

US National Grid (USNG) Coordinates: *World wide context.*

Information Sheet 2/1 in this series.

FGDC-STD-011-2001

From www.fgdc.gov/usng

The example below locates the Jefferson Pier at USNG: 18S UJ 23371 06519.

U.S. National Grid	
100,000-m Square ID	
UJ	43 00
UH	
Grid Zone Designation	18S

A USNG value has three components.
 Some maps may give this leading information in a grid reference box.

Grid Zone Designation (GZD):

6° x 8° longitude zone / latitude band.

100,000-m Square Identification:

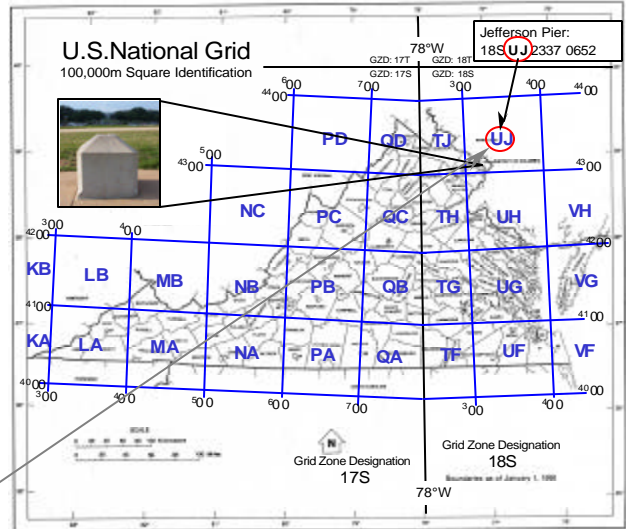
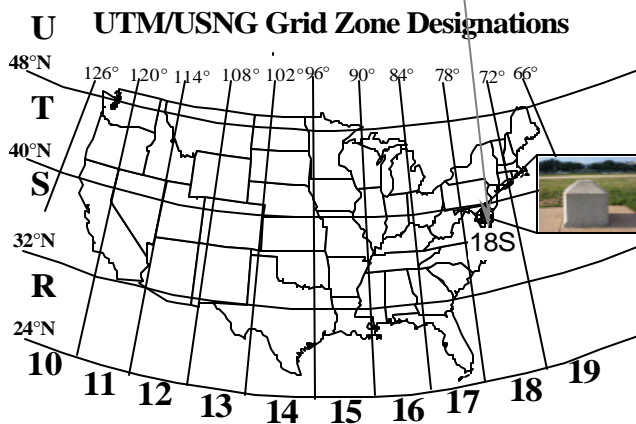
18S UJ 2337 0651

Grid Coordinates:

Read right, then up.

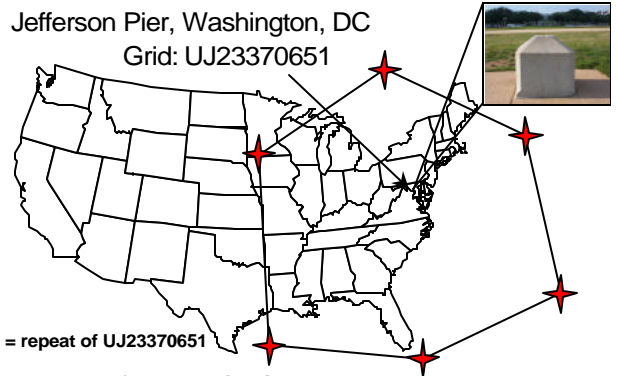
"Read right, then up."

USNG values have three components as seen above. The Grid Zone Designation gives a USNG value world-wide context with 60 longitudinal zones each 6° wide. Zones 10 - 19 cover the conterminous U.S. as seen below left. UTM zones are divided into 8° latitudinal bands. Together these 6° zones and 8° bands compose Grid Zone Designations. Example: 18S



100,000-m Square Identifications
 Example: UJ

The Power of Truncated USNG Values



GZDs are further subdivided into 100-km x 100-km squares with 100,000-m Square Identifications. In this example, the Jefferson Pier is located in UJ. These squares are organized and lettered so they do not repeat themselves but every 18°, which is approximately 1,000 miles in the mid-latitudes. The illustration at right depicts how far one must go before the letters UJ repeat. In the conterminous U.S. this ensures a given value such as UJ 2337 0651 is unique out of the entire state it is located in - as well as all surrounding states.

Each 2 letter/8 digit USNG value (10-m posting) in the outlined area is unique.

In general, people in a local community may use the grid coordinates alone - for example: 233 065. The same numbers recurs about every 60 miles but normally that will not cause a problem when the general location is understood. This is similar to the way you tell someone only the last digits of a phone number when the area code is obvious. If there is a possibility of confusion include the letter pair also - for example: UJ 233 065. A letter pair recurs about every 1000 miles so even in a disaster relief effort there should be no other point with those coordinates nearby. A complete USNG reference such as 18S UJ 233 065 is nationally and globally unique. Typically a GPS receiver or other electronic device requires a complete USNG reference since unlike a human it does not intuitively understand the general location from context. You should always give a complete USNG reference whenever abbreviated coordinates might not be clear or when listing them on letterhead, a business card or advertisement.

Reading US National Grid (USNG) Coordinates: "Read right, then up."

Information Sheet 2/2 in this series.

FGDC-STD-011-2001

From www.fgdc.gov/usng

The example below locates the Jefferson Pier at USNG: 18S UJ 2337 06519.

U.S. National Grid	
100,000-m Square ID	
UJ	⁴³ 00
UH	
Grid Zone Designation	18S

A USNG value has three components.

Some maps may give this leading information in a grid reference box.

Grid Zone Designation (GZD):

6° x 8° longitude zone / latitude band.

100,000-m Square Identification:

18S UJ 2337 0651

Grid Coordinates:

Read right, then up.

"Read right, then up."

- Grid lines are identified by **Principal Digits**. Ignore the small superscript numbers like those in the lower left corner of this map.

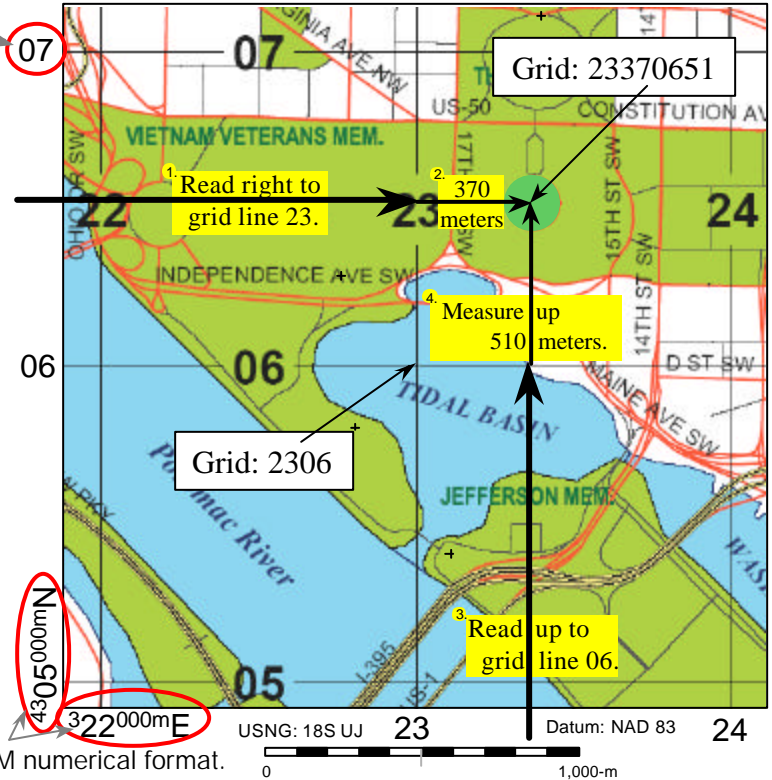
Reading USNG Grid Coordinates.

- Coordinates are always given as an even number of digits (i.e. 23370651).

- Separate coordinates in half (2337 0651) into the easting and northing components.

¹ Read right to grid line 23. ² Then measure right another 370 meters. (Think 23.37)

³ Read up to grid line 06. ⁴ Then measure up another 510 meters. (Think 06.51)



Grid:	Point of Interest:	
228058	FDR Memorial:	+
231054	George Mason Memorial:	+
2338 0710	Zero Milestone:	+
2275 0628	DC War Memorial:	+
222065	Lincoln Memorial:	

Ignore the small UTM superscript numbers that are provided for reference purposes. UTM numerical values are best suited for determining direction and distance as in surveying. USNG alpha-numeric values are best suited for position referencing because they can be given as only grid coordinates in a local area and with only the required precision for a particular task.

Users determine the required precision. These values represent a point position (southwest corner) for an area of refinement.			
Four digits:	23 06	Locating a point within a 1,000-m square.	
Six digits:	233 065	Locating a point within a 100-m square (football field size).	
Eight digits:	2337 0651	Locating a point within a 10-m square (modest size home).	
Ten digits:	23371 06519	Locating a point within a 1-m square (man hole size).	

A modest size home can be found or identified in a local area with only an 8-digit grid.

Complete USNG value: 18S UJ 2337 0651 - Globally unique.
 Without Grid Zone Designation (GZD): UJ 2337 0651 - Regional areas.
 Without GZD and 100,000-m Square ID: 2337 0651 - Local areas.

This illustrates how nationally consistent USNG coordinates are optimized for local applications. They serve as a universal map index value in a phone or incident directory for field operation locations. Unlike classic atlas grids (i.e. B3), these can be used with any paper map or atlas depicting the national grid and in web map portals such as the Washington, DC GIS (<http://dcgis.dc.gov>).

They can also be used in consumer GPS receivers to directly guide you to the location. This is especially beneficial at night, in heavy traffic, or major disasters when street signs are missing.



Point of Interest	Street Address	USNG Grid:	Telephone:
		18S UJ	(202)
Subway Sandwich & Salads	2030 M St., NW	2256 0826	223-2587
Subway Sandwich & Salads	430 8th St., SE	2698 0567	547-8200
Subway Sandwich & Salads	3504 12th St., NE	2740 1120	526-5999
Subway Sandwich & Salads	1500 Benning Rd, NE	2815 0757	388-0421