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# **ENVIRONMENTAL REVIEW CHECKLIST FOR IDENTIFYING POTENTIAL ENVIRONMENTAL IMPACTS OF PROJECT ACTIVITIES AND PROCESSES**

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## **Reconstruction of a Central Storage Facility and Construction of Two Annexes for Keeping Bio Fuel in Myrhorod, Poltava Oblast**

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Implemented under:  
*Local Alternative Energy Solutions in Myrhorod (LAESM) Project*

DCN: IDEA ODP SIEE\_LAESM\_ND

Prepared by: Olena Chernikova, MDI Environmental Consultant

## ENVIRONMENTAL REVIEW CHECKLIST FOR IDENTIFYING POTENTIAL ENVIRONMENTAL IMPACTS OF PROJECT ACTIVITIES AND PROCESSES

The Environmental Review Checklist for Identifying Potential Environmental Impacts of Project Activities and Processes (ERC) is intended for use mainly by implementing partners to: assess activity-specific baseline conditions, including applicable environmental requirements; identify potential adverse environmental effects associated with planned activity(s) and processes; and develop environmental mitigation and monitoring plans (EMMPs) that can effectively avoid or adequately minimize the identified effects.

### Activity and Site Information

<b>Project Name: (as stated in the triggering IEE)</b>	Local Alternative Energy Solutions in Myrhorod (LAESM) project
<b>Mission/Country:</b>	Ukraine
<b>DCN of Triggering IEE:</b>	IDEA ODP SIEE_LAESM_ND
<b>Activity/Site Name:</b>	Reconstruction of a central storage facility and construction of two annexes for keeping bio fuel in Myrhorod, Poltava Oblast
<b>Type of Activity:</b>	Reconstruction of a storage facility and construction of two annexes
<b>Name of Reviewer and Summary of Professional Qualifications:</b>	Olena Chernikova, MDI Environmental Consultant
<b>Date of Review:</b>	January 14, 2015

### A. Activity Description

#### 1. Activity purpose and need

The purpose of this activity is to reconstruct the existing storage facility and construct two annexes, thus increasing its capacity (up to 2 000 tons, which is annual consumption of straw by the bio-boiler) and organize a sustainable bio fuel (straw) supply system in Myrhorod, Poltava Oblast.

The straw storage facility reconstruction and construction of two annexes is needed to ensure an uninterrupted supply of bio fuel (straw) for the boiler house located in Myrhorod, Poltava Oblast (DCN: 2014-UKR-014).

#### 2. Location of activity

86, Shyshatska St, Myrhorod, Poltava Oblast, Ukraine.

#### 3. Beneficiaries, e.g., size of community, number of school children, etc.

The total number of beneficiaries is 1,091 persons, including 700 people in eight residential buildings, 294 at school #3 and 97 at the kindergarten #5 located next to the boiler house.

#### 4. Number of employees and annual revenue, if this is a business

The central storage facility and constructed annexes will be maintained and served by the Myrhorod Utility Company "Spetscomuntrans" (number of employees: 43; FY 2014 revenue is UAH 2,116,100 (approx. \$124,476).

#### 5. Implementation timeframe and schedule

Estimated timeframe of activity: April - October 2015.

## 6. Detailed description of activity and site, e.g., size of the facility or hectares of land; steps that will be taken to accomplish the activity

The activity anticipates reconstruction of a central storage facility (600 m<sup>2</sup>) and construction of two annexes (780 m<sup>2</sup> and 600 m<sup>2</sup>) for keeping biofuel in Myrhorod, Poltava Oblast.

The proposed activity will take place on land which is in the Myrhorod city ownership and is leased by the Myrhorod Utility Company “Spetscomuntrans” (total area over 1.05 hectares). It is planned to build two annexes with a common roof adjunct to the existing storage facility (Picture 4) to increase its capacity (up to 2,000 tons). Permits for the land plot under the existing storage facility and for the additional land plot (0.15 hectares) for locating the annexes are available.

The existing sanitary protection zone for the Utility Company “Spetscommuntrans” is already defined within the current boundaries of the company and permit is available. A 15 m sanitary protection zone will be set around the loading/unloading area in front of the constructed annexes that is a potential source of noise and dust pollution (Picture 4). The permit will determine allowable level of air pollutants (dust, CO<sub>2</sub>, etc.) in this area. The permit for this sanitary protection zone will be obtained before the start of the storage facility operation.

Prior to the activity design, the technical condition of the existing storage building was analyzed and recommendations provided by a certified specialist. The analysis findings showed that the existing storage building can be used as a storage facility but additional reinforcement of the supporting structure of the building is needed (see 6.1). Also, an analysis of the geological condition of the territory under the future annexes was conducted. The geological condition analysis includes recommendations on leveling of the territory prior to construction of the annexes, laying the annexes’ foundation using build-in-place piles, and developing a storm water management plan to minimize impact on land and groundwater (see 6.2).

The main stages of the activity:

**1) Reconstruction of the existing storage building** (building dimensions: length – 42 m, width – 18 m, height – 5.8 m). It is envisioned to reinforce existing walls and ceiling with 44 steel structures and steel bridges and 12 concrete bearings. Steel structures, made of low-alloy steel (Picture 3), and steel bridges installation will follow the requirements of the State Building Norms DBN B 2.6-163:2010 “Steel Structures. Rules for design, production and installation” and will be covered with fire-proof coating. Reconstruction of the existing storage building will also include: replacement of the old front bricks (wall) of the building with the new bricks (Picture 3a), covering the floor with monolith concrete layer, replacement of sixteen old wooden windows (Picture 3b) with new sixteen wooden windows, dismantlement of the slate roof and installation of the metal roof, and installation of the metal front door. Low voltage (up to 12 V) electrical network will be laid and used for fire alarm and safety system needs only. No electricity wiring is planned in the building. All works will be done in accordance with the findings of the technical condition analysis. The cost of the reconstruction works will be co-shared between USAID, Myrhorod City Council, and “Spetscommuntrans” Utility Company. Construction materials, steel structures and steel bridges necessary for reinforcing of the building with fire-proof coating will be purchased with USAID funds.

**2) Leveling of the territory** (above 1600 m<sup>2</sup>) adjunct to the existing storage facility in order to prepare a plot for construction of two annexes, installation of fire reservoirs, preparation of loading/unloading areas (Picture 1, red-dotted line). It is anticipated that over 110 m<sup>3</sup> of the fertile soil will be taken and used for the biological re-cultivation needs. Mixed gravel and ground will be used for leveling. The total estimated volume of the trenched and/or transferred soil will be over 1 500 m<sup>3</sup>, including 110 m<sup>3</sup> of fertile soil. The works will also require cutting down seven old trees and five bushes (Picture 1, yellow dotted line). New local native varieties of deep-rooted grasses and bushes will be planted near the reconstructed storage facility according to the site reconstruction and re-cultivation plans. Leveling works will be conducted in accordance with the analysis of the geological condition of the territory.

The cost of the leveling works will be co-shared between Myrhorod City Council and “Spetscomuntrans” Utility Company.

**3) Construction of two annexes with a common roof** adjunct to the existing storage building (780 m<sup>2</sup> and 600 m<sup>2</sup>) with maximum height of straw bales 5.5 m (see #2, 3 Picture 4). Since most of the site territory will be filled-up ground, the foundation for the annexes will be reinforced with 44 (0.33 m in width and 11 m in length) ferroconcrete build-in-place piles, as per the recommendations of the geological condition analysis. At first, the wells will be drilled (diameter 0.15 m, with depth up to 10 m), and then the build-in-piles will be dug.

The annexes dimensions are as follows (Picture 5):

Size of the section 1 of the annex: length – 52 m, width – 15 m, height – 7.5 m.

Size of the section 2 of the annex: length – 42 m, width – 15 m, height – 7.5 m.

It is planned that the annexes will have a solid-cast floor and a metal ceiling. To construct the walls, frame technology with the use of light metal frames, reinforced concrete bearing columns, metal and building structures will be used; it is planned that the internal walls will be built of bricks in accordance with the fire safety norms. It is not planned to have electric lighting in the annexes since daylight will get in through the air gap under the roof. No electrical lighting will be used to minimize and prevent the risk of fire due to electricity network malfunctions. In winter, unloading and removal of straw bales will be done between 10 am to 12 pm, once every three days (two hours is enough for uploading). Low voltage (up to 12 V) electrical network will be laid in the annexes and used for fire alarm and safety system needs only. Each annex will have a metal front door and evacuation door at the back.

In order to divert storm water from the territory of the storage complex, the drainage pipe (above 40 meters) will be laid from the Utility Company existing drainage system to a storm water treatment facility near the storage buildings. The proposed structure of a storm water treatment facility (see Picture 6) includes storm water overflow with mechanical filters, supply manifold (diameter 1,5 m), sediment bulb (diameter 3,0 m); petrochemical absorber and separator (diameter 3,0 m). After the storm water treatment facility, storm water will be discharged into the existing drainage system (via the pipe) and then to the river. The existing drainage system is designed so as to slow the flow of the storm water and prevent erosion.

USAID funds will be used to procure metal structures and metal bridges, concrete bearings and to assemble build-in-place piles. The installation works and equipment for storm water treatment facilities will be co-financed by Myrhorod Utility Company “Spetscomuntrans” and USAID.

#### **4) Arrangement of a fire extinguishing system**

**4.1** Installation of a fire safety system, including automatic fire alarms and six fire hydrants (two for each storage facility) inside the storage buildings are anticipated. Two plastic heat-insulated reservoirs (50 m<sup>3</sup> each) with two submersible fire extinguishing pumps inside the fire reservoirs, two diesel-fuel generators for electrical supply and operation of pumps (independent sources of electricity which are required by the State Building Norms DBN B.1.1- 7-2002) will be installed outside the storage buildings (see # 4, 5.1; 5.2, Picture 4). Required equipment (two pumps, two reservoirs, two generators as well as place of their installation) is defined in accordance with the general fire protection rules and the State Building Norms DBN B.1.1- 7-2002. A low-voltage cable (12 V) will be used to supply electric power for fire alarms and for transferring signal to a control center (see description in 4.3).

It is planned that in case of a fire, the water used for firefighting will be collected into the storm water overflow and directed into the drainage system. The amount of water in fire reservoirs will be enough for internal firefighting purposes and is calculated according to the State Building Norms DBN B.2.5-64.2013. In case of the fire outside the storage building, it is envisaged to use fire-fighting vehicles which will take water from the city water pipeline, with fire hydrants located on Shishatska St., at the entrance to the “Spetscomuntrans” territory (Picture 2). The nearest fire-station is located at a distance of 1.1 km from the activity site.

**4.2.** The heat insulated fire reservoirs (width 2.4 m and length 12 m) will be installed at a depth of 0.7 m on a sand layer and covered with soil to prevent them from freezing (Pictures 7, 8). The reservoirs

will be filled in with water once from the fire hydrants installed in the external water network via a 50 m fire hose (Picture 2).

Reservoirs leakage will be monitored by mechanic floats and sensors located inside the reservoirs. When water level in a reservoir falls to the minimally allowed level, the float goes down and activates an alarm sensor. The sensor switches on low-voltage (12 V) automatic sound & light alarm notifying personnel to take action in eliminating leakage. Simultaneously, the pumps are switched on, replenishing the water level in reservoirs. Besides, the entire end face of each reservoir, with pipe branches from reservoirs that are likely to leak, will be located in the control center (Picture 4, #4). This will ease visual monitoring and leak prevention.

**4.3** The control center will be constructed between two reservoirs. The building dimensions will be: length – 5.2 m, width – 3.0 m, height – 3.5 m. The pit for the control center will be dug at the depth of 85 cm. The building will be made of bricks, with concrete floor and concrete ceiling (Picture 7). A fire alarm device Tiras-4P (voltage will not exceed 12 V, operation life is 3 years) with a rechargeable battery set and operation control panel will be located in the control center.

In case of a fire, a sound and light alarm will be performed via a device installed on the façade of the control center building and transferred to the city fire fighting central control console via the digital GSM auto-dial module.

USAID funds will be used to procure automatic fire alarms, two fire extinguishing pumps, and two plastic heat-insulated fire reservoirs. The installation works, construction of the control center building will be co-financed by Myrhorod Utility Company “Spetscomuntrans” and USAID.

**5) Preparation of two loading/unloading areas, 120-130 m<sup>2</sup> each, in front of the constructed annexes for straw delivery and unloading.** The loading areas foundations will have three layers as per recommendations of the geological condition analysis. A bottom layer (0.15 m) will be sand, a middle layer (0,15 m) will be packed soil  $J_d=1.6 \text{ kH/m}^3$ , and a top layer will be fabric-reinforced concrete M250 (according to the national standard DSTU B 2.6 179:2010). These works will be co-financed by the USAID and Myrhorod Utility Company “Spetscomuntrans.”

To implement LAESM project and ensure un-interrupted bio fuel supply, procurement of a special vehicle and equipment for the storage facility is recommended:

- a baler with a chopper (chopped straw size - up to 100 mm; moisture - up to 16%) to make large rectangular straw bales (1.2 m x 0.9 m and 460 kg each) in the field;
- a telescopic loader Massey Ferguson MF 9407, with additional equipment: pellet pitchfork, bale pitchfork to load/unload straw bales in the storage facility (max height of a straw bale is up to 5.5 m). Specifications for the telescopic loader: elevating capacity (max): 3500 kg; engine: Perkins 1104-44T; height of lift: 7.0 m, height of lift with full load: 6.4 m, elevating capacity under max height of lift: 3000 kg, engine horsepower: 74.5/100 KW/hp, speed (max): 40 km/hour;
- a truck MAZ-5432A3-322 with a semitrailer MAZ-938660-026 needed for straw bales transportation from the storage facility to the boiler house. Specifications for the truck: weight: 36000 kg, engine: YaMZ-6562.10 (EURO-3); engine horsepower: 184 hp; fuel tank: 350 l. Specifications for the semitrailer: fuel tank: 200 l (with the automatic system for fuel transfer to the truck's fuel tank), platform size: 29.5 m<sup>2</sup>; 68 m<sup>3</sup>, platform height: 2320 mm, platform length: 12260 mm, platform width: 2420 mm, permissible load weight: 27500 kg; permissible weight of the loaded semitrailer: 7500 kg; total permissible weight of semitrailer: 35000 kg; platform: wooden floor, steel drop-sided boards, container lock bars on tailgate, synthetic welded tent.

USAID funds will be used to procure the above vehicle and equipment. Maintenance, repair, fuel, etc. will be financed by the Myrhorod Utility Company “Spetscomuntrans”.

## **7. Existing or planned certifications, e.g., ISO 14001 EMS, ISO 9000, HCCP, SA 8000, Global Gap, Environmental Product Declarations, Eco Flower, EcoLogo, Cradle to Cradle, UL**

Environment, GREENGUARD, Fair Trade, Green Seal, LEED, or various Forest Certifications.

N/A

8. Site map, e.g., provide an image from Google Earth of the location.

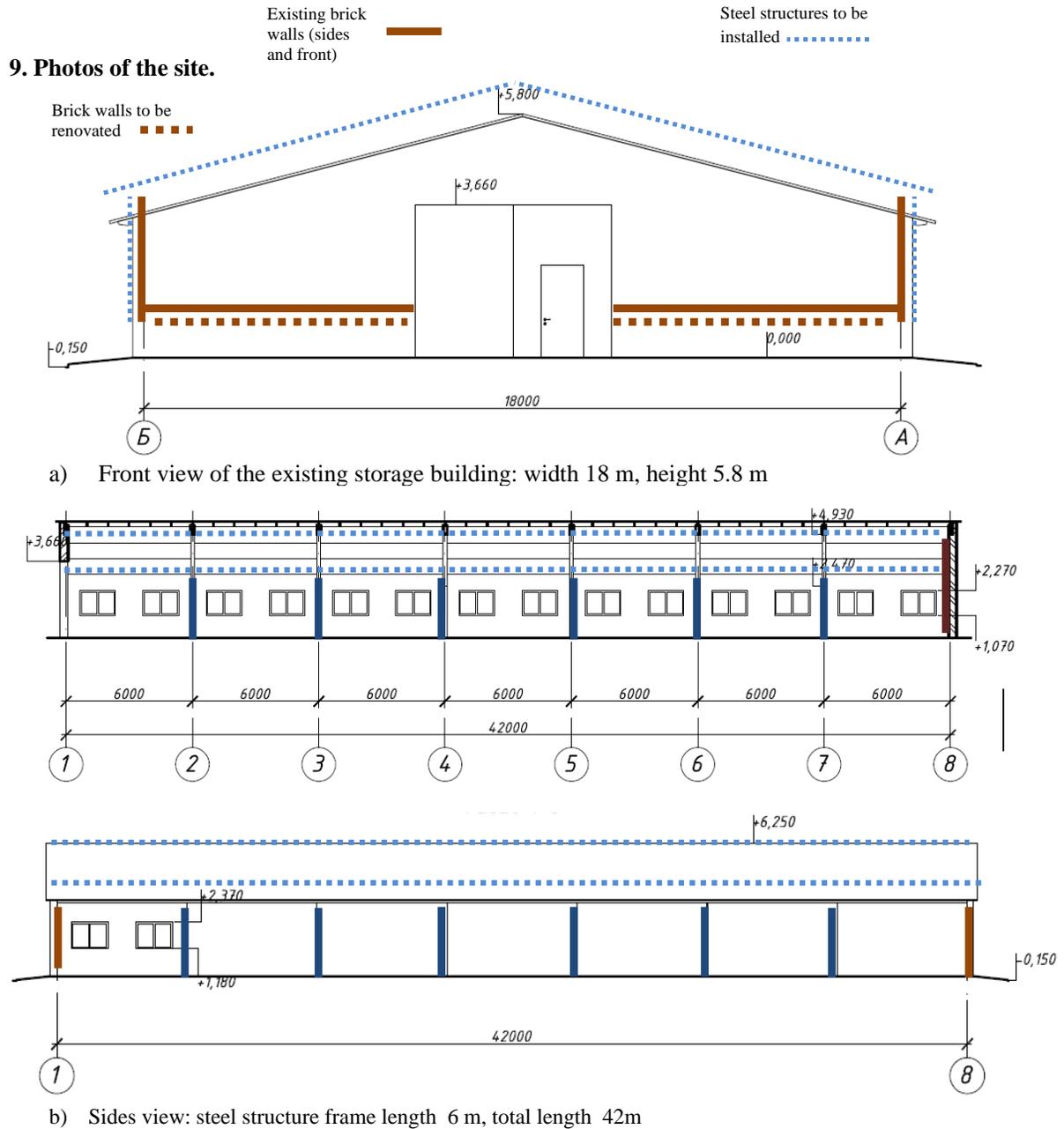


Picture 1. Existing storage facility area at the Google map (a yellow dotted line – trees and bushes to be cut down; a red dotted line – area to be leveled)

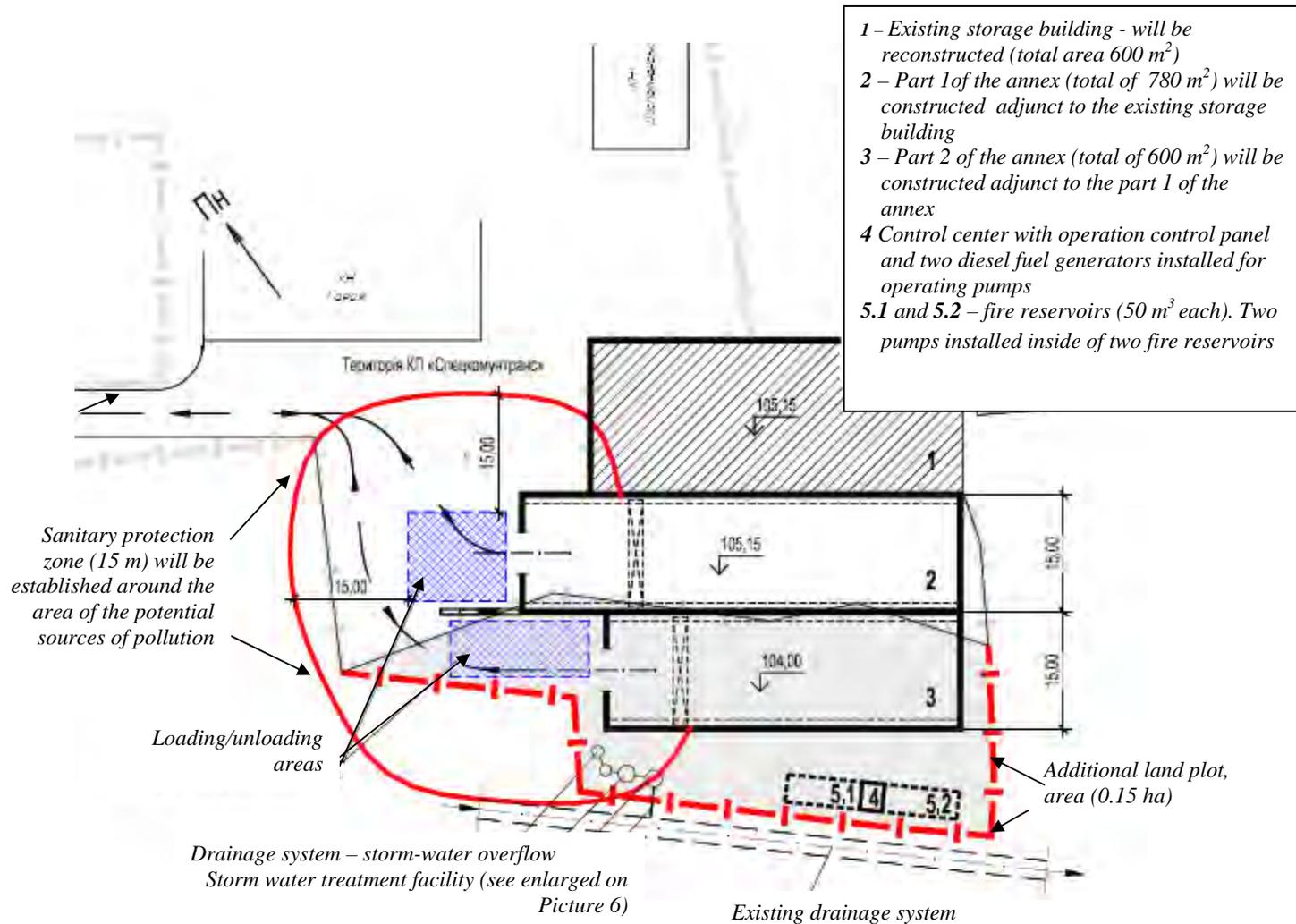


Picture 2. Activity site (white dotted line)

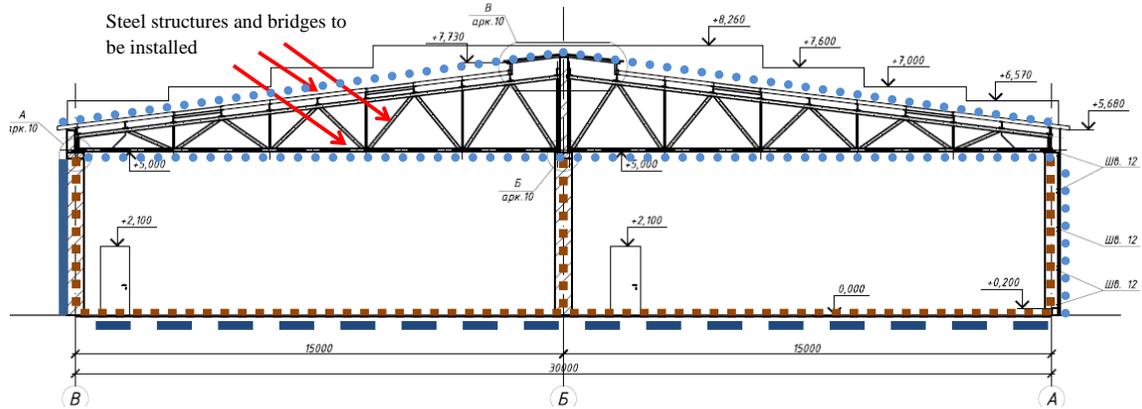
9. Photos of the site.



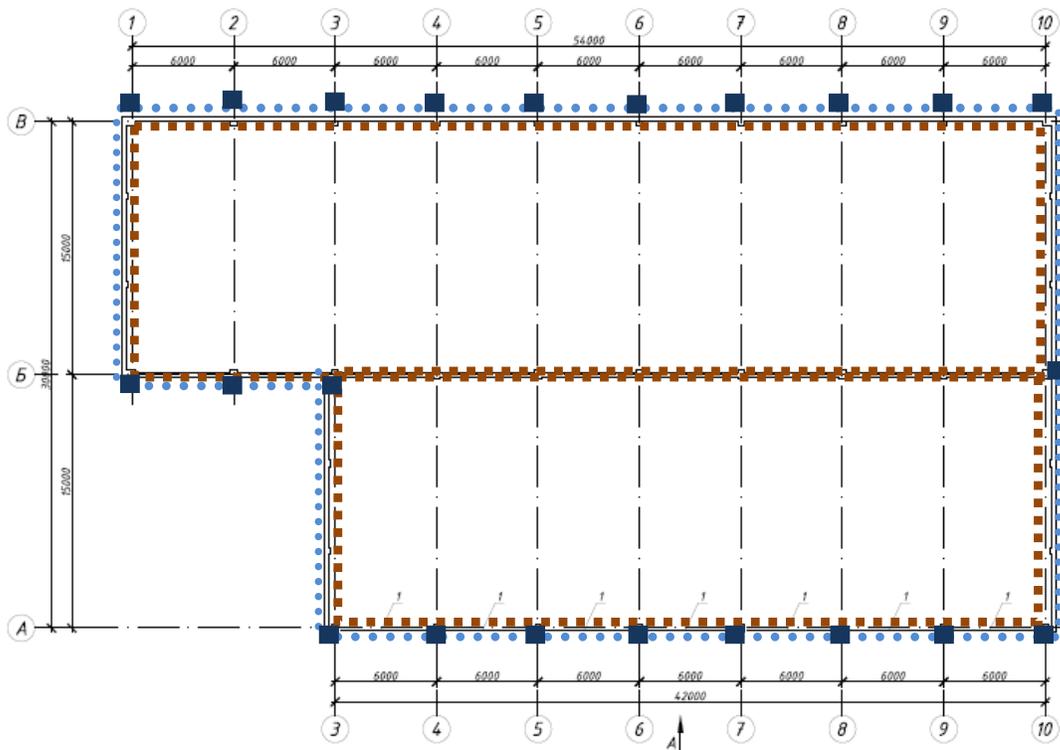
Picture 3. Layout of the existing storage building and anticipated reconstruction works



Picture 4. Scheme of the storage building reconstruction and construction of two annexes.



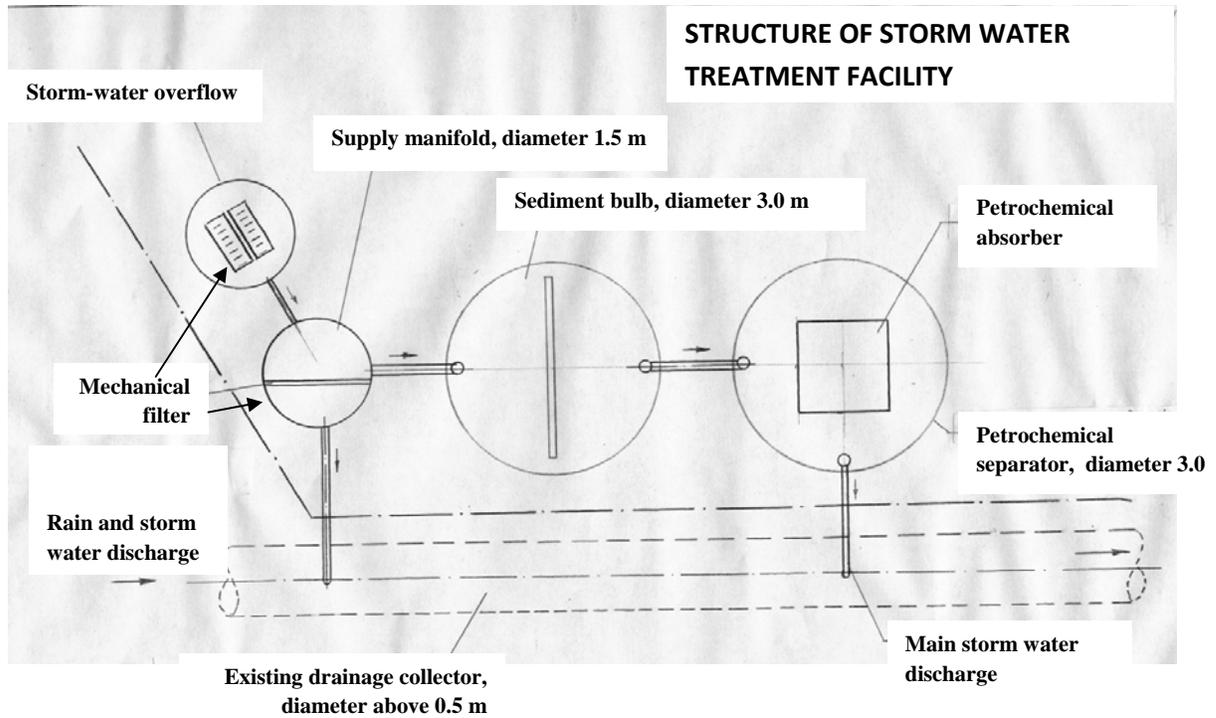
a) Back view of annexes: width 15.0+15.0 = 30.0 m; height 7.5 m.



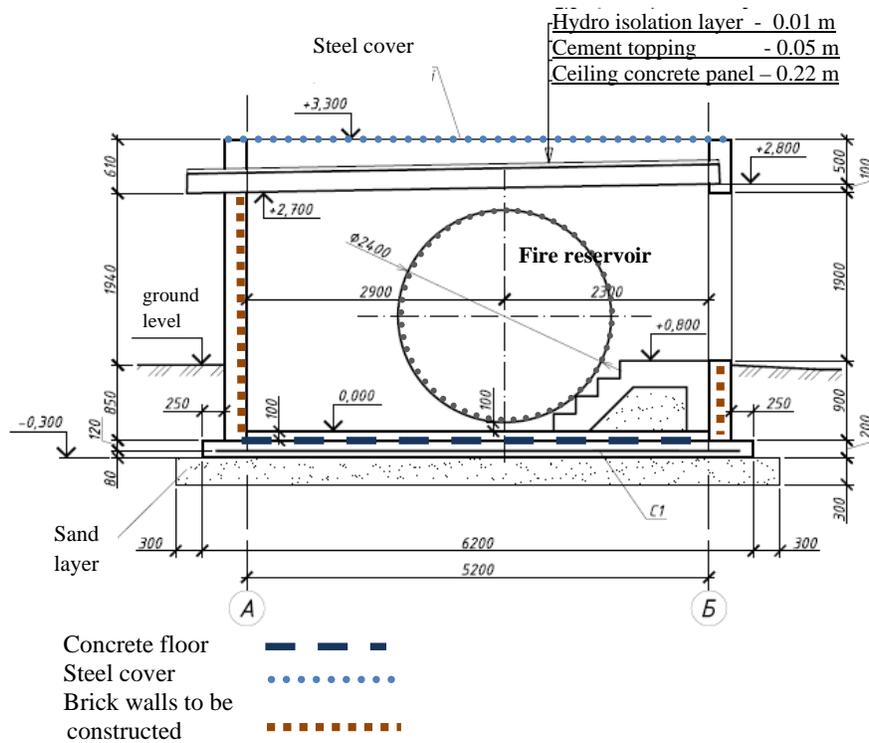
a) Plan view of annexes: 1) length – 54 m, width – 15 m, height – 7.5 m  
2) length – 42 m, width – 15 m, height – 7.5 m

Brick walls (front and sides) to be constructed — — — — —  
Steel structures and bridges to be installed . . . . .  
Concrete floor — — — — — Concrete bearings ■ — — — —

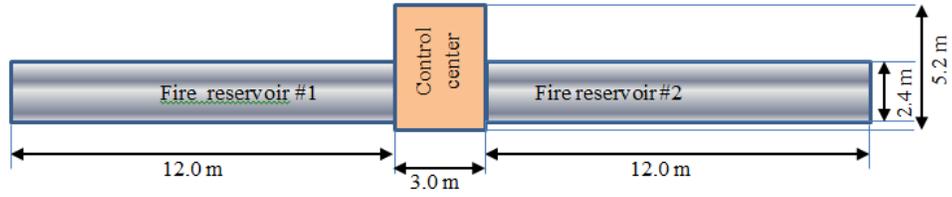
Picture 5. Layout of two annexes to be constructed adjunct to the existing storage building



Picture 6. Structure of storm water treatment facility



Picture 7. Layout of the fire safety control center



Picture 8. Layout of the fire safety reservoirs and a control center



Picture 9. Interior of the existing storage building (600 m<sup>2</sup>)



Picture 10. Entrance to the existing storage building



Picture 11. The plot to be leveled where the annexes will be constructed

## B. Activity-Specific Baseline Environmental Conditions

### 1. Population characteristics

Changes in the Myrhorod city population and territory are presented below.

Table 1

**Myrhorod population and territory**

Year	Population, thousand persons	Area of city, km <sup>2</sup>	Population density, thousand persons/km <sup>2</sup>
01/01/ 2006	41.8	20	2.09
01/01/ 2010	41.4	30	1.379
01/01/ 2013	41.109	30	1.37

Myrhorod population increases significantly in the summer time when Ukrainians and foreigners come for recreation, and reaches 49,000 people.

### 2. Geography

Myrhorod is located in Poltava Oblast, in the steppe zone of central Ukraine. The total area of Poltava Oblast is 28.75 km<sup>2</sup> (4.5% of the territory of Ukraine); including 9.9% of the forest and other wooded areas, 5.16% of the surface water, 75.38% of the agricultural land, including 61.63% of the arable land. The climate is continental, with average January temperatures of – 5.5<sup>0</sup>C to –7.5<sup>0</sup>C and July temperatures of 20.9<sup>0</sup>C to 21.7<sup>0</sup>C. The average annual precipitation is 495 mm.

Myrhorod is located on the banks of the Khorol River. Its soils are mainly black soil, with clay in deeper layers, and with the depth of an intermediate layer of 60-80 cm. The project activity site is located in the eastern part of Myrhorod at the bottom land of the Khorol River. Relief on the site has undergone technogenic changes. The construction site lies on the ditch, 5 m deep, that is partially tamped with filled soil (a composition of soil and vegetation, peat, sand, loamy soil, crushed stone, crushed concrete, and construction debris). The height of filled soil on the site is different, with the highest point being closer to thalweg of the ditch, and with the slight inclination to the west. Absolute values of ground surface vary within the site from 101.50 (bottom of the ditch) to 103.8-105.24 (surface of filled soil). According to the results of the geological analysis, the ground water is at 8-10 m depth from the site surface.

### 3. Natural resources, e.g., nearby forest/protected areas, ground and surface water resources

Myrhorod is one of the most popular resorts in Ukraine. The region is famous for its mineral water. Presently, the local community is implementing a program according to which the natural territory of Myrhorod will be declared a National Spa zone.

### 4. Current land use

The territory of the proposed activity (the existing storage facility and the additional land plot for construction of the duplex annex) is a territory designated for industrial facilities owned by the Myrhorod Municipality and leased by the “Spetscomuntrans” Utility Company.

### 5. Proximity to public facilities, e.g. schools, hospitals, etc.

The activity works will be performed in the industrial area that is located at a distance of over 500 m from the nearest public buildings. The nearest private houses are located within 50 m northwest from the activity site.

### 6. Other relevant description of current environmental conditions in proximity to the activity

N/A

## C. Legal, Regulatory, and Permitting Requirements

#### 1. National environmental impact assessment requirements for this activity.

- Law of Ukraine “*On Environmental Protection*” (1991, #1264-XII),
- Law of Ukraine “*On Ecological Expertise*” (1995, #45/95-BP),
- National Sanitary Rules issued by Order #173, 1996, the Ministry of Health of Ukraine,
- Law of Ukraine “*About Work Safety*” #2695-XII, 14.10.92.
- State Building Norms
  - *Structure, preparation procedure, approval and adoption of design documentation for construction*” (DBN A.2.2-3-2012),
  - *Structure and Content of Environment Impact Assessment (EIA) for the design and construction of enterprises, buildings, etc.* (2003, DBN A.2.2-1-2003)
  - *Storage premises* (1985, SNIP 2.11.01-85)
  - *Buildings of Enterprises. Parameters.* (2012, SBNU B V.2.2-29:2011)
  - *Design of fire safety systems* (B.2.5-13-98 I)
  - *Urban Planning. Planning and Development of Urban and Rural Settlements* (1992) (DBN 360-92)
  - *Fire safety of construction* (2002) (DBN B.1.1- 7-2002)
  - *Building Climatology* (SSTC-N BV.1.1-27:2010).
  - *Industrial Safety in Construction* (DBN A.3.2-2-2009)
  - *Organization of Construction* (DBN A.3.1-5-2009)

- *Engineering equipment of buildings and structures / Fire protection systems (State Building Norms DBN B.2.5-56:2010)*
- *Provision of public services and improvement of territories (State Building Norms DBN B.2.2-5:2011)*
- *Engineering survey for construction (State Building Norms DBN A.2-1-2008)*
- *Bases and foundations for buildings and structures (State Building Norms DBN B.2.1-10-2009)*
- *General principles for ensuring reliability and structural safety of buildings, structures and bases (State Building Norms DBN B.2.1-14-2009)*
- *System for ensuring reliability and safety of construction sites. Regulation on investigation of causes of accidents (collapses) of buildings, structures, their parts and structural elements (State Building Norms DBN B.1.2-1-95)*
- *System for ensuring reliability and safety of construction sites. Loads and effects (State Building Norms DBN B.1.2-2-2006)*

Applicable National or local permits for this activity, responsible party, and schedule for obtaining them:

<b>Permit Type</b>	<b>Responsible party</b>	<b>Schedule</b>
Zoning <i>Approved size of sanitary and protection area for Utility Company “Spetscomuntrans”</i>	Myrhorod City Council, Utility Company “Spetscomuntrans”	Available
<i>Additional sanitary protection zone for storage facilities (15 meters)</i>		To be obtained before the start of storage operation.
<i>Permit for the land plot under the existing storage facility</i> <i>Permit for the additional land plot for construction of the annexes</i>		Available Available
Building/Reconstruction : <i>License for construction and reconstruction works</i>	Utility Company “Spetscomuntrans”, Local subcontractor, Myrhorod City Council	To be obtained in April 2015
<i>Permit for excavation works and leveling of the territory</i>		To be obtained in April 2015
Source Material Extraction	N/A	N/A
Waste Disposal	Utility Company “Spetscomuntrans”, Local subcontractor	To be obtained in April 2015
Wastewater	Utility Company “Spetscomuntrans”, Local subcontractor	Available
Storm Water Management	N/A The storm water management plan is part of the technical design, no additional approval is needed	N/A
Air Quality	Utility Company “Spetscomuntrans”, Local subcontractor	To be obtained before the start of storage operation

Water Use	Utility Company “Spetscomuntrans”, Local subcontractor	Already available for the Utility Company “Spetscomuntrans”
Historical or Cultural Preservation	N/A	N/A
Wetlands or Water bodies	N/A	N/A
Threatened or Endangered Species	N/A	N/A
<i>Other</i> Fire inspection permit for the straw storage facilities and certification of fire protection equipment	Utility Company “Spetscomuntrans”, Local subcontractor	To be obtained in May 2015
Removing old vegetation from the site		To be obtained before the start of works

2. Additional National, European Union, or other international environmental laws, conventions, standards with which the activity might be required to comply

a. Air emission standards

*The Environmental Protection Law of Ukraine (1991, #1264-XII)*  
*The Air Protection Law of Ukraine (1992, #2707)*

b. Water discharge standards

*The Water Code of Ukraine (1995, #2768-14)*

c. Solid waste disposal or storage regulations

*The Law on Waste of Ukraine (1998, 187/98-VR)*  
*DSanPiN 2.2.7.029-99 "Hygienic requirements for industrial waste management and definitions of the class of hazard for public health"*

d. Other

*The Law of Ukraine “On Alternative Energy Sources” (2003, #555-IV)*  
*The Law of Ukraine “On Amendments to Some Laws of Ukraine to promote the production and use of biofuels” (2009, #1391-VI).*

**E. Engineering Safety and Integrity** (for Sections E. and F., provide a discussion for any of the listed issues that are likely to have bearing on this activity)

1. Will the activity be required to adhere to formal engineering designs/plans? Have these been or will they be developed by a qualified engineer? **YES, the design documentation was developed by a qualified engineering company.**

2. Do designs/plans effectively and comprehensively address:

a. Management of storm water runoff and its effects? **YES, the design documentation contains a plan for storm water management. As part of the plan, the storm water treatment facility will be installed and a drainpipe will be laid and connected to the existing drainage system by the “Spetscomuntrans” Utility Company.**

b. Reuse, recycling, and disposal of construction debris and by-products? **YES. During reconstruction works, construction debris will be reused. For instance, bricks will be reused for concrete consolidation, roadway foundation, etc.**

c. Energy efficiency and/or preference for renewable energy sources? **No. It is not envisaged to have electrical lighting in the storage buildings since straw loading and unloading will be done in the day time. Besides, absence of electric wiring and lamps minimizes/prevents the risk of short circuits and fire.**

d. Pollution prevention and cleaner production measures? **YES. The design documentation contains a plan of pollution prevention. Mitigation measures will be**

- undertaken, including installation of storm water treatment facility to prevent land and groundwater pollution, the sanitary protection area is defined.**
- e. Maximum reliance on green building or green land-use approaches? **NO.**
  - f. Emergency response planning? **YES, the design documentation contains an emergency plan, which should consider the measures for emergency response (fire protection system, including automatic fire-alarm system, and two fire reservoirs) and elimination of the emergency consequences, if any.**
  - g. Mitigation or avoidance of occupational safety and health hazards? **YES, for the purpose of mitigation of occupational hazards, safety regulations will be introduced and an evacuation plan developed. Personnel will wear protective clothing and respirators. Before commencement of any works, workers will undergo safety training. Adherence to safety regulations will be monitored on a daily basis.**
  - h. Environmental management of mobilization and de-mobilization? **YES, the environmental management of mobilization and de-mobilization will be provided according to the State Building Norms DBN A.2.2-1-2003; DBN 360-92 and DBN B.2.2-5:2011.**
  - i. Capacity of the host country recipient organization to sustain the environmental management aspects of the activity after closure and handover? **YES, the Myrhorod Utility Company “Spetscomuntrans” is capable of sustaining the environmental management aspects of the activity after closure and handover.**
  - j. Are there known geological hazards, e.g., faults, landslides, or unstable soil structure, which could affect the activity? If so, how will the project ensure structural integrity? **Maybe. The works will be done in accordance with the geological condition analysis recommendations.**
3. Will the site require grading, trenching, or excavation? Will the activity generate borrow pits? If so, how will these be managed during implementation and closure? **YES, leveling of the territory adjunct to the existing storage facility to construct two annexes, installation of two fire reservoirs, storm water treatment facility, build-in-place piles will be performed; a pit for a control center will be dug. A special permit for excavation works will be obtained.**
  4. Will the activity cause interference with the current drainage systems or conditions? **No. The laid drainage pipe will be connected to the existing drainage system.** Will it increase the risk of flooding? **NO. The storm water management plan is developed along with the design documentation.**
  5. Will the activity interfere with above- or below-ground utility transmission lines, e.g., communications, water, sewer, or natural gas? **Maybe. Before excavation works begin on the site, location of any below-ground utilities will be checked according to the technical design documentation. Excavation works will be performed by a qualified company. A special permit for excavation works will be obtained.**
  6. Will the activity potentially interfere with vehicle or pedestrian traffic? **Maybe. Road signs will be used and temporary flex barriers will be installed during reconstruction works.**
  7. Does the activity increase the risk of fire, explosion, or hazardous chemical releases? **Maybe. Safety regulations will be introduced. A fire extinguishing system will be introduced as part of the activity.**
  8. Does the activity require disposal or retrofitting of polychlorinated biphenyl-containing equipment, e.g., transformers or florescent light ballasts? **YES. The rechargeable battery set (12 V) for the fire safety system will be replaced each 3 years. Old battery set will be retrofitted or properly utilized.**

## F. Environment, Health, and Safety Consequences

### 1. Potential impacts to public health and well-being

- a. Will the activity require temporary or permanent property land taking? **NO.**
- b. Will activities require temporary or permanent human resettlement? **NO.**
- c. Will area residents and/or workers be exposed to pesticides, fertilizer, or other toxic substances, e.g., as a result of farming or manufacturing? **Maybe.** If so, how will the project:
  - i. Ensure that these chemicals do not contaminate ground or surface water? **Safety regulations will be elaborated. Safe storage will prevent the contact of straw and machine fuel and oil with the ground and surface water. The storm water will be cleaned in the storm water treatment facility and discharged into the drainage system.**
  - ii. Ensure that workers use protective clothing and equipment to prevent exposure? Control releases of these substances to air, water, and land? **Safety regulations will be elaborated, including provision of protective clothing and respirators for workers and regular air quality checks.**
  - iii. Restrict access to the site to reduce the potential for human exposure? **Safety regulations will be elaborated. Access to the site will be limited.**
- d. Will the activity generate pesticide, chemical, or industrial wastes? Could these wastes potentially contaminate soil, groundwater or surface water? **Maybe. To minimize contamination of land, water, and air, straw bales will be transported in covered trailers and stored in the storage building. Personnel will undergo special training and wear safety clothes.**
- e. Will chemical containers be stored at the site? **NO.**
- f. Does the activity remove asbestos-containing materials or use of building materials that may contain asbestos, formaldehyde, or other toxic materials? **Maybe.** Can the project certify that building materials are non-toxic? If so, how will these wastes be disposed of? **Asbestos-containing materials, if any, will be removed, collected, and utilized or disposed of at an authorized landfill once a week. Asbestos-containing materials will be stored and transported properly, according to Ukrainian legislation.**
- g. Will the activity generate other solid or hazardous wastes such as construction debris, dry or wet cell batteries, florescent tubes, aerosol cans, paint, solvents, etc.? **YES.** If so, how will this waste be disposed of? **During the reconstruction works solid waste will be generated – construction debris, roofing slate, remnants of packaging materials, paints, solvents, aerosol cans, etc. This waste will be temporary collected at the territory of “Spetscomuntrans” Utility Company. Recyclable materials will be recycled. Non-recyclable materials will be removed and disposed of at an authorized landfill once a week.**
- h. Will the activity generate nontoxic, nonhazardous solid wastes (subsequently requiring land resources for disposal)? **YES. Leveling of the territory will result in removing a layer of a rich soil. This removed soil will be covered with the film to prevent erosion and will be preserved for further biological site rehabilitation after completion of works. The infertile soil will be used for leveling of the territory. An erosion control plan will be developed.**
- i. Will the activity pose the need to handle and dispose of medical wastes? **NO.** If so, describe measures of ensuring occupational and public health and safety, both onsite and offsite.
- j. Does the activity provide a new source of drinking water for a community? **NO.** If so, how will the project monitor water quality in accordance with health standards?

- k. Will the activity potentially disturb soil contaminated with toxic or hazardous materials? **NO.**
- l. Will activities, e.g., construction, refurbishment, demolition, or blasting, result in increased noise or light pollution, which could adversely affect the natural or human environment? **YES. Construction and grading, tree cutting, and etc., may result in temporarily increased noise levels at the site. The works will be conducted in working hours (9.00-22.00), as stipulated by the legislation of Ukraine.**

## 2. Atmospheric and air quality impacts

- a. Will the activity result in increased emission of air pollutants from a vent or as fugitive releases, e.g., soot, sulfur dioxide, oxides of nitrogen, volatile organic compounds, methane. **Maybe, minor temporary air pollution may occur as a result of operation of the construction equipment/machinery, but it is appropriate if machinery operation meet the requirements of technical state standards.** Will the activity involve burning of wood or biomass? **NO.**
- b. Will the activity install, operate, maintain, or decommission systems containing ozone depleting substances, e.g., Freon or other refrigerants? **NO.**
- c. Will the activity generate an increase in carbon emissions? **Maybe. Construction equipment will generate some amount of carbon emissions; however, no significant increase is anticipated.**

- 3. Will the activity increase odor and/or noise? **Maybe. Some renovation works will increase noise (e.g. removal and replacement of roof, build-in-place piles installation, etc.) The works will be conducted in working hours (9.00-22.00), according to Ukrainian legislation. Painting may create an odor in the immediate area. It will be recommended to use odorless polyvinyl acetate paint.**

## 4. Water quality changes and impacts

- a. How far is the site located from the nearest river, stream, or lake? **Distance to the nearest river - 1,0 km.**
- b. Will the activity disturb wetland, lacustrine, or riparian areas? **NO.**
- c. What is the depth to groundwater at the site? **Depth to the groundwater at the site is 8 - 10 m.**
- d. Will the activity result in increased ground or surface water extraction? **NO. The fire reservoirs will be filled in with water (100 m<sup>3</sup>) once, taken from the fire hydrants of the municipal water pipeline (Picture 2). This amount of water is included in the water consumption permit of "Spetscommuntrans".** If so, what are the volumes? Permit requirements?
- e. Will the activity discharge domestic or industrial sewage to surface, ground water, or publicly-owned treatment facility? **YES. The storm water will be cleaned in the storm water treatment facility and discharged into the existing drainage system.**
- f. Does the activity result in increased volumes of storm water run-off and/or is there potential for discharges of potentially contaminated (including suspended solids) storm water? **NO. The activity area will be equipped with the storm water treatment system connected to the existing drainage system. This system is designed for local precipitation levels, so increase of storm water run-off is not anticipated.**
- g. Will the activity result in the runoff of pesticides, fertilizers, or toxic chemicals into surface water or groundwater? **NO.**
- h. Will the activity result in discharge of livestock wastes such as manure or blood into surface water? **NO.**

- i. Does the site require excavation, placing of fill, or substrate removal (e.g., gravel) from a river, stream or lake? **NO.**

**5. Land use changes and impacts**

- a. Will the activity convert fallow land to agricultural land? **NO.**
- b. Will the activity convert forest land to agricultural land? **NO.**
- c. Will the activity convert agricultural land to commercial, industrial, or residential uses? **NO.**
- d. Will the activity require onsite storage of liquid fuels or hazardous materials in bulk quantities? **NO.**
- e. Will the activity result in natural resource extraction, e.g., granite, limestone, coal, lignite, oil, or gas? **NO.**
- f. Will the activity alter the viewshed of area residents or others? **NO.**

**6. Impacts to forestry, biodiversity, protected areas and endangered species**

- a. Is the site located adjacent to a protected area, national park, nature preserve, or wildlife refuge? **NO. The distance to the Myrhorod resort area is more than 3 km.**
- b. Is the site located in or near threatened or endangered (T&E) species habitat? **NO.** Is there a plan for identifying T&E species during activity implementation? If T&E species are identified during implementation, is there a formal process for halting work, avoiding impacts, and notifying authorities?
- c. Is the site located in a migratory bird flight or other animal migratory pathway? **NO.**
- d. Will the activity involve harvesting of non-timber forest products, e.g., mushrooms, medicinal and aromatic plants (MAPs), herbs, or woody debris? **NO.**
- e. Will the activity involve tree removal or logging? **YES.** If so, please describe. **Seven old trees and five bushes behind the existing storage building will be removed. Following the completion of the reconstruction works, local new deep-rooted grasses and bushes will be planted near the straw storage building, according to the reconstruction plan.**

**7. Historic or cultural resources**

- a. Are there cultural or historic sites located at or near the site? **NO.** If so, what is the distance from these? What is the plan for avoiding disturbance or notifying authorities?
- b. Are there unique ethnic or traditional cultures or values present in the site? **NO.** If so, what is the applicable preservation plan?

**G. Further Analysis of Recommended Actions** (if the applicable IEE requires the use of ERCs to perform further analysis of recommended actions, then check the appropriate box below. If this analysis is not required, then skip this and proceed with Section H. If required by the IEE, the ERC shall be copied to the Bureau Environmental Officer (BEO)).

- 1. Categorical Exclusion:** The activity is not likely to have an effect on the natural or physical environment. No further environmental review is required.\*
- 2. Negative Determination with Conditions:** The activity does not have potentially significant adverse environmental, health, or safety effects, but may contribute to minor impacts that can be eliminated or adequately minimized by appropriate mitigation measures. EMMPs shall be developed, approved by the Mission Environmental Officer (MEO) (and the BEO if required by the IEE) prior to beginning the activity, incorporated into work plans, and then implemented. See Sections H and I below.\*
- 3. Positive Determination:** The activity has potentially significant adverse environmental effects and requires further analysis of alternatives, solicitation of stakeholder input, and incorporation of environmental considerations into activity design. A Scoping Statement must be

prepared and be submitted to the BEO for approval. Following BEO approval an Environmental Assessment (EA) will be conducted. The activity may not be implemented until the BEO clears the final EA. For activities related to the procurement, use, or training related to pesticides, a PERUSAP will be prepared for BEO approval.

**4. Activity Cancellation:** The activity poses significant and unmitigable adverse environmental effects. Adequate EMMPs cannot be developed to eliminate these effects and alternatives are not feasible. The project is not recommended for funding.

**\*Note regarding applicability related to Pesticides (216.2(e):** The exemptions of §216.2(b)(1) and the categorical exclusions of §216.2(c)(2) *such as technical assistance, education, and training* are not applicable to assistance for the procurement or use of pesticides.

**H. EMMPs** (Using the format provided below, or its equivalent, list the processes that comprise the activity, then for each, identify impacts requiring further consideration, and for each impact describe the mitigation and monitoring measures that will be implemented to avoid or adequately minimize the impacts. All environment, health, and safety impacts requiring further consideration, which were identified in Section F., should be addressed)

**1. Activity-specific environmental mitigation plan (Upon request, the MEO may be able to provide your project with example EMMPs that are specific to your activity.)**

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
Mobilization and Site Preparation				
Permits and licenses for: - Use of the additional land plot (0.15 hectares) - Sanitary zone - Waste disposal and recycling - Water use - Construction and reconstruction works - Excavation works (leveling the territory, laying of pipes, etc.) - Removing old vegetation from the site - Fire safety	Impact on air, water, land and human health	<b>YES</b>	- Obtain necessary permits and licenses before the start of works - Sign a contract for execution of works with companies which have appropriate licenses to perform the works - Have a proof of contractors' use of appropriate equipment, including transport	Permits, licenses, contracts with companies- contractors
Ensuring work safety	Human health	<b>YES</b>	- The works should be executed according to State Building Norms DBN A.3.2-2-2009 "Industrial Safety in Construction" and DBN A.3.1-5-2009 "Organization of Construction" - Perform training on safety prior to the start of works and throughout the activity - Elaboration of safety rules, including evacuation plan	- Work safety briefing records - Safety rules, including evacuation plan
Development of a site reconstruction plan, including EIA section, storm water management plan erosion control plan, and re-cultivation plan	Impact on air, water, land and human health	<b>YES</b>	- Develop a plan for site reconstruction, including EIA procedures, technical solutions, etc., prior to the start of the works - Design project activities to minimize any impact of the anticipated works on the environment and public health in compliance with State Building Norms (DBN A.2.2 - 1- 2003) "Structure and Content of Environment	- Geological condition analysis - Technical condition of the storage facility analysis - EIA report - Site reconstruction plan - Storm water management plan - Erosion control plan

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			<p>Impact Assessment (EIA) for design and construction of enterprises, buildings, etc.” and “Structure, preparation procedure, approval and adoption of design documentation for construction” (State Building Norms DBN A.2.2-3-2012)</p> <ul style="list-style-type: none"> <li>- Develop action plan for dealing with the surface storm water, including its treatment</li> <li>- Make provisions for preventing flooding of the territory</li> <li>- Develop a soil erosion monitoring plan and make provisions for recovery of vegetation on the territory of the activity</li> </ul>	- Re-cultivation plan
Procurement, delivery and storage of construction and relevant materials	Impact on air, land and human health	<b>YES</b>	<ul style="list-style-type: none"> <li>- All involved should comply with State Building Norms <i>DBN A.3.2-2-2009 “Industrial Safety in Construction”</i></li> <li>- Request the staff to use PPE at work</li> <li>- It is necessary to purchase certified materials. Certificates should confirm safety, relevant specifications, conditions, and non-toxic components of materials</li> <li>- It is strongly recommended to use enclosed space for materials and equipment storage. If it can't be realized, prepare the site for temporary storage of materials and equipment (remove fertile topsoil or use cover), use plastic film or other measures to prevent the impact of precipitation and wind</li> <li>- Use equipment and machinery with low level of noise and emissions; develop a procurement/delivery schedule that reduces the amount of noise and emissions to the minimum</li> <li>- To minimize contamination of soil/water associated with the work of transporting machinery, use machinery,</li> </ul>	<ul style="list-style-type: none"> <li>- Observations/photos</li> <li>- Certificates for materials</li> <li>- Contract for waste disposal/utilization and related receipts (or similar records)</li> </ul>

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			<p>which meets the requirements of State Building Norms <i>DBN B.2.8-9-98. Construction machinery, equipment and tools. Operation of construction equipment. General requirements.</i></p> <ul style="list-style-type: none"> <li>- Plan to remove and dispose of the contaminated soil at an authorized site if fuel and/or lubricants (F&amp;L) are spilled</li> <li>- Separate the generated wastes (recyclable and non-recyclable, toxic and non-toxic) and get them disposed of properly</li> <li>- Place clear informative/warning signs around the construction and storage area (for example, red tape)</li> </ul>	
<b>Activity Implementation Phase</b>				
Reconstruction of the existing storage building	<ul style="list-style-type: none"> <li>- Impact on human health</li> <li>- Impact on land and air</li> <li>- Waste generation</li> <li>- Dust and noise</li> </ul>	<b>YES</b>	<ul style="list-style-type: none"> <li>- Works will be done in accordance with the technical analysis recommendations</li> <li>- Minimize the impact on human health in compliance with State Building Norms <i>DBN A.3.2-2-2009 "Industrial Safety in Construction"</i> and <i>DBN A.3.1-5-2009 "Organization of Construction"</i>: <ul style="list-style-type: none"> <li>- perform training on safety prior to the start of works</li> <li>- minimize the impact on staff health (use respirators, protective clothes, etc.)</li> <li>- limit access of the non-authorized personnel to the site</li> <li>- use warning signs.</li> </ul> </li> <li>- Minimize the impact on land, air, etc. in compliance with State Sanitary Norms <i>DSanPiN 2.2.7.029-99 "Hygienic requirements for industrial waste management"</i>: <ul style="list-style-type: none"> <li>- collect waste in a container with a lid and dispose waste into the landfill after the works are finished</li> <li>- if the above option is not acceptable, prepare the ground</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Design documentation</li> <li>- Observations/photos</li> <li>- Work safety briefing records and lists of provided protective clothes</li> <li>- Records on equipment and machinery examination</li> <li>- Safety certificates for materials</li> <li>- Contract for waste disposal/utilization and related receipts (or similar records)</li> </ul>

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			for temporary storage of waste. - Use certified construction materials - Use materials without/with minimal odor - Lay a low voltage (12V) network inside storage buildings - Minimize contamination of soil/water associated with the work of construction machinery. Use machinery which meets the requirements of DBN B.2.8-9-98. Construction machinery, equipment and tools. Operation of construction equipment. General requirements. If fuel and/or lubricants (F&L) are spilled, the contaminated soil should be removed and disposed of at an authorized site	
Leveling of the territory in order to prepare a plot for construction of two annexes	<ul style="list-style-type: none"> <li>- Impact on human health</li> <li>- Impact on land, groundwater, air</li> <li>- Noise</li> </ul>	<b>YES</b>	<ul style="list-style-type: none"> <li>- Works will be done in accordance with the site geological condition analysis</li> <li>- Minimize the impact on human health as required by State Building Norms DBN A.3.2-2-2009 "Industrial Safety in Construction" and DBN A.3.1-5-2009 "Organization of Construction":</li> <li>- perform training on safety prior to the start of works</li> <li>- request staff to use protective clothes, meet safety requirements, etc.</li> <li>- Use machines with the low level of noise and emissions which meet the requirements of State Building Norms DBN B.2.8-9-98. "Construction machinery, equipment and tools. Operation of construction equipment. General requirements"</li> <li>- The extracted fertile soil will be covered by plastic film to minimize wind erosion and prevent future contamination. Soil will be used for biological re-cultivation</li> <li>- Minimize contamination of</li> </ul>	<ul style="list-style-type: none"> <li>- Analysis of geological condition of the territory</li> <li>- Work safety briefing records and lists of provided protective clothes</li> <li>- Observations / photos</li> <li>- Permits for land plot usage, excavation works, removal of old vegetation</li> <li>- Records on equipment and machinery examination</li> <li>- Erosion control plan</li> <li>- Storm water management plan</li> </ul>

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			soil/water associated with the work of construction machinery. If fuel and/or lubricants (F&L) are spilled, the contaminated soil and/or water should be removed and disposed on a landfill. - All works should be done according to the developed erosion control plan and storm water management plans	
Removal of old trees and bushes	<ul style="list-style-type: none"> <li>- Impact on human health</li> <li>- Impact on land, air and water</li> <li>- Noise</li> <li>- Impact on vegetation</li> </ul>	<b>YES</b>	<ul style="list-style-type: none"> <li>- Obtain a permit for trees and bushes removal</li> <li>- Minimize the impact on human health in compliance with State Building Norms DBN A.3.2-2-2009 “Industrial Safety in Construction” and DBN A.3.1-5-2009 “Organization of Construction”</li> <li>- perform training on safety prior to the start of works</li> <li>- request staff to use protective clothes, meet safety requirements, etc.</li> <li>- Use equipment with low level of noise and emissions which meet the requirements of State Building Norms DBN B.2.8-9-98</li> <li>- If fuel and/or lubricants (F&amp;L) are spilled, the contaminated soil should be removed and disposed of at an authorized site</li> <li>- Felled trees will be used for other purposes (chopped and used as bio-fuel)</li> <li>- New local trees, bushes and grass will be planted near the renovated and new storage buildings</li> </ul>	<ul style="list-style-type: none"> <li>- Permit for trees and bushes removal</li> <li>- Observations/photos</li> <li>- Biological re-cultivation plan</li> <li>- Work safety briefing records</li> </ul>
Construction of the annexes adjunct to the existing storage building	<ul style="list-style-type: none"> <li>- Impact on human health</li> <li>- Impact on land, air and water</li> <li>- Dust and noise</li> </ul>	<b>YES</b>	<ul style="list-style-type: none"> <li>- A detailed plan of the annexes construction should be developed</li> <li>- Reinforce the foundation with ferroconcrete build-in-place piles</li> <li>- Minimize the impact on human health in compliance with State Building Norms DBN A.3.2-2-2009 “Industrial</li> </ul>	<ul style="list-style-type: none"> <li>- Observations/photos</li> <li>- Design documentation</li> <li>- Fire inspections permit and fire inspections records</li> <li>- Work safety briefing records</li> </ul>

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			<p>Safety in Construction” and DBN A.3.1-5-2009  “Organization of Construction”:  - perform training on safety prior to the start of works  - request staff to use respirators, protective clothes, etc.  - Minimize the impact on land, air, etc. in compliance with State Sanitary Norms DSanPiN 2.2.7.029-99  "Hygienic requirements for industrial waste management ...” by collecting waste in a container with a lid and disposing the waster on a landfill after the works are finished  - Limit access of the non-authorized personnel to the site  - Use warning signs  - Use certified construction materials  - Use materials without/with minimal odor  - Lay a low voltage (12V) network inside annexes  - Minimize contamination of soil/water associated with the work of construction machinery  - Use machinery which meets the requirements of State Building Norms <i>DBN B.2.8-9-98. Construction machinery, equipment and tools. Operation of construction equipment. General requirements.</i> If fuel and/or lubricants (F&amp;L) are spilled, the contaminated soil should be removed and disposed of at an authorized site</p>	<ul style="list-style-type: none"> <li>- Records on equipment and machinery examination</li> <li>- Contract for waste disposal/utilization and related receipts (or similar records)</li> </ul>
Installation of storm water treatment facility	<ul style="list-style-type: none"> <li>- Impact on human health</li> <li>- Impact on land, and water</li> </ul>	<b>YES</b>	<ul style="list-style-type: none"> <li>- Minimize the impact on human health in compliance with State Building Norms DBN A.3.2-2-2009 “Industrial Safety in Construction” and DBN A.3.1-5-2009 “Organization of Construction”:  - perform training on safety</li> </ul>	<ul style="list-style-type: none"> <li>- Observations/photos</li> <li>- Design documentation</li> <li>- Work safety briefing records</li> <li>- Storm water</li> </ul>

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			<p>prior to the start of works</p> <ul style="list-style-type: none"> <li>- request staff to use respirators, protective clothes, etc.</li> <li>- Equip storm water treatment facilities with a filter and petrochemical absorber to prevent contamination of soil and water</li> <li>- Developed storm water management plan sent to MEO and BEO for review</li> </ul>	management plan
<p>Installation and testing of a fire extinguishing system, including two reservoirs, two submersible pumps and two diesel-fuel generators for pumps operation</p> <p>Construction of the control center building for fire safety system</p>	<ul style="list-style-type: none"> <li>- Impact on human health</li> <li>- Impact on land, air and water</li> </ul>	<b>YES</b>	<ul style="list-style-type: none"> <li>- Minimize the impact on human health in compliance with State Building Norms DBN A.3.2-2-2009 “Industrial Safety in Construction” and DBN A.3.1-5-2009 “Organization of Construction”:</li> <li>- perform training on safety prior to the start of works</li> <li>- request staff to use respirators, protective clothes, etc.</li> <li>- Install automatic system of fire alarm and fire hydrants inside of storage facilities (according to the design documents and State Building Norms DBN B.1.1- 7-2002 Fire safety of construction and SBN B.2.5-56:2010 Fire protection systems)</li> <li>- Lay a low voltage (12V) network inside the control center building</li> <li>- In order to minimize impact on soil and groundwater the use of watertight, heat-insulated plastic reservoirs is envisaged</li> <li>- Heat-insulated reservoirs will be placed on a sand layer at depth of 0.5 m, and covered with soil to prevent freezing in winter (according to design documents and State Building Norms DBN B.1.1- 7-2002 Fire safety of construction and DBN B.2.5-56:2010 Fire protection systems)</li> <li>- Leakage of the reservoirs will be monitored visually and</li> </ul>	<ul style="list-style-type: none"> <li>- Design documentation</li> <li>- Works safety briefing records</li> <li>- Observations /photos</li> <li>- Records of fire protection system checking</li> <li>- Fire safety permit</li> <li>- Safety certificates for materials</li> <li>- Certificates for all materials and equipment</li> <li>- Contract for waste disposal/utilization and related receipts (or similar records)</li> <li>- Records of diesel-fuel generators’ checking</li> <li>- Technical plan and documentation for the control center</li> <li>- Battery sets utilization records</li> </ul>

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			by sensors - Water used for firefighting will be collected into the storm water treatment facility, cleaned by storm water treatment system and directed into the drainage channel (Picture 6) - Procure and install two diesel-fuel generators in accordance with the “Rules governing installation of electricity generating plants” and State Building Norms <i>DBN B.2.5-56:2010 Engineering equipment of buildings and structures / Fire protection systems</i> - Diesel-fuel generators’ operation checked regularly – twice a year - Low-voltage rechargeable battery set for standby power supply and low-voltage wires will be used for fire safety supply to minimize fire risks in storage facilities - Battery set should be replaced each 3 years. Old battery set should be retrofitted or properly utilized.	
Preparation of two loading/unloading areas for straw delivery and unloading	- Impact on human health - Impact on land, air and water	<b>YES</b>	- Minimize the impact on human health in compliance with State Building Norms <i>DBN A.3.2-2-2009 “Industrial Safety in Construction”</i> and <i>DBN A.3.1-5-2009 “Organization of Construction”</i> : - perform training on safety prior to the start of works - request staff to use respirators, protective clothes, etc. - Rain and storm water from the loading/uploading areas will be directed into the storm water treatment system to minimize the impact on soil and water - Developed erosion control plan sent to MEO and BEO for review - Limit access of the non-authorized personnel to the	- Design documentation - Work safety briefing records - Observation / photos - Erosion control plan - Storm water management plan - Contract for waste disposal/utilization and related receipts (or similar records)

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			site - Use warning signs - Minimize the impact on land, air, etc. in compliance with State Sanitary Norms DSanPiN 2.2.7.029-99 “Hygienic requirements for industrial waste management”: - collect waste in a container with a lid and dispose waste into the landfill after the works are finished - if the above option is not acceptable, prepare the ground for temporary storage of waste - Minimize contamination of soil/water associated with the work of construction machinery - Use machinery which meets the requirements of State Building Norms <i>DBN B.2.8-9-98. Construction machinery, equipment and tools. Operation of construction equipment. General requirements</i> - If fuel and/or lubricants (F&L) are spilled, the contaminated soil should be removed and disposed of at an authorized site	
Site Closure				
Removal of waste, working equipment, tools and materials	- Impact on land, air, and human health	<b>YES</b>	- Minimize the impact on staff health (use protective clothes, etc.) in compliance with State Building Norms DBN A.3.2-2-2009 “Industrial Safety in Construction” and DBN A.3.1-5-2009 “Organization of Construction” - Use machines with low level of noise and emissions - Dispose generated waste according to its hazard class and if recycling is possible (State Sanitary Norms DSanPiN 2.2.7.029-99 “Hygienic requirements for industrial waste management and definitions of the class of hazard for public health”) - Dispose of waste and residue of building materials,	- Work safety briefing records - Observations /photos - Contract for waste disposal/ utilization and related receipts (or similar records) - Records on equipment examination

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			tools and work equipment	
Re-cultivation of the territory	- Impact on soil and vegetation, human health	<b>YES</b>	<ul style="list-style-type: none"> <li>- Minimize the impact on staff health (use protective clothes, etc.) in compliance with State Building Norms DBN A.3.2-2-2009 "Industrial Safety in Construction" and DBN A.3.1-5-2009 "Organization of Construction"</li> <li>- Technical re-cultivation includes possible renovation of the road and pavement, etc. in compliance with the State Building Norms DBN B.2.2-5:2011 "Provision of public services and improvement of territories"</li> <li>- Biological re-cultivation includes replanting of local grass, bushes</li> <li>- When developing a re-cultivation plan, consult with the Poltava municipal enterprise on urban gardening on the type of native plants to use</li> </ul>	<ul style="list-style-type: none"> <li>- Re-cultivation plan</li> <li>- Observations/photos</li> <li>- Work safety briefing records</li> </ul>
<b>Activity Handover. Site Exploitation</b>				
Safety of straw bales transportation	- Impact on human health - Impact on land, air and water	<b>YES</b>	<ul style="list-style-type: none"> <li>- Minimize the impact on staff health (use respirators, protective clothing, etc.) according to the Law of Ukraine "On work safety" #2695-XII dated October 14, 1992.</li> <li>- Minimize impact on land, air and water by using a covered trailer for straw bales transportation and an approved transportation route as stipulated by the Environmental Protection Law of Ukraine (1991,</li> </ul>	<ul style="list-style-type: none"> <li>- Work safety briefing records</li> <li>- Lists of provided protective clothes</li> <li>- Copies of a route invoice</li> <li>- Observations/photos</li> </ul>

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			#1264-XII), National Sanitary Rules #173, 1996, Ministry of Health of Ukraine - Trucks schedule should not disturb surrounding households and other buildings - Use machines with low level of noise and emissions	
Safety of the straw storage operation, including safety rules and evacuation plan	- Impact on human health - Impact on land, air and water	<b>YES</b>	- Minimize the impact on staff health (use respirators, protective clothing, etc.) in compliance with the Law of Ukraine "On work safety" #2695-XII dated October 14, 1992 - Introduced safety rules for staff and elaborated evacuation plan for emergency situations - Minimize impact on land, air and water by keeping safety rules in compliance with the Environmental Protection Law of Ukraine (1991, #1264-XII); - Fire safety control by the local fire inspection on checking the fire protection system - Low voltage network should minimize fire risks - Spark catchers should be installed on exhaust pipes of trucks to minimize fire risks - Straw debris should be collected and used for the bio-boiler	- Work safety briefing records - Lists of provided protective clothes - Records of checking the fire protection system - Photos - Safety rules for staff - Evacuation plan for emergency situations
Safety of a vehicle and equipment operation, including a baler (with a chopper), a telescopic loader, a truck (with a semitrailer )	Impact on air, land, water, human health	<b>YES</b>	- Procure vehicles and additional equipment (pitchfork; bale pitchfork) with certificates confirming safety and appropriate technical specifications - Involve staff with relevant licenses and skills to perform the works - Prepare a storage facility operation schedule to minimize noise and emissions - Conduct due maintenance of vehicles and additional equipment to ensure staff safety and to minimize impact on environment	- Observations/photos - Vehicles certificates - Work safety briefing records - Records on equipment and vehicles technical examination - Records of waste disposal

Processes	Identified Environmental Impacts	Do the Impacts Require Further Consideration?	Mitigation Measures	Monitoring Indicators
			<ul style="list-style-type: none"> <li>- Spark catchers should be installed on exhaust pipes of trucks to prevent fire risks</li> <li>- Park the vehicles on the territory of “Spetscomuntrans” with limited access for non-authorized personnel</li> <li>- Introduce safety rules for staff and perform safety trainings</li> <li>- Dispose generated waste according to its hazard class and if recycling is possible (State Sanitary Norms DSanPiN 2.2.7.029-99 “Hygienic requirements for industrial waste management and definitions of the class of hazard for public health”)</li> </ul>	

## 2. Activity-specific monitoring plan

Monitoring Indicators	Monitoring and Reporting Frequency	Responsible Parties	Records Generated
Permits and licenses for activity implementation obtained: <ul style="list-style-type: none"> <li>- Use of the additional land plot;</li> <li>- Sanitary zone</li> <li>- Waste disposal and recycling;</li> <li>- Water use</li> <li>- Construction and reconstruction works;</li> <li>- Excavation works;</li> <li>- Removing old vegetation from the site</li> </ul>	Before the start of each phase of work	MDI, Company-Subcontractor	Permits and licenses obtained
Fire permit and regular checks certificates	Local partner is monitored by the Myrhorod fire inspection once a year	Myrhorod Utility Company “Spetscomuntrans”	<ul style="list-style-type: none"> <li>- Permit obtained</li> <li>- Records of fire safety checking</li> </ul>
Visual reviews of renovation and construction works with necessity to provide photos	At inception phase, once a week, and upon a completion of work	MDI, Company-Subcontractor	<ul style="list-style-type: none"> <li>- Project Interim and Final Reports</li> <li>- Photos</li> </ul>
Records on work safety briefings	Before the start of each phase of work	Company-Subcontractor	<ul style="list-style-type: none"> <li>- Records on work safety briefings</li> </ul>
Certificates (for non-toxic, asbestos-free materials) for purchasing construction materials	Before the start of relevant phase of work	Company supplier	<ul style="list-style-type: none"> <li>- Certificates</li> </ul>
Technical documentation of the site reconstruction, including: EIA part, storm water management plan, erosion control plan, etc.	Once, before start of the site reconstruction	Myrhorod Utility Company “Spetscomuntrans”; Individual entrepreneur A.Sopilnyak; Myrhorod	<ul style="list-style-type: none"> <li>- Technical design documentation, including EIA part, storm water management and erosion control plans,</li> <li>- Observations/photos</li> </ul>

Monitoring Indicators	Monitoring and Reporting Frequency	Responsible Parties	Records Generated
Re-cultivation plan	Once, before start of the site exploitation	Municipality Myrhorod Utility Company “Spetscomuntrans”; Individual entrepreneur A.Sopilnyak;	- Approved re-cultivation plan, photos, observation
Elaborated and approved safety recommendation, evacuation plan	Once, before start of the site exploitation	Myrhorod Utility Company “Spetscomuntrans”; Myrhorod Municipality	- Safety rules and instruction - Evacuation plan
Payments for waste disposal	Monthly monitoring	Myrhorod Utility Company “Spetscomuntrans”	- Receipts paid for waste disposal
Certified vehicle and equipment	Before the start of the activity	LAESM	- Certificates/photos

**I. Certification of No Adverse or Significant Effects on the Environment**

I, the undersigned, certify that activity-specific baseline conditions and applicable environmental requirements have been properly assessed; environment, health, and safety impacts requiring further consideration have been comprehensively identified; and that adverse impacts will be effectively avoided or sufficiently minimized by proper implementation of the EMMP(s) in Section G. If new impacts requiring further consideration are identified or new mitigation measures are needed, I will be responsible for notifying the USAID COR/AOR, as soon as practicable. Upon completion of activities, I will submit a **Record of Compliance with Activity-Specific EMMPs** using the format provided in ERC Annex 1 or its equivalent.

  
 \_\_\_\_\_  
 Ruslan Tormosov, LAESM Project Director/COP

04.30.2015  
 \_\_\_\_\_  
 Date

**J. Approvals:**

  
 \_\_\_\_\_  
 Maria Garastovskaya, USAID AOR Alternate  
 A. Nesterenko,

4.30.2015  
 \_\_\_\_\_  
 Date

  
 \_\_\_\_\_  
 Larissa Piskunova, Deputy Mission Environmental  
 Officer

4/30/15  
 \_\_\_\_\_  
 Date

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## ERC ANNEX 1

**RECORD OF COMPLIANCE WITH ACTIVITY-SPECIFIC  
ENVIRONMENTAL MITIGATION AND MONITORING PLANS (EMMPs)**

<b>Subject:</b>	<i>Ukraine/Local Alternative Energy Solutions in Myrhorod (LAESM) – Resource and Logistics Center / IDEA ODP SIEE_LAESM_ND</i>
<b>To:</b>	<i>Maria Garastovskaya /AOR/Activity Manager</i>
<b>Copy:</b>	<i>Larissa Piskunova/ Deputy Mission Environmental Officer</i>
<b>Date:</b>	

The [name of the implementing organization] has finalized its activities at the [site name] to [describe activities and processes that were undertaken]. This memorandum is to certify that our organization has met all conditions of the EMMPs for this activity. A summary of the how mitigation and monitoring requirements were met is provided below.

1. Mobilization and Site Preparation
2. Activity Implementation Phase
3. Site Closure Phase
4. Activity Handover

Sincerely,

\_\_\_\_\_  
Implementer Project Director/COP Name

\_\_\_\_\_  
Date

**Approved:**

\_\_\_\_\_  
USAID/COR/AOR/Activity Manager Name

\_\_\_\_\_  
Date

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- Bureau Environmental Officer

## ERC ANNEX 1

**RECORD OF COMPLIANCE WITH ACTIVITY-SPECIFIC  
ENVIRONMENTAL MITIGATION AND MONITORING PLANS (EMMPs)**

<b>Subject:</b>	<i>Ukraine/Local Alternative Energy Solutions in Myrhorod (LAESM) – Reconstruction of a Central Storage Facility and Construction of Two Annexes for Keeping Bio Fuel in Myrhorod, Poltava Oblast / IDEA ODP SIEE_LAESM_ND; DCN: 2015-UKR-008</i>
<b>To:</b>	<i>Maria Garastovskaya /AOR/Activity Manager</i>
<b>Copy:</b>	<i>Larissa Piskunova/ Deputy Mission Environmental Officer</i>
<b>Date:</b>	<i>November 30, 2015</i>

All-Ukrainian Charitable Organization “Municipal Development Institute” (MDI), in partnership with Myrhorod Municipality and Utility Company “Spetscomuntrans”, has finalized its activities regarding reconstruction of a central storage facility and construction of two annexes for keeping bio fuel in Myrhorod, Poltava Oblast, on 86, Shishatska Str. in Myrhorod. This included reconstruction of the existing storage facility and construction of two annexes to increase the capacity of the storage facility of up to 2 000 tons of straw, annual consumption of straw by the bio-boiler, and organization of a sustainable biofuel (straw) supply system in Myrhorod; installation of a fire extinguishing system, including automatic fire alarms and fire hydrants inside the storage buildings. This memorandum is to certify that MDI and the partner organizations have met all conditions of the EMMPs for this activity. A summary of the how mitigation and monitoring requirements were met is provided below.

#### 1. Mobilization and Site Preparation

Work safety was ensured for prevention of any accidents during reconstruction/construction/excavation works. This included training in safety prior to the start of works and throughout the activity. In procurement of materials and equipment, MDI and its partners ensured the materials are certified, non-toxic and asbestos-free and that low energy consumption and other hygienic norms and requirements were observed.

#### 2. Activity Implementation Phase

During the activity implementation phase, expected were human health impact, dust and noise, impact on air; and odor slightly increased. The impact on the workers’ health was minimized due to the use of respirators, protective clothes. The impact on land was minimized due to collecting waste in a container with a lid and waste disposal on the landfill after the works were finished; covering the extracted soil by plastic film to minimize wind erosion and prevent future contamination. To minimize the noise/emissions, machinery with

low level of noise/emissions was used. The impact on human health, land, air and water was minimized due to the installation of a fire extinguishing system, laying internal and external water supply pipelines to provide water for the fire safety system (as per the ERC Amendment), and laying a low voltage network inside the control center building of the storage facility. To minimize fire risks in storage facilities low-voltage rechargeable battery set for standby power supply and low-voltage wires is used.

### 3. Site Closure Phase

The Capital Development Department of Myrhorod City Council accepted the reconstruction works by signing a corresponding works acceptance certificate.

### 4. Activity Handover

The central storage facility is maintained by the Utility Company “Spetscommuntrans”.

Sincerely,



\_\_\_\_\_  
Implementer Project Director/COP  
*Ruslan Tormosov*

November 30, 2015

Date

Approved:



\_\_\_\_\_  
USAID/COR/AOR/Activity Manager  
*Maria Garastovskaya*

November 30, 2015

Date

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