

The Alberta Township System (ATS) version 4.1 Coordinate file is a digital ASCII file that contains coordinates for every quarter section corner and other governing points in Alberta's survey system. Altalis, acting as the agent Alberta Data Partnerships has compiled this document from various source documents, including historical government documentation. This document is intended to provide support through technical and background information.

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## ATS V4.1 COORDINATES

The ATS V4.1 Coordinate File was created based on the March 2005 coordinates of the section corners contained within the Cadastral Base. The file is an ASCII data file containing geographical coordinates (latitude and longitude in degrees and decimals thereof) for every governing quarter section corner in the province of Alberta. The ATS file is referenced to NAD 83, and the accuracy is +/- 3 metres.

## INTERNAL FORMAT RECORD LAYOUT

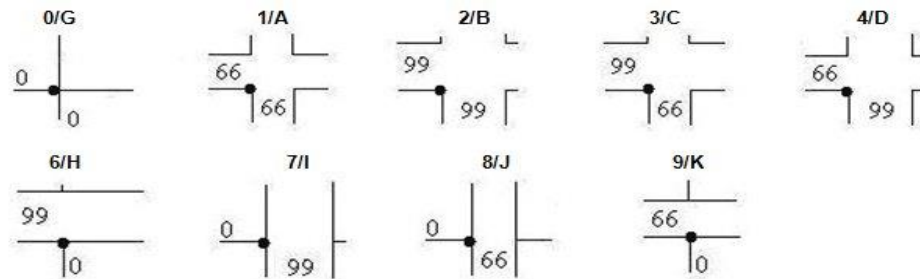
DATA	FIELD LEGNTH	COLUMN
MERIDIAN	1	1
RANGE	2	2-3
TOWNSHIP	3	4-6
SECTION	2	7-8
QUARTER SECTION	2	9-10
LATITUDE	11	11-21
LONGITUDE	12	22-33

YEAR COMPUTED	4	34-37
MONTH COMPUTED	2	38-39
DAY COMPUTED	2	40-41
STATION CODE	1	42
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PARCEL YEAR COMPUTED	4	79-82
PARCEL MONTH COMPUTED	2	83-84
PARCEL DAY COMPUTED	2	85-86
1:20 000 YEAR COMPUTED	4	87-90
1:20 000 MONTH COMPUTED	2	91-92
1:20 000 DAY COMPUTED	2	93-94
UPDATE DATE	14	95-108

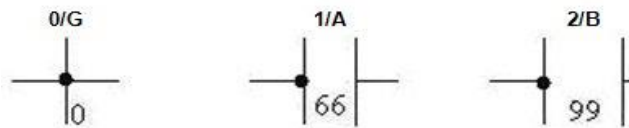
## ROAD ALLOWANCE CODE DEFINITIONS

The following codes are defined for Mapping Purposes of the ATS file only, and in some instances may be in conflict with the legal definition of the surveyed line and/or legal interpretation of the road allowance width. Consider a station record to control the width of any section of road allowance that may logically exist to the south and/or west of the station. Provincial codes are numbers 0 – 9, Federal codes (for R/As within Canada Lands) are letters A – D and F – K. Where jurisdiction does not exactly fit the code structure choose codes that simplify coding. (Code interiors of Canada Lands as federal and common boundaries as provincial)

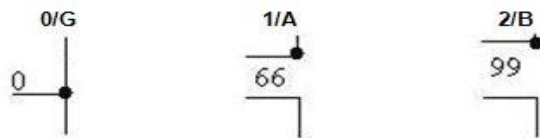
*For NE stations (except on blind lines)*



*For NE stations on a blind line and E¼ stations*



*For SE stations, S¼ stations, and N ¼ stations on a road allowance*



*For 'P' Points, CS, NW, W¼, SW and all other stations where the road allowance is irrelevant. Excepting: points defining correction lines and N ¼ s on blind lines, which should be coded to reflect the intent of the survey and/or the surrounding survey.*

**5/F (Undefined)**

## GENERAL RULES FOR SHOWING ROAD ALLOWANCE WIDTHS

- Road allowance code depends on the surveyed/unsurveyed interpretation of a relevant segment of the quarter section boundary. For a segment of the quarter section boundary to be deemed surveyed, both bearing and distance must be shown along the quarter section boundary on the current edition of the township plan except on a blind line which is considered surveyed if both endpoints are surveyed. Presence of areas is irrelevant.
- For any surveyed quarter section boundary, the road allowance code must be compatible with road allowance width shown on the current edition of the township plan, either 0, 66 or 99 feet.

- For any unsurveyed quarter section boundary, the road allowance width must be coded 99 feet.
- Most current info (check adjacent townships) must be used for coding along township's boundaries.
- Unsurveyed road allowances falling within water bodies that are entirely surrounded by surveyed territory should be coded 66 feet wide unless road allowances within surrounding territory were surveyed at 99 feet.
- Unsurveyed road allowances situated within Canada Lands and/or B. C. should be coded 66 feet wide.

## ATS COORDINATE RECORD DESCRIPTION

RECORD	DESCRIPTION
<b>MERIDIAN</b>	This data element comprises part of the legal land identifier. Valid meridians are 4, 5 and 6.
<b>RANGE</b>	This data element comprises part of the legal land identifier. Valid range numbers are 1 to 30 inclusive.
<b>TOWNSHIP</b>	This data element comprises part of the legal land identifier. Valid township numbers are 1 to 126 inclusive.
<b>SECTION</b>	This data element comprises part of the legal land identifier. Valid section numbers are 1 to 36 inclusive.
<b>QUARTER SECTION</b>	This data element comprises part of the legal land identifier. Valid quarter sections are NE, NW, SE, SW, S4, N4, E4, W4 CS and also Pi, Qi, and Xi where:
<b>NE</b>	indicates position at the northeast corner of a section
<b>NW</b>	indicates position at the northwest corner of a section
<b>SW</b>	indicates position at the southwest corner of a section
<b>S4</b>	indicates position at the quarter corner on the south boundary of a section
<b>N4</b>	indicates position at the quarter corner on the north boundary of a section
<b>E4</b>	indicates position at the quarter corner on the east boundary of a section
<b>W4</b>	indicates position at the quarter corner on the west boundary of a section
<b>CS</b>	Indicates position at the centre of a section

RECORD	DESCRIPTION
Pi, Qi, Xi	Where i ranges from 1 to 9 and from A to Z. This code represents a governing position, other than a regular quarter section corner, on the perimeter of a section (e.g. road post or witness monument), Indian Reserve, Settlement Lot, Group Lot, River Lot, Hudson Bay Reserve, Federal or Provincial Park as well as other Federal or Provincial Reserves, see COMMENT FIELD).
LATITUDE	Valid latitudes range from approx 49 degrees north to approx 60 degrees north in increments of $1 \times 10^{*-8}$ degrees (i.e. approx 1mm increments).
LONGITUDE	Valid longitudes range from approx. 110 degrees west to approx 120 degrees west in increments of $1 \times 10^{*-8}$ degrees (i.e. approx 1mm increments).
YEAR COMPUTED *	This data element is used to indicate the year in which the coordinates were (last) upgraded (e.g. 1982, 1984).
MONTH COMPUTED *	This data element is used to indicate the month in which the coordinates were (last) upgraded. Valid numbers are 1 to 31 inclusive.
DAY COMPUTED *	This data element is used to indicate the day on which the coordinates were (last) upgraded. Valid numbers are 1 to 31 inclusive.
	* An exception is the date 19890101. This combination serves as a flag to indicate that the width of the road allowance along correction lines were adjusted from 66 to 99 feet and does not indicate the date of last update.
STATION CODE	Valid station codes are the alphabetic characters S and U where:
'S'	Indicates a governing monument or point whose position is considered to be surveyed (e.g. posted section corners, witnessed section corners, north quarters on blind lines, block corners)
'U'	Indicates a point whose position is considered to be unsurveyed (e.g. section corners in unsurveyed territory, monuments which fall in Canada Lands such as parks or Indian Reserves)
STATUS CODE	This code indicates whether the station is current (0) or superseded (5). This information is used mostly for mapping purposes.
HORIZONTAL CLASSIFICATION	Valid codes are:
1,2,3,4	EMR horizontal order classification (1st order, 2nd order...)

RECORD	DESCRIPTION
5	Non monumented point in the survey system, accepted as a governing point and for which confirmed coordinates are on record. This would include coordinated but unposted points e.g., the NE corner of section 33 in unsurveyed territory or a property corner in an unposted subdivision.
6	Indicates a cadastral station (all governing points of the land survey system), the coordinates of which are accurately known and confirmed by a double solution field tie to survey control
7	Indicates a cadastral station not tied to control, the coordinates of which are calculated from plan dimensions
8	Indicates a cadastral station, the coordinates of which are confirmed by only a single solution field tie to survey control
9	Indicates theoretical coordinates for the ATS or points/monuments, which fall within Canada Lands such as parks and Indian Reserves.
COMMENT FIELD	The following examples outline how the COMMENT FIELD is utilized:
1 - GAR 215	GAR = Technologist's Initials, 215 = Alberta Survey Control Marker #. In cases where the Computations Section have derived coordinates for a cadastral station based on a direct tie from Alberta Survey Control, the technologist records his/her initials as well as the Alberta Survey Control marker number.
2	In cases where the Computations Section have derived coordinates for a cadastral station based on the bearings and distances shown on a plan of survey, the technologist records his/her initials for future reference. The technologist who computed the coordinates would be best prepared to help resolve any future problem in that particular map sheet.
3	In some cases the quarter section code is designated as 'Pi', 'Qi' or 'Xi' and the technologist will indicate the type of monument in the comment field. Some examples are:
	a) Section corner witness monuments,
	b) International boundary monuments,
	c) Interprovincial boundary monuments,
	d) Indian Reserve boundary monuments,
	e) Hudson Bay Reserve boundary monuments,
	f) River lot monuments,

RECORD	DESCRIPTION
	g) National park boundary monuments,
	h) Air weapons range boundary monuments,
	i) Settlement lot boundary monuments,
	j) Group lot boundary monuments, or
	k) Provincial park boundary monuments
<b>HORIZONTAL DATA SOURCE</b>	Valid codes are:
<b>1</b>	AEP
<b>2</b>	Federal Government
<b>3</b>	International Boundary Commission
<b>4</b>	AB/BC Boundary Commission
<b>5</b>	AB/NWT Boundary Commission
<b>6</b>	Other government agency
<b>Z</b>	Consult AEP
<b>HORIZONTAL METHOD</b>	Valid codes are:
<b>1</b>	Conventional tie from ASCM
<b>2</b>	GPS tie
<b>3</b>	ISS tie
<b>4</b>	Computed from Ottawa Township Plan
<b>5</b>	Computed based on registered plan
<b>6</b>	Computed based on DLS Manual
<b>7</b>	Computed by Municipal Computations Section
<b>8</b>	Computed by other agency
<b>Z</b>	Consult AEP

RECORD	DESCRIPTION
<b>HORIZONTAL DATUM</b>	Valid codes are:
1	NAD 27
2	NAD 83
3	Reserved for future use
4	Reserved for future use
5	Reserved for future use
6	Reserved for future use
<b>ROAD ALLOWANCE CODE</b>	This code is utilized for the proper mapping of road allowance widths (66 or 99 foot). The code for each record controls the R/A width for the section of road to the south and/or west of the station. Numerical codes 1 to 5 are used for provincial lands. Alphabetic codes A, B, C, D, & F are used for Canada Lands.
1/A	66 foot road allowance running north-south and east-west
2/B	99 foot road allowance running north-south and east-west
3/C	66 foot road allowance running north-south; 99 foot road allowance east-west
4/D	99 foot road allowance running north-south; 66 foot road allowance east-west
5/F	Undefined road allowance, typically 'P' points, CSs, NWs, W4s, SWs and all points where R/A is other than 66 or 99. Excepting: SEs and S4s on correction lines, which should be coded to reflect the intent of the survey, and N4s on blind lines which should reflect the surrounding survey.
<b>ELEVATION</b>	Elevation of station
<b>ELEVATION DATE</b>	Date of publication of elevation
<b>ELEVATION DATA SOURCE</b>	Valid codes are:
1	AEP
2	Federal government
3	Alberta Environment
4	Alberta Transportation



RECORD	DESCRIPTION
5	Alberta Agriculture
6	Prairie Farm Rehabilitation Agency
7	Municipality
8	Bench mark elevation diagrams
9	Altitude books
C	Contour maps
Z	Consult AEP
<b>ELEVATION METHOD</b>	Valid codes are:
1	Spirit levels
2	GPS
3	ISS
4	DEM
5	Trigonometric levels
6	Spot elevation from contour map
7	Interpolated from contour map
8	Other methods (stadia, barometric)
Z	Consult SRD
<b>ELEVATION ACCURACY</b>	Valid codes are:
1	< 1 metre
2	< 5 metre
3	<10 metre
4	>10 metre
Z	unclassified, consult AEP

RECORD	DESCRIPTION
VERTICAL DATUM	Valid codes are:
1	NAVD'29
2	NAVD'88
UPDATE DATE	Date and time update record was actioned against the repository. The date is in YYYYMMDDHHMMSS format.

## STANDARD FIELD ASSIGNMENTS

Following are definitions of the abbreviations used in the 'DESCRIPTION' and 'COMMENT FIELD' columns of the existing ATS coordinate file:

RECORD	DESCRIPTION
SC	Survey Control tie. Tie completed by Survey Control Branch
PT	Project Tie. Tie completed by Surveying and Mapping Branch
BDY MON	Boundary monument
IR	Indicates station is inside an Indian Reserve
LAKE	Indicates station is within a Lake
RIVER	Indicates station is within a River
WIT	Witness monument
IR BDY	Indicates station is an Indian Reserve Boundary monument (note IR may be substituted as the situation dictates, with: FED for Federal, STL for Settlement, INL for International, INC for Interprovincial, HB for Hudson Bay, RL for River Lot, NP for National Park, PP for Provincial Park)
REG PLN#	Registered Plan number (note - in some cases the plan may not be registered at time of calculation and the vault number assigned by the Director of Surveys Office may be substituted in lieu of the registered number)
TIED Rxxx	Indicates a Road post was TIED in lieu of the township corner
TIED WIT	Indicates a Witness monument was TIED in lieu of the township corner

MUN MSxxxx	Indicates ATS station corresponds to a Municipal station and details its Map Sheet and station number		
Rxx REG PLN#	Road post number & Registered Plan number of tied or re-established road post		
FR MN MSxxxx	Indicates ATS station was calculated from a Municipal station and details its map sheet and station number		
SHIPMENT DATE	The shipment date could be broken down further into:		
	DATA	FIELD LEGNTH	COLUMN
	Shipping Year	4	95-98
	Shipping Month	2	99-100
	Shipping Day	2	101-102
	Shipping Hour	2	103-104
	Shipping Minute	2	105-106
	Shipping Second	2	107-108

## EXAMPLE – EXCEL DISPLAY OF INTERNAL FORMAT

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42000901CS49.70581877112.5896666219910108S07MUN 030008 1725 0.000000000 199102150000000019910606173012
42000901E449.70585574112.5787631619910114S07 MUN 020001 1721 0.000000000 199102150000000019910606173012
42000901N449.71305367112.5896547719910114S07 MUN 080001 1721 0.000000000 199102150000000019910606173012
42000901NE49.71309865112.5787598819910114S07 MUN 090001 1721 0.000000000 199102150000000019910606173012
42000902CS49.70574018112.6117684619910108S07MUN 050002 1725 0.000000000 199102150000000019910606173012
42000902E449.70577987112.6008635819910114S06 MUN 040002 1121 0.000000000 199102150000000019910606173012
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42000903E449.70569629112.6229506819840529S07SM 1421 0.000000000 199102150000000019910606173012
42000903N449.71287870112.6338268319840529S08MUN 090001 1121 0.000000000 199102150000000019910606173012
42000903NE49.71293412112.6229299219840529S07FR MN 1000011721 0.000000000 199102150000000019910606173012
42000904E449.70559220112.6450577919840529S07SM 1421 0.000000000 199102150000000019910606173012
42000904N449.71278070112.6559375719910209S07SM PM1521 0.000000000 199102150000000019910606173012
42000904NE49.71282550112.6450419819910114S06 MUN 080004 1121 0.000000000 199102150000000019910606173012
42000905E449.70549700112.6671415619910209S07SM PM1521 0.000000000 199102150000000019910606173012
42000905N449.71268524112.6780129519910209S07SM 1421 0.000000000 199102150000000019910606173012
42000905NE49.71273373112.6671119719910209S07SM 1421 0.000000000 199102150000000019910606173012
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42000908N449.72715736112.6779423019910209S07SM PM1521 0.000000000 199102150000000019910606173012
42000908NE49.72720377112.6670528819910209S07SM PM1521 0.000000000 199102150000000019910606173012
42000909E449.72006911112.6449950519840529S08MUN 180001 1121 0.000000000 199102150000000019910606173012
42000909N449.72725473112.6558612319910209S07SM PM1521 0.000000000 199102150000000019910606173012
42000909NE49.72730336112.6449485319840529S08MUN 230001 1121 0.000000000 199102150000000019910606173012
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42000910N449.72735015112.6337666119910209S07SM PM1521 0.000000000 199102150000000019910606173012
42000910NE49.72739423112.6228904419920304S07MUN 210021 1721 0.000000000 199102150000000019920306113211
42000911E449.72024444112.6008386419910114S06 MUN 170001 1121 0.000000000 199102150000000019910606173012
42000911N449.72743958112.6116962019840529S07MUN 250013 1721 0.000000000 199102150000000019910606173012
42000911NE49.72748234112.6008220319910114S06 MUN 240001 1121 0.000000000 199102150000000019910606173012
42000912E449.72033427112.5787567819840529S08MUN 190001 1121 0.000000000 199102150000000019910606173012
42000912N449.72752619112.5896156519910114S06 MUN 230001 1121 0.000000000 199102150000000019910606173012
42000912NE49.72756806112.5787502219910114S06 MUN 220001 1121 0.000000000 199102150000000019910606173012

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### ATS HISTORICAL VERSIONS

There were 6 versions of the ATS coordinates prior to ATS V4.1. They are:

1. nad27\_v2.4
2. nad27\_v2.5
3. nad27\_v2.6
4. nad27\_v3.1
5. nad27\_v3.2
6. nad83\_v3.2