



Digital Plan Submission Standards And Procedures

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Digital Plan Submissions

This document defines the requirements for submitting Construction Projects to the County of Grande Prairie No. 1. It covers all phases of a Construction Project that CAD is required, phases includes; design review, final approved design and as-built.

Requirement for Data Layers

The data layers required as part of a digital submission are used for, location validation, discrepancy clarification, and accuracy validation during integration.

Please view the following Appendixes for information on appropriate layering. Additional layers may be added if required.

- Appendix A for required layers. These layers **MUST** be present.
- Appendix B for layer required for the TCA process.
- Appendix C for optional layers. These layers **MUST** be present if the objects they represent are contained in the plan, impacted by the plan or required for plan clarity.
- Appendix D for Object Data requirements
- Appendix E for Linework Checklist.

Requirements for Submissions

1) Submission Package

- a) The files must be contained within a zipped (.zip) file before submitting.
- b) PDF file is the plan of record and must contain all data listed in the plan standards documents and be formatted as described in section “PDF file”.
- c) For design review submissions
 - i) PDF – Complete set of design drawings. May be broken by depth for design clarity.
 - ii) Paper copies (24 x36 and 11 x 17) of all PDFS required
 - iii) Comments will be marked up on the PDF files and transmitted back.
- d) Final Approved Drawings and As-Built Submissions
 - i) ALL required stamps and signatures must be filled in and documents must be returned to the County with 7 days of County signing
 - ii) Paper copies (24 x36) of all PDFS required
 - iii) PDF – Complete set of design drawings. May be broken by depth for design clarity.
 - iv) AutoCAD DWG containing all CAD work.

2) File Formats and Specifications

a) Naming Files - All files are to be named as follows:

- i) Project_code.dwg
- ii) Project_code.pdf
- iii) Project_code.zip

b) PDF file

- i) PDF file is the plan of record and must contain all data listed in the plan standards documents. PDF files should be created from vector files or layout view to obtain the best clarity. If your process differs, the PDF should be a Group IV, 300 dpi or higher resolution.
- ii) If plans have been formatted as multi-page documents, they should be left as is, and not combined into a single page. Multi-page PDF files must have borders on each page.
- iii) The PDF file must not contain coloured linework or fill/shading. Linework must be black (grey tones, fuzzy linework and fill/shading will not be accepted).
- iv) The plan must not be more than 75 cm in width or 300 cm in length. No plan shall be smaller than letter size.
- v) A margin outline 1 cm from the edge of the plan is to be drawn around all sides of the plan. Large white areas outside of the plan margin must be cropped out.
- vi) No company logos are permitted on the plans.
- vii) The Alberta Land Surveyor must use and sign the Sustainable Resource Development affidavit, which references the *Surveys Act*, for all survey plans.
- viii) The 1, 2, 3, 4 and 5 scales (i.e. 1:1, 1:2, 1:3, 1:4, 1:5) National Standard of Canada scales must be adhered to. Plans in a scale smaller than 1:10 000 are only acceptable for CNT and PNT applications or as authorized by the department. Details may be shown in any scale.

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ix) The disposition extent boundary must be identical in the PDF and CAD or Shape files.

c) CAD files:

- i) Drawing (CAD) file .dwg must be geo-referenced and structured according to the layer and content requirements in the appropriate Appendix. Autodesk AutoCAD .DWG files must be version 2004 or newer.
- ii) Layering Requirements are in the Appendixes and each required layer/levels must exist and be named correctly even if there is no data.

d) Geo-referencing

i) Surveys

- (1) CAD file must be geo-referenced to and prepared on the NAD83 (Original) or NAD83 (CSRS) datum. Identify the geo-referencing point in the CAD file.
- (2) It is preferred that the geo-referenced coordinate be derived from a survey control marker
- (3) (Provincial or Federal); however, they can also be tied to ATS v4.1 or to an autonomous
- (4) Global Navigation Satellite System (GNSS) position via NRCan's Precise Point Positioning (PPP). The actual observed position rather than the published coordinates of any other survey monuments (not the geo-referenced point) should be shown or listed.

** Note: The following indicates the priorities for geo-referencing the CAD file related to the Reference Point and the Orientation Point.

e) Prioritized Selection Criteria for Reference Point

- i) Canadian Base Network, High Precision Network Survey Control (ASCM NAD83 (CSRS) subset or GNSS (i.e., GPS) base station(s) that have been formally designate as ASCM(s).
- ii) ASCM or PPP (see www.geod.nrcan.gc.ca/products-produits/ppp_e.php)
- iii) ATS v4.1

f) Prioritized Selection Criteria for Orientation Point

- i) GNSS (GPS) -derived grid bearing.
- ii) Grid bearing based on the published values for Alberta Survey Control.
- iii) Assumed from a previous plan or derived from ATS or from the SDW Cadastral Base.

Note: The annotated plan bearings may differ from the CAD file, but the CAD file must be orientated to grid and the source of orientation described in the submitted DIPS or LD metadata file.

g) Non-Surveys

- i) CAD file must include a start point and orientation point. The digital plan must be provided in NAD83 coordinates, geo-referenced to the v4.1 March 2005, ATS coordinate file. The georeferencing point must be indicated in the CAD file. All linework in the file is to be represented on the proper mapping plane (UTM).

3) Submissions

a) Online Submissions

Online submissions are collected via FTP. An application must be fill out to obtain a FTP login and password. E-mail ftp@countygp.ab.ca to obtain such application. Include; your name, company name, project code, and the County's contact for this job. Please be aware that it may take one week for the application to be processed.

b) Offline submissions

- i) If you need to submit in an offline capacity, all required information may be burned to a CD or DVD and delivered to the County office.

4) Quality Assurance

If the submitted package does not meet the requirements, it will be rejected with the requirements that it be corrected and resubmitted. Be aware that layer name capitalization and spelling may be grounds for rejection.

Appendix A – Required Layers

These MUST be present.

Layer required in ALL dwg files.

Layers labeled as _TEXT are not required IF the appropriate data can be extracted from the object data and displayed on the drawing in a format that can be printed

Layer Name	Type	Layer Description	Surveyed	Object Data Required	TCA
EXISTING_DEVELOPMENT		Contains the linework of adjacent existing property, r/w and surface activities/dispositions as indicated per content requirements for that disposition. Typically outside area of interest. ATS (section) linework broken for plot purposes.			
EXISTING_DEVELOPMENT_TEXT	TEXT	Contains the text for			

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		adjacent surface activities / dispositions, property and r/w.			
ATS_GRID		ATS linework must be complete for the entirety of all 1/4 sections affected by the surface activity.			
ATS_GRID_TEXT	Text	Text for ATS_GRID			
GEOREF_POINTS	Point	Establishing Reference points		Yes	
GEOREF_POINTS_TEXT	Text	Labels for Georeference points			
PROJECT_BOUNDARY	Poly	The boundary line of the subdivision or property. It must be bold enough to eliminate any possible confusion and not be dashed.	Yes	Yes Hectares	Yes
PROJECT_BOUNDARY_TEXT	Text	Project (Development) Name	no		yes

Appendix B – TCA Layers

These are layers required for the TCA process.

<i>Layer Name</i>	<i>Type</i>	<i>Layer Description</i>	<i>Surveyed</i>	<i>Object Data Required</i>	<i>TC A</i>
CAVEAT_BOUNDRY	Line	Boundary of any caveats		Caveat number, Caveat text	Yes
CAVEAT_BOUNDRY_TEXT	Text	Associated text			yes
EASEMENT	Poly	Utility line easements	Yes	Boundry	Yes
EASEMENT_TEXT	Text	Text Associated with Utility Easements		Number	Yes
FIRE_HYDRANT	Point	Location of fire hydrants	Yes		Yes
FIRE_HYDRANT_TEXT	Text	Text Associated with FIRE_HYDRANT layer	No		Yes
FIRE_POND	POLY		Yes the point of hydrant location		

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FIRE_POND_TEXT	TEXT				
ASPHALT_TRAILS	Lin	Both sides of trail			
ASPHALT_TRAILS_TEXT	Text				
GUTTER	Line	Bottom of gutter			
GUTTER_TEXT	Text				
RESERVE_ENVIROMNENTAL	Poly	Land reserved for environmental reasons (eg. Wetlands)		Hectors	yes
RESERVE_ENVIROMNENTAL_TEXT	Text				
RESERVE_MUNICIPAL	Poly	Land reserved for Municipal use (eg. Parks)		Hectors	yes
RESERVE_MUNICIPAL_TEXT	Text				
PUBILIC_UTILITY_LOT	Poly	Land reserved for Municipal use (eg. Fire pond, maintained drainage)		Hectors	Yes
PUBILIC_UTILITY_LOT_TEXT	Text				
ROAD_EDGE_ASPHALT	Line	Edge of asphalt top			Yes

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ROAD_EDGE ASPHALT_TEXT	TEXT				
ROAD_EDGE_GRAVEL	Line	Edge of gravel top			Yes
ROAD_EDGE_GRAVEL_TEXT	TEXT				
SIDEWALK	LIN	Both sides of sidewalk			Yes
SIDEWALK_TEXT	TEXT				
SEWER_LINE	Line	Sewer lines built as part of the subdivision/project.	YES		Yes
SEWER_LINE_TEXT		Text associated with the SEWER_LINE layer			Yes
SEWER_MANHOLE	Block	Sewer Manholes	Yes		Yes
SEWER_MANHOLE_TEXT		Text associated with the SEWER_MANHOLE layer			yes
STORM_CATCH_BASIN	Poly	Catch basins for storm water	Yes		Yes
STORM_CATCH_BASIN_TEXT	Text				
STORM_CULVERT	Poly	A polygon representing the	Yes		Yes

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		extent of pipe culvert or box culvert structure			
STORM_CULVERT_TEXT		Label for the features ID			Yes
STORM_LINE	Line	Pipe (i.e. Pipe line or driveway pipe)	Yes		Yes
STORM_LINE_TEXT	Text	Text for layer (i.e. slope, diameter, material)			Yes
STORM_OPEN_CHANNEL	Line	Centerline drawn in the direction of flow	Yes		Yes
STORM_OPEN_CHANNEL_TEXT	Text	Text layer: material (lining), slope			Yes
TRUCK_FILL_POINT	Point	Location of truck fill locations, not Fire Hydrants	Yes		Yes
TRUCK_FILL_POINT_TEXT	Text				
TRAFFIC_SIGN	Point	Location of all traffic signs	Yes	Sign type, size, height	yes
TRAFFIC_SIGN_TEXT	TEXT	Text for traffic signs			yes
WATER_LINE	Line	Water lines built as	Yes		Yes

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		part of the subdivision/project.			
WATER_LINE_TEXT	Text	Text associated with WATER_LINE			yes
WATER_VALVE	Insert	Water valves	Yes		Yes
WATER_VALVE_TEXT	Text	Text associated with WATER_VALVE			Yes

Appendix C – Optional Layers

If any of these objects are within the scope of the project the layer is required

to be present in the dwg file. Additional layers may be added, following the convention of one

layer for line/point/polygon work and one layer for text. Please contact tarchibald@countygp.ab.ca if

you need to add a layer.

<i>Layer Name</i>	<i>Type</i>	<i>Layer Description</i>	<i>Surveyed</i>	<i>Data Required</i>	<i>TC A</i>
MUNICIPAL_BOUNDARY	Line	City boundary line	Yes	Hectares	Yes
MUNICIPAL_BOUNDARY_TEXT	Text	City names associated with the MUNICIPAL_BOUN DARY			
CONTOUR	Line	Topological delineation information			
CONTOUR_TEXT	Text	Description info for contour layer			
FLOODPLAIN_100YR	Line	Existing floodplain delineation			Yes
FLOODPLAIN_100YR_FUTURE	Line	Proposed floodplain delineation			Yes

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FLOODPLAIN_100YR_FUTURE_TEXT	Text	Text for proposed floodplain delineation			
FLOODPLAIN_100YR_TEXT	Text	Text for existing floodplain delineation			
FLOW_ARROW	Insert	Sewer line flow arrows	NO		
GABION_WALL	Block	Any retaining type wall construction			
GREASE_TRAPS	block	Grease traps			
GUARD_RAILS	line	Road side guard rails	yes		
GUARD_RAILS_TEXT	Text				
LAND_LOT_LINE	Line	Layer Contents			
LAND_LOT_LINE_TEXT	Text	Land lot numbers and other text.	no		
LINE_PAINTING	line	To have ALL painted items	yes	Location and type of marking	
LINE_PAINTING_TEXT	Text				
LOT_NUMBER_TEXT	Text	Individual lot numbers	no		
PROPERTY_ID_TEXT	Text	Property Information			

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PROPERTY_LINE	Poly	Property Lines (parcel lines) Yes	Yes		
PUMP_STATION	Point	Represents the centermost point of a pump station Yes	Yes		
PUMP_STATION_TEXT	Text	Text associated with PUMP_STATION	no		
RAILROAD_LINE	Line	Railroad Lines	Yes		
RAILROAD_TEXT	Text	Text Associated with RAILROAD	no		
ROAD_EDGE	Poly	Edge of Road (not back of curb); this layer should not include parking lots or curbing	Yes		Yes
ROAD_TEXT	Text	Road Names	No		
ROAD_RIGHT-OF-WAY	Poly	Road Right-of-Way	Yes		Yes
ROAD_RIGHT-OF-WAY_TEXT	Text	Text relating to the road right of way layer	NO		
SEWER_END-OF-LINE	Insert	End of sewer line.	yes		Yes
SEWER_END-OF-LINE_TEXT	Text	Text associated with SEWER_END-OF- LINE	No		

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SEWER_EXISTING	Line	Sewer lines present before the subdivision/project	Yes		Yes
SEWER_EXISTING_TEXT	Text	Text associated with the SEWER_EXISTING layer			
SEWER_MANHOLE_EXISTING	Block	Existing Sewer Manholes	Yes		Yes
SEWER_MANHOLE_EXISTING_TEXT	Text	Text for the SEWER_MANHOLE_EXISTING layer			
SEWER_FORCE_MAIN	Line	Sewer force mains	Yes		Yes
SEWER_FORCE_MAIN_TEXT		Text associated with SEWER_FORCE_MAIN			
SEWER_SEPTIC_TANK	Line	Septic tank			
SEWER_TAP	Line	Sewer taps	Yes		
SEWER_TAP_TEXT		Distance between taps in feet	Yes		
SEWER_TUNNEL	Line	Subsurface Sewer tunnel construction			
STORM_BMP	Poly	Engineered structures designed to improve			

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		management of Stormwater system (see section e-I)			
STORM_BMP_TEXT	Text	Label showing the BMP_ID (see section e-II)			
STORM_BMP_EXISTING	Poly	Engineered structures designed to improve management of Stormwater system (see section e-I)	No		
STORM_BMP_EXISTING_TEXT		Text associated with the STORM_BMP_EXIS TING			
STORM_CULVERT_EXISTING	Poly	A polygon representing the extent of a culvert structure (see section e-III), prior to construction	Yes		
STORM_CULVERT_EXISTING_TEX T		Label for the features (see section e-III)			
STORM_CULVERT_CHART	n/a	Describes the			

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		required parameters (e-III)			
STORM_DROPINLET	Block	Stormwater drop inlet. (see section e- IV)	Yes		Yes
STORM_DROPINLET_TEXT	Text	Text describing layer (i.e. Invert Elevation)			
STORM_DROPINLET_EXISTING	Block	Stormwater drop inlet (see section e-IV) that existed prior to construction	Yes		
STORM_DROPINLET_EXISTING_T EXT		Text describing layer			
STORM_FLUME	Line	The centerline drawn in flow direction (see section V)	Yes		
STORM_FLUME_TEXT	Text	Text for: material (lining), slope (see section e-VI)			
STORM_FLUME_EXISTING	Line	The centerline that existed prior to construction Must be drawn in flow direction (see section V).	Yes		

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STORM_FLUME_EXISTING_TEXT	Text	Text associated with layer (see section e-VI)			
STORM_JUNCTION_BOX	Insert	Block in the location of a Stormwater Junction Box	Yes		Yes
STORM_JUNCTION_BOX_TEXT	Text	Text for layer that must at least show: Rim Elevation, Invert Elevation, and Junction Box material.	No		
STORM_JUNCTION_BOX_EXISTING	Insert	Pre-existing block for the Storm Junction Box	Yes		
STORM_JUNCTION_BOX_EXISTING_TEXT		Text for layer that must at least show: Rim Elevation, material, Invert Elevation, and Junction Box	No		
STORM_LINE_EXISTING	Line	Pre-existing stormwater line (pipe line or driveway pipe) drawn in the direction	Yes		

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		of flow (see section e-VII)			
STORM_LINE_EXISTING_TEXT	Text	Text associated with layer (i.e. slope, diameter, material)			
STORM_OPEN_CHANNEL_EXISTING	Line	Centerline of structure. Must be drawn in the direction of flow (see section e-V)	Yes		
STORM_OPEN_CHANNEL_EXISTING_TEXT	Text	Text associated with layer (see section e-VI)			
STORM_LINE_END	Insert	The structure at the Line End or a node representing the bare end of pipe (see section e-VIII)	Yes		
STORM_LINE_END_TEXT	Text	Text layer (i.e. slope, diameter, material)			
STORM_LINE_END_EXISTING	Insert	The structure at the Line End or a node representing the bare end of pipe (see	Yes		

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		section e-VIII)			
STORM_LINE_END_EXISTING_TEXT	Text	Text associated with layer			
STRUCTURE	Line	Above ground construction (Buildings, apartments, etc.)			
STRUCTURE_TEXT	Text	Name, or other information associated with the structure			
TANK_PROPOSED	Line	Any proposed tank construction			Yes
TRASH_RACKS	Block	Trash Racks			
WATER_CAP	Insert	Cap at the end of water line.	Yes		
WATER_CAP_TEXT	Text	Text associated with WATER_CAP			
WATER_EXISTING	Line	Water lines before the subdivision/project was built	Yes		
WATER_EXISTING_TEXT	Text	Text associated with WATER_EXISTING			
WATER_METER	Insert	Customer water meters Pits/	Yes		Yes

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		Chambers			
WATER_METER_TEXT	Text	Text associated with WATER_METER			
WATER_REDUCER	Insert	Water line reducer	Yes		
WATER_REDUCER_TEXT	Text	Text associated with WATER_REDUCER			
WATER_SERVICE	Line	Water service lines	Yes		
WATER_SERVICE_TEXT	Text	Text associated with WATER_SERVICE			
WATER_STORAGE_SYSTEM	Block	Water Storage System construction			
WATER_STORAGE_SYSTEM_TEX T	Text	Text for Water Storage System construction			
WATER_VALVE_EXISTING	Insert	Existing water valves	Yes		
WATER_VALVE_EXISTING_TEXT	Text	Text associated with WATER_VALVE_E XISTING			

Appendix D – Object Data Requirements

Object data (attribute data) is used to facilitate the flow of information from CAD into GIS and other database applications with a minimum of duplication of effort. The relevant information is stored in a table format attached to the objects that can then flow seamlessly into other applications. As a result, table structure is very important and changes to the format cannot be made.

Appropriate data will be attached to the linework of points as object data. Appropriate data includes, but is not limited to:

- Flow Rate
- Volumes
- Sizes
- Capacity
- Cavets
- Full road Crosssection info ACP/ GBS and sub grade

Appendix E

Checklist for Linework

- Text must not exist on the same layers as linework.
- Text layers may contain leaders and arrows.
- Linework is not to be duplicated.
- This linework must be topologically clean, no duplicated linework and no dangles or undershoots.
- Linework not to be broken and must be topologically clean.
- Existing development may be included as an X-ref or as separate line work.