic feet of total storage 997.2

Pond Surface Area at elevation 997.2 27379 Square Feet

Pond Discharge at elevation 997.2 3.42 cfs

Allowable discharge 3.56 cfs
Discharge Check Ok



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2024-AGL-9211-OE

Issued Date: 08/22/2024

Cheryl Freitag
Niccon Inc
60727 230th St
Madison Lake, MN 56063

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Multi-purpose Building The Station
Location:	Mankato, MN
Latitude:	44-11-48.46N NAD 83
Longitude:	93-55-50.36W
Heights:	1001 feet site elevation (SE) 28 feet above ground level (AGL) 1029 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

☐ At least 10 days prior to start of construction (7460-2, Part 1)
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 02/22/2026 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA. This determination includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

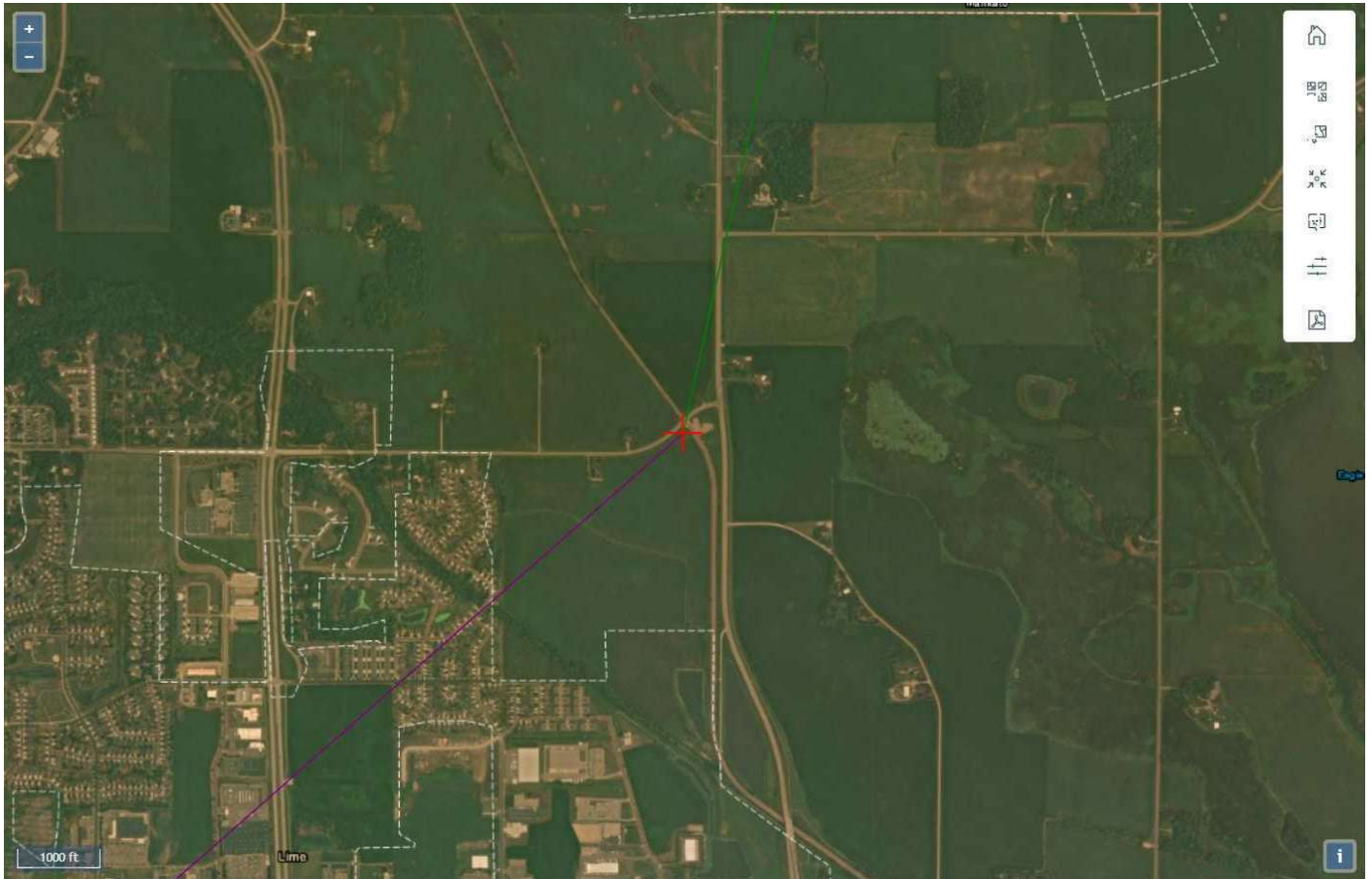
If we can be of further assistance, please contact our office at (817) 222-5323, or Marla.Duchatellier@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2024-AGL-9211-OE.

Signature Control No: 625506618-630918204

(DNE)

Marla Duchatellier
Technician

Attachment(s)
Map(s)

Verified Map for ASN 2024-AGL-9211-OE

TOPO Map for ASN 2024-AGL-9211-OE

