



# North South Corridor (Kvesheti – Kobi) Road Project

**SUMMARY OF THE PROJECT SPECIFIC ENVIRONMENTAL MANAGEMENT PLANS (SEMPs)**

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# Project Background

The Government of Georgia has launched a program to upgrade the major roads of the country. As a part of the program, upgrading the Kvesheti-Kobi road section of the Jinali-Larsi section of the E117 is planned.

## Problems

The following main issues are affecting the current status of the road:

Deterioration of the existing road which is often closed due to snow fall during the winter months thereby impeding the economic development of the Project Area and the region in general;

Significant increase in congestion on the existing road especially during the tourist season which leads to degradation of air quality in and around Gudauri;

Difficulties maneuvering Heavy Goods Vehicles which leads to a high level of delays.

## Solutions

The implementation of the Project aims at producing the following benefits:

**Improving operational functionality** of the road even during wintertime;

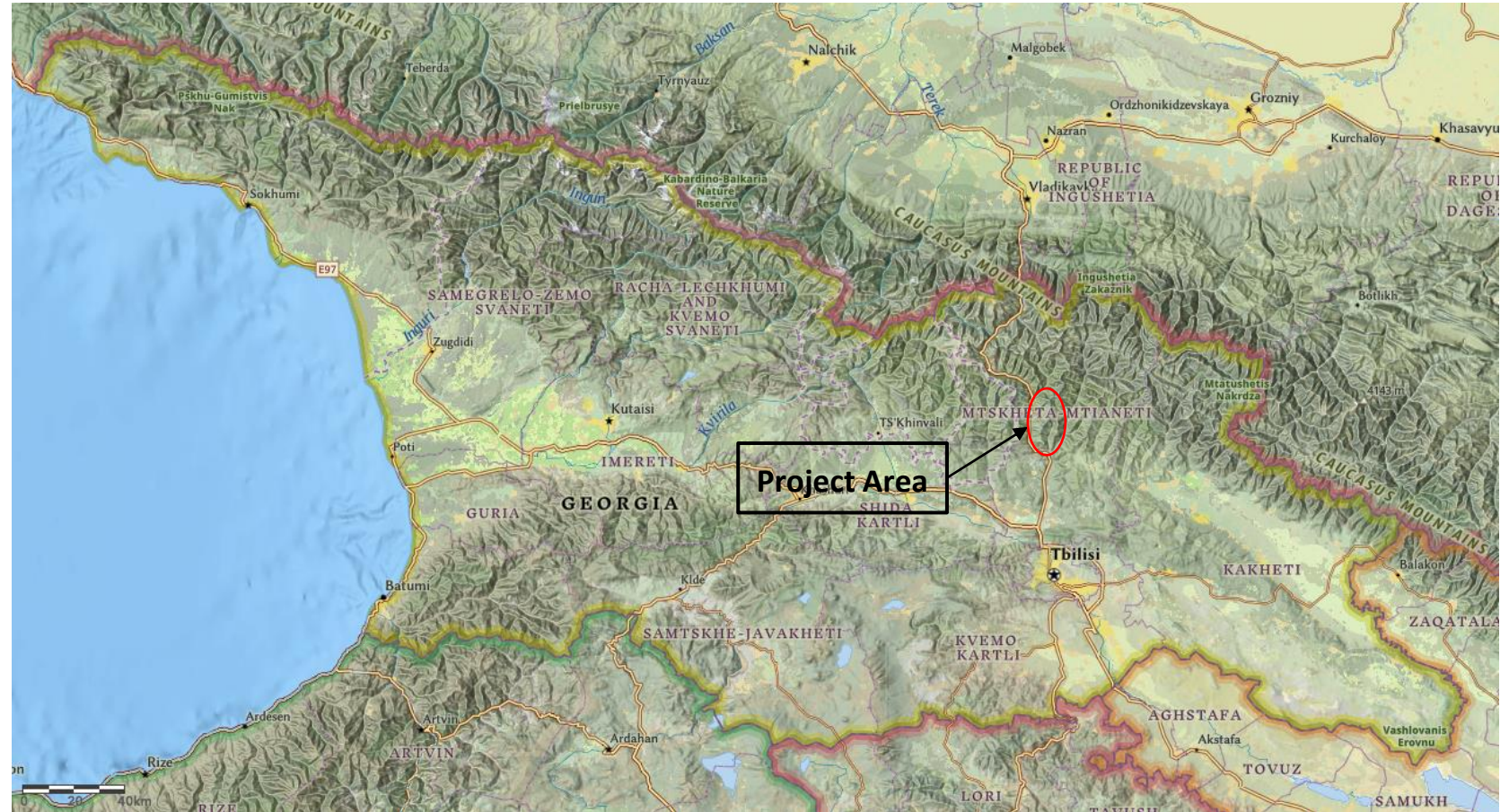
**Improving safety, including reduction in fatality, injury and accident rates** especially in the winter when tourist traffic heading to Gudauri will be separated from vehicles in transit to Kobi and beyond;

**Travel time savings for passengers and freight transport.** At the same time the existing road will be kept operational thereby acting almost exclusively as access to Gudauri.

# Project Area

The project is located in the Dusheti and Kazbegi municipalities, which are part of the Mtskheta-Mtianeti region in the central northern portion of Georgia.

The Project spans from Kvesheti, through the Khada Valley, terminating at Kobi in Kazbegi Municipality.



# Project Description

The length of the new road is 22.7 km and is divided into two construction packages, or 'Lots' as follows:

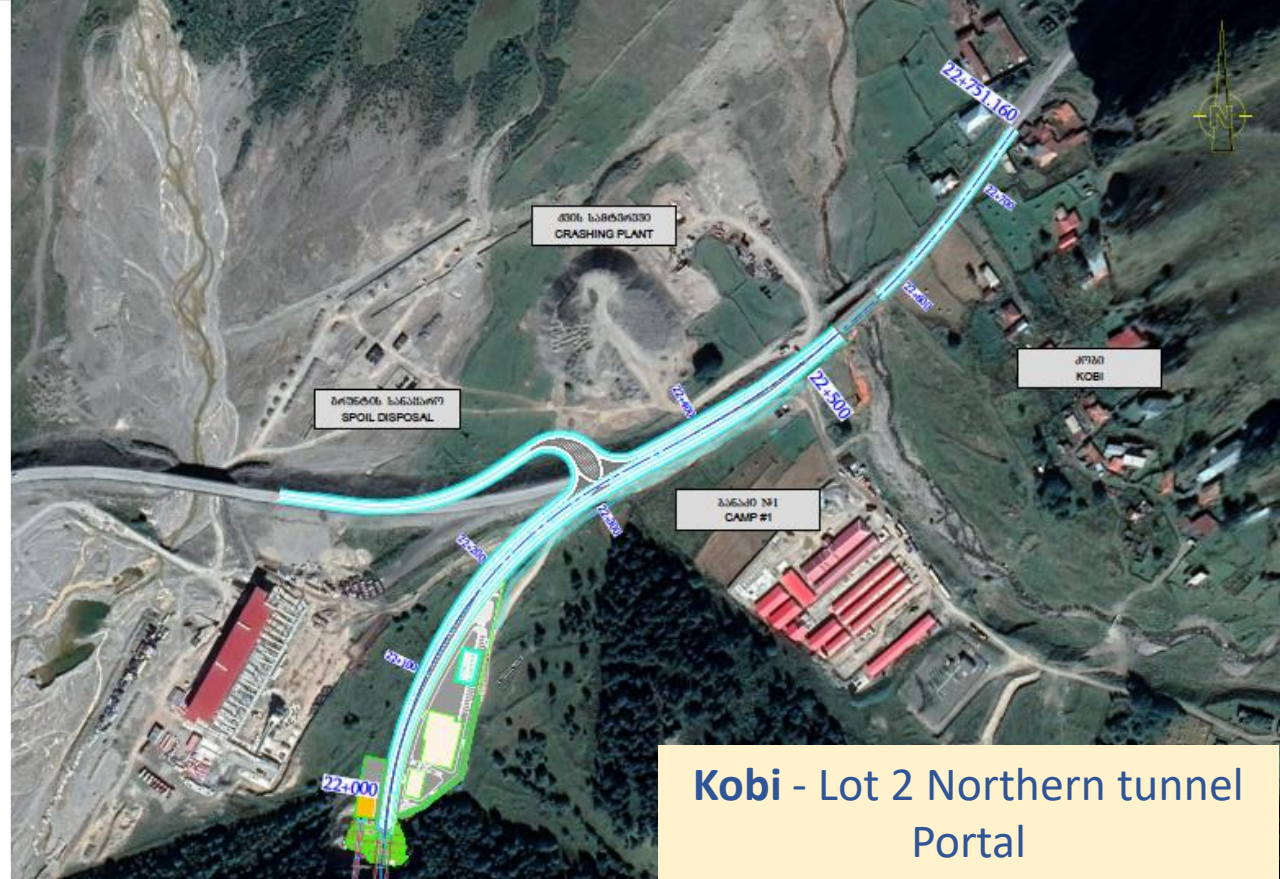
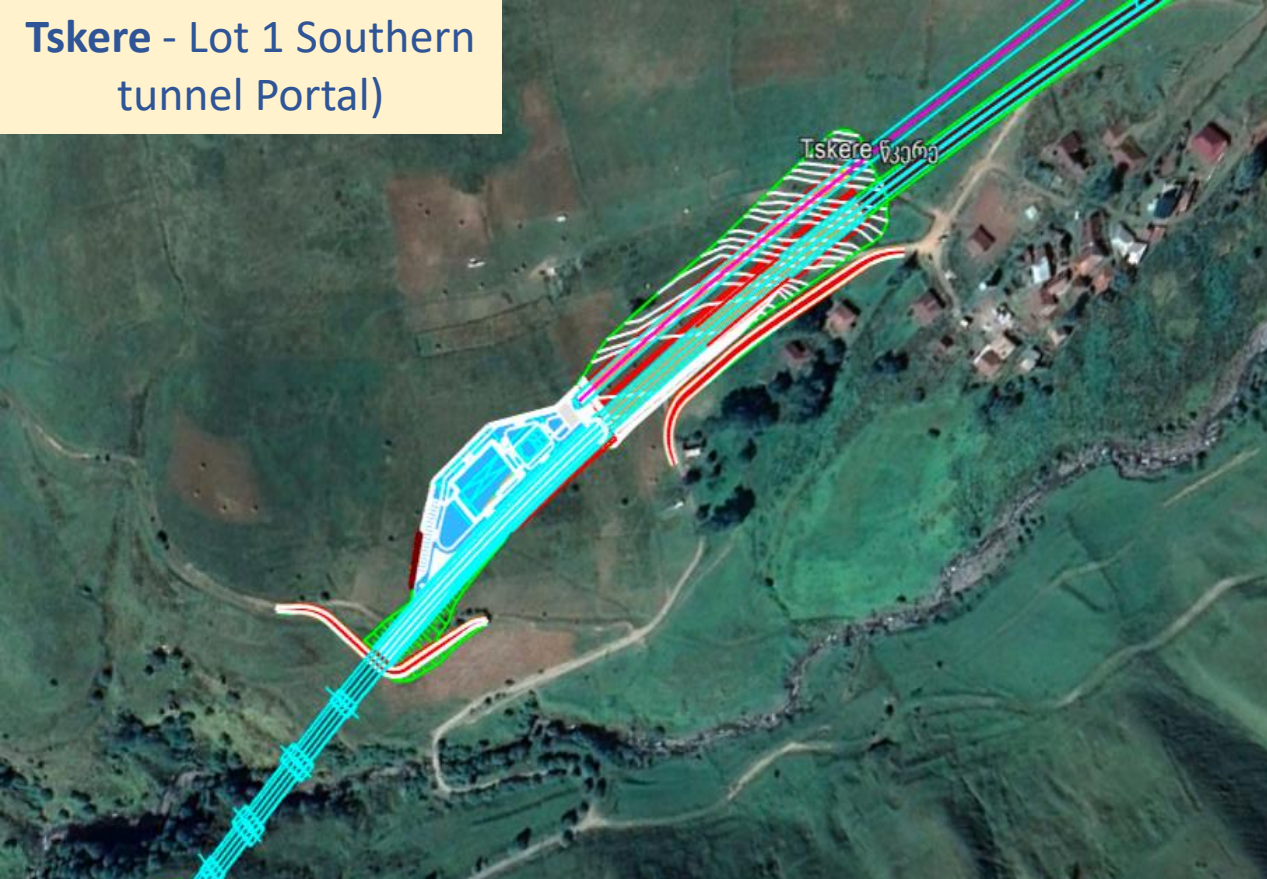
**Lot 1:** Tskere – Kobi portion of the Project, KM 12.7 – KM 22.7 (total 10 km) including an 8.86 km long 2 lane main tunnel and 9.06 km emergency tunnel parallel to the main tunnel.

**Lot 2:** Kvesheti – Tskere portion of the Project, KM 0.0 – KM 12.7 (total 12.7 km) including a total of 2.5 km of tunnels, 1.5 km of bridges, five grade junctions and 3 service roads.

Each Lot will be constructed by a separate Contractor.



Tskere - Lot 1 Southern tunnel Portal)



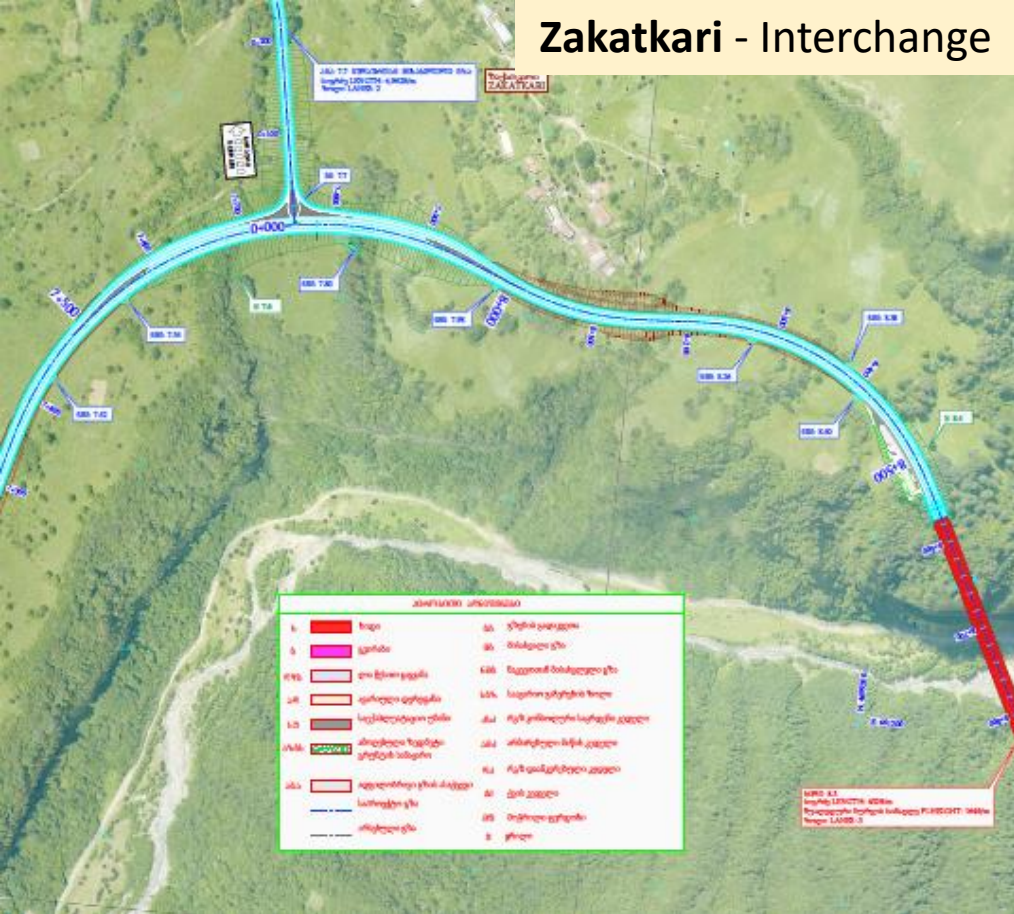
Kobi - Lot 2 Northern tunnel Portal

# Key Project Construction Zones - Lot 1

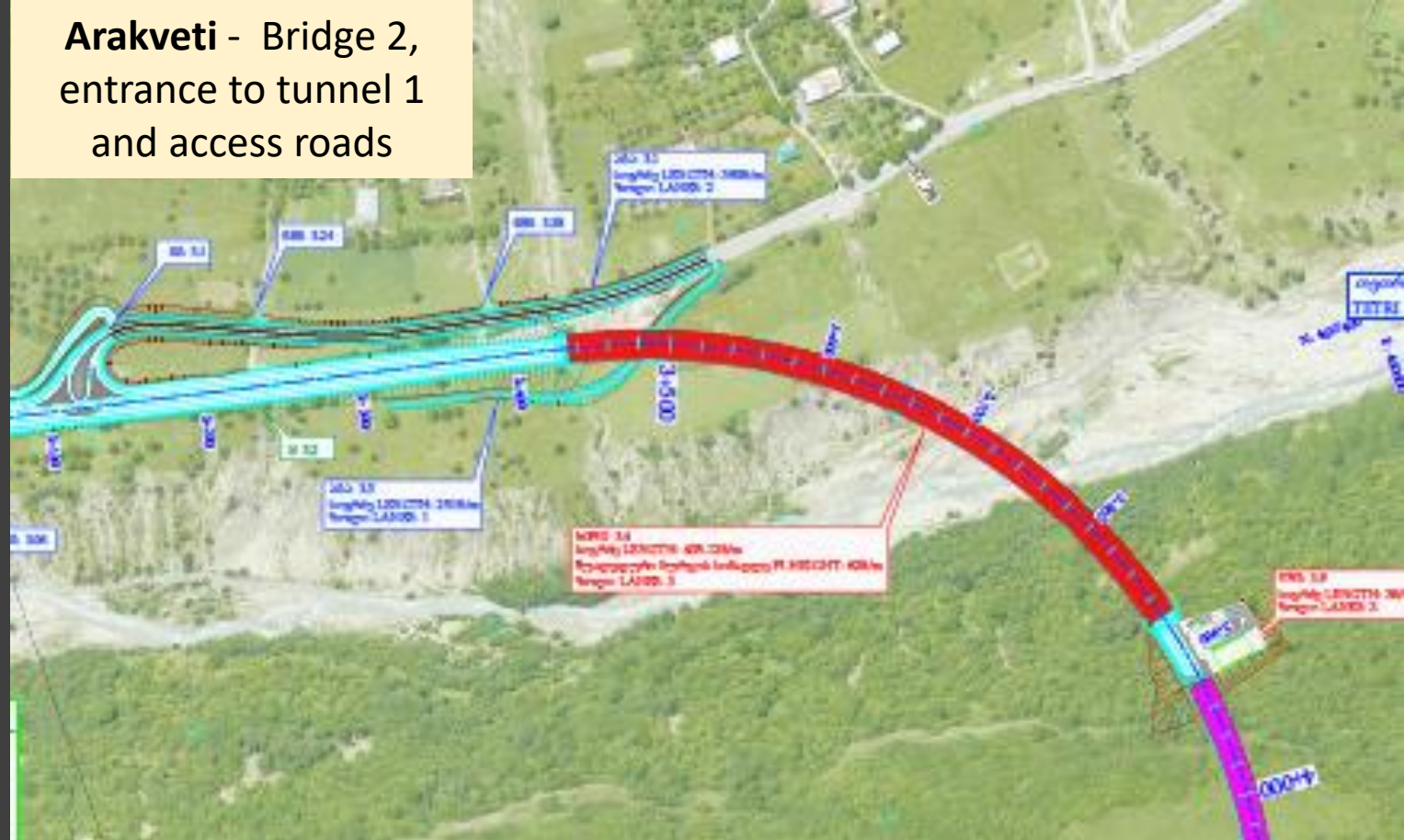
# Lot 1 Access Roads



**Zakatkari - Interchange**



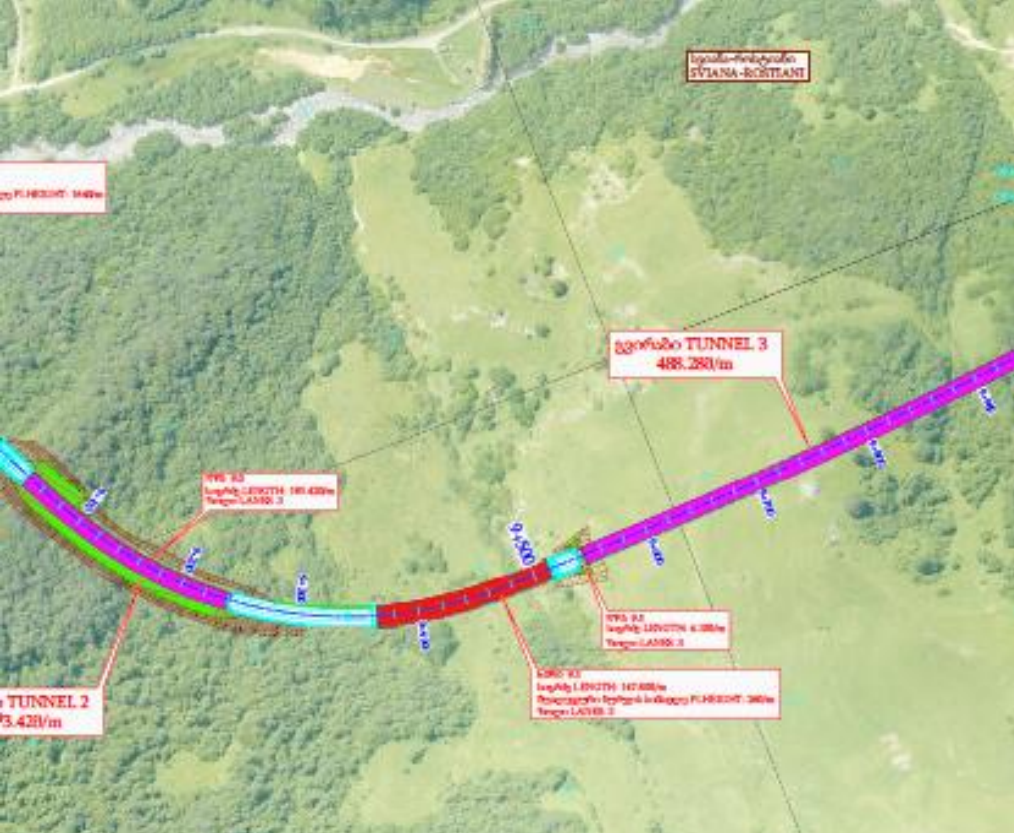
**Arakveti - Bridge 2, entrance to tunnel 1 and access roads**



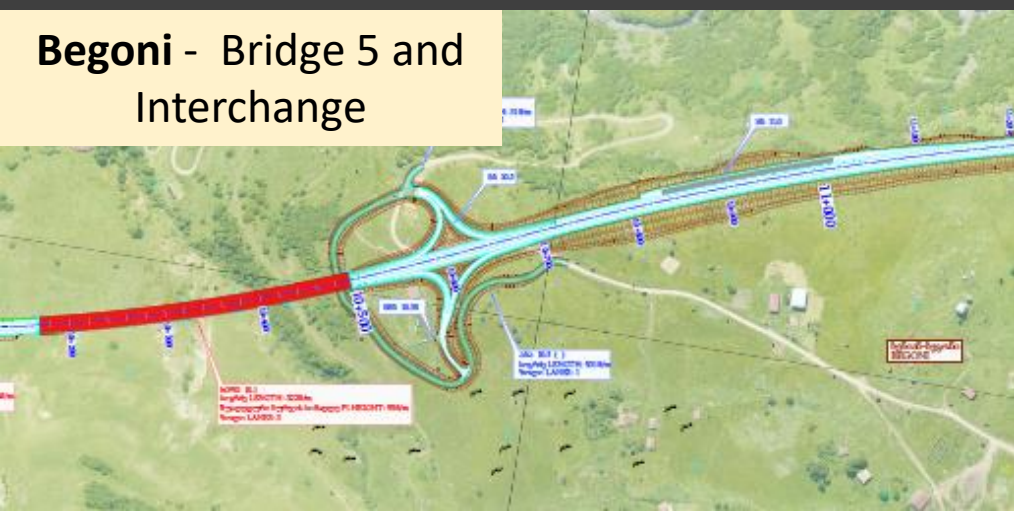
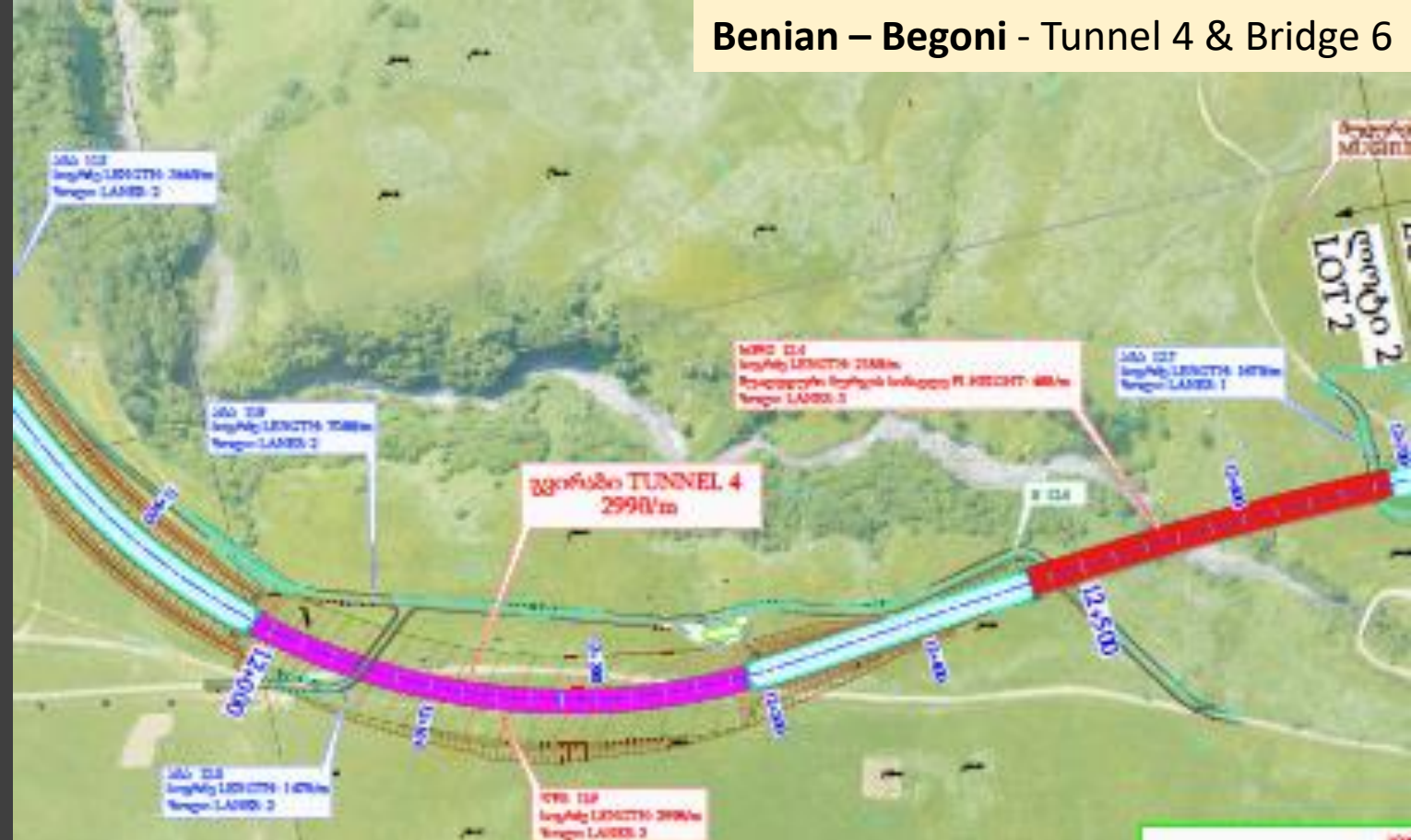
Location of Key Project Construction Zones – Lot 2



**Kvesheti - Bypass**



Sviana Rostiani - Tunnel 2 & 3 and Bridge 4



Begoni - Bridge 5 and Interchange

Location of Key Project Construction Zones – Lot 2



# Lot 2 Access Roads

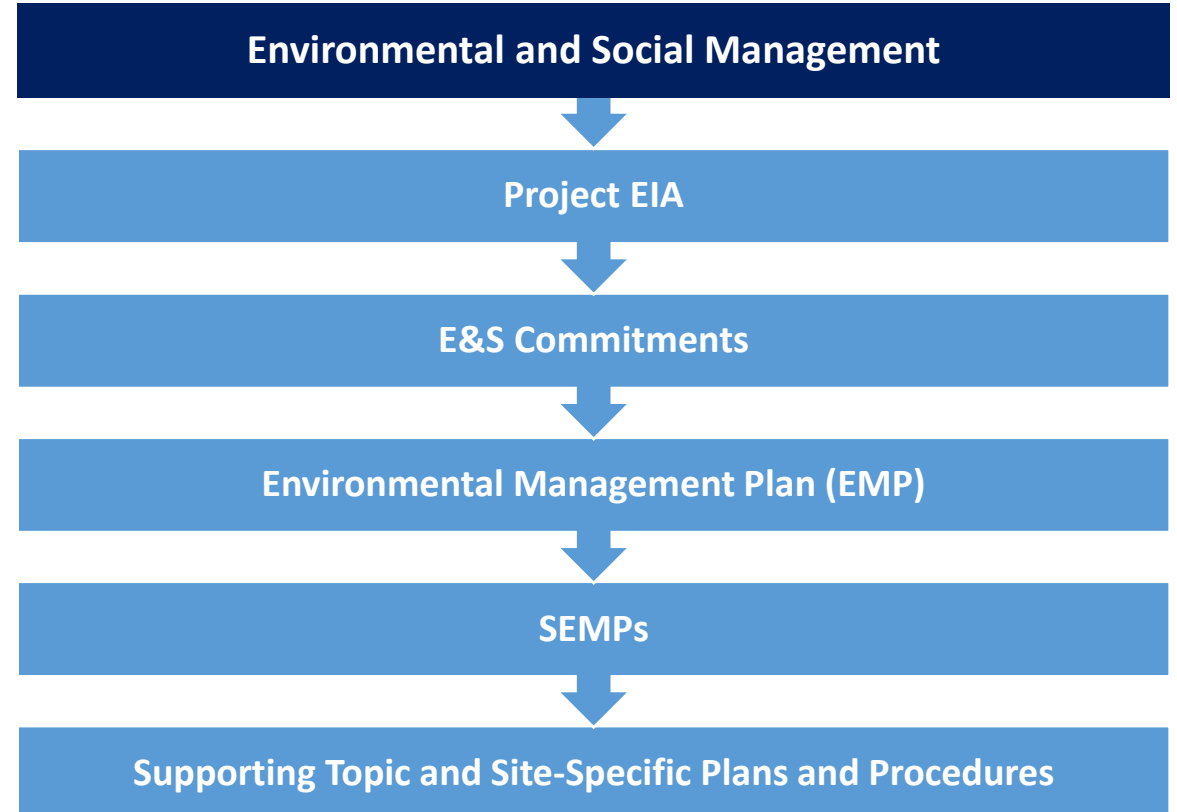
# Environmental and Social Management

The environmental and social management requirements for the Project are outlined in the Project Environmental Impact Assessment (EIA) which was prepared in 2019.

The EIA sets specific conditions, through its Environmental Management Plan (EMP) requiring both Contractors to develop a Specific Environmental Management Plans (SEMP) for each Lot that addresses the environmental and social commitments in the EIA.

Each SEMP comprises a number of topic and site-specific management plans.

This approach is summarized opposite



# Roles and Responsibilities

## Lenders

European Bank for Reconstruction and Development (EBRD) for Lot 1

Asian Development Bank (ADB) for Lot 1 and Lot 2

The EBRD and ADB act as the Project lenders and ensure that the Project is implemented in compliance with the ADB Safeguard Policy Statement and EBRD's Performance Requirements.



## Project Implementing Agency

The Roads Department (RD) of the Ministry of Regional Development and Infrastructure (MoRDI)

The RD has the lead responsibility for road construction. The RD is hence in charge of the overall implementation of the Project throughout its entire life cycle, in line with the indications and commitments identified throughout the EIA report.



## Construction Supervising Company - Engineer

UBM ULUSLARARASI BİRLEŞMİŞ MÜŞAVİRLER MÜŞAVİRLİK HİZMETLERİ A.Ş.

The Engineer (one for both Lots) has the specific role of monitoring the implementation of the Project's SEMP's and all related documents.



## Contractors

China Railway Tunnel Group Co Ltd (CRTG) for Lot 1

China Railway 23rd Bureau Group Co Ltd (CRCC) for Lot 2

The Contractors are responsible for the implementation of the requirements of the Specific Environmental Management Plan and its associated site and topic specific plans

# Specific Environmental Management Plans (SEMPs)

## What is a SEMP?

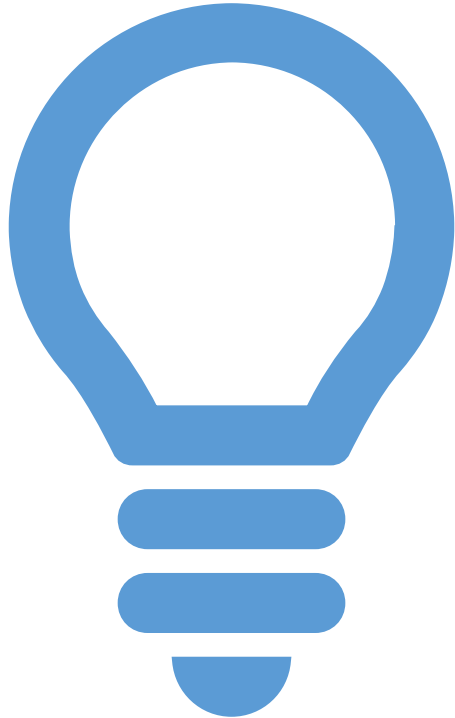
The Project EIA requires that the Contractors prepare their own Specific Environmental Management Plan, or SEMP, which is based on the requirements of the EIA and its EMP. SEMPs are submitted to the RD and the Engineer for approval. No construction activities are allowed until the SEMPs are approved.

## Why do we need a SEMP?

The SEMP forms part of the Projects overarching environmental and social management system. The SEMPs:

- Specify Contractors' organizational structure including the lines of responsibility for ensuring the implementation of environmental and social mitigation measures
- Define the roles and responsibilities of Contractors' Project environmental management personnel
- Specify the environmental awareness training that Contractors will provide to its personnel engaged on the Project and to its Sub-contractor personnel
- Describe the environmental mitigation measures and their implementation
- Define how Contractors propose to monitor its environmental performance
- Define the schedule and reporting methodology





## Topic and Site Management Plans

Within the framework of the SEMP a number of topic and site-specific plans are required.

These plans drill down into specific site and topic issues and crystalize the EMP recommendations into practical on the ground management plans.

**All of these plans have been reviewed and approved by RD and the Engineer.**

In total, 26 topic and specific plans were required by the EIA. These plans have now been prepared by the Contractors and are summarized by thematic groups below.

# Pollution Prevention Plans

## Pollution Prevention Plans

Air Quality Management Plan 1

Wastewater Management Plan 2

Waste Management Plan 3

Groundwater Management Plan 4

Noise Management Plan 5

Vibration Management Plan 6

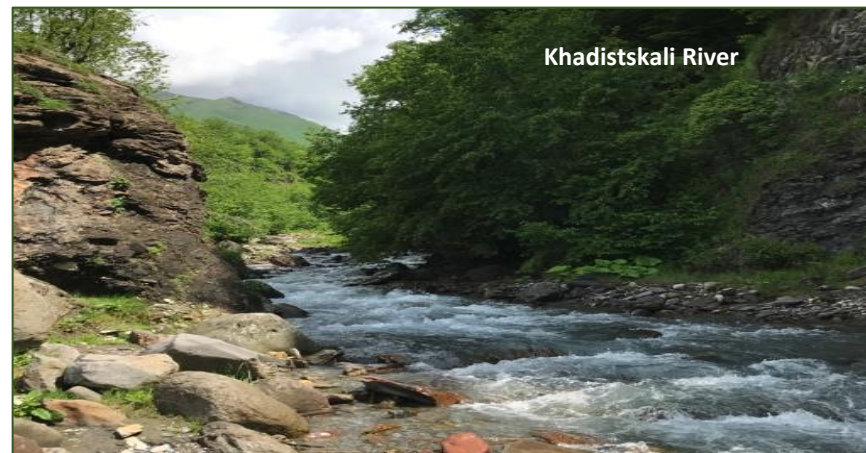
Spoil Disposal Plan 7

## Key Sensitive Receptor Locations

### Sensitive Hydrological Receptors:

Khadistskali, Aragvi, Tergi, Baidara & Narvani rivers  
Sensitive to:

- Wastewater discharge from construction camps and tunnels
- General construction waste, especially from bridge construction
- Construction of bridge piles and temporary crossings, e.g., across Aragvi river
- Water extraction for technical and potable use



### Sensitive Human Receptor Locations:

Kobi, Tskere, Mughure, Beniani, Begoni, Sviana Rostiani, Zakatkari, Arakveti, Kvesheti

Sensitive to:

- Construction noise
- Construction vibration
- Polluted groundwater
- General construction waste
- Air emissions

Lot 2: Potential Pollution Impact Areas

Bridge #2: Bridge piling works could impact on vibration levels, but not significantly. Drilling water discharge is also an issue

Construction Camp #1 Waste management requires attention

არახვეთი  
ARAKHVETI

Kvesheti and Arakveti Village. Access road may result in noise, vibration and air quality impacts

Spoil Area

Construction Camp #2 wastewater discharge is a potential impact.

Bedoni Village. Access road may result in noise, vibration and air quality impacts

Bridge #3: Potential impacts to surface water

Lot 2 Camp #3 could impact air quality, noise levels and groundwater

Beniani, Begoni and Mughure Villages. General construction may result in noise, vibration and air quality impacts

ხიდი 2  
BRIDGE 2

გვირაბი 1  
TUNNEL 1

ხიდი 3  
BRIDGE 3

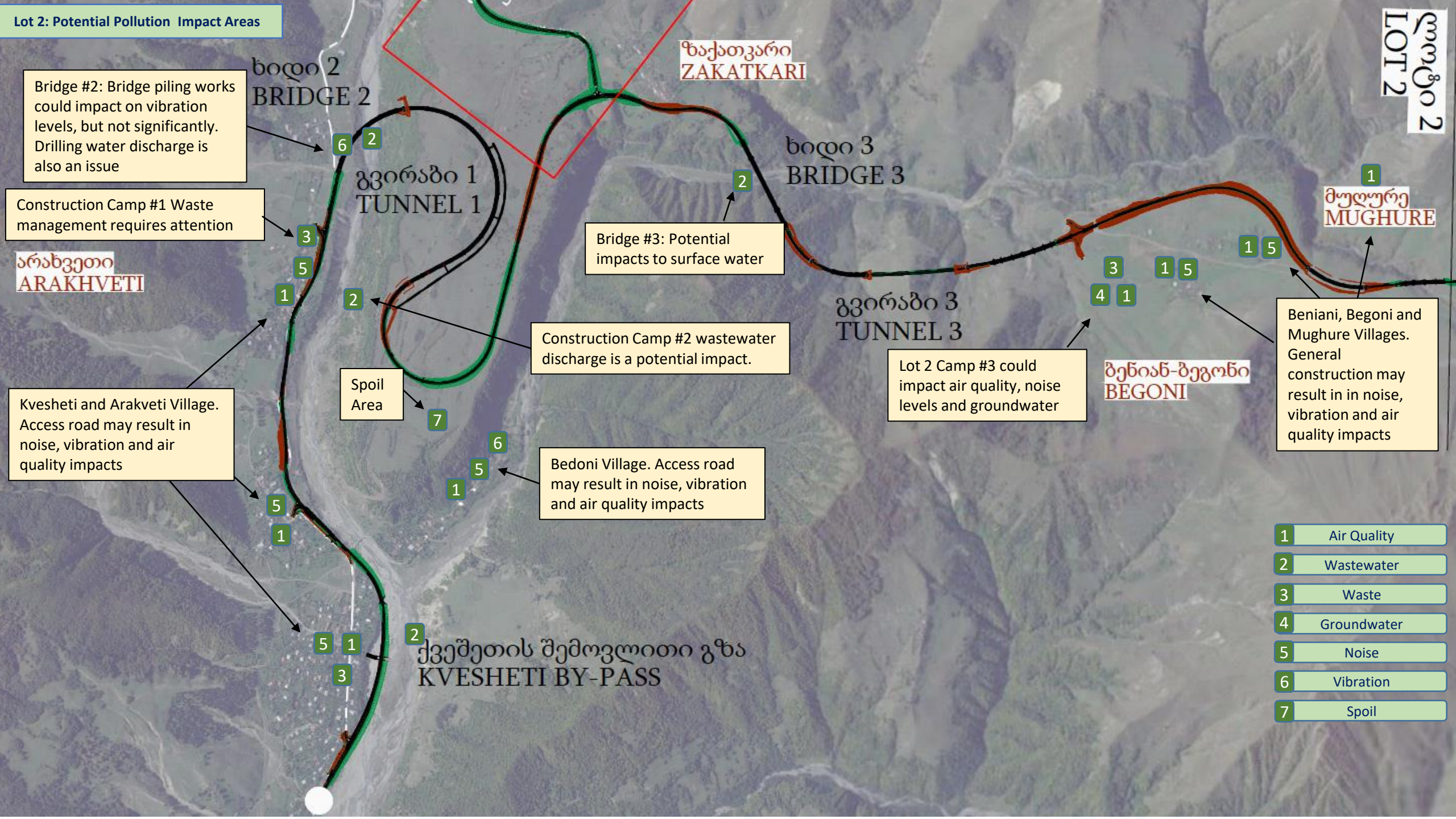
გვირაბი 3  
TUNNEL 3

მულურე  
MUGHURE

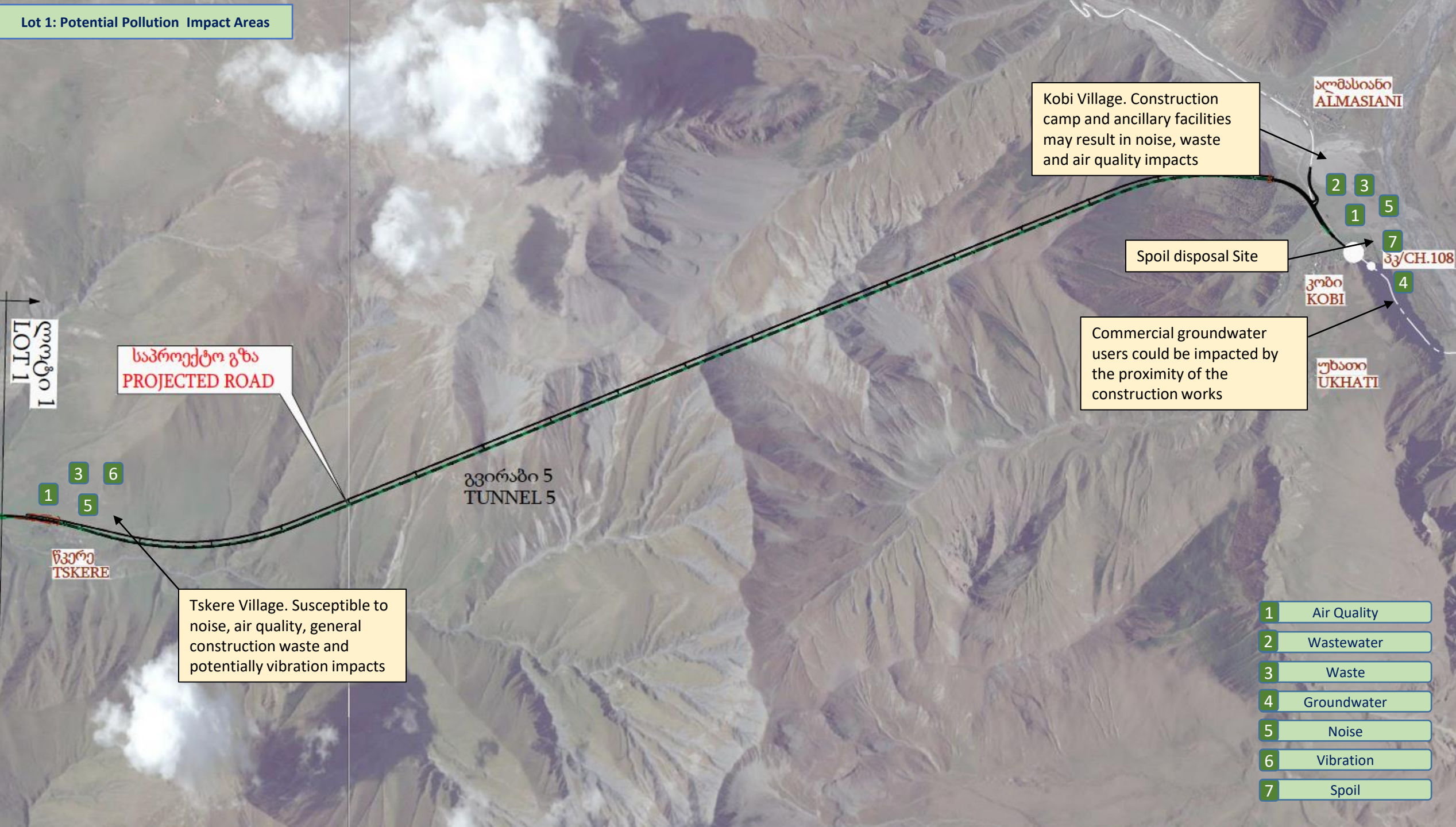
ბენიან-ბეგონი  
BEGONI

ქვეშეთის შემოვლითი გზა  
KVESHETI BY-PASS

- 1 Air Quality
- 2 Wastewater
- 3 Waste
- 4 Groundwater
- 5 Noise
- 6 Vibration
- 7 Spoil



Lot 1: Potential Pollution Impact Areas



ლოტი 1  
LOT 1

საპროექტო გზა  
PROJECTED ROAD

გვირაბი 5  
TUNNEL 5

წკერე  
TSKERE

ალმასიანი  
ALMASIANI

კობი  
KOBI

უხათი  
UKHATI

33/CH.108

Kobi Village. Construction camp and ancillary facilities may result in noise, waste and air quality impacts

Spoil disposal Site

Commercial groundwater users could be impacted by the proximity of the construction works

Tskere Village. Susceptible to noise, air quality, general construction waste and potentially vibration impacts

- 1 Air Quality
- 2 Wastewater
- 3 Waste
- 4 Groundwater
- 5 Noise
- 6 Vibration
- 7 Spoil

# Pollution Prevention Plans Summary

## KEY MANAGEMENT PLAN MITIGATION

### AIR QUALITY

- Regular watering of roads in residential areas to prevent dust
- Vehicles restricted to specified haul routes
- Erect solid screens or barriers around dusty activities following good practice guidelines such as UK Institute of Air Quality Management -Guidance on the Assessment of Dust from Demolition and Construction, 2014

### NOISE & VIBRATION

- Siting of facilities away from residential receptors
- Time and activity restraints in residential areas
- Use of temporary noise barriers where complaints are received
- Use alternative construction methods, e.g. use of low vibration rollers or changing charge settings while blasting.

### SOLID & LIQUID WASTE

- Wastewater treatment plants will be installed at both construction camps. Contractor will prepare and submit to MOEPA for approval screening documents for WWTPs.
- Hazardous waste will be temporarily collected in separate waste bins. After filling the bins, hazardous waste will be relocated to the temporary storage areas before collection by an authorized waste management contractor "Medical technology" ltd

### SPOIL

- Consultation with local residents regarding the site selection.
- The spoil disposal site will be re-instated upon completion of works at the site. The re-cultivation activities will be consequently implemented after the filling of spoil disposal site pit and will comprise of technical re-cultivation and biological re-cultivation
- By planned compensatory measures, such as biodiversity offset (as provided in the Biodiversity Management Plan) will achieve no net loss or a net gain of the affected biodiversity

## MONITORING AND REPORTING

### Air Quality

- Monthly monitoring of air quality in villages, including particulate matter, nitrogen dioxide and carbon monoxide
- Routine site inspections to assess levels of dust
- Monthly reporting of fuel used for all vehicles, plant, machinery and equipment; Monthly updates on inspection and auditing results; Assessment of the effectiveness of control measures in minimizing GHG emissions.

### Noise and Vibration

- Monthly monitoring of noise in villages
- Regular vibration monitoring throughout construction
- Inspection of sites based on complaints from residents

### Waste

- Quarterly monitoring of the water quality of the tank will be undertaken by the Contractor to assess for any pollution. If the drainage water quality is good it can be taken into account for re-use as technical water during the construction phase
- Monthly reporting by the Contractor to the Engineer, and six monthly by the Engineer to RD and ADB.

### Spoil

- Spoil disposal plan reviewed and approved by ADB and Engineer before any site is opened. National permitting process must also be completed.
- Routine inspections of spoil sites throughout construction.
- Monitoring of restoration of spoil sites upon spoil site closure

## Worker Safety and Security Plans Prepared

OHS Plan for Tunnels

1

OHS Plan

2

Code of Conduct

3

Labour Management Plan

4

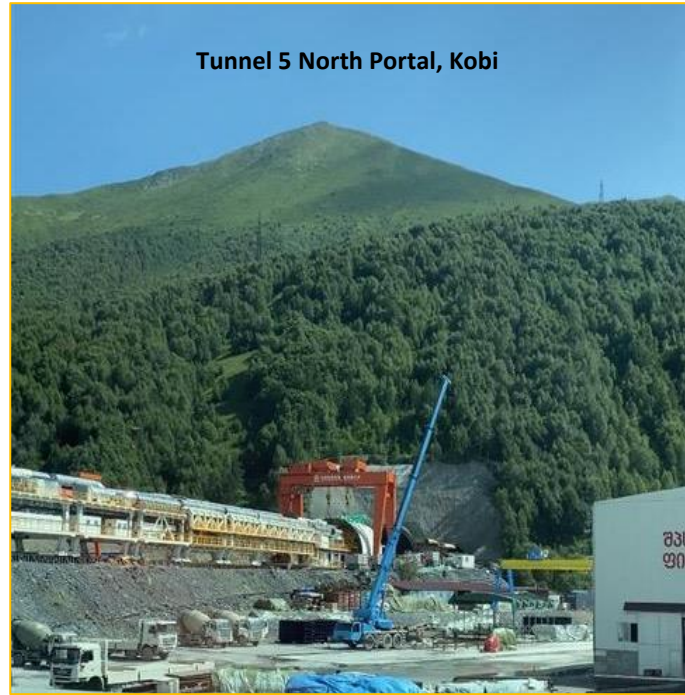
Tunnel Blasting Plan

5

Tunnel Transition Plan

6

Tunnel 5 North Portal, Kobi



### Tunnel Construction Issues:

- Respiratory problems from dust and noxious fumes
- Falling from heights, e.g., from scaffolding and machinery in tunnels
- Electric shocks

### General Construction Impacts to Workers:

- Risk of COVID-19 infection
- Falling from heights, e.g., from bridges
- Electric Shocks, Cuts, etc. from the use of electrical equipment and tools
- Exposure to hazardous chemicals and materials

Construction Workers



### Worker Conduct Issues:

- Sexual Exploitation, abuse and harassment
- Alcohol and drug abuse
- Spread of disease, e.g., sexually transmitted disease

# Worker Safety and Security Plans

ზაკატკარი  
ZAKATKARI

მულურე  
MUGHURE

ბენიან-ბეგონი  
BEGONI

არახვეთი  
ARAKHVETI

ბიდი 2  
BRIDGE 2

ბიდი 3  
BRIDGE 3

გვირაბი 3  
TUNNEL 3

გვირაბი 1  
TUNNEL 1

ქვეშეთის შემოვლითი გზა  
KVESHETI BY-PASS

Kvesheti Bypass

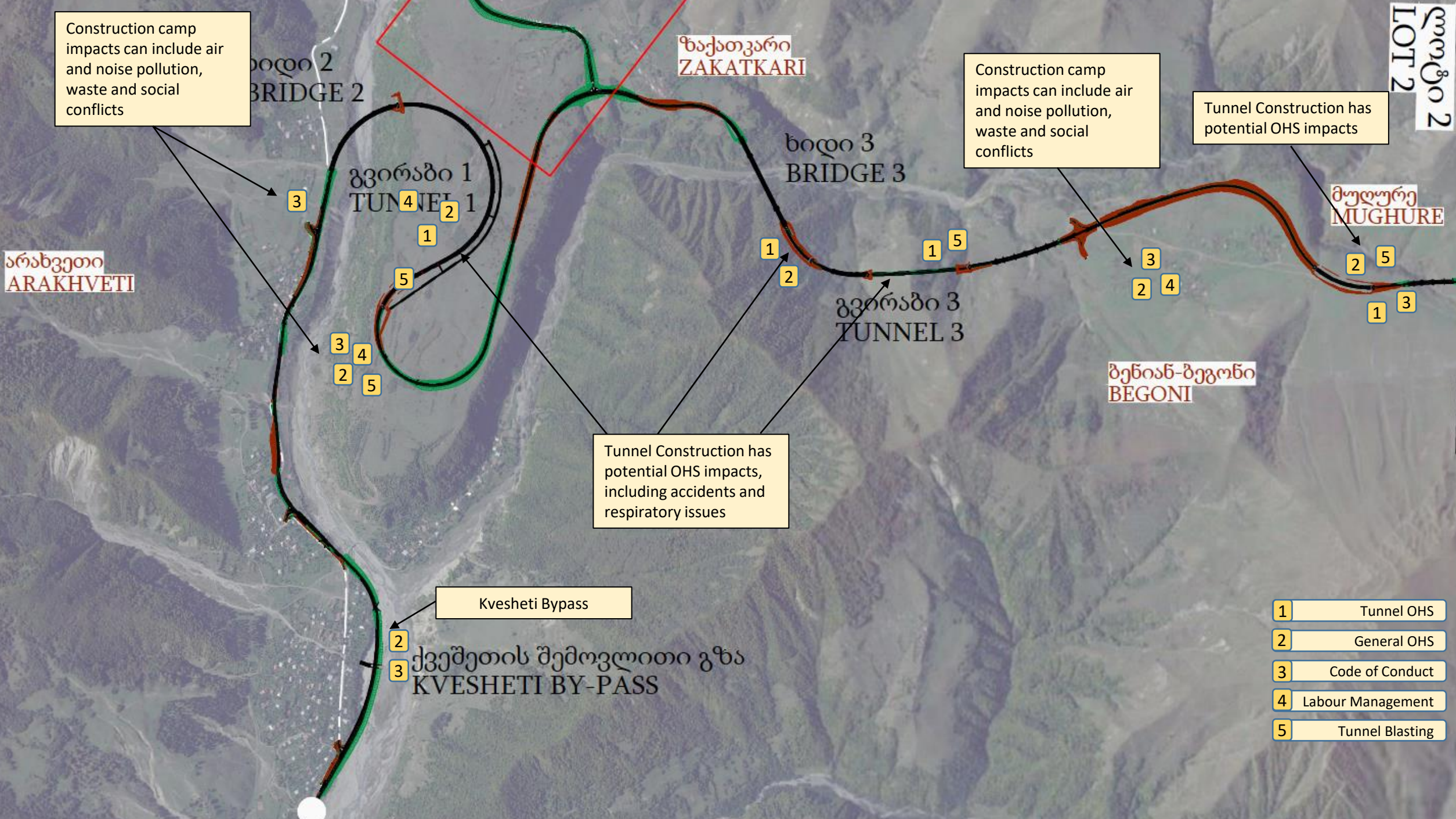
Tunnel Construction has potential OHS impacts, including accidents and respiratory issues

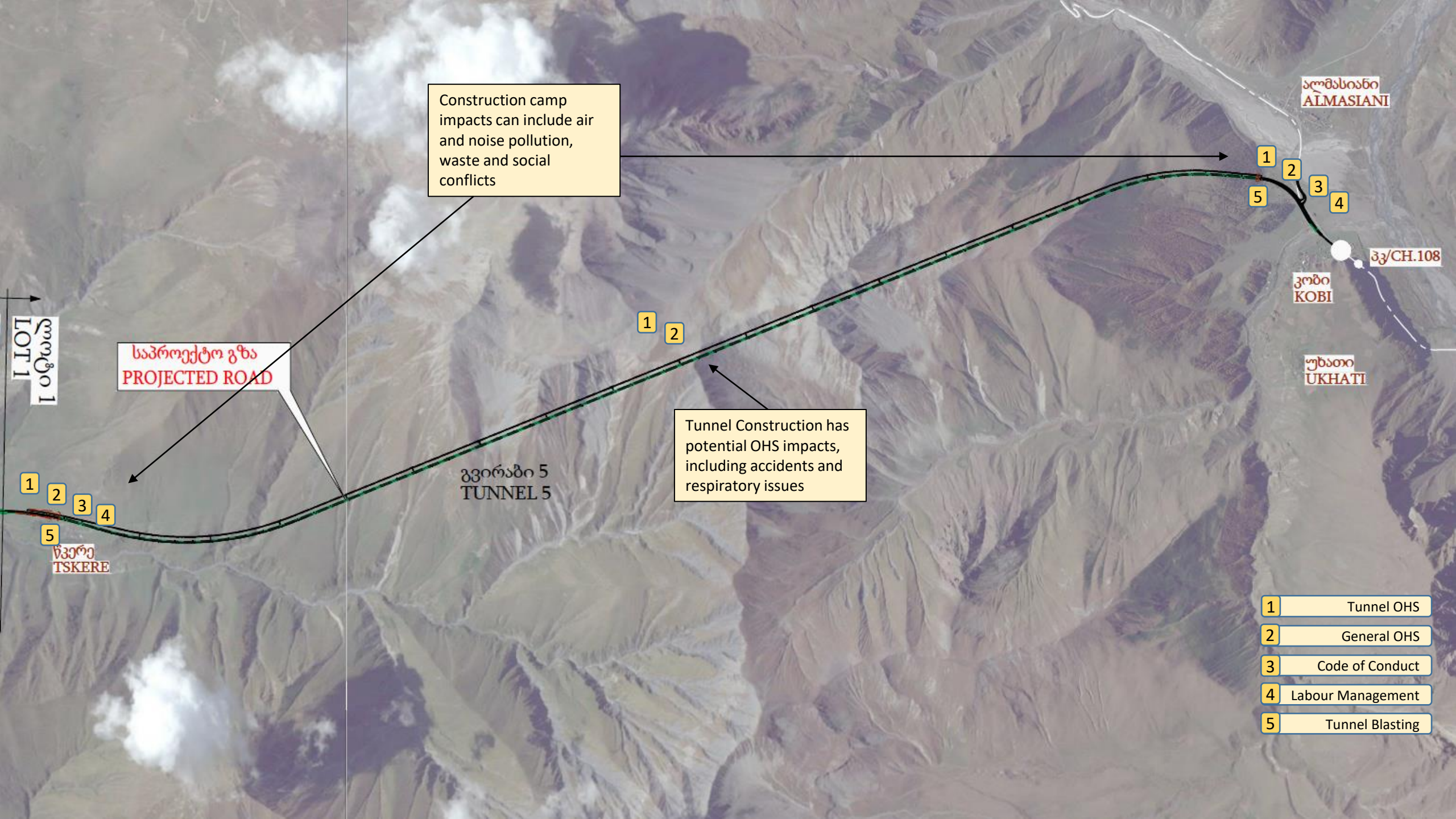
Construction camp impacts can include air and noise pollution, waste and social conflicts

Tunnel Construction has potential OHS impacts

Construction camp impacts can include air and noise pollution, waste and social conflicts

- 1 Tunnel OHS
- 2 General OHS
- 3 Code of Conduct
- 4 Labour Management
- 5 Tunnel Blasting





Construction camp impacts can include air and noise pollution, waste and social conflicts

Tunnel Construction has potential OHS impacts, including accidents and respiratory issues

საპროექტო გზა  
PROJECTED ROAD

გვირაბი 5  
TUNNEL 5

ლომასიანი  
ALMASIANI

კობი  
KOBİ

უხათი  
UKHATI

ლოტი 1  
LOT 1

თსკერე  
TSKERE

გვ/CH.108

- 1 Tunnel OHS
- 2 General OHS
- 3 Code of Conduct
- 4 Labour Management
- 5 Tunnel Blasting

# Worker Safety and Security Plans Summary

## KEY MITIGATION

### USE OF PERSONAL PROTECTIVE EQUIPMENT

- Each person shall be supplied with the following minimum PPE for the execution of this contract: Hard hat\*(EN397 / ANSI Z89.1-2003 /GB2811-2007), Sturdy leather boots \*(EN 20345 S3 / ANSI Z41-1991 / GB 21148-2007), Eye protection (EN166 1F AS, AF / ANSI Z87.1-1989 /GB/T 3609.1-1994), Hearing protection (EN 352-2 / ANSI S3-19-1974), Gloves \* (EN/ANSI/ AQ), High visibility vests\*(EN 471:2003 Class II/ ANSI 107:2010)

### TRAINING AND AWARENESS

- Awareness / Induction meetings / Toolbox Talks will be held, for timely orientation of the workforce as part of the continual improvement program to reinforce; Procedural understanding; The risks associated with the relevant work scope; Operations objectives (including key technical requirements)

### CODE OF CONDUCT

- Code of Conduct outlines Company's expectations regarding employees' behavior towards their colleagues, supervisors and local communities. The primary purpose of this Code of Conduct is to ensure that all employees understand and adhere to the excellent standards of conduct.
- Code's guidelines apply to the Company's employees, sub-contractors and suppliers.

### WORKER RIGHTS

- Contractor will comply with Labour Code of Georgia as well as General Conditions of Contract.
- The Contractor will pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed in Georgia
- Contractor will cover accident (during the works) insurances for its employees working at heavy, harmful and dangerous workplaces with an increased threat to their health
- Accommodation provided by the Contractor will be appropriate for its location and will be clean, safe and at minimum, will meet basic needs of workers

## MONITORING AND REPORTING

### Code of Conduct

- Employees must familiarize themselves with the Code and provide a signature affirming their familiarity with the Code during the hiring process (signing the labor agreement) as well as at the Induction Training.
- In addition, the Company periodically conducts reviews of the employees' knowledge of the standards set forth in the Code and raises awareness on the Code of Conduct through Toolbox sessions.

### Workers Rights

- Record system of workers that will include the following information: name, age, gender, hours worked, wages, payments (including overtime payments) and any deductions made from their wages
- The Contractor shall establish and maintain the following logs: disciplinary measures, conducted trainings, filed grievances

### Accidents and Incidents

- The Contractor shall review once a year reports of the following injury/incident types to determine any investigative needs: First aid , Accidents, Incidents, Near miss, First Aid
- Investigation Reports will be prepared for any accidents and incidents

# Camp Management Plans

## Camp Management Plans Prepared

Accommodation Option Risk Assessment

1

Construction camp layout plan

2

Construction Camp Management Plan

3

### Potential Receptors:

- Local residents living close to the camp sites.
- Sensitive plants and trees which may need to be cleared.
- Sensitive animals and birds, such as Otter who live close to the camp sites.

Construction Camp, Kobi



### Environmental and Social Aspects of Camps:

- Camps may house up to several hundred workers who generate noise and waste.
- Workers may also be from another country and may not understand local cultural sensitivities.
- Clearing of land to make way for the camp buildings.

### Camp Impacts:

- Generation of waste (including hazardous waste).
- Workers misbehaving and not respecting local traditions and residents.
- Damage to flora and impacts to fauna during camp site preparation.

ლოტი 2  
LOT 2

მულურე  
MUGHURE

Camp #3

ბენიან-ბეგონი  
BEGONI

ხიდი 3  
BRIDGE 3

გვირაბი 3  
TUNNEL 3

ზაკატკარი  
ZAKATKARI

გვირაბი 1  
TUNNEL 1

ხიდი 2  
BRIDGE 2

ქვეშ  
KVE



Camp #2



Camp #1

არახვეთი  
ARAKHVETI

1  
2  
3

1  
2  
3

3  
2  
1

- 1 Accommodation Option Risk Assessment
- 2 Construction Camp Layout Plan
- 3 Construction Camp Management Plan

1 Accommodation Option  
Risk Assessment

2 Construction Camp  
Layout Plan

3 Construction Camp  
Management Plan

LOT 1  
ლოტი 1

საპროექტო გზა  
PROJECTED ROAD

გვირაბი 5  
TUNNEL 5

წკერე  
TSKERE

ალმასიანი  
ALMASIANI

1  
2  
3

გვ/CH.108

კობი  
KOBI

უხათი  
UKHATI

The Camp Site is located in 420 from nearest of emerald zone.



# Camp Management Plans Summary

## KEY MITIGATION

### APPROPRIATE ACCOMODATION

- Hiring local residents to reduce the need for providing additional accommodation and reduces the space needed for camp sites and their indirect impacts
- Provision of specific camp sites to reduce potential conflict with locals, reduce pressure on local infrastructure and limit the potential for road traffic accidents whilst transporting staff.

### POLLUTION PREVENTION

- Due to the Kazbegi region does not have sewerage and sewage treatment facilities, Contractor will install own wastewater treatment plant at construction camp
- Provide necessary cleaning facilities on site and ensure that no water or debris from such cleaning operations is deposited off-site.

### WASTE MANAGEMENT

- Hazardous waste will be collected and temporarily stored at hazardous waste storage area and later- passed to the licensed sub-contractor (medical technology Ltd).
- Non-hazardous industrial waste will be disposed together with household waste in the waste containers and passed to Kazbegi Municipality waste management company.
- The inert waste disposal areas will be selected by the contractor and agreed with the local authorities and MoEPA.

### PUBLIC AWARENESS

- Prior to the Construction of the Camp Contractor has conducted public consultations with local residents.
- Local residents are informed about grievance redress mechanism

## MONITORING AND REPORTING

### Permits and Licenses

- Engineer to review permits to operate camps.

### Noise and Air Quality

- Periodic observational and instrumental monitoring per the noise and air quality management plans.

### Air Pollution

- Undertake daily inspection, where receptors (including roads) are nearby, to note any dust deposition, record inspection results, and make the log available to the local authority when asked. Increase the frequency of site inspections by the person accountable for air quality and dust issues on-site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Checking complaints received under the grievance mechanism and making corrective actions as required.

### Reporting

- Monthly reports prepared by the contractor on the SEMP implementation including any issues relating to construction camps

## Community Health and Safety Plans Prepared

Traffic Management Plan

1

Emergency Response Plan

2

Community Health and Safety Plan

3

Project Information Boards



### Potential Receptors:

All villages within the vicinity of the Project work zones could be impacted by project works. Health and safety issues are not likely to extend beyond the project work areas, although some issues could arise on haul routes bringing materials to site from other regions.

### Types of Impacts on Community Health and Safety:

- Road traffic accidents involving construction vehicles and local people and livestock.
- Residents being injured at worksites, e.g., falling into excavated holes, or entering tunnels
- Spills and leaks of hazardous and toxic liquids and gasses.
- Procurement of goods from local suppliers and using local labour is a beneficial impact that should be encouraged.



Traffic Safety Signs, Kobi

# Community Health and Safety Plans

არახვეთი  
ARAKHVETI

ხიდი 2  
BRIDGE 2

ზაკატკარი  
ZAKATKARI

ხიდი 3  
BRIDGE 3

მულურე  
MUGHURE

გვირაბი 1  
TUNNEL 1

გვირაბი 3  
TUNNEL 3

ბენიან-ბეგონი  
BEGONI

ქვეშეთის შემოვლითი გზა  
KVESHETI BY-PASS

All villages in the Project area will be impacted through increased employment and procurement opportunities

The access road through Bedoni requires traffic and emergency management

- Emergency Response 1
- Traffic Management 2
- Local Employment and Procurement 3

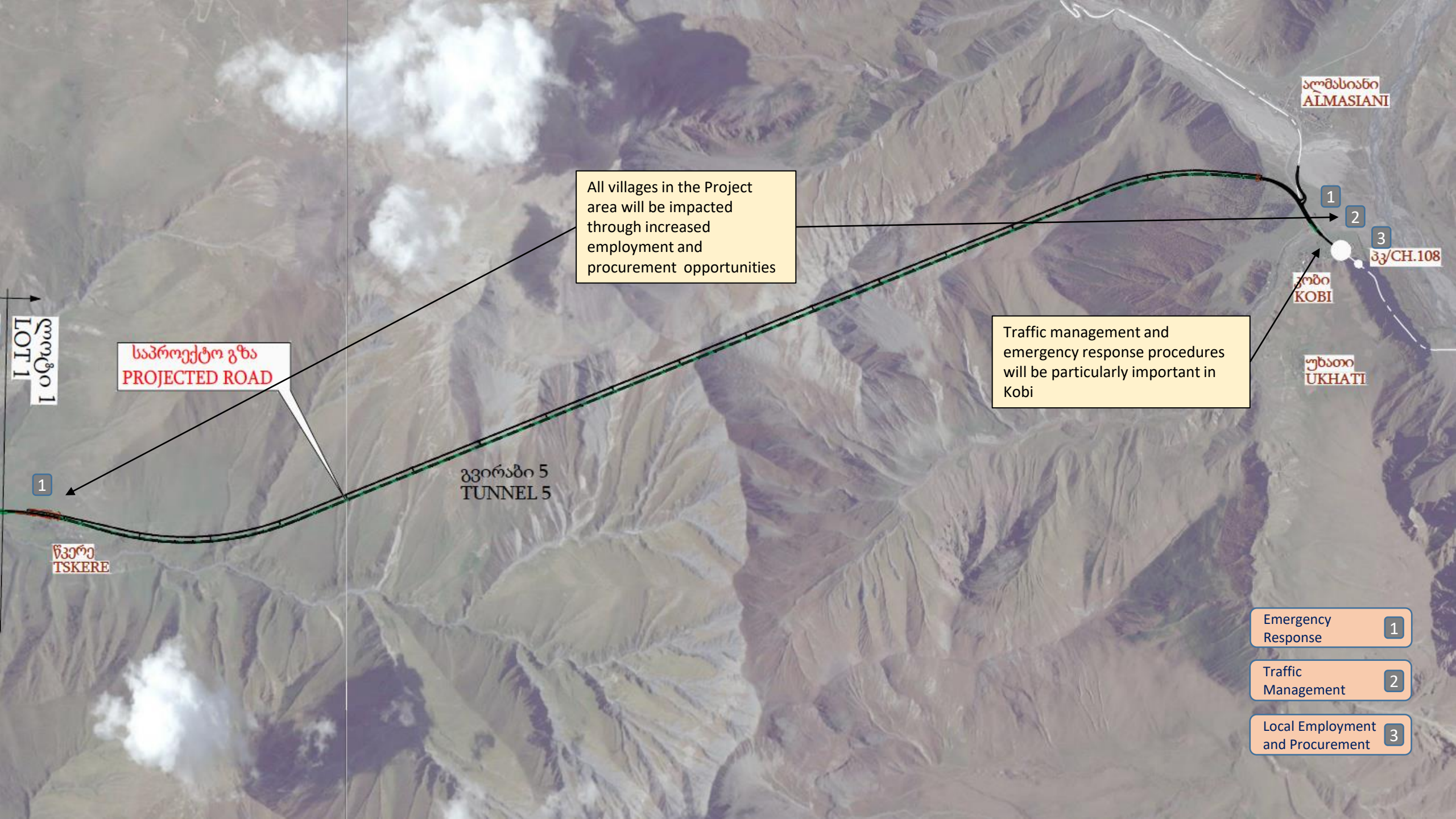
1  
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1  
2

1  
2  
3

1

1  
2  
3



ალმასიანი  
ALMASIANI

1

2

3

გვ/CH.108

კობი  
KOBI

უხათი  
UKHATI

All villages in the Project area will be impacted through increased employment and procurement opportunities

Traffic management and emergency response procedures will be particularly important in Kobi

Emergency Response 1

Traffic Management 2

Local Employment and Procurement 3

საპროექტო გზა  
PROJECTED ROAD

გვირაბი 5  
TUNNEL 5

წკერე  
TSKERE

საპროექტო  
LOT 1

1

# Community Health and Safety Plans Summary

## KEY MITIGATION

### TRAFFIC MANAGEMENT

- *Transport of Heavy Goods Vehicles and large loads shall be scheduled where possible to minimize transit of large vehicles and convoys through villages.*
- *Prioritized will be roads that are away from the village and the population.*
- *Communities are informed of major transport activities, such as large convoys, prior to those activities taking place.*
- *Notices shall be issued and meetings may be held to communicate major transport activities to local communities.*

### AWARENESS ACTIVITIES

- *Communities will be informed of health, safety and security issues of relevance to them through: Community meetings in advance of construction activities adjacent to the communities and signs provided by the contractor where necessary to improve safety and provide directions for traffic control.*

### EMERGENCY RESPONSE

- *Each contractor has a specific 'emergency response team' comprising doctor, nurse and health and safety specialists.*
- *Emergency control centers are provided by the Contractor, along with medical facilities/first aid center.*
- *Fire wardens nominated for emergencies involving fires.*
- *Specific procedures provided for various emergencies, such as fires and explosions, severe weather and natural disasters, avalanche and flood.*
- *Specific procedures outlined for COVID-19 response.*



## MONITORING AND REPORTING

### **Emergency Response**

- *Contractor sets up reporting procedure to everyone and shares the person-in-charge cellphone number to workers, so that any emergency occurs on construction, the involved persons could contact the safety department immediately without delay.*

### **General Monitoring**

- *The following key mechanisms/tools will be used to conduct monitoring: Review of Community Safety and Community Liaison documentation, Records of Monthly Complaints Registry; Meeting discussions (from the administrator manager); Observations/site inspections (by the administrator manager); Photo documentations; Others, as identified.*

### **Reporting**

- *Monthly Reporting - Contractor sets up reporting procedure to everyone and shares the person-in-charge cellphone number to workers, so that any emergency occurs on construction, the involved persons could contact the safety department immediately without delay.*
- *As Required Non-compliance reporting - Non-compliance issues related to community safety; Incidents related to communities: Any causing injury or with the potential to result in a stoppage of the work.*

# Biodiversity Management Plans

Biodiversity Management Plan

1

Biodiversity Action Plan

2

Biodiversity Monitoring and Evaluation Plan

3

Re-cultivation/Land Restoration Plan

4

Topsoil Management Plan

5

## Sensitive Receptors:

- Rivers, in terms of water quality and ecology.
- Habitat, including the sensitive habitats such as wet meadows.
- Special status species, such as the Corncrake and Egyptian Vulture.



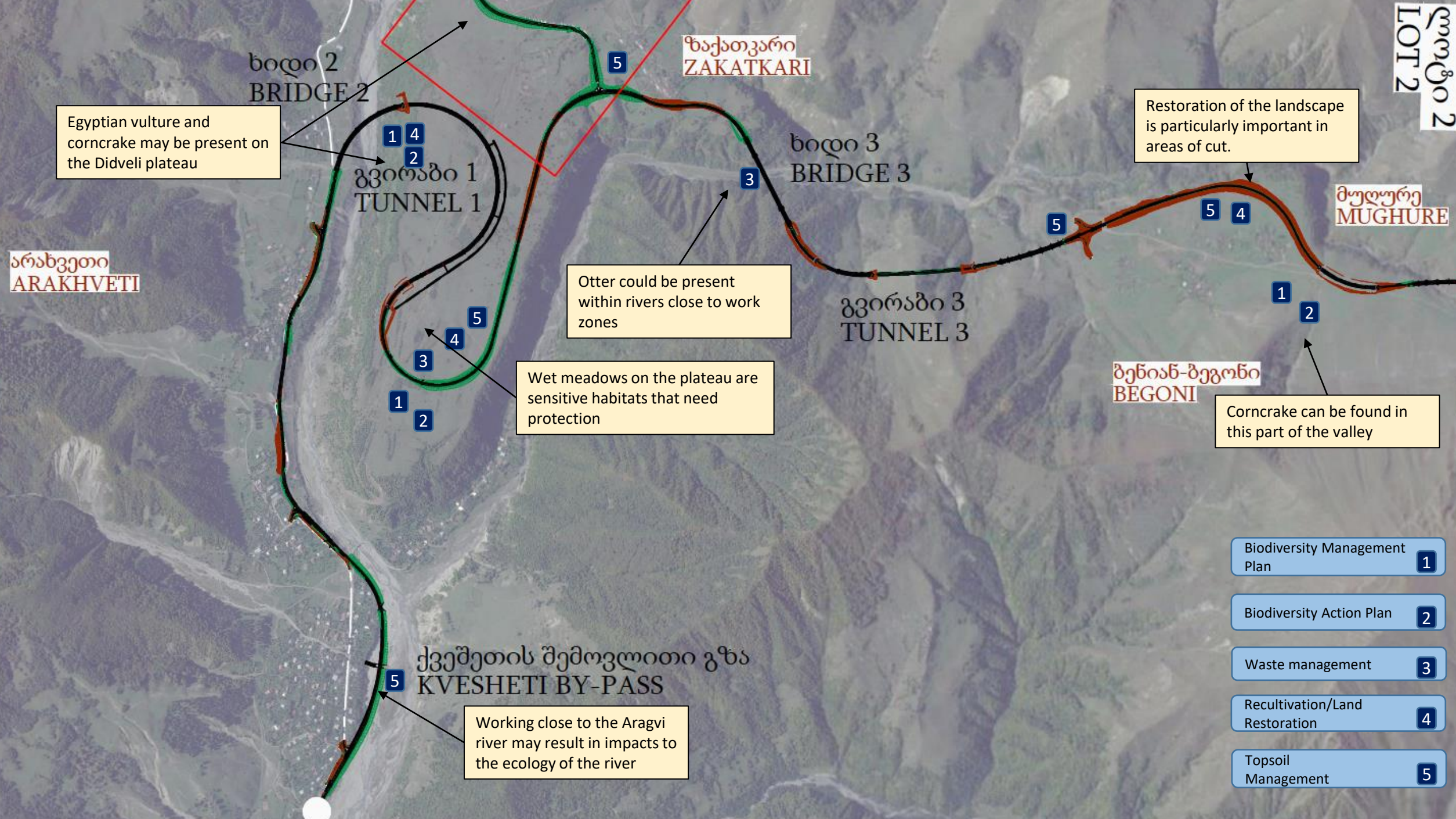
Corncrake Awareness Boards



No Fishing Board, Kobi

## Potential Impacts:

- Land clearing for the road and camp sites can damage habitat.
- Disposal of spoil material can also impact upon sensitive habitat.
- Workers poaching and hunting fish and special status species such as otter.
- General construction noise and waste pollution can also impact upon wildlife and their habitat.



Egyptian vulture and  
corncrake may be present on  
the Didveli plateau

Restoration of the landscape  
is particularly important in  
areas of cut.

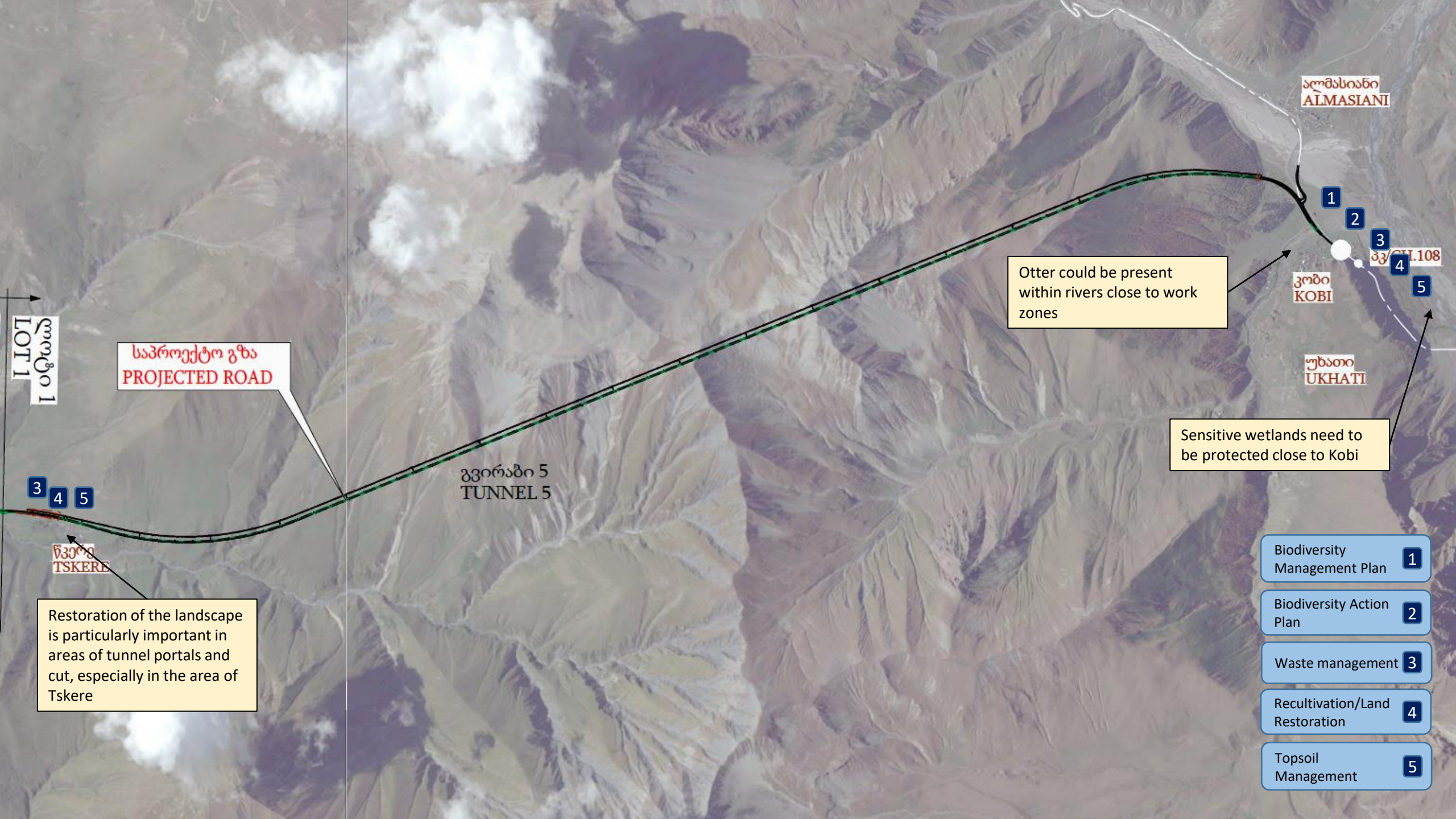
Otter could be present  
within rivers close to work  
zones

Wet meadows on the plateau are  
sensitive habitats that need  
protection

Corncrake can be found in  
this part of the valley

Working close to the Aragvi  
river may result in impacts to  
the ecology of the river

- Biodiversity Management Plan 1
- Biodiversity Action Plan 2
- Waste management 3
- Recultivation/Land Restoration 4
- Topsoil Management 5



ალმასიანი  
ALMASIANI

კობი  
KOBI

უხათი  
UKHATI

წკერე  
TSKERE

საპროექტო გზა  
PROJECTED ROAD

გვირაბი 5  
TUNNEL 5

Otter could be present within rivers close to work zones

Sensitive wetlands need to be protected close to Kobi

Restoration of the landscape is particularly important in areas of tunnel portals and cut, especially in the area of Tskere

- Biodiversity Management Plan 1
- Biodiversity Action Plan 2
- Waste management 3
- Recultivation/Land Restoration 4
- Topsoil Management 5

I LOT 1  
ლოტი 1

1

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3

4

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1

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5

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# Biodiversity Management Plans Summary

## KEY MITIGATION

### PRE-CONSTRUCTION SURVEYS

- Survey carried out no later than 2 weeks before commencement of works. The survey will allow habitat and species distribution to be accurately mapped in order to inform mitigation, confirm baselines and therefore targets for offsetting and KPIs for monitoring. The survey is to be conducted by an appropriately qualified Biodiversity Specialist. The survey will be performed in spring/autumn and focus on notable habitats and species.

### HABITAT PROTECTION

- Notable habitats such as Wet Meadows will be demarcated and signposted.
- Training for workers regarding the key sensitivities of these areas.

### NOTABLE FLORA PROTECTION

- Where practical avoid clearance of vegetation.
- Trees and bushes outside the construction width but within the road RoW will be preserved from damages.
- Consult with MoEPA to identify potential areas within the vicinity of the project area where habitat restoration programs would be beneficial

### NOTABLE SPECIES PROTECTION

- Restore breeding habitat for Corncrake (*Crex crex*)
- Displaying of information boards about the wildlife species and critical habitats for awareness raising of the workers and local community
- Before commencing any activities conduct pre-work surveys of the sites in order to detect animals in habiting zones (nests, holts) within the site
- In case of encountering Otters the works will be stopped and the environmental manager will be notified to initiate the respective procedures



## MONITORING AND REPORTING

### Ecological Clerk of Works

- The ECoW will monitor the biodiversity aspects of the Project and will be well trained in/or having access to expertise in the practical elements of protected species (including handling of species that they may have to move) and the recognition of sensitive habitats; as well as having a working understanding of wider environmental issues and the construction/engineering process, is employed for the duration of the Project.

### Biodiversity Monitoring Plan

- BMP is focused on monitoring the conservation priority habitats, plant and animal species on the project. It also develops the scheme of the field verification and validation of the diversity of notable plants and animal species indicated in the EIA and BAP of the project.

### Long Term Monitoring

- The aim of the monitoring is to observe and control potentially negative changes in the conservation priority habitats. Monitoring must start after removal of the forest resources from the sites crossed by road line.

### Species Monitoring

- To be undertaken according to specific requirements set out in the Projects Biodiversity Action Plan

## Cultural Heritage Management Plans

Cultural Heritage Management Plan

1

Vibration Management Plan

2

This region of Georgia, and the Khada Valley are important cultural resources, not only for locals, but also for the country as a whole. Cultural heritage can be physical, such as objects and monuments, and also intangible, e.g., a landscape.

### Cultural Landscape Impacts:

Cultural landscape is an intangible assets, the Khada Valley in particular may be negatively impacted by the construction of the road in the valley.



### Impacts to Physical Cultural Resources:

- Excavation works could disturb archeological sites, both known and unknown.
- Construction works could impact directly on monuments and objects if they are not protected from workers and construction equipment.
- Vibration from vehicles movements and blasting could damage physical objects and monuments.

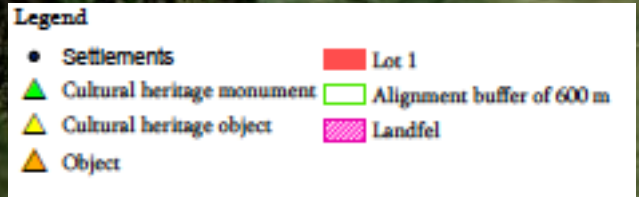
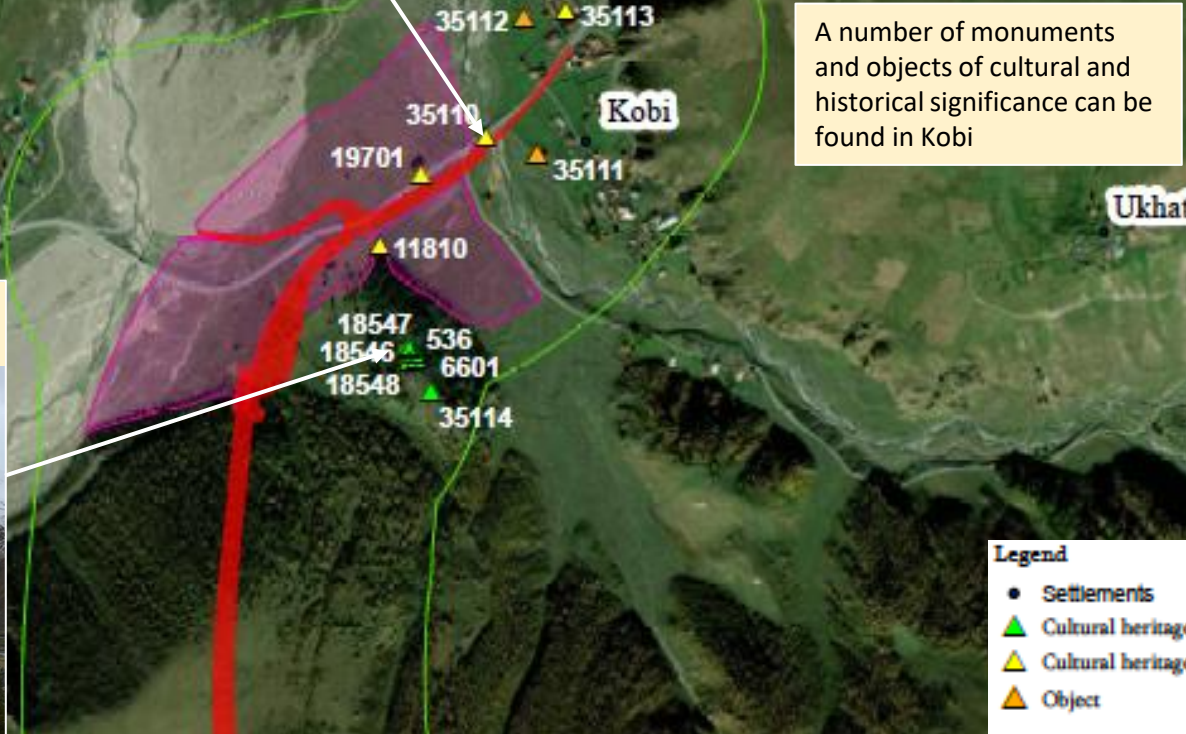
# Cultural Heritage Management Plan



Double Span Bridge, Kobi



Giorgitsminda Tower



In addition to cultural monuments and objects, the Khada Valley is also an important cultural landscape



Begot Kari



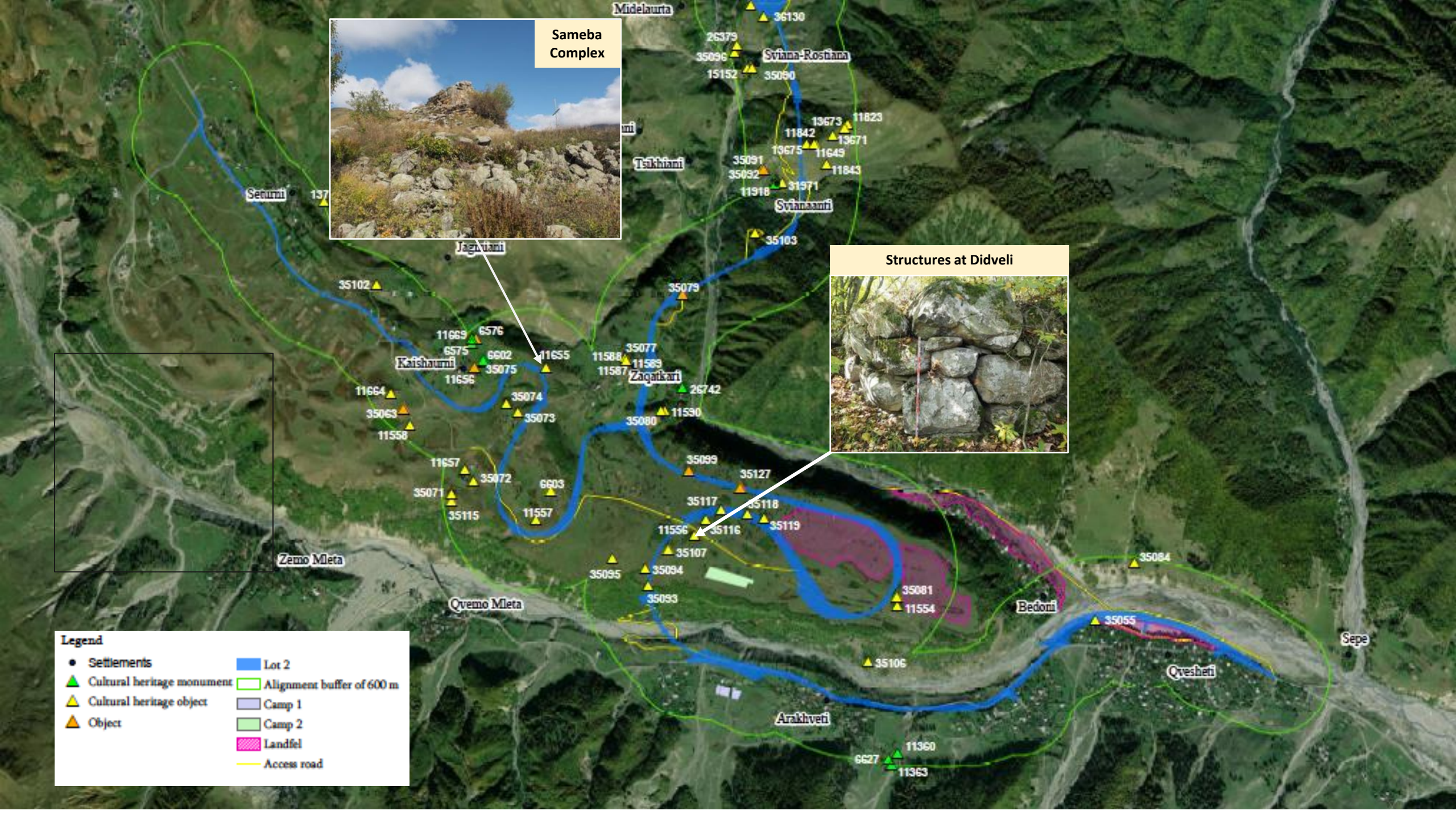
Ruins of Mills



Tower Ruins, Gomurni



Legend	
● Settlements	■ Lot 1
▲ Cultural heritage monument	■ Lot 2
▲ Cultural heritage object	▭ Alignment buffer of 600 m
▲ Object	▭ Camp 4
	— Access road



Sameba Complex



Structures at Didveli



**Legend**

- Settlements
- ▲ Cultural heritage monument
- ▲ Cultural heritage object
- ▲ Object
- Lot 2
- Alignment buffer of 600 m
- Camp 1
- Camp 2
- Landfel
- Access road

# Cultural Heritage Management Plan Summary

## KEY MITIGATION

### 5 PHASE STRATEGY

- The phased approach to the management of PCR features on the Project allow for the progressive identification of sites and any impact during the design and construction of the Project. The strategy includes, Phase1–Review Existing Data, Phase2–Extensive and Intensive Surveys, Phase3–Pre-Construction Excavations, Phase4–Chance Finds during Construction, Phase5 - Reporting

### VIBRATION

- Control blasting method at the tunnel portal and the dosage of single-stage charge shall be restricted
- Alternative construction method in the tunnel portal shall be considered;
- Select charge and delay time in drill and blast tunnels so to avoid excessive vibration

### CULTURAL HERITAGE PROTECTION

- Fence cultural monuments located in proximity to the project sites prior to commencement of works
- Observe physical protection boundaries for monuments (Min50m)
- Ensure presence of the Engineer's Cultural Heritage Monitor is on the site if any excavation is planned

### CHANCE FINDS

- In the event of the unexpected discovery of archaeological objects during construction operations environmental manager will report to the Engineer requesting to stop construction activities and to inform the Employer and MoCMP about the finding.
- In this case construction works will be stopped until the Ministry has given clearance for the continuation of operations. Works will resume only after appropriate measures have been taken as requested by the Ministry and confirmation has been received that works may continue.

## MONITORING AND REPORTING

### Vibration

- Monitoring vibration effects at cultural heritage sites.
- At the end of each workday, after blasting works are completed in areas within 110 m of physical and cultural resources, the Cultural Heritage Monitor shall undertake a visual inspection of each site to determine the extent of any damage to the sites.

### Surveillance

- A program of archaeological surveillance (watching brief by the Cultural Heritage Monitor) will be implemented during topsoil stripping of worksites, the facility sites, construction camps and equipment lay-down areas and ancillary areas and spoil disposal sites.

### Chance Finds

- For other areas considered as less sensitive they will be available on a call out basis to immediately travel to site and conduct 'rescue/salvage excavations' where required. This is also known as the 'Chance Finds' process

# Ancillary Facility Management Plans

## Ancillary Facility Management Plans

Asphalt Management Plan 1

Concrete Batching Plant Management Plan 2

Bridge Construction Plan 3

Method Statements for Temporary Storage Areas, Temporary river crossings and temporary roads 4

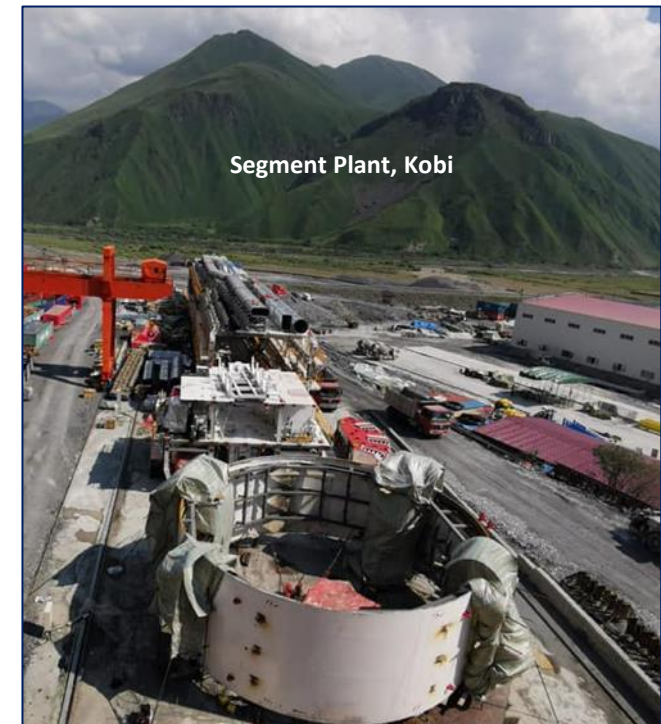


Concrete Batching Plant, Kobi

### Impacts of Ancillary facilities:

- Preparation of concrete and asphalt generate air emissions and high levels of noise. This can affect the local community and sensitive ecological receptors, such as birds.
- Large amounts of waste materials can be generated at these sites, including liquid waste, which can impact upon groundwater, rivers and water users.

Ancillary facilities, are temporary in nature and supply key materials to the project. They will be removed once the construction works are completed.



Segment Plant, Kobi

ხიდი 2  
BRIDGE 2

ზაკატკარი  
ZAKATKARI

ხიდი 3  
BRIDGE 3

მულურე  
MUGHURE

ბენიან-ბეგონი  
BEGONI

არახვეთი  
ARAKHVETI

ქვეშეთის შემოვლითი გზა  
KVESHETI BY-PASS

Asphalt and concrete plants generate noise and air quality impacts

Temporary access roads and bridges will be needed to bypass Bedoni and Arakveti

- 1 Asphalt Production
- 2 Concrete Batching
- 3 Bridge Construction
- 4 Temporary Sites

გვირაბი 1  
TUNNEL 1

გვირაბი 3  
TUNNEL 3

3

3

2

2

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3

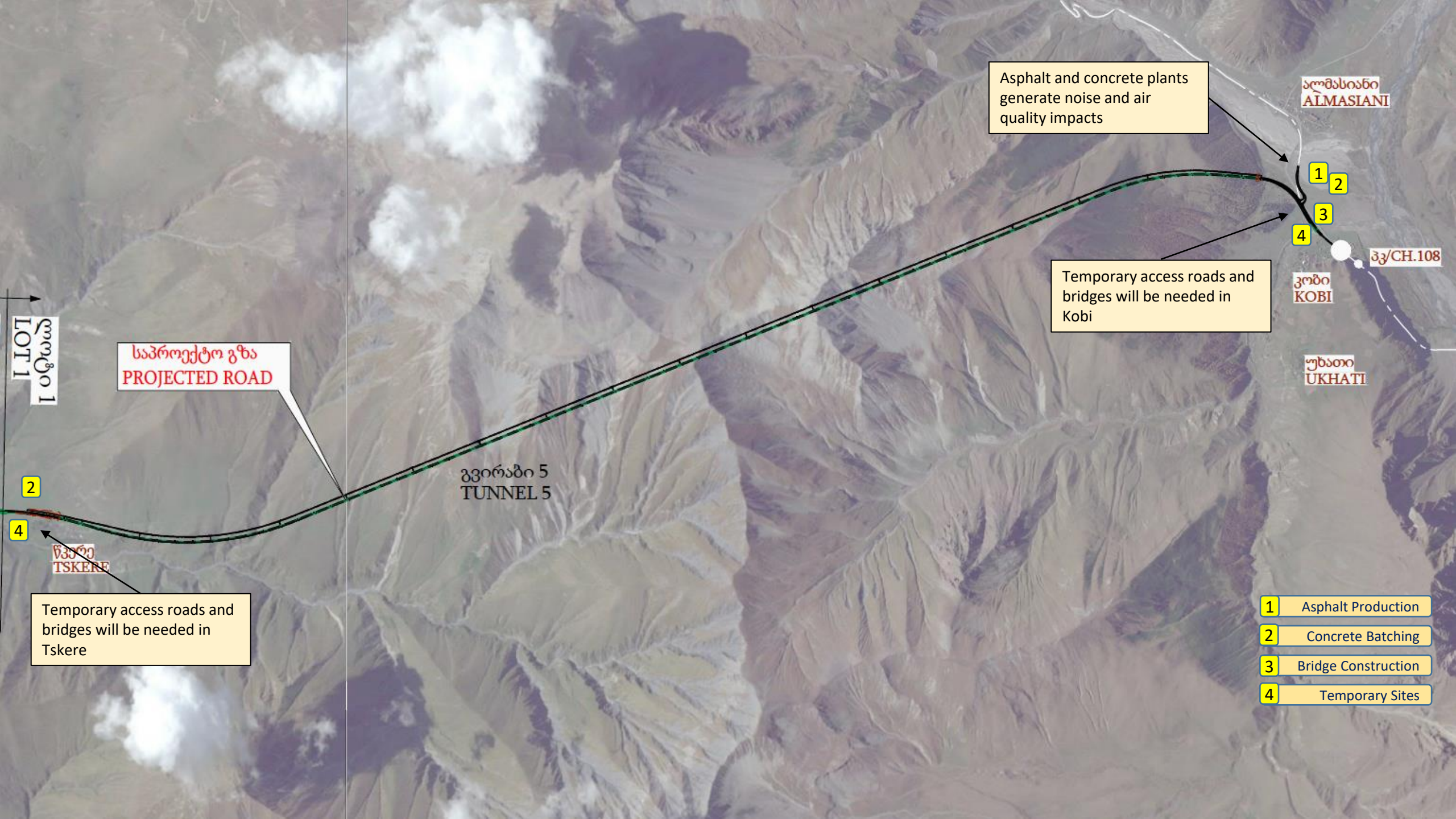
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4

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2



Asphalt and concrete plants generate noise and air quality impacts

ალმასიანი  
ALMASIANI

1 2

3

4

Temporary access roads and bridges will be needed in Kobi

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კობი  
KOBİ

უხათი  
UKHATI

საპროექტო გზა  
PROJECTED ROAD

LOT 1  
ლოტი 1

გვირაბი 5  
TUNNEL 5

2

4

წკვლევი  
TSKERE

Temporary access roads and bridges will be needed in Tskere

- 1 Asphalt Production
- 2 Concrete Batching
- 3 Bridge Construction
- 4 Temporary Sites

# Ancillary Facilities Management Plans Summary

## KEY MITIGATION

### AIR EMISSIONS

- Regular watering of roads in residential areas to prevent dust
- Vehicles restricted to specified haul routes
- Siting of facilities away from residential receptors
- Prepare “inventory of emissions of hazardous substances into ambient air from batching plant”. This document will be submitted to MoEPA for approval

### SITE CLEARANCE

- Before the site clearance work, all the related utilities shall be checked and protected or diverted with the information from the corresponding department or personnel. The topsoil storage shall be in accordance with the Topsoil Management Plan in the regulated specification and protection

### HEALTH AND SAFETY

- The site supervisor must conduct tool box talking for workers, who are involving in batching plant construction, which must make sure the workers understanding the risks and control measures.
- The workers must follow the Occupational and Community Health and Safety Plan
- All workers involved in the works shall be briefed and reminded about the Health, Safety procedure before starting work

## MONITORING AND REPORTING

### Air Emissions

- Routine site inspections of access roads to monitor levels of dust
- Approval of sites pre-construction by the Engineer
- Reporting emissions to MoEPA per regulatory requirements

### Site Clearance

- Routine monitoring and reporting of topsoil storage areas and potential issues.

### Health and Safety

- Routine monitoring of work sites by the Contractors health and safety staff and by the Engineers health and safety manager.
- Reporting of accidents and incidents to the Engineer and RD as they occur.

Thank you for your attention!