

JUNE 20, 2019



North Korea's Long-term Re-education through Labor Camp (*Kyo-hwa-so*) No. 4 at Kangdong

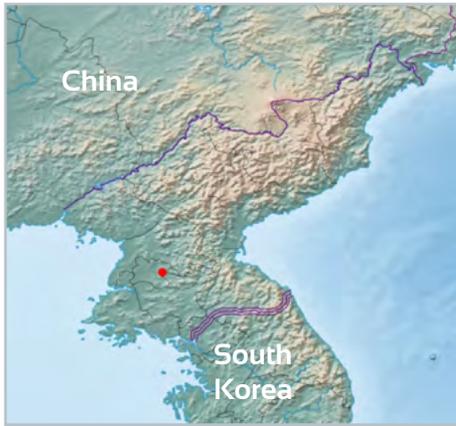
Joseph S. Bermudez, Jr., Greg Scarlatoiu, Amanda Mortwedt Oh, and Rosa Park



THE COMMITTEE FOR
HUMAN RIGHTS IN NORTH KOREA
북한인권위원회

HRNK wishes to thank Ishimaru Jiro (Asia Press) for generously sharing ground imagery of Kyo-hwa-so No. 4, Bobby Holt for his peer review of this report and comments, and Allen Anderson for his gracious support of HRNK's efforts to document North Korea's vast system of unlawful imprisonment.

NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (KYO-HWA-SO) AT KANGDONG



Location:

Chaek-kol, Kangdong-gun, P'yŏngyang-si

CenterPoint Coordinates:

39.008838° N, 126.153277° E

Date of Report:

June 20, 2019

Date of Imagery:

Declassified CIA KH-4A:
August 23, 1965

DigitalGlobe: September 2, 2004–
January 19, 2018

Size of Facility:

115,794 square meters (138,490 square yards)
635 meters by 311 meters (694 yards by 340 yards)

Background

In February 2014, the United Nations Commission of Inquiry on Human Rights in North Korea (UN COI) found the Democratic People's Republic of Korea's (DPRK's or North Korea's) political prison camps to be places where the most egregious crimes against humanity are being committed, including extermination; murder; enslavement; torture; imprisonment; rape and other grave sexual violence; and persecution on political, religious, and gender grounds. Such crimes were "found by the UN COI to rise to the level of *crimes against humanity* in both the *kwan-li-so* and *kyo-hwa-so* [labor re-education] prisons," and "lead to the death of prisoners in many cases." The UN COI called on the DPRK to acknowledge the existence of the political prison camps and provide its citizens with basic human rights .

The Committee for Human Rights in North Korea (HRNK) satellite imagery analysis and former

prisoner testimony on the situation inside political prison camps (*kwan-li-so*) and re-education through labor camps (*kyo-hwa-so*) continue to yield new information on the DPRK practice of imprisoning people it deems anti-state, anti-nation, or anti-regime. HRNK found over twenty potential re-education through labor camps inside the DPRK, recently documented in our October 2017 report *The Parallel Gulag*. These camps exist and function in addition to six operational political prison camps— Nos. 14, 15, 16, 18, 25, and Choma-bong Restricted Area.

Since the 2014 UN COI report, there have been continued reports of ill treatment and torture of prisoners, including women who have attempted to flee the country, and prisoner disappearances. Satellite imagery has shown the expansion of DPRK detention facilities in some cases as well as increased security measures inside these facilities.

Executive Summary

This report is part of a comprehensive long-term project undertaken by HRNK to use satellite imagery to shed light on human suffering in North Korea by monitoring activity at prison facilities throughout the nation. This study details activity observed during the past 15 years at a prison facility identified by escapees and researchers as "Kyo-hwa-so No. 4, Kangdong" (39.008838° 126.153277°) and endeavors to establish a preliminary baseline report of the facility.

For this report HRNK analyzed 18 high-resolution pan-sharpened multispectral and pan-chromatic satellite images of the *Kyo-hwa-so* No. 4, Kangdong, and its immediate environs focusing upon examination of the following physical features:

NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (KYO-HWA-SO) AT KANGDONG

- » Security perimeters (internal and external), entrance/checkpoints, and guard positions
- » Internal arrangement
- » Housing and support facilities
- » Limestone quarry
- » Activity within and in the immediate environs of the facility

Based upon analysis of these features *Kyo-hwa-so* No. 4 is a small long-established operational prison camp that is well maintained by North Korean standards as is indicated by general activity, operation of a limestone plant, and maintenance in and imme-

diately surrounding the camp. Satellite imagery coverage of the facility clearly indicates that the prison's primary economic activity is the production of limestone products using forced labor. Despite extensive satellite imagery coverage of the facility HRNK is presently unable to provide a reliable estimate of the number of prisoners detained at the facility.

As with the analytical caution presented in previous HRNK reports (such as [North Korea: Imagery Analysis Camp 16](#) and [North Korea: Imagery Analysis of Camp 14](#)) it is important to reiterate that North Korean officials, especially those within the Korean People's

Army and the internal security organizations, clearly understand the importance of implementing camouflage, concealment, and deception (CCD) procedures to mask their operations and intentions. It would not be unreasonable to assume that they have done so here.

Location and Subordination

Kyo-hwa-so No. 4 is located at Chaek-kol in Kangdong-gun, P'yŏngyang-si, approximately 15.5 kilometers south-southeast of Kangdong. It is also 8.3 kilometers east of the Pokchŏng-ni *Kyo-hwa-so* and .9 kilometers north of the new Kangdong Thermal

Power Plant—under construction since 2011. The prison is reported to be subordinate to the Prisons Bureau of the Ministry of People's Security, which is directly under the State Affairs Commission. Specifically, it would be under the control of the ministry's Kangdong-gun Provincial Bureau.

Development

The date of establishment of *Kyo-hwa-so* No. 4 is unknown. Declassified satellite imagery from the 1960s indicates that camp was established prior to August 23, 1965, when the facility was cap-

NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (KYO-HWA-SO) AT KANGDONG

tured on film by a US CIA KH-4A reconnaissance satellite.

High-resolution commercial satellite imagery from September 2, 2004 provides one of the first detailed views of the facility. Among the changes noted from 1965 to 2004 were:

- » The size of the excavated area in the limestone quarry more than doubled in size—a clear indication of continued use
- » The plant administration and

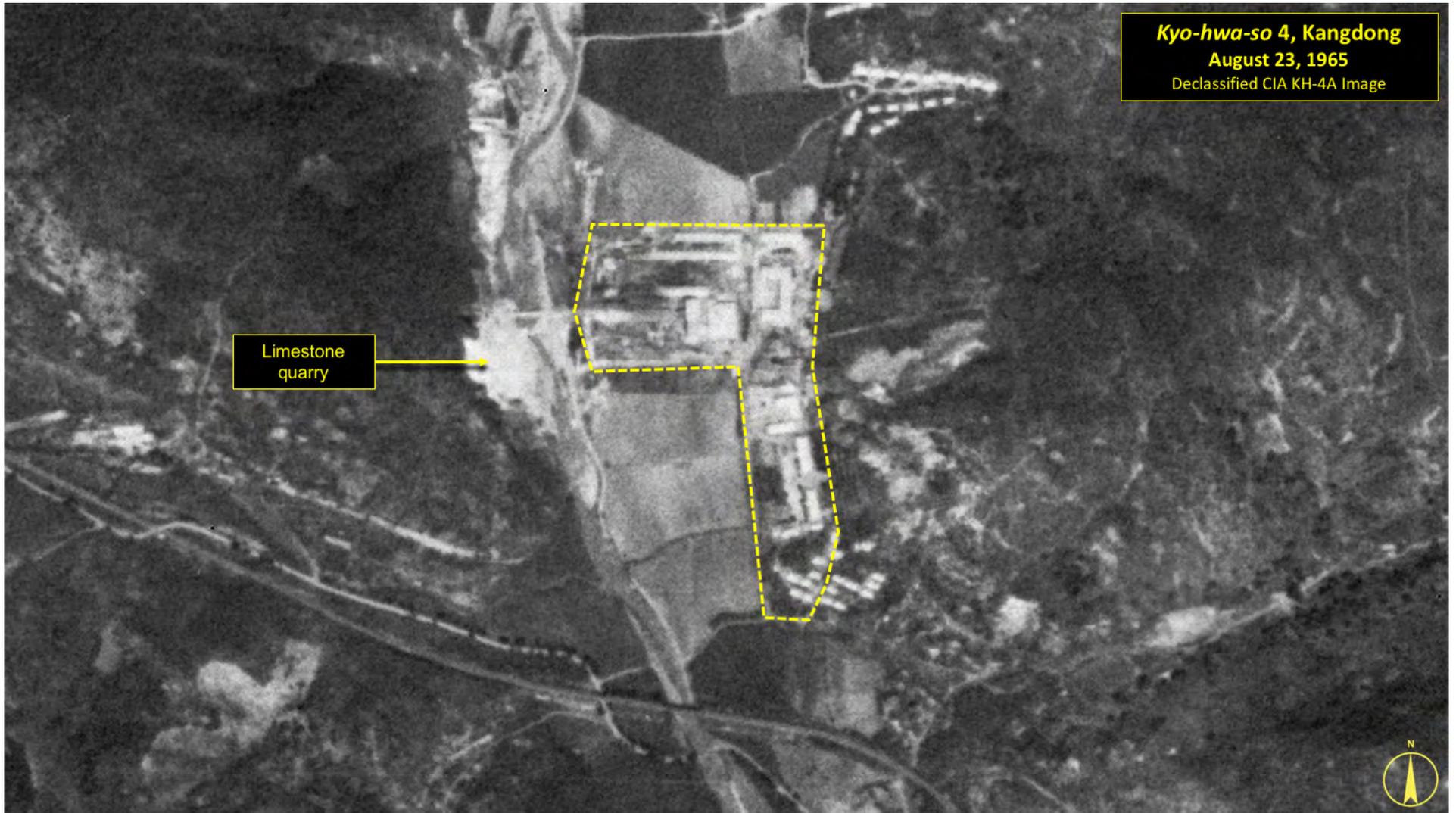
prisoner housing building expanded from a “C” to “E” configuration, adding approximately 902 square meters (1,078 square yards). This suggests either an increase in the prisoner population, increasing output, or both.

As of September 2, 2004, the prison occupied an irregular shaped area that measured approximately 524 meters by 311 meters (574 yards by 340 yards), encompassed approximately 104,640 square meters (125,150

square yards), and contained approximately 66 structures of all sizes from a limestone plant to small sheds. Located within this area was the main prison consisting of a 265-meter-by-190-meter high rectangular walled compound with four guard positions located at the four corners and a single entrance on the south side. Inside the main prison walls were plant administration and prisoner housing, a limestone plant, and support areas. Located immediately south and outside the main prison and partially enclosed by

a low wall with three entrances were the prison headquarters, administration, barracks, support and housing areas. An old railroad branch line ran adjacent to the west wall of the prison, connecting several coal mines north of the prison to the national rail network. A short 425-meter-long, abandoned, railroad spur line is visible leading to the headquarters area from the south.

Figure 1

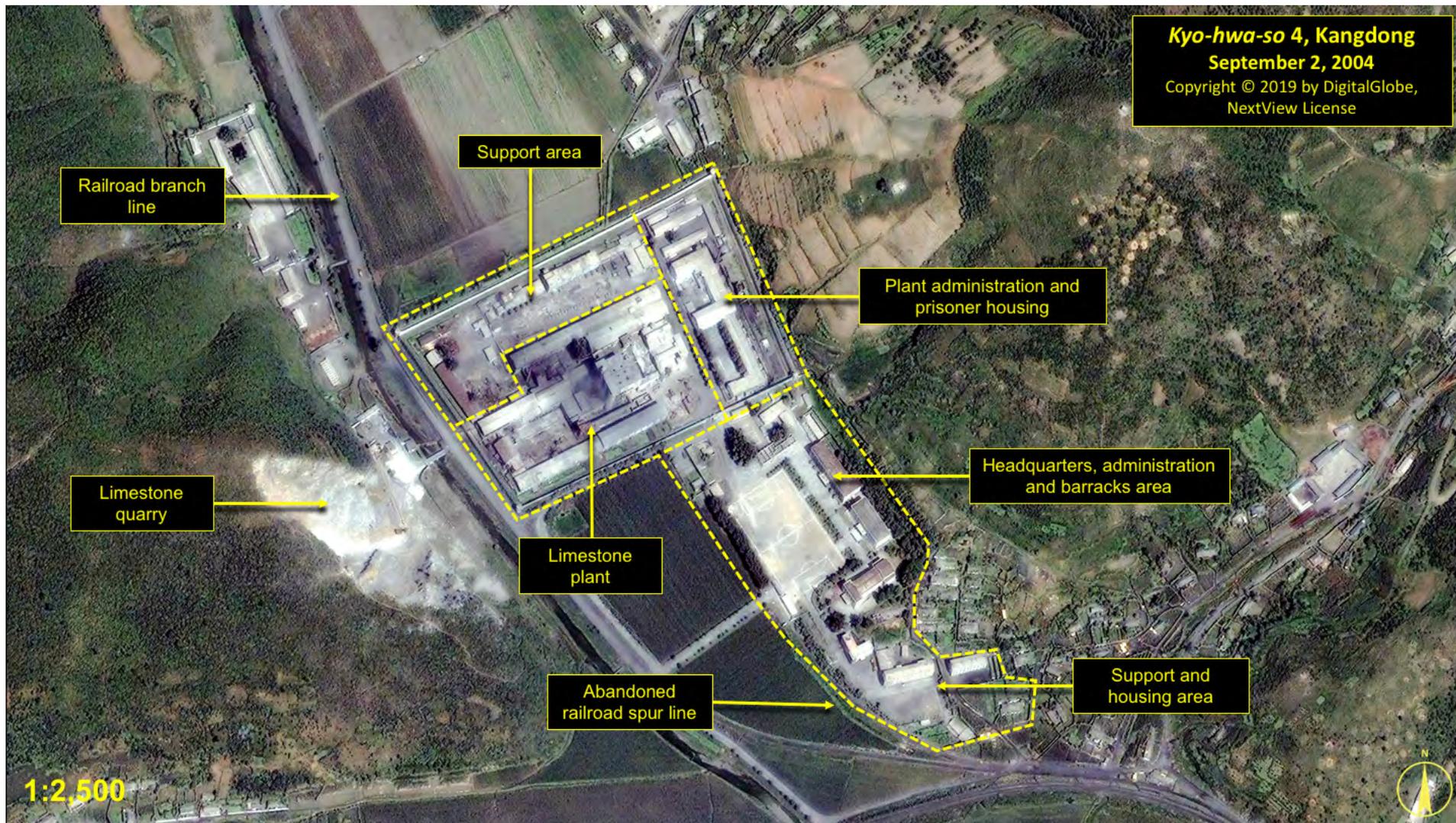


Kyo-hwa-so 4, Kangdong
August 23, 1965
Declassified CIA KH-4A Image

Limestone
quarry

A view of *Kyo-hwa-so* No. 4 from August 23, 1965, as seen in a declassified 3-meter resolution image collected by a CIA KH-4A reconnaissance satellite.

Figure 2



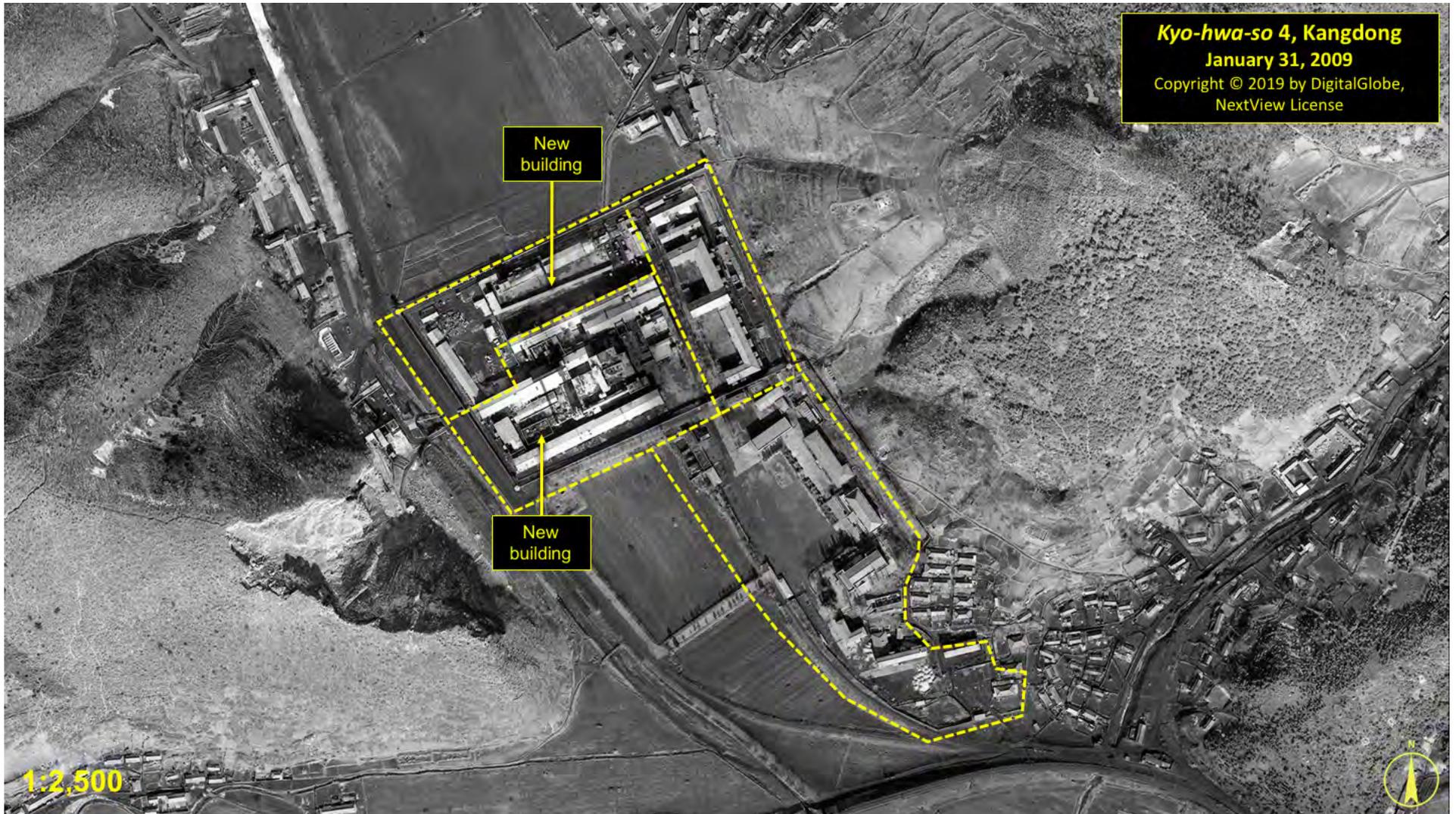
A view of *Kyo-hwa-so* No. 4 on September 2, 2004 showing the general arrangement of the facility and the changes that occurred from 1965-2004.

Figure 3



A view of *Kyo-hwa-so* No. 4 on September 17, 2007.

Figure 4



A view of *Kyo-hwa-so* No. 4 on January 31, 2009 showing the addition of two new buildings.

NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (*KYO-HWA-SO*) AT KANGDONG

Located across the road, immediately to the west of the prison is a limestone quarry from which the prison's limestone plant receives crushed ore via a conveyor belt running under the road. There are several additional limestone quarries in the general vicinity of the prison that may also supply crushed ore to the prison's limestone plant. Crushed limestone ore is then processed by the prison's plant into finished limestone products which are then shipped out by truck.

Aside from shifting activity in the limestone quarry, the only significant change observed at *Kyo-hwa-so* No. 4 during the period from 2004 through 2010 was the addition of a new guard position approximately 100-meters north of the northeast corner of the prison—at the intersection of two gravel roads, and construction of two new buildings in the main prison compound sometime between September 17, 2007 and January 31, 2009. The first was

a 110-meter-by-3.75-meter shed/stall-type structure in the support area on the north side of the main prison compound. The second was a 25-meter-by-15-meter rectangular structure in the plant area. This structure has never had a roof and its purpose is unclear.

The following 10 ground images of *Kyo-hwa-so* No. 4 were covertly collected during 2009 and show various views of the prison. (Taken by Asia Press, Kim Dong-Chul).

Figure 5 shows the rock crusher in the limestone quarry across the road from *Kyo-hwa-so* No. 4. (Taken by Asia Press, Kim Dong-Chul).

Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10



Figure 11



Figure 12



Figure 13



Figure 14



NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (KYO-HWA-SO) AT KANGDONG

Imagery from September 23, 2011 shows no major changes within the prison. Some infrastructure developments, however, were observed outside and adjacent to the northeast corner of the prison. Here, a compound encompassing approximately 4,220 square meters with a partial low wall and a small building were erected between 2009 and 2011. The positioning of this compound and guard position 50-meters northeast suggests that this compound was associated with the prison. On the opposite side of the road from the prison the rock quarry

administration and storage area is being expanded suggesting an increase in production.

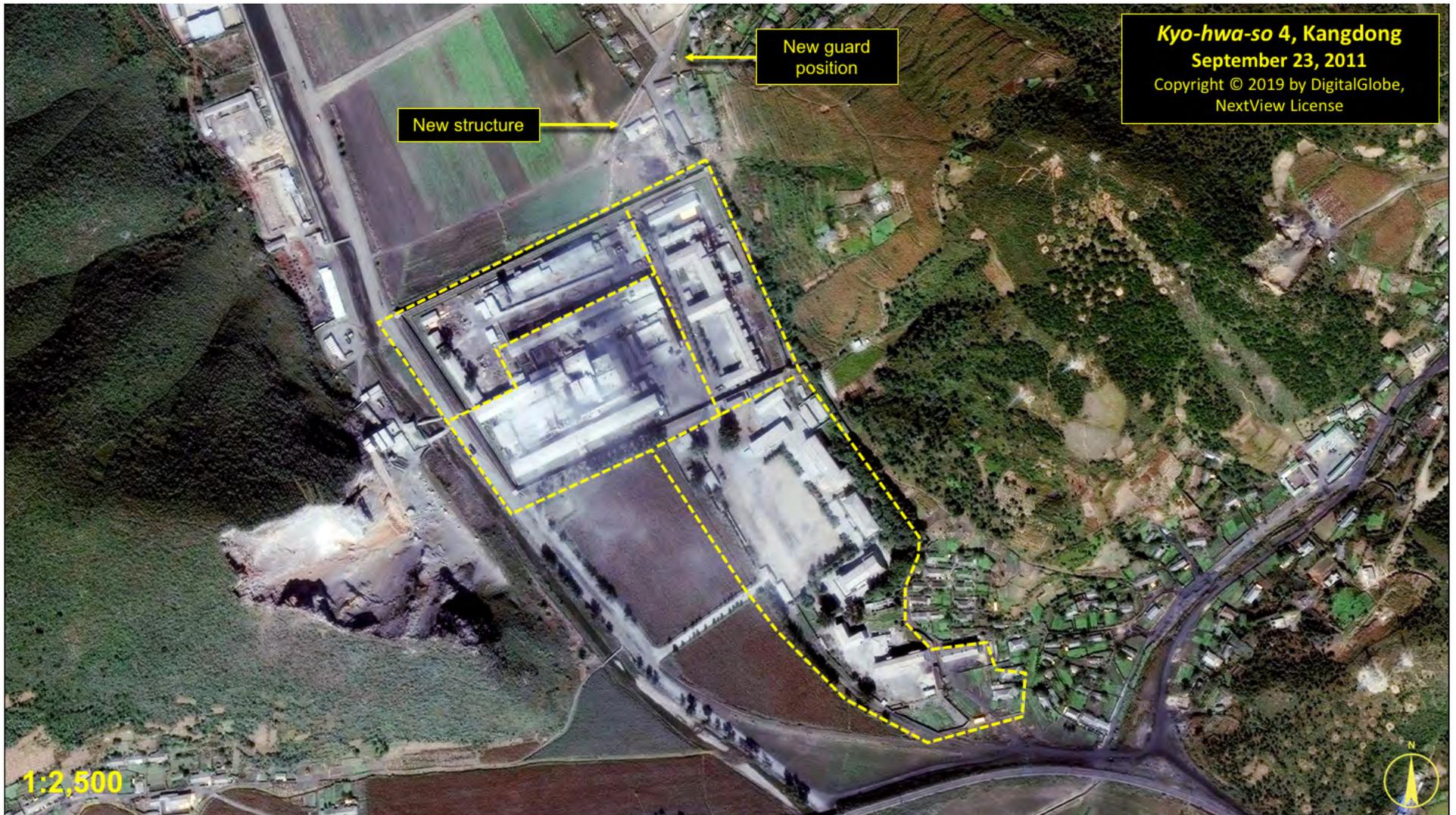
By April 7, 2013, the small compound outside the northeast corner of the prison had been completely enclosed by a wall that was connected to the main prison wall and several additional support buildings were erected. The general appearance and layout of the compound indicates that it was being used for grain threshing—likely in support of the prison due to its location in regard to the prison's wall and

the guard position 50-meters to the north. No significant changes were observed elsewhere within the prison.

Imagery from October 16, 2014 shows no major changes within the main prison compound. However, within the headquarters, administration, and barracks area the cultural/education hall was rebuilt and three buildings were erected in the support and housing area. More significantly, the small compound outside the northeast corner of the prison had been partially razed and, in

its place, a 43-meter-by-43-meter walled prison compound with a single building within it was constructed. The compound had a single entrance on its east side, the wall was connected to the main prison wall, and two guard positions were situated on opposite corners—one of which was atop the main prison wall. Taken together with the developments in the headquarters, administration, and barracks area, these developments indicate a small expansion of the prison to house a separate class of prisoners different than those housed in the main prison compound.

Figure 15



Kyo-hwa-so No. 4 as seen on September 23, 2011, showing the small compound and the guard position outside the northeast corner of the main prison wall. Also visible is that the rock quarry administration and storage area are being expanded.

Figure 16



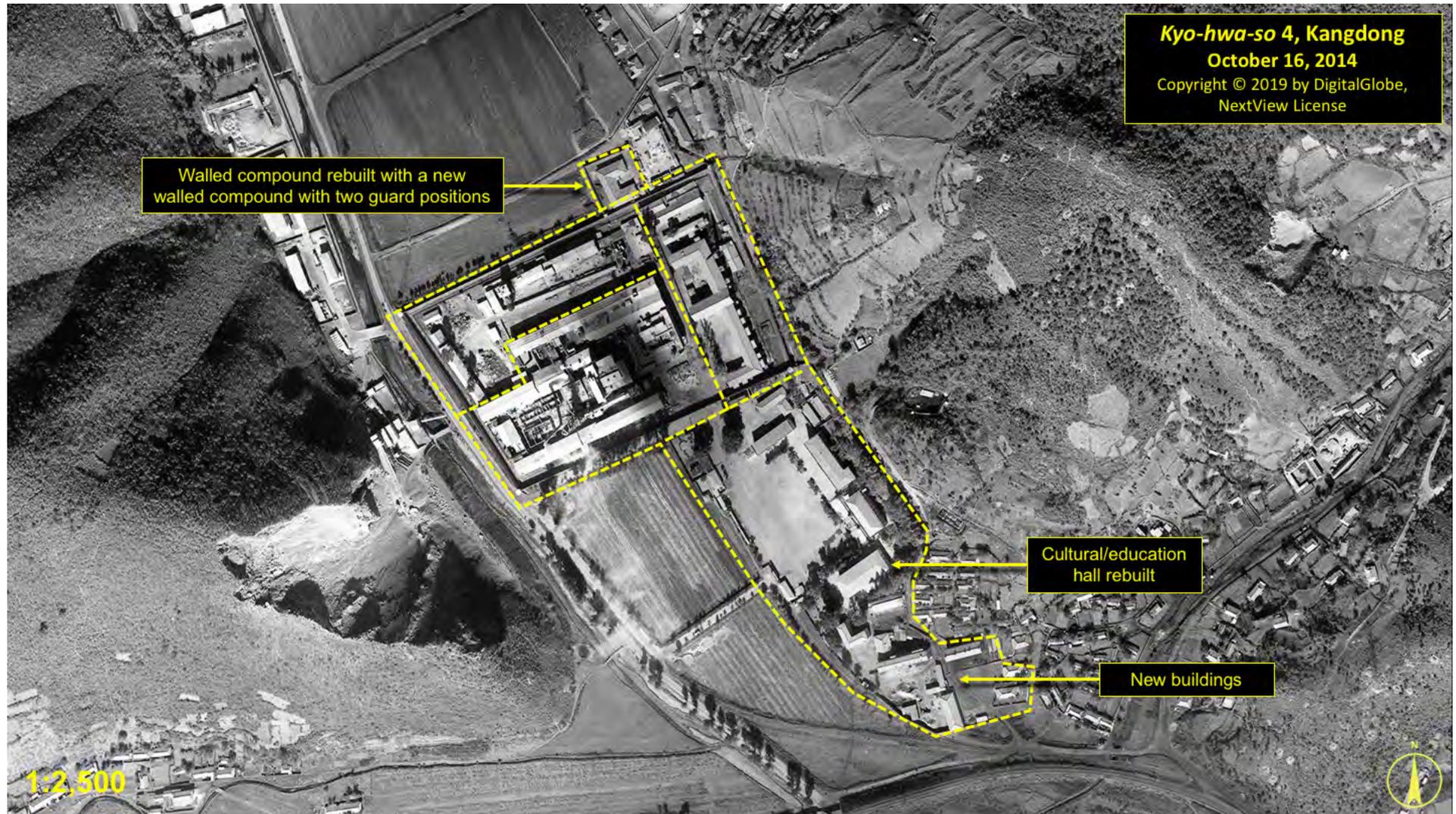
Kyo-hwa-so 4, Kangdong
April 7, 2013
Copyright © 2019 by DigitalGlobe,
NextView License

New walled
compound

1:2,500

Kyo-hwa-so No. 4 as seen on April 7, 2013, showing the small compound and a guard position outside the northeast corner of the main prison wall.

Figure 17



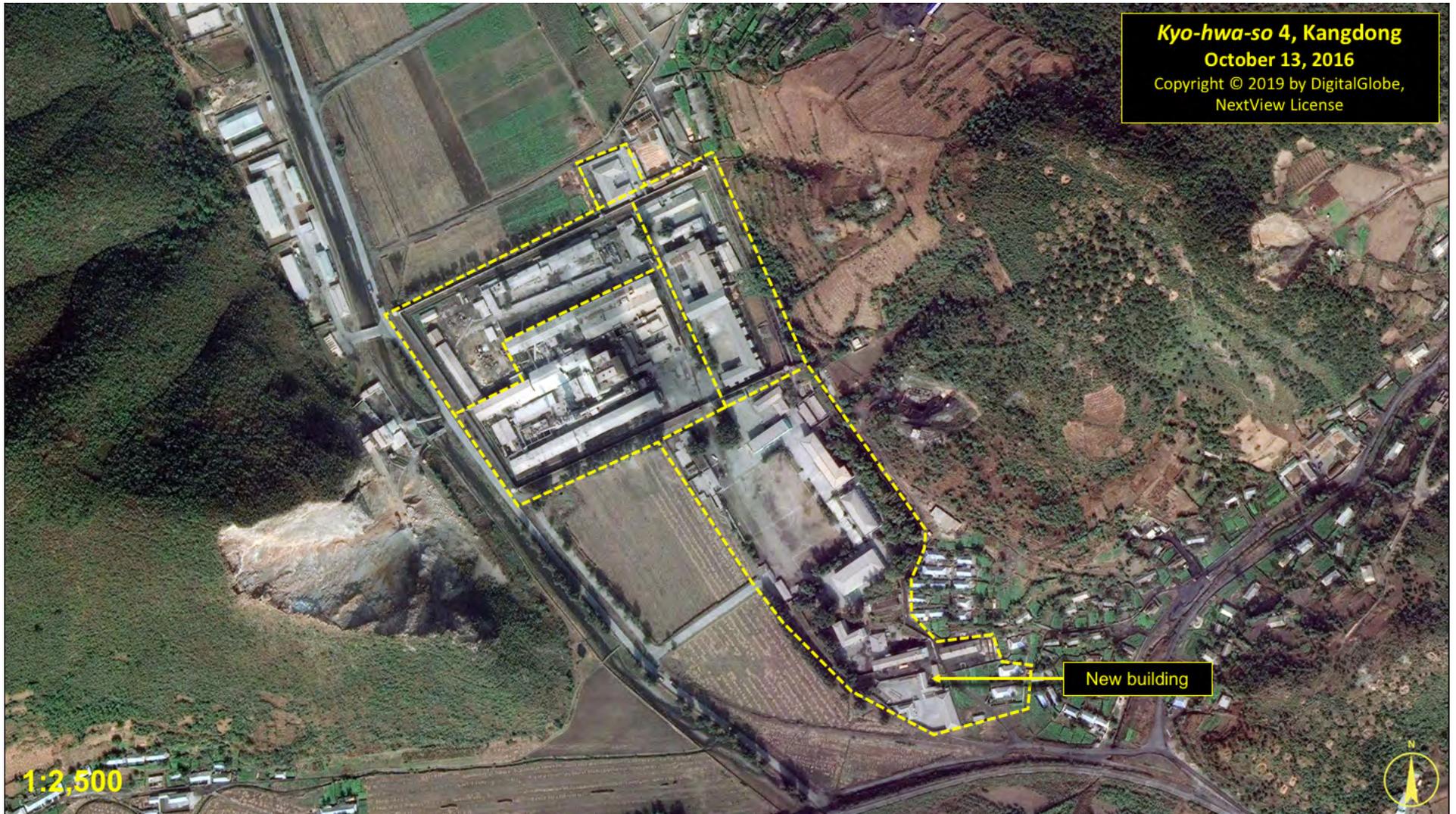
An October 16, 2014 image of *Kyo-hwa-so* No. 4 showing the new prison compound outside the northeast corner of the main prison.

Figure 18



Kyo-hwa-so No. 4 as seen on April 15, 2015, showing the small compound and a guard position outside the northeast corner of the main prison wall.

Figure 19



An October 13, 2016 view of *Kyo-hwa-so* No. 4.

Figure 20



Kyo-hwa-so 4, Kangdong
November 21, 2017
Copyright © 2019 by DigitalGlobe,
NextView License

New building

1:2,500

Kyo-hwa-so No. 4 as seen on November 21, 2017 showing steam rising from the limestone plant's stack.

Figure 21



A view of *Kyo-hwa-so* No. 4 as seen on January 19, 2018.

NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (KYO-HWA-SO) AT KANGDONG

Imagery Analysis

Based upon limited publicly available information and high-resolution satellite imagery, *Kyo-hwa-so* No. 4 and its immediate surroundings can be separated into six road areas:

- » Security Perimeter and Guard Positions
- » Prison Compounds and Limestone Plant
- » Headquarters, Administration, and Barracks
- » Support and Housing
- » Limestone Quarry
- » Additional Activities

Security Perimeter and Guard Positions

The prison's security perimeter consists of a combination of walls, entrances/checkpoints, and guard positions. These not only separate *Kyo-hwa-so* No. 4 from the surrounding countryside but also segment it internally. Neither the external perimeter of the camp nor the interior infrastructure have changed significantly since 2014.

The external perimeter, which surrounds the new prison compound, main prison compound, and the headquarters administration and barracks area, is approximately 1,900-meters-long (2,090-yards-long) and encompasses approximately 115,794 square meters (138,490 square yards). There are a total of five entrances to the facility—one entrance/checkpoint in the north wall of the new prison compound, one entrance/checkpoint in the south wall of the main prison compound, and one entrance/checkpoint and two additional entrances to the headquarters, administration, and barracks area.

A total of six guard positions are distributed atop the prison's walls—four on the corners of the main prison and two on opposite corners of the smaller new prison compound (one of these is shared with the main prison). A seventh guard position appears to be on top of a tall support building north of the limestone plant. Finally, what appears to be an eighth guard position is located approx-

imately 50 meters northeast of the new prison compound, at the intersection of two gravel roads. Aside from its height and guard towers, the main prison wall is supplemented by an internal (presumably barbed-wire) fence set approximately three-meters inside the wall.

All walls and entrances/checkpoints appear to be well maintained and in good repair. The guard positions are well positioned to provide overlapping fields-of-view of the camp and appear to be well maintained and in good repair.

Prison Compounds and Limestone Plant

There are two separate prison compounds at *Kyo-hwa-so* No. 4—the main prison and new prison.

The main prison is surrounded by an approximately 265-meter-by-190-meter high trapezoidal walled compound encompassing 51,863 square meters and can be functionally separated into

three sections—limestone plant, plant support and plant administration, and prisoner housing. The limestone plant occupies the southwest section of the main prison compound and has been active in numerous images as is indicated by the presence of smoke/exhaust above the crushing, grinding, and kiln areas or emanating from the plant's main stack. The plant's three large storage silos, tall exhaust stack, and rotary kiln are clearly visible in all satellite imagery. This imagery indicates that the plant can produce products typical of many small limestone plants. The presence of the rotary kiln also indicates that the plant is capable of crushing and grinding limestone into limestone powder. Without proper safety measures—for which North Korean industry is not known—the inhalation of powdered limestone could lead to respiratory problems among workers. This has the potential to be significantly exacerbated by the fact that forced labor is used in the plant and the safety standards are likely to be significantly

NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (KYO-HWA-SO) AT KANGDONG

lower or non-existent. A small 25-meter-by-15-meter rectangular structure was added to the plant area between 2007 and 2009, however, this structure has never had a roof installed.

The northwest section of the main prison compound consists of several support areas including one for vehicle maintenance. Imagery from January 31, 2009 shows that a 110-meter-by-3.75-meter shed/stall-type structure was added to this area between 2007 and 2009.

The plant administration and prisoner housing section occupies the east side of the main prison compound and consists of a large interconnected building that likely serves as both plant administration and prisoner housing, several smaller support buildings, and a small thermal plant. It is presently not possible to arrive at an accurate estimate of the prisoner population at *Kyo-hwa-so* No. 4 from satellite imagery alone.

A new prison compound was built during 2014 and attached to the

outside northeast corner of the main prison compound. It is surrounded by a high 43-meter-by-43-meter wall with two guard towers (one of which is shared with the main compound) and encompasses approximately 2,020 square meters. Within the compound is a single building. Its location and size suggest a different class of prisoners with a small population. As noted above, what appears to be an additional guard position is located approximately 50 meters northeast of the new prison compound, at the intersection of two gravel roads.

In general, the prison's compounds appear to be relatively well maintained by North Korean standards. While the limestone plant has a somewhat rundown appearance, it is not atypical of other small limestone plants.

Headquarters, Administration, and Barracks Area

Located immediately south of, and adjacent to, the main prison compound is the headquarters,

administration, and barracks area. This area consists of four large buildings—headquarters, administration, barracks, and cultural/education hall—and several small support buildings. Located in the center of this area is a parade ground/soccer pitch. Except for the rebuilding of the cultural/education hall in 2014, no significant changes have been observed in this area during the 15 years under study. This area has been well maintained throughout the period under study.

Support Area

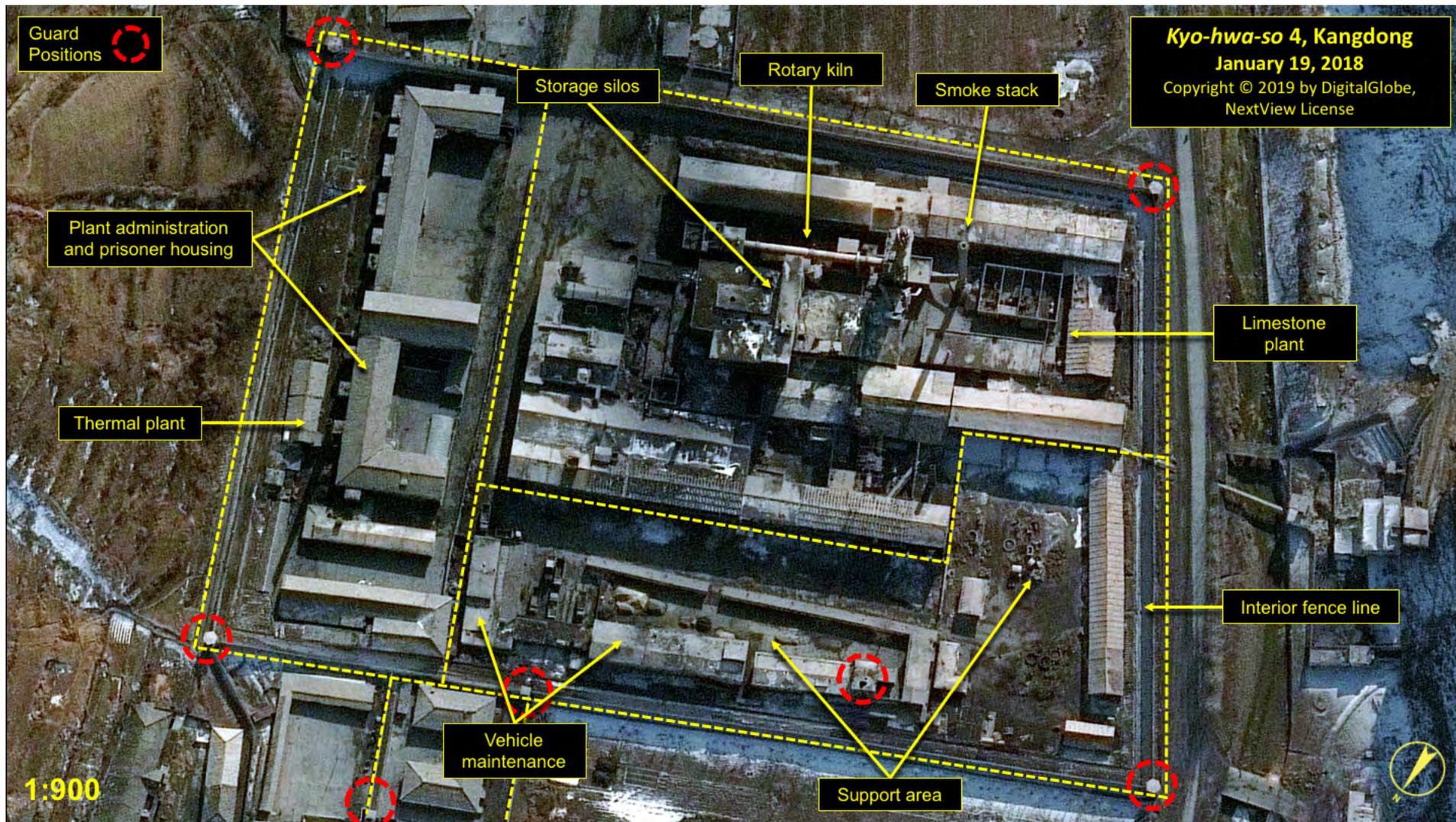
Located south of the headquarters, administration, and barracks area is a support and housing area. This area consists of eight buildings (including a large greenhouse) and several housing units immediately outside the perimeter. During 2014-2017, several new buildings were constructed at the south tip of this area. Throughout the 15 years under study this area has been well maintained.

Limestone Quarry

Located across the road, immediately to the west of the prison, is a limestone quarry from which the prison's limestone plant receives crushed ore via a conveyor belt running under the road. The quarry consists of a main office, storage and support buildings, vehicle storage buildings, rock crusher, and conveyor belt. Other than the supply of limestone ore it is unclear what the organizational relationship is between the quarry and the prison.

While footprint of the quarry has remained relatively stable over the period under study at approximately 25,470 square meters (30,460 square yards), the depth of the excavation has increased. In all imagery analyzed for this report the limestone quarry shows activity—typically, with a single dragline or shovel and 4-6 dump trucks present.

Figure 22



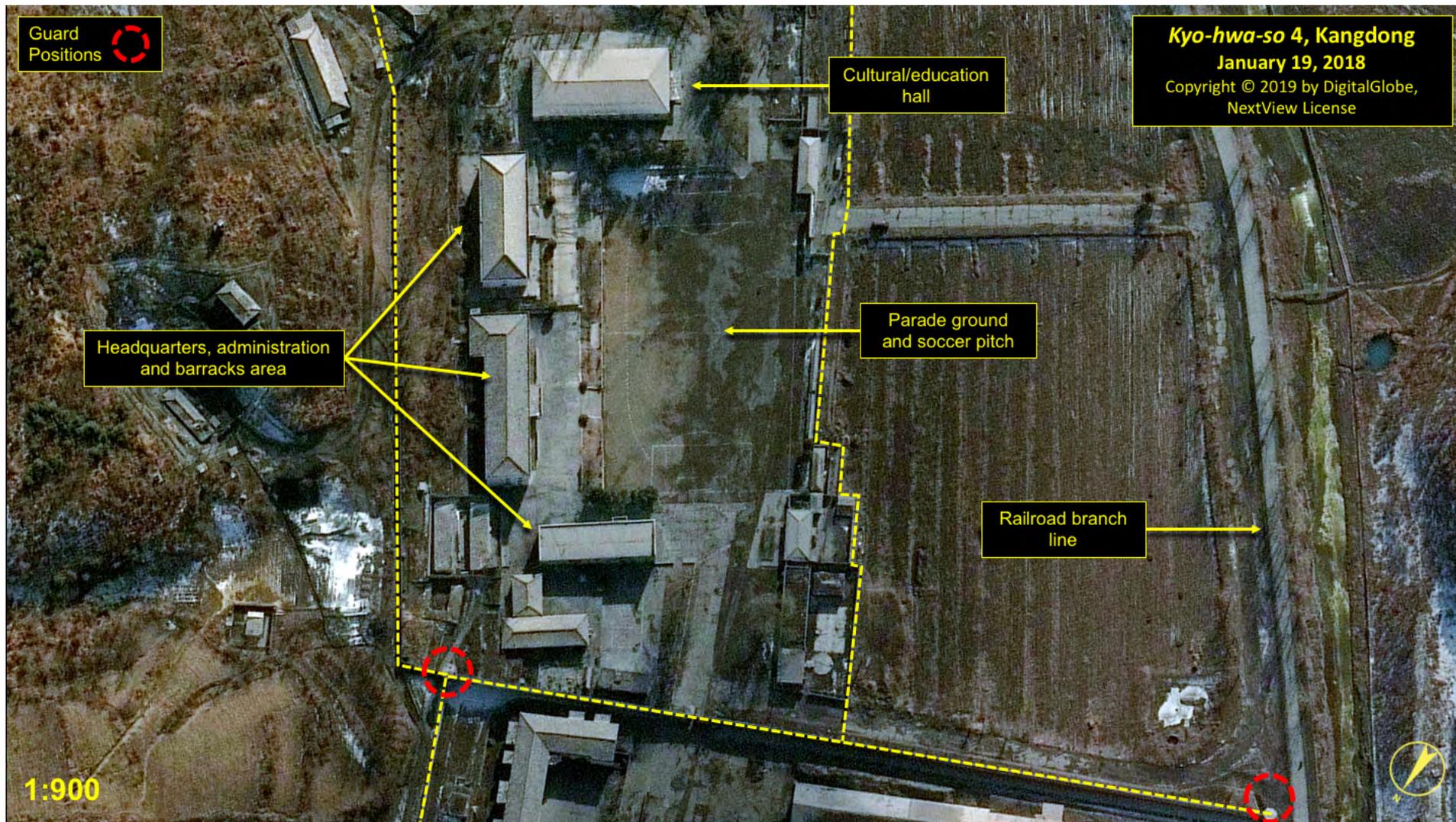
A close-up of the main prison compound at *Kyo-hwa-so* No. 4 on January 19, 2018, showing the main prison, new prison, two entrances, and seven guard towers.

Figure 23



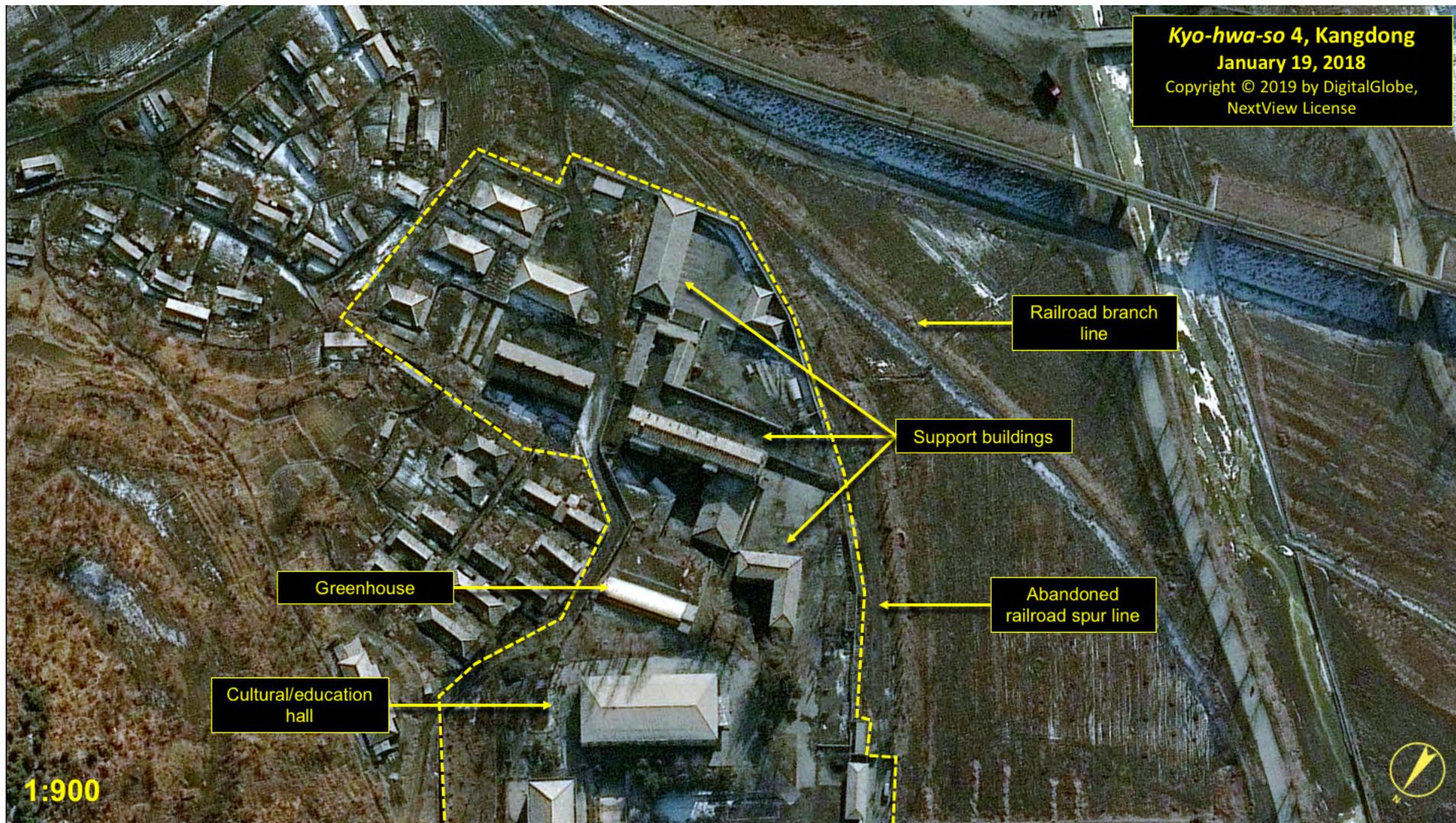
A close-up of the new prison compound at *Kyo-hwa-so* No. 4 on January 19, 2018, showing the main prison, new prison and five of the guard towers.

Figure 24



A close-up of the headquarters and administration area at *Kyo-hwa-so* No. 4 on January 19, 2018, showing an entrance/checkpoint and an entrance.

Figure 25



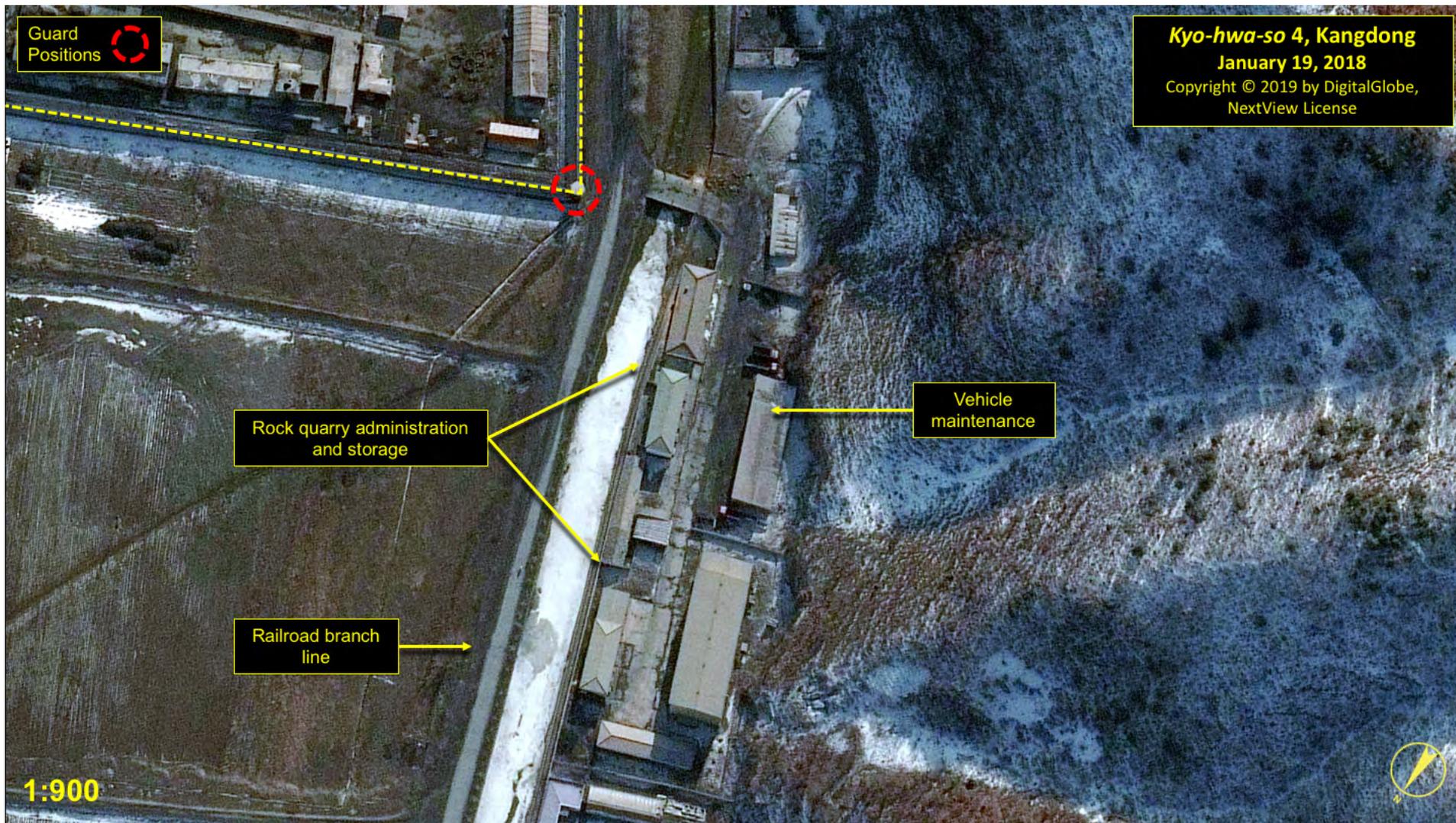
A close-up of the support and housing area at *Kyo-hwa-so* No. 4 on January 19, 2018, showing one entrance.

Figure 26



A close-up of the limestone quarry adjacent to *Kyo-hwa-so* No. 4 on January 19, 2018.

Figure 27



A close-up of the headquarters and support area for the limestone quarry adjacent to *Kyo-hwa-so* No. 4 on January 19, 2018.

NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (KYO-HWA-SO) AT KANGDONG

Additional Activities

Within one kilometer of *Kyo-hwa-so* No. 4 there are at least four traditional burial grounds. However, no linkage has been established between these and the prison. If *Kyo-hwa-so* No. 4 follows known practices at other North Korean detention facilities it is unlikely that these burial grounds are used by the prison.

There is only one military base (likely for reserve forces) and no air defense artillery sites observed within five kilometers of the prison. It is unlikely that the military base provides any support to the prison. The closest air facility to *Kyo-hwa-so* No. 4 is the Korean People's Air Force's Kangdong Airbase located 17.5 kilometers northwest. This is an operational training base, and due to its mission, organization, and location almost certainly provides no support to *Kyo-hwa-so* No. 4.

While the prison is likely connected to the regional telephone network, it is likely via buried service as no evidence of overhead service was identified in satellite imagery. Two runs of high-voltage power lines pass directly by the prison, and it is likely that the facility receives its electricity from one of these grids. An unused railroad branch line passes immediately adjacent to the prison's west wall and there is an abandoned rail spur leading into the headquarters area. The prison is connected to the national rail network via the station at Saegŏl, two kilometers to the east.

Assessment

Analysis of high-resolution satellite imagery of *Kyo-hwa-so* No. 4 and its environs collected between September 2004 and December 2017 indicate that,

- » *Kyo-hwa-so* No. 4 is an operational prison facility that

has been operational since at least 1965

- » It is, by DPRK standards, a very mature and well-maintained prison facility
- » There have been no significant changes to the physical size, including prisoner housing structures, of the facility since the end of 2014.
- » Perimeter walls and checkpoints/entrances are well maintained and in good repair.
- » Guard positions are well positioned to provide overlapping fields-of-view of the prison and are well maintained and in good repair
- » Administrative, barracks, housing, support buildings, and grounds are well maintained and in good repair
- » The grounds and buildings for prisoner housing appear to be well maintained and in a good state of repair
- » Prisoner population likely expanded slightly following

the addition of a new prison compound during 2014.

- » The layout and location of the new prison suggests a different class of prisoners are being detained than those in the main prison.
- » The primary activity of the prisoners at the prison appears to be the operation of the prison's limestone production plant.
- » Given North Korea's generally poor implementation of industrial worker safety and health policies it is likely that the prisoners operating the limestone plant are subject to even worse conditions.
- » In some of the available imagery the stream running adjacent to the prison has a yellowish-green color. While this may be related to algae blooms it could also be a result of pollution from facilities further upstream. If the latter, it would represent

NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (KYO-HWA-SO) AT KANGDONG

an additional health risk to those detained at the prison.

- » Given the proximity of the prison to both numerous small coal mining operations and the construction site for the Kangdong Thermal Power Plant, it would not be unusual for prison labor to be used at these activities.

As noted above, despite extensive satellite imagery coverage of the area, it is presently not possible to arrive at an accurate estimate of the prisoner population at *Kyo-hwa-so* No. 4.

Recommendations

Continued background investigation and ongoing monitoring of *Kyo-hwa-so* No. 4 is recommended to provide a more detailed accounting of its previous operations and develop an objective baseline understanding of its continuing activities, maintain an evidentiary catalog of physical changes at the

facility, update its status, develop evidence of prisoner population size, assess the health of prisoners as a result of prolonged exposure to limestone dust, and assist with the identification of possible human rights abuses.

Note

HRNK would like to extend a special note of thanks to several individuals for their gracious assistance in preparing this report. Ishimaru Jiro (Asia Press) for generously sharing ground imagery of *Kyo-hwa-so* No. 4 that was covertly acquired in 2009. Bobby Holt for taking the time to review the draft of this report and for providing extensive comments based upon his years of experience. Allen Anderson for his gracious support of HRNK's efforts to document North Korea's political prison system and the tragic conditions present within that system.

Gazetteer

Location	Latitude (N)	Longitude (E)
<i>Kyo-hwa-so</i> No. 4	39.008838°	126.153277°
Kangdong	39.141855°	126.099001°
Kangdong Thermal Power Plant Construction Site	39.001541°	126.162211°
Saegol Rail Station	39.011572°	126.177113°

NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (KYO-HWA-SO) AT KANGDONG

Endnotes

1. UN Human Rights Council, *Report of the detailed findings of the commission of inquiry*, para. 1033.

2. Robert Collins and Amanda Mortwedt Oh, *From Cradle to Grave: The Path of North Korean Innocents*, (Washington, D.C.: Committee for Human Rights in North Korea, 2017), available at https://www.hrnk.org/uploads/pdfs/Collins_Cradle_to_Grave_WEB_FINALFINAL.pdf.

3. UN Human Rights Council, *Report of the detailed findings of the commission of inquiry*, para. 1220(b).

4. HRNK has published fifteen prison camp reports over the last five years as part of an ongoing effort to monitor the prison camps. These reports are available at <https://www.hrnk.org/publications/hrnk-publications.php?page=3>.

5. David Hawk with Amanda Mortwedt Oh, *The Parallel Gulag: North Korea's 'An-jeon-bu' Prison Camps*, (Washington, D.C.: Committee for Human Rights in North Korea, 2017), available at https://www.hrnk.org/uploads/pdfs/Hawk_The_Parallel_Gulag_Web.pdf.

6. This information comes from open source documents and commercial satellite imagery.

7. Previous reports in the project can be found at <https://www.hrnk.org/publications/hrnk-publications.php>.

8. Escapees and researchers indicate that the title "*Kyo-hwa-so* No. 4, Kangdong" may represent an umbrella organization that has several subordinate facilities including the one identified in this report. The U.S. National Geospatial Intelligence Agency identifies the specific location of the prison in this report is at Chaek-rol. *White Paper*

on Human Rights in North Korea, 2016 (Seoul, Korea: Korea Institute for National Unification, 2016), available at <http://repo.kinu.or.kr/handle/2015.oak/7968>. Asia Press refers to the facility as Samdung *Kyo-hwa-so* (삼등 교화소).

9. The term "high resolution" in this report refers to satellite images with a ground sample distance (GSD) of less than 1.2 meters. The GSD is the distance between pixel centers when measured on the ground. The only known ground imagery of *Kyo-hwa-so* No. 4 was first seen publicly in 2017. Ishimaru Jiro, "Death Is Common: Horrific North Korean Prisons Beyond Description," Asia Press, December 21, 2017, <http://www.asiapress.org/rimjin-gang/report/horrific-north-korean-prison/>.

10. Limestone is crucial component in the production of cement, and concrete. Significantly, it is also one of a few ingredients necessary to remove impurities in

manufacture of pig iron which is then used to produce cast iron for beams in constructing buildings and bridges or for making steel.

11. Joseph S. Bermudez Jr., Andy Dinville, and Mike Eley, *Imagery Analysis of Camp 16*, (Washington, D.C.: Committee for Human Rights in North Korea, 2015) available at https://www.hrnk.org/uploads/pdfs/ASA_HRNIK_Camp16_v8_fullres_FINAL_12_15_15.pdf and Joseph S.B. ermudez Jr., *Imagery Analysis: North Korea's Camp No. 15, Update* (Washington, D.C.: Committee for Human Rights in North Korea, 2014), available at <http://hrnk.org/uploads/pdfs/Camp%2025%20Update%20Good.pdf>.

12. *White Paper on Human Rights in North Korea, 2016* (Seoul, Korea: Korea Institute for National Unification, July 2016), available at <http://repo.kinu.or.kr/handle/2015.oak/7968>.

NORTH KOREA'S LONG-TERM PRISON-LABOR FACILITY (KYO-HWA-SO) AT KANGDONG

13. HRNK anticipates that we will be able to further refine the date of *Kyo-hwa-so* No. 4's establishment in future updates when additional declassified satellite imagery from the 1960s is examined.

14. The following sources were used throughout this section: *Political Prison Camps in North Korea Today* (Seoul, Korea: Database Center for North Korean Human Rights, 20), available at <http://nkdb.org/2012/main.php>; David Hawk, *The Hidden Gulag: Second Edition* (Washington, D.C.: Committee for Human Rights in North Korea, 2012), 3, 63, 79, and 223, available at http://www.hrnk.org/uploads/pdfs/HRNK_HiddenGulag2_Web_5-18.pdf; David Hawk, *The Hidden Gulag: Third*

Edition (Washington, D.C.: Committee for Human Rights in North Korea, 2013), 22 and 25, available at [http://www.hrnk.org/uploads/pdfs/NKHiddenGulag_DavidHawk\(2\).pdf](http://www.hrnk.org/uploads/pdfs/NKHiddenGulag_DavidHawk(2).pdf); David Hawk, *The Hidden Gulag: Fourth Edition* (Washington, D.C.: Committee for Human Rights in North Korea, 2015), 8, available at http://www.hrnk.org/uploads/pdfs/Hawk_HiddenGulag4_FINAL.pdf; Soo-am Kim, Kook-shin Kim, Soon-hee Lim, et al., *White Paper on Human Rights in North Korea, 2003–2013*, (Seoul, Korea: Korea Institute for National Unification, 2003–2013), available at http://www.kinu.or.kr/eng/pub/pub_04_01.jsp; *White Paper on Human Rights in North Korea, 2014*, (Seoul, Korea: Korea Institute for National Unification, 2014), 180–

81, 189, 194, and 624, available at: www.kinu.or.kr/eng/pub/; *White Paper on Human Rights in North Korea, 2015* (Seoul, Korea: Korea Institute for National Unification, 2015), 115–116, 122, 126, and 517, available at: www.kinu.or.kr/eng/pub/; and *Report of the Commission of Inquiry on Human Rights in the Democratic People's Republic of Korea, A/HRC/25/CRP.1*, UN Human Rights Council, 7 February 2014, 222–224, 263, available at http://www.ohchr.org/Documents/HRBodies/HRCouncil/CoIDPRK/Report/A.HRC.25.CRP.1_ENG.doc.

15. Ground imagery of the prison shows a similarity between the

prison's walls to those erected by the Japanese during the colonial period. For example, see: McNally, David. "Yongsan Garrison: If walls could talk," July 14, 2008, https://www.army.mil/article/10874/yongsan_garrison_if_walls_could_talk.



HRNK is the leading U.S.-based bipartisan, non-governmental organization in the field of North Korean human rights research and advocacy, tasked to focus international attention on human rights abuses in that country. It is HRNK's mission to persistently remind policy makers, opinion leaders, and the general public in the free world and beyond that more than 20 million North Koreans need our attention.

Since its establishment in 2001, HRNK has played an important intellectual leadership role on North Korean human rights issues by publishing more than 30 major reports (available at <http://hrnk.org/publications/hrnk-publications.php>). HRNK became the first organization to propose that the human rights situation in North Korea be addressed by the UN Security Council. HRNK was directly, actively, and effectively involved in all stages of the process supporting the work of the UN Commission of Inquiry. In the past five years, HRNK has been invited numerous times to provide expert testimony before the U.S. Congress. In April 2018, the UN Economic and Social Council (ECOSOC) granted HRNK UN consultative status.

For media inquiries, please contact Executive Director Greg Scarlatoiu at +1 202.499.7973 or by e-mail at executive.director@hrnk.org.

All satellite imagery in this document: DigitalGlobe, NextView License and declassified CIA KH-4A imagery.