Communications facilities (outside Moscow)

First Communications Node of the General Staff (Rubin)

Communications for General Staff command posts in Moscow and Chekhov are provided by the first communications node of the General Staff (Rubin). This includes at least four sites outside Moscow: Esipovo-10, Luhovisty-3, Serpukhov-13 and Vatutinki. One of the main units associated with Rubin within Moscow is 25801, which commissioned work at some of these sites.

Esipovo-10

This communications facility is the 624th receiving centre. It is an HF facility 13 kms South of Solnechnogorsk. It was due to receive new exchange equipment in 2009, along with Chekhov-3. This is the base for unit 44684.

Luhovisty-3

This site is a primary communications site for the General Staff. Situated South of Kolomna, Luhovisty-3 has two HF radio complexes, each with an underground bunker. This site is an HF transmission centre. There is a helipad between the barracks and the transmitters. The 2009 repair and maintenance contract lists 18 doors in each of these bunkers. The list of orders from 9 ЦУМО in 2008 includes a cooling system for this site.

Luhovisty-3 has been described as a primary communications system for the General Staff and for nuclear command and control. Unit 25801 ordered the upgrading of antenna-feeders, the rebuilding of sewage facilities and work on artesian wells at Luhovisty-3.

The site was affected by forest fires in 2010. Initial reports said that there had been substantial damage to the radio facilities, but the Defence Ministry said that the fires had not had a significant effect.

Luhovisty-3 North complex

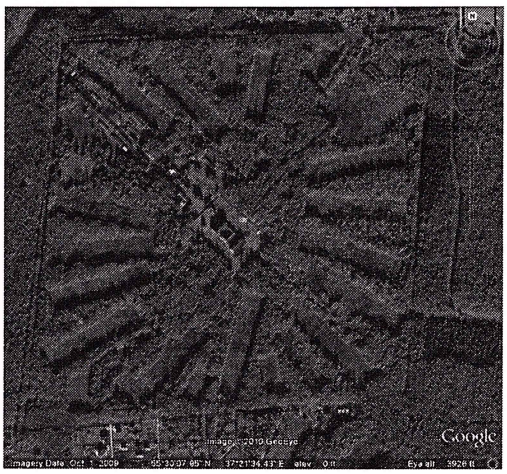
Luhovisty-3 South complex

Serpukhov-13

There is a substantial network of communications facilities in the forest East of Serpukhov. Unit 25801 ordered the repair of sewage treatment facilities at Serpukhov-13 and new exchange equipment for this facility.

Serpukhov-13

Vatutinki



Vatutinki

This town was involved in the development of satellite communications. There are two HF transmitter areas East of the town. While one has been abandoned the other appears from satellite images to be operational.

Communications facilities for Kuznetsk-8 alternate command centre

The main communications sites supporting Kuznetsk-8 are at Lopuhovka and Penza.

Lopuhovka

Unit 34011 (Kuznetsk-8) commissioned an upgrade of security at Object 381-1. The contract shows that this facility was the responsibility of unit 62026. Unit 62026 is based near the village of Lopuhovka, 50 kms

North of Kuznetsk-8. The contractor built new barriers, 3.3 metres high, and concrete pill boxes with a circular arc of fire. The secure zone has a perimeter of 2.45 kilometers. This is a similar size to the secure zones at Objects 616 (Tarusa) and 617 (Ferzikovo).

New cooling equipment was also installed at Object 381.

High resolution satellite images of this area are not available. Lopuhovka is probably a communications facility supporting the command bunkers at Kuznetsk-8.

Penza

There is a military communications facility East of the town of Penza. Satellite images show that a new security zone, with a perimeter of 1.5 kilometers, has been constructed around this facility. Given its location, the site probably supports Kuznetsk-8.

Communications facility East of Penza

Strategic Rocket Forces communications facilities

The main communications facilities for Odintsovo-10 and Balabanovo-1 are at Naro-Fominsk-5 (Youth) and Voscod (Sunrise). This is also a satellite ground station at Gagarin.

Naro-Fominsk-5

Naro-Fominsk-5 is a closed military zone South-East of the town of Naro-Fominsk. It is also known as closed administrative territory "Youth". It operates communications facilities for the Strategic Missile Forces. Only low-resolution satellite images of this site are currently available. These show three HF transmitter networks each with its own security perimeter. The flag for the town illustrates its association with communications. An online photomontage for unit 92555, based here, shows a missile being launched.

One of the facilities in Naro-Fominsk-5 is a missile forces satellite communications centre, Корунд-М1.[137] This centre was built in the 1970s and has recently been modernised. It transmits missile targeting and launch instructions through Molniya and Meridian satellites to Рундук stations at missile launch sites.

[137] http://zakupkiold.gov.ru/Tender/ViewPurchase.aspx?PurchaseId=249975

Naro Fominsk-5

Voscod

X

Voscod

Voscod (Sunrise) is a closed military village. There are extensive HF antenna in the nearby forest. Repairs to the support facility were ordered by the Strategic Missile Forces. Unit 12407 is based here and is associated with Missile Forces. This is a Missile Forces communications facility.

In 2009 the Strategic Missile Forces placed an order for the modification and repair of command and control equipment at "Youth" and "Sunrise", for units 68527, 12407 and 30113.

Gagarin

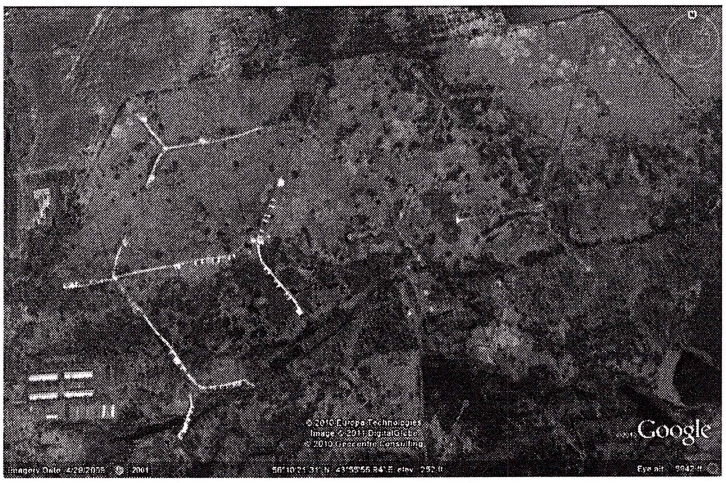
The main satellite ground station for the SRF is at Gagarin in Smolensk region, 170 kilometres West of Moscow. The facilities include the automated satellite control system Critic. Work was carried out on Critic in Gagarin as part of the modernisation of the Corund-M system.

Navy communications facilities

VLF/ELF Communications

The primary means of communication with submerged submarines is by VLF. The Russian Navy operate six VLF transmitters:

Military Unit	**Location**
36026	Nizhny Novgorod
20851	Archangel
40771	Krasnodar
31043	Khabarovsk
49390	Vileyka, Belarus
45682	Bishkek, Kyrgyzstan



Goliath VLF transmitter at Nizhny Novgorod. The original antenna complex was built in Germany during the Second World War. It was moved to Russia and re-assembled on this site.

Thirteen Tu-142MR aircraft were built to give the Navy an airborne radio-relay capability.[138] Each aircraft has a long VLF antenna which can be reeled out in flight. These Tu-142MR can transmit orders to submerged submarines. Several aircraft support the Northern Fleet from Fedotovo airbase in Vologda region. Others are based at the Pacific Fleet airfield, Alexseyevka.

Il-80 and Il-82 nuclear command aircraft, based at Chkalovsky near Moscow, can also transmit on VLF frequencies to submarines.

The Russian Navy operate an Extremely Low Frequency transmitter, Zeus, which was built to the East of Severomorsk. This can send basic messages to submarines which are at considerable depth.

HF communications

There are three Navy HF communications facilities on the outskirts of Moscow

Alabushevo is on the North West of the capital. It has two HF radio transmitter complexes.[139] A 1978 British nuclear planning map indicated that there was a key command bunker in this area.

Losino-Petrovsky is East of Moscow. There is a network of masts in the forest beyond the Navy signals barracks. A 1977 US map shows two command bunkers at Losino-Petrovsky.

Yam is in Domodedovo, South of the capital. It has a large unusual antenna system which is probably a receiver. There is also an HF transmitter on the site.

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[138] P Podvig page 235

[139] A contract was issued for HF antenna feeders for the transmitters: http://doc.gostorgi.ru/7/2010-05-06/766227/1.doc/ Satellite images show two compounds, each with cooling ponds.

Yam *Alabushevo*

Air Force communications facilities

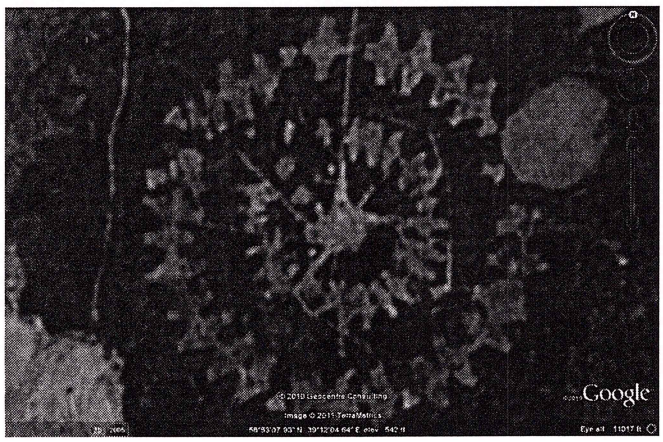
Kostino

Kostino is an Air Force Communications Facility 115 kms East of Moscow. It is operated by the 37th Air Army, which is responsible for all Russian nuclear-armed bombers. There are two large HF antenna complexes, Object 458. There is also a smaller compound, Object 618, to the South East. Object 618 is probably an alternate command bunker for airborne nuclear forces.

Dertniki

There is an Air Force Communications facility at Dertniki in Yaroslav Region, 160 kilometers North East of Moscow.[140] This operates on behalf of Air Force Headquarters and may be an HF transmission radio station.

[140] High resolution image on http://45f.ru



Space Forces facilities

Solhenogorsk-7

This is the headquarters of the 3rd Space Army. It is responsible for early warning of a missile attack on Russia and is the centre of the Crocus system. Solhenogorsk-7 receives data from Serpukhov-15 and a network of other sites.

Kolomna-1

Kolomna-1 is a communications and computer facility operated by the Space Forces. It is also called Pine Forest (Сосновый Бор). It is South East of the town of Kolomna and close to the General Staff transmitters at Luhovisty-3. It is part of the Crocus early warning system.

Kolomna-1 communications complex

Serpuhkov-15

Serpuhkov-15 is a Space Forces satellite communications complex, 16 Kms South-West of Chekhov-3. It is built on an extension to an old SAM site and contains multiple satellite domes. This site was mentioned in the account of how Russia came close to launching a nuclear attack by accident in 1983. It is part of the Crocus Early Warning system.

Tarusa and Ferzikovo (Objects 616 and 617)

There are two similar facilities, 23 kms apart, in the forests South of Moscow, between Tarusa and Kaluga. Objects 616 and 617 appear to be command or communications facilities which are intended to play some role in nuclear conflict.

Object 616 Tarusa *Object 617 Ferzikovo*

The satellite image of Object 616 (Tarusa) shows that a significant security barrier was under construction in 2007. The protected zone has a diameter of 675 meters. The octagonal area at Object 617 (Ferzikovo) has the same diameter.

There are four rectangular clearings at Object 616. Both sites have far fewer of these clearings than major communications bases such as Luhovisty-3, Naro Fominsk-5, Voscod and Kostino.

There is a support area on the approach road to each of the two complexes. These administrative barracks are significantly smaller than at most of the other sites listed in this report. Unit 92628 is based at Object 616 and unit 34080 is at Object 617. Unit 92628 may coordinate the two sites.[141]

9 ЦУМО, the organisation responsible for nuclear bunkers, commissioned modernisation and repair work at Objects 616 and 617. Lists of contracts issued by 9 ЦУМО make several references to these two facilities, alongside major command posts at Chekhov-3, Chekhov-4, Kuznetsk-8, Moscow (Unit 25766), Ilinskoe and

[141] A contract for work at unit 34080 was placed by unit 92628.

Egorievsk.[142] In 2008 the Defence Ministry ordered new security systems for 32 sites across Russia. In three cases - Chekhov-3, Object 616 and Object 617 - 9 ЦУМО were responsible for the work.[143]

Part of Object 617 (Ferzikovo) has been modernised.[144] The work involved covering 207 square metres of metal walling, installing 109 square metres of removable metal flooring, adding new doors and replacing wiring. Object 616 (Tarusa) was also renovated. This included refitting 24 metal doors.[145] It is possible that these two underground facilities have metal structures to protect electronic equipment from the Electro-Magnetic Pulse (EMP) of nuclear explosions.

9 ЦУМО commissioned repair work on artesian wells at Object 616. In addition a pumping station and reservoir (20 cubic metres) were replaced. The central organisation issued contracts for the repair of diesel generators at Objects 616 and 617. They also ordered an upgrade of air conditioning systems, replacing К – 25С with К – 25СМ, at these two sites and at Kuznetsk-8. 9 ЦУМО ordered the replacement of air conditioning systems at Chekhov-3 (ГУК), Chekhov-4 and Moscow(unit 25766) in the same contract.

There are unconfirmed reports of underground antennae at or near Object 616 and 617.

Satellite images show some similarities between these two facilities and the Logistics Command Post / Transmission Radio Station at Egorievsk. Both are compact secure sites with a number of small buildings and clearings for antennae. The secure compound at Egorievsk is smaller than at Objects 616/617, but the supporting area at Egorievsk is considerably larger.

Objects 616 and 617 look similar to Object 618 at the 37th Air Army communications facility, Kostino, which has a circular secure area with a diameter of 600 metres.

Satellite communications facilities

Beloomut

There is a satellite communications facility in the forest, 4 kilometres from the town of Beloomut, in Kolomna district.[146] This has similar equipment to the Strategic Rocket Forces communications site at Gagarin and the Voronovo facility, which is now closed. It may be a key facility for the General Staff and Rocket Forces. The site is operated by unit 22285 and is also described as the 30th radio reception and transmission station.

Meshcherin-1

Meshcherin-1 is a major satellite communications centre. Object 793 is at this location. In 2008 9 ЦУМО commissioned a survey of Object 793 and adjustment work on this facility. A security upgrade of the site was handled by 9 ЦУМО. Object 793 is thought to be a shallow bunker. It is situated between Ilinskoe, Egorievsk, Luhovisty-3 and Serphukhov-13.

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[142] Analysis of contracts issued by unit 67265, the finance and administration department of 9 ЦУМО.
[143] The new security systems at these three sites were associated with unit 67265.
[144] http://www.zakupkiold.gov.ru/Tender/ViewPurchase.aspx?PurchaseId=117107
[145] This may be either "frames for metal doors" or "metal doorframes".
http://www.zakupkiold.gov.ru/Tender/ViewPurchase.aspx?PurchaseId=208494
[146] There are 4 large satellite dishes at the site. These are visible on the high resolution image on 45f.ru

Meshcherin -1

Whistle

Whistle

There is a substantial satellite ground station complex 4 kms East of Klimovsk. Nearby there are other communications facilities. It has been reported that this is a central collection point for signals intelligence. The site is operated by military unit 34608 and has the designation "Whistle".

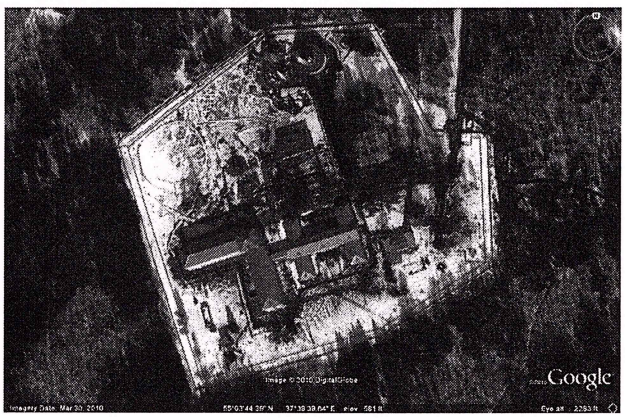
Other communications facilities near Moscow

Bekasovo

There is a Reception and Retransmission Centre for the Monolith (257Ц) nuclear command system at military unit 11958. This unit is based at Bekasovo, East of Naro Fominsk.[147] The likely site is a military compound in the forest North of Bekasovo. A 1977 US intelligence map shows an underground command bunker in this vicinity.

Bekasovo

Nerastannnoe



Nerastannoe

This is a communications facility 14 kilometres South of Chekhov-2. It is controlled by the FSB, but might also support Command Centres in the Chekhov area.

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[147] http://doc.gostorgi.ru/7/2009-07-01/423634/2.doc

South of Romantsevo

There is a substantial secure communications facility in the forest South of Romantsevo. It is 10 kilometres North of Chekhov-2. It has HF and satellite equipment, plus a network of large tall masts whose function is unclear. Although this is a significant facility there is little indication of its function. There is also an old civil communications site nearer the village of Romantsevo

Youth-10

In 2009 an order was placed for modernising "Youth-10". The work was commissioned by unit 25555, part of 9 ЦУМО, and unit 87406 which is responsible for automated command systems. Between them these two units placed most of the contracts referred to in this report. A panel of senior officers from 87406 and 9 ЦУМО, including the heads of both organisations, decided which company would be awarded the contract for modernising Youth -10. This suggests that Youth-10 is a significant command facility with automated equipment.

The contract is for initial work to determine a method of modernising the "special object", taking account of the need for survivability and security. There are three aspects of the study.

First, the company must develop a method of ensuring that there is comprehensive protection of the "КВК" when subjected to the damaging effects of "ЯВ". КВК may mean computerised control complex (контрольно-вычислительный комплекс) and ЯВ may mean nuclear explosion (ядерный взрыв). There is a reference to protection from Electro-Magnetic Pulse (EMP), which is consistent with this interpretation of the abbreviations.

Second, the Defence Ministry are concerned that US seismic surveys could find out about the facility during its reconstruction. One aspect of the study is to develop methods of rebuilding which would not compromising information security (разведзащищённости). Seismic surveys can detect large underground construction projects. This may mean that the location of this facility has been kept secret from US intelligence.

Third, the contractor should assess how to reduce emissions that might be harmful to the environment.

The reconstruction work will involve strengthening building structures in the facility and improving the protection provided for personnel and for technical equipment. The condition and projected life of the cast-iron lining is to be assessed by non-destructive analysis. The condition of the structure of the facility, the KBK and the "protective devices" is also to be assessed.

The Missile Forces Communications centre at Naro-Fominsk-5 is called "Youth". "Youth" is also the name of the communications centre of the Special Control Group, which is responsible for nuclear intelligence. However it is possible that the codename "Youth-10" is not related to either of these organisations.

It is tempting to suggest that this could be the Perimeter command centre. *Perimeter is closely associated with the SRF and the only known contract for Perimeter was placed by an SRF unit. The panel which awarded the contract for Youth-10 did not include any SRF officers. This would suggest that Youth-10 is more likely to be a General Staff command facility than part of Perimeter.*

"Youth-10" is probably an underground facility housing a computer system which is an important part of the General Staff command and control system for nuclear war. The location of the facility is not known.

Annex Kavkaz-7 locations

Project	Locations (comments in brackets)
Modernisation of Kavkaz-7 subsystem (2009)[148]	
Modernise 65c27 in objects 320 and 2480	Komsomolsk Avenue Tverskaya Street
Supervision, repair, maintenance and refitting of system 65s37 (2010)– Lot 3 (Kavkaz-7M10)[149]	
Improve performance of Cypress	K 750 Ministry of Defence House No 1 (General Staff HQ)
Train support staff; Improve Kavkaz-7M10 and Destination-2	K750 Ostankino Moscow State University
Improvements involving Message radio station, Message-1 radio station, K750 and Poplar-K7-M10	K750 Ostankino Moscow State University
Refine switching centre software	K750
Field supervision of special communications subsystem equipment (2009)[150]	
Lot 1 Kavkaz-7M10	119 items for Moscow – Komsomolsk Avenue, Bolshoy Znamenski Lane (General Staff HQ) Academician Koroleva Street (Ostinkovo) Lomonsov Prospect (Moscow State University) 1 item for Klin (Zavidovo) 1 Item for Chkalovsky airbase
Lot 2 Antenna amplifiers for 65s37	34 items for Moscow – Academician Koroleva Street (Ostinkovo) Lomonovo Prospect (Moscow State University) 4 items for Zavidovo 4 items for Valdai 4 items for Kislovodsk 4 items for Strelna
Lot 3 Radio relay on IL-22K	Chkalovsky Airbase
Lot 4 Satellite communications Asteroid -1 C	Chkalovsky Airbase
Lot 5 Leadership telephone subsystem	70 items for Moscow – Frunzenskaya Embankment Bolshoy Znamenski Lane (General Staff HQ) 1 item for Zavidovo.
Maintenance of Special Communications subsystem (2009)[151]	

[148] http://www.zakupkiold.gov.ru/Tender/ViewPurchase.aspx?PurchaseId=398294
[149] http://www.zakupkiold.gov.ru/Tender/ViewPurchase.aspx?PurchaseId=697656
[150] http://www.zakupkiold.gov.ru/Tender/ViewPurchase.aspx?PurchaseId=398920

Maintain Kb001 – switching set, K750, Kb031, Kb016, Message radio station & P306 equipment	Komsomolsk Avenue Bolshoy Znameski Lane (General Staff HQ) Academician Kroleva Street (Ostankino)
Maintain RRS R409-TM, KDC 5/10, Surgut-T & Asteroid 1-S.	Chkalovsky Airbase
Assembly technology and documentation (2009)[152]	
Assembly technology and documentation Kb112	Saint Petersburgh (Strelna)
Assembly technology and documentation Kb112	Sochi

[151] http://www.zakupkiold.gov.ru/Tender/ViewPurchase.aspx?PurchaseId=398698

[152] http://www.zakupkiold.gov.ru/Tender/ViewPurchase.aspx?PurchaseId=401621

US intelligence map from 1977: