PLANNING AND ZONING MEETING AGENDA

Wednesday, May 13, 2026 at 7:10 AM MT
City Hall – 38 1st Street West Dickinson, ND 58601

Commissioners:

Chairman: Jason Fridrich

Vice Chairman: Scott Bullinger

Dean Franchuk

Zach Keller

Val Decker

Rick Haugen

Aaron Johansen

Mike Schwab

Mathew Rothstein

CALL TO ORDER

ROLL CALL

OPENING CEREMONIES: PLEDGE OF ALLEGIANCE

1. **ORDER OF BUSINESS:**
2. **MINUTES**
   - **A. APRIL 8TH, 2026 MINUTES**
3. **REGULAR AGENDA**
   - **A. APPROVAL AND RATIFICATION OF APPOINTMENT OF JASON FRIDRICH AND DEAN FRANCHUK**
   - **B. RIGHT-OF-WAY VACATION PETITION** - Presented by City Planner, Natalie Birchak
     To consider a Right-of-way Vacation Petition for a 66-foot wide section of the 32nd Street Southwest access road, located to the south of Lots 8 & 9, Block 1, of the Northgate Industrial Site Subdivision, located in the SW ¼ of the SW ¼ of Section 10, Township 140 North, Range 96 West, of the 5th Principal Meridian, Stark County, North Dakota, in the City's Extra-Territorial Zone. The section of right-of-way proposed to be vacated consists of +/- 0.71 acres.
   - **C. FINAL MINOR PLAT (FLP-002-2026)** - Presented by City Planner, Natalie Birchak

To consider a Final Minor Subdivision Plat for the Energy Center 7th Addition Subdivision, being the replat of Tract A of Lot 1 of Block 2 of the Energy Center 3rd Addition Subdivision, located in the SE ¼ of Section 1, Township 139 North, Range 96 West, of the 5th Principal Meridian, City of Dickinson, Stark County, North Dakota. The site is zoned General Industrial (GI). The site consists of +/- 4.53 acres.

D. **SPECIAL USE PERMIT (SUP-001-2026)** - Presented by City Planner, Natalie Birchak

To consider a Special Use Permit for a custom manufacturing business located at 2503 Fairway Street, Unit 8, on a property legally described as Lot 7 of Block 1 of the State 8th Addition Subdivision, and Lots 1, 2, & 3 of Block 1 of the State 9th Addition Subdivision, located in the SW ¼ of the NE ¼ of Section 5, Township 139 North, Range 96 West, in the City of Dickinson. The lot is zoned Community Commercial (CC). The site consists of +/- 0.10 acres.

E. **PRELIMINARY MAJOR PLAT (PLP-003-2026)** - Presented by City Planner, Natalie Birchak

To consider a Preliminary Major Subdivision Plat for the Dickinson South Cemetery Second Subdivision, being a parcel of land located in the S ½ of the SW ¼ of the NW ¼ of Section 16, Township 139 North, Range 96 West, of the 5th Principal Meridian, Stark County, North Dakota, in the City's Extra-Territorial Zone. The site is zoned Agriculture (AG). The site consists of +/- 7.59 acres.

4. **PUBLIC ISSUES OF CONCERN NOT ON AGENDA**
5. **ITEMS NOT ON AGENDA**
6. **WORK SESSION**

A. **STORMWATER ORDINANCE UPDATE** - Presented by City Engineer/Community Development Director, Joshua Skluzacek

7. **ADJOURNMENT**

Link for viewing Planning and Zoning Commission Meeting:
https://youtube.com/live/uuDImvzG8hQ
This link will not be live until approximately 7:05 AM MT on May 13, 2026.

Teams Meeting: https://tinyurl.com/PZC05132026
Teams Meeting ID: 262 966 441 564 59 **Meeting Passcode:** HV6ny2tn
Teams Phone #: 1-701-506-0320 **Phone Conference ID:** 978 790 351#
Local Phone #: 701-456-7006

Persons desiring to attend the meeting who require special accommodations are asked to contact the City Administrator at (701) 456-7744 by the Friday preceding the meeting.

PLANNING AND ZONING MEETING MINUTES

Wednesday, April 08, 2026 at 7:10 AM MT
City Hall – 38 1st Street West Dickinson, ND 58601

Commissioners:
Chairman: Jason Fridrich
Vice Chairman: Scott Bullinger
Dean Franchuk
Zach Keller
Val Decker
Rick Haugen
Aaron Johansen
Mike Schwab
Mathew Rothstein

CALL TO ORDER
ROLL CALL
PRESENT
Chairman Jason Fridrich
Vice Chairman Scott Bullinger
Commissioner Dean Franchuk
Commissioner Aaron Johansen
Commissioner Richard Haugen
Commissioner Zach Keller
Commissioner Mathew Rothstein
ABSENT
Commissioner Mike Schwab
Commissioner Val Decker

OPENING CEREMONIES: PLEDGE OF ALLEGIANCE

1. ORDER OF BUSINESS:

Motion to approve as presented.

Motion made by Vice Chairman Bullinger, Seconded by Commissioner Johansen.
Voting Yea: Chairman Fridrich, Vice Chairman Bullinger, Commissioner Franchuk, Commissioner Johansen, Commissioner Haugen, Commissioner Keller, Commissioner Rothstein

2. MINUTES

A. MARCH 11TH, 2026 MINUTES
Motion to approve as presented.

Motion made by Vice Chairman Bullinger, Seconded by Commissioner Haugen.
Voting Yea: Chairman Fridrich, Vice Chairman Bullinger, Commissioner Franchuk,

Commissioner Johansen, Commissioner Haugen, Commissioner Keller, Commissioner Rothstein

3. REGULAR AGENDA

A. PRELIMINARY MAJOR PLAT (PLP-002-2026) - Presented by City Planner, Natalie Birchak

To consider a Preliminary Major Subdivision Plat for the Eagles Point Second Subdivision, being the replat of Lot 2 of Block 1 of the Eagles Point Subdivision, located in the SE ¼ of Section 18, Township 140 North, Range 96 West, of the 5th Principal Meridian, Stark County, North Dakota. The site is zoned Agriculture (AG). The site consists of +/- 40.01 acres.

City Planner Birchak presents the major plat request to divide the property into eight five-acre lots for future residential development. Staff has not received any public comment and recommends approval. An accompanying rezone request will follow this item.

Andrew Schrank of Highlands Engineering, representing the applicant, provides further explanation of the development. He notes that access roads exist on both the west and east sides of the property. The applicant is proposing an access easement to ensure these roads meet emergency vehicle access requirements, as well as a water line easement for potential future Southwest Water service, which is not currently available.

Chairman Fridrich opens the public hearing.

Liz Storley, who owns the lot to the north, states that her concerns regarding road access and maintenance have been addressed.

Kenny Greni, who owns the lot to the south, voices no objections to the request but raises concerns about mailboxes along the road and dust control. Ms. Birchak suggests he contact the postal service and recommends that staff explore whether a cluster box should be included as part of the plat. Paving may be completed by the county in the future once the area is built out.

Chairman Fridrich closes the public hearing.

Motion to approve made by Commissioner Johansen, Seconded by Commissioner Rothstein.
Voting Yea: Chairman Fridrich, Vice Chairman Bullinger, Commissioner Franchuk, Commissioner Johansen, Commissioner Haugen, Commissioner Keller, Commissioner Rothstein

B. REZONING (REZ-002-2026) - Presented by City Planner, Natalie Birchak

To consider a Zoning Map Amendment from Agricultural (AG) to Rural Residential (RR) for Lot 2 of Block 1 of the Eagles Point Subdivision, located in the SE ¼ of

Section 18, Township 140 North, Range 96 West, of the 5th Principal Meridian, Stark County, North Dakota. The site consists of +/- 40.01 acres.

Ms. Birchak presents the rezone request, which accompanies the previous item heard. Staff recommends approval. The rezone is being requested so the lots meet the AG 10-acre minimum.

Chairman Fridrich opens the public hearing. There being no comments, the hearing is closed.

Motion to approve made by Vice Chairman Bullinger, Seconded by Commissioner Johansen.
Voting Yea: Chairman Fridrich, Vice Chairman Bullinger, Commissioner Franchuk, Commissioner Johansen, Commissioner Haugen, Commissioner Keller, Commissioner Rothstein

C. TRANSPORTATION PLAN UPDATE (CPU-001-2026) - Presented by City Planner, Natalie Birchak

To consider an ordinance that repeals and replaces the 2013 Transportation Master Plan, to align with the changes proposed in the 2025 Transportation Master Plan and Comprehensive Plan Update.

Ms. Birchak presents the Transportation Plan update. Community Development staff is requesting adoption of an updated Transportation Master Plan and Comprehensive Plan Update. This update updates numerous policies from the 2013 Transportation Master Plan, including reducing the required right-of-way dedication width, altering the required spacing between driveway approaches, and adding additional housing and land use policies. Staff recommends approval.

Fridrich asks how this aligns with the county. City-County Planner Steve Josephson was involved in both plans, and information has been shared with the road superintendents.

Chairman Fridrich opens the public hearing. There being no comments, the hearing is closed.

Motion to approve made by Commissioner Johansen, Seconded by Commissioner Franchuk.
Voting Yea: Chairman Fridrich, Vice Chairman Bullinger, Commissioner Franchuk, Commissioner Johansen, Commissioner Haugen, Commissioner Keller, Commissioner Rothstein

D. COMPREHENSIVE PLAN UPDATE (CPU-002-2026) - Presented by City Planner, Natalie Birchak

To consider an ordinance that amends the land use objectives and policies found in the 2013 Dickinson Comprehensive Plan, updates the Future Land Use Map, and updates the Urban Service Area map, to align with the changes proposed in the 2025 Transportation Master Plan and Comprehensive Plan Update.

Ms. Birchak presents the Comp Plan update. Community Development staff is requesting adoption of an updated Transportation Master Plan and Comprehensive Plan Update. This update updates numerous policies from the 2013 Transportation Master Plan, including reducing the required right-of-way dedication width, altering the required spacing between driveway approaches, and adding additional housing and land use policies. Staff recommends approval and has not received any public comment.

Fridrich asks about why the Shinagle property was not included in the Urban Service Boundary. City Engineer Skluzacek explains the challenges and that the property was not deemed necessary to meet the land requirements for estimated future growth. The property is located in the Urban Reserve, just not in our Urban Service Area, so if it is developed in the future, it may be included at that time.

Chairman Fridrich opens the public hearing. There being no comments, the hearing is closed.

Motion made by Commissioner Haugen, Seconded by Commissioner Keller.
Voting Yea: Chairman Fridrich, Vice Chairman Bullinger, Commissioner Franchuk, Commissioner Johansen, Commissioner Haugen, Commissioner Keller, Commissioner Rothstein

4. PUBLIC COMMENT

5. ITEMS NOT ON AGENDA

6. WORK SESSION

7. ADJOURNMENT

Motion made by Vice Chairman Bullinger, Seconded by Commissioner Johansen.
Voting Yea: Chairman Fridrich, Vice Chairman Bullinger, Commissioner Franchuk, Commissioner Johansen, Commissioner Haugen, Commissioner Keller, Commissioner Rothstein

Link for viewing Planning and Zoning Commission Meeting:
https://youtube.com/live/qUVmXiAeF6k

32nd STREET RIGHT-OF-WAY VACATION REQUEST

CITY OF Dickinson North Dakota

CITY OF Dickinson North Dakota

City of Dickinson

Petition for Vacation

38 1st Street W | Dickinson, ND
701-456-7000
Fee: $250.00

(We) the undersigned certify that we are all adjoining property owners and request the City Commission to vacate (street, alley, easement, plat) located at:

11085 32nd Street SW and 11089 32nd Street SW

For the Reason:

To take possession of access road that runs from property to ditch that we currently maintain. No buildings will be built and will allow all companies listed below an easement to access equipment.

JSmith.

Signature Line

State of North Dakota)
:ss
County of Stark)

_____, being first duty sworn, deposes and says as follows: That he/she has read the within and foregoing Petition and knows the contents thereof, and that the same are true to the best of his/her knowledge, information and belief.

Subscribed and sworn to before me this _____ day of _____, _____.

_____
_____, Notary Public
Stark County, North Dakota
My Commission Expires: _____

Signatures of Adjoining Property Owners (add more pages if needed)	Address, Lot, Block and Addition
_____	11085 32nd Street SW Northgate Industrial 10-140-96-L9B1
_____	11089 32nd Street SW Northgate Industrial 10-140-96-L8 B1

The following utility companies have been notified and by the respective signature are not opposed to the vacation:

Jeff J. Miller
MDU (Gas Department)

MDU (Electric Department)

Century Link (701-690-2079)

Joseph Hulstrom
Roughrider Electric

Consolidated Telephone

Consolidated Cable Vision

Midcontinent Communications

City of Dickinson

CITY OF Dickinson North Dakota

City of Dickinson
Petition for Vacation
38 1st Street W | Dickinson, ND
701-456-7000
Fee: $250.00

(We) the undersigned certify that we are all adjoining property owners and request the City Commission to vacate (street, alley, easement, plat) located at:
11085 32nd Street SW and 11089 32nd Street SW

For the Reason:
To take possession of access road that runs from property to ditch that we currently maintain. No buildings will be built and will allow all companies listed below an easement to access equipment.

Brent Smith — Signature Line

State of North Dakota)
:ss
County of Stark)

Brent Smith, being first duty sworn, deposes and says as follows: That he/she has read the within and foregoing Petition and knows the contents thereof, and that the same are true to the best of his/her knowledge, information and belief.

Subscribed and sworn to before me this 18th day of March 2026

SYLVIA MILLER
Notary Public
State of North Dakota
My Commission Expires June 26, 2029

Notary Public
Stark County, North Dakota
My Commission Expires: _____

Signatures of Adjoining Property Owners (add more pages if needed)	Address, Lot, Block and Addition
	11085 [illegible]
	11089 [illegible]

The following utility companies have been notified and by the respective signature are not opposed to the vacation:

MDU (Gas Department)

MDU (Electric Department)

Century Link (701-690-2079)

Roughrider Electric

Consolidated Telephone

Consolidated Cable Vision

Midcontinent Communications

City of Dickinson

CITY OF Dickinson North Dakota

City of Dickinson
Petition for Vacation
38 1st Street W | Dickinson, ND
701-456-7000
Fee: $250.00

(We) the undersigned certify that we are all adjoining property owners and request the City Commission to vacate (street, alley, easement, plat) located at:
11085 32nd Street SW and 11089 32nd Street SW

For the Reason:
To take possession of access road that runs from property to ditch that we currently maintain. No buildings will be built and will allow all companies listed below an easement to access equipment.
G Smith

Signature Line

State of North Dakota)
:ss
County of Stark)

_____, being first duty sworn, deposes and says as follows: That he/she has read the within and foregoing Petition and knows the contents thereof, and that the same are true to the best of his/her knowledge, information and belief.

Subscribed and sworn to before me this _____ day of _____, _____.

_____
_____, Notary Public
Stark County, North Dakota
My Commission Expires: _____

Signatures of Adjoining Property Owners (add more pages if needed)	Address, Lot, Block and Addition
_____	11085 32nd Street SW Northcentral Addition
_____	11089 32nd Street SW Northcentral Addition

The following utility companies have been notified and by the respective signature are not opposed to the vacation:

Jeff J. Miller
MDU (Gas Department)

MDU (Electric Department)

_____
Century Link (701-690-2079)

Roughrider Electric

Consolidated Telephone

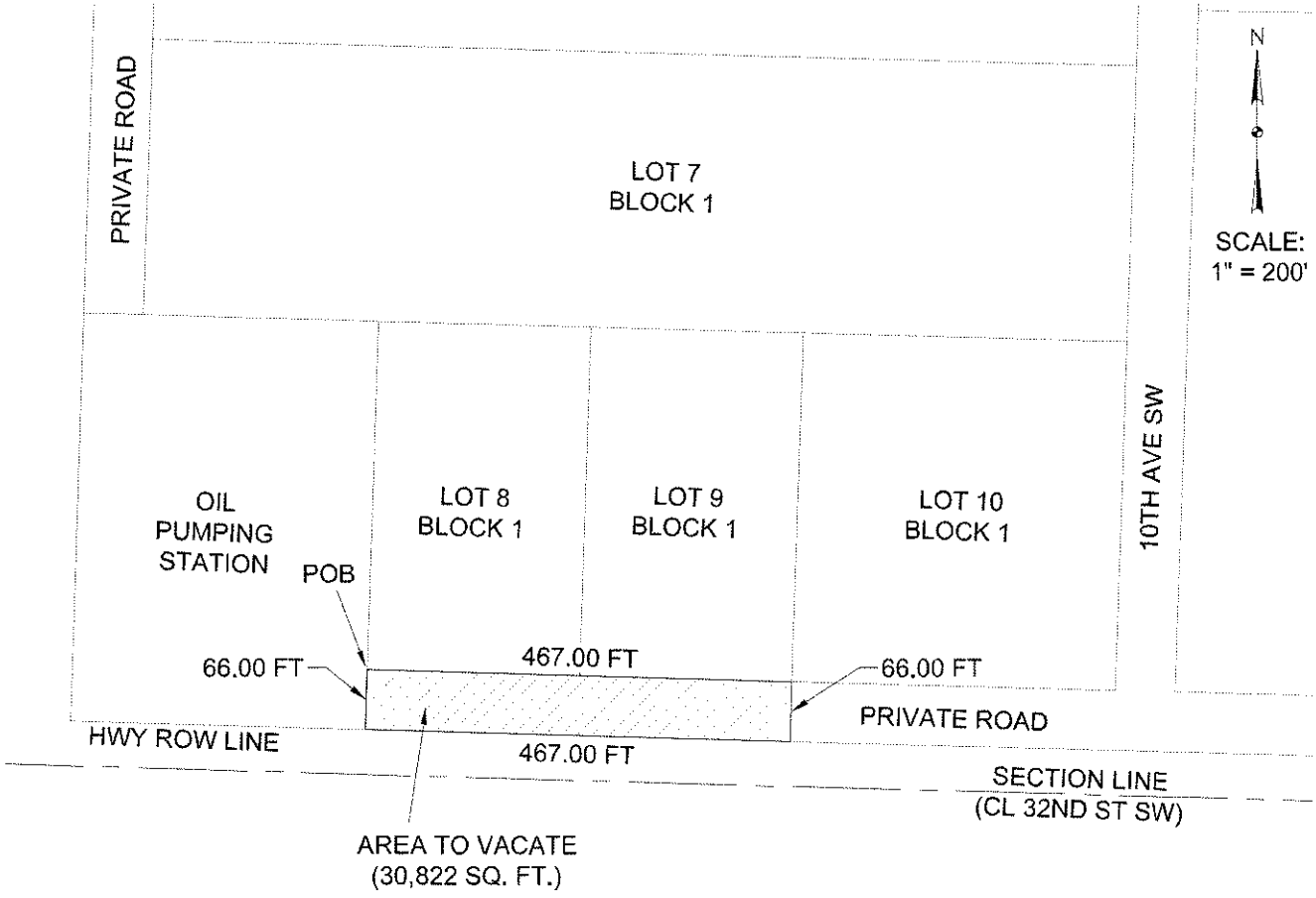
Consolidated Cable Vision

Midcontinent Communications

_____
City of Dickinson

STREET TO VACATE

NORTHGATE INDUSTRIAL SITE, SECTION 10, TOWNSHIP 140 NORTH,
RANGE 96 WEST OF THE FIFTH PRINCIPAL MERIDIAN, STARK COUNTY,
NORTH DAKOTA



DESCRIPTION

PORTION OF ROAD LOCATED SOUTH OF LOTS 8 AND 9, BLOCK 1, NORTHGATE INDUSTRIAL COMPLEX, SECTION 10, TOWNSHIP 140 NORTH, RANGE 96 WEST OF THE FIFTH PRINCIPAL MERIDIAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID LOT 8; THENCE EAST ALONG THE SOUTH SIDE OF SAID LOTS 8 AND 9, A DISTANCE OF 467.00 FEET, TO A POINT BEING THE SOUTHEAST LOT CORNER OF SAID LOT 9; THENCE SOUTH, ALONG AND EXTENDED LINE OF THE EAST LINE OF SAID LOT 9, A DISTANCE OF 66.00 FEET, TO A POINT ON THE NORTH LINE OF A HIGHWAY RIGHT OF WAY LINE; THENCE WEST, ON THE NORTH LINE OF SAID HIGHWAY RIGHT OF WAY LINE, A DISTANCE OF 467.00 FEET; THENCE NORTH, ON AN EXTENDED LINE OF THE WEST LINE OF SAID LOT 8, A DISTANCE OF 66.00 FEET, TO THE POINT OF BEGINNING.

SAID DESCRIBED TRACT CONTAINS, 30,822.00 SQ. FT. OR 0.71 ACRES, MORE OR LESS.

32nd Street SW Access Road ROW Vacation Petition Staff Report

To: City of Dickinson Planning and Zoning Commissioners
From: City of Dickinson Community Development Services
Date: May 6, 2026
Re: 32nd Street SW Access Road Right-of-way Vacation Petition

APPLICANT
Brent Smith
11085 32nd Street SW
Dickinson, ND, 58601

Public Hearing	May 13, 2026	Planning and Zoning Commission
Final Consideration	May 19, 2026	City Commission

The applicant is requesting approval of a right-of-way vacation petition for a 66-foot-wide portion of a 467-foot-long section of the access road along 32nd Street SW along the south edge of Lots 8 & 9 of Block 1 of the Northgate Industrial Site Subdivision, located in the S ½ of Section 10, Township 140 North, Range 96 West, in the City of Dickinson's Extra-Territorial Zone (ETZ). The lots to the north are zoned General Industrial (GI). The portion of right-of-way being vacated consists of +/- 0.71 acres.

Staff recommendation: Staff recommends **approval** of this right-of-way vacation petition.

LOCATION

The property is generally located to the north of 32nd Street SW, and it is legally described as a 30,822 square-foot section of an access road to the south of Lots 8 & 9 of Block 1 of the Northgate Industrial Site Subdivision, located in the S ½ of Section 10, Township 140 North, Range 96 West, of the 5th Principal Meridian, Stark County, North Dakota.

CURRENT ZONING	**N/A**
FUTURE LAND USE MAP DESIGNATION	**N/A**
GROSS SITE ACREAGE	**+/- 0.71 acres**
LOTS PROPOSED	**N/A**

ADJACENT ZONING & LAND USE		
Direction	**Zoning**	**Land Use**
North	GI	Industrial
East	GI; LI	Industrial; undeveloped
South	GI; LI	Undeveloped; industrial
West	AG; GI	Industrial

CONSISTENCY, COMPATIBILITY, COMPLIANCE, AND RECOMMENDATIONS

Compatibility and Compliance with The Municipal Code

The applicant is requesting the vacation of existing platted right-of-way. The procedure for a right-of-way vacation is outlined in North Dakota Century Code (NDCC) Chapter 40-39, which requires the signatures of the adjoining properties and a public hearing in front of the municipality's governing body and relevant committees. Lots 8 & 9 of Block 1 of the Northgate Industrial Site Subdivision, which are the adjoining properties, are both owned by the applicant. The petition has been completed and is being brought forward to both the Planning and Zoning Commission and City Commission in compliance with NDCC Chapter 40-39.

PUBLIC INPUT AND STAFF RECOMMENDATION

Public Input: Staff has not received any public input as of the date of this report.

Staff Recommendation: City of Dickinson Community Development staff recommends **approval** of this right-of-way vacation.

MOTIONS:

*****Approval*****

"I move the City of Dickinson Planning and Zoning Commission recommend approval of **32nd Street SW Access Road Right-of-way Vacation Petition** *as being consistent with the City of Dickinson Comprehensive Plan, as being compliant with the City of Dickinson Zoning Ordinance, and as being in the interest of the public health, safety and welfare "*

(AND) the following additional requirements **(IF THE PLANNING AND ZONING COMMISSION RECOMMENDS ANY ADDITIONS AND/OR DELETIONS TO THE PROPOSED MOTION LANGUAGE):**

1. _____;
2. _____.

*****Denial*****

"I move the Dickinson Planning and Zoning Commission recommend Denial of **32nd Street SW Access Road Right-of-way Vacation Petition** *as NOT being consistent with the City of Dickinson Comprehensive Plan, as not being compliant with the City of Dickinson Zoning Ordinance, and as being contrary to the interest of the public health, safety and welfare."*

From: Jotform
To: Sylvia Miller; Sylvia Miller; Steven Josephson; Dustin D. Dassinger; Leonard W. Schwindt; Joshua Skluzacek; Sylvia Miller; Natalie Birchak; Kylee Zastoupil
Subject: Re: Unified Development Application
Date: Thursday, April 2, 2026 11:37:40 AM

Unified Development Application

Have you met with Planning Staff regarding your application?	Yes
Please upload the letter or counseling form you received following your pre-application meeting:	Legend Homes Pre-Application Letter.pdf
Type of Development	Minor Subdivision Plat
Is this a Replat	Yes
Subdivision Being Re-platted	Tract A of Lot 1, Block 2, Energy Center 3rd Addition
Name	Jason Fridrich
Company	Legend Real Estate Holdings, LLC
Applicant Email	[redacted]
Applicant Phone #	[redacted]
Applicant Representative (if applicable)	Andrew Schrank
Applicant Representative Company	Highlands Engineering
Applicant Representative Email	[redacted]
Applicant Representative Phone #	[redacted]
Owner Name	Jason Fridrich Legend Real Estate Holdings, LLC

Owner Address	[redacted]
Owner Email	[redacted]
Owner Phone #	[redacted]
Is the owner present to Sign	No
Owner Signature Upload	251914_Owner Signature_2026-04-01.pdf
Will this application require any other action to complete the development?	No
Metes and Bounds Description (ONLY REQUIRED FOR UNPLATTED SUBDIVISION LOTS)	Tract A of Lot 1, Block 2, Energy Center 3rd Addition

	1/4 Section	Township	Range
Description	SE1/4 Section 1	T139N	R96W

Property Address / General Project Location	Property consists of 4.53 acres east of Energy Drive and south of Public Works Blvd.
Total Square Footage or Acreage of Subject Property	4.53 acres
Transmittal Letter (Explanation of Request & Proposed Operations)	251914_Transmittal-Minor Plat_2026-04-02.pdf
Rezone Calc Multiplier	0
Minor Platting Multiplier	1
Prelim Platting Multiplier	0
Major Platting Multiplier	0
Name of Plat	Energy Center 7th Addition
Number Lots	1 to 10 Lots
Number of Block(s)	1

	0
Application Calc	500
Required Documentation Upload	251914_FIRMette.pdf 251914_Zoning.pdf 251914_Parcels.pdf 251914_Utilities.pdf 251914_PLAT-FINAL_2026-03-31.pdf 251914_PLAT-PRELIM_2026-03-31.pdf
Deed for Property	3190362_Warranty Deed_7611.pdf
Application Fees	Applicable Fees 500.00 USD Total: $500.00 Transaction ID: p7d4fthv
	Payment Information
	First Name: Andrew Last Name: Schrank E-Mail [redacted]
Applicant Signature	
Date	04-02-2026

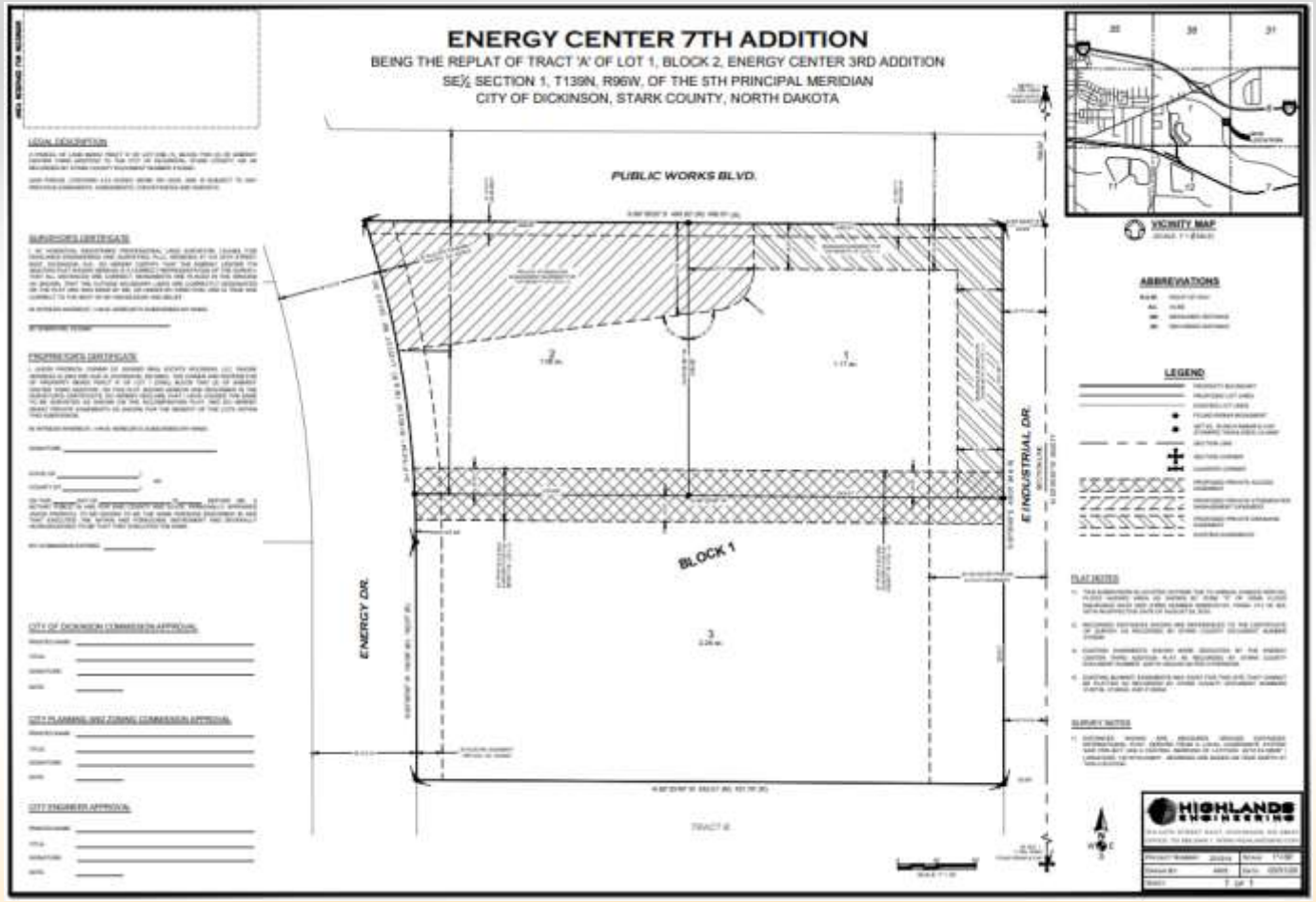
You can edit this submission and view all your submissions easily.

Attachments: Because the total size is more than **5MB** the uploads are not attached.

ENERGY CENTER 7TH ADDITION FINAL MINOR SUBDIVISION (FLP-002-2026)

CITY OF Dickinson North Dakota

ENERGY CENTER 7TH ADDITION FINAL MINOR SUBDIVISION (FLP-002-2026)



CITY OF Dickinson North Dakota

HIGHLANDS ENGINEERING

Transmittal Letter

To: Natalie Birchak – Planner
City of Dickinson
38 1st Street West
Dickinson, ND 58601

From: Andrew Schrank, PE
Highlands Engineering
319 24th Street East
Dickinson, ND 58601
701.483.2444
schrank@highlandseng.com

Date: April 2, 2026

Re: Minor Subdivision Plat Application – Energy Center 7th Addition

Message: Enclosed you will find the following Minor Subdivision Plat application documents for the above-mentioned project being submitted for consideration at the next Planning and Zoning Meeting:

- Written Statement (included, below)
- Pre-application Meeting Letter from the City
- Warranty Deed for the Property
- Preliminary Plat drawing with Aerial Imagery Overlay and Preliminary Site Plan for Lot 1
- Final Plat drawing
- Parcel map from the City's GIS page
- Zoning map from the City's GIS page
- Utility map from the City's GIS page
- FEMA FIRMette for Project Area

WRITTEN STATEMENT

This proposed minor subdivision plat for Energy Center 7th Addition is intended to create three (3) industrial lots. Lot 1 is intended to be used for the owner/developer's business, Legend Homes. The remaining two lots are to be marketed for sale for future general industrial development. This site is located within City Limits and is currently zoned General Industrial (GI), so no zone change is proposed.

Each lot will abut existing public right-of-way, but access to each Lot will be provided by a shared private access road through the center of this subdivision extending east from Energy Drive to limit the number of access points required from Energy Drive. This access road will line up with an existing driveway on the west side of Energy Drive to meet the City's access management requirements. This access road will be privately owned and maintained by the owners of the lots in this proposed subdivision.

This site is located within the City's Urban Service area, and water and sanitary sewer mains are present in the rights-of-way adjacent to this subdivision as shown by the enclosed Utility Map. Service line connections will be made to these existing mains to serve the Lots within this subdivision at the time of development.

Private drainage and stormwater management easements are being dedicated by this plat to control site drainage. A stormwater management pond is currently graded within the proposed stormwater management easement at the northwest corner of this site. An appropriately sized outlet structure will be added to this pond prior to developing the proposed lots. Based on preliminary analysis, this pond has adequate volume to detain pre-vs-post development site runoff. Final calculations outlining the required pond size and outlet structure configuration will be submitted to the City for approval when complete. The stormwater management facility and drainageways will be privately owned and maintained by the owners of the lots in this proposed subdivision.

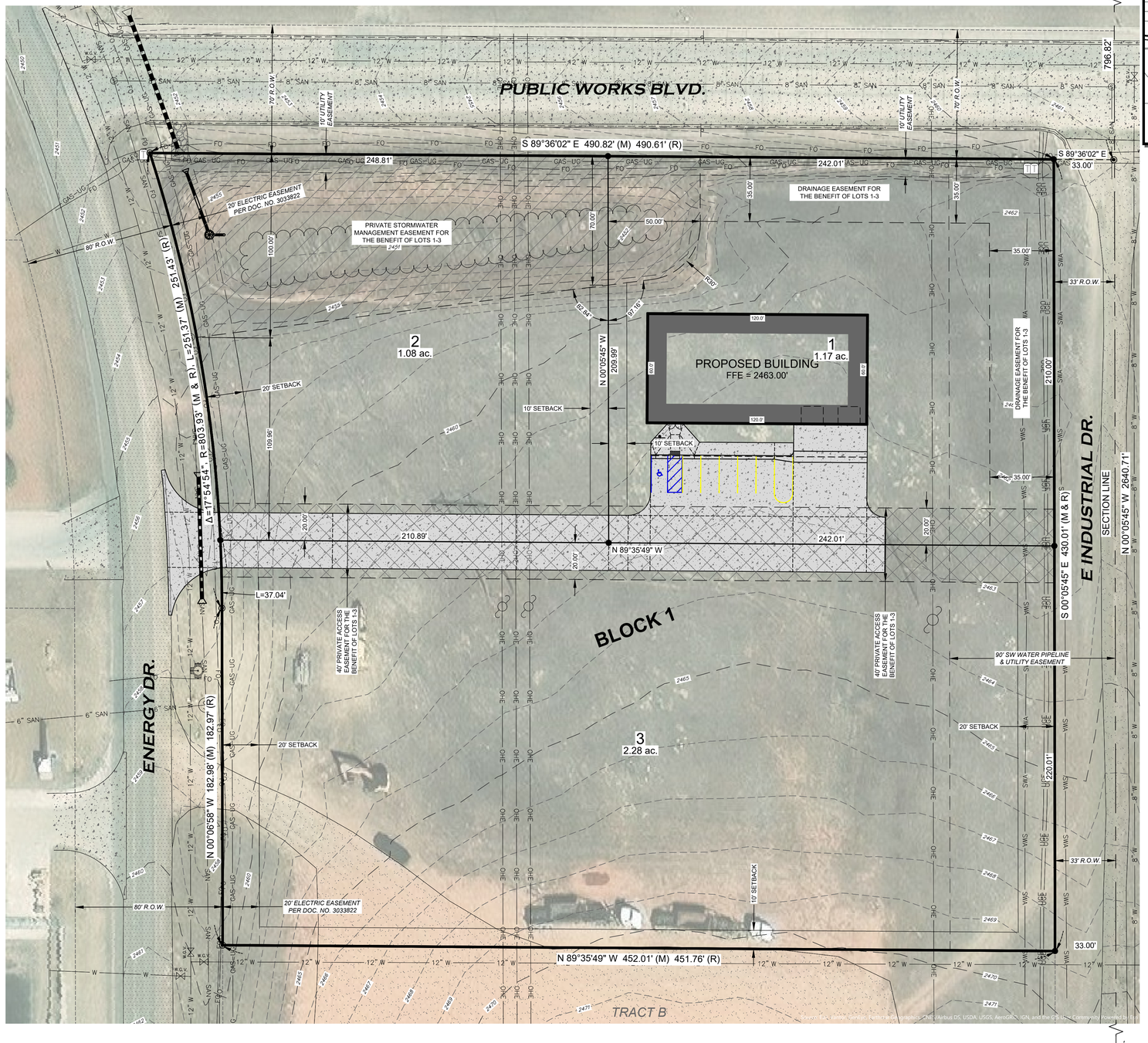
This subdivision is located within the City's Corporate Limits. The owner does not own or intend to purchase surrounding property. To the best of my knowledge, neighboring property owners have not been informed of this request, and this application is being submitted in accordance with local, state, and federal requirements.

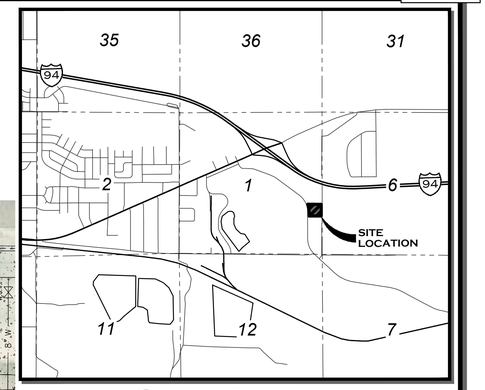
Your consideration of this request is greatly appreciated. Feel free to contact me for any additional information or questions regarding this submittal. Thank You!

Andrew Schrank, PE, CFM
Highlands Engineering

ENERGY CENTER 7TH ADDITION

BEING THE REPLAT OF TRACT 'A' OF LOT 1, BLOCK 2, ENERGY CENTER 3RD ADDITION
SE¼ SECTION 1, T139N, R96W, OF THE 5TH PRINCIPAL MERIDIAN
CITY OF DICKINSON, STARK COUNTY, NORTH DAKOTA





VICINITY MAP
(SCALE: 1" = ½ MILE)

ABBREVIATIONS

R.O.W.	RIGHT-OF-WAY
AC.	ACRE
(M)	MEASURED DISTANCE
(R)	RECORDED DISTANCE

LEGEND

- PROPERTY BOUNDARY
- PROPOSED LOT LINES
- EXISTING LOT LINES
- FOUND REBAR MONUMENT
- SET #5, 18-INCH REBAR & CAP STAMPED "HIGHLANDS LS-5466"
- SECTION LINE
- SECTION CORNER
- QUARTER CORNER
- PROPOSED PRIVATE ACCESS EASEMENT
- PROPOSED PRIVATE STORMWATER MANAGEMENT EASEMENT
- PROPOSED PRIVATE DRAINAGE EASEMENT
- EXISTING EASEMENTS
- BUILDING SETBACK LINES
- 5' MAJOR CONTOURS
- 1' MINOR CONTOURS

PLAT NOTES

1) THIS SUBDIVISION IS LOCATED OUTSIDE THE 1% ANNUAL CHANCE SPECIAL FLOOD HAZARD AREA AS SHOWN BY ZONE "X" OF FEMA FLOOD INSURANCE RATE MAP (FIRM) NUMBER 38089C0213F, PANEL 213 OF 850, WITH AN EFFECTIVE DATE OF AUGUST 28, 2024.
2) RECORDED DISTANCES SHOWN ARE REFERENCED TO THE CERTIFICATE OF SURVEY AS RECORDED BY STARK COUNTY DOCUMENT NUMBER 3103060.
3) EXISTING EASEMENTS SHOWN WERE DEDICATED BY THE ENERGY CENTER THIRD ADDITION PLAT AS RECORDED BY STARK COUNTY DOCUMENT NUMBER 326775 UNLESS NOTED OTHERWISE.
4) EXISTING BLANKET EASEMENTS MAY EXIST FOR THIS SITE THAT CANNOT BE PLATTED AS RECORDED BY STARK COUNTY DOCUMENT NUMBERS 3142736, 3138555, AND 3138556.

SURVEY NOTES

1) DISTANCES SHOWN ARE MEASURED GROUND DISTANCES, INTERNATIONAL FOOT, DERIVED FROM A LOCAL COORDINATE SYSTEM. SAID PROJECT HAS A CENTRAL MERIDIAN OF LATITUDE: 46°51'42.38098" / LONGITUDE: 102°47'24.24924". BEARINGS ARE BASED ON TRUE NORTH AT THIS LOCATION.
2) VERTICAL DATUM: NAVD 88, GEOID 03

0 30' 60'
SCALE: 1" = 30'

N W E S

HIGHLANDS ENGINEERING
319 24TH STREET EAST, DICKINSON, ND 58601
OFFICE: 701.483.2444 | WWW.HIGHLANDSENG.COM

PROJECT NUMBER:	251914	SCALE:	1"=30'
DRAWN BY:	AWS	DATE:	03/31/26
SHEET:	1 OF 1		

AREA RESERVED FOR RECORDER

ENERGY CENTER 7TH ADDITION

BEING THE REPLAT OF TRACT 'A' OF LOT 1, BLOCK 2, ENERGY CENTER 3RD ADDITION
SE¼ SECTION 1, T139N, R96W, OF THE 5TH PRINCIPAL MERIDIAN
CITY OF DICKINSON, STARK COUNTY, NORTH DAKOTA

LEGAL DESCRIPTION

A PARCEL OF LAND BEING TRACT 'A' OF LOT ONE (1), BLOCK TWO (2) OF *ENERGY CENTER THIRD ADDITION* TO THE CITY OF DICKINSON, STARK COUNTY, ND AS RECORDED BY STARK COUNTY DOCUMENT NUMBER 3103060.

SAID PARCEL CONTAINS 4.53 ACRES, MORE OR LESS, AND IS SUBJECT TO ANY PREVIOUS EASEMENTS, AGREEMENTS, CONVEYANCES AND SURVEYS.

SURVEYOR'S CERTIFICATE

I, KC HOMISTON, REGISTERED PROFESSIONAL LAND SURVEYOR, LS-5466, FOR HIGHLANDS ENGINEERING AND SURVEYING, PLLC, RESIDING AT 319 24TH STREET EAST, DICKINSON, N.D., DO HEREBY CERTIFY THAT THE *ENERGY CENTER 7TH ADDITION* PLAT SHOWN HEREON IS A CORRECT REPRESENTATION OF THE SURVEY, THAT ALL DISTANCES ARE CORRECT, MONUMENTS ARE PLACED IN THE GROUND AS SHOWN, THAT THE OUTSIDE BOUNDARY LINES ARE CORRECTLY DESIGNATED ON THE PLAT AND WAS MADE BY ME, OR UNDER MY DIRECTION, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

IN WITNESS WHEREOF, I HAVE HEREUNTO SUBSCRIBED MY NAME:

_____

KC HOMISTON, LS-5466

PROPRIETOR'S CERTIFICATE

I, JASON FRIDRICH, OWNER OF LEGEND REAL ESTATE HOLDINGS, LLC, WHOSE ADDRESS IS 2893 3RD AVE W, DICKINSON, ND 58601, THE OWNER AND PROPRIETOR OF PROPERTY BEING TRACT 'A' OF LOT 1 (ONE), BLOCK TWO (2) OF *ENERGY CENTER THIRD ADDITION*, ON THIS PLAT SHOWN HEREON AND DESCRIBED IN THE SURVEYOR'S CERTIFICATE, DO HEREBY DECLARE THAT I HAVE CAUSED THE SAME TO BE SURVEYED AS SHOWN ON THE ACCOMPANYING PLAT, AND DO HEREBY GRANT PRIVATE EASEMENTS AS SHOWN FOR THE BENEFIT OF THE LOTS WITHIN THIS SUBDIVISION.

IN WITNESS WHEREOF, I HAVE HEREUNTO SUBSCRIBED MY NAME:

SIGNATURE: _____

STATE OF _____ }
SS
COUNTY OF _____ }

ON THIS _____ DAY OF _____, 20_____, BEFORE ME, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, PERSONALLY APPEARED JASON FRIDRICH, TO ME KNOWN TO BE THE SAME PERSONS DESCRIBED IN AND THAT EXECUTED THE WITHIN AND FOREGOING INSTRUMENT AND SEVERALLY ACKNOWLEDGED TO ME THAT THEY EXECUTED THE SAME.

MY COMMISSION EXPIRES: _____

CITY OF DICKINSON COMMISSION APPROVAL

PRINTED NAME: _____

TITLE: _____

SIGNATURE: _____

DATE: _____

CITY PLANNING AND ZONING COMMISSION APPROVAL

PRINTED NAME: _____

TITLE: _____

SIGNATURE: _____

DATE: _____

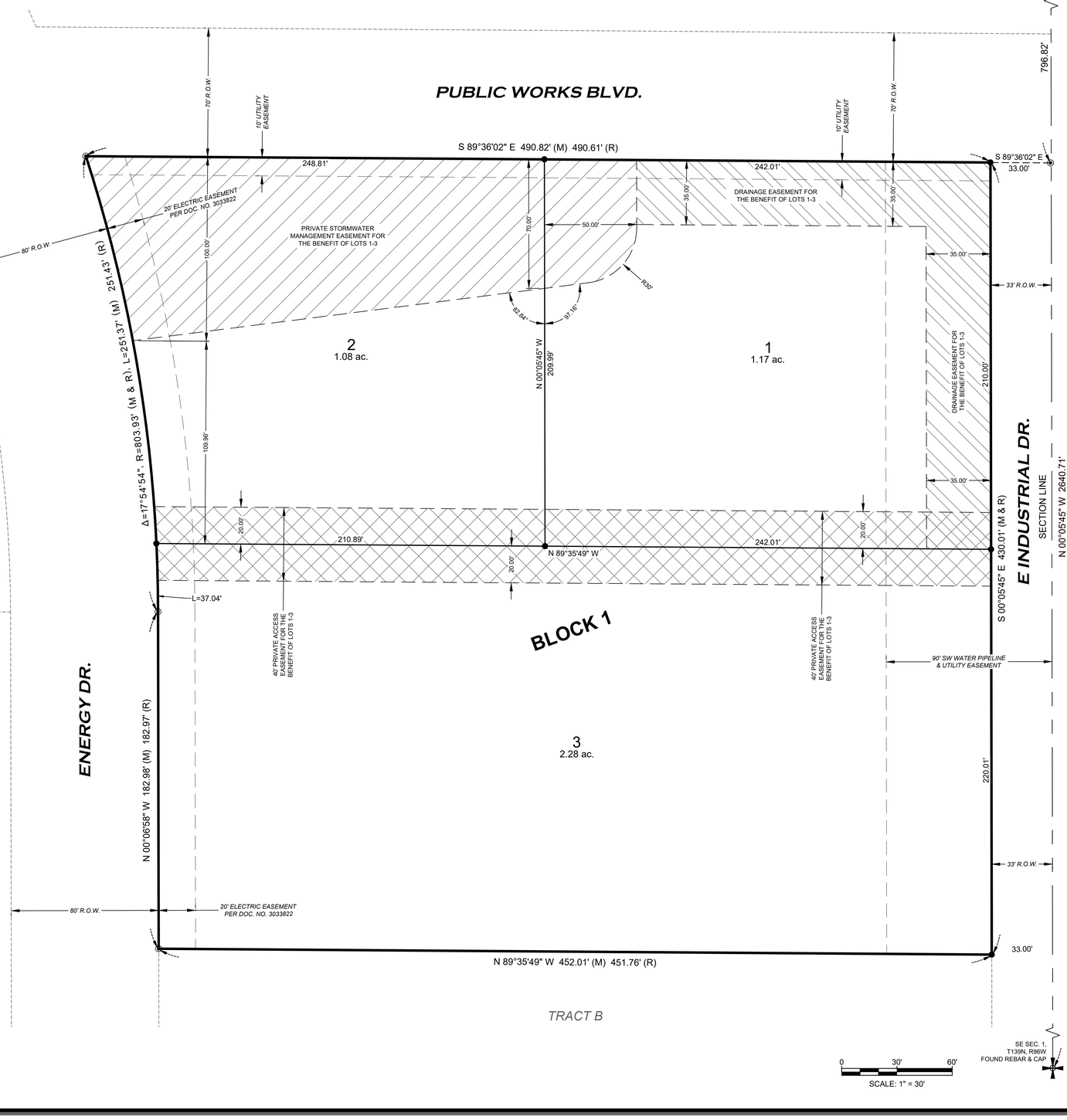
CITY ENGINEER APPROVAL

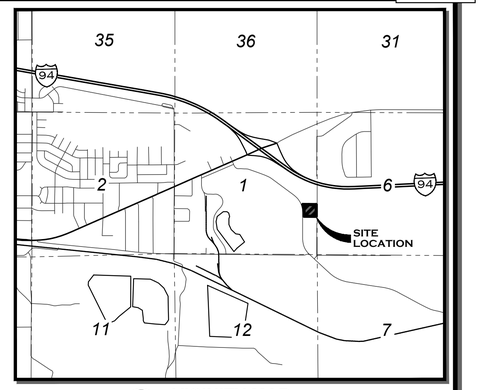
PRINTED NAME: _____

TITLE: _____

SIGNATURE: _____

DATE: _____





VICINITY MAP
(SCALE: 1" = ½ MILE)

ABBREVIATIONS

R.O.W.	RIGHT-OF-WAY
AC.	ACRE
(M)	MEASURED DISTANCE
(R)	RECORDED DISTANCE

LEGEND

- PROPERTY BOUNDARY
- PROPOSED LOT LINES
- EXISTING LOT LINES
- FOUND REBAR MONUMENT
- SET #5, 18-INCH REBAR & CAP STAMPED "HIGHLANDS LS-5466"
- SECTION LINE
- SECTION CORNER
- QUARTER CORNER
- PROPOSED PRIVATE ACCESS EASEMENT
- PROPOSED PRIVATE STORMWATER MANAGEMENT EASEMENT
- PROPOSED PRIVATE DRAINAGE EASEMENT
- EXISTING EASEMENTS

PLAT NOTES

1) THIS SUBDIVISION IS LOCATED OUTSIDE THE 1% ANNUAL CHANCE SPECIAL FLOOD HAZARD AREA AS SHOWN BY ZONE "X" OF FEMA FLOOD INSURANCE RATE MAP (FIRM) NUMBER 38089C0213F, PANEL 213 OF 850, WITH AN EFFECTIVE DATE OF AUGUST 28, 2024.
2) RECORDED DISTANCES SHOWN ARE REFERENCED TO THE CERTIFICATE OF SURVEY AS RECORDED BY STARK COUNTY DOCUMENT NUMBER 3103060.
3) EXISTING EASEMENTS SHOWN WERE DEDICATED BY THE ENERGY CENTER THIRD ADDITION PLAT AS RECORDED BY STARK COUNTY DOCUMENT NUMBER 326775 UNLESS NOTED OTHERWISE.
4) EXISTING BLANKET EASEMENTS MAY EXIST FOR THIS SITE THAT CANNOT BE PLATTED AS RECORDED BY STARK COUNTY DOCUMENT NUMBERS 3142736, 3138555, AND 3138556.

SURVEY NOTES

1) DISTANCES SHOWN ARE MEASURED GROUND DISTANCES, INTERNATIONAL FOOT, DERIVED FROM A LOCAL COORDINATE SYSTEM. SAID PROJECT HAS A CENTRAL MERIDIAN OF LATITUDE: 46°51'42.38098" / LONGITUDE: 102°47'24.24924". BEARINGS ARE BASED ON TRUE NORTH AT THIS LOCATION.

HIGHLANDS ENGINEERING
319 24TH STREET EAST, DICKINSON, ND 58601
OFFICE: 701.483.2444 | WWW.HIGHLANDSENG.COM

PROJECT NUMBER:	251914	SCALE:	1"=30'
DRAWN BY:	AWS	DATE:	03/31/26
SHEET:	1 OF 1		

National Flood Hazard Layer FIRMette

FEMA

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND IN UT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/30/2026 at 4:57 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community ide FIRM panel number, and FIRM effective date. Map in unmapped and unmodernized areas cannot be used regulatory purposes.

Dickinson Zoning Information Map

3/31/2026

1:5,000

0 0.03 0.06 0.11 mi

0 0.04 0.09 0.18 km

Public Street Names 8K

Private Street Names

Dickinson Zoning

General Industrial - GI

Public - P

Agricultural - AG

Dickinson Tax Parcels

Stark Parcels

Platted Lot Lines

Easement Lines

Extra Territorial Boundary

Low Resolution 15m Imagery

High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

1.2m Resolution Metadata

Dickinson Engineering Department, Engineering & Planning, Pictometry International, Eagleview, City of Dickinson, Vantor

Dickinson Land Information Map

3/31/2026

1:5,000

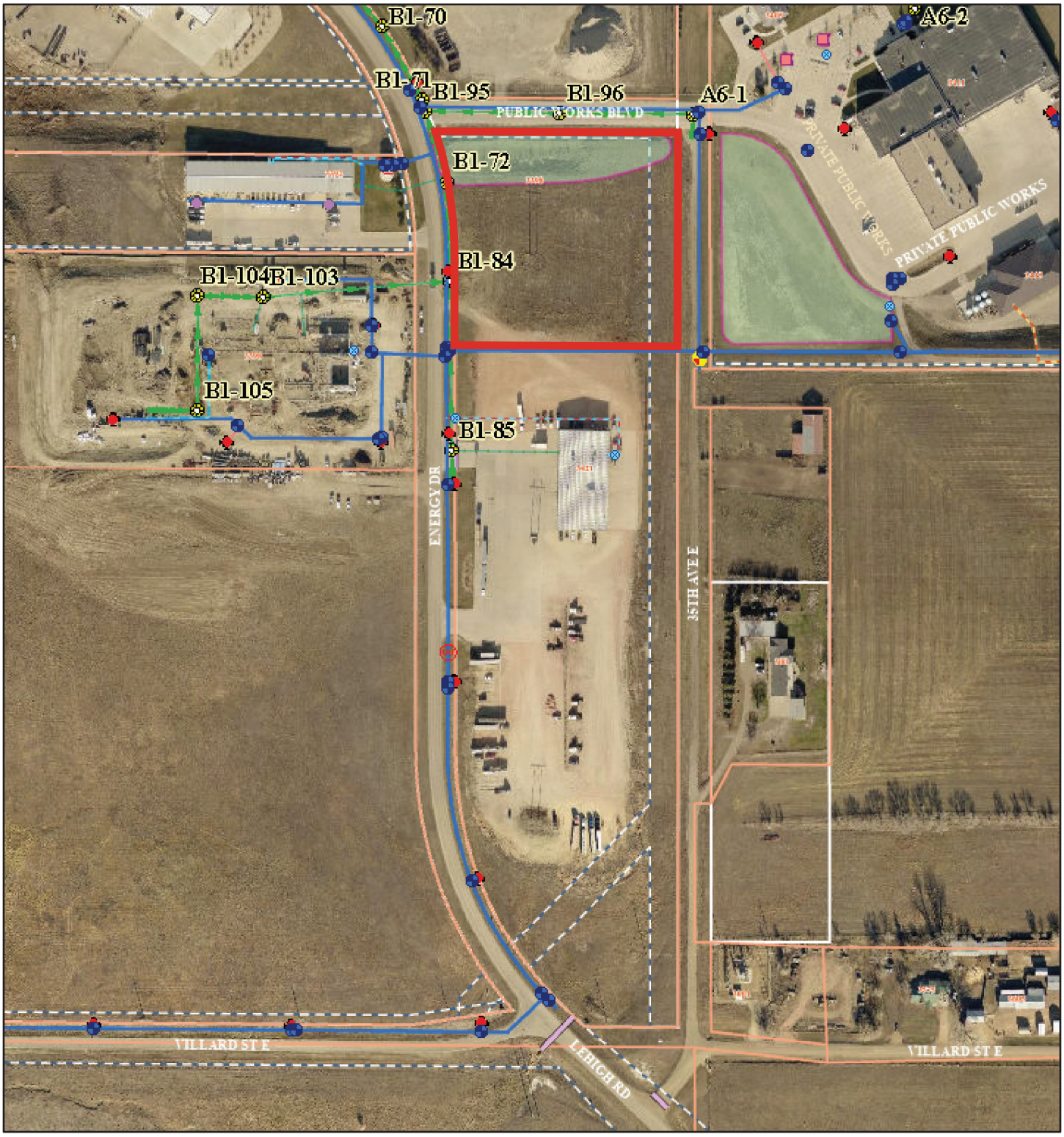
0 0.03 0.06 0.11 mi

0 0.04 0.09 0.18 km

- Public Street Names 8K
- Private Street Names
- PLSS Description 12k
- Dickinson Tax Parcels
- Stark Parcels
- Platted Lot Lines
- Easement Lines
- Extra Territorial Boundary
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery
- High Resolution 30cm Imagery
- Citations
- 1.2m Resolution Metadata

Dickinson Engineering Department, Engineering & Planning, Pictometry International, Eagleview, City of Dickinson, Vantor

Dickinson Utility Information Map



3/31/2026

1:5,000

0 0.03 0.06 0.11 mi

0 0.04 0.09 0.18 km

- Public Street Names 8K
- Private Street Names
- Water Curb Stop Valve
- Water System Valve
- Normally Closed
- Normal Operation
- Water Hydrant
- City of Dickinson
- Private or Other
- Water Manhole
- Water Lateral Lines
- Fire
- Hydrant
- Service
- Water Main Lines
- Polyvinyl Chloride - From 8 to 12 in
- Polyvinyl Chloride - Under 8 in
- Sanitary Manhole
- Sanitary Lateral Lines
- Sanitary Gravity Mains
- Storm Inlets
- Storm Culverts
- Storm Detention Structures
- Wire Lines
- Communication Networking
- Dickinson Tax Parcels
- Stark Parcels
- Platted Lot Lines
- Easement Lines
- Low Resolution 15m Imagery
- High Resolution 60cm Imagery
- High Resolution 30cm Imagery
- Citations
- 1.2m Resolution Metadata

Dickinson Engineering Department, Engineering & Planning, Pictometry International, Eagleview, City of Dickinson, Vantor

Energy Center 7th Addition Final Minor Subdivision Staff Report

To: City of Dickinson Planning and Zoning Commissioners
From: City of Dickinson Community Development Services
Date: May 6, 2026
Re: FLP-002-2026 Energy Center 7th Addition Final Minor Subdivision

APPLICANT
Jason Fridrich
Legend Real Estate Holdings, LLC
2893 3rd Avenue West
Dickinson, ND, 58601

APPLICANT'S REPRESENTATIVE
Andrew Schrank
Highlands Engineering
319 24th Street East
Dickinson ND 58601

Public Hearing	May 13, 2026	Planning and Zoning Commission
Final Consideration	May 19, 2026	City Commission

The applicant is requesting approval of the Energy Center 7th Addition final minor subdivision, being a replat of Tract A of Lot 1 of Block 2 of the Energy Center 3rd Addition Subdivision, located in the SE ¼ of Section 1, Township 139 North, Range 96 West, in the City of Dickinson. The site is zoned General Industrial (GI). The site consists of +/- 4.53 acres.

Staff recommendation: Staff recommends **approval** of this final minor subdivision.

LOCATION

The property is generally located along Energy Drive, and it is legally described as Tract A of Lot 1 of Block 2 of the Energy Center 3rd Addition Subdivision, located in the SE ¼ of Section 1, Township 139 North, Range 96 West, of the 5th Principal Meridian, City of Dickinson, Stark County, North Dakota.

CURRENT ZONING	**GI**
FUTURE LAND USE MAP DESIGNATION	**INDUSTRIAL**
GROSS SITE ACREAGE	**+/- 4.53 acres**
LOTS PROPOSED	**3**

ADJACENT ZONING & LAND USE		
Direction	**Zoning**	**Land Use**
North	GI	Industrial; undeveloped
East	GI	Public Works building
South	GI	Industrial
West	GI; P	Undeveloped, National Guard Readiness Center

CONSISTENCY, COMPATIBILITY, COMPLIANCE, AND RECOMMENDATIONS

Consistency with the Comprehensive Plan

According to the City's Comprehensive Plan Future Land Use Map (FLUM), the subject property is designated INDUSTRIAL. Public (P) is an acceptable zoning district within the PUBLIC/CIVIC FLUM designation and brings this property into compliance with the future land use map.

Compatibility and Compliance with The Municipal Code

A minor subdivision plat is defined in Section 52-1 of the City Subdivision chapter as a subdivision that meets the following conditions:

- Does not require the dedication of public rights-of-way or the construction of new public streets or public infrastructure;
- Does not land-lock or otherwise impair convenient ingress and egress to or from the rear or side of the subject tract or any adjacent property;

- Does not violate any local, State or federally adopted law, ordinance, regulation, plan or policy; and
- Consists of four lots or less.

The proposed Energy Center 6th Addition Subdivision meets the requirements listed above and is classified as a minor subdivision.

The proposed subdivision replats all of Lot 1 and Lot 2 of the Energy Center 3rd Addition into three total lots. Lot 1 is proposed to be 1.17 acres, Lot 2 is proposed to be 1.08 acres, and Lot 3 is proposed to be 2.28 acres. According to Table 62-162-3c: Summary of Site Development Regulations in the Municipal Code, the minimum lot size for lots in the GI zoning district is 10,000 square feet. All proposed lots meet this development requirement. A 40-foot private access easement has been proposed through the subdivision, providing alternate access to the lots from both East Industrial Drive and Energy Drive.

PUBLIC INPUT AND STAFF RECOMMENDATION

Public Input: Staff has not received any public input as of the date of this report.

Staff Recommendation: City of Dickinson Community Development staff recommends **approval** of FLP-002-2026.

MOTIONS:

*****Approval*****

"I move the City of Dickinson Planning and Zoning Commission recommend approval of **FLP-002-2026: The Energy Center 7th Addition Final Minor Subdivision** *as being consistent with the City of Dickinson Comprehensive Plan, as being compliant with the City of Dickinson Zoning Ordinance, and as being in the interest of the public health, safety and welfare "*

(AND) the following additional requirements **(IF THE PLANNING AND ZONING COMMISSION RECOMMENDS ANY ADDITIONS AND/OR DELETIONS TO THE PROPOSED MOTION LANGUAGE):**

1. _____;
2. _____.

*****Denial*****

"I move the Dickinson Planning and Zoning Commission recommend Denial of **FLP-002-2026: The Energy Center 7th Addition Final Minor Subdivision** *as NOT being consistent with the City of Dickinson Comprehensive Plan, as not being compliant with the City of Dickinson Zoning Ordinance, and as being contrary to the interest of the public health, safety and welfare."*

From: Jotform
To: Sylvia Miller; Sylvia Miller; Steven Josephson; Dustin D. Dassinger; Leonard W. Schwindt; Joshua Skluzacek; Sylvia Miller; Natalie Birchak; Kylee Zastoupil
Subject: Re: Unified Development Application
Date: Sunday, March 29, 2026 9:48:40 AM
Attachments: Untitled document.docx
Transmittal Letter.docx
Scan2026-03-29_094421.pdf
6506084178153524781_signature_19.png
6506084178153524781_signature_23.png

Unified Development Application

Have you met with Planning Staff regarding your application?	Yes
Please upload the letter or counseling form you received following your pre-application meeting:	Untitled document.docx
Type of Development	Special Use Permit
Name	Josh Whiteley
Company	Cabinet Creations LLC
Applicant Email	[redacted]
Applicant Phone #	[redacted]
Owner Name	Josh Whiteley
Owner Address	[redacted]
Owner Email	[redacted]
Owner Phone #	[redacted]
Is the owner present to Sign	Yes
Signature	

Will this application require any other action to complete the development?	No

	1/4 Section	Township	Range
Description	5	139	96

Legal - Lot/Block/Addition	Lot	Block	Addition
Description	7	1	States

Property Address / General Project Location	L7 B1 STATES 8TH & L1-3 B1 STATES 9TH FAIRWAY SHOP CONDOS UNIT 8
Total Square Footage or Acreage of Subject Property	1436
Existing Future Land Use Map Category	Commercial
Existing Zoning	CC - Community Commercial
Existing Use	Commercial
Overlay District Description	N/A
Special Use Permit for the following Use:	Small business, woodworking.
Site Exhibit - Not Less than 1" = 20' Scale	Map view.jpg
Transmittal Letter (Explanation of Request & Proposed Operations)	Transmittal Letter.docx
Rezone Calc Multiplier	0
Minor Platting Multiplier	0

Prelim Platting Multiplier	0
Major Platting Multiplier	0
Application Calc	350
Deed for Property	Scan2026-03-29_094421.pdf
Application Fees	Applicable Fees 350.00 USD
	Total: $350.00
	Transaction ID: 71z1etqa
	Payment Information
	First Name: Josh
	Last Name: Whiteley
	E-Mail [redacted]
Applicant Signature	
Date	03-29-2026

You can edit this submission and view all your submissions easily.

CABINET CREATIONS SPECIAL USE PERMIT (SUP-001-2026)

CITY OF Dickinson North Dakota

Transmittal Letter

(Explanation of Request & Proposed Operations)

Josh Whiteley
Owner/Operator
Cabinet Creations LLC
2459 Fairway Unit 8
Dickinson, ND 58601
Whiteley54@gmail.com
701-425-1127

April 11, 2026

Subject: Transmittal Letter – Explanation of Request & Proposed Operations

Dickinson City Staff,

I am writing to formally submit this transmittal letter in support of my request regarding the operation of a small woodworking business under Cabinet Creations LLC. This letter provides an overview of my request along with a description of the proposed operations.

Explanation of Request

The purpose of this request is to obtain approval/acknowledgment to operate a small, sole owner-operated woodworking business. The business will focus on the design, construction of closets, furniture, cabinetry and other wood products. This request is necessary to allow for lawful operation while ensuring compliance with all applicable local regulations and requirements.

Proposed Operations

The proposed operations will consist of small-scale woodworking activities conducted by myself as the sole operator. Key activities include:

- Designing and building custom wood furnishings
- Cutting, sanding, assembling, and finishing wood materials
- Use of standard woodworking tools and equipment in a controlled environment
- Managing all aspects of the business including production, scheduling, and client communication

Operations will take place at 2459 Fairway Unit 8, Dickinson, ND 58601. Work will be conducted on a limited scale consistent with a small business, with attention to maintaining a safe, clean, and organized workspace.

All activities will be performed in accordance with applicable safety standards and local regulations. Measures will be taken to minimize noise, dust, and waste, including proper ventilation, dust collection systems, and responsible disposal of materials.

Sound pressure level (SPL) testing was conducted to evaluate noise levels associated with equipment use. Testing was completed on a calm evening, with all measurements concluded by 8:30 PM. Individual pieces of equipment were operated outside the shop at the property line, and all recorded sound levels remained below 62 dB. Based on my research of the City of Dickinson's noise regulations, these measured levels are well within allowable limits and demonstrate compliance with applicable noise restrictions.

Parking requirements are regulated by the City of Dickinson based on building square footage, with a requirement of two (2) parking spaces for this unit. The subject property meets this requirement, with two designated parking spaces located directly in front of the unit in compliance with city ordinance.

Additionally, the condominium association governing documents include provisions related to parking and usage of these spaces and limited common areas as well as common areas. Please see the attached excerpts at the end of this letter for reference to the applicable sections.

Conclusion
I respectfully request your review and approval of this request to operate Cabinet Creations LLC as described. Please feel free to contact me if any additional information or clarification is needed.

Thank you for your time and consideration.

Sincerely,

Josh Whiteley
Owner/Operator
Cabinet Creations LLC

SECTION NINE:

A. The use of the condominium property shall be in accordance with the following provisions as long as the condominium exists and the building in useful condition exists upon the land, and these restrictions shall be covenants running with all land included in the project.

1. Condominium Unit. Each of the condominium units that are a part of the condominium shall be occupied by one business or related business. No unit may be divided or subdivided into a smaller unit nor any portion sold or otherwise transferred without first amending this Declaration to show the changes in the unit to be affected.

2. Common Areas. The common areas shall be used only for the purposes for which they are intended and the furnishing of services and facilities for the enjoyment of the condominium units.

3. Limited Common Elements. The driveway and parking areas twenty five feet (25') directly in front of the respective individual condominium units shall be deemed "limited common area" for the sole and exclusive use of the Owners of the directly adjacent condominium unit. Any and all parking and driveway issues and disputes shall be submitted to and fully and finally resolved by the Board of Managers of the Association.

4. Easements. The following easements are covenants running with the land of the condominium:

(a) Utility easements are reserved through the entire project as may be required for utility services in order to adequately serve the project; provided, however, such easements through a unit shall be only according to the plans and specifications for the building, unless approved in writing by the unit owner;

(b) Ingress and egress is reserved for pedestrian traffic over, through and across sidewalks, paths, walks and lanes as the same from time to time may exist upon the common elements and limited common elements; and for vehicular traffic over, through and across such portions of the common elements and limited common elements and intended for such commercial purposes;

Cabinet Creations Special Use Permit Staff Report

To: City of Dickinson Planning and Zoning Commission
From: City of Dickinson Community Development
Date: May 6, 2026
Re: **SUP-001-2026 Cabinet Creations Special Use Permit**

APPLICANT
Josh Whiteley
Cabinet Creations
2319 6th Street West
Dickinson, ND, 58601

Public Hearing	May 13, 2025	Planning and Zoning Commission
Final Consideration	May 19, 2025	City Commission

EXECUTIVE SUMMARY

The applicant is requesting approval of a Special Use Permit (SUP) application for a custom manufacturing business. The business would be located in Unit 8 of the Fairway Shop Condos, located on a 0.10-acre parcel at 2503 Fairway Street in the City of Dickinson. The property is zoned Community Commercial (CC).

Staff Recommendation: Staff recommends approval of this special use permit subject to conditions.

LOCATION

The property is located within the SW1/4 of the NE1/4 of Section 5, Township 139 North, Range 96 West, City of Dickinson, of the 5th Principal Meridian, Stark County, North Dakota. The property is legally described as Lot 7, Block 1, State 8th Addition Subdivision, and Lots 1, 2, &3, Block 1, State 9th Addition Subdivision, Fairway Shop Condos, Unit 8.

CURRENT ZONING	**CC**
FUTURE LAND USE MAP DESIGNATION	**COMMERCIAL**
GROSS SITE ACREAGE	**+/-0.10**
LOTS PROPOSED	**N/A**

NEARBY ZONING & LAND USE		
Direction	**Zoning**	**Land Use**
North	PUD	St. Joseph's Hospital development
East	CC, LC	Commercial
South	R-3, R-2	Duplex; single-family residential
West	CC	Sanford Clinic development

STAFF ANALYSIS

BACKGROUND

There are five (5) existing shop condos located at 2503 Fairway Street. The applicant has indicated they are looking to operate a custom cabinet manufacturing shop in Unit 8 of the Fairway Shop Condos. The property is zoned Community Commercial (CC), and the adjacent properties along Fairway Street are zoned CC or are located within a civic use Planned Unit Development (PUD), so traffic generation is not a major concern. Fairway Street is designated as a minor arterial road.

CURRENT ORDINANCE REVIEW

The proposed custom manufacturing business is located within a CC-zoned district. Per Table 62-162-2: Permitted Uses by Zoning Districts, in the City Municipal Code, custom manufacturing businesses are allowed in CC zoning upon obtaining a Special Use Permit, which is subject to a

public hearing before the City Planning and Zoning Commission and approval by the City Commission.

The applicant has submitted a site plan demonstrating that all business operations would be limited to a roughly 228-square-foot section of the basement. This section of the basement is up less than 30 percent of the building's 1,700-square-foot total floor area. This conforms with the regulations outlined in Sec. 62-471: Accessory uses, in the City's Municipal Code.

PUBLIC INPUT AND STAFF RECOMMENDATION

Public Input: Staff has not received any public input as of the date of this report.

Staff Recommendation: City of Dickinson Community Development Staff recommends **approval** of SUP-001-2026 subject to the conditions listed below:

- Hours of operation shall be limited to 8:00 a.m. to 6:00 p.m. Mondays through Saturdays.
- Operation of the home-based business/home occupation shall be as described in this staff report as well as in the material found in Attachment A.
- The SUP approval shall expire with any change in ownership. All subsequent owners of the property shall be required to reapply for SUP approval.
- Operation of the home-based business/home occupation shall comply with all applicable City, County, State and Federal regulations.

MOTIONS:

*****Approval*****

"I move the City of Dickinson Planning and Zoning Commission recommend approval of **SUP-001-2026: Cabinet Creations Special Use Permit** *as meeting all the requirements of the Dickinson Municipal Code and also being in the interest of the public health, safety and welfare "*

(AND) the following additional requirements **(IF THE PLANNING AND ZONING COMMISSION RECOMMENDS ANY ADDITIONS AND/OR DELETIONS TO THE PROPOSED MOTION LANGUAGE):**

1. _____;
2. _____.

*****Denial*****

"I move the Dickinson Planning and Zoning Commission recommend denial of **SUP-001-2026: Cabinet Creations Special Use Permit** *as NOT meeting all the requirements of the Dickinson Municipal Code and as being contrary to interest of the public health, safety and welfare."*

Natalie Birchak

From: Jotform <noreply@jotform.com>
Sent: Friday, April 10, 2026 2:30 PM
To: Sylvia Miller; Sylvia Miller; Steven Josephson; Dustin D. Dassinger; Leonard W. Schwindt; Joshua Skluzacek; Sylvia Miller; Natalie Birchak; Kylee Zastoupil
Subject: Re: Unified Development Application

Jotform

Unified Development Application

Have you met with Planning Staff regarding your application?	Yes
Please upload the letter or counseling form you received following your pre-application meeting:	Dickinson South Cemetery Plat Pre-application Meeting Letter.pdf
Type of Development	Major Subdivision Preliminary Plat
Is this a Replat	No
Name	Curtis Freeman
Company	KLJ
Applicant Email	[redacted]
Applicant Phone #	[redacted]
Owner Name	Cit of Dickinson
Owner Address	[redacted]
Owner Email	[redacted]

Owner Phone #	[redacted]
Is the owner present to Sign	No
Owner Signature Upload	Joshua Skluzacek Signature.jpg
Will this application require any other action to complete the development?	No

	1/4 Section	Township	Range
Description	S1/2SW1/4NW1/4 16	139 N	96 W

Property Address / General Project Location	Southwest corner of Dickinson - south of fire training site and west of old inert landfill.
Total Square Footage or Acreage of Subject Property	7.59
Transmittal Letter (Explanation of Request & Proposed Operations)	Statement.docx
Rezone Calc Multiplier	0
Minor Platting Multiplier	0
Prelim Platting Multiplier	1
Major Platting Multiplier	0
Name of Preliminary Plat	Dickinson South Cemetery Second Subdivision
Preliminary Number Lots	More than 40 Lots
Preliminary Number of Block(s)	24
	0
Application Calc	2000

Required Documentation Upload	Dickinson South Cemetery Second Subdivision.pdf FM38089C0431E.pdf
Deed for Property	Deed.txt
Application Fees	Applicable Fees 2,000.00 USD
	Total: $2,000.00
	Transaction ID: 3m8p4f7n
	Payment Information
	First Name: Curtis
	Last Name: Freeman
	E-Mail [redacted]
Applicant Signature	
Date	04-10-2026

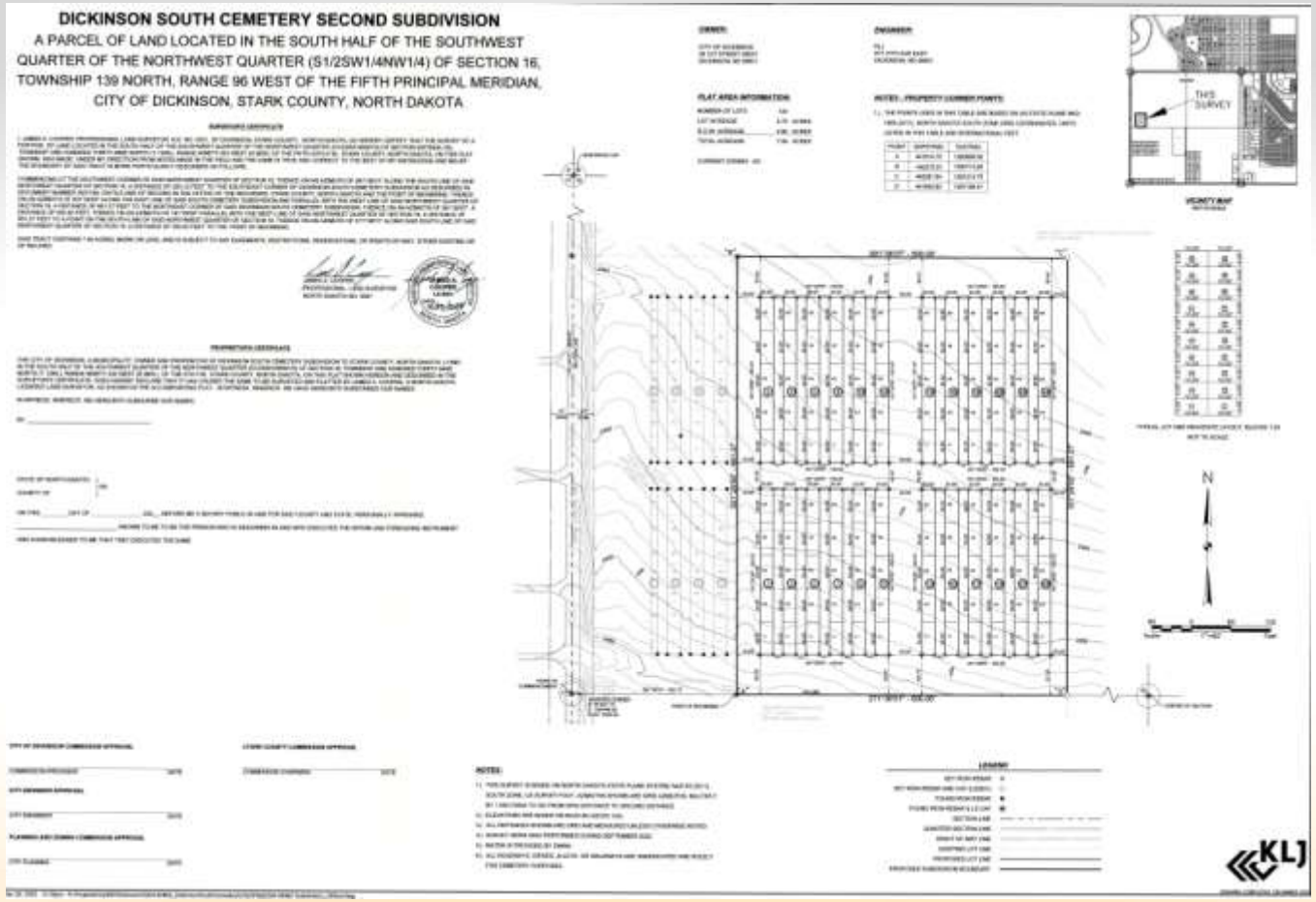
You can edit this submission and view all your submissions easily.

Attachments: Because the total size is more than **5MB** the uploads are not attached.

DICKINSON SOUTH CEMETERY 2ND PRELIMINARY MAJOR SUBDIVISION (PLP-002-2026)

CITY OF Dickinson North Dakota

DICKINSON SOUTH CEMETERY 2ND PRELIMINARY MAJOR SUBDIVISION (PLP-002-2026)



CITY OF Dickinson North Dakota

Dickinson South Cemetery Second Subdivision

- All lots abut a roadway, drive, alley, or walkway. All of which are undedicated and solely for cemetery purposes.
- A driveway has recently been constructed to access the previous platted Dickinson South Cemetery Subdivision. New streets or roadways will be required to access lots created in this second subdivision plat.
- This plat is located outside City limits, but within the Extra-Territorial Boundary of the City of Dickinson.
- Applicant does not plan to purchase any surrounding land.
- Proposed subdivision does not violate any local, state or federally-adopted law, ordinance, regulation, plan or policy.

DICKINSON SOUTH CEMETERY SECOND SUBDIVISION

A PARCEL OF LAND LOCATED IN THE SOUTH HALF OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER (S1/2SW1/4NW1/4) OF SECTION 16, TOWNSHIP 139 NORTH, RANGE 96 WEST OF THE FIFTH PRINCIPAL MERIDIAN, CITY OF DICKINSON, STARK COUNTY, NORTH DAKOTA

SURVEYOR'S CERTIFICATE

I, JAMES A. COOPER, PROFESSIONAL LAND SURVEYOR, N.D. NO. 5501, OF DICKINSON, STARK COUNTY, NORTH DAKOTA, DO HEREBY CERTIFY THAT THE SURVEY OF A PORTION OF LAND LOCATED IN THE SOUTH HALF OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER (S1/2SW1/4NW1/4) OF SECTION SIXTEEN (16), TOWNSHIP ONE HUNDRED THIRTY-NINE NORTH (T.139N.), RANGE NINETY-SIX WEST (R.96W.) OF THE FIFTH (5TH) P.M., STARK COUNTY, NORTH DAKOTA, ON THIS PLAT SHOWN, WAS MADE UNDER MY DIRECTION FROM NOTES MADE IN THE FIELD AND THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THE BOUNDARY OF SAID TRACT IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER OF SECTION 16, THENCE ON AN AZIMUTH OF 091°36'01" ALONG THE SOUTH LINE OF SAID NORTHWEST QUARTER OF SECTION 16, A DISTANCE OF 250.12 FEET TO THE SOUTHEAST CORNER OF DICKINSON SOUTH CEMETERY SUBDIVISION AS DESCRIBED IN DOCUMENT NUMBER 3007169, ON FILE AND OF RECORD IN THE OFFICE OF THE RECORDER, STARK COUNTY, NORTH DAKOTA AND THE POINT OF BEGINNING; THENCE ON AN AZIMUTH OF 001°29'55" ALONG THE EAST LINE OF SAID SOUTH CEMETERY SUBDIVISION AND PARALLEL WITH THE WEST LINE OF SAID NORTHWEST QUARTER OF SECTION 16, A DISTANCE OF 661.37 FEET TO THE NORTHEAST CORNER OF SAID DICKINSON SOUTH CEMETERY SUBDIVISION; THENCE ON AN AZIMUTH OF 091°38'07", A DISTANCE OF 500.00 FEET; THENCE ON AN AZIMUTH OF 181°29'55" PARALLEL WITH THE WEST LINE OF SAID NORTHWEST QUARTER OF SECTION 16, A DISTANCE OF 661.07 FEET TO A POINT ON THE SOUTH LINE OF SAID NORTHWEST QUARTER OF SECTION 16, THENCE ON AN AZIMUTH OF 271°36'01" ALONG SAID SOUTH LINE OF SAID NORTHWEST QUARTER OF SECTION 16, A DISTANCE OF 500.00 FEET TO THE POINT OF BEGINNING.

SAID TRACT CONTAINS 7.59 ACRES, MORE OR LESS, AND IS SUBJECT TO ANY EASEMENTS, RESTRICTIONS, RESERVATIONS, OR RIGHTS-OF-WAY, EITHER EXISTING OR OF RECORD.

JAMES A. COOPER
PROFESSIONAL LAND SURVEYOR
NORTH DAKOTA NO. 5501

REGISTERED PROFESSIONAL LAND SURVEYOR — JAMES A. COOPER — LS-5501 — DATE 12/29/2025 — NORTH DAKOTA

PROPRIETOR'S CERTIFICATE

THE CITY OF DICKINSON, A MUNICIPALITY, OWNER AND PROPRIETOR OF DICKINSON SOUTH CEMETERY SUBDIVISION TO STARK COUNTY, NORTH DAKOTA, LYING IN THE SOUTH HALF OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER (S1/2SW1/4NW1/4) OF SECTION 16, TOWNSHIP ONE HUNDRED THIRTY-NINE NORTH (T.139N.), RANGE NINETY-SIX WEST (R.96W.), OF THE 5TH P.M., STARK COUNTY, NORTH DAKOTA, ON THIS PLAT SHOWN HEREON AND DESCRIBED IN THE SURVEYOR'S CERTIFICATE, DOES HEREBY DECLARE THAT IT HAS CAUSED THE SAME TO BE SURVEYED AND PLATTED BY JAMES A. COOPER, A NORTH DAKOTA LICENSED LAND SURVEYOR, AS SHOWN ON THE ACCOMPANYING PLAT. IN WITNESS, WHEREOF, WE HAVE HEREUNTO SUBSCRIBED OUR NAMES:

IN WITNESS, WHEREOF, WE HEREUNTO SUBSCRIBE OUR NAMES:

BY: _____

STATE OF NORTH DAKOTA)
) SS
COUNTY OF)

ON THIS_____DAY OF _____, 202__, BEFORE ME A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, PERSONALLY APPEARED, _____, KNOWN TO ME TO BE THE PERSON WHO IS DESCRIBED IN AND WHO EXECUTED THE WITHIN AND FOREGOING INSTRUMENT AND ACKNOWLEDGED TO ME THAT THEY EXECUTED THE SAME.

OWNER:

CITY OF DICKINSON
38 1ST STREET WEST
DICKINSON, ND 58601

ENGINEER:

KLJ
677 27TH AVE EAST
DICKINSON, ND 58601

PLAT AREA INFORMATION:

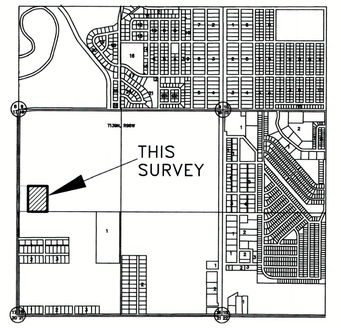
NUMBER OF LOTS	120	
LOT ACREAGE	2.75	ACRES
R.O.W. ACREAGE	4.84	ACRES
TOTAL ACREAGE	7.59	ACRES

CURRENT ZONING: AG

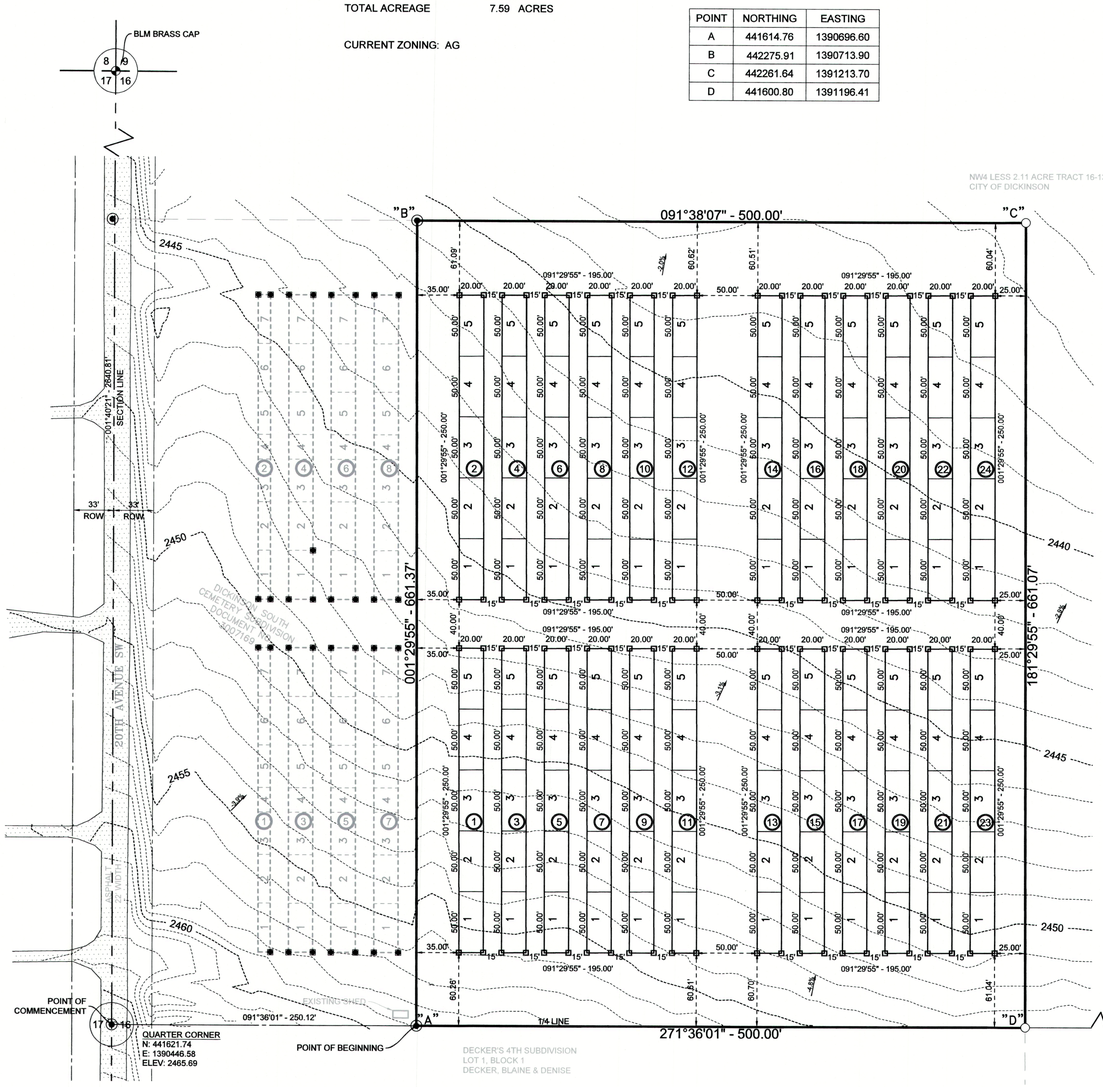
NOTES - PROPERTY CORNER POINTS:

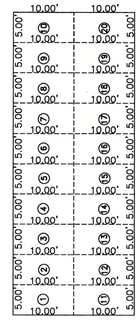
1.) THE POINTS USED IN THIS TABLE ARE BASED ON US STATE PLANE NAD 1983 (2011), NORTH DAKOTA SOUTH ZONE GRID COORDINATES. UNITS LISTED IN THIS TABLE ARE INTERNATIONAL FEET.

POINT	NORTHING	EASTING
A	441614.76	1390696.60
B	442275.91	1390713.90
C	442261.64	1391213.70
D	441600.80	1391196.41



VICINITY MAP
NOT TO SCALE





TYPICAL LOT AND GRAVESITE LAYOUT, BLOCKS 1-24
NOT TO SCALE

CITY OF DICKINSON COMMISSION APPROVAL

_____
COMMISSION PRESIDENT DATE

CITY ENGINEER APPROVAL

_____
CITY ENGINEER DATE

PLANNING AND ZONING COMMISSION APPROVAL

_____
CITY PLANNER DATE

STARK COUNTY COMMISSION APPROVAL

_____
COMMISSION CHAIRMAN DATE

NOTES:

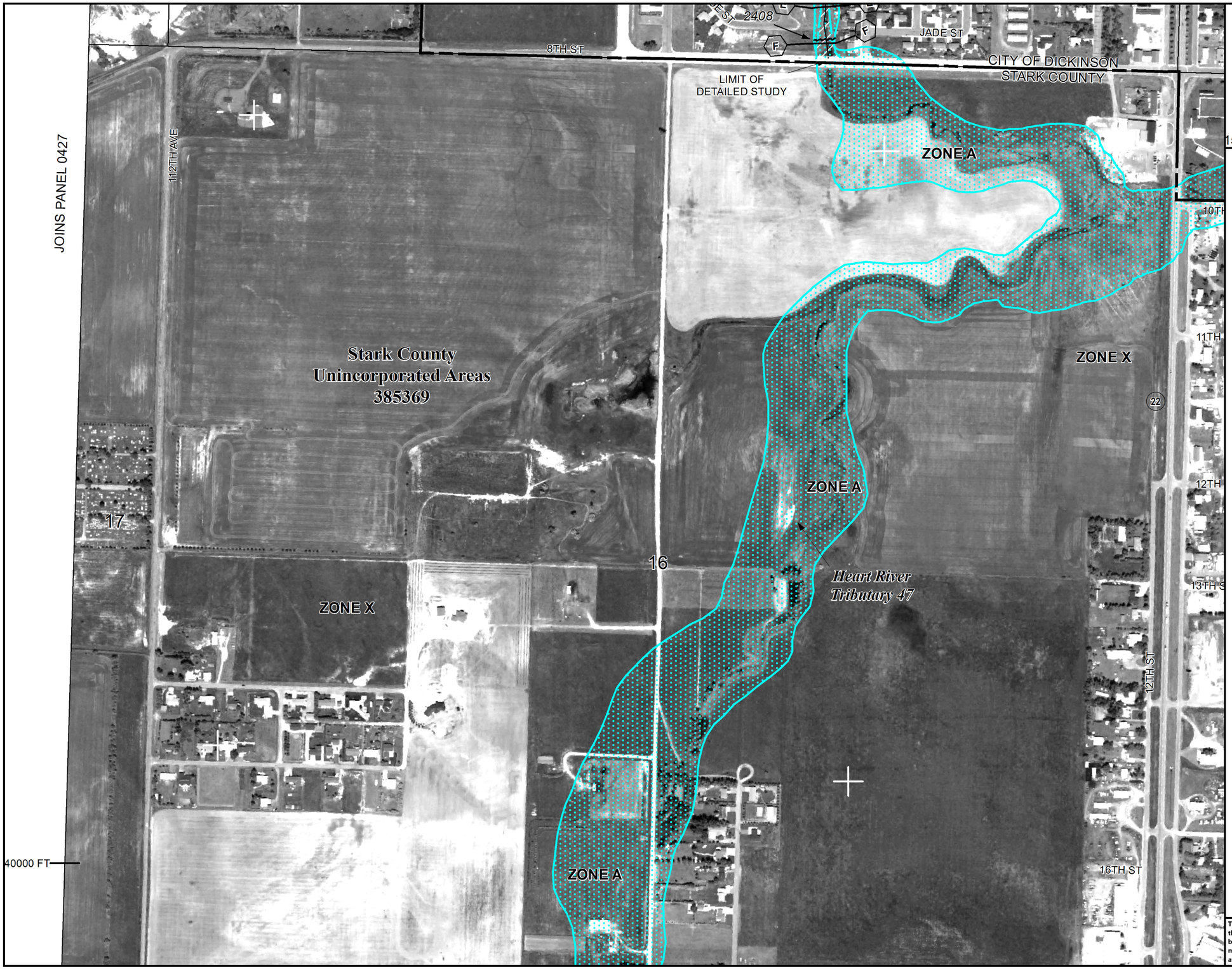
1.) THIS SURVEY IS BASED ON NORTH DAKOTA STATE PLANE SYSTEM, NAD 83 (2011), SOUTH ZONE, US SURVEY FOOT, AZIMUTHS SHOWN ARE GRID AZIMUTHS. MULTIPLY BY 1.000178303 TO GO FROM GRID DISTANCE TO GROUND DISTANCE.
2.) ELEVATIONS ARE BASED ON NAVD 88 (GEOID 12A)
3.) ALL DISTANCES SHOWN ARE GRID AND MEASURED UNLESS OTHERWISE NOTED.
4.) SURVEY WORK WAS PERFORMED DURING SEPTEMBER 2022.
5.) WATER IS PROVIDED BY SWWA.
6.) ALL ROADWAYS, DRIVES, ALLEYS, OR WALKWAYS ARE UNDEDICATED AND SOLELY FOR CEMETERY PURPOSES.

LEGEND

SET IRON REBAR	□
SET IRON REBAR AND CAP (LS5501)	○
FOUND IRON REBAR	■
FOUND IRON REBAR & LS CAP	◉
SECTION LINE	— — — —
QUARTER-SECTION LINE	———
RIGHT OF WAY LINE	———
EXISTING LOT LINE	———
PROPOSED LOT LINE	———
PROPOSED SUBDIVISION BOUNDARY	———

KLJ

DRAWING COMPLETED: DECEMBER 2025



MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0431E

FIRM
FLOOD INSURANCE RATE MAP

STARK COUNTY, NORTH DAKOTA AND INCORPORATED AREAS

PANEL 431 OF 850

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DICKINSON, CITY OF	380117	0431	E
STARK COUNTY	385369	0431	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
38089C0431E

EFFECTIVE DATE
NOVEMBER 4, 2010

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.

Dickinson South Cemetery 2nd Preliminary Major Subdivision Staff Report

To: City of Dickinson Planning and Zoning Commissioners
From: City of Dickinson Community Development Services
Date: May 6, 2026
Re: PLP-003-2026 Dickinson South Cemetery 2nd Preliminary Major Subdivision

APPLICANT
Name: City of Dickinson Community Development
Address: 38 1st Street West
City: Dickinson North Dakota 58601

APPLICANT'S REPRESENTATIVE
Curtis Freeman
KLJ Engineering
677 27th Avenue East
Dickinson ND 58601

Public Hearing May 13, 2026 Planning and Zoning Commission

The applicant is requesting approval of the Dickinson South Cemetery 2nd preliminary major subdivision, being a parcel of land located in the S ½ of the SW ¼ of the NW ¼ of Section 16, Township 139 North, Range 96 West, in the City of Dickinson's Extra-Territorial Zone (ETZ). The site is zoned Agricultural (AG). The site consists of +/- 7.59 acres.

Staff recommendation: Staff recommends **approval** of this preliminary major subdivision subject to the approval of the associated REZ-003-2026 and SUP-003-2026.

DRAFT

LOCATION

The property is generally located along 20th Avenue SW, and it is legally described as a 7.59-acre parcel of the NW1/4 Less 2.11-acre Tract 16-139-96 155.87 Acres, in the S ½ of the SW ¼ of the NW ¼ of Section 16, Township 139 North, Range 96 West, of the 5th Principal Meridian, Stark County, North Dakota.

CURRENT ZONING	**AG**
FUTURE LAND USE MAP DESIGNATION	**PUBLIC/CIVIC**
GROSS SITE ACREAGE	**+/- 7.59 acres**
LOTS PROPOSED	**121**

ADJACENT ZONING & LAND USE		
Direction	**Zoning**	**Land Use**
North	AG	Undeveloped
East	AG; R-3	Undeveloped
South	RR	Single-family residential
West	AG	Undeveloped

BACKGROUND

This proposed subdivision received final approval from the City Commission at the March 19th, 2024 City Commission meeting. However, the final subdivision plat was not officially recorded at the Stark County Courthouse. Section 52-4(d)(5) in the Dickinson Municipal Code states that "*Following final approval by the Board of City Commissioners, a plat in recordable form shall be furnished to the City Administrator or designee within 365 days following approval. The City Administrator or designee may grant extensions in 30 days increments for good cause shown in writing*". Neither the City nor the contractor have records of an extension being granted to the subdivision project. To comply with the Dickinson Municipal Code, the proposed subdivision must go back through the subdivision process as outlined in Section 52-4: Procedure.

CONSISTENCY, COMPATIBILITY, COMPLIANCE, AND RECOMMENDATIONS

Compatibility and Compliance with The Municipal Code

A major subdivision plat is defined in Section 52-1 of the City Subdivision chapter as a subdivision that does not meet at least one of the following conditions:

- Does not require the dedication of public rights-of-way or the construction of new public streets or public infrastructure;
- Does not land-lock or otherwise impair convenient ingress and egress to or from the rear or side of the subject tract or any adjacent property;
- Does not violate any local, State or federally adopted law, ordinance, regulation, plan or policy; and
- Consists of four lots or less.

The Dickinson South Cemetery Second Subdivision will add 24 blocks, five lots per block, and 20 plots per lot. The plot sizes and layout for the drive aisles matches what was platted for the Dickinson South Cemetery. Therefore, the proposed subdivision does not meet the above requirements and is classified as a major subdivision.

The property is generally located 1,800 feet southwest of the City of Dickinson city limits, 4,000 feet west of Highway 22, and 2,000 feet south of 8th Street SW.

The proposed subdivision consists of approximately 7.60 acres. When the plat was previously approved, the minimum lot size for a property zoned AG was five (5) acres. In August of 2025, the City Commission approved an ordinance increasing the minimum lot size for AG-zoned lots to ten (10) acres. The proposed subdivision no longer meets the minimum lot size requirements of the AG zoning district. Prior to approval of the final subdivision plat, the property shall be rezoned to the Public (P) zoning district.

The proposed subdivision is expanding the existing Dickinson South Cemetery, which falls under the Cemetery use as defined in Section 62-131: Civic use types. According to Table 62-162-2: Permitted Uses by Zoning Districts, in Section 62-162: Development regulations, a Cemetery use is permitted by right in the AG zoning district, but requires a Special Use Permit (SUP) in the P zoning district. An SUP application shall be submitted alongside a rezone request.

PUBLIC INPUT AND STAFF RECOMMENDATION

Public Input: Staff has not received any public input as of the date of this report.

Staff Recommendation: City of Dickinson Community Development staff recommends **approval** of PLP-003-2026 contingent on the approval of REZ-003-2026 and SUP-003-2026.

MOTIONS:

*****Approval*****

"I move the City of Dickinson Planning and Zoning Commission recommend approval of **PLP-003-2026: The Dickinson South Cemetery Second Preliminary Major Subdivision** *as being consistent with the City of Dickinson Comprehensive Plan, as being compliant with the City of Dickinson Zoning Ordinance, and as being in the interest of the public health, safety and welfare "*

(AND) the following additional requirements **(IF THE PLANNING AND ZONING COMMISSION RECOMMENDS ANY ADDITIONS AND/OR DELETIONS TO THE PROPOSED MOTION LANGUAGE):**

1. _____;
2. _____.

*****Denial*****

"I move the Dickinson Planning and Zoning Commission recommend Denial of **PLP-003-2026: The Dickinson South Cemetery Second Preliminary Major Subdivision** *as NOT being consistent with the City of Dickinson Comprehensive Plan, as not being compliant with the City of Dickinson Zoning Ordinance, and as being contrary to the interest of the public health, safety and welfare."*

Chapter 60 UTILITIES

Articles:

I. In General
II. Water System
III. Sewers and Sewage Disposal
IV. Water, Wastewater and Stormwater Charges
V. Municipal Street Lighting Utility
VI. Stormwater Management

Article VI. - Stormwater Management

Sections:

60-160 General Provisions
60-170 Stormwater Management Program
60-180 Construction Stormwater Management Permits
60-190 Enforcement and Penalties

Sub-sections:

60-160.1 Purpose and Policy.
60-160.2 Definitions.
60-160.3 Illicit Discharge into Stormwater System.
60-160.4 Application.
60-160.5 Operation and Maintenance Considerations.
60-160.6 Mandatory Compliance with Other City Codes.
60-170.1 Stormwater Management Program Scope.
60-170.2 Contents of Stormwater Management Plan.
60-170.3 Final Stormwater Management Plan.
60-170.4 Conditions.
60-180.1 Construction Stormwater Management.
60-180.2 Construction Activities.
60-190.1 Emergency Suspension of Permits.
60-190.2 Revocation of a Permit.
60-190.3 Notification.
60-190.4 Hearing.
60-190.5 Penalty.
60-190.6 Costs of Damage.
60-190.7 City Attorney's Fees and Costs.
60-190.8 Falsifying Information.

SECTION 60-160. GENERAL PROVISIONS

60-160.1 - Purpose and Policy.

This title sets forth uniform requirements for stormwater management systems within the City and its extraterritorial jurisdiction. It is the intent of the Board of City Commissioners that the requirements and standards contained in this ordinance comply with all applicable state and federal laws. In the event of any conflict between the provisions of this ordinance and the provisions of an erosion control, or floodplain ordinance, or other regulations adopted by the City, County, State or Federal authorities, the more restrictive standard prevails.

The objectives of this title are:

1. To promote, preserve, and enhance the natural resources within the City of Dickinson, its extraterritorial jurisdiction and watersheds;
2. To protect and promote the health, safety, and welfare of the people and property through effective stormwater management practices;
3. To protect the City's natural resources from adverse impacts caused by development or other activities;
4. To allow for land development, land disturbing, or other activities that may adversely and potentially irreversibly impact stormwater quality and environmentally sensitive lands related to property within the City of Dickinson, the extraterritorial jurisdiction and watersheds while controlling runoff and protecting property;
5. To regulate land development, land disturbing, or other activities that may have an adverse impact to stormwater quality and quantity;
6. To minimize conflicts and encourage compatibility between land disturbing and development activities and environmentally sensitive issues (i.e. land, water, habitat, etc.);
7. To require detailed review standards and procedures for land development activities proposed throughout the City, and its extraterritorial jurisdiction, thereby achieving a balance between urban growth and development, and the protection of water quality; and
8. To provide for adequate stormwater system analysis and appropriate stormwater system design as necessary to protect public and private property, water quality, and existing natural resources. This title establishes and provides for the following stormwater management criteria:
    a. The regulation of development through the issuance of stormwater management permits and through the enforcement of general stormwater drainage requirements throughout the City as they relate to managing stormwater volumes, rates of runoff, flow duration, and their subsequent impacts to downstream property and stormwater management facilities.
    b. The regulation of, and the establishment of criteria for, existing public underground storm sewers, existing artificial and natural open channel drainage systems, existing stormwater detention and retention ponds, and existing private stormwater drainage systems discharging into the public system.

c. Penalties for violating the provisions of this ordinance, and the orders, rules, regulations and permits issued hereunder. (Ord. No. 1282 § 2.)

60-160.2 - Definitions.

For the purpose of this ordinance and title, the following terms, phrases, and words, and their derivatives, shall have the meaning as stated in this section. Words used in the present tense include the future tense. Words in plural number include the singular number, and words in the singular number include the plural number. The word "shall" is mandatory and the word "may" is permissive.

Agricultural Land Use: The use of land for planting, growing, cultivating and harvesting crops for human or livestock consumption and pasturing or yarding of livestock.

Applicant: Any person wishing to obtain a building permit, special use permit, zoning change, or subdivision approval, that requires a mandatory stormwater management permit.

Approval: Recognition that the project has addressed the applicable requirements to be issued a mandatory stormwater management permit.

Best Management Practice: A schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce increases in runoff rates and/or the pollution of downstream waters.

Catchment: The area of a development or redevelopment project that collects stormwater to a discrete Point of Discharge or Point of Analysis.

Certification Report: The required analysis documenting that the facilities identified in an approved Stormwater Management Plan have been constructed and function as intended. A Certification Report is a required submittal prior to project closeout.

City: The Board of City Commissioners

Control Measure: A practice or combination of practices to control erosion and attendant pollution.

Construction: Any site under development which lacks vegetative or permanent cover.

Construction Plans: Engineered drawings detailing the size and character of post-construction stormwater management facilities and site development.

Construction Stormwater Management: The implementation of appropriate temporary BMPs to minimize soil sediment or pollutants carried in runoff from construction activities. Also included is the management of run-on and runoff of stormwater from the construction activities.

Conveyance Structure: A pipe, open channel, or other facility that transports runoff from one location to another.

Detention Facility: A natural or manmade structure, including constructed stormwater wetlands, for the temporary storage of runoff which may contain a pool of water, or may be dry during times of no runoff.

Developer: A person, firm, corporation, sole proprietorship, partnership, federal or state agency or political subdivision thereof engaged in a land disturbance and/or land development activity.

Certification Report The required analysis documenting that the facilities identified in an approved Stormwater Management Plan have been constructed and function as intended. A Certification Report is a required submittal prior to project closeout.

Common plan of development or sale A contiguous area where multiple separate and distinct construction activities are planned to occur at different times on different schedules under one plan, e.g., a housing development of five ¼ - acre lots (40 CFR 122.26(b)(15)(i)).

Conditional Approval The issuance of a mandatory stormwater permit on the stipulation that additional materials and/or actions occur in the future to document and confirm the submitted and reviewed application materials.

Construction Activities As defined in 40 CFR part 122.26(b)(14)(x) and (b)(15). This includes a disturbance to the land that results in a change in topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated stormwater runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of construction activity may include clearing, grading, filling and excavating. Construction activity includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb one (1) acre or more. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility Construction Plans Engineered drawings detailing the size and character of post-construction stormwater management facilities and site development.

Construction Stormwater Management The implementation of appropriate temporary BMPs to minimize soil sediment or pollutants carried in runoff from construction activities. Also included is the management of run-on and runoff of stormwater from the construction activities.

Development Means any of the following activities:

a. Structural development, including construction of a new building or other structure;
b. Expansion or alteration of an existing structure that results in an increase in the ground surface dimensions of the building or structure;
c. Land disturbing activities; or
d. Creation or expansion of impervious surfaces.

EPA: United States Environmental Protection Agency.

Erosion: Any process that wears away at the surface of the land by the action of water, wind, ice, or gravity. Erosion can be accelerated by the activities of man and nature.

Erosion and Sediment Control Plan: A written description and site map containing best management practices designed to meet the requirements of this ordinance. A plan that conforms to the State of North Dakota Stormwater Pollution and Prevention Plan Permit requirements can also be used.

Extraterritorial Jurisdiction: The zoning or subdivision jurisdiction of the City, but outside its corporate limits.

Excavation Any act by which organic matter, earth, sand, gravel, rock or any other similar material is cut into, dug, quarried, uncovered, removed, displaced, relocated or spread and shall include the resulting conditions.

Fill Any act by which earth, sand, gravel, rock or any other material is deposited, placed, replaced, pushed, dumped, pulled, transported, or moved to a new location and shall include the resulting conditions.

Hydric Soils Soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. (Reference: USDA, NRCS. 2010. Field Indicators of Hydric Soils in the United States. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_050723.pdf)

Illicit Discharge Any discharge to, or seepage into the City's MS4 that is not composed entirely of stormwater or uncontaminated groundwater except discharges pursuant to an NPDES permit. Examples include, and are not limited to, construction material discharges, discharging of sanitary sewers and runoff of spilled chemicals, fuels or lubricants. Exceptions to illicit discharges are included in the City's current MS4 General Permit.

Impervious Surface Any land cover that prevents rain, or melting snow, from soaking into the ground, such as roofs (including overhangs), streets, sidewalks, patios, driveways, and parking lots. For the purposes of this SWDSM, all road, driveway or parking surfaces, including gravel surfaces, shall be considered impervious.

Land Disturbing Activities Any land alterations or disturbances that may result in soil erosion, sedimentation, or change in runoff including, but not limited to, removal of ground cover, grading, excavating, and filling of land, but not including agricultural land uses such as planting, growing, cultivating and harvesting of crops, growing and tending of gardens, and harvesting trees.

Landowner: Any person holding title to or having an ownership interest in land.

Land User: Any person operating, leasing, renting, or having made other arrangements with a landowner by which the landowner authorizes use of their land.

Municipal separate storm sewer system or "MS4" A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management Agency under section 208 of the CWA that discharges to waters of the United States;
Designed or used for collecting or conveying stormwater;
Which is not a combined sewer; and
Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Multiple-Purpose Facility: An urban stormwater facility that fulfills multiple functions, such as enhancement of runoff quality, erosion control, wildlife habitat, or public recreation, in addition to its primary purpose of conveying or controlling runoff.

Notice of Termination (NOT) Notification to the City and/or NDDEQ that all construction activities for a project have been completed and exposed soils have achieved final stabilization.

On-Site Post-Construction Facility or BMP A permeant stormwater facility provided to serve only the project area and no significant areas outside of the project boundaries.
On-site facilities shall be sized to include the existing condition runoff flows from areas up gradient of the development boundary that flow onto the development under the existing condition.

Outfall The point where a municipal separate storm sewer system discharges from a pipe, ditch, or other discrete conveyance to receiving waters, or other municipal separate storm sewer systems. It does not include diffuse runoff or conveyances, which connect segments of the same stream or other water systems

Occupant: Any person using a lot, parcel of land, or premises connected to and discharging stormwater into the stormwater system of the City.

Pervious Surface Any land cover that permits absorption of stormwater or snow melt into the ground.

Point of Analysis The location where runoff from development or redevelopment will be evaluated for compliance with the requirements of Chapter 60-160 of the City Municipal Code and this SWDSM. In general, this will be the location where post

developed flow rates must meet the existing conditions rates and water quality BMPs have been provided.

The Point of Analysis may be located downstream of the Point of Discharge(s). The Point of Analysis will be determined by the City Engineer. In practicality, there may be more than one Point of Analysis for a project.

Permanent Development: Any buildings, structures, parking lots, roads, landscaping and related features constructed as part of a development project approved under a stormwater management permit, that will remain after development is constructed.

Permanent Facilities: Any natural or constructed features of a stormwater system including, but is not limited to storm sewers, infiltration areas, detention/retention areas, channels, streets, and similar features, that will remain after development is constructed.

Permittee: Any person who has received a stormwater management permit from the City.

Person: Any developer, individual, firm, corporation, partnership, franchise, association, owner, occupant of property, or agency - public or private.

Point of Discharge A location where stormwater discharges from development or redevelopment areas into the Public Storm Sewer System or other receiving waters. In practicality, there may be more than one Point of Discharge on a site or for a project.

Post-Construction Facilities or Post-Construction BMP Permanent structural and non-structural best management practices to mitigate adverse impacts to stormwater quality and water quantity which are part of any natural or constructed stormwater system that require periodic or minimal maintenance to retain their operational capabilities. This includes, and is not limited to, storm sewers, infiltration areas, detention areas, channels, streets, etc.

Post-Construction Stormwater Management The implementation of appropriate permanent BMPs to address the stormwater quantity, quality, and conveyance for new and redevelopment projects.

National Pollution Discharge Elimination System (NPDES) Permit: Any permit or requirement enforced by the North Dakota Department of Environmental Quality pursuant to the Clean Water Act as amended for the purposes of regulating stormwater discharge.

Planning Commission: An appointed Commission of the Dickinson City Commission, which is tasked with addressing land use in accordance with Chapter 44.

Private Drainage Channel: A drainage channel on privately-owned land or easements which eventually discharges into a public drainage channel, public storm sewer or public right of way.

Private Storm Sewer: A storm sewer on privately owned land or easements.

Public Drainage Channel: A drainage channel located on public property that collects and conveys stormwater.

Public Storm Sewer: A storm sewer located entirely on publicly owned land or easements.

Private Storm Sewer System A system of conveyances designed or used for collecting or conveying stormwater on privately-owned land or easements which eventually discharges into the Public Storm Sewer System.
The Private Storm Sewer System consists of both open and enclosed drainage systems (including roads with drainage systems, parking lots, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that are owned and operated by private entities.

Public Storm Sewer System A system of conveyances designed or used for collecting or conveying stormwater, owned or operated by the City and included in the City's municipal separate storm sewer system (MS4).
The Public Storm Sewer System consists of both open and enclosed drainage systems (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that are owned or operated by the City and are designed to collect and convey stormwater; and discharge, either directly to an MS4 owned or operated by another public body, or to other receiving waters.

Redevelopment Any construction, alteration or improvement on a previously developed site that creates new impervious surfaces.

Regional Detention: An area which temporarily stores stormwater from more than one source.

Regional Flood: A flood that is representative of large floods known to have occurred generally in the state and recently characteristic of what can be expected to occur on an average frequency in the magnitude of a one hundred (100) year recurrence interval. It is also referred to as the base flood.

Runoff: Rainfall, snowmelt, dewatering or irrigation water flowing over the ground surface and into open channels, underground storm sewers, and detention or retention ponds.

Sediment: Solid or organic material that, in suspension, may be transported by air, water, gravity, or ice, and deposited at another location.

Site: The entire area included in the legal description of the parcel or other land division on which land development or land disturbing activity is proposed in a permit application.

State: The State of North Dakota.

Stabilized Means the exposed ground surface has been covered by appropriate materials such as mulch, staked sod, riprap, erosion control blanket, or other material that prevents erosion from occurring. Grass seeding alone is not stabilization. Snow covered and frozen ground conditions are not considered stabilized.

Standard Specifications Refers to the current edition of the "Standard Specifications for Dickinson, North Dakota" available from the office of the City Engineer.

Storm Sewer: A pipe or conduit for carrying stormwater, surface runoff, street and wash waters, and drainage, excluding sewage and industrial wastes.

Stormwater Design Manual: a design and standards manual, as adopted and amended by the City of Dickinson, that contains the principal standards and design criteria for complying with the City's stormwater management program. The Manual details criteria for hydrologic evaluations, the design of stormwater management system facility components, water quality protection standards, and requirements for easements and rights-of-way. The Manual also contains a discussion of operation and maintenance requirements, standard forms to be used, and standard construction details adopted by the City.

Stormwater Management System: Physical facilities that collect, store, convey, and treat stormwater runoff in urban areas. These facilities normally include detention and retention facilities, streets, storm sewers, inlets, open channels, and special structures, such as inlets, manholes, and energy dissipaters.

Stormwater Detention: Temporary storage of stormwater runoff in ponds, parking lots, depressed grassy areas, roof tops, buried underground tanks, and other similar features, for future or controlled release that is used to delay and attenuate flow.

Stormwater Retention: Permanent stormwater storage designed to eliminate subsequent surface discharge. Ponds are the most common types of retention storage.

Stormwater Management Criteria: Specific guidance provided to the designer to carry out stormwater management policies.

Stormwater Management Plan (SWMP) A written document detailing stormwater runoff characteristics for a defined area and the management of that runoff to mitigate

adverse impact to stormwater quality and quantity. A Stormwater Management Plan is a required submittal for a Post-Construction Stormwater Management Permit.

Stormwater Permit A permit allowing land development and land disturbing activities so as to protect the Public Storm Sewer System such that development or redevelopment activities are in conformance with the MS4 General Permit and Title 14.1 of the City Code of Ordinances. Mandatory permits are described in Section Error! Reference source not found.

Stormwater Pollution Prevention Plan (SWPPP) A site specific plan required for Construction Stormwater Permits that addresses all pollutants and their sources, including sources of sediment associated with construction, construction site erosion, and all other activities associated with construction activity and controlled through the implementation of Best Management Practices (BMPs).

Sub-catchment A smaller area of the hierarchical pattern of drainage from a Catchment. For Mandatory Stormwater Permits, sub-catchments are used to define unique drainage areas inside of the project Catchment.

Sub-watershed A smaller area of the hierarchical pattern of drainage from a Watershed. An area of land where all surface water is tributary to a larger drainage system.

Unpolluted Water: Any water of quality equal to or better than the effluent criteria in effect, or water that would not cause a violation of receiving water quality standards.

Urban Area: Land associated with, or part of, a defined city or town.

User: Any person who benefits from and/or is regulated by City stormwater management policies and facilities.

User Fee: A fee levied on users of a public stormwater management system for the user's proportionate share of the cost of operation and maintenance or replacement of such works.

Watershed An area of land where all surface water from rain, melting snow, or ice converges to a single point at a lower elevation where the waters join another body of water, such as a river or lake.

Watershed Stormwater Master Plan A stormwater management plan that characterizes and address runoff from a defined drainage area and makes recommendations for the implementation of regional facilities, or BMPs, to address peak flow and water quality compliance and/or regional drainage and conveyance systems.

Watershed Stormwater Master Plans that are adopted by the City Commission are planning documents that provide drainage area specific refinements to stormwater management performance requirements and design standards.

Waters of the State Any and all surface waters that are contained in or flow in or through the state of North Dakota as defined in NDCC 61-28-02. This definition includes all water courses, even if they are usually dry.

Water Shed: The land area that drains water to a particular stream, river, or lake. It is a land feature that can be identified by tracing a line along the highest elevations between two areas on a map, often a ridge.

Waterway: any channel, open ditch, or river which carries natural flows or stormwater.

Wetlands Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (Reference: Definition of wetlands as used by the USACE and EPA since the 1970s for regulatory purposes: https://www.epa.gov/cwa-404/section-404-clean-water-act-how-wetlands-are-defined-and-identified)

60-160.3 - Illicit Discharge into Stormwater System.

It shall be unlawful for any person to discharge, deposit, dump or drain, or cause to be discharged, deposited, dumped or drained any liquid, solid or material which may degrade stormwater quality and/or is prohibited by city, state or federal regulations or policies into the stormwater system. For the purposes of this chapter, illicit discharges do not include the following, unless information is available to indicate otherwise: Water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, street wash water, and discharges or flows from firefighting activities. (Ord. No. 1282 § 2.)

60-160.4 - Application.

A proposed Stormwater Management Plan shall be filed with the City Engineer. The application shall include a description of the location upon which the approval is requested, verification that the proposed use is permitted in the underlying zoning district, and adequate evidence showing the proposed use will conform to the standards set forth in this article and the City of Dickinson Stormwater Design Manual. Applicable fees as set forth in the city fee schedule shall be paid prior to commencement of any construction activities. (Ord. 1282 § 2.)

60-160.5 - Operation and Maintenance Considerations.

All stormwater management facilities shall be designed to minimize the need for maintenance, to provide access for maintenance purposes, and to be structurally sound. All stormwater management facilities shall have a plan of operation and maintenance that assures continued effective removal of pollutants carried in stormwater runoff. It shall be the responsibility of the applicant to obtain or provide any necessary easements or other property interests to allow access to the stormwater management facilities for inspection and maintenance purposes. (Ord. No. 1282 § 2)

60-160.6 - Mandatory Compliance with Other City Codes.

In addition to this article, the applicant is responsible for adhering to the requirements of all city codes, including but not limited to the following:

1. Zoning regulations
2. The city's Flood Damage Prevention Ordinance, ordinance number 1404, Chapter 20
3. Regulations governing the subdivision of land.

(Ord. No. 1282 § 2.)

Secs. 60-161—60-169. - Reserved.

SECTION 60-170. - STORMWATER MANAGEMENT PROGRAM

60-170.1 - Stormwater Management Program Scope.

Every applicant for a building permit, subdivision approval, or a permit to allow construction and/or land disturbing activities must comply with the provisions of this Article and the Stormwater Design Standards Manual. No building permit, subdivision approval, or permit to allow construction activities shall be issued until approval of the Stormwater Management Plan or a written waiver of the approval requirement has been obtained.

The City Engineer may waive any requirement of this title upon making a finding that compliance with the requirement will involve an unnecessary hardship, and the waiver of such requirement will not adversely affect the standards and requirements put forth in Chapter 60-160 to 60-190. The City may require as a condition of the waiver, such dedication or construction, or agreement to dedicate or construct, as may be necessary to adequately meet the said standards and requirements.

The City of Dickinson is a designated Municipal Separate Storm Sewer System (MS4) under the Environmental Protection Agency's Stormwater Phase II Final Rule published on December 8, 1999 and is regulated under the North Dakota Pollutant Discharge Elimination System (NDPDES) by the North Dakota Department of Environmental Quality. To demonstrate compliance with the requirements of the MS4 General Permit, all development activities within the City's zoning jurisdiction must comply with the provisions contained herein related to construction stormwater management permits. (Ord. No. 1282 § 2.)

60-170.2 - Contents of Stormwater Management Plan.

The City of Dickinson Storm Water Design Manual is the governing document for engineering standards that shall be followed.

a.

60-170.3 - Final Stormwater Management Plan.

Upon completion of all required construction activities, the permit applicant shall submit to the City the final Stormwater Management Plan to document any change to the original Stormwater Management Plan concept. The final Stormwater Management Plan shall contain Record Drawings showing the final configuration for all improvements as constructed. For areas of development the final Stormwater Management Plan and Record Drawings shall be certified by a Professional engineer registered in the State of North Dakota. (Ord. No. 1282 § 2)

60-170.4 - Conditions.

A Stormwater Management Plan may be approved subject to compliance with conditions reasonable and necessary to ensure that the requirements contained in this article are met. Such conditions may, among other matters, limit the size, kind or character of the proposed development, require the construction of structures, drainage facilities, storage basins and other facilities, require replacement of vegetation, establish required monitoring procedures, stage the work over time, require alteration of the site design to insure buffering, require the acquisition of certain lands or easements, and require the conveyance to the City of Dickinson or other public entity of certain lands or interests therein. The City may specify special requirements for specific watersheds within the City and its extraterritorial jurisdiction. The nature of these requirements will be subject to the unique environmental and natural resource environment of each sub watershed. Approval of a plan shall bind the applicant to perform all of the conditions and requirements of the plan prior to any land disturbing activities. A plan issued under this title runs with the land and is a condition of plat approval. Any owner or subsequent owner of any parcel within the plat must comply with the plan or any approval, revision or modification of the plan. (Ord. No. 1282 § 2)

Secs. 60-171—60-179. - Reserved.

SECTION 60-180. – CONSTRUCTION STORMWATER MANAGEMENT PERMITS

60-180.1 - Construction Stormwater Management.

1. Mandatory Permits. Any person proposing a development or project which involves land development, land disturbing, or other activities as defined in this title, shall obtain a stormwater management permit before initiating those activities.
2. Permit Application. All person's subject to meeting the requirements for a mandatory stormwater management permit shall complete and file with the City Engineer an application in the form prescribed by the City and accompanied by a fee established by the City and adopted by the Board of City Commissioners. The permit application shall be accompanied by a Stormwater Management Plan as prescribed under Chapter 60, Article VI. The City Engineer will evaluate the data furnished as part of the Stormwater Management Plan and may require additional information. After evaluation and acceptance of the Stormwater Management Plan, the City may issue a stormwater management permit subject to any terms and conditions deemed necessary.
3. Permit Conditions. Stormwater management permits are issued subject to all provisions of this title and all other applicable regulations, user charges and fees established by the City. Permits may contain any of the following conditions:
    a. The user fee for a stormwater outlet utilizing a regional stormwater management facility.
    b. Limits on the maximum rate of stormwater discharge;
    c. Limits on water quality degradation of stormwater discharge;
    d. Requirements for the installation, operation and maintenance of stormwater detention/retention facilities; outlets, inlets and conveyance system.
    e. Compliance schedule;
    f. Requirements for notification to and acceptance by the City of any land disturbing activities which have the potential for increasing the rate of stormwater discharge resulting in degradation of stormwater quality; and
    g. Other conditions as deemed appropriate by the City to ensure compliance with this title.
    h. Stormwater management permits shall not be transferred to the homeowner or occupant.
4. Building Permits. Building permits will not be issued until the approved BMPs are installed
5. Permit Duration. Permits must be issued for a time period specified by the City. The applicant shall apply for permit renewal a minimum of ninety (90) days prior to the expiration of the applicant's existing permit. The terms and conditions of a permit are subject to modification by the City during the term of the permit as set forth in paragraph six (6).

6. Permit Modification. Permits may be modified by the City for just cause upon 30 days' notice. Just cause shall include but not be limited to:
   a. Promulgation of a new applicable state or nationwide permit standard;
   b. Changes in the requirements of this ordinance;
   c. Changes in the process used by the permittee or changes in discharge rate, volume, or character; and
   d. Changes in the design or capability of receiving stormwater facilities.
   e. A written request submitted by the permittee to the City and agreed upon by the city. The applicant must be informed of any proposed changes in the permit at least thirty (30) days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.
7. Permit Transfer. A permit runs with the property it covers and is transferable to new owners in its entirety or by parcel, with each parcel being subject to the permit and any conditions which apply to that parcel.
8. Monitoring Facilities. The City may require the applicant to provide and operate, at the applicant's expense, a monitoring facility to allow inspection, sampling, and flow measurements of each stormwater facility component. Where at all possible, the monitoring facility shall be located on the property of the applicant as opposed to on
   public rights-of-way. Ample room must be allowed for accurate flow measuring and sampling and the facility shall be kept in a safe and proper operating condition.
9. Inspection. Any employee of the City of Dickinson may enter with or without notice to inspect the stormwater management facilities of any permittee to determine compliance with the requirements of this title. The City shall be allowed to set up equipment on the permittee's premises as required for the purpose of collecting samples and flow recording. The City shall retain enforcement powers for assuring adequate operation and maintenance activities through permit conditions and penalties for noncompliance orders. Maintenance shall remain the responsibility of the subdivision and/or property owners. (Ord. No. 1282 § 2)

60-180.2 - Construction Activities.

Construction operations must at a minimum comply with the following requirements:

1. Site Dewatering. Water pumped from the site requires approval from the City prior to discharge and shall be treated by temporary sedimentation basins, grit chambers, sand filters, up flow chambers, hydro-cyclones, soil concentrators or other appropriate controls as deemed necessary. Water may not be discharged in a manner that causes erosion, sedimentation, or flooding on the site; the receiving channels; or any wetland.
2. North Dakota Construction Stormwater Permit. Obtain state permit authorizing the discharge of stormwater associated with construction activities.

3. Waste and Material Disposal. All waste materials (including garbage, debris, cleaning wastes, wastewater, toxic materials, or hazardous materials) shall be properly disposed of off-site and not allowed to be carried by runoff or wind.
4. Tracking Management. At the end of each work day any material placed on a public or private road shall be removed (not by flushing) to prevent sediment tracking.
5. Water Quality Protection. The construction contractor shall be required to control oil and fuel spills, and the discharge of any chemicals to prevent such spills or discharges from entering any water course, sump, sewer system, water body, or wetland.
6. Site Erosion and Sedimentation Control. Construction operations must include erosion and sedimentation control measures meeting accepted design criteria, standards and specifications. (Ord. No. 1282 § 2)

Secs. 60-181—60-189. - Reserved.

60-190. – ENFORCEMENT AND PENALTIES

60-190.1. - Emergency Suspension of Permits.

The City may for cause order the suspension of the stormwater management permit and/or building permit of a person, contractor, developer or parcel owner when it appears to the City that an actual or threatened discharge presents or may present an imminent or substantial danger to the health or welfare of persons downstream, substantial danger to the environment, or a violation of any permit conditions imposed by this article. If any person is notified of the suspension order and/or a person fails to comply voluntarily with the suspension order, the City shall commence whatever steps are necessary to obtain compliance, including judicial proceedings. The City may reinstate the stormwater management permit and/or building permit upon proof of compliance with all permit conditions.

Whenever the City orders the emergency suspension of a stormwater management permit and/or building permit pursuant to the emergency provisions of this section, the City shall serve notice on the permittee personally or by registered or certified mail before or after actually suspending activity depending on the individual situation. If any person is notified of the suspension order and/or a person fails to comply voluntarily with the suspension order, the City shall commence whatever steps are necessary to obtain compliance, including judicial proceedings.

Any applicant dissatisfied with an order the City issued pursuant to this section may request a hearing before the Board of City Commissioners by filing a written request for a hearing with the City, within fifteen (15) days of receipt of the order. The hearing must be held within thirty (30) days of receipt of the request, or as subject to the current meeting schedule, whereupon the Board of City Commissioners may affirm, modify or rescind the order. A request for a hearing filed pursuant to this section does not stay the order while the hearing is pending. (Ord. No. 1282 § 2)

60-190.2 - Revocation of a Permit.

A stormwater management permit may be revoked following notice and an opportunity for a hearing in accordance with Sections 38.14.150.3 and 38.14.150.4. The City may revoke a stormwater management permit for cause, including but not limited to if upon permitted site there is:

1. One or more violation of any terms or conditions of the stormwater management permit;
2. False statements on any required reports;
3. Obtaining a permit by misrepresentation or failure to disclose fully all relevant facts; or
4. Any other violation of this title or related ordinance.

(Ord. No. 1282 § 2; Ord No. 1369 §1)

60-190.3 - Notification.

Whenever the City finds that any person has violated or is violating this title, stormwater management permit and/or its conditions, or any prohibition, limitation or requirement contained herein, the City shall serve upon such person a written notice stating the nature of the violation. Within the time period specified, a plan for the satisfactory correction thereof must be submitted to the City. (Ord. No. 1282 § 2)

60-190.4 - Hearing.

If the violation is not corrected by timely compliance, the City may order any permittee who causes or allows a violation to a stormwater management permit to show cause before the Board of City Commissioners why the order of the City should not be upheld. A notice of hearing must be served on the permittee specifying the time and place of a hearing to be held by the Board Commission regarding the order of the City, and directing the permittee to show cause before the Board Commission why the order of the City should not be upheld. The notice must be served personally or by registered or certified mail postmarked at least ten (10) days before the hearing. The evidence submitted at the hearing shall be considered by the city which shall then uphold, modify or rescind the order of the city. An appeal of the city's decision may be taken according to law.

If any person commences any land disturbing activities which result in increased stormwater quantity or stormwater quality degradation into the City stormwater management system contrary to the provisions of this title, federal or state requirements or any order of the City, the City Attorney may, following the authorization of such action by the Board of City Commissioners, commence legal action for appropriate legal and/or equitable relief. (Ord. No. 1282 § 2; Ord No. 1369 §1)

60-190.5 - Penalty.

Any person who is found to have violated an order of the Board of City Commissioners made in accordance with this title, or who has failed to comply with any provision of this title and the orders, rules, regulations and permits issued hereunder, is guilty of an offense. Each day

on which a violation shall occur or continue shall be deemed a separate and distinct offense. (Ord. No. 1282 § 2)

60-190.6 - Costs of Damage.

Any person violating any of the provisions of this title or who initiates an activity which causes a deposit, obstruction, or damage or other impairment to the City's stormwater management system is liable to the City for any expense, loss, or damage caused by the violation or the discharge. The City may bill the person violating this title for the costs for any cleaning, repair or replacement work caused by the violation of stormwater discharge. (Ord. No. 1282 § 2)

60-190.7 - City Attorney's Fees and Costs.

In addition to the civil penalties provided herein, the City may recover reasonable attorney' s fees, court costs, court reporter' s fees, and other expenses of litigation by appropriate action against the person found to have violated this title or the orders, rules, regulations and permits issued hereunder. (Ord. No. 1282 § 2)

60-190.8 - Falsifying Information.

Any person who knowingly makes any false statements, representations, or certification in any applicable record, report, plan, or other document filed or required to be maintained pursuant to this title, or stormwater management permit, or who knowingly falsifies, tampers with, or knowingly renders inaccurate any monitoring devices or method required under this chapter, shall be guilty of an offense. (Ord. No. 1282 § 2)

Sec. 60-191 – 60-199. - Reserved.

Stormwater Design Standards Manual

City of Dickinson, ND

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1.0 INTRODUCTION

1.1 PREFACE

The City of Dickinson (City) adopted this Stormwater Design Standards Manual as a guide to engineers and developers for the implementation of infrastructure related to the collection, conveyance and discharge of stormwater. The City is also designated as a Municipal Separate Storm Sewer System (MS4) under the North Dakota Pollutant Discharge Elimination System (NDPDES), necessitating a Stormwater Design Standards Manual. It is anticipated that not every situation can be contemplated in a design manual and that engineering judgement will need to be applied to some projects. The standards included in this document do not replace judgement or standard of care for the Design Engineer. All references to the City Municipal Code are subject to Chapter 60.VI. The word "shall" is always mandatory and never permissive.

Approval of any plan submitted under the provisions of this article shall expire one year after the date of approval unless construction has commenced in accordance with the plan. However, if prior to the expiration of approval, the applicant makes a written request to the City Engineer for an extension of time to commence construction setting forth the reasons for the requested extension, the City Engineer may grant one extension of not greater than one year. Any plan may be revised in the same manner as originally approved. Any denied application may be resubmitted with additional information addressing the concerns contained within the denial. The resubmitted plan is subject to all applicable fees and shall be considered as a new application.

Development and redevelopment projects within the City of Dickinson or those projects deemed applicable in the City of Dickinson extraterritorial jurisdiction shall control or collect stormwater runoff consistent with the performance requirements, design standards and analysis methods described in this SWDM. Failure to do so may result in the denial of a mandatory stormwater management permit applied for in accordance with Municipal Code (Stormwater Management). Stormwater management is not a one size fits all process and the City has selected a BMP approach to meet the requirements of the MS4 General Permit and Municipal Code.

1.2 PURPOSE

This Stormwater Design Standards Manual (SWDM) has the primary purpose of providing uniform requirements for obtaining mandatory stormwater permits (construction-time and post-construction stormwater management) for development activities within the City and its extraterritorial jurisdiction. This SWDM is developed to:

1. Provide uniform requirements to demonstrate compliance with Chapter 60 of the City Municipal Code (Utilities) and the MS4 General Permit.
2. Decrease durations of project review and approvals.
3. Clearly define submittal requirements and timing to obtain mandatory stormwater permits for plat and site plan applications.

4. Define the materials required for a stormwater permit application package to be deemed complete and ready for review.
5. Define City review timelines for mandatory stormwater permit applications to provide applicants with a greater level of certainty for planning their projects.
6. Clearly and concisely define the Performance Requirements for stormwater management.
7. Summarize the Design Standards for commonly used construction and post-construction stormwater best management practices.
8. Clearly and concisely define acceptable analysis methodologies.

Content included in this SWDM is based on the following general assumptions:

1. The Design Engineer and reviewer are experienced Professional Engineers with a working knowledge of stormwater management, hydrologic analysis and hydraulic design applicable to the subject project.
2. Primary users of the manual will consist of Design Engineers preparing applications for mandatory stormwater permits in support of plat and site plan land use approvals.
3. The SWDM requirements and standards are intended to apply to the majority of development situations.
4. Large flood protection projects, floodplain management, regulated dams, roadway bridge hydraulics and other large scale regional drainage projects will have additional performance requirements and design standards that are outside the scope of this SWDM.

This SWDM is focused on clarifying the requirements for the application and approval of mandatory stormwater permits with an emphasis on the Design Engineer having a strong working knowledge of the theory behind stormwater management.

1.3 USE OF THE MANUAL IN THE ETZ

This SWDM is intended to be utilized for all development and redevelopment projects inside of the corporate limits of the City of Dickinson.

For development and redevelopment projects that occur within the City of Dickinson extraterritorial jurisdiction (ETZ), only the following situations will require this SWDM to apply for the development application. The City Engineer has authority to determine which projects meet these criteria or if there are unique criteria that justify the need for the SWDM requirements to be applied to the project.

- The project is located within the City of Dickinson Urban Reserve area designated in the Comprehensive plan.
- The project is located within a watershed area that has probability to flow into City corporate limits.

1.4 ACRONYMS

The following acronyms and corresponding terms may be referenced in this SWDM by use of the acronym.

Acronym	Term
BMP	Best Management Practice
CMP	Corrugated Metal Pipe
SWPPP	Construction Stormwater Management Permit
EGL	Energy Grade Line
EPA	Environmental Protection Agency
ETZ	Extraterritorial Zone
FEMA	Federal Emergency Management Administration
HDPE	High-Density Polyethylene Pipe
HGL	Hydraulic Grade Line
MS4	Municipal Separate Storm Sewer System
NDDEQ	North Dakota Department of Environmental Quality
NDDOT	North Dakota Department of Transportation
NDPDES	North Dakota Pollutant Discharge Elimination System
NOI	Notice of Intent
NOT	Notice of Termination
SWPPP	Construction Stormwater Management Permit
PVC	Polyvinyl Chloride
RCP	Reinforced Concrete Pipe
SWDM	Stormwater Design Standards Manual
SWMP	Stormwater Management Plan

Acronym	Term
USACE	United States Army Corps of Engineers

1.5 DEFINITIONS

The following terms, phrases, and words, or their derivatives, are applicable to stormwater management in the City. Refer to Chapter 60.VI of the City of Dickinson Municipal Code and the MS4 General Permit as a reference for use in this SWDM for all terms that have meanings as stated in this section.

1.6 DESIGN EXCEPTIONS AND DEVIATIONS

This SWDM is not intended to limit innovation or creativity, particularly when such efforts result in more efficient solutions. Departure from the required standards shall be determined by the City Engineer on a per project basis.

The City Engineer's decision to grant, deny, or modify the proposed deviation shall be based upon evidence that the deviation request meets all of the following criteria:

1. The change will meet the applicable performance requirement.
2. The change will achieve the intended result in a comparable or superior design.
3. The change will not adversely affect safety and/or operation of the Public Storm Sewer System.
4. The change will not adversely affect maintainability of the Public Storm Sewer System.

A non-standard system may take longer to review and the deviation shall be requested during the Mandatory Stormwater Scoping Sheet described in ***Section 3.0***.

1.7 ERRORS & OMISSIONS

Any errors or omissions in the approved plans or information used as a basis for the approval of mandatory stormwater management permits may constitute grounds for withdrawal of approvals and/or stoppage of any or all of the permitted work, as determined by the City. It shall be the responsibility of the Applicant and assigned agents to demonstrate why such work should continue, and to make changes to the plans as may be required by the City before approval of the plans is reinstated.

2.0 STORMWATER MANAGEMENT PROGRAM

2.1 STORMWATER PROGRAM OVERVIEW

The City's stormwater program has been established with the goals of increasing public safety, providing protection of public and private property, and meeting the Municipal Separate Storm Sewer System (MS4) requirements per State and Federal water regulations. The City is a designated MS4 under the EPA's Stormwater Phase II Final Rule and is regulated under the North Dakota Pollutant Discharge Elimination System (NDPDES) by the NDDEQ. The City's MS4 system includes open and closed drainage systems that:

1. Are owned or operated by the City and are designed to collect and convey stormwater; and
2. Discharge, either directly or indirectly, to an MS4 owned or operated by another public body or to other receiving waters.

To meet these goals and requirements, the City has adopted and enforced Municipal Code (Stormwater Management), which sets forth uniform requirements for the stormwater management systems within the City and its extraterritorial jurisdiction. Refer to ***Section 1.3*** for additional information on use of the SWDM in the extraterritorial areas.

2.2 MANDATORY STORMWATER MANAGEMENT PERMITS

To demonstrate compliance with the requirements of the MS4 General Permit and Municipal Code, all development activities are required to:

1. Obtain the necessary mandatory stormwater permits;
2. Provide an acceptable method of mitigating increased stormwater flows from new impervious surfaces;
3. Provide an acceptable method of mitigating stormwater quality impacts from development and redevelopment activities;
4. Safely and efficiently convey stormwater flows to the City's Public Storm Sewer System; and
5. Provide management of stormwater runoff during construction disturbance activities.

Municipal Code requires mandatory stormwater permits for development inside of the City's zoning jurisdiction. The permit consist of a Construction Stormwater Management Permit (SWPPP) is further detailed in ***Section 3.0***. This SWDM is a refinement of the requirements of Municipal Code and provides detailed procedures, performance requirements, design standards and analysis methodologies for the application and approval of mandatory stormwater permits.

2.3 CONFORMANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS

The purpose of this SWDM is to provide requirements for the application for, and approval of, mandatory stormwater permits for developments within the City of Dickinson's zoning

jurisdiction. Approval of a City SWPPP does not constitute project approval for all required local, State and Federal regulations and permits.

It is the responsibility of the Owner, or Applicant, to obtain all necessary approvals from local, State and Federal agencies for the proposed project. Agencies that may require consultation include, but are not limited to, other City of Dickinson departments (i.e. flood plain development) Stark County, Stark County Water Resource District, NDDOT, State Water Commission, NDDEQ, USACE, FEMA and the EPA.

3.0 SUBMITTAL AND REVIEW PROCEDURES

The applicant is required to submit the following documents to the NDDEQ; Notice of Intent, Storm Water Pollution Prevention Plan, and Notice of Termination. These document shall be submitted to the City of Dickinson as they are approved by the NDDEQ. The applicant is responsible of ensuring system performance, safety, and compliance with other local, State, and Federal regulations.

4.0 POST-CONSTRUCTION PEAK DISCHARGE COMPLIANCE

The goal of this section is to provide guidance on the design, performance, and analysis requirements of the City of Dickinson regarding Post-Construction Peak Discharge Compliance.

4.1 POST-CONSTRUCTION BMP PERFORMANCE REQUIREMENTS

Projects that require a SWPPP are subject to Peak Discharge Control requirements and shall include peak discharge post-construction structural or non-structural BMPs to conform to the requirements of ***Table 4-1*** and ***Section 4.1.1*** of this SWDM. Note that these are underlying basic requirements and additional analysis and design requirements for specific components of the City's Public Storm Sewer System are provided within the following sections of this SWDM.

Table 4-1 *– Point of Discharge Peak Flow Compliance*

Point of Discharge Location	***Peak Discharge Control Requirement***
Public Storm Sewer System and new Outfalls to surface waters	Post-Construction runoff resulting from the 2-, 5-, 10-, and 100-year 24-hour rainfall events shall not exceed the runoff rate of the existing conditions.

4.1.1 HYDROLOGIC REQUIREMENTS FOR PROJECTS

Projects that require a SWPPP and are not located in a Stormwater Master Plan or previously approved SWPPP\SWMP are required to provide on-site post-construction BMPs to address peak discharge compliance performance requirements of ***Table 4-1.***

Projects that require a SWPPP and are located in an area that has an adopted Stormwater Master Plan or previously approved SWPPP\SWMP shall provide documentation that the project meets the requirements for Peak Discharge Compliance by utilizing one of the scenarios described below and summarized in *Error! Reference source not found.*.

4.2 POST-CONSTRUCTION BMP ANALYSIS & REQUIREMENTS

4.2.1 HYDROLOGIC ANALYSIS & REPORTING

All Projects that require the analysis and sizing of post-construction BMPs shall document the following minimum information for the hydrologic analysis in the SWPPP application. The SWMP shall clearly documents the application meets the Performance Requirements for Peak Flow Compliance; and hydrologic analysis requirements.

4.2.2 DETENTION BASINS ANALYSIS & REPORTING

When detention basins are proposed as a post-construction BMP to mitigate for peak discharge compliance, the following minimum performance standards shall be documented in the SWPPP application.

Engineered Outlets

All proposed detention basins shall include an outflow structure to limit the post-construction peak flow discharge less than or equal to the existing condition peak flow discharge for the events required by ***Table 4-1***.

Infiltration as an Engineered Outlet

When infiltration is used as an engineered outlet the Applicant shall include the proposed use of infiltration as a peak discharge compliance post-construction BMP, the Design Engineer shall obtain City approval on the approach, analysis methods, and field investigation requirements, and the City Engineer shall provide Project specific analysis and reporting requirements.

Emergency Spillway and\or Overflow Requirement

All proposed detention basins shall have an emergency spillway or overflow path that will route overflow without causing a failure of the detention basin berm or embankment. When approved by the City Engineer, small basins may utilize an oversized riser structure and outlet culvert for the emergency overflow path.

4.3 POST-CONSTRUCTION BMP MINIMUM DESIGN STANDARDS

The following sections include minimum standards that stormwater structures and BMPs shall meet within the City of Dickinson jurisdiction.

4.3.1 DETENTION BASINS

The following minimum design standards are provided as a general guide for small detention basins associated with local and on-site post-construction BMPs. Design of large regional basins and dams requires engineering experience and knowledge outside of the scope of this SWDM.

Detention basins proposed as post-construction peak discharge BMPs shall meet the following minimum design requirements:

Regulatory Permit Required:

Detention basins shall be designed such that the facility does not meet the requirement of a regulated dam per the applicable ND Administrative Code and State Statutes.

1. Regulated dams and water rights are administered by the State Water Commission and the office of the State Engineer.
2. In the event of a design variation allowing a State regulated facility, it is the Applicants responsibility to coordinate all required permits with the office of the State Engineer.

Design and Construction Standards:

Public and private basins shall meet the requirements of the current edition of the City of Dickinson Construction Specifications and the following minimum construction standards:

1. **Side Slopes and Slope Stability**: Slopes of detention basins shall meet the following minimum requirements:
    a. **Maximum Side Slopes**: 3H:1V
    b. **Minimum Bottom Grade**: 0.5 percent
    c. **Maximum Bottom Grade**: 5 percent
2. **Seepage Control**: A seepage control system should be provided for all embankments where a reservoir pool will be maintained for more than 72 hours, regardless of the depth of pond, height of embankment, or foundation materials.
3. **Geotechnical Engineering Requirements**: Fill material shall meet the minimum standards defined in the Geotechnical Engineering report for the project to include the infiltration calculations.
4. **Engineered Outlets:** The detention basin minimum freeboard requirements is 1.0 feet calculated from 100-year 24-hour water surface elevation to the lowest uncontrolled overflow structure. All detention basins shall include an emergency overflow spillway to prevent the berm structure integrity.All basins shall have an engineered outlet that conforms to the following minimum standards:
    a. Minimum orifice size of 4 inches (note that water quality outlets have a smaller allowable orifice size);
    b. Trash protection for all orifices and\or structural overflows; and
    c. A direct connection to the Public Storm Sewer System.
        i. It is the responsibility of the Applicant to obtain all necessary offsite easements to allow connection of proposed basin outlets to the Public Storm Sewer System at the Point of Discharge identified in the Mandatory Stormwater Scoping Sheet approval process.
        ii. Direct Connection can include pipe or open channel conveyance.
5. **Outlet Protection**: Design of outlet culverts shall include:
    a. Culverts shall have flared end sections.
    b. Energy dissipation and armoring shall be provided that is appropriate for the calculated shear stress and velocities from the 100-year 24-hour event.
    c. Rip-rap sizing shall meet the recommendations of ***Table 6-12.***
6. **Easements Required**: Basins shall include drainage easements or be platted as an undevelopable lot to fully contain the detention basin maximum pool, embankment, outlet protection and other elements as required by the City Engineer.
    a. Easements shall be noted as “Public” (maintained by the City of Dickinson or other approved public entity) or “Private” (maintained by the Applicant).
    b. Public Easements must be approved by the City.
    c. Private Easements must have a provision to allow access by the City to allow for maintenance of derelict BMPs.

d. Post-Construction BMPs constructed on undevelopable lots will only be allowed when platted as Common Interest Lots that are attached to benefiting parcels. Use of Common Interest Lots must be approved by the City.

4.4 ANALYSIS METHODOLOGIES

The goal of this section is to provide detailed requirements for the analysis of Peak Discharge Control Compliance. This section is not intended to provide instruction on how to use the various methodologies or software packages as it is assumed that a sufficient understanding of hydrologic and hydraulic analyses as they apply to urban stormwater management and drainage is a prerequisite to the use of this SWDM.

4.4.1 HYDROLOGY (COMPUTING RUNOFF)

Requirements necessary for computing runoff within the City of Dickinson's jurisdiction are listed below:

Acceptable Methods:

1. NRCS (SCS) Curve Number (CN) Method, NRCS Unit Hydrograph Methods & Time of Concentration Methods.
2. The Rational Method is not an accepted methodology for Peak Discharge Control Compliance.

Separation of Impervious/Pervious:

1. Impervious and pervious cover must be separated in the analysis on a per sub-catchment basis. Use of composite CN numbers that include the impervious area will not be allowed.
2. If the hydrology modeling software selected by the Design Engineer does not allow for direct entry of the sub-catchment percent impervious, the sub-catchment will need to be modeled as two individual sub-catchments, each having the same time of concentration but with the areas of each appropriately reflecting the pervious and impervious cover. This method is demonstrated in ***Example 4-1***.
3. Pervious and Impervious area within the project site must be manually measured to reflect the actual site design.
4. Modeling of offsite watersheds that are routed through a project site may utilize typical impervious percentages as provided in ***Table 4-2***.

Example 4-1 *Separation of Impervious and Pervious Areas*

If a 10-acre site is 25 percent impervious with the pervious portion having a CN of 74, the site:

1. Shall not be assumed to have a single, composite CN of 80; and
2. The runoff shall be computed using:
    a. A 2.5-acre sub-catchment with a CN of 98 for the impervious area;
    b. A 7.5-acre sub-catchment with a CN of 74 for the pervious area; and
    c. Both sub-catchments shall be assigned the same Tc, calculated based on the longest flow path within the 10-acre site.

Table 4-2 *– Typical Impervious Coverage for Offsite Drainage*

Land Use Type		***Impervious Cover***
Residential Developments	1/8 Acre Lots	65%
	1/4 Acre Lots	38%
	1/3 Acre Lots	30%
	1/2 Acre Lots	25%
	1 Acre Lots	20%
	2 Acre Lots	12%
Commercial		85%
Industrial		90%
Street ROW(1)		85%

(1) Street ROW includes the street, landscape boulevard, sidewalk and driveway aprons included in the public street right-of-way. Highway and/or arterial street sections may require higher impervious percentage.

Minimum Impervious Coverage:

The minimum impervious coverage values provided in *Error! Reference source not found.* are intended to guide the planning of stormwater facilities in the platting phase by providing a minimum impervious cover to be used for each zoning type. Impervious coverages exceeding the values in *Error! Reference source not found.* may be used when planning stormwater facilities. Site plans shall use the actual measured impervious cover. Additional explanation is provided below:

1. **Plats**:

a. Development in the platting phase shall not assume a minimum impervious coverage value less than those provided in *Error! Reference source not found.***.**
b. Higher assumed impervious amounts may be recommended or used by the Design Engineer.
c. The approved plat SWMP will set the maximum impervious coverage for the development.
d. Development of parcels inside of an approved plat SWPPP\SWMP to higher than planned impervious percentages will require a modification to existing facilities or construction of new facilities.

2. **Site Plans**:
    a. Shall use the actual impervious cover for the proposed project not to exceed the Municipal Code Section 62-162 – Development Regulations for the maximum impervious coverage.

Hydrologic Soil Group (HSG):

1. Shall be obtained from the NRCS Web Soil Survey;
2. Complex soil groups shall be set to the Aggregation Method of "Dominant Condition" within the Advanced Options of the NRCS Web Soil Survey (See *Error! Reference source not found.*);
3. "Urban Land" shall be assigned a HSG of "C"; and
4. Dual HSG classifications shall be assigned the HSG with the higher runoff potential (i.e. HSG B/D shall be assumed to be HSG D).

CN Values

CN values shall be obtained from ***Table 4-3***. Values different from those provided in ***Table 4-3*** must be approved by the City Engineer.

Table 4-3 *– Runoff Curve Numbers*

Cover Type	***Curve Numbers for HSG Soil Groups***			
	HSG A	***HSG B***	***HSG C***	***HSG D***
Impervious	98	98	98	98
Gravel Surface	96	96	96	96
Grass (Lawn)	39	61	74	80
Brush	30	48	65	73
Pasture/Rangeland	39	61	74	80
Cropland	62	73	80	84
Meadow (not grazed)	30	58	71	78

(1) The CN values are the maximum allowable for existing conditions analyses.

(2) The CN values Table 4-3are the minimum allowable for post-construction conditions analyses.

Time of Concentration (Tc):

1. **Minimum Tc:** 5 minutes
2. **Sheet Flow:** Maximum length of 100 feet.
3. Refer to Part 630 Chapter 15 of the National Engineering Handbook for additional guidance and information.

Rainfall Depths: See *Error! Reference source not found.*

1. **Rainfall Distribution**: SCS Unit Hydrograph Type II
2. **Rainfall Event**: 24-Hour Storm, unless otherwise master planned or platted.

Maximum Rainfall Hyetograph Time Increment:

10 minutes

Gravel Roadways and Gravel Parking Lots:

Shall be considered as part of the impervious area when separating and analyzing pervious and impervious area within a catchment.

4.4.2 HYDRAULIC ROUTING

The following list is intended to provide the Design Engineer with City of Dickinson requirements for Hydraulic Routing.

Routing Method:

1. Storage Indication Method (also known as hydrologic routing) may be utilized for projects with unconnected basins and free discharges.
2. Dynamic Routing Methods (also known as hydraulic routing) shall be incorporated for all projects that include interconnected basins, pump stations, tail water or backwater conditions, and other complex conditions that require a dynamic routing method.
3. Rational routing methods shall not be allowed.
4. Routing method requirements will generally be noted in the Mandatory Stormwater Scoping Sheet.

Starting Water Surface Elevation:

1. For proposed basins the starting Water Surface Elevation (WSE) in a detention facility shall be assumed to be equal to the invert of the lowest engineered outlet.
2. Known tail water or backwater conditions may require that the starting WSE be higher.

Outlet Protection:

1. **Shear Stress:** Shall be calculated using the following equation:

$\tau = \gamma D S$

Where:

τ = Shear Stress (lb/ft^2)

γ = Weight of Water (lb/ft^3)

D = Average Depth of Water (ft)

S = Surface Water Slope (Energy Grade Line)

4.4.3 ACCEPTABLE SOFTWARE

Acceptable software for the analysis of peak discharge is provided by *Error! Reference source not found.*.

5.0 POST-CONSTRUCTION WATER QUALITY COMPLIANCE

The goal of this section is to provide guidance on the design, performance, and analysis for Post-Construction Water Quality BMPs to meet the requirements as outlined in the City's MS4 permit (*Error! Reference source not found.*).

5.1 POST-CONSTRUCTION BMP PERFORMANCE REQUIREMENTS

Projects that require a SWPPP are subject to Post-Construction Water Quality requirements and shall propose permanent structural or non-structure BMPs that conform to the requirements of ***Table 5-1.*** Note that these are underlying basic requirements and additional analysis and design requirements for specific components of the City's Public Storm Sewer System are provided within the following sections of this SWDM.

Table 5-1 *– Water Quality Performance Requirement*

Situation	***Water Quality Requirement***
New Development & Impervious Areas	Prescriptive BMP sizing requirements per *Error! Reference source not found.*.
Redevelopment & Retrofit	Design BMPs to treat the first 0.5 inches of runoff from impervious areas.
Alternative BMP Method[1]	80% Total Suspended Solids (TSS) removal on an average annual basis shall be achieved.

(1) Requires approval from the City Engineer during the Mandatory Scoping Sheet process.

5.2 POST-CONSTRUCTION BMP ANALYSIS & REPORTING REQUIREMENTS

5.2.1 ALTERNATIVE BMP METHOD ANALYSIS AND REPORTING

Post-Construction water quality BMPs, other than the Prescriptive BMPs included in *Error! Reference source not found.*, may be utilized when the analysis and sizing has been documented in the required SWPPP. The following minimum information shall be provided:

1. Citation and reference to an accepted BMP Manual for the analysis requirements and design standards for the Alternative BMP;
2. Demonstration that the requirements of ***Table 5-1*** have been met; or
3. Demonstration that alternative performance requirements approved by the City Engineer have been met; and
4. The alternative performance requirements have been approved as a deviation prior to the submittal of the SWPPP application.

5.3 POST-CONSTRUCTION WATER QUALITY BMP DESIGN STANDARDS

The following sections include minimum standards that stormwater structures and BMPs shall meet in the City of Dickinson.

5.3.1 DETENTION BASINS

In addition to the minimum design standards presented in ***Section 4.3.1***, detention basins proposed for post-construction water quality BMPs shall meet the following minimum design standards:

Engineered Outlets:

All water quality basins shall have an engineered outlet that conforms to the following minimum standards:

1. Minimum orifice size of 2 inches.
2. The distance between inlets and the outlet shall be maximized to facilitate sedimentation and limit short-circuiting of the water quality BMP:
    a. Minimum length to width ratio is 3:1 as measured along the flow path from inlet to outlet; or
    b. If project area constraints make this ratio unobtainable, the Design Engineer shall incorporate baffles, islands or peninsulas to increase the flow path and limit short-circuiting.

Required Forebay:

All water quality basins shall include a forebay to aid in routine maintenance, limit the potential for short-circuiting, and reduce resuspension of accumulated sediments.

1. Dry Detention Basins shall be divided into a minimum of two cells.
    a. The first cell (forebay) shall contain, at a minimum, 10-percent of the design surface area as measured at the required water quality volume surface elevation; and
    b. The forebay shall provide a minimum of 1 foot of dead storage for sediment accumulation.
2. Wet Detention Basins shall be divided into a minimum of two cells with the forebay containing no less than 10-percent of the design surface area as measured at the required water quality volume surface elevation.

Embankment and Basin Protection:

All exposed soils shall be stabilized by an appropriate method. Stabilization of the active storage area will need to consider the type of protection, including vegetation species selection, given the anticipated frequency and depth of inundation.

1. Dry Detention Basins shall be stabilized with native vegetation suitable for frequent inundation or other vegetative plantings that will allow for 100% coverage of the basin area;
2. Wet Basins shall include:
    a. Appropriate stabilization at and below the normal pool elevation;
    b. Suitable native grass or other vegetative plantings above the normal pool elevation;
    c. Vegetation shall provide 100% coverage to the basin area over the normal pool elevation; and
    d. Vegetative stabilization shall be selected from species suitable to grow and survive during periods of inundation.

5.3.2 INFILTRATION BMPS

Use of infiltration and filtration BMPs requires approval by the City Engineer during the Mandatory Stormwater Scoping Sheet process.

When approved for use, infiltration and filtration BMPs shall meet the Geotechnical Report requirements and design standards:

5.4 ANALYSIS METHODOLOGIES

The goal of this section is to provide detailed requirements for the analysis of Water Quality performance.

5.4.1 WATER QUALITY VOLUME (V_{WQ})

The water quality volume shall be determined using the methods described in *Error! Reference source not found.*.

5.4.2 STANDARD METHODOLOGY

Standard Methodology analysis will be for the prescribed drawdown time of the selected BMP. For the purposes of determining compliance with the drawdown time requirements, the method presented in *Error! Reference source not found.* shall be used.

Drawdown time refers to the amount of time it takes for the V_{wq} to drain down to within 3 inches of the lowest engineered outlet. Depths under 0.25 feet (3 inches) may take an extensive amount of time to drawdown to the point of zero volume due to minimal head.

6.0 POST-CONSTRUCTION DRAINAGE AND CONVEYANCE COMPLIANCE

The goal of this section is to provide guidance on the design, performance, and analysis requirements for Drainage and Conveyance within the City of Dickinson. Examples of drainage and conveyance facilities include storm sewer, drainage ditches, streets, open channels, culverts and other engineered systems intended to carry stormwater to a Point of Discharge.

6.1 PERFORMANCE REQUIREMENTS

6.1.1 STREET DRAINAGE PERFORMANCE REQUIREMENTS

The criteria and procedures found in this section establish the performance requirements for street drainage conveyance infrastructure including gutters, inlets, manholes, and storm sewers.

Hydrologic Requirements

The street drainage system shall be designed as an integral part of the Public Storm Sewer System. Performance standards for stormwater flows on City streets are separated into requirements for the 5-year 24-hour event and the 100-year 24-hour event:

1. The 5-year 24-hour event has been selected to minimize nuisance flooding, protect against recurring minor damages, and reduce maintenance costs for streets by removing frequent flows in an orderly and economic manner.
2. The 100-year 24-hour event has been selected to minimize the potential for substantial property damage and loss of life by providing a defined drainage pathway for large rainfall events.

Allowable Street Spread

Street spread performance requirements are applicable to runoff being conveyed longitudinal to (i.e. parallel to) the right-of-way.

In situations where runoff is conveyed perpendicular to the right-of-way, the stream crossing and culvert crossing performance standards described in ***Section 6.1.3*** are applicable.

For the 5-year 24-hour storm, the performance requirements are to limit the spread (encroachment into the travel lanes) and the depth (inundation) of stormwater conveyed longitudinally in the right-of-way to below acceptable limits during the design event.

For the 100-year 24-hour storm, the performance requirement is to contain the runoff inside of the public right-of-way.

The street spread performance requirements for the 5-year 24-hour and 100-year 24-hour storm events are provided in ***Table 6-1*** and

Table 6-2***.***

Table 6-1 *– 5-year 24-hour Storm Street Performance Requirements*

Street Classification[1]	***Max Depth***	***Max Encroachment***[2]
Local Residential	No curb overtopping.	Flow may spread to crown of the street.
Local Commercial	No curb overtopping.	Flow may spread to crown of the street.
Collector – (All Sections)	No curb overtopping.	Leave 12 feet on each side of centerline clear of encroachment.
Arterial (Principal & Minor) & Parkways [3]	No curb overtopping.	Flow spread shall be limited to 7.5 feet or less from the face of curb.
State Highways	Shall meet the requirements of the NDDOT.	

(1) Typical City urban street classification and geometry as defined by Title 14-09-05(1)(k) of the Zoning Ordinance.

(2) Where no curb exists, flow spread shall not extend past street right-of-ways.

(3) Maximum encroachment from interior raised median shall be less than 4-feet from the median curb.

(4) Performance Requirements for non-standard street sections and geometry shall be determined by the City Engineer during the Mandatory Stormwater Scoping Sheet.

Table 6-2 *– 100-year 24-hour Storm Street Performance Requirements*

Street Classification[1]	***Max Depth***	***Max Encroachment***
Local Residential	6 inches at the crown	The inundated area shall not exceed the street right-of-way.
Local Commercial	6 inches at the crown	The inundated area shall not exceed the street right-of-way.
Collector – (All Sections)	6 inches at the crown	The inundated area shall not exceed the street right-of-way.
Arterial (Principal & Minor) & Parkways	3 inches at the highest point of the driving lane.	The inundated area shall not exceed the street right-of-way.
State Highways	Shall meet the requirements of the NDDOT.	

(1) Typical City urban street classification and geometry as defined by Title 14-09-05(1)(k) of the Zoning Ordinance.

(2) Performance Requirements for non-standard street sections and geometry shall be determined by the City Engineer during the Mandatory Stormwater Scoping Sheet.

Allowable Cross-Street Flow

Cross-street flow occurs when runoff flowing longitudinally in a gutter is allowed to cross the travel lane due to a lowered crown in the street section or a valley gutter in an intersection. Cross-street flow is applicable to runoff contained in the street right-of-way and is not the same as allowable street overtopping for culverts crossing perpendicular to a street right-of-way.

Allowable cross-street flows for the 5-year 24-hour and 100-year 24-hour storm events are shown in ***Table 6-3***.

Table 6-3 *– Allowable Cross-Street Flow Requirements*

Street Classification[1]	***5-year 24-hour Criteria*** [1]	***100-year 24-hour Criteria*** [1]
Local	6 inch Depth at Crown or in Valley Gutter	9 inch Depth at Crown or in Valley Gutter
Collector	3 inch Depth in Valley Gutter	6 inch Depth at Crown or in Valley Gutter
Arterial	None	3 inch Depth or Less at Crown no allowable Valley Gutter Flow

(1) Typical City urban street classification and geometry as defined by Title 14-09-05(1)(k) of the Zoning Ordinance.

6.1.2 STORM SEWER SYSTEM PERFORMANCE REQUIREMENTS

The Storm Sewer System is a series of underground pipes designed to convey runoff to an outfall. This system includes inlets, pipes, manholes and other appurtenances necessary to efficiently collect and covey drainage from streets and surrounding properties. Design of the Storm Sewer System components shall be determined by a thorough analysis of the drainage area involved in accordance with the provisions of this SWDM.

The following section generally describes the performance standards for the analysis and design of a Storm Sewer System associated with a transportation system. These standards also can be applied to Storm Sewer trunk mains or other drainage pipes not located under a road or street. Based on drainage area, the Design Engineer or City Engineer may determine that more stringent performance requirements may be necessary for specific projects.

Storm Sewer Inlets and Catch Basins

INLET CAPACITY AND SPACING

Storm sewer inlets are a structure that intercept and capture surface runoff and direct the flow into the mainline pipe. All storm sewer inlets shall meet the following minimum performance requirements:

1. Storm sewer inlets installed in public streets shall be designed with capacity and spacing such that the maximum street spread widths and cross flow requirements of ***Table 6-1***,

2. ***Table*** 6-2 and ***Table 6-3*** are not exceeded.
3. Storm sewer inlets shall be designed to intercept the 5-year 24-hour design flow with the allowable bypass as defined in ***Table 6-4.*** Storm sewer inlets located in sag locations shall include the consideration of conveying flows greater than the design event in a manner that limits the potential for damage to adjacent property or structures.
4. The theoretical capacity of inlets and grates in sags or on grade shall be determined from manufacturers' or industry design charts or procedures utilizing the 5-year 24-hour event street spread criteria.
5. The capacity of the inlet lateral pipe shall exceed that of the theoretical capacity of the inlet for the 5-year 24-hour event.

***Table 6-4** – Storm Sewer Inlet Bypass Flow Design Requirement*

Condition	***Allowable Bypass***
Sag Location	No bypass flows are allowed during the 5-year 24-hour event. Provide a 100-year 24-hour event overflow path that minimizes the potential for damage to adjacent property or structures.
Streets on Continuous Grade	The final downstream inlet or inlets shall be designed to intercept no less than 50% of the 5-year 24-hour storm.
Temporary Dead End Streets on Down Grade	Unless otherwise approved by the City Engineer, final downstream Storm Sewer Inlets shall not allow bypass flows during the 5-year 24-hour event.
Tee-Intersections on Down Grades and Low Points	No bypass flows are allowed during the 5-year 24-hour event design flow. Depending on downstream conditions, the City Engineer may require oversizing inlets at low points.
Sag or Low Point with a Storm Sewer Outfall	Storm Sewer Inlets and Outfall Pipe shall be designed to allow no bypass flows during the 25-year 24-hour event design flow.

INLETS LOCATED ON SAGS WITH A STORM SEWER OUTFALL

In situations where a street drainage inlet and storm sewer system intercepts street runoff and discharges perpendicular to the right-of-way, the final sag inlets shall be sized to allow no bypass flows during a **25-year 24-hour event** and a pipe shall convey this design flow to the Point of Discharge. Additionally, an open channel overflow path shall be provided to convey the 100-year 24-hour event from the street sump location to the Point of Discharge consistent with the requirements of ***Section 6.1.4 Open Channels***.

Storm Sewer Pipe

All storm sewer pipe shall meet the minimum performance requirements for the 5-year 24-hour and 100-year 24-hour design events as shown in ***Table 6-5***.

Table 6-5 *– Storm Sewer Pipe Capacity Requirements*

Storm Classification	***Requirement***
5-year 24-hour Storm	HGL less than 0.5 foot above the crown of pipe as measured at the structure inlet point.
100-year 24-hour Storm	Storm sewer may be designed to surcharge during the 100-year 24-hour events; however, surcharging shall not result in a HGL elevation higher than the criteria listed in ***Table 6-1*** or ***Table*** 6-2.

All storm sewer pipe shall meet the velocity performance requirements listed in ***Table 6-6.***

Table 6-6 *– Storm Sewer Pipe Velocity Requirements for 5-year 24-hour Storm*

Parameter	***Requirement***
Minimum Velocity	2 feet per second
Maximum Velocity	15 feet per second

Storm Sewer Reporting Requirements

INLETS & CATCH BASINS

When storm sewer inlets are proposed for a project that requires a SWPPP application, the Basis of Design Report shall include the following information documenting the performance of the storm sewer system:

1. Location, type, size, rim elevation and depth of the proposed inlet;
2. 5-year 24-hour design flow to the inlet;
3. Theoretical inlet capacity;
4. Depth of water in the gutter at the inlet;
5. Flow intercepted and flow bypassed; and
6. Street drainage spread width.

STORM SEWER PIPE

When storm sewer is proposed for a project that requires a SWPPP application, the Basis of Design Report shall include the following information documenting the performance of the storm sewer system:

1. Pipe calculations that state the design peak flow rates and design information for each pipe run, such as size, slope, length, material type, and Manning's coefficient;
2. Velocities at design flow for each segment of proposed pipe;
3. HGL at each inlet, manhole, angle point, and outlet;

4. Depth from finish grade to pipe invert for each segment of proposed pipe; and
5. When there is a significant change in slope of the pipe through a manhole or other structure, the EGL at the structure assuming the velocity approaches zero.

6.1.3 CULVERT PERFORMANCE REQUIREMENTS

Requirements presented in this section shall be used in the analysis and reporting for design of culverts for public streets, roads and highways. Culverts are defined as a closed conduit for the passage of water under an embankment, such as a road or street. Water enters the culvert directly through the upstream opening in the conduit.

Calculations relating to design of culverts shall be submitted for approval with the SWPPP application, with criteria sections of this SWDM being referenced. The following tables define the minimum performance requirements for the analysis and design of culverts.

Hydrologic analysis and capacity of culverts shall be determined using a combination of the design storm, the allowable headwater depth and allowable street overtopping. The headwater depth is measured from the invert of the culvert to the resulting inlet headwater elevation.

The proposed culvert size and/or slope shall be increased until the requirements of ***Table 6-7***, ***Table 6-8*** and ***Table 6-9*** have been met.

The allowable headwater requirements in ***Table 6-7*** are intended to apply to the majority of situations encountered in the City of Dickinson. All culvert crossing of the State Highway System shall also conform to the North Dakota Public Highway Stream Crossings as defined by NDAC 89-14.

Table 6-7 *– Culvert Headwater Requirements*

Storm	***Allowable Headwater***
25-year 24-hour Event	1.5 times the culvert diameter or culvert rise(1)
100-year 24-hour Event	***Table 6-8*** Overtopping Criteria shall not be exceeded

(1) Culvert Rise is the height of the culvert for shapes other than round.

Allowable street overtopping for culverts installed perpendicular to road right-of-ways shall meet the criteria shown in ***Table 6-8.*** The street overtopping criteria is applicable to situations where the culvert headwater rises to a level where the flow in the channel overtops the street embankment and flows over the street to the downstream outlet of the culvert. Culvert street overtopping is not the same as allowable cross-street flow.

Table 6-8 *– Culvert Allowable Street Overtopping Requirements*

Street Classification	***Storm***	***Requirement***
All Streets	25-year 24-hour Event	No Overtopping
Local	100-year 24-hour Event	6 inches measured to the highest point on the street section (1)
Collector & Arterial	100-year 24-hour Event	No Overtopping

(1) For local urban streets, the highest point is typically the ROW line and for local rural road the highest point is the centerline of the ROW.

Analysis of the culvert shall consider the minimum velocity for cleansing and the maximum velocity for outlet protection. ***Table 6-9*** presents the minimum required cleaning velocity and allowable outlet velocities for typical types of protection. Outlet velocities in excess of 11 feet per second require an engineered energy dissipation feature or outlet armor design and supporting calculations.

Table 6-9 *– Culvert Velocity Requirements*

Parameter	***Requirement***
Minimum Velocity	2.5 feet per second during the 5-year 24-hour Storm
Outlet Protection	Per ***Table 6-12***

Culvert Reporting Requirements

When culverts are proposed for a project that requires a SWPPP application, the Basis of Design Report shall include the following information documenting the performance of the culvert:

1. Complete culvert calculations that state the design peak flow rates, culvert size, slope, inverts, length, material type, wall thickness, and Manning's coefficient.
2. Type of end treatment.
3. Headwater depths and water surface elevations for the design storm events.
4. Velocities at the inlet and outlet for the design storm events.
5. Flow control type (inlet or outlet).
6. Roadway cross-section and roadway profile.

6.1.4 OPEN CHANNELS PERFORMANCE REQUIREMENTS

Open channels in the City of Dickinson consist of two types; engineered channels and natural channels. Engineered channels are generally constructed to uniform lines and grades with lining materials or established vegetation to protect the channel from erosive forces. Natural channels

include all watercourses that have been established by nature. State, local, and federal laws shall be adhered to if modifications are proposed to natural channels.

Requirements presented in this section shall be used in the analysis and reporting for design of engineered open channels that convey runoff through and from developed areas. Analysis and impact to natural channels shall conform to FEMA floodplain management requirements and other applicable local, state and federal regulations. Channels should be located such that they will not adversely affect existing infrastructure.

Calculations relating to design of engineered channels shall be submitted with the SWPPP application for approval, with criteria sections of this SWDM being referenced. The following tables define the minimum performance requirements for the analysis and design of engineered open channels.

Engineered channels shall meet the minimum freeboard requirements listed in ***Table 6-10*** for the 100-year 24-hour event. Excavated or incised channels are constructed below the existing grade and do not require berms to contain the 100-year 24-hour design flows and freeboard requirements.

When berms are used to contain the 100-year 24-hour design flows, a greater amount of freeboard is required to account for the increased risk of uncontrolled flows if the berms are breached.

Table 6-10 *– Engineered Channel Freeboard Requirement*

Channel Type	***100-year 24-hour Storm Minimum Freeboard***
Fully Excavated or Incised	1 foot below the easement or right-of way boundary.
Berms or Built-Up Channels[1]	2 feet below the easement or right-of way boundary

(1) City Engineer may require more stringent requirements for channels constructed with berms that could overtop and result in an uncontrolled discharge.

(2) Minimum top width of channel berms shall be 6-feet

Engineered open channels shall be designed to resist the erosive forces of both the 5-year 24-hour and 100-year 24-hour events. Each case will require the Design Engineer to select channel geometry and lining materials that meet the performance requirements of this section. Channel lining design requires analysis of both the design velocity and predicted shear stress to select the proper lining material for individual channels.

Channels should be designed to avoid flows near critical depth or supercritical flows.

Table 6-11 and *Error! Reference source not found.* provide minimum performance requirements for the allowable velocity and shear stress for engineered channels.

Table 6-11 *– Engineered Channel Lining Requirements*

Condition	***Minimum Requirement***
5-year 24-hour Event V < 5 FPS	Grass Lined Channels
5-year 24-hour Event V > 5 FPS	Lining to Resist Calculated Shear Forces
100-year 24-hour Event V < 5 FPS	Grass Lined Channel
100-year 24-hour Event V > 5 FPS	Lining to Resist Calculated Shear Forces

V = Velocity

FPS = Feet per Second

Open Channel Reporting Requirements

When engineered open channels are proposed for a project, the submitted SWMP shall include the information outlined on the SWPPP Checklist (SM-05) available in *Error! Reference source not found.*.

6.1.5 OUTLET AND OUTFALL PROTECTION PERFORMANCE REQUIREMENTS

Outlet and\or outfall protection of culverts shall be designed to resist the erosive forces of events up to the 25-year 24-hour storm. For critical infrastructure, the City Engineer may require that culvert outfalls be designed for the 100-year 24-hour event.

Culvert outfalls shall be designed to resist the scour at the outlet and dissipate velocities to values that are appropriate for the downstream channel. For the majority of installations, utilization of properly sized rip-rap at the outlet will provide suitable protection against scour and sufficient energy dissipation.

***Table 6-12** – Maximum Allowable Design Velocities for Outlet Protection*

Parameter		***Velocity of Design Event***
Vegetation and/or Permanent Turf Reinforcement Mat		< 5 feet per second
Riprap Size Classification	VL	6.5 feet per second
	L	8.0 feet per second
	M	9.5 feet per second
	H	10.5 feet per second
	VH	11.0 feet per second
Energy Dissipater Required		> 11 feet per second

When velocities exceed 11 feet per second for the 25-year 24-hour event, or the City Engineer requires a higher design standard for critical infrastructure, the Design Engineer shall include an engineered energy dissipation structure. Accepted structures include:

1. Short Stilling Basin (USBR Type II).
2. Baffled Apron Stilling Basin (USBR Type IX).
3. Impact Stilling Basin (USBR Type VI).

Energy dissipation structures shall meet the design requirements of the current United States Bureau of Reclamation technical circular.

Other proprietary outlet protection measures may be proposed by the Design Engineer and approved at the City's discretion. **Articulated Concrete Block is not allowed as culvert outlet protection**.

6.2 MINIMUM DESIGN STANDARDS

All design and construction for the extension of the City's Public Storm Sewer System shall conform to the requirements of the current edition of the Standard Specifications. Requirements of the Standard Specifications are not reproduced or repeated in this SWDM. It is the responsibility of the Design Engineer to cross-reference the requirements for this SWDM and the Standard Specifications.

6.2.1 STREET DRAINAGE DESIGN STANDARDS

Street Layout

Street layout and design shall meet the requirements of Title 14-09-05 Municipal Code.

Curb & Gutter

Curb & Gutter shall be included on all new public and private streets proposed for development activities in the City of Dickinson.

Curb and gutter grades shall meet the minimum design requirements of Title 14-09-05 Municipal Code.

Public Streets shall have curb and gutter that conforms to Section 603 of the Standard Specifications.

Valley Gutters

Where storm sewer is not required by street spread requirements or otherwise not justified, valley gutters may be installed to convey runoff through Local Street intersections only. No valley gutters are allowed on Arterial or Collector streets unless approved by the City Engineer.

Design considerations for valley gutters include:

1. The minimum grade of the valley gutter shall be 0.5 percent at the flow line.
2. When valley gutters are used to redirect surface flow greater than 90-degrees (change direction), the Design Engineer shall include an analysis of the HGL and EGL to determine if a significant change in water surface elevation occurs due to a reduction in velocity.

6.2.2 STORM SEWER SYSTEM DESIGN STANDARDS

Storm Sewer Inlets

The primary purpose of storm sewer inlets is to intercept surface runoff and deposit it in a Public Storm Sewer System, thus reducing the potential for surface flooding. Storm sewer inlets can be located along street and\or in landscaped areas. The following design requirements generally apply to storm sewer inlets located within public streets and right-of-ways. These general concepts can be applied to private collection systems located in parking lots, parks, athletic fields and other areas that have storm sewer inlets and pipes to collect runoff.

The inlet capacity governs both the rate of water removed from the gutter and the amount of water that can enter the storm drain system. Inadequate inlet capacity or poor inlet location may cause flooding which creates a safety hazard and may interrupt traffic or damage adjacent property.

Storm sewer inlets located within public streets are classified into two major groups: Sag inlets and On-Grade inlets. In addition, inlet types vary as well. A brief description of the inlet types follows:

1. Curb-opening inlets: These inlets consist of a vertical opening in the curb through which the gutter flow passes.

2. Grate inlets: These inlets consist of an opening in the gutter covered by one or more grates.
3. Combination inlets: These units consist of both a curb-opening and a grate inlet acting as a single unit.
4. Catch Basin Inlets: These inlets consist of a flat grate opening intended to be installed in a parking lot or landscaped area.

Storm sewer inlets shall conform with the requirements of Section 1205 of the Standard Specifications and applicable current details.

The following are minimum design standards for inlet situations:

1. **Parking Lots and Private Property**: Catch basins installed in parking lots or private pervious areas shall meet the following minimum requirements:
    a. **Catch Basin Capacity**: Provide 150% of the 5-year 24-hour event at each catch basin assuming a 0.5 foot depth;
    b. **Max Ponding Depth**: 18 inches during the 100-year 24-hour event.
    c. **Minimum Freeboard**: 1 foot to finished floor elevations, or lowest openings, of adjacent buildings during the 100-year 24-hour event.
    d. **Overflows**: No uncontrolled (overflow) discharge to the public street right-of-way during the 100-year 24-hour event.
2. **Private Streets**: Meet the requirements of Public Streets.
3. **Public Street Right-of-Ways**: Inlets installed in public street right-of-ways shall meet the following minimum design standards:
    a. **On-Grade Inlets**:
        i. Inlet Capacity: Can use 100% of the computed inlet capacity (i.e. ignore clogging); and
        ii. Minimum Inlet Size: Type 36”
    b. **Sag Inlets**:
        i. Inlet Capacity:
            1. Sag without a Storm Sewer Outfall: Provide 150% of the 5-year 24-hour design flow at curb depth;
            2. Sag with a Storm Sewer Outfall: Provide 150% of the 25-year 24-hour design flow at a depth that does not allow overflow from right-of-way;
        ii. Minimum Inlet Size: Type 72”
        iii. See *Error! Reference source not found.* for theoretical capacity of standard inlets in a sag. Design Engineer shall confirm capacities for actual location and products specified.

Storm Sewer Pipe Design Standards

Storm Sewer Pipe design, material and construction shall conform to the requirements of Section 802 and current Standard Drawings of the Standard Specifications.

All storm sewer pipe sizes shall conform to the requirements of ***Table 6-13*** unless approved by the City Engineer.

Table 6-13 *– Storm Sewer Pipe Size Requirements*

Pipe Type	***Minimum Size Requirement***
Public Lateral	15-inch diameter
Public Mainline	18-inch diameter or not decreasing in flow direction
Private Storm Sewer	12-inch diameter
Private Foundation or Building Drain	4-inch diameter

All storm sewer pipes shall be located consistent with the requirements ***Table 6-14*** unless approved by the City Engineer.

Table 6-14 *– Storm Sewer Pipe Location Standards*

Situation	***Design Location***
Street Right-of-Way	Storm sewer parallel to the street and in the right-of-way should be placed beneath the traveled lanes, to fit specific manhole or inlet connections. Storm sewers should be located in streets with 10 feet of horizontal separation from sanitary sewers and water mains. Storm sewer pipe changes in grade or direction shall be made at manholes that are accessible through a standard manhole casting.
Public Easements	Pipe centered in a 30-foot minimum easement width. Easements located outside of street right-of-ways shall include a 20 foot wide all-weather access and maintenance path.
Private Easements	Pipe centered in a 20-foot minimum easement width.

Notes:

(1) Easements shall be noted as “Public” (maintained by the City of Dickinson or other approved public entity) or “Private” (maintained by the Applicant).

(2) Public Easements must be approved by the City.

(3) Private Easements must have a provision to allow access by the City to allow for maintenance of derelict storm sewer pipes.

Pipes shall be designed to withstand anticipated loads in accordance with standard industry design procedures. AASHTO HS-20 loading may be assumed during design unless unique conditions of the site warrant a higher load capacity.

The Design Engineer shall confirm the minimum pipe cover for materials specified for individual projects.

Manholes

Manholes or other maintenance access ports (tee manhole sections on large diameter pipe) are required whenever there is a change in direction, elevation, grade or the junction of two runs of storm sewer.

Manhole design, material and construction shall conform to the requirements of Section 1205 and current Standard Drawings of the Standard Specifications.

Manholes shall be located such that the maximum spacing requirements of ***Table 6-15*** are not exceeded.

Table 6-15 *– Storm Sewer Manhole Spacing Standards*

Situation	***Maximum Manhole Spacing***
18” to 21” Storm Sewer Pipe	450 feet
24” to 30” Storm Sewer Pipe	500 feet
Over 30” Storm Sewer Pipe	600 feet

(1) All pipe sizes are in round diameters.

Manhole size (diameter) shall be sufficient for the size of pipe entering and exiting the structure. ***Table 6-16*** lists the design standards for typical reinforced concrete pipe and precast concrete manholes. The Design Engineer shall confirm that the minimum manhole size listed in ***Table 6-16*** is appropriate for the materials specified for individual projects and angles of pipe entering/exiting the manhole.

Table 6-16 *– Storm Sewer Manhole Typical Minimum Sizes*

Situation	***Minimum Manhole Size***
18" to 24" Storm Sewer Pipe	48-inch Diameter Manhole
27" to 36" Storm Sewer Pipe	60-inch Diameter Manhole
42" Storm Sewer Pipe	72-inch Diameter Manhole
48" and larger Storm Sewer Pipe	Junction Box or Tee Manhole as approved by the City Engineer

(1) Sizing based on recommendations by Forterra. Design engineer to confirm manhole sizing from actual supplier.

(2) All pipe sizes are in round diameters. Design engineer to confirm minimum manhole size to other pipe shapes.

(3) Inlets shall not be utilized as manholes for mainline storm sewer pipe.

Elevation drop shall be provided in manholes per the requirements of ***Table 6-17***.

Table 6-17 *– Storm Sewer Manhole Drop Standards*

Situation[(1)]	***Minimum Manhole Drop***
Increase in Storm Sewer Pipe Size	Match Crowns of Pipes[(2)]
Same Size Pipe with less the 45-degree Change in Direction	Carry the Pipe Slope Through the Manhole Structure
Same Size Pipe with 45-degree or greater Change in Direction	Minimum of 0.2 foot Drop Through the Manhole

(1) All pipe sizes are in round diameters. Design engineer to confirm minimum manhole size to other pipe shapes.

(2) In areas of flat topography, City Engineer may waive the requirement to match crowns.

Easements

Storm sewer pipes constructed outside of the street right-of-way shall include drainage meeting the requirements of ***Table 6-14***.

Design Considerations

Factors to be taken into consideration in culvert design include design flows, the culvert's hydraulic performance, the economy of alternative pipe materials and sizes, horizontal and vertical alignment, and environmental concerns. The following minimum design considerations shall be met when designing culverts:

1. The minimum size as listed by *Error! Reference source not found.*.

2. The size, shape, and type of culvert crossings shall be based on flow quantities calculated using the hydrologic methods set forth in ***Section 6.1.3***.
3. The structural design of culverts shall conform to those methods and criteria recommended by the manufacturer for that culvert type and for the conditions found at the installation site. However, the minimum standards set forth in the current AASHTO standards shall be adhered to.
4. All culvert inlet structures shall be designed to minimize entrance losses. All culverts shall be fitted with flared end sections, headwalls, wing-walls or other approved methods of entrance loss minimization. Projecting ends are not permitted.
5. Culvert outlets shall be designed to resist the erosive forces from the design storm. All culvert outlets shall be fitted with a flared end section, headwalls, wing-walls or other approved outlet structure. Projecting ends are not permitted.
6. For large structures or where groundwater is a problem, the design shall include necessary provisions to resist hydrostatic uplift forces that could result in failure of the structure.
7. All culvert designs shall include an analysis that determines whether inlet or outlet control conditions govern.
8. Ponding above culvert inlets will not be allowed if such ponding will cause property or roadway damage, culvert clogging, saturation of fills, detrimental upstream deposits of debris, or inundate any other structure.
9. All culvert designs shall meet AASHTO HS-20 loading criteria.

Easements

Culverts extended outside of the street right-of-way shall include drainage easements of a width necessary to contain the 100-year 24-hour water surface elevation required freeboard and maintenance access.

1. Easements shall be noted as “Public” (maintained by the City of Dickinson or other approved public entity) or “Private” (maintained by the Applicant).
2. Public Easements must be approved by the City.
3. Private Easements must have a provision to allow access by the City to allow for maintenance of derelict open channels and culverts.
4. The minimum drainage easement width shall be 30 feet.

6.2.3 OPEN CHANNEL DESIGN STANDARDS

The use of open channels shall generally be limited to undeveloped areas that can conform to the requirements of the hydraulics, topography, and right-of-way limitations.

Minimum Geometry Requirements

Table 6-18 *– Engineered Channel Geometry Requirements*

Parameter	***Minimum Value***
Longitudinal Slope of Channel	0.25 Percent
Side-Slopes	3 Horizontal to 1 Vertical or flatter
Cross Section Shape	Trapezoidal
Minimum Bottom Width	4 feet

Restrictions on Inter-Lot Flow

Overland flow occurs when excess precipitation runs off in sheet fashion prior to accumulating in a drainage way. Overland flow generally occurs on private property and can also be described as inter-lot flows. Restrictions on inter-lot flows include:

1. Overland flow will only be permitted within individual private lots or land parcels, and in defined swales less than 2 feet deep.
2. Storm water runoff cannot be diverted, or channelized, from one private lot downstream though a separate lot unless appropriate easements are executed.
3. Private adjacent lots in common ownership are still required to dedicate easements.

Engineered Channels – Vegetated

In addition to the requirements stated in ***Section 6.1.4*** the following minimum design standards shall be met:

1. Drop structures may be used to control the grade in order to meet the velocity and shear stress requirements.
2. The design shall consider the channel material's ability to withstand projected channel velocities and shear stresses for the 100-year 24-hour event. Channel protection measures shall be designed where necessary.
3. Side slopes greater than 3H:1V may be permitted if approved stabilization is utilized.
4. All grass channels shall include the utilization of a biodegradable or photodegradable erosion control mat to resist the calculated shear stress until vegetation can be established.
5. The grass species selected for seeding shall conform to requirements set forth by the Standard Specifications.

Easements

Open channels shall include drainage easements of a width necessary to contain the 100-year 24-hour water surface elevation required freeboard and maintenance access.

1. Easements shall be noted as “Public” (maintained by the City of Dickinson or other approved public entity) or “Private” (maintained by the Applicant).
2. Public Easements must be approved by the City.
3. Private Easements must have a provision to allow access by the City to allow for maintenance of derelict open channels.
4. The minimum open channel drainage easement width shall be 30 feet regardless of the size of the channel.

6.3 ANALYSIS METHODOLOGIES

The goal of this section is to provide the detailed requirements for the analysis of drainage and conveyance facilities.

6.3.1 HYDROLOGIC ANALYSIS

1. **Unit Hydrograph:** NRCS (formerly SCS) Curve Number (CN) & Time of Concentration (Tc) Methods discussed in ***Section 4.0*** of this SWDM.
2. **Rational Method**
    a. Intensity-Duration-Frequency (IDF) curves shall be from NOAA Atlas 14 using the Dickinson Municipal Airport station (*Error! Reference source not found.**)***.
    b. Intensity (I) shall be based on the Time of Concentration (Tc) to the inlet(s). Note that multiple intensities may be needed for a single system.
    c. Runoff Coefficient (C) shall be determined based on the site cover and obtained from accepted literature. The source used to obtain the Runoff Coefficient(s) shall be stated in the SWMP.

6.3.2 HYDRAULIC ANALYSIS

1. **Inlet Analysis:** Shall use the following methods:
    a. On-Grade:
        i. HEC-22 methodology.
    b. Sag (Low Point):
        i. HEC-22 methodology; or
        ii. Orifice/Weir Equation.

2. **Manning's n Coefficients:**
    a. Manning's n coefficients for commonly used materials and surfaces are provided in ***Table 6-19***.
    b. For surfaces not covered by ***Table 6-19***, values shall be obtained from literature approved by the City Engineer.
    c. The source(s) used to determine any coefficient(s) not provided in ***Table 6-19*** shall be stated in the SWMP.

Table 6-19 *– Manning's Coefficients*

Material/Surface	***Manning's n Coefficient***
RCP	0.013 – 0.014
CMP	0.022 – 0.024
HDPE (smooth)	0.010 – 0.012
HDPE (corrugated)	0.021 – 0.023
PVC	0.010 – 0.012
Vegetated Channel (not mowed)	0.035 – 0.050
Maintained Ditch/Channel (mowed)	0.030 – 0.040
Concrete Channel	0.015
Street (Asphalt)	0.014 – 0.016
Street (Concrete)	0.013 – 0.015
Urban Street Boulevards	0.045

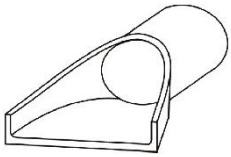
3. **Entrance and Exit Coefficients:**
    a. Entrance and Exit Coefficients for common configurations are provided in ***Table 6-20*** and ***Figure 6-1***.
    b. For situations not covered by ***Table 6-20***, values should be obtained from accepted literature approved by the City Engineer.
    c. The source(s) used to determine any coefficient(s) not provided in ***Table 6-20*** shall be stated in the SWMP.

Table 6-20 *– Entrance and Exit Coefficients*

	Material	***Design Scenario***	***Entrance Coefficient***	***Exit Coefficient***
Pipe or Arch Culverts	RCP	Flared End Section	0.5	1.0
		Square Cut*	0.5	
		Socket or Rounded*	0.2	
	CMP or HDPE	Projecting	0.9	
		Mitered	0.7	
		Conforms to Fill	0.5	
Box Culverts	RCP	No Wingwalls	0.5	1.0
		Wingwalls (30° - 75°)	0.4	
		Wingwalls (10° - 25°)	0.5	
		Wingwalls (Straight)	0.7	

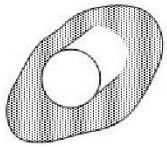
*Applies to Headwall or Projecting

Figure 6-1 – *Entrance and Exit Configurations*



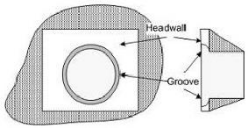
Flared-End Section

These are common end sections that function hydraulically equivalent in operation to a headwall in both inlet and outlet control.



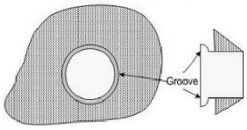
Projecting

This configuration results in the end of the culvert barrel projecting out of the embankment.



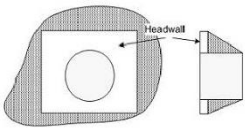
Grooved Pipe with Headwalls

The grooved pipe is for concrete culverts and decreases the loss through the culvert entrance.



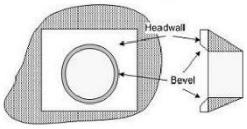
Grooved Pipe Projecting

This option is for concrete pipe culverts.



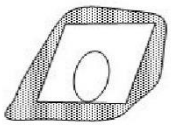
Square Edge with Headwalls

Square edge with headwalls is an entrance condition where the culvert entrance is flush with the headwall.



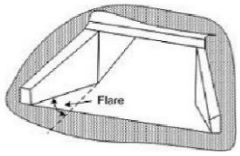
Beveled Edge with Headwalls

A beveled edge is a tapered inlet edge that decreases head loss as flow enters the culvert barrel.



Mitered

A mitered entrance is when the culvert barrel is cut so it is flush with the embankment slope.



Wingwall

Wingwalls are used when the culvert is shorter than the embankment and prevents embankment material from falling into the culvert.

Source: http://www.fhwa.dot.gov/

4. **Storm Sewer Junction Losses**
    a. Minimum storm sewer junction losses are provided in ***Table 6-21***.
    b. For situations not covered by ***Table 6-21*** values should be obtained from accepted literature approved by the City Engineer.
    c. The source(s) used to determine any coefficient(s) not provided in ***Table 6-21*** shall be stated in the SWMP.

Table 6-21 – *Storm Sewer Junction Losses*

Design Scenario	***Entrance Coefficient***	***Exit Coefficient***
Inlet Junction	0.2	0.5
Manhole Junction	0.1	0.3

5. **Inlet/Outlet Control:**
    a. Analysis method shall account for both the potential for inlet or outlet control conditions with the water surface based on the higher computed water surface elevation.
    b. Inlet/outlet control shall be computed at all surface entrances to storm sewer (e.g. ditch draining to a flared end section) and culverts.
6. **Inlet Analysis Clogging Factor:**
    a. Inlet clogging factors are not required.
    b. For situations that the Design Engineer determines inlet clogging factors are necessary or applicable, state the use of clogging factors in the SWMP.
7. **Shear Stress:** Shall be calculated using the following equation:

$\tau = \gamma D S$

Where:

τ = Shear Stress (lb/ft^2)

γ = Weight of Water (lb/ft^3)

D = Average Depth of Water (ft)

S = Surface Water Slope (Energy Grade Line)

7.0 CONSTRUCTION STORMWATER CONTROL

7.1 THE GOAL OF THIS SECTION IS TO PROVIDE GUIDANCE ON THE DESIGN, PERFORMANCE, AND ANALYSIS OF THE CONSTRUCTION STORMWATER CONTROL REQUIREMENTS OF THE CITY OF DICKINSON AS DEFINED IN THE SWPPP.ANALYSIS METHODOLOGIES

The goal of this section is to provide specific analysis methodologies for Construction Stormwater Control as required by the North Dakota Construction General Permit and the City's MS4 General Permit (*Error! Reference source not found.*). Note that Small Site SWPPP applications do not need a hydrologic or hydraulic analysis.

7.1.1 HYDROLOGY (COMPUTING RUNOFF)

1. **Computing Runoff:** Runoff calculation methods shall be consistent with those discussed in ***Section 4.4.1***.
2. **Newly Graded Ground:** A minimum CN of 90 shall be used for all newly graded ground regardless of Hydrologic Soil Group.

7.1.2 HYDRAULIC ANALYSIS

Hydraulic analyses shall be made using the methods described below unless otherwise approved by the City Engineer.

1. **Velocity:** Shall be obtained using one of the acceptable methods presented in *Error! Reference source not found.***.**
2. **Shear Stress:** Shall be calculated using the following equation:

   $\tau = \gamma D S$

   Where:

   τ = Shear Stress (lb/ft^2)

   γ = Weight of Water (lb/ft^3)

   D = Average Depth of Water (ft)

   S = Surface Water Slope (Energy Grade Line

3. **Capacity of Swales and Ditches:** Shall be analyzed using one of the methods presented in *Error! Reference source not found.*.

Error! Reference source not found.

NOAA Atlas 14 Rainfall Depths

Average Recurrence Frequency	*24-Hour Rainfall Event (inches)*
2-year (50% Chance Storm)	2.1
5-year (20% Chance Storm)	2.6
10-year (10% Chance Storm)	3.1
25-year (4% Chance Storm)	3.9
100-year (1% Chance Storm)	5.3
500-year (0.2% Chance Storm)	7.2

Source: http://www.noaa.gov/

Error! Reference source not found. ***– Allowable Velocity and Shear Stress for Selected Materials***

Material Category	*Material Type*	*Allowable Velocity (ft/s)*	*Allowable Shear Stress (lb/ft2)*
Temporary Rolled Erosion Control Product (RECP) (1)	Jute Net	1-2.5	0.45
	Straw w\ Net	1-3	1.5-1.65
	Coconut Fiber w\ Net	3-4	2.25
	Fiberglass roving	2.5-7	2
Nondegradable RECP (1)	Unvegetated	5-7	3
	Partially Established	7.5-15	4-6
	Fully Vegetated	8-21	8
Hard Surface (1)	Gabions	1-19	10
	Concrete	>18	12.5
Riprap (2)	D_{50} = 6-inches		2.4
	D_{50} = 12-inches		4.8

Source:

(1) *NRCS Part 654 Stream Restoration Design National Engineering Handbook*, Table 8-11.

(2) Kilgore, R. T. and Cotton, G. K. (2005). *Design of roadside channels with flexible linings. FHWA-NHI-05-114 Hydraulic Engineering Circular Number 15*, 3rd Edition, 153 pp.

The allowable velocity and shear stress presented in *Error! Reference source not found.* are provided as a guideline for the selection of a type, or class, of stabilization. The Design Engineer shall select materials and provide manufactures literature for allowable velocity and shear of the actual material to be installed.

*Error! Reference source not found.***– *Theoretical Street Sag Inlet Capacities***

Sag Inlet Size	***Theoretical 6" Head Capacity (cfs)***
36-Inch	6.8
72-Inch	10.3
108-Inch	13.8
144-Inch	17.3

*Inlets were analyzed as Neenah Foundry R-3295 Type C

Error! Reference source not found.

Precipitation-Intensity Graphical

Need to update this

Source: http://www.noaa.gov/

Precipitation-Intensity Tabular

Need to update this

Source: http://www.noaa.gov/