

## State Party

Poland

## State, Province or Region

**Silesian Voivodeship** (Województwo Śląskie)

District (Powiat) Tarnowskie Góry:

Tarnowskie Góry Municipality

Zbroślawice Commune

District Town Bytom

## Name of Property

**Tarnowskie Góry Lead-Silver-Zinc Mine  
and its Underground Water Management System**

## Geographical Coordinates to the Nearest Second

N50°26'33.71 E18°51'04.42

## Textual description of the boundary(ies) of the nominated Property

The nominated Property comprises the principal underground mining and water management complex essentially belonging to Friedrich Mine and the Adolph Shaft Waterworks, together with directly linked surface attributes.

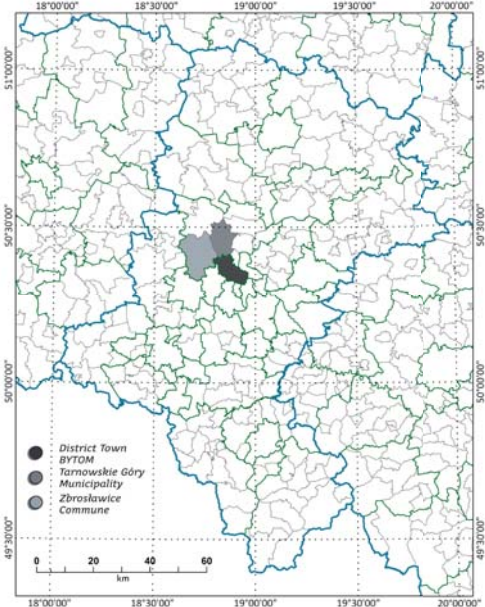
The boundary of the underground network is drawn to include the principal lead-silver-zinc workings of Friedrich Mine, its water (drainage) management system and the Adolph Shaft Waterworks infrastructure that intersected and abstracted water from it. The boundary is projected at surface where it encloses almost all separately drawn surface character areas (that are connected, vertically and variously, to the underground) except the adit ditches that were designed to carry water away from the mining environment.



18°42' 18°43' 18°44' 18°45' 18°46' 18°47' 18°48' 18°49' 18°50' 18°51' 18°52' 18°53'

base map source: BDOT10k | map realization: National Heritage Board of Poland - World Heritage Unit - XII.2015

..... commune border    ..... district border



PROPERTY ADMINISTRATIVE UNITS LOCATION IN SILESIA VOIVODESHIP

**NOMINATED PROPERTY CHARACTER AREAS**

- A1. UNDERGROUND
- A2. FRIEDRICH MINE ADIT PORTAL AND DITCH
- A3. GOD HELP ADIT PORTAL AND DITCH
- A4. ADOLPH SHAFT WATERWORKS
- A5. MINING LANDSCAPE (19TH CENTURY)
- A6. SILVER MOUNTAIN AND WASHING TIP
- A7. ORIGINAL SITE OF FRIEDRICH MINE
- A8. MUNICIPAL PARK

50°28'

50°27'

50°26'

50°25'

50°24'

50°28'

50°27'

50°26'

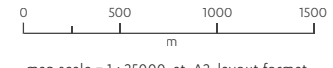
50°25'

50°24'

TARNOWSKIE GÓRY LEAD-SILVER-ZINC MINE AND ITS UNDERGROUND WATER MANAGEMENT SYSTEM

**1 | NOMINATED PROPERTY AND PROPOSED BUFFER ZONE**

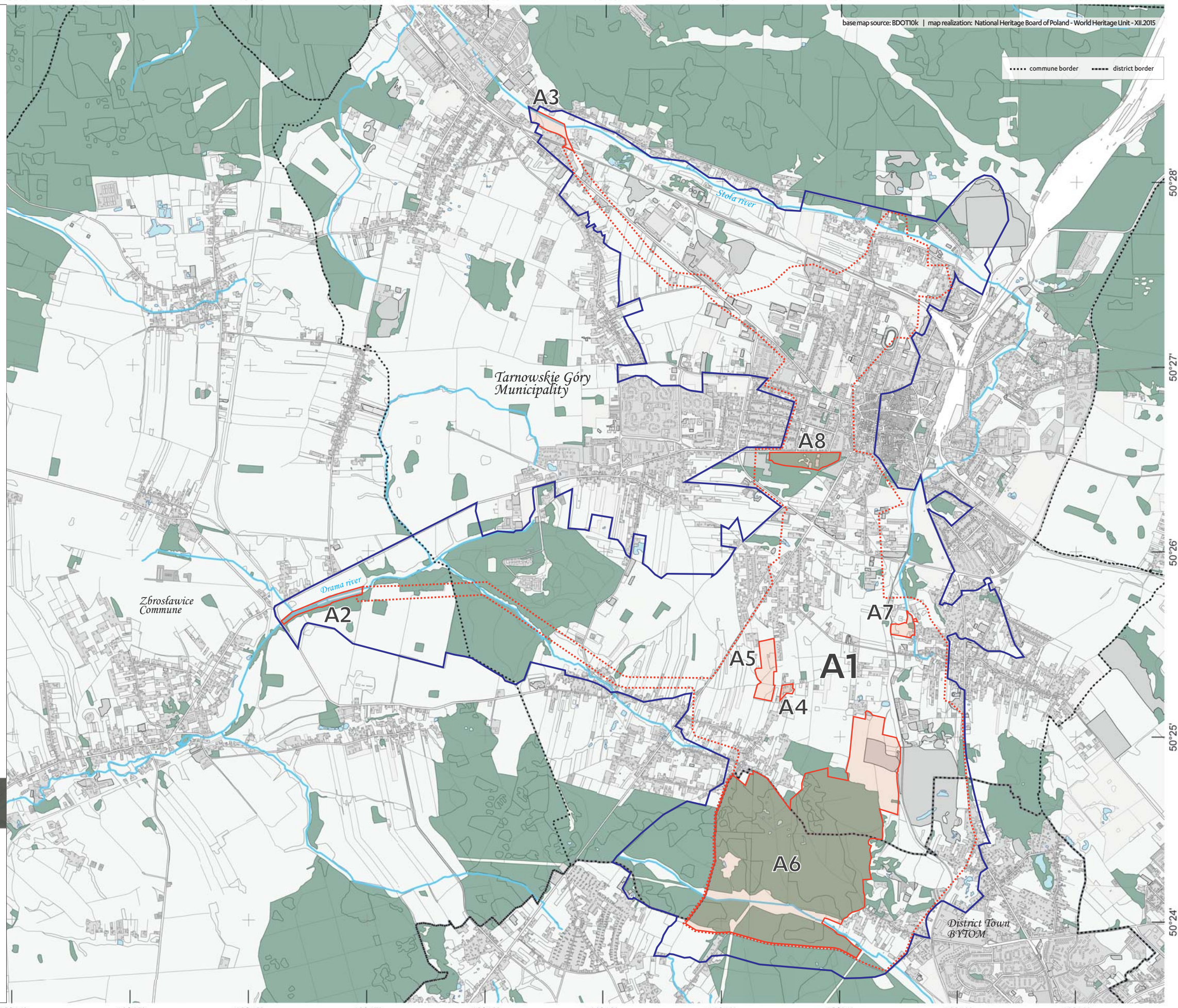
- ..... UNDERGROUND NOMINATED PROPERTY (PROJECTION AT SURFACE)
- ..... SURFACE NOMINATED PROPERTY
- ..... BUFFER ZONE



map scale = 1 : 25000 at A2 layout format



18°42' 18°43' 18°44' 18°45' 18°46' 18°47' 18°48' 18°49' 18°50' 18°51' 18°52' 18°53'





‘To marvel the Work of Nature  
and the Art of People’

Henryk de Birnbaum

Lieutenant of the Army of His Majesty the King of Poland

Entry to the ‘Golden Book’, 02 January 1792



## Name and contact information of official local institution/agency

National Heritage Board of Poland

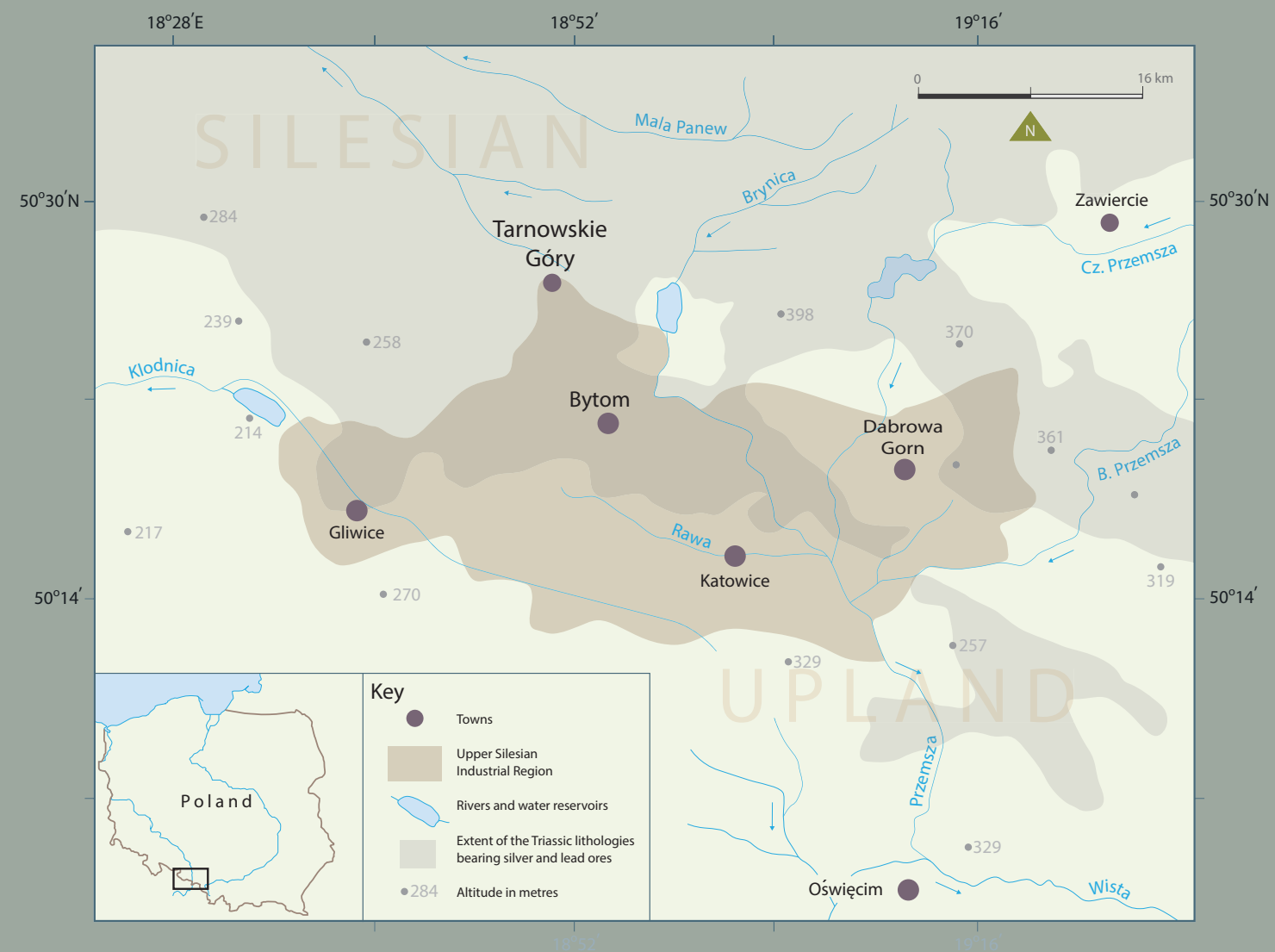
Centre for World Heritage

ul. Kopernika 36/40

00-924 Warszawa

tel.: +48 22 826 02 39

e-mail: info@nid.pl; unesco@nid.pl



# Criteria under which property is nominated

(i), (ii), (iii) and (iv)

## Draft Statement of Outstanding Universal Value

### Brief synthesis

**Tarnowskie Góry Lead-Silver-Zinc Mine and its Underground Water Management System** is located in the Silesian plateau of southern Poland, in one of Europe's classic metallogenic provinces. It is the largest and most significant historic underground lead-silver-zinc mine in Poland, and possesses a monumental drainage network that features a uniquely integrated public water supply that was both pioneering and the largest of its kind in the world. Constructed in technically challenging terrain, the underground mining and water system comprises over 50 km of main drainage tunnels and 150 km of secondary drainage and access tunnels, numerous ore-extraction chambers and shafts. Preserved with sustained access by a community association for over sixty years, this network is complemented by substantial remains of the principal water supply infrastructure (above and below ground) together with directly connected surface elements that comprise essential mining landscape features (such as adit portals and ditches, shafts and tips), and the most important examples of post-mining community commemorative and recreational sites that are a characteristic of the early preservation of Tarnowskie Góry's distinctive mining topography.

Interrelated outstanding values include:

### **The magnitude, geographical reach and international impact of the mine's lead and (later) zinc production**

Mining began in the Middle Ages as numerous small-scale artisanal lead-silver mines funded by merchants and the local nobility, before becoming a large-scale 'model' royal lead-zinc mine during the period of concerted Prussian state-led industrialisation that began in the second half of the eighteenth century and which fostered, in Upper Silesia, the first major heavy industries in German territory. Lead exports from Tarnowskie Góry in the Middle Ages supported an extensive European metallurgical supply complex, in which the production of lead, copper and silver existed in the context of mutually inter-dependent inter-continental trade, and which brought European silver output to unprecedented levels in such major mining and smelting centres as Kutná Hora, Banská Štiavnica, Banská Bystrica, Nuremberg, Thuringia, the Tirol and the Erzgebirge. This contributed to the general economic and social development of Europe, and the consequent flow of silver bullion and specie to China, the most singularly important product that led to the birth of world trade. From the first recognition in Europe of zinc as a separate metal (Georgius Agricola's 'zincum' observed in Silesia in the mid-sixteenth century), local production propelled Germany as the world leader throughout the nineteenth century, meeting almost half of global demand for this 'architectural metal'.

### **The ingenious technical ensemble of mine drainage and water supply illustrates the vigorous pan-European development and exchange of mining technology and demonstrates how mine water was managed in an innovative and environmentally sustainable manner that was ahead of its time**



The underground water management system reflects a masterpiece of hydraulic engineering, a 300-year development that adapted with changes in scale and technology to combat an unusually high water inflow of up to three times that commonly encountered in central European mines. The challenge was exacerbated by a gentle undulating topography with only two small rivers, at just slightly lower elevations and with corresponding shallow river gradients, to serve as mine water receivers. Dewatering developed in symbiosis with water supply from as early as 1797 when the mine adopted the first Boulton & Watt steam pumping engine exported for metal mining purposes on the European continent. This was followed by their purposeful imitation (and of earlier imported British Newcomen engines), a consequence of which was the foundation, in Silesia, of the German steam engine manufacturing industry that impacted substantially on global industrialisation. Whilst it was mining that engendered the development of the steam engine, it was mining, too, that provided the technical wherewithal for the development of the world's first large-scale public water supply systems based on the steam-powered pumping of groundwater, mining engineers inadvertently contributing to the foundations of the modern water industry. The nominated site is a palimpsest that resulted in a complementary and sustainable relationship of mine drainage with water abstraction for local and regional supply and, later, of both potable and industrial water to sustain exponential population growth and development of the emergent Prussian (German) industrial revolution and the foundation of the Upper Silesian Industrial Agglomeration that was in its vanguard.

#### **Conservation of industrial heritage**

Tarnowskie Góry's 'Underworld', abandoned by the 1930s, prompted an early conservation movement that continues to manage and assiduously care for the site that has been the focus of sustained conservation and public access for scientific, educational and tourism purposes by a community association since 1957. Such commitment shows not only the strength of mining and industry at the heart of the Silesian cultural tradition but also a further contribution to Poland's conservation of some of the world's most significant underground mining heritage.

#### **Justification for criteria**

The site is nominated under justification for inscription criteria:

##### **(i) to represent a masterpiece of human creative genius**

The extensive underground adit network, and its functional connecting elements of shafts and surface channels, together with the pioneering waterworks that was integrated with underground mine water management, are a masterpiece of mid-sixteenth to late-nineteenth century hydraulic engineering. They represent the peak of European skills in such dewatering technology at a time when mining engineering provided the technical wherewithal for the development of the world's first large-scale public water supply systems based on the steam-powered pumping of groundwater;

##### **(ii) to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design**

The colossal and accessible underground network, including the mine dewatering system, ore-extraction network and its topographical expressions at surface, together with the pioneering and integrated public water supply facility, are testimony to larger socio-technical world systems from the very beginning. They exhibit the interchange of technology, ideas and expertise in mining

engineering, metallurgical systems and public water supply between leading mining and industrial centres in Saxony, Bohemia, Hungary, Britain and Poland;

##### **(iii) to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared**

The historic underground mining environment together with directly connected surface features, including commemorative public parks and nature reserves that reutilize yet preserve distinctive mining topography, are protected by a vibrant living culture with a long-standing commitment to conservation and public access. The property is vivid testimony to a mining tradition with a 500-year-old pedigree, and commitment to it, from local to national levels, reflects a further contribution to Poland's conservation of some of the world's most significant underground mining heritage;

##### **(iv) to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history**

Substantial remains of the principal integrated public water supply infrastructure, together with an unusually accessible and monumental underground network of over 50 km of main drainage tunnels and 150 km of secondary drainage and access tunnels, shafts and extensive mined chambers, with the addition of directly connected surface and landscape features, are a unique and enduring technical ensemble of metal mining and water management. The ensemble is distinguished by a significant output of lead and zinc that sustained international metallurgical and architectural demands of the time, and a water system that ultimately drained the mine by gravity and met the needs of the most industrialized and urbanized region in Poland, and amongst the largest in Europe, providing a unique and early model of sustainable water management in the active mining environment.

#### **Statement of integrity**

The overall size of the property provides a complete representation of all the significant attributes of the mine and its water management system, supporting historical and geographical-spatial integrity, as well as the structural and functional integrity. A substantial part of the property is underground, and all surface features are linked directly to it in the three dimensions, and have been delineated at surface as discrete character areas.

#### **Statement of authenticity**

The cultural value of the nominated site is reliably and credibly expressed through the form and design of mining features both below and above ground, their materials and workmanship manifested by original and intact physical and structural remains, their use and function evidenced by archives and detailed archaeological investigation, and its location and setting still pervaded by highly authentic and characteristic mining features in the landscape.

#### **Requirements for protection and management**

The State Party has designated the property for which the preservation is in the public interest and which it protects through various forms of legal protection. The World Heritage Centre of the National Heritage Board of Poland cooperates directly with the Management Coordination Team and the Steering Committee of the stakeholder group that is responsible for the protection and management of the site at the local level. A Management Plan guides protection, conservation and presentation of the attributes that carry Outstanding Universal Value.