

# CIVIL IMPROVEMENTS

## SUBMITTAL CHECKLIST

This checklist is provided for the convenience of our customers. Complete and accurate plan submittals help speed the plan review process. Please use the checklist to ensure that your application includes all of the information necessary for a timely review of plans. This checklist is provided as a general guideline and is not intended to be all-inclusive. Additional information may be required during the plan review process.

### 3.6.1 PREREQUISITES

The following items must be completed before civil improvement plans can be accepted for processing:

- Appropriate zoning currently in place for this intended use
- Design Review or Preliminary Plat approved for this site
- Compliance with Planning & Zoning and/or City Council actions
- Concurrent submittal of related engineering documents including:
  - ❖ Technical Drainage Study
  - ❖ Geotechnical Report (if required)
  - ❖ Traffic Impact Analysis (if required)
  - ❖ Landscaping Plan (if required)
  - ❖ Water Hydraulic Analysis (if required)
  - ❖ Any other required technical documents or studies

### 3.6.2 APPLICABLE CODES

The Project must meet the requirements of the City and State's adopted codes, ordinances, and regulations:

- ❖ **American Association of State Highway and Transportation Officials (AASHTO)**
- ❖ **“Accessibility” requirements:** Chapter 11 and related Appendix of the currently adopted International Building Code (IBC)
- ❖ **City of Ross Flood Control Masterplan**
- ❖ **City of Ross Master Streets, Water & Sewer Plan**
- ❖ **City of Ross Development Codes**
- ❖ **City of Ross Development and Design Standards**

- ❖ **City of Ross Uniform Design and Construction Standards for Potable Water Systems and Wastewater Collection Systems**
- ❖ **North Dakota Department of Transportation Standard Drawings and Specifications**

### 3.6.3 SUBMITTAL PACKAGE

Provide the following information at the time you submit your civil improvement plans:

- Completed Civil Improvement Plan Submittal Form**  
*The engineer of record shall seal and sign the application form across the authorized signature line.*
- Completed Bond and Inspection Fee Form**  
*Plan check fee paid at time of submittal*
- 4 complete sets of civil improvement plans (full size)**  
*All cover sheets must be “wet sealed”, signed and dated by an engineer who is registered in the State of North Dakota. All remaining sheets may have copies of the seal, signature and date as allowed by law.*
- Copy of the Conditions of Approval**  
*Submit all Planning & Zoning Board and/or City Council actions related to this development including all applicable waivers*
- 2 copies of the Technical Drainage Study**  
*The title sheet must be “wet sealed”, signed and dated by an engineer who is registered in the State of North Dakota*
- 2 copies of the Geotechnical Report (if applicable)**  
*The title sheet must be “wet sealed”, signed and dated by a civil engineer who is registered in the State of North Dakota*
- 2 copies of the Traffic Impact Analysis (if applicable)**  
*The title sheet must be “wet sealed”, signed and dated by an engineer who is registered in the State of North Dakota*
- 2 copies of the Water Hydraulic Analysis (if applicable)**  
*The title sheet must be “wet sealed”, signed and dated by an engineer who is registered in the State of North Dakota*
- Notarized letter of authorization from adjacent property owners (if applicable)**  
*Applicable if any construction activity is proposed on adjacent property. Letter to include all adjacent parcel information, including tax assessor’s parcel number and ownership*
- Utility service and access**  
*The plans shall not be reviewed unless all necessary infrastructure to provide access, water and sewer service to the site has been approved and bonded for.*

### 3.6.4 REVIEW GUIDELINES

This list is not intended to be all-inclusive of every detailed required on a set of civil improvement plans. Rather, it is provided to give an overview of the basic plan contents needed for the review of the plan set.

### 3.6.5 CIVIL IMPROVEMENT PLAN REQUIRED INFORMATION

#### Cover Sheet

- Cover Sheet Index**  
*Identify the sheet titles and sheet numbers on the cover sheet*
- Vicinity Map**  
*Clearly show the location of the project in relation to adjacent intersections, streets, right-of-ways or section lines*
- Legal description of the Subject Property**  
*Include all assessor's parcel number(s) and acreage [gross and net]*
- Basis of Bearing**  
*Provide a complete Basis of Bearing on the cover sheet of the plan set directly related to verifiable survey data*
- Benchmark**  
*Provide Benchmark data on the cover sheet of the plan set and indicate the applicable datum*
- Contact Information**  
*Provide the company name, address and telephone number of the engineer, property owner, and the developer*
- Building/Site Information**  
*Include the number of units/buildings, identify the square footage for each and list the density as the number of units to the acre*
- Cover Sheet Signatories**  
*Provide an approval box with the following signatories on the cover sheet:*
  - ❖ *City of Ross*
- Cover Sheet Notes**  
*Provide the following notes on the cover sheet of each plan set"*
  - ❖ *"Approval of these plans by the City of Ross is limited to those improvements constructed in the dedicated rights-of-way and/or easements. This approval does not authorize the construction of any improvements that deviate from adopted standards and/or specifications except those identified as a 'Deviation from Standards'."*
  - ❖ *"The engineer should obtain a National Pollutant Discharge Elimination System (NPDES) permit prior to construction. All construction disturbing one acre or larger must apply for the permit."*

#### Formatting

- Sheet Formatting**  
*Each sheet shall be numbered, contain a sheet title, project name, and the name of the engineering firm preparing the same, vertically along the right edge of the sheet. Sheets shall also contain "North Dakota One Call" advisory blocks and provide all adjacent parcel information*

- Abbreviation, Legend, and Symbols**  
*Provide a list of abbreviations, a legend and list of symbols; use a north arrow and a graphic drawing scale. Scale shall not exceed 1:50 and a minimum text size and/or lettering shall be 0.08"*
- Key Map** (if applicable)  
*Provide a key map on all improvement plans clearly identifying sheet improvements relative to the overall project development*

### General Note Sheet

A comprehensive note page shall follow the Cover Sheet and include the following if applicable:

- Water and Sanitary Sewer Notes**
- Grading and Paving Notes**
- Flood Zone Notes**  
*Provide the FIRM map number, flood zone, and effective date for the site*
- General Notes, Legend, Abbreviations, and Quantities**
- Special Notes – as necessary to complete this review**
- Traffic and Street lighting Notes**
- Specifications**

### Grading Plans

- General Information**
  - \_\_\_\_\_ General vicinity map of the proposed site
  - \_\_\_\_\_ Property limits and accurate contours of existing ground and details of terrain and area drainage extending 100 feet beyond property boundary
  - \_\_\_\_\_ Limiting dimensions, elevations, or finished contours to be achieved by the grading, proposed drainage facilities, and related construction
  - \_\_\_\_\_ Flood Zone Boundary (if applicable)
  - \_\_\_\_\_ Identify and dimension all easements (existing and proposed), and who will maintain them.
  - \_\_\_\_\_ Show sawcut lines. Shade all asphalt area located in the right-of-way
- Elevations and Contours**
  - \_\_\_\_\_ Elevation datum and benchmark as established
  - \_\_\_\_\_ Elevations of curbs, edge of roadway, or centerlines at maximum 100' intervals
  - \_\_\_\_\_ Existing and proposed finished grade elevations at all grade breaks and transitions with a maximum 100' between spot elevations
  - \_\_\_\_\_ Finished grade elevations at both sides of any retaining wall
  - \_\_\_\_\_ Labeled 2 foot contours (minimum), extend contours 100 feet beyond limits of construction
  - \_\_\_\_\_ Show elevations and offset distances from centerline for all improvements located at or above the finished surface level such as inlets, manholes, valves, ect.
  - \_\_\_\_\_ Lot and finished floor elevations. Base Flood Elevations for FEMA Zone A & AO
- Positive Drainage and Physical Obstructions**
  - \_\_\_\_\_ Show proposed slopes and identify flow lines and swales
  - \_\_\_\_\_ Show positive drainage of a minimum 5% away from foundation for 10 feet

- \_\_\_\_\_ A 2% slope is permitted if the structure abuts a hard surface (concrete, pavement, ect.)
- Details & Cross Sections**  
 \_\_\_\_\_ Details and cross sections at property lines, retaining walls, berms and basins  
 \_\_\_\_\_ Provide details and cross sections of typical cut and fill slopes
- Slopes**  
 \_\_\_\_\_ Check for proposed slopes steeper than 2:1
- Earthwork, Cut & Fill**  
 \_\_\_\_\_ List quantities of cut and fill, in cubic yards, and scope of work  
 \_\_\_\_\_ Designate a disposal area for excess excavation  
 \_\_\_\_\_ Provide the cut to fill transition line  
 \_\_\_\_\_ Setback dimensions of cut and fill slopes from site boundaries
- Buildings, Structures, Features**  
Proposed locations  
 Site any buildings or structures on the property where work is to be performed and the location of any building or structure on land of adjacent owners that are within 50 feet of the property or that may be affected by the proposed grading operation  
Adjacent to slopes  
 The placement of buildings and structures on and or adjacent to slopes steeper than 3H:1V in accordance with IBC 1805.3  
Topographical features  
 Locate other existing topographical features either natural or manmade such as streets, drainage structures, pavement, fences, walls, ect.
- Required Signature Note**  
 Provide and complete the following not on each grading plan sheet:  
 "I certify that this grading plan conforms to the approved drainage study for this site on file at the City of Ross"
- (Signature) \_\_\_\_\_ (date) \_\_\_\_\_  
 (Engineer's name and P.E. Number)

## General Information

- Plan and Profile**  
 Identify all streetscape improvements located within the public right-of-way in the development area
- Survey Monumentation**  
 Show all survey monumentation related to the project on the improvement plans. Also provide the following note on the horizontal control and/or grading plan of each plan set:  
*"OWNER RESPONSIBLE TO PROVIDE SURVEY MONUMENTATION AS SHOWN AND TO REPLACE ALL SURVEY MONUMENTATION DAMAGED, DISTURBED, DESTROYED, OR ABSCURED DURING CONSTRUCTION."*
- Horizontal Control Plan**  
 Required for all commercial, industrial and multi-family sites which shows ties to the basis of bearing and applicable monumentation. Provide street stationing, parcel dimensions, and curve geometrics as necessary to fully locate all improvements. If applicable, provide block and lot numbers.
- Vertical Curves**  
 Shall be provided for changes of grade of 1.0% or greater for all public and private roadways. Vertical curves shall be designed for the posted speed limit plus 1-mph. The

minimum length of a vertical curve shall be 100 feet unless otherwise approved by the City as specific conditions warrant.

**Public and Private (onsite/offsite)**

Provide separate quantity estimates of all public and private construction items on the note sheet.

**Street Sections & Details**

Provide representative street sections and details. Each plan/profile sheet shall contain a description of the street section.

**Identify Existing Improvements**

Identify all City of Ross improvements adjacent to the project, including existing improvements located in the right-of-way.

**Stationing and Elevations**

Provide stationing, finished grade elevations, and invert elevations at match lines and sheet breaks

**Street Names**

Identify all street names and indicate the street as either public or private. All stationing is to be from center of roadway with offsets. Stationing shall increase from south to north and west to east with the north arrow up or to the right.

**Basis of Bearing**

Provide the basis of bearings for the subject property.

**Existing and proposed Rights-of-way and Easements**

Shall be identified, located and dimensioned. Identify easement documents and appurtenant record documents.

**Walls**

All retaining walls must be shown on the Civil Improvement Plans and will require a separate building permit application.

**Street lighting**

Plans shall clearly indicate existing and proposed street lighting. Include the following information:

- a) Street light poles, conduit runs, pull boxes, and service point location(s).
- b) When Street lights are to be connected to an existing circuit, the design engineer must certify that existing circuit is capable of handling the additional circuit load.

**Pavement Transitions**

All transition lengths shall conform to the Manual on Uniform Traffic Control Devices and designed using the minimum of the posted speed limit plus 10 miles per hour. The minimum transition length shall be 100 feet in accordance with AASHTO recommended guidelines (10:1 taper for major collectors and arterials, 7:1 for all others).

**Site Distances**

In areas with possible sight distance concerns, it is recommended that sight distance triangles/calculations be provided to expedite review. The sight distance calculations shall utilize the design speed of the road and AASHTO Case III intersection sight distance calculations.

**Sidewalks**

Show all existing and proposed sidewalks. Show all driveway cut locations (existing and proposed) on both sides of the roadway. Show existing and proposed wheelchair ramps and provide a detail for their construction.

## **Flood Control Information**

**Storm Drain & Utilities contained in same street section or easement**

Show the storm drain and utilities together in the plan and profile.

**Flood Zone Identification**

If the subject property is located within a special flood hazard zone, identify the flood zone(s), FIRM community panel number and date.

**Storm Drain & Drop Inlets**

Shall be shown in both plan and profile within public right-of-way. The design of the storm drain shall comply with the approved drainage study for the site and the Storm Water Drainage Policy manual. The minimum size public storm drain shall be 18-inches. Provide size, material type, slope, distance, cover, trench backfill sections, invert elevation, and manhole rim elevation. Additionally, provide plan and profile sections and details as necessary to fully describe proposed channel improvements. All utility crossings shall be shown in profile section with all clearances dimensioned.

## Utility Services

The plans shall reflect the minimum requirements found in the Uniform Design and Construction Standards for Potable Water Systems (UDACS), and the Design and Construction Standards for Wastewater Collection Systems (DCSWCS). In addition, the following items shall be included, but are not limited to:

**General information**

- a) All Sheets, except for the Master Utility Plan sheet, shall be drawn at a maximum of 1' = 40' scale
- b) Shade back all non-utility line work
- c) Provide line and curve data for mains
- d) Dimension new, future, and existing utilities, street centerline, back-of-curb, ect.
- e) Indicate rights-of-way, property lines, and easements on all utility sheets
- f) Indicate driveway locations for residential subdivisions
- g) Master Utility Plan (required when there are two or more utility plan sheets) – Provide water and sewer lines, valves, meters, backflow prevention assemblies and fire hydrants for the overall project
- h) Provide construction notes on all utility sheets
- i) Label all mains as either "Public" or "Private"
- j) Label all water and sewer main segments with length, size, and type of pipe
- k) All text should be read from bottom or right of page

**Water System**

- a) Label all meter sizes and uses (i.e. domestic, fire, irrigation, ect.). Label sizes and types of all backflow prevention devices. For commercial, industrial, and multi-family developments, meter-sizing calculations shall be provided with submitted plans
- b) Crossing elevations – Provide top-of-pipe elevations for water mains and invert elevations for non-potable water, sewer, and storm drains at all crossings
- c) Profile all water mains that are 12 inches or larger

**Sewer System**

- a) Label all rim elevations and manhole numbers for all manholes and invert elevations for all clean-outs on utility plan sheet
- b) Profile all "Public" sewer mains
- c) Sewer backwater valves shall be provided on all individual lots having finished floor elevations below the upstream manhole rim elevation
- d) Provide flow arrows on all existing and proposed sewer mains
- e) Show manhole numbers, rim elevations, and invert elevations for all manholes on all utility plan and profile sheets

**Fire System**

- a) Sectional Control Valves shall be installed so that no more than two hydrants will be out of service due to a break in a water main

- b) Locate hydrants at intersections and at maximum intervals thereafter (500 feet residential, 300 feet industrial/commercial). An additional amount may be allowed if structures are completely protected by an approved automatic sprinkler system. Locate no fire hydrant within five feet of a driveway or 25 feet of a structure
- c) The maximum distance from a residence to a fire hydrant shall be no more than 300 ft
- d) A system with more than three hydrants shall have a dual feed water supply
- e) Fire flow must meet the City's water design standards with a 20-psi minimum residual. All fire flows are based on UFC-III-A-1 amended. NOTE: A fire hydrant is required for every 1,000 gallons or fraction thereof of the required fire flow.
- f) Provide dual access for any project with 20 or more units, with dead ends more than 600 feet, and for all commercial/industrial developments
- g) No access road shall have a slope gradient of more than 12%

### **Building Department**

**Identify building setback lines**

**Identify screen and retaining walls**

**Accessibility**

Show and detail all accessible routes on site, accessible parking, passenger loading zones, curbs, ramps, stairs landings at doors, ect. Identify location of accessible units

**Landscape Plan**

Provide Landscape Plan with amenities for open spaces, trails and parks for review and approval concurrent with the civil improvement plans.