

2012

**RURAL UTILITIES
DIGITAL MAPPING
STANDARDS MANUAL**



Alberta

Agriculture and
Rural Development

GENERAL INFORMATION	2
SCOPE OF MANUAL	4
CONTACTS	4
DIRECTORY STRUCTURE & WORKSPACE	6
THE USE OF THE DIRECTORY FILE STRUCTURES IN DIGITAL MAPPING	8
Directory Structure.....	8
WORKSPACE	9
User Commands / Macros / MDL Applications	9
Cell Libraries	9
Menus	9
Font Libraries.....	9
CELL LIBRARY	10
CELL LIBRARY	12
BARMENU	18
DIGITAL FILE STRUCTURE	22
FILE STRUCTURE	24
General File Naming Convention	24
Co-op Identifier	24
Subdivision Digital File Naming Convention.....	26
1:20,000 Township Digital File Naming Convention	26
TOWNSHIP FILES.....	28
WHAT IS CONTAINED IN A 1:20,000 RURAL TOWNSHIP FILE	30
1) Township Utility File.....	30
DESCRIPTION.....	30
SUBDIVIDED AREAS	30
FOREIGN PIPELINES.....	30
TAPS	31
"FROM TAP..." NOTES.....	31
HIGH PRESSURE PIPELINES.....	31
DIMENSION COORDINATES	31
TIE-IN LOCATION and TURNING POINTS for HIGH PRESSURE PIPELINES.....	32
REGULATOR STATIONS.....	32
TEES.....	32
PIPELINE ANNOTATION.....	33
PIPE SIZE CHANGE SYMBOL	33

PIPE TYPE CHANGE SYMBOL	33
PLACEMENT OF TEXT WITHIN CHANGE SYMBOLS.....	33
ROAD CROSSINGS	33
RAILWAY CROSSINGS	34
WATER CROSSINGS	34
PIPE CROSSINGS	34
SINGLE SERVICE LINES.....	34
NAMES AND LOADS	34
CONVERTING THERMAL UNITS TO VOLUMETRIC UNITS LOADS (B.T.U.'s TO CUBIC METERS)	35
ABANDONED LINES	35
CAPPED LINES	35
SECONDARY SERVICES	35
MAP ERRORS.....	36
TITLE BLOCK	36
TOWNSHIP AND RANGE NUMBERS	36
REVISION BLOCK	36
KEY PLAN	36
2) Township Land File	36
DESCRIPTION.....	36
TOPOGRAPHIC LAND BASE	36
CADASTRAL LAND BASE	37
3) Franchise Boundary File	37
4) Subdivision (300 series plans) Reference File	37
5) 1:20 000 Township Sheet File	38
DESCRIPTION.....	38
SHEET SURROUND	38
DISTRIBUTOR NAME	38
ALBERTA LOGO	38
NOTES	38
KEY PLAN	39
SUBDIVISION FILES.....	40
GENERAL.....	42
WHAT IS CONTAINED IN A SUBDIVISION FILE (300 mAPPING sERIES)	43
1) Subdivision Utility File	43
DESCRIPTION.....	43
TAP NOTE	43
REGULATOR STATIONS.....	43
PIPE SIZE CHANGES	43
CAP AND NON-BURNER SYMBOLS.....	44
CUSTOMER NAMES.....	44
SYMBOLS.....	44
DUPLICATION OF SYMBOLS	44
CUSTOMER SYMBOLS	44
CUSTOMER LIST	44
"FOR CONTINUATION" NOTE	44
Subdivision Sheet Surround	45
CO-OP NAME AND DRAWING NUMBER	45
SUBDIVISION NAME AND LEGAL DESCRIPTION	45
NOTES	45

ALBERTA LOGO	45
SCALE	45
REVISION BLOCK	45
2) Subdivision Land File	45
DESCRIPTION.....	45
CADASTRAL LAND BASE	45
PRECISION PLACED LAND BASE (also referred to as AUT Land Base)	46
This file has a .LND file extension.....	46
ANNOTATIONS	46
BLOCK AND LOT LINES	47
BLOCK AND LOT NUMBERS.....	47
LEGAL DESCRIPTION.....	47
FOREIGN PIPELINE R.O.Ws.....	47
ROAD WIDENINGS	47
KEY PLANS	47
INPUT OF INFILLS	48
GENERAL.....	50
PIPES.....	50
CUSTOMERS	50
ANNOTATION	50
ROAD CROSSINGS.....	51
RAILWAY CROSSINGS	51
WATER CROSSINGS	51
PIPE CROSSINGS	51
ABANDONMENTS.....	51
CONTENTS OF AN INFILL FILE	52
SUBMITTING DIGITAL FILES	54
AS-BUILT SUBMISSIONS	56
DIGITAL MAPPING FILES.....	56
RELEVANT DOCUMENTS.....	56
CUSTOMIZATION & OWNERSHIP OF FILES.....	58
CUSTOMIZATION	60
OWNERSHIP OF DIGITAL FILES	60
GLOSSARY	62
GLOSSARY	64
APPENDICES	65

GENERAL INFORMATION

SCOPE OF MANUAL

This is a Standards manual that has been compiled to reflect the STANDARDS AND CONVENTIONS used in the digital mapping plans produced by the Rural Utilities Division.

The manual is intended to provide standards for the 1:20 000 Digital Mapping Plans. These plans are graphic digital files drawn to show surveyed gas line and customer locations for rural gas distribution systems

The location of distribution pipelines or other plant must be accurately recorded for the safety reasons described in the Rural Gas Technical Standards Manual and the Rural Gas Policy Manual. Accurate records are vital to ensure that buried natural gas pipelines can be located for the general operating purposes of the distributor; for the accurate registration of rights-of way against the land titles and so ground disturbances by third parties will not cause damage to the pipeline which could pose a risk to safety and property.

CONTACTS

Any inquiries concerning this manual should be referred to:

Maureen Magee, Graphics Co-ordinator
Rural Utilities Division
Alberta Agriculture and rural Development
Room 202, J.G. O'Donoghue Building
7000 – 113 Street
Edmonton AB T6H 5T6

Phone: (780) 427-0125
Fax: (780) 422-1613
Email: maureen.magee@gov.ab.ca

DIRECTORY STRUCTURE & WORKSPACE

THE USE OF THE DIRECTORY FILE STRUCTURES IN DIGITAL MAPPING

In carrying out the Digital Mapping, a file directory structure is maintained so that the user commands, MDL applications, cell libraries, and reference files work properly in the MicroStation environment.

The environmental variables are set in the MicroStation configuration and workspace and the following structure works in coordination with the Division standards.

Directory Structure

\util	The directory containing complete utility distribution pipeline data for a township.
\land	The directory containing all topographical land files.
\cadastral	The directory containing all cadastral land files
\300util	The directory containing all subdivision utility files.
\300land	The directory containing all subdivision land files.
\infill	The directory containing all the infill (.i##) files for each year's construction.
\sheet	The directory containing the co-op's sheet file. The sheet file is attached as a reference file to the rural township utility file.
\franchise	The directory containing the franchise boundary (including exclusions)
\subdivision	The directory containing the cross hatching for subdivision files and the associated drawing numbers (only referenced to townships)

Note: The active file is the utility file with other files attached as references

WORKSPACE

User Commands / Macros / MDL Applications

Numerous customized routines have been created to expedite the mapping process for gas distribution. The routines written for the Rural Gas Program are supplied by the Division.

Cell Libraries

Cell libraries are necessary for the basic mapping of the 1:20,000 files. These libraries consist of symbols that can be placed in any file on an as-needed basis.

[SEE ATTACHED LISTING OF THE CELL LIBRARY]

Menus

A pulldown custom menu called RU-Gas (also known as the Barmenu) is supplied by the Division. This menu can be attached through the MDL command **MDL L RU-GAS**.

[SEE ATTACHED LISTING OF THE BARMENU]

Font Libraries

A font library stores text characters and symbols that serve as input for the software that outputs characters and symbols in the graphics environment.

The font library name "**gasutil**" is supplied by the Division

CELL LIBRARY





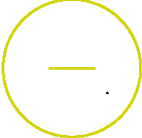





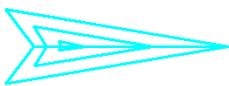




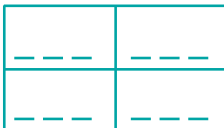
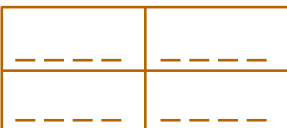











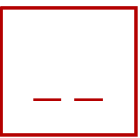
CELL LIBRARY

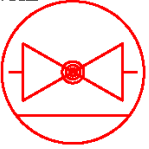
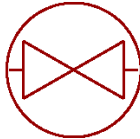

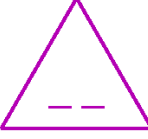



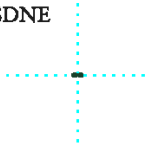
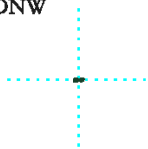
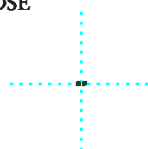

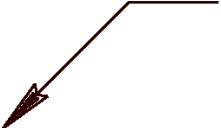



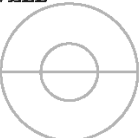



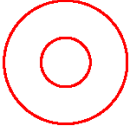








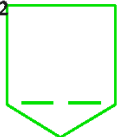


The following pages graphically show the most common cells used in the Rural Gas Digital Mapping.

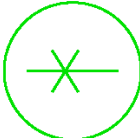


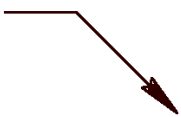
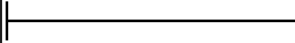
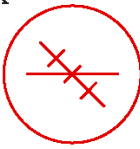

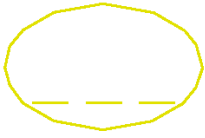





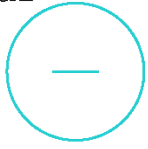


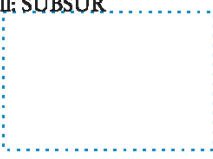

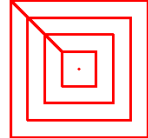

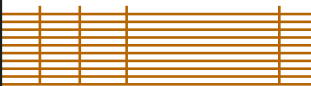




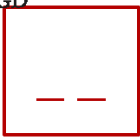

The following is a quick reference of the cell names and usage:

CELL	USAGE	CELL	USAGE
ABANPS	Abandoned pipe symbol	IRNB1	Non-burning Irrigation
ALBERTA	Alberta Government Logo	IRRSEC	Secondary Irrigation Meter
AL1PTX	Aluminium Pipe Size (nominal)	LICNUM	Rural Utilities License Number
AL2PTX	Aluminium Pipe Size (O.D.)	LSDNE	LSDs for NE ¼ section (300 series)
ALCAP	Aluminium cap symbol	LSDNW	LSDs for NW ¼ section (300 series)
ALTEE	Aluminium tee	LSDSE	LSDs for SE ¼ section (300 series)
AVAL	Valve on Aluminium pipe	LSDSW	LSDs for SW ¼ section (300 series)
ANODE	Anode symbol	LLEAD	Leader line pointing left
ANODE0	Anode symbol	MST	Meter Station (Tap) symbol
ARROW	Arrow – black	NBLOAD	Non-burning Load
ARROW0	Arrow – blue	NORTH	North arrow
ATS	ATS Point symbol	NOTES	Notes (For Sheet file)
AVAL	Above ground valve	NSWELL	Non Status well
BLVAL	Below ground valve	OILWEL	Oil well
CFARM	Communal Farm Meter	PC1PTX	PVC Pipe Size (nominal)
CHGPM	Change Pipe Material box	PC2PTX	PVC Pipe Size (O.D.)
CHGPR	Change Pressure box	PCVAL	PVC valve
CHGPS1	Change Pipe Size (nominal)	PE1PTX	Polyethylene Pipe Size (nominal)
CHGPS2	Change Pipe Size (O.D.)	PE2PTX	Polyethylene Pipe Size (O.D.)
CMB100	Consumer symbol for key plan	PECAP0	Polyethylene cap symbol
CMBUR1	Customer Meter	PETRED	Polyethylene tee / reducer
CMBUR2	Secondary Service Meter	PEVAL	Polyethylene valve
CMLOAD	Customer Load	PIPEX	Foreign pipeline crossing (Fillable)
CMNB1	Non-burning Consumer	PIPEX0	Foreign pipeline crossing
CONTIN	See adjacent drawing (300 series)	PRHWY1	Primary Highway (1 number)
DSMM1	Multi-meter Consumer	PRHWY2	Primary Highway (2 numbers)
ERCBLN	ERCB license number	PVCCAP	PVC cap symbol
FRTAP	From Tap symbol (Twps)	PVCTEE	PVC tee
GASPLT	Gas Plant	RDX	Road crossing
GASWEL	Gas Well	REGNOD	Regulator Station
GDBUR2	Grain Dryer Meter	REGSAN	Regulator Station number
GDNB2	Non-burning Grain Dryer	RLEADO	Leader line pointing right
GVAL	Above ground valve	RROAD	Railroad pattern cell (300 series)
GVAL0	Valve	RRX	Railroad crossing
IRBUR1	Irrigation Meter	RST	Regulator Station symbol

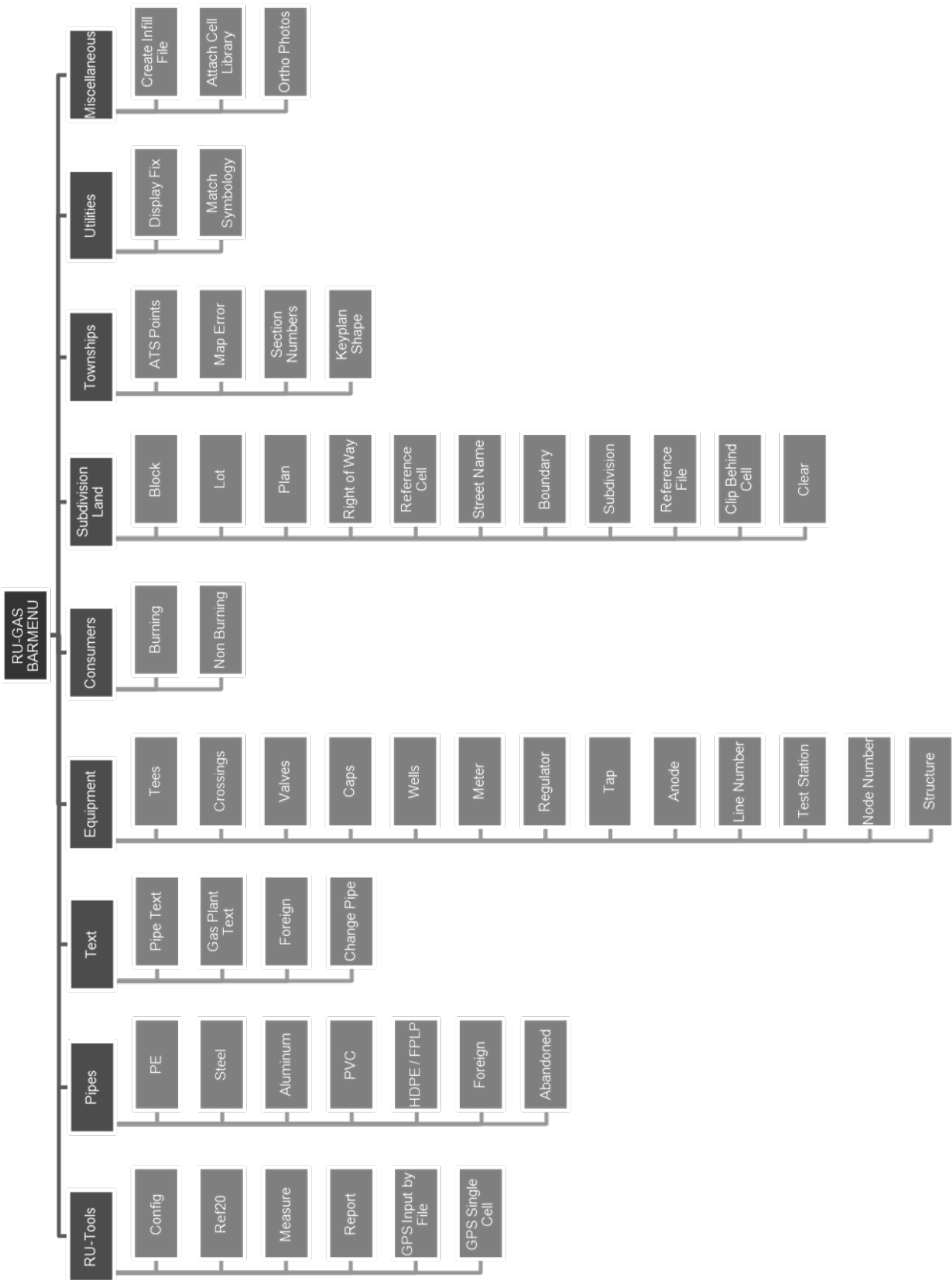
CELL	USAGE		CELL	USAGE
SECHWY	Secondary Highway (3 numbers)		TAPNM2	Tap (Meter Station) Number
SEE300	See 300 drawing (hatched areas)		TAPNOD	Tap (Meter Station) node
SEE500	See 500 (detail) drawing		TITBKA	Customer List – Top (300 series)
SOLARBALL	Solar Ball		TITBKB	Customer List – add (300 series)
ST1PTX	Steel Pipe Size (nominal)		TRACER	Tracer wire break
ST2PTX	Steel Pipe Size (O.D.)		TSTA2	Test Station
STCAP	Steel Cap symbol		TSTA20	Test Station
STTEE	Steel tee		URCON	Urban Count (Twps)
STVAL	Steel valve		URGD	Urban Grain Dryer Meter
SUBSUR	Plotting boundary		WCX	Water crossing

<p>cell: ABANPS</p> 	<p>cell: ALBERTA</p> 	<p>cell: AL1PTX</p> 	<p>cell: AL2PTX</p> 
<p>cell: ALCAP</p> 	<p>cell: ALTEE</p> 	<p>cell: ALVAL</p> 	<p>cell: ANODE</p> 
<p>cell: ANODE0</p> 	<p>cell: ARROW</p> 	<p>cell: ARROW0</p> 	<p>cell: ATS</p> 
<p>cell: AVAL</p> 	<p>cell: BLVAL</p> 	<p>cell: CFARM</p> 	<p>cell: CHGPM</p> 
<p>cell: CHGPR</p> 	<p>cell: CHGPS1</p> 	<p>cell: CHGPS2</p> 	<p>cell: CMB100</p> 
<p>cell: CMBUR1</p> 	<p>cell: CMBUR2</p> 	<p>cell: CMLOAD</p> 	<p>cell: CMNB1</p> 
<p>cell: CONTIN</p> <p>FOR CONTINUATION SEE -----</p>	<p>cell: DSMM1</p> 	<p>cell: ERCBLN</p> 	<p>cell: FRTAP</p> <p>From Tap-----</p>
<p>cell: GASPLT</p> <p>GAS PLANT</p>	<p>cell: GASWEL</p> 	<p>cell: GDBUR2</p> 	<p>cell: GDNB2</p> 

<p>cell: GVAL</p> 	<p>cell: GVAL0</p> 	<p>cell: IRBUR1</p> 	<p>cell: IRNB1</p> 
<p>cell: IRRSEC</p> 	<p>cell: LICNUM</p> 	<p>cell: LINNUM</p> 	<p>cell: LSDNE</p> 
<p>cell: LSDNW</p> 	<p>cell: LSDSE</p> 	<p>cell: LSDSW</p> 	<p>cell: LLEAD</p> 
<p>cell: MST</p> 	<p>cell: NBLOAD</p> 	<p>cell: NORTH</p> 	<p>cell: NOTES</p> <ol style="list-style-type: none"> 1. DISTANCE TO BE MEASURED FROM POINT LOCATION INDICATED IN SURVEY AREA. 2. DISTANCE TO BE MEASURED TO THE 1/4 SECTION AND 1/4-1/4 CORNER VERTICES FROM 1/4 SECTION. 3. USE PROPER POINT NUMBERING FROM THE AREA SURVEYED OR SPECIFICALLY IDENTIFY. 4. NUMBER OF SECTIONS SURVEYED SHOULD BE INDICATED IN THE POINT NUMBERING. 5. THE 1/4 AND 1/4-1/4 CORNER POINTS SHOULD BE IDENTIFIED BY THE 1/4 SECTION NUMBER AND 1/4-1/4 CORNER NUMBER. 6. THE POINT NUMBER OF THE POINT TO BE MEASURED SHOULD BE INDICATED IN THE SURVEY AREA.
<p>cell: NSWELL</p> 	<p>cell: OILWEL</p> 	<p>cell: PC1PTX</p> 	<p>cell: PC2PTX</p> 
<p>cell: PCVAL</p> 	<p>cell: PE1PTX</p> 	<p>cell: PE2PTX</p> 	<p>cell: PECAP0</p> 
<p>cell: PETRED</p> 	<p>cell: PEVAL</p> 	<p>cell: PIPEX</p> 	<p>cell: PIPEX0</p> 
<p>cell: PRHWY1</p> 	<p>cell: PRHWY2</p> 	<p>cell: PVCCAP</p> 	<p>cell: PVCTEE</p> 

<p>cell: RDX</p> 	<p>cell: REGNOD</p> 	<p>cell: REGSAN</p> 	<p>cell: RLEAD0</p> 
<p>cell: RROAD</p> 	<p>cell: RRX</p> 	<p>cell: RST</p> 	<p>cell: SECHWY</p> 
<p>cell: SEE300</p> 	<p>cell: SEE500</p> 	<p>cell: SOLARBALL</p> 	<p>cell: ST1PTX</p> 
<p>cell: ST2PTX</p> 	<p>cell: STCAP</p> 	<p>cell: STTEE</p> 	<p>cell: STVAL</p> 
<p>cell: SUBSUR</p> 	<p>cell: TAPNM2</p> 	<p>cell: TAPNOD</p> 	<p>cell: TITBKA</p> 
<p>cell: TITBKB</p> 	<p>cell: TRACER</p> 	<p>cell: TSTA2</p> 	<p>cell: TSTA20</p> 
<p>cell: URCON</p> 	<p>cell: URGD</p> 	<p>cell: WCX</p> 	

BARMENU



DIGITAL FILE STRUCTURE

FILE STRUCTURE

General File Naming Convention

The name of the digital file and the corresponding as-built map drawing number is, for the most part, synonymous. This allows for easy recognition and manipulation of the digital files relative to the as-built maps.

For example, digital files **SAN54244.LND** and **SAN54244.UTL** are the land and utility files names for Ste. Anne Natural Gas Co-op township plan 54-24-4.

Co-op Identifier

Each co-op can be identified by a three-letter code. These codes are incorporated into the file naming convention to allow easy identification of the various files for each co-op.

The identifier codes can be found in following list:

<u>Code</u>	<u>Co-op Name</u>	<u>Designated Rural Gas Program Number</u>
AFL	ALDER FLATS	1496
ANK	ANKERTON	1392
BRI	BATTLE RIVER	1380
BNA	BENJAMIN	1801
BCO	BIG COUNTRY	1643
BHI	BIRCH HILLS	1728
BRV	BOW RIVER	1755
BLK	BUCK LAKE	1456
BMN	BUCK MOUNTAIN	1781
BRN	BURNT LAKE	1433
CPE	CENTRAL PEACE	1809
CHL	CHAIN LAKES	1763
CMN	CHIEF MOUNTAIN	1739
CNK	CHINOOK	1746
CCH	COCHRANE LAKE	1633
COR	CORONADO	1630
CRS	CROSSROADS	1697
DVA	DIAMOND VALLEY	1383
DIN	DINOSAUR	1724
DRY	DRY COUNTRY	1649
ECE	EAST CENTRAL	1634
EPC	EAST PEACE	1635
ESM	EAST SMOKY	1761
EVG	EVERGREEN	1787

<u>Code</u>	<u>Co-op Name</u>	<u>Designated Rural Gas Program Number</u>
FTN	FOOTHILLS	1771
FMI	FORTY MILE	1756
GLD	GULL LAKE DEER CREEK	1381
HVH	HARVEST HILLS	1322
IRC	IRON CREEK	1752
LLB	LAC LA BICHE DISTRICT	1640
LAM	LAMCO	1667
LBO	LITTLE BOW	1751
MEO	MEOTA	1205
MIN	MINCO	1641
NTG	NATURAL GAS #52	1742
NRE	NORTH EAST	1773
NPC	NORTH PEACE	1603
NLI	NORTHERN LIGHTS	1805
PPR	PADDLE PRAIRIE	5064
PER	PAINTEARTH	1616
PEM	PEMBINA RIVER	1525
PHX	PHOENIX	6964
PIO	PIONEER	3632
PRV	PRAIRIE RIVER	1760
ROC	ROCKY	1645
RKV	ROCKYVIEW	1758
RSB	ROSEBUD	1686
SRB	S.R.& B.	1290
SAN	STE. ANNE	1637
SHN	SUNSHINE	1727
SWR	SWAN RIVER	1355
TIL	TIROL	1265
TVL	TRL	6833
TWN	TRIPLE W	1575
WPA	WEST PARKLAND	1636
YHD	YELLOWHEAD	1725
CSL	SMOKY LAKE COUNTY (UTIL)	9313
CTH	CTY. OF THORHILD (UTIL)	9307
CTW	CTY. OF TWO HILLS (UTIL)	9321
CVR	CTY. OF VERMILION (UTIL)	9324
TRL	NEW TOWN OF RAINBOW LAKE	9600
TLL	LAC LA BICHE COUNTY GAS SYSTEM	211/9001

Subdivision Digital File Naming Convention

The following example describes the file naming convention for subdivision files:

- e.g. NPC co-op identifier (3 characters)
(see identifier list)
- 301 denotes a sequential number (3 characters) of the subdivision.
- Ind denotes file type (3 characters)
(could be .Ind or .utl)

1:20,000 Township Digital File Naming Convention

The following example describes the file naming convention for 1:20,000 township files.

- e.g. BMN co-op's identifier (3 characters)
(see identifier list)
- 56 denotes township number (2 characters)
(could be 1 to 126) (after township 100 the first character is
dropped, due to limits in characters in file names when the plans
were first created.)
- 04 denotes range number (2 characters)
(could be 1 to 31)
- 4 denotes township meridian (1 character)
(could be 4, 5 or 6)
- Ind denotes file type (3 characters)
(could be .Ind or .utl)

TOWNSHIP FILES

County
Rural Utilities

WHAT IS CONTAINED IN A 1:20,000 RURAL TOWNSHIP FILE

1) Township Utility File

DESCRIPTION

The utility file represents one township per mapsheet and consists of the following information:

- a) Gas Co-op's low and high pressure pipelines
- b) Abandoned pipelines
- c) Foreign pipelines (optional)
- d) Above and below ground facilities (station, block valve, etc.)
- e) Customer location
- f) Annotation

NOTE: The Utility file is considered to be the primary file, with all other files attached as references.

SUBDIVIDED AREAS

The total load is indicated and the total number of *consumers* is shown in the consumer **symbol** (hexagon) within each subdivided area. In this case, subdivided area is defined as each 300 series drawing area.

NEW All pipelines should be clipped out of the township plan. The pipe should be a continuous line (no overlap) when a 300 series utility drawing is attached as a reference to the township utility file.

If a regulator station is located inside a subdivision area, the township plan should only show the regulator station **symbol**, the regulator number, and a leader line to the location [note: detailed regulator information should be shown on the subdivision plan only]

FOREIGN PIPELINES

Foreign Pipelines are owned and operated by a company other than the Gas Distributor. They are shown as dashed lines and are annotated with *ERCB License* numbers and/or pipeline company names.

A foreign pipeline must be shown in the drawing if the pipeline is the source for a Co-op Tap.

Annotation on low-pressure foreign pipelines (less than 700 kPa) should indicate the company name.

TAPS

Each *Tap* has the following *symbols*:

- Meter with leader line to tap **node**.
- Regulator
- Anode (if applicable)
- Test station (if applicable).
- Tap number.

Also each **tap** has, in order of placement:

- Pipe type change.
- Pipe pressure change.
- Pipe size change when necessary, for clarity.

Where space allows, tap information is placed in the same 1/4 section as the **tap**.

Tap locations show **dimension co-ordinates**.

“FROM TAP...” NOTES

The "From Tap..." note indicates which **tap** feeds the pipeline and is placed where the pipeline enters the township.

HIGH PRESSURE PIPELINES

High pressure pipelines are defined by the Alberta Energy Resources Conservation Board as pipelines operating at pressures above 700 kilopascals (kPa).

Pipe size text and pipeline symbology must agree.

Pipe size text is generally placed above pipeline. This text identifies the *nominal diameter* of the pipeline as well as the material used.

The material used for High pressure pipelines can be STEEL, ALUMINUM, HDPE (High Density Polyethylene / PE 100), or FPLP (Reinforced Thermoplastic Pipe / Flexpipe).

DIMENSION COORDINATES

Dimension co-ordinates are comprised of two sets of dimension data which show an X and Y offset to a particular geographical location on a map.

These co-ordinates are measured perpendicularly from Government Road Allowances, Blind Lines, 1/4 Section Lines, Road or Highway right-of-way lines, or other surveyed features.

TIE-IN LOCATION and TURNING POINTS for HIGH PRESSURE PIPELINES

IF A HIGH PRESSURE PIPELINE HAS NOT BEEN SURVEYED USING A GPS:

Dimension co-ordinates are to be placed at each turning point. A turning point occurs when the direction of the pipeline changes. A tie-in location is a point where another pipeline feeds off any other pipeline. Dimension co-ordinates are to be placed at each tie-in location.

IF A HIGH PRESSURE PIPELINE HAS BEEN SURVEYED USING A GPS:

The original or the geo-corrected GPS files for high pressure pipeline should be retained by the Gas Distributor.

REGULATOR STATIONS

Regulator station numbering convention consists of a two part number:

0000-00

- The first number corresponds to the **tap** that feeds the pipeline network.
- The second number is a sequential number as issued by the distributor.

Each regulator has the following symbols:

- Regulator with leader line to regulator **node**.
- Anode (where required).
- Test station (where required).
- Regulator number.

Also each regulator has, in order of placement:

- Pipe type change.
- Pipe pressure change.
- Pipe size change when necessary, for clarity.

Where space allows, regulator information is placed in the same 1/4 as the regulator.

Regulator locations show dimension co-ordinates on high pressure facilities.

TEES

Ensure that tee *nodes* are placed in the following locations:

- at all pipe intersections
- at pipe size change locations
- at pipe material change locations
- at **reducer** locations

Tee **nodes** are required at the ends of a new pipe installed to replace a pipe that has been abandoned.

PIPELINE ANNOTATION

Pipeline annotation should ensure that all pipes can be identified.

Pipe size text must agree with the pipeline symbology for the pipe on which it is placed.

Pipe size text is generally placed above the pipeline. This text identifies the **nominal diameter** of the pipeline as well as the material used.

PIPE SIZE CHANGE SYMBOL

Pipe size change *symbol* is shown when length of pipe is too short to show pipe size text or when space prohibits placement above or below pipeline. A leader line is shown from the tee or *reducer node* to the pipe size change *symbol*. This *symbol* when used alone implies that there is no material change.

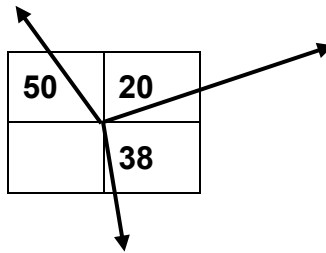
PIPE TYPE CHANGE SYMBOL

If a material change occurs, a pipe type change *symbol* may be placed in conjunction with the pipe size change *symbol*.

PLACEMENT OF TEXT WITHIN CHANGE SYMBOLS

The graphics convention for text placement within each change **symbol** is consistent and follows the general "rule of thumb";

The text describing a pipeline is placed in the quadrant in which that pipe would lie if the centre of the change **symbol** were placed exactly at the tie-in location.



ROAD CROSSINGS

Where road crossings occur along road allowances adjacent to other map sheets, only one map sheet will show the crossing **symbol**. The crossing **symbol** will be shown on the south and west sides of the township map.

Road crossing **symbols** are placed for all the distributor's pipes crossing roads within a township.

The only restriction in the positioning of a crossing **symbol** is that it does not interfere with any other pipeline information.

RAILWAY CROSSINGS

Railway crossing information is placed at all applicable locations

The only restriction in the positioning of a crossing *symbol* is that it does not interfere with any other pipeline information.

WATER CROSSINGS

Water crossing *symbols* are placed at all applicable locations.

PIPE CROSSINGS

All instances where a distributor owned pipe crosses a *foreign pipeline*; a pipe crossing is indicated with a crossing *symbol*.

Multiple crossings, where there is more than one foreign pipe in a *R.O.W.* are indicated by a multiple pipe crossing *symbol*. The number in the *symbol* represents the number of additional pipe crossings in the *R.O.W.*. For example, where a co-op pipe crosses three foreign pipelines, the number in the crossing *symbol* is **2**.

SINGLE SERVICE LINES

Single service lines are to be 20 PE by default and are not to be annotated. The following exceptions apply and require annotation:

1. The service line is any size or material other than 20 PE.
2. One pipe size text label is required if single service line extends through three 3 sections.
3. In very rare instances, where the default single service line is not 20PE (this will be identified in the Notes on the Sheet Surround).
4. A single service line that extends outside of the township.

NAMES AND LOADS

Placement of loads is optional for the distributor. If used, it must clearly be identifiable as belonging to a consumer name.

A name (or a riser number) is shown for every consumer *symbol*

The consumer *symbol* must be placed within the correct 1/4 section

Placement of the name and load should be in the same 1/4 section as the consumer *symbol*, or as close as possible if space is restricted

CONVERTING THERMAL UNITS TO VOLUMETRIC UNITS LOADS (B.T.U.'s TO CUBIC METERS)

EXAMPLE: Total on Load Survey Sheet Information :

Load Survey Form

Furnace	90,000 BTU/HR
Water Heater	40,000 BTU/HR
Stove	25,000 BTU/HR

Total BTU/HR=155,000 BTU/HR

Knowing that there is approximately 1000 BTUs in a cubic foot of Natural Gas and knowing the conversion factor (divide by 35.3) to convert cubic feet to cubic metres, the following formula can be used:

$$(\text{BTU/HR divided by } 1000) \text{ divided by } 35.3 = \text{cubic metres}$$

Using the example load survey form shown above, the conversion to cubic metres would be:

$$\begin{aligned} (155,000 \text{ BTU/HR} / 1000) / 35.3 &= \text{cubic metres} \\ 155 / 35.3 &= 4.39 \text{ m}^3 \end{aligned}$$

ABANDONED LINES

All abandoned pipelines are labelled with the abandoned pipeline **symbol**. When gas lines have been replaced, all abandoned lines should be located on the correct side of the operational pipeline.

CAPPED LINES

Cap *symbols* placed with leader lines are shown to *capped* lines and *blind end* lines.

SECONDARY SERVICES

Secondary services are service lines that are connected to the service line off the customer meter. These lines are not licensed under the Rural Gas Program and are shown on the digital plans by request of the co-ops.

Secondary services are to be indicated with the appropriate secondary consumer symbol.

No load is shown with a secondary service.

The pipeline feeding the secondary service should use the same symbology as for single service lines.

MAP ERRORS

A MAP ERROR is graphically identified on a plan with a circle or ellipse and text associated with the elements identified within the circle or ellipse.

ALL map errors shown in the plans need to be resolved

The following elements should be in **EACH TOWNSHIP UTILITY FILE:**

TITLE BLOCK

Check that the correct Co-op code number (from the Distributor Listing) and legal description are shown in the drawing no. area and in the top left and bottom left of plan.

TOWNSHIP AND RANGE NUMBERS

Ensure that the correct township and range number are entered on the body of the plan.

REVISION BLOCK

Ensure that infill notes have been added to the revision block with year of construction noted.

KEY PLAN

Check that the correct township has been shaded or cross-hatched in the key plan.

2) Township Land File

DESCRIPTION

The Topographic land file is provided by the Division and obtained from AltaLIS. The Division retains ownership of these land base files.

Distributors may have a subscription for the Cadastral land base from AltaLIS.

TOPOGRAPHIC LAND BASE

The land base represents one township per mapsheet and contains the following information:

- a) Road allowance, secondary, primary, trails and private roadways
- b) Section and quarter section lines
- c) Section numbers
- d) Alberta township survey (ATS) points
- e) Hydrographic features (sloughs, ponds, lakes, rivers, creeks, canals, etc.)
- f) Railways

g) Subdivision, hamlet, village, town or city areas

ATS Points have been added by the Division to these files, to facilitate the automatic referencing of appropriate files.

Section numbers in the topographic land can be scaled up for the purpose of clarity, or may be deleted when:

- located inside hydrography
- a pipeline crosses through the number
- franchise boundary crosses through
- area surrounding number is congested

CADASTRAL LAND BASE

The land base shows all of the legal plans and descriptive certificates of title as registered with Alberta Land Titles.

As the Cadastral files are the most accurate files currently available, this file can be used as the primary land base. The topographic land base can be referenced for features such as hydrography or centreline of roads.

Subscriptions with AltaLIS allow distributors to always have the most current data available.

3) Franchise Boundary File

A franchise file is provided by the Division. The franchise and exclusion area boundaries should match the current Franchise Area Approval plan (700 series).

This file should be attached as a reference to all utility files.

The boundaries should not be modified by the end user. (Contact the Graphics Co-ordinator or the Franchise Co-ordinator at the Division for any inquiries.)

4) Subdivision (300 series plans) Reference File

The subdivision reference file shows all of the hatched/patterned areas indicating all of the distributor's 300 series drawings.

The subdivision name and 300 series plan number should be shown and the area should be patterned. (note: patterned areas should border on LSD lines, 1/4 section lines, hydrography features, roads, or railways)

5) 1:20 000 Township Sheet File

DESCRIPTION

The sheet file contains the following information:

- a) Key Plan
- b) Distributor Name
- c) Map Scale
- d) Map Notes
- e) Map Number
- f) North Arrow
- g) Revision Information

SHEET SURROUND

The information items below are contained in the sheet file and **SHOULD NOT BE CHANGED**. A change to this file alters the information for all the township files:

DISTRIBUTOR NAME
ALBERTA LOGO AND BRANCH NAME
NOTES
KEY PLAN

DISTRIBUTOR NAME

The legal name of the Distributor should be checked and verified using the DISTRIBUTOR LISTING found in this manual.

ALBERTA LOGO

The Government of Alberta Logo must be printed as a solid blue or black. Contact the Division if you have questions about the logo.

NOTES

There should be four standard numbered notes in the NOTES Block of the sheet (with the exception of the co-ops that have **C.T.S.** outside diameter pipe, i.e. 22 PE and 29 PE). The following notes are correct and should appear in this area:

1. The accuracy of measurement and location of all Co-op pipelines shown on this plan are in accordance with the Alberta Energy and Utilities Board's informational Letters numbered IL PL 75-4 and IL PL 78-4 as applicable at the date of survey.
2. All dimensions shown hereon are in metres and all pipe sizes are nominal diameter, expressed in millimetres.
3. All single service lines are 20PE unless otherwise noted.
4. Land base is [LISD and/or Digitized].

For co-ops that have 22 PE and 29 PE, the following notes are added:

5. All 22 PE pipe is 20 PE C.T.S.

6. All 29 PE pipe is 25 PE C.T.S.

KEY PLAN

Verify the outline of the Franchise boundary using the most recent copy of the Franchise Area Approval Plan (700 series drawing). Contact the Franchise Co-ordinator in the Division for requests.

SUBDIVISION FILES

GENERAL

A new subdivision drawing is required where the number of customers in a $\frac{1}{4}$ section exceeds **FOUR (4)**. The reason being that at a scale of 1:20 000, congestion makes legibility difficult. A 300 series drawing detailing a $\frac{1}{4}$ section would be typically drawn to be plotted at 1:2000 scale. Therefore, all information within the $\frac{1}{4}$ section is drawn at a scale enabling greater detail.

Design file set up for 300 series drawings is basically the same for township series drawings; utility files are the active file with the corresponding land file used as a reference. Land base files are drawn first and provide a base for the precision placement of the pipeline information. Land files are drawn using precision placement of all registered plans and using existing cadastral mapping as sources. The key plan is also part of the subdivision land file. A sheet cell is placed in the utility file and contains all title block information, revisions and notes.

The corresponding $\frac{1}{4}$ section area in the township drawing land base file is to be “hatched” (patterned) and the subdivision’s name and 300 drawing reference number is placed. The township drawing utility file will show the main feeder pipeline through the $\frac{1}{4}$ section, the subdivision name, a hexagon cell showing the total number of customers for the subdivision, and (optional) the total load value. The main pipeline feeder line would be copied directly from the 300 drawing utility file, and should match those lines already drawn in the township utility file.

WHAT IS CONTAINED IN A SUBDIVISION FILE (300 MAPPING SERIES)

1) Subdivision Utility File

DESCRIPTION

The utility file represents a parcel or parcels of land per 300 mapsheet and provides larger scale details of pipelines and plant installed in rural subdivided areas. The following information is contained in these files:

- a) Gas distributor low and high pressure pipelines
- b) Abandoned pipelines
- c) Above and below ground facilities (station, block valves, anodes and test stations.)
- d) Customer locations
- e) Customer names
- f) Customer loads (optional)
- g) Sheet surround

TAP NOTE

Show "From Tap" note on any line that enters subdivision plan. Ensure that it is the correct **tap** number.

REGULATOR STATIONS

Specifications for a regulator station should be shown on that subdivision plan as opposed to the township plan where only the **symbol** and regulator number are noted.

PIPE SIZE CHANGES

Avoid pipe size change **symbols** within a subdivision where possible. Pipes are ideally annotated to a degree that the pipe size change **symbols** are not necessary. This is a case of judgement to provide optimum clarity.

CAP AND NON-BURNER SYMBOLS

Blind end (cap) symbols are placed with a leader line to the pipe.

Non-burner **symbols** can be placed in the middle of a lot where there is only a pipe stub into the lot. The non-burner symbol can also be placed at the end of a service line to indicate an idle riser. Do not use a leader line in either of these cases.

CUSTOMER NAMES

Customer names are generally only placed in the customer list table in the title block area. The names are shown within the plan if two or more customers exist in the same lot.

It is acceptable to place names directly in the lots if it does not create congestion within the drawing.

If the distributor prefers, riser numbers may be substituted for names.

SYMBOLS

The following **symbols** are placed where necessary: road crossing, water crossing, pipeline crossing, railway crossing, abandoned line, above or below ground valve, anodes, and test stations.

DUPLICATION OF SYMBOLS

Check that there is no duplication of **consumers** or crossing **symbols** between township plan and subdivision plan. Road crossing **symbols** are shown on the subdivision plan where pipelines cross roads on the south and west side of the subdivision.

CUSTOMER SYMBOLS

Customer **symbols** must be shown in the lot indicated in the **customer** list. **Symbols** can be scaled or moved to avoid overwriting other information.

CUSTOMER LIST

The total number of **customers** and loads can be cross-referenced with totals shown on the township plan.

"FOR CONTINUATION" NOTE

Ensure that in cases where a subdivision is continued on another plan, there is a "FOR CONTINUATION SEE DRAWING NO. ..." is shown and that it indicates the correct drawing number.

Subdivision Sheet Surround

The sheet surround is part of the 300 mapping series utility file

The following elements need to be checked on EVERY SUBDIVISION UTILITY PLAN.

CO-OP NAME AND DRAWING NUMBER

Check that the legal name of the co-op is shown. Ensure that drawing number, e.g. 1645-302, is shown in N.W., S.W., and S.E. corners of sheet. Check that the co-op number is correct.

SUBDIVISION NAME AND LEGAL DESCRIPTION

Subdivision name, together with legal description is found to the left of the title block. A hamlet, village, or town should also have a legal description.

NOTES

Check that "NOTES" are correct, i.e. "pipe sizes are nominal diameter" and "lines are 20PE".

ALBERTA LOGO

The Government of Alberta Logo must be printed as a solid blue or black. Contact the Division if you have questions about the logo.

SCALE

Check that proper scale has been listed (1:2000, 1:2500, 1:5000, or in some cases 1:4000).

REVISION BLOCK

Ensure that infill notes have been added in the revision block with year of construction noted.

2) Subdivision Land File

DESCRIPTION

SUBDIVISION LAND FILES MUST MATCH THE CADASTRAL LAND BASE USED BY ALBERTA LAND TITLES. (Available through AltaLIS)

Distributors may have a subscription for the Cadastral land base from AltaLIS.

It is acceptable to reference both the Cadastral land and the larger text features in the AUT Land. Contact the Graphics Coordinator if you require more information on using multiple land bases.

CADASTRAL LAND BASE

The land base shows all of the legal plans and descriptive certificates of title as registered with Alberta Land Titles.

As the Cadastral files are the most accurate files currently available, this file can be used as the primary land base. The topographic land base can be referenced for features such as hydrography or centreline of roads.

Cadastral land can only be purchased as a township. It is recommended that the entire cadastral township file is attached to the subdivision utility file as a reference, then masked or reference clipped. (note: DO NOT RENAME THE ORIGINAL CADASTRAL FILES with a .LND extension – only use as a reference)

Subscriptions with AltaLIS allow distributors to always have the most current data available.

PRECISION PLACED LAND BASE (also referred to as AUT Land Base)

This file has a .LND file extension

The land base represents a parcel or parcels of lands per 300 series drawing and consists of the following information:

(NOTE: LAND IS PRECISION PLACED IN ACCORDANCE TO REGISTERED SUBDIVISION PLANS; RIGHT-OF-WAY PLANS AND CERTIFICATES OF TITLES.)

- a) Road allowance, secondary, primary, streets and avenues.
- b) Railway and spur line right-of-ways.
- c) Utility and transmission right-of-ways.
- d) Sections, mid-sections and L.S.D. lines.
- e) Hydrography features.
- f) Lot lines.
- g) Block lines.
- h) Lot, block, registered survey plan and C of T numbers.
- i) Foreign pipeline rights-of-way
- j) Municipal boundary (where applicable).
- k) Key Plan

The subdivision land file must be updated every year there is new pipeline construction within the 300 series drawing.

ANNOTATIONS

Check all land feature annotations are shown and spelled correctly. Roads are referenced with highway number, appropriate name or GOVERNMENT ROAD ALLOWANCE as given on legal plan. Names of streets, avenues, etc. should be placed as close to the centre of the street as possible, when placed vertically always with reading from bottom to top.

BLOCK AND LOT LINES

Block and lot lines must correspond to and be updated according to individual legal plans.

BLOCK AND LOT NUMBERS

Block numbers are placed in the centre of the block and repeated if necessary. Lot numbers are placed horizontally on every fifth lot or as many as necessary to clarify non-sequential lot numbers. Ensure that lot numbers do not interfere with utilities information.

LEGAL DESCRIPTION

The legal description is placed at the intersection of 1/4 section lines. The section number is of a larger text size than the township, range and meridian information placed below it. Ensure that all this information is correct.

In areas of congested utilities and/or topographic detail the legal description may be placed at a convenient location and listed as such:

"SE 4-45-18-4".

FOREIGN PIPELINE R.O.Ws

Check that *foreign pipeline* rights-of-way have been shown.

ROAD WIDENINGS

In the case of a road widening at a government road allowance the extent of the road allowance must still be shown. The road allowance should be represented by a dashed.

KEY PLANS

Key plans are an exact copy, scaled down, of the block outlines, road allowances, 3 section lines and railways from the subdivision plans.

Plan outlines are dotted lines. The plan outlines should be copied parallel to the block outlines at an offset.

Plan numbers are placed horizontally. There should be no lines passing through the plan numbers. The plan numbers should be placed within the plan outline or as close as possible to the plans they refer to with solid leader line attached. C of Ts are also indicated on the key plan.

INPUT OF INFILLS

GENERAL

Consistency of element placement and symbology is important and can be achieved using the features available in the RU-GAS Barmenu.

PIPES

Where a new service is connected to an existing pipeline, the existing pipe is partially deleted, then extended so that they have coincidental end points.

A tee is placed at a new intersection. Crossings (road, pipe water, railroad) should be indicated using the appropriate cells.

Where a pipe enters an adjacent township, the pipe is broken at a mid-point in the road allowance. The remaining pipe is placed in the adjacent township utility file. Ensure that the two elements have a coincidental meeting point. **EACH TOWNSHIP MUST BE MAINTAINED AS A SEPARATE ENTITY.**

There is a maximum of **four (4)** consumers per $\frac{1}{4}$ section in township drawings before a more detailed plan is used to depict the services.

CUSTOMERS

The appropriate customer cell (domestic, grain dryer, irrigation, etc.) is placed at the end of the new line.

The customer cell is placed wholly within the $\frac{1}{4}$ section, as well as the customer name.

If space restrictions require, the load can be placed in a different $\frac{1}{4}$ section. (Placing loads is an option for the distributor)

ANNOTATION

Pipe annotation is found under "Text" in the Barmenu.

Single service 20PE lines are only annotated if they go through three (3) $\frac{1}{4}$ sections or more.

Single service 20PE lines leaving a township are annotated.

Single service 20PE lines entering a township are not annotated.

ROAD CROSSINGS

Where road crossings occur along road allowances bounding the township, the symbols are shown only on the south and west sides of the plan.

RAILWAY CROSSINGS

Where an application for a crossing has been made, a railway crossing is placed.

WATER CROSSINGS

Where an application for a crossing has been made, a water crossing symbol is placed.

PIPE CROSSINGS

Where an application has been made, a foreign pipe crossing symbol is placed. If there is more than one foreign pipeline in a right of way, a multiple pipe crossing symbol is placed.

ABANDONMENTS

The following commands are available in the RU-GAS Barmenu for abandoning pipes:

Copy parallel and change the symbology.

Change the symbology of an active pipe to abandoned.

Place the abandoned symbol. It can be placed adjacent to the abandoned pipe, or placed with a leader line to the pipe.

When pipe is abandoned at the tee; the tee is removed, a cap symbol is placed, and an abandoned symbol is placed.

When pipe is abandoned downstream of a tee; the tee remains, a cap symbol is placed, and an abandoned symbol is placed.

Where a pipe is replaced parallel to an abandoned pipe, the abandoned pipe may be offset for clarity. **Abandoned lines must always be located on the correct side of the active pipe.**

CONTENTS OF AN INFILL FILE

All distributors are required to keep license records updated (formerly the PLA forms).

The rule of thumb for the contents of an infill file is any year's activity that would be required to be licensed.

All new pipelines installed such as services, mains, upgrading, looping, re-routes, and all pipelines abandoned in the calendar year, along with associated annotation (tees, crossings) are put in the infill file.

The revision note should indicate the year of construction and the ¼ sections involved.

For service lines in township drawing, indicating only the ¼ section containing the customer symbol in the revision note is acceptable.

(Placing the revision note in the infill file is optional; however it must be placed in the utility file.)

Customer name changes and pipeline re-alignments where no license changes are required do not need to be placed in the infill file.

SUBMITTING DIGITAL FILES

AS-BUILT SUBMISSIONS

As-built submissions (also referred to as plant location records) comprise of two primary elements – digital mapping files and relevant documents.

DIGITAL MAPPING FILES

The individual rural distributors are responsible to maintain the mapping files. The Division acts as a repository of the files and annually provides PDF copies of the records to the ERCB for distribution.

All submissions must be in MicroStation file format.

Files can be submitted on CD, through an FTP site, or submitted by Email.

Submissions to the department must consist of the following:

- 1) One new infill file per township or subdivision (This means if there are 10 new infills in one drawing, only one complete infill file is submitted)
- 2) The complete utility file must be submitted for the drawings that have new infills or that may have changes, updates or anything that may have changed in the drawing.

Annual as-built audits are done by the Division to the integrity of the standards set in this manual. Errors and/or deficiencies will NOT be done by the Division. All errors are noted and sent back to the party making the submission. The distributor's year-end grant cannot be processed until all outstanding audit issues are resolved.

Part of the audit is a reconciliation with the Construction Approval issued by the Division.

RELEVANT DOCUMENTS

The following documents are a required part of the as-built submission:

- 1) A listing of the distributor's entire construction activity for the year.
It coincides with the digital infill files and details customer names or construction projects, legal descriptions, subdivision drawing numbers, pipe sizes, and service types.
The list should be sorted to match the same order as the infill files.
- 2) A covering letter including a statement indicating the method of survey and that the pipe locations meet the Division's standard of survey accuracy as set out in the current Technical Standards and Specifications Manual for Gas Distribution Systems
- 3) A copy of any license applications made directly to the ERCB for construction of high-pressure pipelines (if applicable).

CUSTOMIZATION & OWNERSHIP OF FILES

CUSTOMIZATION

Customized plans are any plans that have features that go beyond the Division's standards for digital mapping.

Customized plans may show additional features such as: elevation information, IPS and CTS pipe labelling, and additional coordinate tie-in distances. Also, a co-op may request specific customized plans such as: isolated tap systems, overlap plans along correction lines or wallmaps

The responsibility for customization falls upon the distributors and their agents.

The Division will have levels in the utility file designated for some common customization features. For anything beyond those features identified, the distributor (or its agent) should contact the Division to discuss setting up a new feature.

Another option available for customization is the creation of new files, attached as reference files, for the sole use of the distributor and its agent.

OWNERSHIP OF DIGITAL FILES

Currently, ownership of the township topographic land files and the sheet surround files (including the sheet cell used for 300 series files) resides with the Division. The infill files, utility files, and the subdivision land files are owned by the distributor.

In the event of a distributor changing their agent for preparing their digital files, the files must be obtained from the prior agent. If they are unable to do so, a written request should be sent (email is acceptable) to the Graphics Coordinator asking for the current files stored at the Division be sent to the new agent.

Ownership of any customized reference files that a distributor may have authorized, should be defined by an agreement between the distributor and its agent.

GLOSSARY

GLOSSARY

AltaLIS -	Distributor of Alberta Land Base products – Topographical & Cadastral
As-built submission -	The year-end submission to the Rural Utilities Division that includes plans showing the as-built locations of the distributor pipelines constructed during the year and all related information as required in the Rural Gas Program Policy Manual.
Capped/blind end lines -	Pipelines that have a cap fitting on the end of the pipe.
Consumer / Customer -	The landowner that has a contract to buy gas from the co-op.
C.T.S. -	Copper Tubing Size
ERCB. -	Alberta Energy Resources Conservation Board (Licensing body for High-Pressure pipelines)
Foreign Pipelines -	Any pipeline that is not owned and operated by the distributor named in the title block of the plan.
LSD -	A Legal SubDivision - in the Alberta survey system a section is divided into 16 LSDs of 40 acres each. LSD lines divide a 1/4 section into four equal parts.
Load Survey Form -	The form used by the co-op to determine the amount of gas (in BTU/HR) is required for a consumer.
Nodes -	A co-ordinate point shown on a pipeline. Examples are representations for tees, valves, reducers, regulators, and taps that are shown directly on the pipeline.
Nominal diameter -	A soft metric conversion representing the outside diameter of the pipe.
PLA Form -	Pipeline License Application form that contains the as-built license information.
Reducer -	A pipe fitting that connects a pipe with a larger outside diameter to a pipe with a smaller outside diameter. This does not affect the pressure of the gas in the pipeline.

R.O.W. -	Right-of-way or easement as defined by Alberta Land Titles.
RMO -	Regulator / Metering / Odorizing station. Also referred to as a Tap.
Symbols -	A graphic representation which uses alphanumeric text or pictorial representation to describe a node or map feature.
Tap -	The location of the RMO (Regulator / Metering / Odorizing) station. This is the location that the distributor is buying gas from a foreign-owned pipeline.

APPENDICES