



This photo, taken on 18 April 1951, shows one of the many underwater crossing constructed by the KPA. This one is 5 km southwest of Manpojin. Sandbags were piled on river bottom until a structure 4.5 m wide was raised to within .6 m of the surface. Immediately downstream (to the right in the photo) of the crossing the KPA hastily constructed a "leaky" dam. Its purpose was to raise and calm the waters upstream at the crossing. (USAF)

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## **KPA Engineer River Crossing Units During the Fatherland Liberation War, Part 3**

By Joseph S. Bermudez Jr.

### **2<sup>nd</sup> Engineer Regiment<sup>1</sup>**

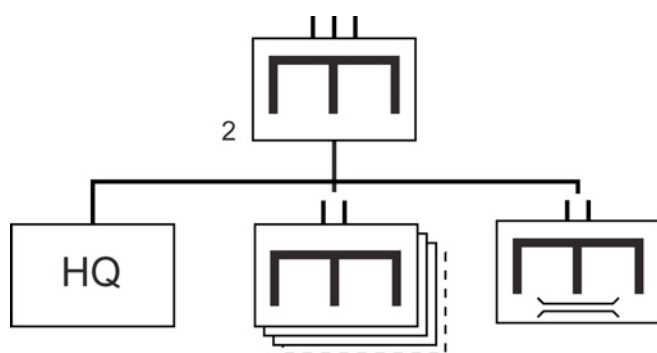
As with the 1<sup>st</sup> Engineer Regiment (see *KPA Journal*, Vol. 1, No. 2) there is some confusion concerning the designation of this unit. Early wartime intelligence reports correctly identify it as the 2<sup>nd</sup> Engineer Regiment, which was subse-

quently dispersed and annihilated in the Seoul area during September 1950 following the Inch'on landing. Shortly afterwards U.S. intelligence identified a "new" engineer unit, the 503<sup>rd</sup> Engineer Regiment, established in November 1950 subordinated to the Engineer Bureau. This "new" unit, however, was a reconstituted 2<sup>nd</sup> Engineer Regiment. The confusion arose because the 2<sup>nd</sup> Engineer Regiment's "army unit" or code number was "503" and the KPA security practice of normally referring to its own units as the "N<sup>th</sup> KPA Army Unit" rather than its actual designation.

Available information indicates that the 2<sup>nd</sup> Engineer Regiment was established in early August 1950 at Kan-ni, north of P'yongyang {1, refer to the map on page 3}. It was established to provide the General Staff Department with a specialized engineer capability since the 1<sup>st</sup> Engineer Regiment was now fully engaged in supporting the I and II Corps fighting in the south.

The regiment's establishment was conducted in an accelerated fashion with minimal training and equipment. This training was apparently conducted with the assistance of the experienced cadre of the Engineer Bureau's 1<sup>st</sup> Training Bat-

talion. The bulk of the personnel assigned to the new unit were raw recruits with no prior military experience or engineer training. These recruits received, at most, 20 days of basic military and engineer training at Kan-ni. This training was under the supervision of two Soviet military advisors—one of whom was reportedly a field grade officer. The officers for the unit are believed to have been almost as poorly trained as the enlisted personnel, however, some may have received basic, or abbreviated, engineer training at the Engineer School. As far as equipment was concerned the regimental headquarters had only eight old Japanese trucks while the bridging battalion was issued only hand tools. Furthermore, only about half of the estimated 400 troops assigned to the bridging battalion were equipped with weapons.



**2<sup>nd</sup> Engineer Regiment, August 1950**

### Organization

At the time of its establishment the 2<sup>nd</sup> Engineer Regiment had a personnel strength of approximately 1,200 and was organized into a headquarters and four or five engineer battalions—one of which was designated as a bridging unit.

### Wartime Operations

Sometime between 1-9 September the training of the 2<sup>nd</sup> Engineer Regiment was abruptly terminated and the unit issued orders to move to Seoul {2}. The first unit to leave Kan-ni was the bridging battalion, which was quickly followed by the remainder of the regiment.

This move was precipitated by two factors: 1) the General Staff Department was concerned about, and apparently possessed fragmentary intelligence of, a possible UNC amphibious landing at Inch'on, and 2) to provide the Front Headquarters with an engineer reserve and replacement for the 1<sup>st</sup> Engineer Regiment—whose units were by then detached to the I and II Corps and had been depleted by op-

erations and committed to the assault on the Pusan Perimeter.

Upon arrival in Seoul the 2<sup>nd</sup> Engineer Regiment was augmented by additional personnel, most likely ROK citizens who had been forcibly conscripted, to bring it to full strength. Additionally, weapons (most likely from captured ROK Army stocks) were distributed to at least one of the battalions. Prior to the 2<sup>nd</sup> Engineer Regiment's arrival in Seoul the construction of N2P pontoons had commenced in Seoul (see *KPA Journal* Vol. 1, No. 2). It is conceivable that these N2P pontoons were intended to both provide replacements for those lost or damaged in the 1<sup>st</sup> Engineer Regiment and to be used to equip the 2<sup>nd</sup> Engineer Regiment's bridging battalion.

It is unlikely that the regiment was engaged in any meaningful engineering activities during the week prior to the successful UNC amphibious landing at Inch'on on 15 September. The landing found the 2<sup>nd</sup> Engineer Regiment deployed in and around Seoul. Although information is lacking, it would seem probable that the unit was tasked with the defense of the Han-gang bridges with the rear elements of the 1<sup>st</sup> Engineer Regiment. By 25 September these two engineer units had been dispersed or annihilated and the majority of their personnel were either killed or captured.

Following the intervention of the Chinese Volunteer Army in October 1950 and the subsequent withdrawal of UNC forces, the KPA commenced the process of reorganizing or reconstituting and reequipping the remnants of its shattered units. It did so using remote cities such as Sinuiju, Kanggye, Hyesan, etc. as concentration points. During late November 1950, as part of this process, the Engineer Bureau reconstituted the 2<sup>nd</sup> Engineer Regiment at Kanggye {3} to provide specialized engineer capabilities to the reorganizing KPA.

While it is possible that some experienced personnel might have been involved the majority of the enlisted personnel of the reconstituted 2<sup>nd</sup> Engineer Regiment were hastily conscripted recruits without prior military experience. While the officers were drawn from inexperienced students of the Engineer School or the Military Academy at P'yongyang. An example of this lack of experience was provided by a prisoner-of-war from this unit who stated that the officers were always consulting their textbooks during training.

At the time of its being reconstituted the 2<sup>nd</sup> Engineer Regiment was commanded by Senior Colonel Lee Ki-won. The unit had a personnel strength of approximately 1,250

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This interesting photo was taken on 28 July 1950 at 1650 hrs., along on the Han-gang (i.e., Han River), near Yoju. It shows a KPA ferry with a camouflaged ZIS-151 (?) truck tied down to it. Twelve soldiers are in the water swimming to shore as the USAF aircraft approaches. Six troops are on shore and running away from the river. Additional supplies are stacked by the ferry site. A road has been cut to the shoreline. While the mud at the edge of the river has been overlaid with firmer material (perhaps sand and gravel), to increase trafficability. (USAF)

and apparently had received no training in river crossing operations.

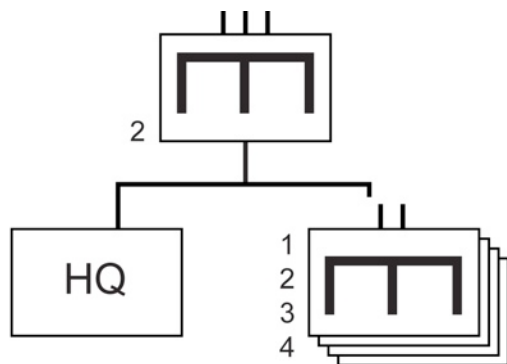
On about 29 December 1950, following 4-6 weeks of basic military and engineer training, the 2<sup>nd</sup> Engineer Regiment moved from Kanggye to P'yongyang (possibly stationed in the Kan-ni area) {4}. Here the unit underwent further advanced engineer training, possibly under the guidance of a reconstituted Engineer School. This training included bridge construction, river crossing operations, laying and clearing of mines, demolition and other engineer missions. It is unlikely that any bridging or heavy engineering equipment was supplied to the unit during this period.

On about 23 January 1951 the regi-

and was organized into a headquarters and four engineer battalions. While information is lacking the headquarters probably consisted of operations, political, administration and rear services sections. Although these were likely to be lightly staffed. Each of the four engineer battalions, apparently designated 1<sup>st</sup> through 4<sup>th</sup>, were identical and were composed of three companies, each with a strength of about 100 officers and men.

As a result of the extreme shortage of engineer and heavy equipment during this period, the regiment was equipped with only hand tools, explosives and similar items of light equipment. A prisoner-of-war from the unit states that each man was issued a rifle or submachine gun, six or seven hand grenades, two boxes of dynamite and 7 m of fuse. At this time the unit possessed no bridging equipment

ment's 4<sup>th</sup> Battalion, under the command of Major Pak Ki-ho, was transferred from P'yongyang to Ch'unch'on, where it was attached to the 6<sup>th</sup> Branch Unit subordinate to the General Staff Department's Guerrilla Guidance Bureau {5}. At this point in the war the remnants of by-passed KPA units within the ROK had reconstituted themselves into guerrilla units and were conducting guerrilla operations in the UNC rear areas. These guerrilla forces were themselves organized into "Branch Units" with each being responsible for a specific geographical region. The 6<sup>th</sup> Branch Unit was operating in Cholla-namdo Province, particularly the Chiri-san area, situated in the southwest corner of the peninsula.<sup>2</sup> The 4<sup>th</sup> Battalion was apparently intended to provide the 6<sup>th</sup> Branch Unit with greater demolitions and mining capabilities—both of great value in the guerrilla warfare being waged. The bat-



## 2<sup>nd</sup> Engineer Regiment, November 1950

talion was met by representatives of 6<sup>th</sup> Branch Unit in the vicinity of Ch'unch'on and under their guidance infiltrated through UNC lines on about 10 February. The unit moved south through the Taebak-san (i.e., Taebak Mountains) towards the guerrilla base around Chiri-san. The last available information indicates that the unit had passed through Anhung-ni, just east of Kochang, on about 20 February {6} on its way to Chiri-san {7}. As UNC forces conducted extensive counter-guerrilla operations during 1951 and 1952 the majority of the 6<sup>th</sup> Branch Unit's personnel (including the 4<sup>th</sup> Battalion) were killed, captured or rendered ineffective.

Information concerning the operations of the 2<sup>nd</sup> Engineer Regiment during the remainder of the war is limited.

One prisoner-of-war from the unit states that sometime about January 1951 some of the regiment's battalions were transferred from P'yongyang to the Wonsan area {8} and Seoul {9}. If this is correct, it is possible that these battalions were attached to the various KPA corps to supplement organic engineer support at corps and division level, or were used to augment the reconstituted 1<sup>st</sup> Engineer Regiment which was then apparently deployed in the Wonsan area.

At the end of the war the 2<sup>nd</sup> Engineer Regiment appears to have been stationed in the Saingang area, approximately 12 km north of P'yongyang {10}. Here it assisted in the repair and reconstruction of bridges in the western section of the nation. At this time the regiment is reported to have had a strength of approximately 1,300 officers and enlisted and was organized into a regimental headquarters, support elements and four engineer battalions—one of which was a heavy pontoon battalion equipped with N2P pontoons.

## The Scud B SRBM in KPA Service

By Joseph S. Bermudez Jr.

On 25 April 2007 the Democratic People's Republic of Korea (DPRK) conducted a military parade celebrating the 75<sup>th</sup> anniversary of the founding of the Korean People's Army (KPA). Among the missile systems displayed during the pa-









rade was the Scud B with its associated MAZ-543 transporter-erector-launcher (TEL).

The DPRK acquired its first Scud B's (including TELs and support vehicles) from Egypt during the late 1970s or early 1980s. These are believed to have been supplemented by small numbers of additional TELs acquired from elsewhere.

Defector and other open source reports suggest that beginning during the 1980s the Sungni General Automotive Factory commenced the production of small numbers of TELs, MELs and specialized support vehicles for the various ballistic missile and long-range multiple rocket launcher (MRL) programs. A number of these vehicles have utilized either imported chassis (e.g., Hino, MAZ, Nissan, etc.) or components (e.g., generators, Isuzu engines, etc.).

The organization responsible for this work is believed to be overseen by the Korean Workers' Party Munitions Industry Department through its subordinate Second Economic Committee (production) and the Second Academy of Defense Sciences (defense research and development). Within the Second Economic Committee the key organization is likely to be the Second Machine Industry Bureau.

These organizations have also developed a new TEL and support vehicles for the Nodong medium range ballistic missile (MRBM) which is based upon a MAZ 10 × 10 chassis.

The first six photographs presented here are from the 25 April 2007 parade and depict relatively standard MAZ-543

TELs (i.e., the 9P117M1 variant—note the screen for the APU vent on the driver's side).<sup>3</sup> The sixth photograph is interesting in that it apparently was taken after the parade and depicts both a temporary parade number affixed to the vehicle and a camouflage tarpaulin covering the missile. None of the photographs reveal any significant information concerning the missile itself which is painted light green overall and appears to be either a R-17 (8K14) or a domestically produced Hwasong 5. Also visible, in several of the photographs are large white "serial numbers" applied to the missile airframes.

The seventh and eighth photographs below—taken at an earlier parade and during a 2008 Burmese military delegation visit, respectively—depict camouflaged Scuds.<sup>4</sup> The few photographs available of camouflaged KPA Scud missiles depict the same general pattern of a light green airframe, over which dark red-brown patches have been painted. In the seventh photograph these patches are closely spaced, while in the eighth photograph they are widely spaced.

It should be noted that the Scud missiles illustrated here are likely static parade or training articles and it is probable that operational missiles are painted differently (e.g., dark green overall).

With regard to the "serial numbers" applied to KPA ballistic missiles available information suggests that while they originally had significance, this no longer true. Today



they are meaningless and part of KPA deception and disinformation operations.

As a possible example of the earlier significance of ballistic missile serial numbers a defector, Yi Bok-ku, who was

employed at the No. 38 Factory in Hoich'on, Chagang-do has stated that serial numbers painted on Nodong missiles provided manufacturing details. Using the example of "2-38-603" the first number "2" signified the Second Economic



Committee, the “38” signified that the missile was manufactured at the No. 38 Factory, and “603” signified that the guidance system was manufactured at the 603 Factory (a subcomponent of the No. 38 Factory).<sup>5</sup> This description, however, remains to be confirmed.

## A ‘Type’ KPAF Fortified SAM Base<sup>6</sup>

By Joseph S. Bermudez Jr.

The DPRK maintains a sizable, albeit obsolescing, surface-to-air missile (SAM) force. This force is deployed at approximately 175-200 SAM sites. Of these, one-third are prepared sites which are operational and occupied by firing battalions. One-third are alternate sites capable of being occupied on short notice. While the remaining one-third are dummy sites which, if the need arises, could be upgraded to

59.79” N 125° 43’ 01.33” E). Located on the highest hill in the area approximately 1 km northeast of the town is a fortified underground SA-3b GOA (S-125 Pechora) SAM base.

This base is ideally located to provide air defense coverage for a number of strategically important facilities including the: Pakch’*on* helicopter bases (6 km northwest); Yongbyon Nuclear Research Center (13 km north-northeast); Kaech’*on* Air Base (18 km northeast); and Kaech’*on* (Saamcham) Southwest Highway Airstrip (12 km east-northeast).

Imagery available through GoogleEarth reveals that this SA-3b base consists of a housing area, support area and an underground launch site. Located in the area around the base are a number of prepared fighting positions which are situated to defend the base. These are most likely for members of the local Red Guard or reserve Military Training units and likely include light ADA.



either alternate or operational status. Although SAM, as well as air defense artillery (ADA), sites are located throughout the country, there are concentrations located along the DMZ and around major cities, ports, important military installations, factories, and airfields.

Among the 60-70 operationally SAM bases there are a number that are fortified underground complexes. One such SAM base is located northeast of the city of Anju near the town of Tajuktong, Pakch’*on*-gun, P’yongan-namdo (39° 40’

What appears to be a housing area for the base is located 350 m to the north, at the base of the hill. It consists of nine buildings. While the support area is located on the access road to the base and immediately to the southwest of the launch site. This consists of several above ground buildings and what appears to be an entrance to the underground facility.

The launch site consists of three (with a possibly fourth under construction) revetted missile launch positions and



two access tunnels, all distributed around a centrally located engagement radar position.

The engagement radar (apparently a KPA variant of the SNR-125 LOW BLOW) is located on an elevating platform within the central chamber of the underground facility. When required two concrete, steel-reinforced, ceiling doors are opened by electric motors and the radar is elevated to the surface. On the surface it sits within a semi-revetted position. The command (i.e., engagement), communications and generator vans remain below within the central chamber and the protection of the underground facility. When no longer needed the radar may be lowered and the doors closed. It, however, appears that the radars are frequently left on the surface.

Connecting to the central chamber, but separated by blast doors, are tunnels or rooms leading to the SAM launchers, personnel and vehicle entrances (2), generators, spare missile storage, administrative offices, food storage, billeting and a garage with the unit's vehicles. The two personnel and vehicle entrances are covered by blast doors and one is protected by a high packed-earth and gravel berm.

The tunnels housing the SAM launchers lead from the central chamber to the launch positions and have blast doors at both ends. When required the blast doors are opened by electric motors and the launchers moved out—also using electric motors—along a pack gravel or concrete ramp to the

launch positions. The SAM launch positions consist of a pack gravel or concrete pad surround by a 16-18 m semicircular revetment.

The SA-3b launchers themselves appear to be the 5P73 four rail launcher.

Not readily identifiable in the GoogleEarth imagery are any nearby early warning (e.g., P-15 FLAT FACE or P-14 TALL KING) radar positions.

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### Editor's Note

With this issue I've concluded coverage of the KPA's engineer river crossing units during the Fatherland Liberation War. I would like to thank all the readers for their positive comments concerning this series of articles. As I mentioned in issue No. 2 I will follow up this series with some coverage of KPA underwater bridges and bridging equipment. Which issue they will appear in is presently uncertain.

A number of readers have asked if I will be writing anything special for the 60<sup>th</sup> Anniversary of the Korean War this June. I haven't yet decided upon a topic for the June issue, but would like to hear from what you the readers would like to see. Readers might be interested to know that I had written a history of the KPA's 17<sup>th</sup> Tank Division during the war and submitted it to *Armor* for publication with the hope that it would appear in the May-June issue. Unfortunately, their

publication schedule is already full. They have, however, accepted it for publication in a future issue. When that occurs, I will inform the readers of *KPA Journal*.

In response to a number of reader's request I will be preparing several articles, or photo essays, on KPA tanks and armored fighting vehicles. I hope to have the first in time for the next issue.

I am making slow progress on the *KPA Journal* website and I hope to have it up in a month or so. I will let the readers know when it goes live.

Finally, all readers are encouraged to share ideas of what you would like to see in future issue of *KPA Journal*. As always I would like to thank you all for your encouragement and support.

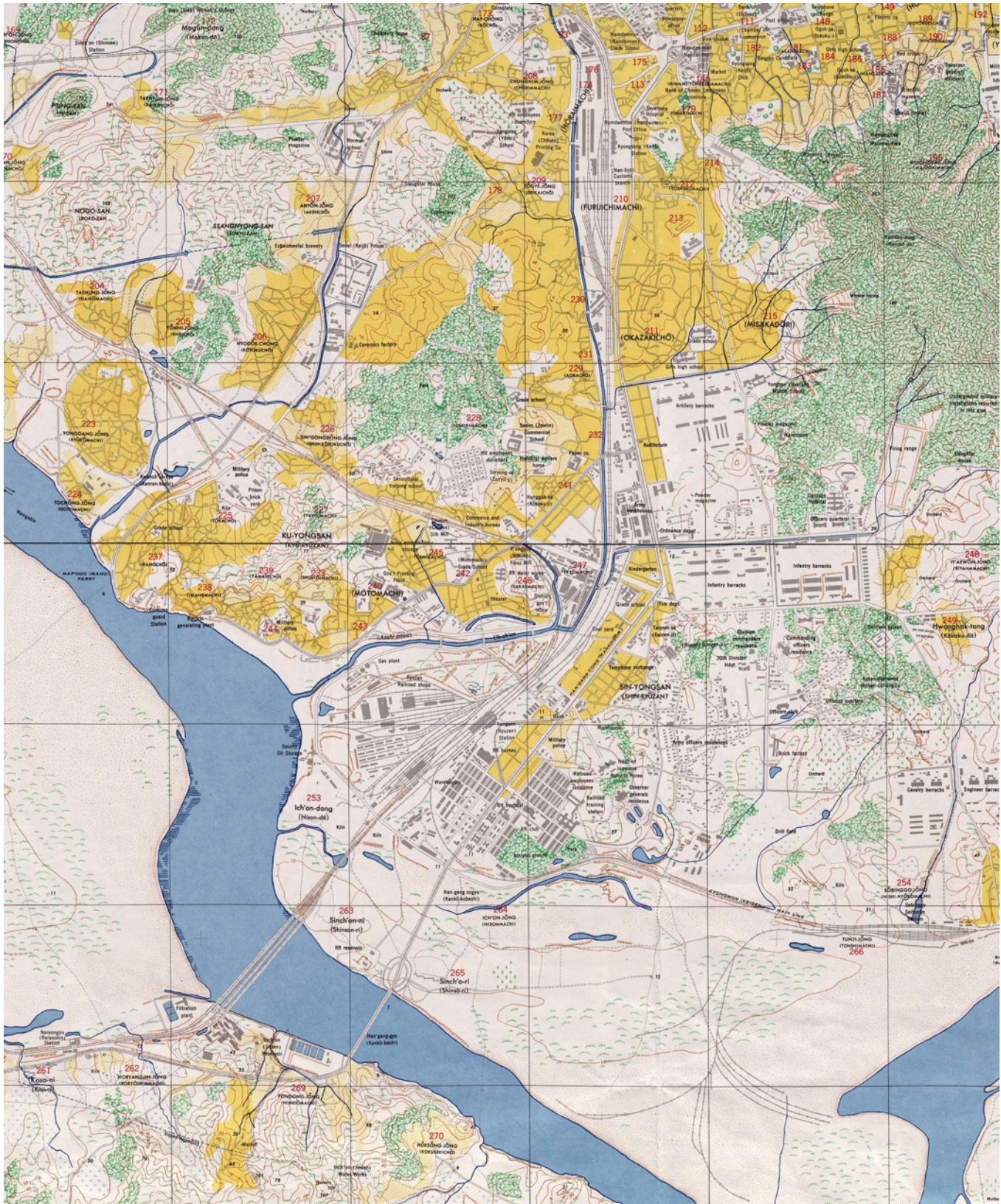
—Joseph S. Bermudez, Jr.

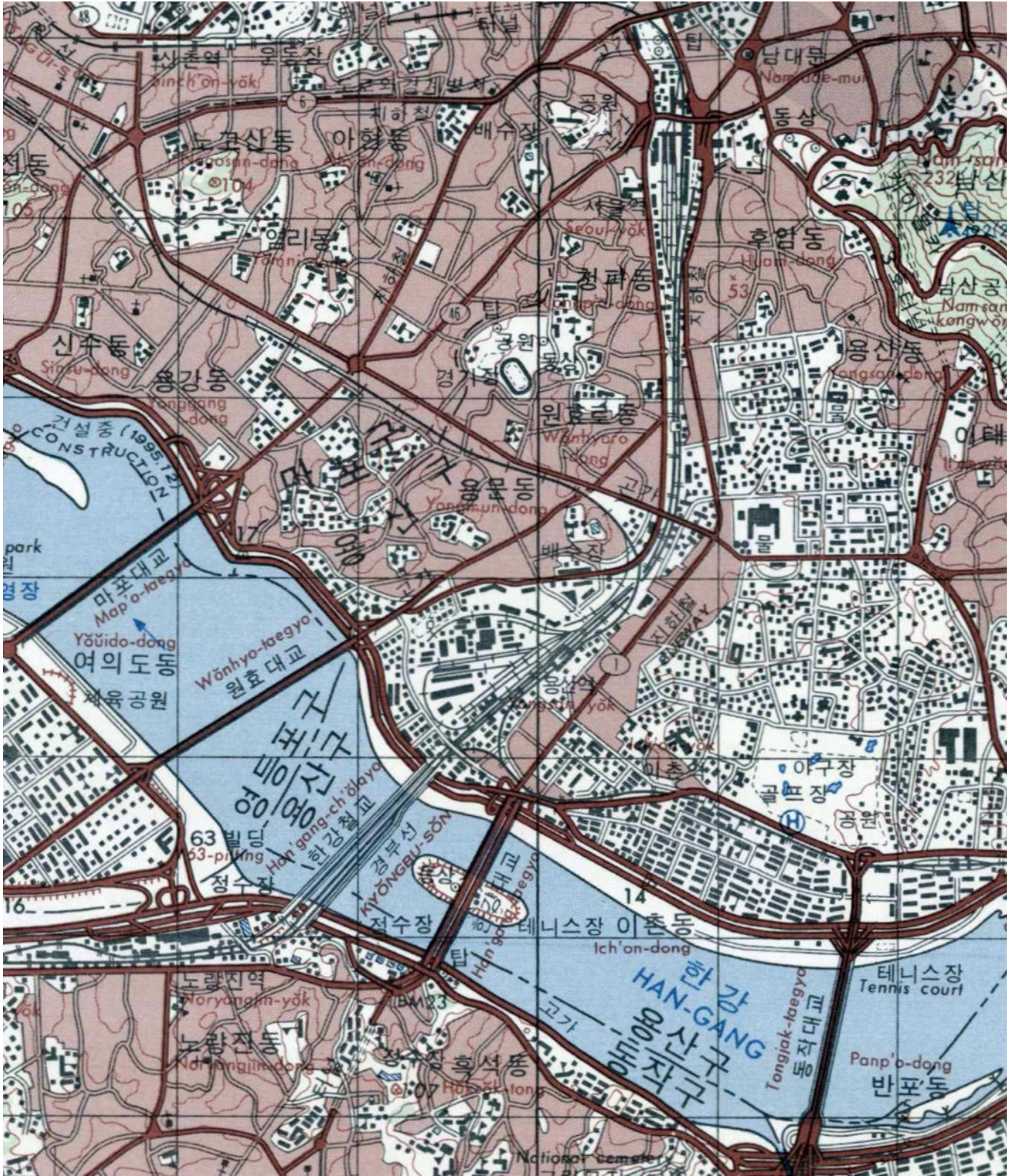
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- <sup>1</sup> Interview data acquired by Joseph S. Bermudez Jr.; "Yu Song-chol's Testimony, Part 7," *Hanguk Ilbo*, 8 November 1990, p. 10; "Yu Song-chol's Testimony, Part 8," *Hanguk Ilbo*, 9 November 1990, p. 10; "Yu Song-chol's Testimony, Part 9," *Hanguk Ilbo*, 11 November 1990, p. 10, 23 November 1990; U.S. Army. *Research Supplement: Interrogation Reports*, GHQ, FEC, MIS, GS, ATIS, Issue No. 104, pp. 2-32; and U.S. Army. *North Korean Engineers*, Engineer Intelligence Study 323, Chief of the Engineers, February 1962, p. 9.
  - <sup>2</sup> Available information concerning the Branch units identifies the 4<sup>th</sup> rather than the 6<sup>th</sup> Branch Unit as being responsible for Cholla-namdo Province and the Chiri-san. For further information concerning the Branch Units and guerrilla warfare operations within the ROK during the war please see: Bermudez Jr., Joseph S., *North Korean Special Forces—2<sup>nd</sup> Edition*, Annapolis, Naval Institute Press, 1998, pp. 29-56. Please note that while this book is currently out-of-print I am currently working on a new edition.
  - <sup>3</sup> The MAZ-543 (9P117M1) was most recently produced as the MAZ-7310LTM by MAZ (now MAZ-MAN) in the city of Minsk, Belarus.
  - <sup>4</sup> In July 2009 a blog (<http://www.drlunsw.blogspot.com/>) of a Burmese dissident presented the world with the official trip report and accompanying photographs of a November-December 2008 Burmese military delegation visit to the DPRK. The eighth photograph presented here was taken during that visit.
  - <sup>5</sup> Interview data acquired by Joseph S. Bermudez Jr. and "North Korea's Military Science, Technology (Part 2)," *Kunsa Nontan*, 26 August 2005-31 August 2005.
  - <sup>6</sup> This section is based upon interview data and declassified documents acquired by Joseph S. Bermudez Jr. and GoogleEarth. Additional information was deduced from the official trip report and accompanying photographs of a November-December 2008 Burmese military delegation visit to the DPRK found on the Burmese dissident blog *Dr Lun Swe* at [www.drlunsw.blogspot.com](http://www.drlunsw.blogspot.com).

## Addendum: Han-gang Bridges

Several readers asked for a more precise location for the Hang-gang bridges shown in the images included with the 1st Engineer Regiment article (Vol. 1, No. 2). The following

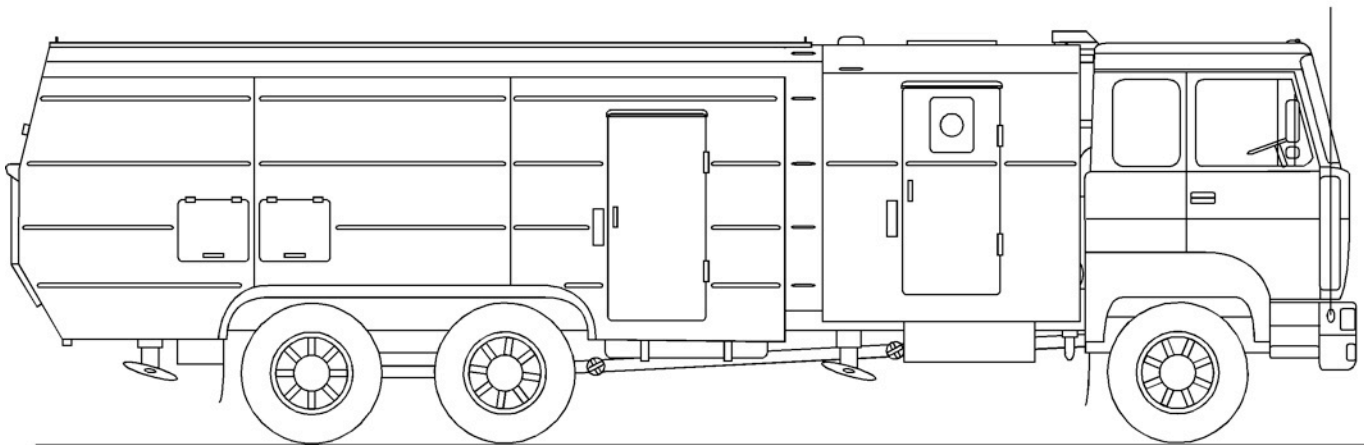
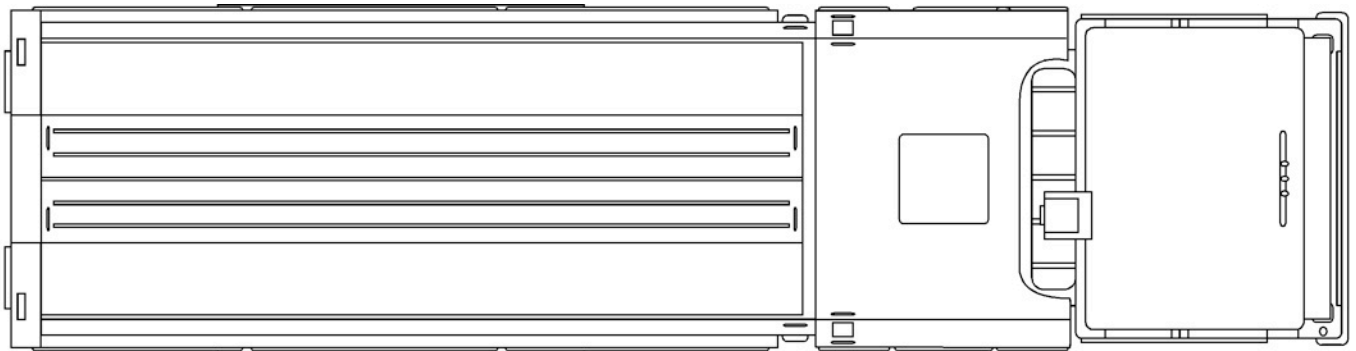
1946 and 2000 maps provide that information. As anyone familiar with the Seoul area can immediately tell, a lot has changed in 60 years.





## Addendum: KN-02 TEL Drawing

In my haste to finish last issue I inadvertently included the incorrect (i.e., an earlier) version of the KN-02 TEL drawing. Here is the latest revision.



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## KN-02 TEL