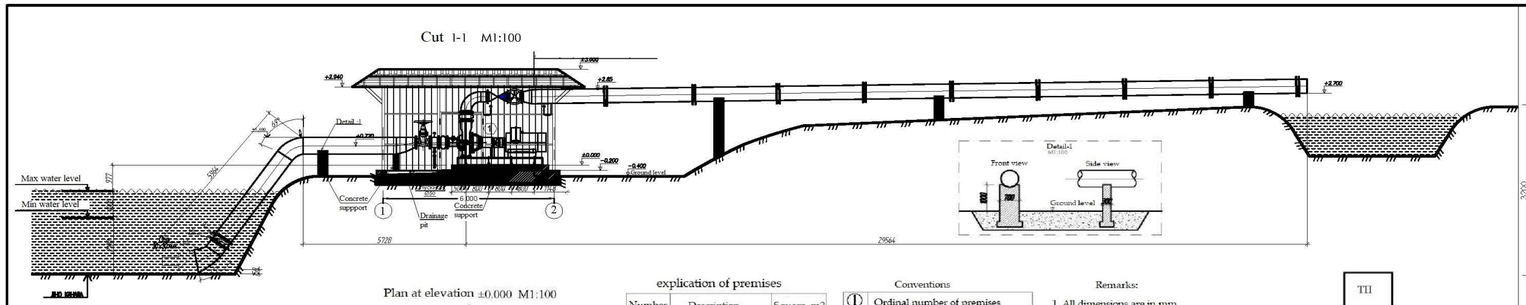
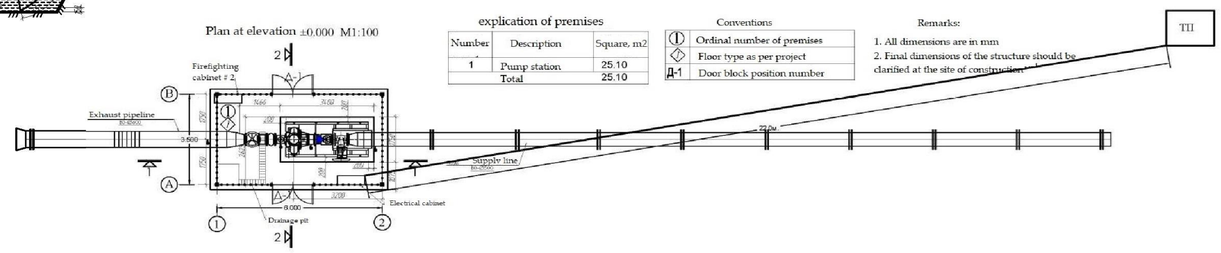
Cut 1-1 M1:100



Plan at elevation ±0.000 M1:100



explication of premises

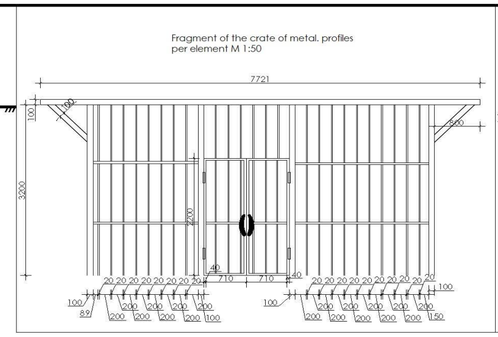
Number	Description	Square, m2
1	Pump station	25.10
	Total	25.10

Conventions	
①	Ordinal number of premises
◇	Floor type as per project
Д-1	Door block position number

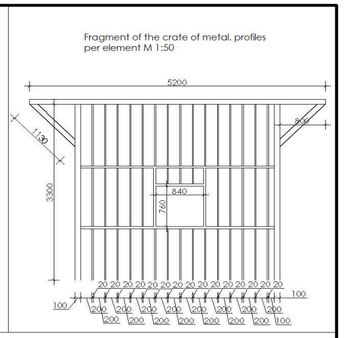
Remarks:

1. All dimensions are in mm
2. Final dimensions of the structure should be clarified at the site of construction

Fragment of the crate of metal. profiles per element M 1:50



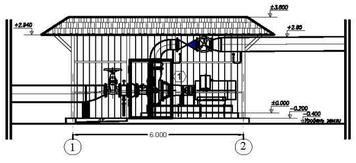
Fragment of the crate of metal. profiles per element M 1:50



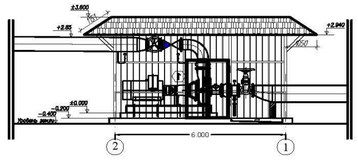
Remarks:

1. All dimensions are in mm.
2. The final dimensions should be specified at the place of construction

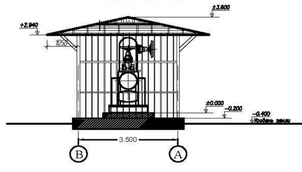
Facade along the axes 1-2 M1:100



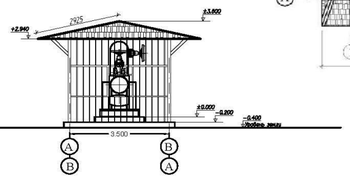
Facade along the axes 2-1 M1:100



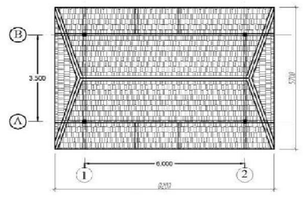
Cut 2-2 M1:100



Facade along the axes A-B, B-A M1:100



Roof plan M1:100



Remarks:

1. Roof - metal tile for metal purlins - 52,70 m2

EXPOSITION OF FLOORS

Number of premise on plan	Floor type as per the project	Scheme of floor or number of node on serial	Floor elements	Square
1	2	3	4	5
1	◇1		- Screed from a cement-sand mortar M150 (on a slope) -200mm. (max) - Waterproofing layer - Underlying layer of concrete grade M100-150mm. - Primer ground with gravel or crushed gravel 40mm	25.10

AC

Installation of a pumping station in agricultural enterprise Hakykat in et. Koneurgench (Dashoguz velayat)

Pumping station

Stage	Sheet	Sheets

The plan is at the mark of ± 0.000, the facade along the axes A-B, B-A, Section 1-1, Section 2-2, Facade along the axes 1-2, - Facade along the axes 2-1, Roof plan M1: 100

Инв. N подл. | Подп. и дата | Взам. инв. N

A-4 Format

WORK SHEET OF WORKING DRAWINGS OF THE BASIC EQUIPMENT EOM

Sheet	Denomination	Note
1	General data	
2	Electric lighting plan. Plan of power networks. Calculation scheme. Earthing.	

WORK SHEET OF REFERENCE AND SUPPLIED DOCUMENTS

DESIGNATION	DENOMINATION	Note
REFERENCE DOCUMENTS		
RIED(Regulation of electric devices) - 87.Edition.6	**Rules for the installation of electrical devices**	
BCH 59-88	**Electrical equipment of residential and public buildings**	
ATTACHED DOCUMENTS		
Explanation	Specification of equipment for working drawings of the brand “EM”	On sheet 1

Designation	Denomination	Note
B	Shield power distribution	
47	Wall lamp with an incandescent lamp of power	
ъ	Single pole switch 10A, 250V	
	Cable power line	

The project is developed in accordance with the current regulations and rules, and provides for activities that provide explosive, fire and fire safety in the operation of the building.

Chief architect of the project

GENERAL INSTRUCTIONS

Pumping house.

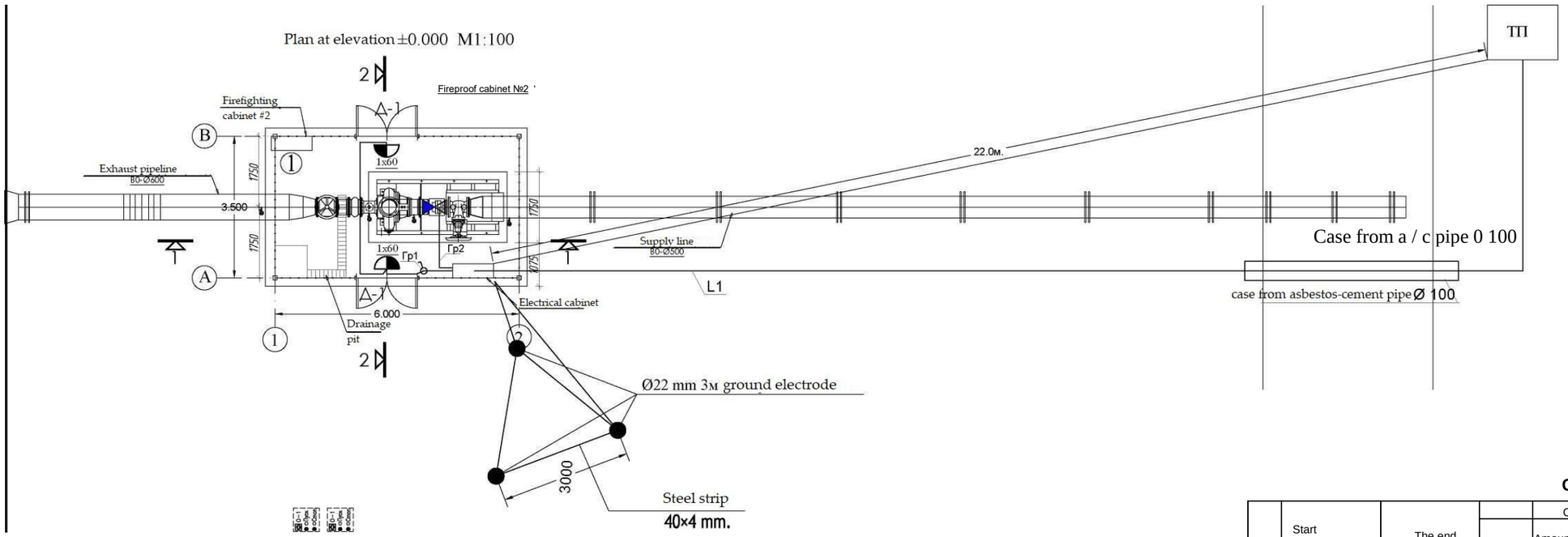
The purpose of this project is to provide power supply to the pumping plant in agricultural enterprise of Hakykat in etrap Koneurgench (Dashoguz velayat).
By the degree of reliability and continuity of power supply the projected facility belongs to the consumer of the III-category.
The project provides for connecting the pump from the existing complete transformer.
In this project, a cable version of 0.4 kV indoor networks is adopted. Cable lines 0.4kV. They are laid in a trench at a depth of 0.7 m from the planning land mark by NYY-1 kV cables. In the intersection of cable lines with engineering facilities, the cable is laid in asbestos-cement pipes-sleeves.

Partition of power electrical equipment and electrical lighting pumping developed on the basis of the architectural and construction section of the project in compliance with existing electrical codes and regulations.
As a power switchboard, a power shield with automatic switches and built-in start-up protection equipment for units that are not equipped with their own automation panel was adopted.
Power supply is 380/220 V. The power input is carried out with a cable with copper wires NYY.

The working lighting is provided for the project.
The voltage of the mains supply for lighting lamps is 220V. The methods and locations of the luminaires are shown on the plan. The lighting control is provided by switches on place.
In order to protect the operating personnel from electric shock in case of touching the metal parts of electrical installations that are not under voltage, but which could be placed under it as a result of insulation damage the protective earthing is provided. Earthing is done by connecting the equipment housings to the grounding strip of the protective external ground loop which consists of 0 22 mm round steel electrodes and a steel strip 40x4mm.
The production of all the works should be conducted in strict accordance with the REFM (Rules of Electrical Facilities Maintenance) and the construction norms of Turkmenistan.

				Installation of pumping house in agricultural enterprise Hakykat in Koneurgench etrap (Dashoguz velayat)		
Н3М.N уч	Sheet N	Signatur	Date			
				Pumping date	Stage	Sheet / Sheets
FAPS (flexible automated production system)					РП	**1** / **2**
Eng.						
				General data		

Pуст. : 89.5kW	Group number	Гр 1	-	Гр 2	-
Кс: 1	Electric receiver	Lighning	Back-up	Pump	Back-up
Pnomp:89.5kW	Power W	120	-	89400	-
Inomp: 170.1 A	breaker	-	-	-	-
ЩС	I ном. расцеп. (А)	1х6	1х6	3х200	3х200
	Starter	-	-	ПМЛ-2(3х200)	ПМЛ—2(3*200)
	Реле теплоБое (А)	-	-	-	-
	cable cross-section, мм² NYM	3й.5	-	4х70+35	-
	Distance	15	-	5	-
	Moment	1.8	-	9.3	-
	Inompc(A)	0.5	-	447	-
	Power losses, %	0.06	-	0.08	-



NOTE:
1. All dimensions are in mm.
2. The final dimensions of the structure should be clarified by the place of construction

CABLE JOURNAL

No. of cables	Start (building name and shield designation)	The end (the same)	Cable Brand	Cable Amount of section in mm2	Pipe Length, m	Pipe Brand	Pipe Length, м	Load Fixed power, Kv	Load Power, кВт cos < 1—	Loss cosф	Loss Moment kV	Loss %	Note
POWER CABLES 0,4 kV power supply of the territory from TP													
L1	РУ-0,4 кВ КТП	Pumping house	NYY	3x95+1x50	25	в траншее	15	89.5	89.5	170.1	0,95	2237.5	0.3	
						а/ц 0100	10						

				Installation of pumping house agricultural enterprise Hakykat in etrap Koneurgench (Dashoguz velayat)
НЗМ.N уч	Лист N	Signatur	Date	
				Pumping house — Stage: — Sheet: 2 — Sheets: 2
FAPS (automated flexible production system)				
Impl.				
				Electric lighting plan. Plan of power networks. The calculation scheme. Earthing

Формат А4

Position	Denomination and technical specification	Type, brand, designation of document, questionnaire	Code of equipment, item	Factory-manufacturer	Unit measure	Q-ty	Weight of unit, kg	Note
1	2	3	4	5	6	7	8	9
	Equipment and materials							
	Items, shields, boxes.							
1	Shield power distribution with an input autom. 1p = 3x250A.							
	- with line auto. 1x6A-2pieces, 3x200A-2pieces							
	- with a magnetic starter 3x200A-2piece.							
	- the control button. two-string -2piece.	Individual manufacturer			set	1		
2	Switch type RPS 2-250 for installation in switch yard				piece	1		
	Lighting equipment							
3	Lamp wall-mounted LED 7 W				piece	2		
4	Lamp with LED 7 W				piece	2		
	Wiring devices							
5	Single pole switch for 10A, 250V external				piece	48		
	Cable products							
	Power cable with copper conductors, PVC insulated, section:							
6	3x2,5	NYM			m	15		
7	4x70+35	NYM			m	5		
8	3x95+1x50	NYM			m	25		
	Earthing							
9	Vertical electrode 022mm, L = 3m				piece	3		
10	Strip steel 40x4mm				m	25		
	PVC pipes							
11	Vinyl plastic pipe with external diameter 20 mm	PVC EM 20			m	15		
12	Asbestos-cement pipe with outer diameter 100 mm	asbestos-cement			m	10		

Electrical equipment and electric lighting	Stage	Sheet	Sheets
		1	1
Impl.	Specification of equipment		

Формат А-3

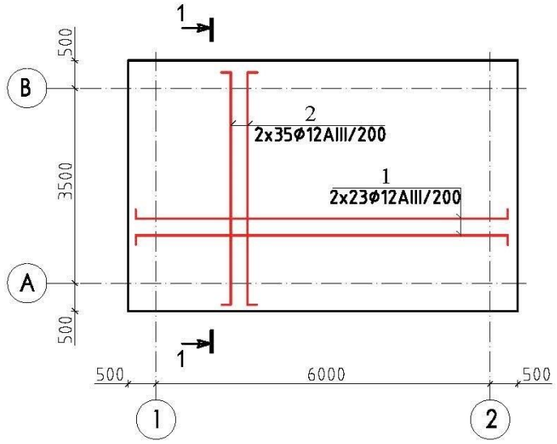
Work sheet of quantities of construction and electrical work.

№	Denomination	Unit measure	Q-ty	Note
1	The construction length of the trench T1	m	10	
2	Digging trenches T1 for laying cables 1m 0,31m^3		3.1	
3	Backfilling of trenches T1 for 1m 0,23m^3		2.3	
4	Arrangement of sand bed T1		0.8	
5	Covering of cable with bricks (8 piece/m) T1	piece	80	
6	Cable laying in the trench	m	10	
7	Cabling in the building	m	20	
8	Cabling in the pipe	m	10	
9	Cable laying in TP	m	5	
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

				Installation of a pumping house agricultural enterprise Hakykat in etrap Koneurgench (Dashoguz velayat)		
Position	*Name, Last name*	*Signature*	Date			
				Electric supply	*Stage*	Sheet / Sheets
						1 / *1*
Impl.						
				Work sheet of quantities of construction and electrical work.		

Plan and reinforcement of the base plate

M1:100

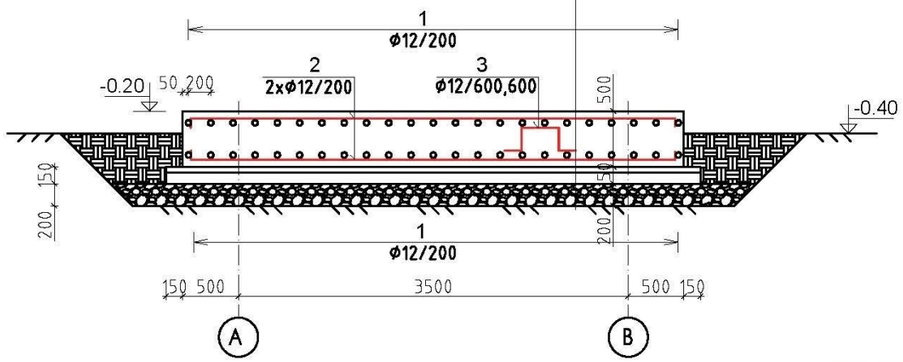


Basement

Cement strainer M100 · thk. 50мм.
Isogam in 2 layers
Concrete preparation with thk 100 mm
Gravel-sand mixture with a thickness of 20 cm (compacted)
Compacted soil base

Cross section 1-1.

M1:50



Reinforced monolith concrete specification

Pos.	Sketch	Ø мм,	Length, mm	Q-ty	Weight, kg
Base Plate (1 pcs)					
1	6900, 150, 150	12 AIII	7200	46	6.39
2	4400, 150, 150	12 AIII	4700	70	4.17
3	500, 390, 390, 400, 400	12 AIII	2080	81	1.85
Concrete grade B20					15.75 м³.

Basement plan for equipment

M1:100

Cross-section 2-2.

M1:50

Anchor A-1

Steel flow sheet

Element brand	Rebar products, kg							
	Rebar grade							Total
	A-I		AIII					
	TDS 5781-82*		TDS 5781-82*					
	Ø8	Sub-total	Ø12	Ø16	Ø20	Ø25	Sub-total	
Base plate	---	---	721.10	---	---	---	721.10	721.10

Metal specification (per unit)

Position	Designation	Description	Q-ty	Weight, kg	Remarks
5	TDS 24379.1-80	Bolt 2.1 M24x630, Вст3 КП2	8	2.12	16.96
6	TDS 5781-82	Ø 22A-I, L=90	8	0.27	2.16
		Concrete grade B15			1.22 м³.

Remarks

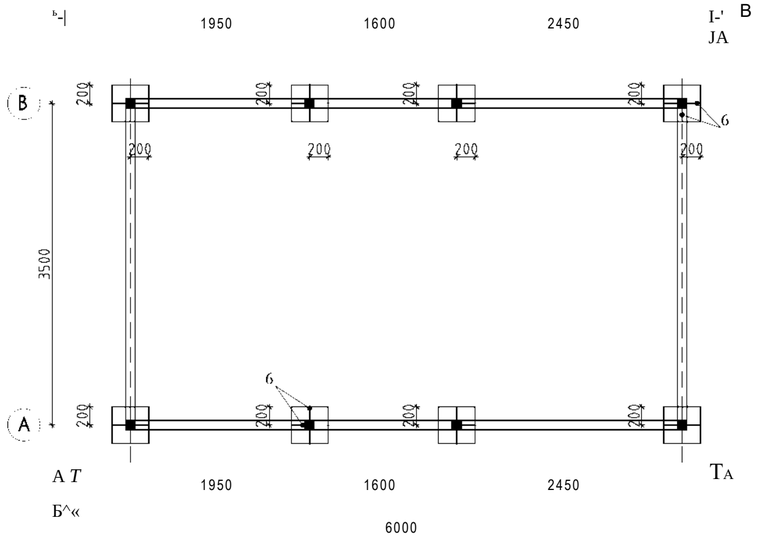
1. Work together with l. AC-
2. The bending radii for the working armature take 6d.
3. All designs touching the ground perform on sulphate-resistant cement and cover with bituminous mastic for 2 times.
4. On the foundation plan, concrete preparation is not shown conditionally.
5. Fittings pos. 3 (lock) set in staggered order.
6. Protective layer for concrete for the upper fitting is 25mm, and for the lower reinforcement 35mm.
7. Cement screed M100 thick. 50 mm. is 1.75 m3., the volume of concrete preparation class B 10 thick. 100mm is 3.50 m3.
8. The area of the roll waterproofing Izogam - 35.04 m2.
9. The area of the bitumen mastic coating is 6.90 m2.
10. The total volume of GPS is 7.80 m3. The volume of excavated soil is 40.00 m3
11. The total flow rate of the C-1 grid reinforcement is: 3.95 kg / m2, the total area is 6. The total volume of concrete B is 15 - 1.22 m3.
12. Installation of anchors should be made for specific equipment.

Pumping Stattion	Stage	Page	Sheets
	РП	4	
Plan and reinforce of the base plate Section 1-1. Specification			

Format-A3

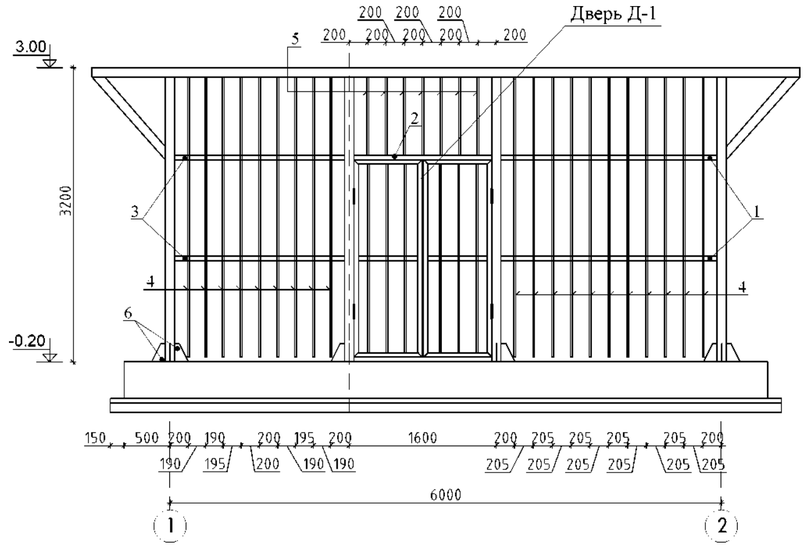
Plan of disposition of of embedded parts and racks.

M1:50



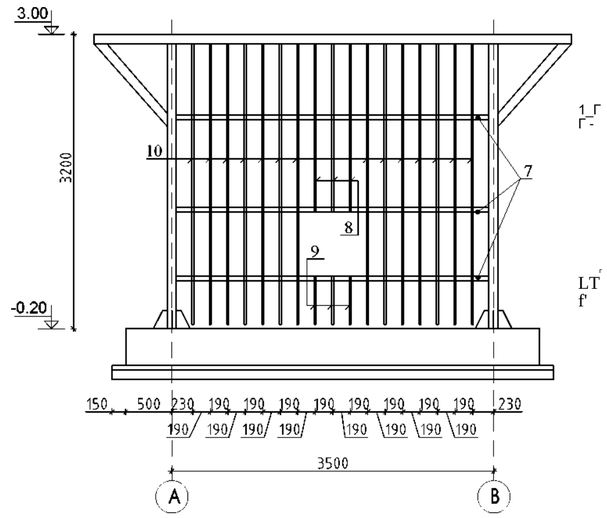
View A-A

M1:50



View B-B

M1:50



Specification for metal (for unit)

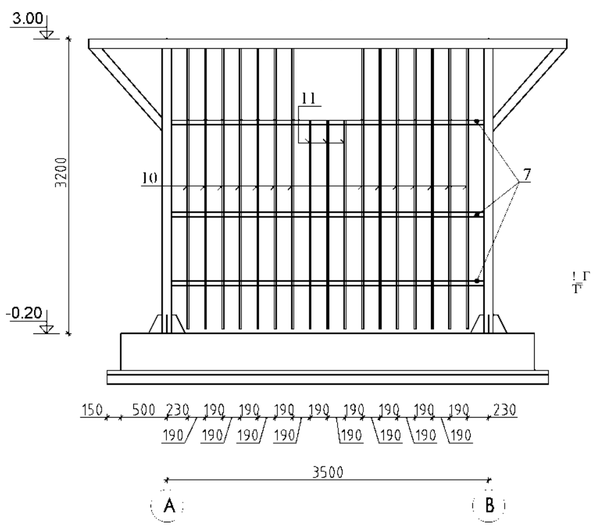
Position	Designation	Denomination	Q-ty	Weight unit,kg	Note
	View A-A		2		
1	TDS 30245-2003	square pipe O 50x50x3, L=2350	2	9.98	19.96
2	TDS 30245-2003	square pipe O 50x50x3, L=1500	2	6.37	12.74
3	TDS 30245-2003	square pipe O 50x50x3, L=1850	2	7.86	15.72
4	TDS 8639-82	square pipe O 25x25x3, L=3100	20	6.05	121.00
5	TDS 8639-82	square pipe O 25x25x3, L=900	7	1.75	12.25
6	TDS 103-76	Strip $\frac{150x8[TDS]}{C275\ TDS\ 27772\text{-}88*}$ L=200	14	1.25	17.50
		O 50x50x3		kg	48.42
		O 25x25x3		kg	133.25
		Steel sheet t = 8 mm		kg	17.50
		Total:			216.70
		Total deposited metal 2%:			4.30
		Total:			221.00
	View B-B		1		
7	TDS 30245-2003	Square pipe O 50x50x3, L=3400	3	14.50	43.50
8	TDS 8639-82	Square pipe O 25x25x3, L=1900	3	3.70	11.10
9	TDS 8639-82	Square pipe O 25x25x3, L=900	3	1.75	5.25
10	TDS 8639-82	Square pipe O 25x25x3, L=3100	14	6.05	84.70
		O 50x50x3		kg	43.50
		O25x25x3		kg	101.05
		Total:			144.55
		Total deposited metal 2%:			2.90
		Total:			147.45

Position 6

M 1:10

View B-B

M1:50



Specification of metal (for unit).

Position	Designation	Denomination	Q-ty	Weight of unit, kg	Note
	View B-B		1		
7	TDS 30245-2003	Square pipe O 50x50x3, L=3400	3	14.50	43.50
10	TDS 8639-82	Square pipe O 25x25x3, L=3100	14	6.05	84.70
11	TDS 8639-82	Square pipe O 25x25x3, L=2300	3	4.50	13.50
		O 50x50x3		kg	43.50
		O25x25x3		kg	98.20
		Total:			141.70
		Total deposited metal 2%:			2.80
		Total:			144.50

Note:

1. Work together with sheets AC-
2. For the details, steel C2 75 (VStZPsb) according to TDS 27772-88 * is used.
3. Joints of metal structures to be produced by manual electric arc welding according to TDS 5264-80 with electrodes type E42 according to TDS9467-75. The height of the leg of all welded seams except for those indicated in the drawings is taken by the smallest thickness of the welded elements.
4. The maximum permissible clearance between the edges of the joined elements is-2mm.
5. All welds must be cleaned of slag.
6. All the metal structures painted with nitro-enamel paint for 2 times.
7. All dimensions of metal structures are given in millimeters (mm).
8. Secure the metal tile to the girders using self-tapping screws and each tile is fastened with combined rivets (300 mm pitch).

Position	Name, Last name	Signature	Date				
				Pumping	Stage	Sheet	Sheets
						4	
				Layout of embedded parts and racks. Types of “A-A”, “B-B” and “B-B”. Specification.			

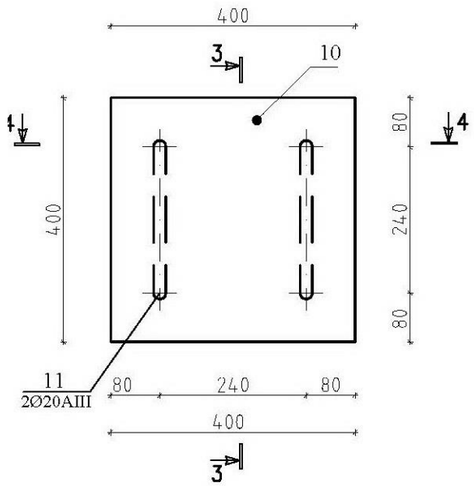
Формат-А2

Specification of metal (per unit).

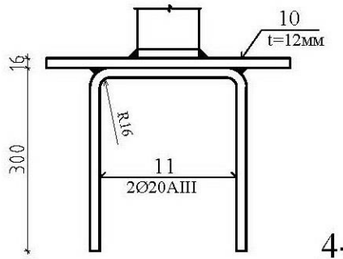
Position	Designation	Denomination	Q-ty	Weight unit,kg	Note
	Metal door D-1		2		
1	TDS 30245-2003	Square pipe O 50x50x3, L=2150	4	9.14	36.56
2	TDS 30245-2003	Square pipe O 50x50x3, L=745	4	3.16	12.64
3	TDS 30245-2003	Square pipe O 50x50x3, L=650	2	2.76	5.52
4	TDS 8639-82	Square pipe O 25x25x3, L=2100	6	4.10	24.60
5		Loop by series 3.017-1.05.110.100	4		
6		Handle by series 3.017-1.05.110.300	2		
		O 50x50x3		кг	54.72
		O 25x25x3		кг	24.60
		Total:			79.32
		Total deposited metal 2%:			1.60
		Total:			80.92

Backing detail ЗД-1

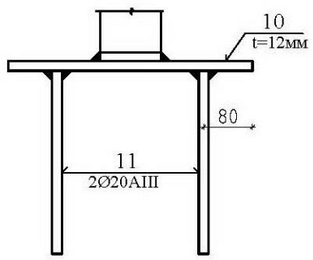
M 1:10



3 - 3

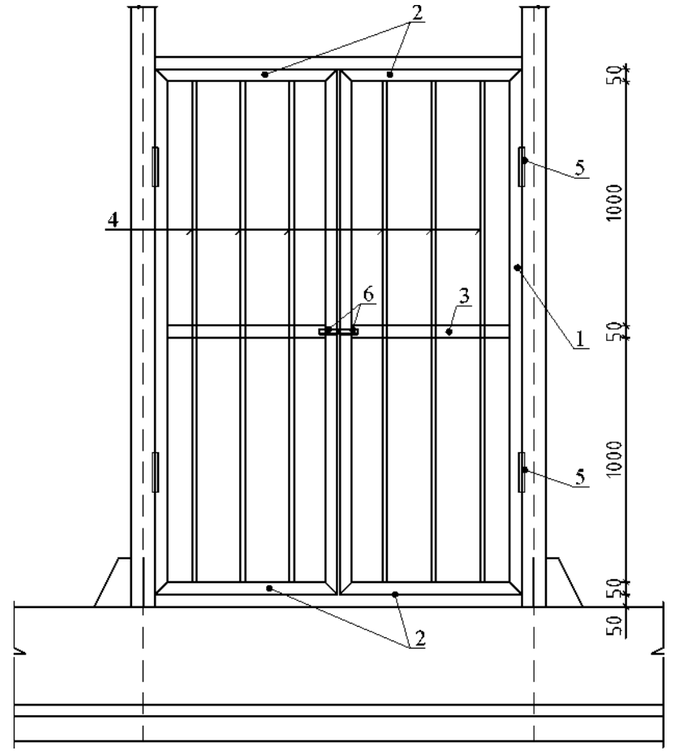


4-4



1. Work together with sheets AC-
2. For the details, steel C275 (VStZPsb) according to TDS 27772-88 * is used.
3. Joints of metal structures to be produced by manual electric arc welding with TDS 5264-80 electrodes type E42 according to TDS9467-75. The height of the leg of all welded seams except for those indicated in the drawings is taken by the smallest thickness of the welded elements.
4. The maximum permissible clearance between the edges of the joined elements is-2mm.
5. All welds must be cleaned of slag.
6. All the metal structures painted with nitro-enamel paint for 2 times. All dimensions of metal constructions are given in mm.

Door D-1



SPECIFICATION OF METAL ELEMENTS

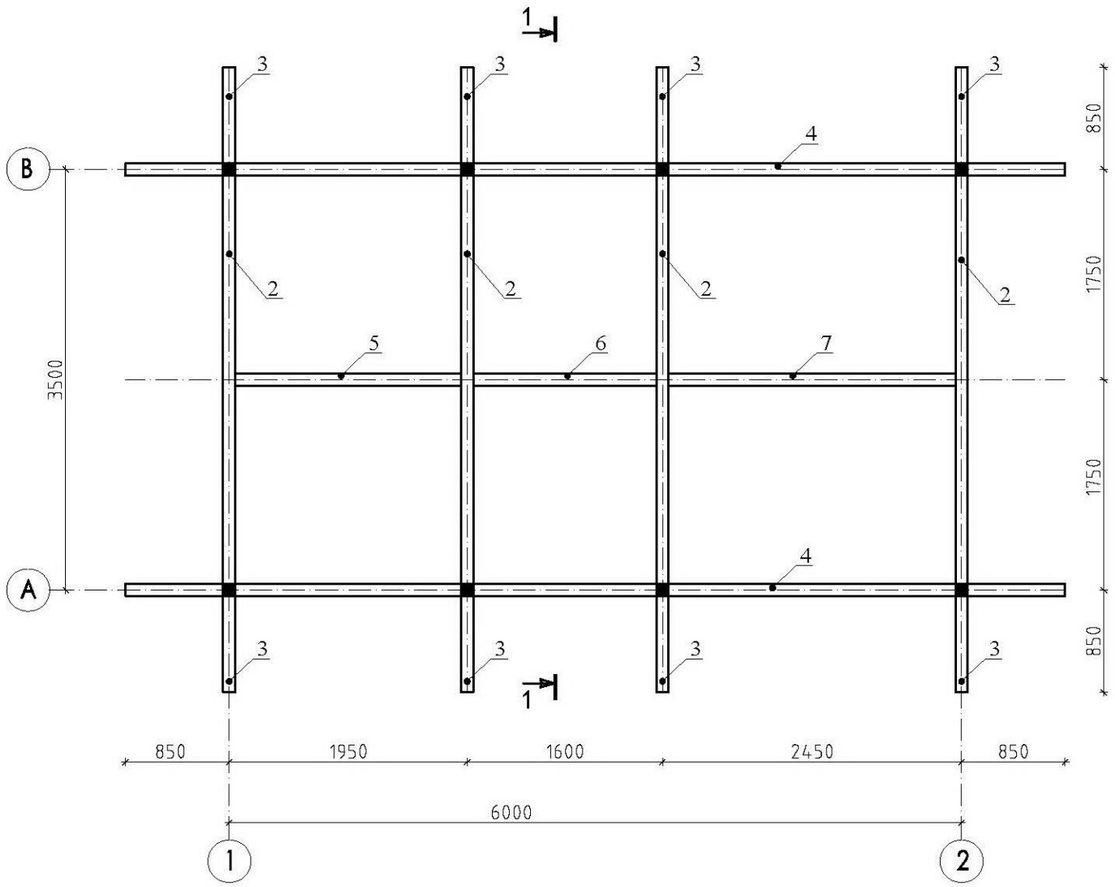
Position	Designation	Denomination	Q-ty	Weight unit,kg	Note
		Backing detail ZD-1	8		
10	TDS 103-76	Strip $^{400x12\ fTDS1}_{b\wedge 00}$ L-400 Strip $_{C275\ TDS}$ **27772-88***	1	15.10	15.10
11	TDS 5781-82*	02OA-III L=620	2	1.53	3.06

Position	Name, Last name	Signature 1	Date			
				Pumping house	Stage	Sheet 4 / Sheet
				Metal door D-1. The backing piece ZD-1. Specification		

Формат-А3

Plan of disposition of elements on mark 3.00.

M1:50

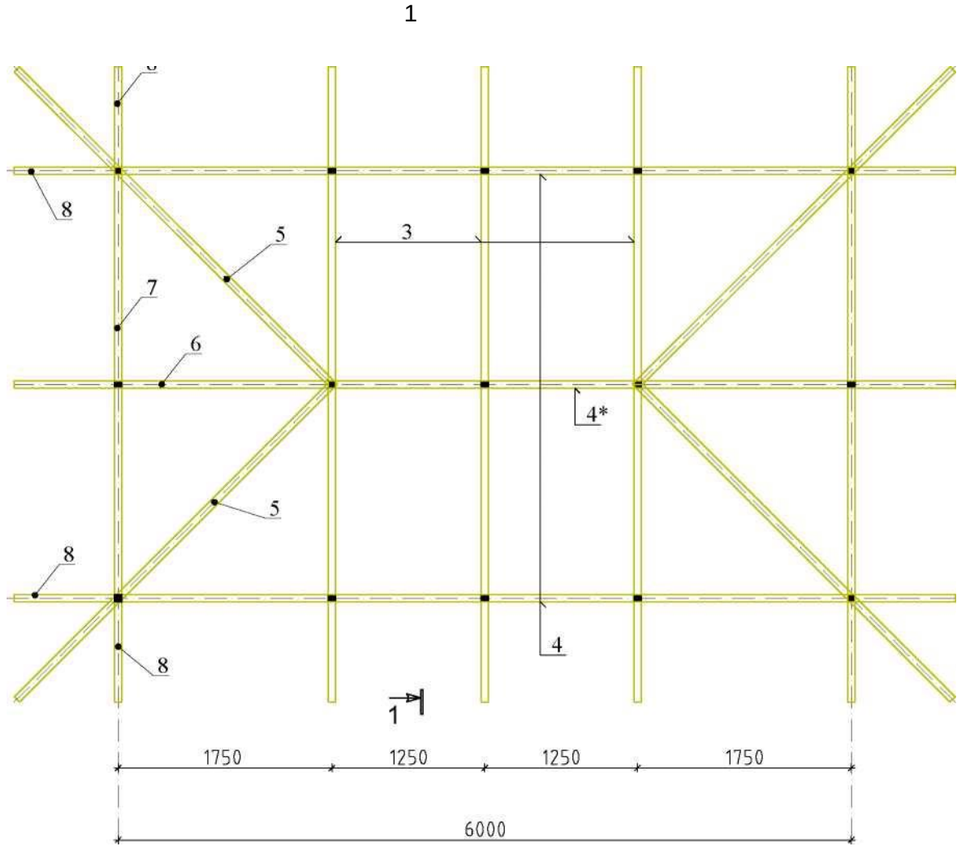


Specification of metal (for unit)

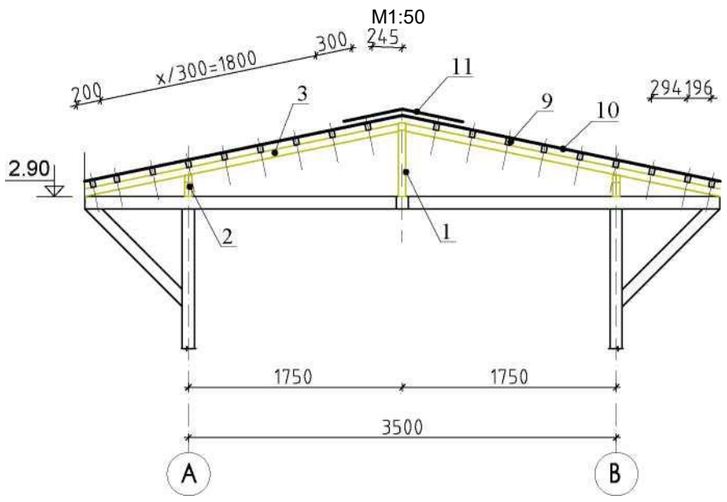
Position	Designation	Denomination	Q-ty.	Weight of unit, kg	Note
1	TDS 25577-73*	Square pipe O 100x100x5, L=3100	8	43.21	345.68
2	TDS 25577-73*	Square pipe O 100x100x5, L=3400	4	47.39	189.56
3	TDS 25577-73*	Square pipe O 100x100x5, L=800	8	11.15	89.20
4	TDS 25577-73*	Square pipe O 100x100x5, L=7700	2	107.33	214.66
5	TDS 25577-73*	Square pipe O 100x100x5, L=1850	1	25.78	25.78
6	TDS 25577-73*	Square pipe O 100x100x5, L=1500	1	20.91	20.91
7	TDS 25577-73*	Square pipe O 100x100x5, L=2350	1	32.76	32.76
8	TDS 25577-73*	Square pipe O 100x100x4, L=1030	12	11.88	142.56
		O100x100x5		kg	918.54
		O 100x100x4		kg	142.56
		Total:			1061.10
		Total deposited metal 2%:			21.20
		Total:			1082.30

1. Work together with sheets AC-
2. For the details, steel C2 75 (VStZPsb) according to TDS 27772-88 * is used.
3. Joints of metal structures to be produced by manual electric arc welding with TDS 5264-80 electrodes type E42 according to TDS9467-75. The height of the leg of all welded seams, except for those indicated in the drawings, the smallest thickness of the welded elements.
4. The maximum permissible clearance between the edges of the joined elements is-2mm.
5. All welds must be cleaned of slag.
6. All the metal structures painted with nitro-enamel paint for 2 times.
7. All dimensions of metal structures are given in millimeters (mm).
8. Secure the metal tile to the girders using self-tapping screws, and each tile is fastened with combined rivets (300 mm pitch).

Plan of disposition of elements of roof cover M1:50



Cross-section
1-1
M1:50



Specification of metal (for unit)

Position	Designation	Denomination	Q-ty	Weight unit, kg	Note
1	TDS 30245-2003	Square pipe O 60x60x5, L=540	3	4.39	13.17
2	TDS 30245-2003	Square pipe O 60x60x5, L=180	12	1.46	17.52
3	TDS 30245-2003	Square pipe O 60x60x5, L=2620	6	25.36	152.16
4	TDS 30245-2003	Square pipe O 60x60x5, L=5940	2	48.29	96.58
4*	TDS 30245-2003	Square pipe O 60x60x5, L=2440	1	19.83	19.83
5	TDS 30245-2003	Square pipe O 60x60x5, L=3700	4	30.08	120.32
6	TDS 30245-2003	Square pipe O 60x60x5, L=2680	2	21.78	43.56
7	TDS 30245-2003	Square pipe O 60x60x5, L=3440	2	27.96	55.92
8	TDS 30245-2003	Square pipe O 60x60x5, L=875	8	7.11	56.88
9	TDS 30245-94	Square pipe O 60x40x3, total=147.80 п.м.	---	4.25	628.10
10	Metal tile	t=0.5 mm	---	---	45.40 м2 204.30 кг
11	Steel TDS 14918-80	t=0.7mm, L=2000x500	9	5.50	47.41
		O 60x60x5		kg	575.90
		O 60x40x3		kg	628.10
		Total:			1204.00
		Total deposited metal 2%:			24.10
		Total:			1228.10

Note:

1. Work together with sheets AC-
2. For the details, steel C275 (VStZPsb) according to TDS 27772-88 * is used.
3. Joints of metal structures to be produced by manual electric arc welding with TDS 5264-80 electrodes type E42 according to TDS9467-75. The height of the leg of all welded seams except for those indicated in the drawings is taken by the smallest thickness of the welded elements.
4. The maximum permissible clearance between the edges of the joined elements is-2mm.
5. All welds must be cleaned of slag.
6. All the metal structures painted with nitro-enamel paint for 2 times.
7. All dimensions of metal structures are given in millimeters (mm).
8. Secure the metal tiles to the girders using self-tapping screws, and the tiles must be fixed together with each other. rivets (step 300mm).

Position	Name, Last name	Signatur e 1	Date				
				Pumping house	Stage	Sheet	Sheets
						4	
				Plan of disposition of elements of roof cover Kp-1. Cross-section 1-1. Specification.			

Формат-А3

Worksheet
Of VOLUME OF CONSTRUCTION AND INSTALLATION WORKS

(facility number)

1	2	3	4	5	6
		Square pipe 100x5	kg	**918.54**	
		Square pipe 100x4	kg	**142.56**	
		Square pipe 60x5	kg	**575.90**	
		Square pipe 60x40x3	kg	**628.10**	
		Square pipe 50x3	kg	**293.30**	
		Square pipe 25x3	kg	**514.95**	
		Sheet t= 12 мм	kg	**120.80**	
		Sheet t=8 мм	kg	**35.00**	
		Sheet t=0.7 мм	kg	**47.41**	
		Armature AIII	kg	**48.70**	
		Metal shingles	kg	**204.30**	
		concrete B10	m3	**3.50**	
		Concrte B20	m3	**15.75**	
		Cement covering	m3	**1.75**	
		Isogene	m3	**35.04**	
		Bituminous mastic coating for 2 times	m3	**6.90**	
		Drawn soil	m3	**40.00**	
		FMS line	m3	**7.80**	
		Concrete B15	m3	**1.22**	

POWER SUPPLY

Pumping house

The purpose of this project is to provide power supply to the pumping plant in the village of Hakykat in Etrap Koneurgench (Dashoguz velayat).

The project was carried out in accordance with the technical specifications for No. 10/357 dated 06.06.18 issued by Turkmenenergo Corporation Dashoguzenergo.

External power supply networks 10kV,

Connection of 10 kV networks is carried out from the existing support of substation PS 110/35/10 “Novcha” by Form # 6. Further up to the territory by a pumping overhead line with a length of 340 m. At the decoupling point and at the end support, at the point of connection of the EKTP of the designed 10 kV overhead line, linear disconnectors for 10 kV voltage of RLND-10 type are designed. The construction of a 10 kV overhead line is envisaged with the use of reinforced concrete pillars based on the SV-105 racks.

The assembly of tension and insulating pendants and their attachment points to the support elements is carried out in accordance with the recommendations of projects 3.407.1-143.1.

Supports of the designed HVL-10 kV are installed in drilled pits. According to the requirements of SNT 2.03-II-99, the underground part of all reinforced concrete poles of VL 10kV poles at 0.6 m above ground level, as well as the slabs must be covered with bitumen waterproofing, all metal structures of supports should be painted with enamel 2 times.

On the design overhead line-10 kV to the suspension wire AC-50 is adopted on pin insulators ШФ-20. Since the 10 kV overhead line passes through the countryside, double wire fastening is used, with the installation of two ShF-20 insulators per wire. Fastening of wires to insulators is carried out by means of wire binding.

Grounding of all supports is made according to the "Electrical installation rules chapter 2.5." for soil resistivity from 20 to 50 Ohm * m.

External power supply networks 0,4 square meters.

By the degree of reliability and continuity of power supply, the projected facility belongs to the consumer of the S-category. The project provides for the connection of a pumping station from the projected complete transformer substation GKTP with a capacity of 160 kVA.

In this project, a cable version of 0.4 kV indoor networks has been adopted. Cable lines 0.4 kV. They are laid in a trench, at a depth of 0.7 m from the planning land mark by NYY-1 kV cables. In the intersection of cable lines with engineering facilities, the cable is laid in asbestos-cement pipes-sleeves.

Internal power supply.

Section power electrical equipment and electrical lighting pumping developed on the basis of the architectural and construction section of the project in compliance with existing electrical codes and regulations.

As a power control board, a power shield with automatic switches and built-in start-up protection equipment for units not equipped with their own automation panel was adopted.

Power supply 380/220 V. The power input is carried out with a cable with copper wires NYY.

The project provides working lighting.

The voltage of the mains supply for lighting lamps is 220V. The methods and locations of the luminaires are shown on the plan. The lighting control is provided by switches in place.

To protect the operating personnel from electric shock, in case of touching the metal parts of electrical installations that are not under voltage, but which could be placed under it as a result of insulation damage, a protective grounding is provided. Grounding is done by connecting the equipment housings to the grounding strip of the protective external ground loop, consisting of 0 22 mm round steel electrodes. and a steel strip 40x4mm.

All the works should be carried out in strict accordance with the Rules of electric installation and the construction norms of Turkmenistan.

GENERAL INFORMATION

Pumping house,

The purpose of this project is to provide power supply to the pumping plant in Hakykat collective farm in Etrap Koneurgench (Dashoguz velayat).
The project was carried out in accordance with the technical conditions No. 10/357 of 06.06.18 issued by “Turkmenenergo” Corporation “Dashoguzenergo”.

External power supply networks 10 kV.

The 10 kVa network connection is conducted from the existing support of substation PS 110/35/10 “Novcha” to F No 6. Later on up to the territory of the pumping house air line with a length of 340 m. At the decoupling point and at the end support, at the point of connection of the transformer substation of the designed HV line 10 kV, linear disconnectors for the YukV voltage of the RLND-10 type are designed. The construction of a 10 kV HV line is envisaged with the use of reinforced concrete pillars based on the SV-105 racks. The assembly of tension and insulating pendants and their attachment points to the support elements is carried out in accordance with the recommendations of projects 3.407.1-143.1.

Supports of the designed HVL-10 kV are installed in drilled pits. According to the requirements of SNT 2.03-II-99, the underground part of all reinforced concrete poles of the YukV HV towers is 0.6 m above ground level, and the slabs must be covered with bitumen waterproofing, all metal support structures should be painted with enamel 2 times.
On the design overhead line-10 kV to the suspension wire AC-50 is adopted on pin insulators ШФ-20. Since the VL-10 kV passes through the countryside, double wire fastening is used, with the installation of two ShF-20 insulators per wire. Fastening of wires to insulators is carried out by means of wire binding.
Earthing of all supports is made according to the “Electrical installation rules chapter 2.5.” for soil resistivity from 20 to 50 Om * m.

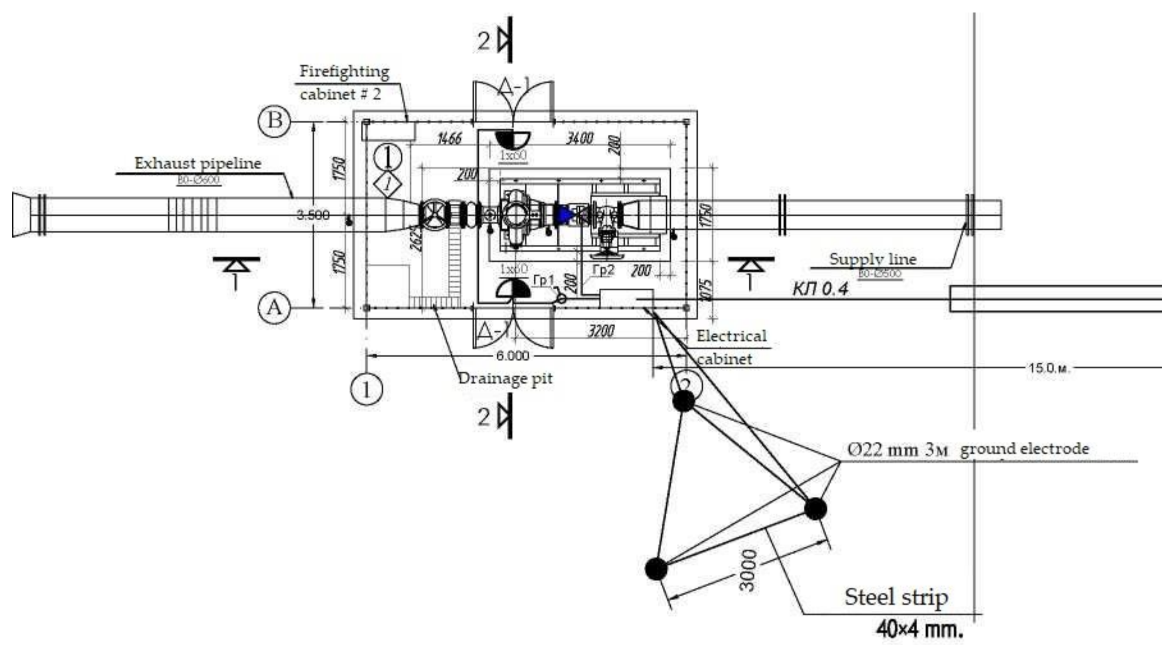
External power supply 0.4 kV.

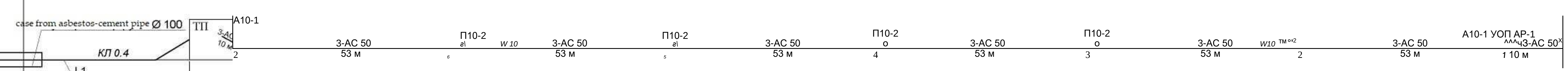
By the degree of reliability and continuity of power supply, the projected facility belongs to the consumer of the S-category. The project provides for the connection of a pumping station from the projected complete transformer substation GKTP with a capacity of 160 kVA.
In this project, a cable version of the 0.4 kV indoor network design has been adopted. Cable lines 0.4kV. They are laid in a trench, at a depth of 0.7 m from the planning land mark by NYY-1 kV cables. In the intersection of cable lines with engineering facilities, the cable is laid in asbestos-cement pipes-sleeves.

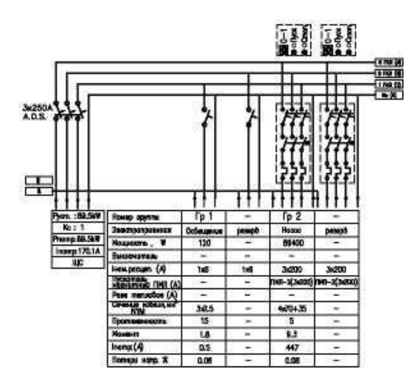
Internal power supply.

Section power electrical equipment and electrical lighting pumping developed on the basis of the architectural and construction section of the project in compliance with existing electrical codes and regulations.
As a power control board, a power shield with automatic switches and built-in start-up protection equipment for units not equipped with its own automation panel was adopted.
Power supply is 380/220 V. The power input is carried out with a cable with copper wires NYY.
The project provides working lighting.
The voltage of the mains supply for lighting lamps is 220V. The methods and locations of the luminaires are shown on the plan. The lighting control is provided by switches in place.
To protect the operating personnel from electric shock, in the event of touching the metal parts of electrical installations that are not under voltage, but which could be placed under it as a result of insulation damage, a protective earthing is provided. Grounding is done by connecting the equipment housings to the grounding strip of the protective external ground loop, consisting of 0 22 mm round steel electrodes and a steel strip 40x4mm.
The production of all the works should be conducted in strict accordance with the RIEE (Rules of installation of electric equipment) and the construction norms of Turkmenistan.

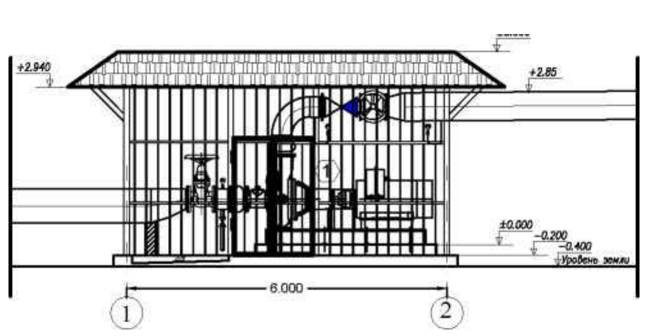
				Installation of pumping house agricultural enterprise Hakykat in etrap Koneurgench (Dashoguz velayat)			
H3M.N	Sheet N	signature	Date				
				Pumping house	Stage	Sheet	Sheets
FAPS						2	2
Impl.							
				Electric lighting plan. Plan of power networks. The calculation scheme. Earthing			



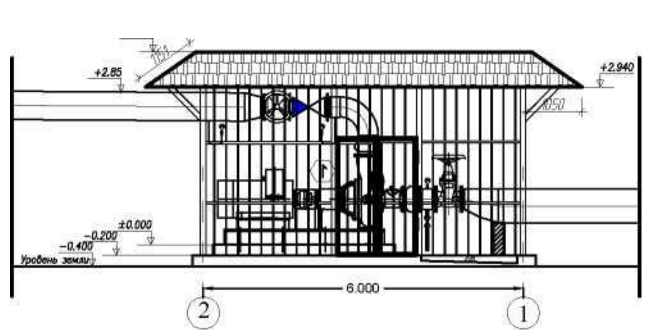




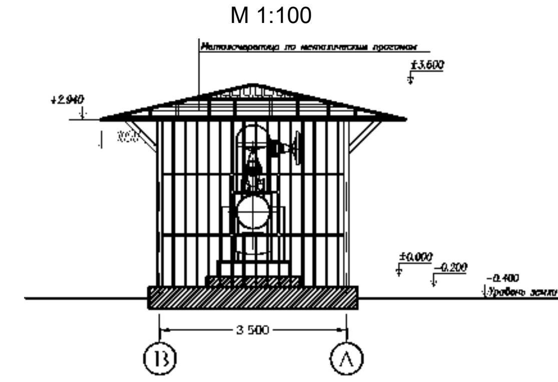
Facade along the axes 1-2
M 1: 100



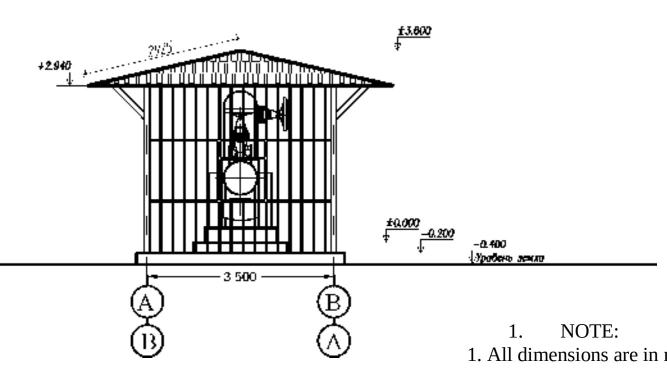
Facade along the axes 1-2
M 1: 100



Section 2-2
M 1:100



Façade along axes A-B, B-A
M 1:100



CABLE JOURNAL

1	Start (building name and shield designation))	End (the same)	Cable		Pipe			Load			Loss			Note
			Mark	Q-ty of res, Section in mm2	Length, м	Brand	Length, м	Installed power, kVa	Rated power, kVa	o <	9-	£ 2 Φ ' O <5 5 *	%	
Installed power, kW POWER CABLES 0,4kV power supply of the territory from TP														
L1	РУ-0,4 кВ КТП	Pumping house	NYY	3x95+1x50	25	втранше а/ц 0 100	15 10	89.5	89.5	170.1	0,95	2237.5	0.3	

1. NOTE:
1. All dimensions are in mm.
2. The final dimensions of the structure should be clarified by the place of construction

Н3М.N	Sheet N	Signatur	Date
Impl.			

Installation of a pumping station in Hakykat agricultural enterprise of etrap Koneurgench (Dashoguz velayat)

Pumping house

Electric lighting plan. Plan of power networks. The calculation scheme. Grounding. Plan of the 10 kV overhead line.

Inv. No orig I signature. and

List of supports

Position	Support Code	Support denomination	Number of model project	Q-ty of pillars on 1 support	Q-ty of support, piece	Type of slab crossbar number of per support
Supports VL-10kV						
1	3.407.1-143.1.10	Anchors	A10-1	2	2	Р-3и-2шт
2	3.407.1-143.1.8	Intermediate	P10-2	1	5	
3	3.407.1-143.1.23	Installation of the disconnector on the anchor support	AP-1		1	
4	3.407.1-143.1.14	The device of a derivation on an intermediate support	Derivation device on intermediate supports		1	
Total 7						

Estimated spans of 10 kV overhead line

Plan at elevation ±0.000 M1:100

CGS in the wind III = 50d / m. by the ice 1 = 5mm

Mark and cross-section of wire suspended on reinforced concrete supports	intermediate	intermediate and complex	complex
AC-50	60	60	60

Technical and economic indicators of the project

No	Name of indicators	Unit measure	Quantity
1	The total length of the overhead transmission line of 10 kV (3 wires) section 1	m	340

Н3М.N	Sheet N	Signatur	Date
Impl			

Installation of a pumping station agricultural enterprise in Hakykat in etrap Koneurgench (Dashoguz vel)

Pumping house

Stage	Sheet	Sheets
РП	3	3

List of supports. Technical and economic indicators of the project.

Positiion	Name and technical characteristics	Type, brand, document designation, questionnaire	Code of equipment, products, material	Plant-manufacturer	Unit measure	Quantity	Weight of unit, kg	Note
1	2	3	4	5	6	7	8	9
	Materials and equipment							
	Items, flaps, boxes .							
1	Shield power distribution with an input breaker 1p=3x250A.							
	- with line breaker 1x6A-2pcs, 3 x 200A-2pcs.							
	- with magnetic starter 3 x 200A-2pcs.							
	- control button two-string-2pcs.	Individual manufacturer			set	1		
2	Switch РПС 2-250 type for installation in transformer substation				piece	1		
	Lighting equipment							
3	Wall mounted cased luminaire 60W, 220V				piece	2		
4	Bulb, -220 V, 60 W				piece	2		
	Wiring Accessories				piece			
5	Single-pole breaker for current 10A, 250V				piece	48		
	Cables							
	Power cable with copper conductors, PVC insulated, cross section:							
6	3x2,5	NYM			m	15		
7	4x70+35	NYM			m	5		
8	3x95+1x50	NYM			m	25		
	Earthing							
9	Vertical electrode 022mm, h=3м				piece	3		
10	Steel strip 40 x 4 mm				m	25		
	PVC pipes							
11	Vinyl plastic pipe with external diameter 20 mm	PVC REB 20			m	15		
12	Asbestos-cement pipe with outer diameter 100 mm	a/c 0 100			m	10		

Specific. of equipment ac according to the working of the ES mark (0.4 kV net.)

Stage	Sheet	Sheet
Specific.	1	1

of the ES

Формат А-3

WORK SHEET of quantities of construction and electrical work.

No	Denomination	Unit measure	Q-ty	Note
1	The construction length of the trench T1	m	10	
2	Digging of trenches T1 for laying cables at 1m 0.31m^3		3.1	
3	Backfilling of trenches T1 to 1m 0,23m^3		2.3	
4	Installation of sand bed T1		0.8	
5	Coating of brick with cable (8 pcs / m) T1	piece	80	
6	Cable laying in the trench	m	10	
7	Cabling in the building	m	20	
8	Cabling in the pipe	m	10	
9	Cable laying in TP	m	5	
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

Инв. № подл. | Подпись и дата | Вза.м инв. №

				--ЭС.ВОР 0.4			
				Installation of pumping station in Hakykat in etrap Koneurgench (Dashoguz vel)			
Position	*Name, Last name*	*Signature*	*Date*				
				Electric supply	*Stage*	*Sheet*	*Sheets*
					PII	*1*	*1*
Impl							
				Work sheet of quantities of construction and electrical work			

Positiion	Name and technical characteristics	Type, brand, document designation, questionnaire	Code of equipment, products, material	Plant-manufacturer	Unit measure	Quantity	Weight of unit, kg	Note
1	2	3	4	5	6	7	8	9
	EQUIPMENT AND MATERIALS SUPPLIED BY THE CUSTOMER							
1	High-voltage insulator	ШФ20-В			piece	40		
2	Insulator cap	К-6			piece	40		
3	Wire fastening				piece	40		
4	Clamp	ПС-2			piece	9		
5	Clamp	AERS (automatic emergency respond system)			piece	48		
6	Suspension tension insulating				piece	12		
	Insulator hanging	S (substation) 70Д			piece	24		
	Ear lobed	У1-7-1-16			piece	12		
	Three-lapped intermediate link	ПРТ-7			piece	12		
	Tension clamp, a wedge, bolt or wedging				piece	12		
7	Disconnector РЛНД.-10/400У1	ТС (technical conditions) 16-520.151-83			piece	2	65	130
8	Drive RA (receiving apparatus)-10У1	ТС (technical conditions) 16-520.151-83			piece	2	10.5	21
9	Bus system (overhead conductor)				piece	16		
10	Bolt	М12х40			piece	18		
11	Span	М12			piece	18		
12	Shim	12			piece	18		
13	Hardware clamp	А2А			piece	18		
	Wires and Cables							
14	Steel aluminum wire-with section -50 mm^2	TI (technical installation)-50			m	1071		в3-и пров + 5%на монт.

-- - ЭС.СО 10

				Specification of the equipment according to the working drawings of the ES mark (El net 10 kV.)	Stage	Sheet	Sheets
Eng					РП	1	1

Ю
К

Формат А-4

Position	Mark Position	Designation	Denomination	Quantity, piece	Unit weight	Note
Concrete products						
1	Support HVL-10kV	TS (Transformer substation) 3.407.1-	Vibrated tier	7	1180	
2	Bearing attachment	TS (Transformer substation) 3.407.1-136 ПЗ-и	SLAB	4	110	
Steel products						
3	HVL-10kV	TS 3.407.1-143 ТМ-2	Steel constructions transversal(without head)	2	10.9	21.8
4	HVL-10kV	TS 3.407.1-143 ТМ-3	Steel constructions transversal(without head)	5	21.0	105
5	HVL-10kV	TS 3.407.1-143 ТМ - 6	Steel constructions transversal(without head)	2	23.0	46
6	HVL-10kV	TS 3.407.1-143 ОГ2	Angle bar	4	1.6	6.4
7	HVL-10kV	TS 3.407.1-143 ОГ5	Angle bar	2	1.2	2.4
8	HVL-10kV	TS 3.407.1-143 Х- 1	Clamp for fixing the traverse	9	1.2	9.6
9	HVL-10kV	TS 3.407.1-143.8.68 Х- 7	Loop	3	0.7	2.1
10	HVL-10kV	TS 3.407.1-143.8.68 Х- 8	Loop	1	0.7	0.7
11	HVL-10kV	TS 3.407.1-143 Б5	Bolt	2	0.6	1.2
12	HVL-10kV	TS 3.407.1-143 У-1	Bracket	2	7.0	14
13	HVL-10kV	TS 3.407.1-143 Г 1	Zip tie	4	5.7	22.8
14	HVL-10kV	ТП 3.407.1-143.8.64 RA1	Bracket	1	13.8	13.8
15	HVL-10kV	TS 3.407.1-143.8.65 RA2	Bracket	1	2	2
16	HVL-10kV	TS 3.407.1-143.8.69 RA3	Control shaft	2	12	24
17	HVL-10kV	TS 3.407.1-143.8.66 RA4	Bracket	1	1.5	1.5
18	HVL-10kV	TS 3.407.1-143.8.67 RA5	Bracket	1	1.5	1.5
19	HVL-10kV	TS 3.407.1-143 ЗП 1	Conductor	9.7м	0.9	8.73
20	Earthing HVL-10kV	TS 3.407.150	Earthing switch made of round steel d = 10MM., L = 5M, d = 10 MM., L = 10M	**pcs/m 7/35 2/20**	1m/kg 0,62	34.1

Signature

Eng

-- - ЭС.СИ 10

Specification of the products according to the working drawings of the ES mark (El net 10 kV.)

Stage	Sheet	Sheets
РП	1	1

PRODUCTION PROJECT

Complete transformer substation with
Transformer 160 kVa
ALBUM I
-- Transformer sub-station

CONSTRUCTION SITE: Installation of a pumping station in agricultural enterprise in Hakykat etrap Koneurgench (Dashoguz velayat)
Facility: -- Transformer sub station

Ashgabat 2018

Формат А3

STATEMENT OF WORKING DRAWINGS OF THE BASIC KIT

Page	Description	Remarks
1-2	General information	
3	Plan, section, scheme of primary connections.	
4	Foundation of transformer substation	
5	Earthing of transformer substation	
6	One-line diagram of 160 kVA substation	
7	Physical volume of works on the construction.	
8	Product Specification transformer substation	
9	Equipment specifications	
10	Questionnaire for the transformer substation	

WORK SHEET OF REFERENCE AND SUPPLIED DOCUMENTS

Designation	Denomination	NOTE
	Reference Documents	
EIC (electrical installations code) edition 6	Rules for the installation of electrical devices	
CN (construction norms) 2.04.20-2004	Instruction on the design of power and lighting equipment of industrial enterprises	
A10-92	Protective earthing and neutralling of the electrical installation	
Catalog of the Minsk E / Tech Plant 2004	Complete transformer substation 10 / 0,4к1	3
	Attached documents	
-- - Transformer station Transmission system operator	Equipment Specification	SHEET 1

GENERAL INSTRUCTIONS

In this project the drawings of a complete transformer substation with a transformer rated at 160 kVA are given. The power transformer is supplied complete with the transformer substation. Transformer substation is used to receive electric power of a three-phase alternating current; frequency is 50 Hz, voltage is 10 kV and transformation into electricity with a voltage of 0.4 kV

TAC-10 / 0,4 kV are intended for power supply to consumers of agriculture, settlements and small industrial objects in areas with a temperate climate.

The project has been developed in accordance with the current regulations and rules and provides for activities that ensure explosive, explosion and fire safety during operation of the building.
The chief architect of the project

TERMS OF USE

Performance category in accordance with GOST 15150-69 - U1.
Height above sea level - no more than 1000 m.
Ambient temperature from -45 ° C to + 40 ° C
The degree of pollution of the atmosphere according to the instructions of RD.34.51.101.-90-1-3. The environment is non-explosive, does not contain conductive dust, aggressive gases and vapors in concentrations that reduce the parameters of the gas turbine engine in unacceptable limits.
External insulation according to GOST 9920-75 - “A” category
Area by wind and ice -1-3.
Transformer substation is not intended for work in conditions of shaking and vibration.

DIAGRAM OF ELECTRICAL CONNECTIONS

On the 10 kV side, the power transformer is connected to the 10 kVa line by a dead-end circuit through the disconnector and fuses.
The transformer is connected to the bus bars 0, 4 kV through the switch.

RU-0, 4 kV provides for the possibility of connecting three lines. The connection of 0.38 kV lines is carried out through circuit breakers with the additional installation of current relays, which are connected to the neutral wire. In addition, a street lighting feeder is provided. In the feeder circuits of street lighting fuses, a contactor and a photo relay (for automatic control) are installed.

Electricity accounting at the input 0.4 kV is carried out by a three-phase meter connected through current transformers. To operate the meter in winter time, a heating device is provided with the help of resistors, which ensure the normal operation of meters at an ambient temperature of -45 ° C.

Transformer substation

Mea	Q-ty	Sheet	No of	Signat	Date

Installation of pumping in agricultural enterprise in Hakykat etrap Koneurgench (Dashoguz velayat)

DESIGN

Transformer substation 10 / 0, 4 kV of cabinet type consists of four bords: two bords of power transformers, bords with terminals 10 kv and bords of the device 0.4 kV distribution.
In LVS (low voltage switcher) cabinet there are low-voltage switching devices as well as protection, automation and accounting equipment. For safety of maintenance, the equipment, wires and busbar are protected by panels that are hinged. The security panels have locking devices in the working position; they provide holes for the exit of the handles of switching equipment and monitoring of the meter's readings.
LVS and UHV cabinets are closed with doors with self-locking locks. For securing in the open position there are locks on the doors. Doors are adapted for sealing. On the door of the UHV cabinet there is a lock-block interlocked with the drive of the earthing knives of the disconnector.
Transformer substation has interlocks that prevent following:

1. switching off of the disconnector when the load is switched on from the 0.4 kV side (with the cutoff turned on);
2. switching on the earthing knives of the disconnector with the main knives switched on;
3. switching on of the main knives of the disconnector with the earthing knives included;
4. opening the door of the UHV cabinet with switched off earthing knives of the disconnector;
5. disconnection of the earthing knives of the disconnector with the open door of the UVN cabinet;
6. disconnection of the switch under load.

10 kV disconnector is installed separately on the terminal support of a 10 kV HV line.

EARTHING AND LIGHTING GUARD

Earthing connection is implemented combined for transformer substation. Resistance of the earthing connection is adopted in accordance with EIC, item 6 of Ch.7.7 and should not be more than 4 ohms at any time of the year. Earthing is subject to neutral and transformer case, 10 kV dischargers as well as all other metal parts that may be energized if the insulation is damaged.

Overvoltage protection is provided by 10 kV valve arresters installed at the 10 kV input.

Implemented

Transformer substation

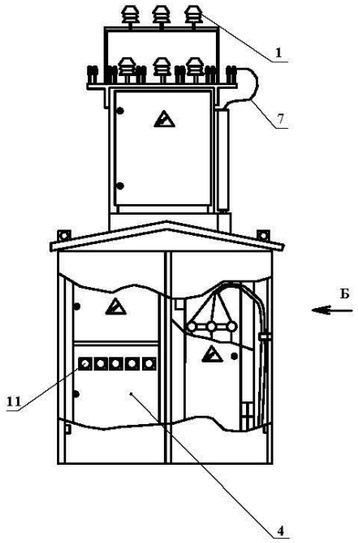
Installation of pumping in Hakykat village in etrap of Koneurgench (vel. Dashoguz)

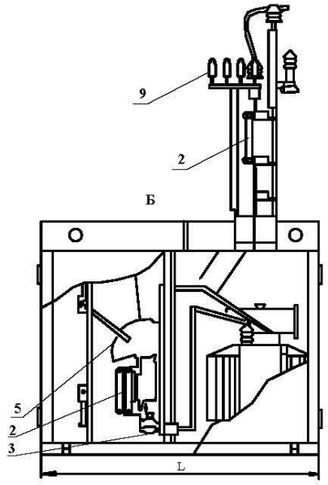
	Stage	Page	Sheets
Complete transformer substation 160 kVA	РП	2	10
General information (end)			

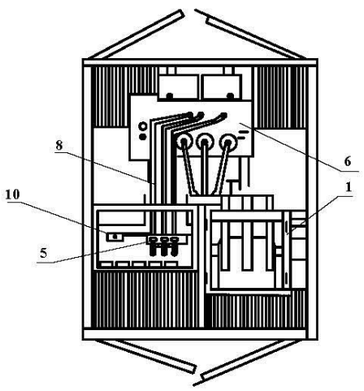
Формат А3

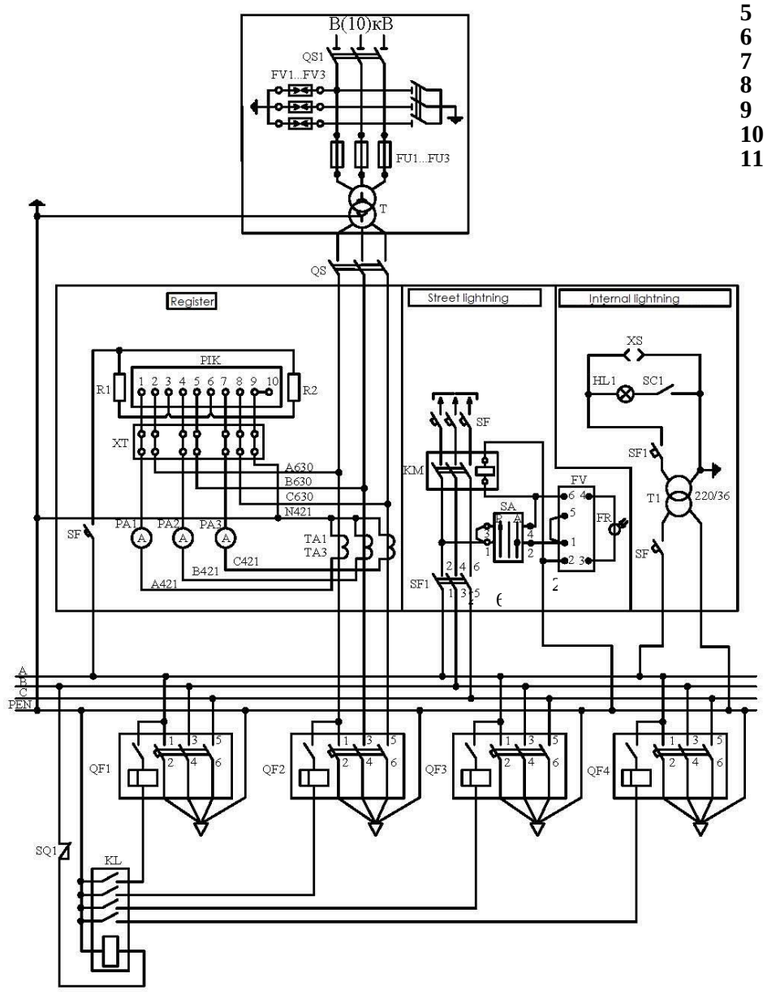
220/36

1 Air inlet HV
2 fuses of code converter type
3 Wall tube
4 LVS
5 Cutout
6 Transformer of power type TM (TMG)
7 Cable of reclose type
8 Tire
9 Supporting insulator
10 Energy accounting
11 Circuit breaker









						Installation of pumping agricultural enterprise Hakykat in etrap Koneurgench (Dashoguz vel)
Measur	**Q-ty**	**Sheet**	**No of doc**	**Signature**	**Date**	
						Complete transformer substation 160 kVA
Implem.						Plan, section, scheme of primary connections

Stage	Sheet	Sheets
РП	3	10

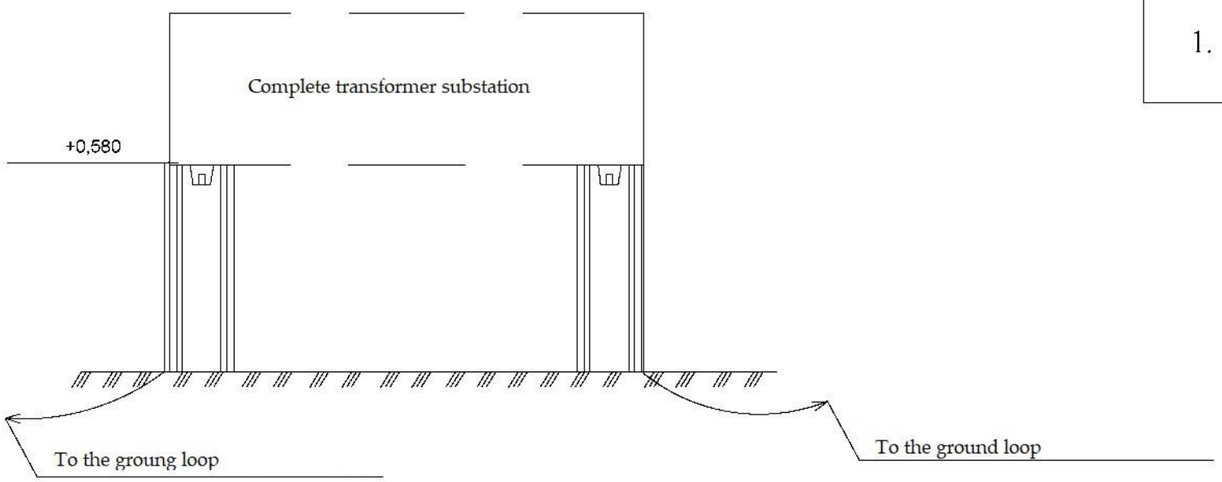
Взам. инв. №
Подпись и дата
Инв. № подл.

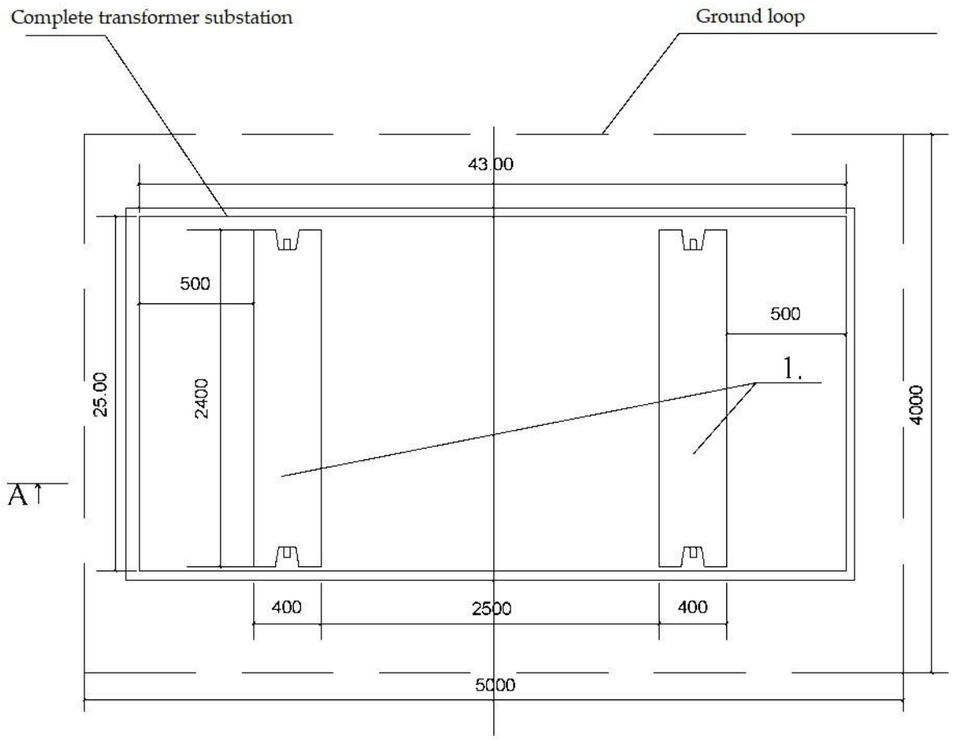
A3 - Format

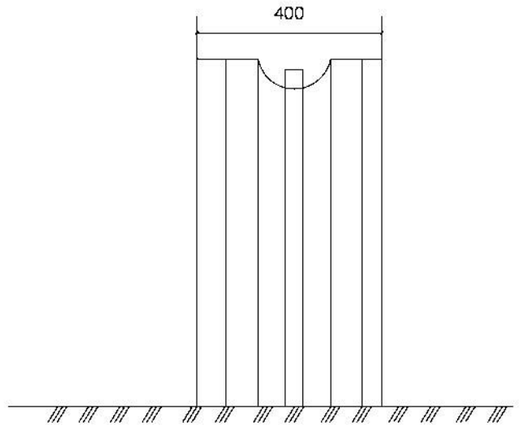
Формат А3

Position	Designation	Description	Q-ty	Unit weight, kg	Remarks
1.	TDS 13579-78	ФБС 24.4.6-Т	2.	1300.	0,543м^3

A-A

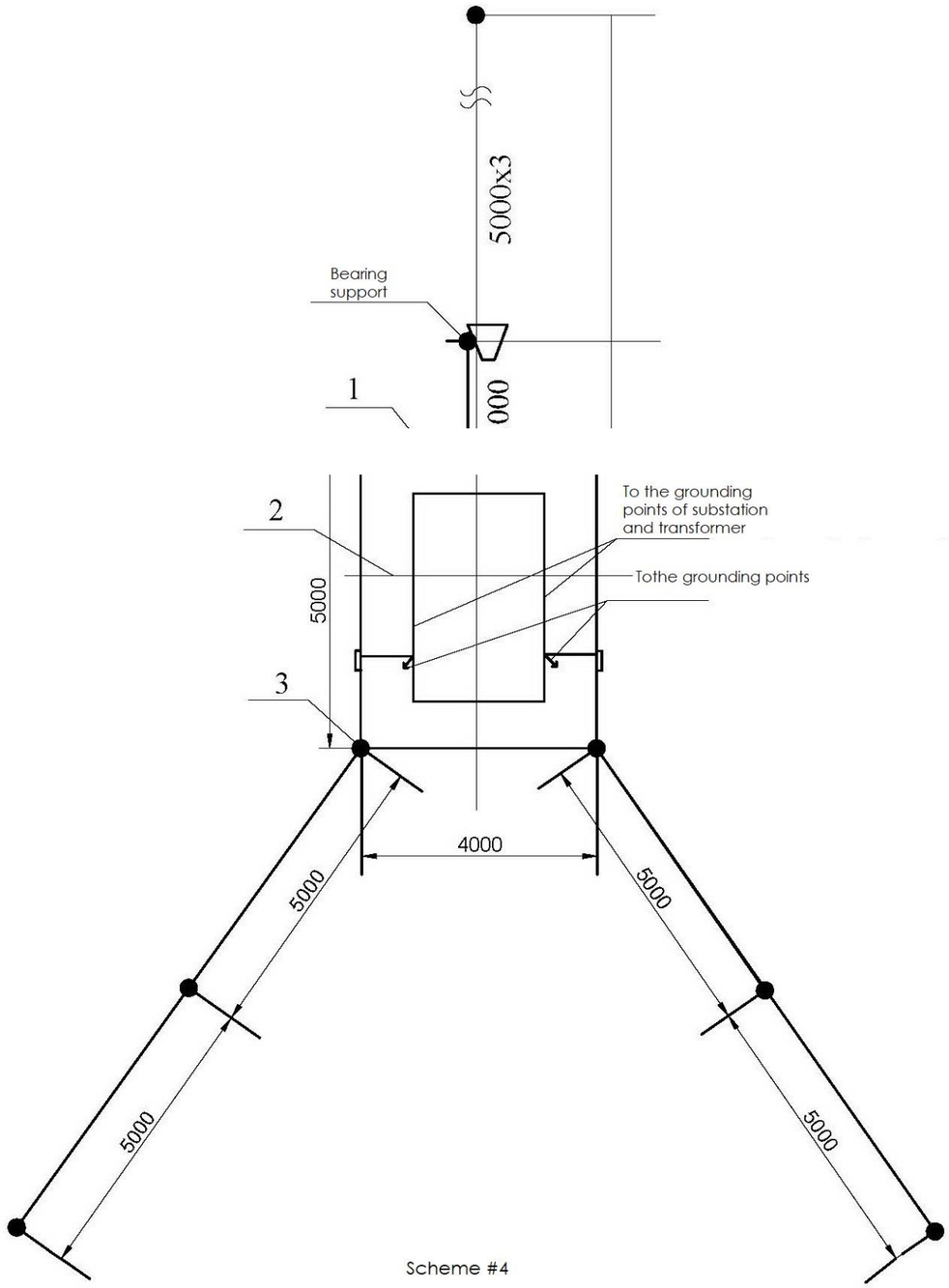






Installation of pumping agricultural enterprise Hakykat in etrap Koneurgench (Dashoguz vel)			
Complete transformer substation GKTP 160 kVA	Stage	Page	Sheets
	РП	4	10
Foundation of transformer substation			

Формат А3



Scheme #4

Position	designation	denomination	Q-ty piece/m	Unit weight, kg	Note
1	TDS2590-88	steel round 01 0 M M	56	0,62	
2	TDS2590-88	steel round 01 0 MM earthing earthing lead	7	0,62	
3	TDS2590-88	steel round 0 12мм	10/50	0,89	Vertical earthing **L-5м**
		volume of excavation works			
		trench	56	250x500	7м^3

Earthing loop is made common for a voltage of 10 and 0.38 kV.

Design resistance of the grounding device R 3.p.-1.4 OM <R- 4 Ohm.

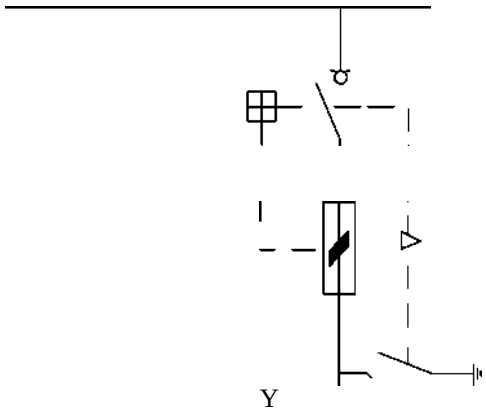
less than the normed.

Horizontal earthing switch must be laid at a depth of L = 0.5. vertical to score to a depth of 5 m.

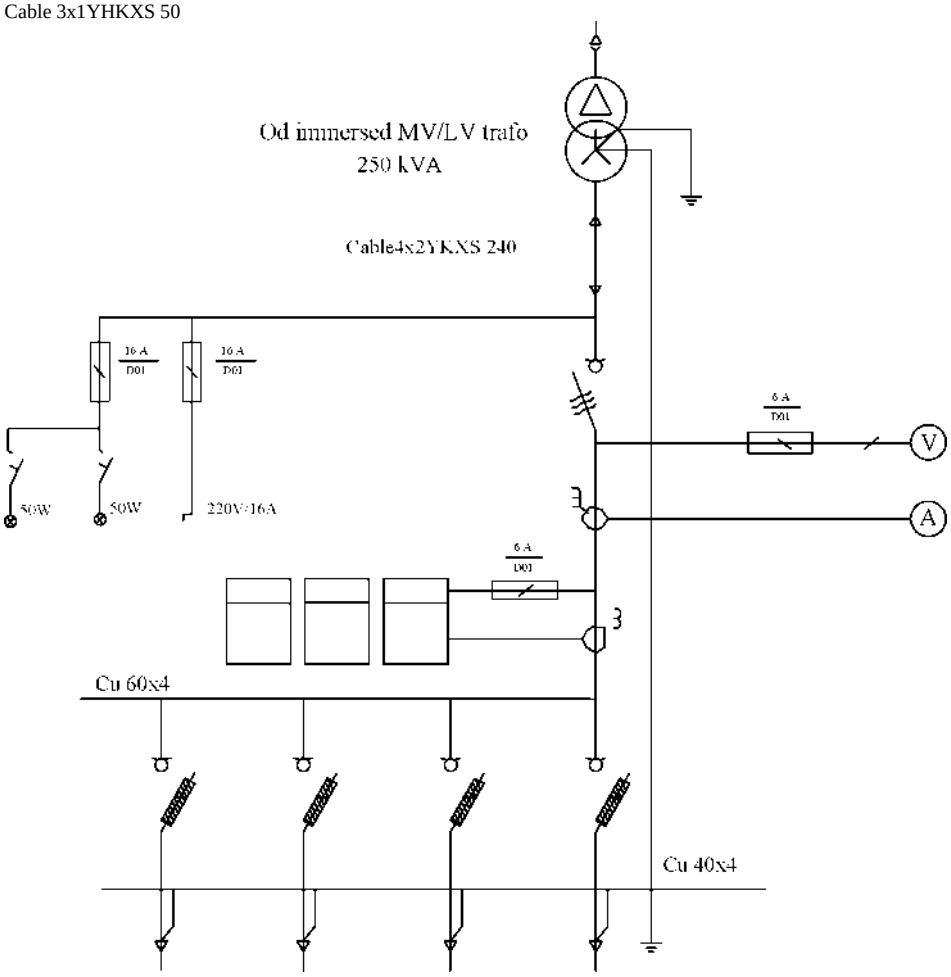
1. Construction and installation work must be carried out in accordance with IPPE and SNiP 3.05.06-85

						Installation of pumping agricultural enterprise Hakykat in etrap Koneurgench (Dashoguz vel)		
Measur	Q-ty	Sheet	No of doc	Signature	Date			
						Complete transformer substation of the electrical substation 160 kVA	Stage	Sheet	Sheets
							РП	5	10
						Earthing of the electrical substation			

Impl



Cable 3x1YHKXS 50



Inv. No. Signature and date. inv. No.

Measure	Q-ty	Sheet	№ док	Signature	Date	*Installation of pumping agricultural enterprise Hakykat in etrap Koneurgench (Dashoguz vel)*		
						Complete transformer substation of electric station 160 kVA	Stage	Sheet	Sheets
							РП	6	10
						Single-line scheme of 250 kVA substation			
Impl									

Формат А4

The physical scope of the electrical substation installation

№	Denomination	Unit measure	Q-ty On electrical substation	
1	Earthing of the electrical substation			
	- Horizontal earthing switch 0 10 mm	m	56	
	- Earthing conductor 0 10 mm	m	7	
	- Vertical earthing switch 0 12 mm L-5 m.	piece/m	10/50	
2	Installation of electrical substation 10 / 0.4 kV with a capacity of 160 kVA	piece	1	
3	Installation of a transformer TM-160/10 / 0.4 kV	piece	1	
4	Foundation for the electrical substation FWB 24.4.6. T	piece	2	
5	Waterproofing FBS 24.4.6. T (5.16m /square pcs. 12.39kg/ pcs)	piece	2/12.39	
6	Earthwork operations (trench 250x500mm)	piece	*1* 3 7 м	

Measure Q-ty	Sheet № doc	Signature	Date	Installation of pumping station in Hakykat village in etrap Koneurgench			
				Complete transformer substation 160 kVA	Stage	Sheet	Sheets
					РП	7	10
				Physical volume of works on the construction			

Brand position	Designation	Denomination	Q-ty piece for 1 transformer	Weight of unit, kg	Weight kg for 1 transformer		
Transformer plant installation	TDS 13519=19	ФБС 24.4.6=Т	2	1300	2600		
Earthing of TP -10.0,4kV	TDS 135=19	Steel round 01Omm	63	0,62	39.06		
Earthing of TP -10.0,4kV	TDS 2590-88	Steel round 02mm	50	0,89	44.5		

Measure	Q-ty	Sheet	Document No	Signature	Date	*Installation of pumping agricultural enterprise in Hakykat in etrap Koneurgench (Dashoguz velayat)*			
						Complete transformer substation 160 kVA	Stage	Sheet	Sheets
							РП	8	10
						Specification of the transformer substation products			

Position	Denomination and technical characteristics of equipment and materials. Manufacturer (for imported equipment-country, firm.)	Type, brand of equipment Designation of documents and the number of the questionnaire.	Unit of meas-t.	q-ty	Weight unit, kg	Note
	EQUIPMENT SUPPLIED BY THE CUSTOMER.					
	High-voltage equipment					
1	Complete transformer substation 10kV with oil transformer with a capacity of 160kVA.	GKTP-160/10/0.4У1.	set	1		
	4.Isolators and linear armature of the transformer substation					
1	Insulator SHF 20-G	TDS-22863-77	piece	3		
2	Caps made of polyethylene K-6	TDS-183-80	piece	3		
3	Hardware clamp A-1A-50-7	TDS-4261-82	piece	3		

Equipment specification

Stage	Sheet	Sheets
РП	9	10

Формат А3

Brand position	Designation	Denomination	q-ty pieces	Weight of unit, kg	Weight kg		
Complete transformer substation installation	TDS 13519=19	ФБС 24.4.6=Т	2	1300	2600		
CTS earthing-10.0,4кV	TDS 135=19	Steel round 01Омм	63	0,62	39.06		
CTS Earthing --10.0,4кV	TDS 2590-88	Steel round 02мм	50	0,89	44.5		

						Transformer substation		
						Installation of a pumping station agricultural enterprise Hakykat in etrap Koneurgench (Dashoguz velayat)		
Measur	Q-ty	Sheet	No of docum	Date	Date			
						Complete transformer substation 160 kVA	Stage	Sheet	Sheet
							РП	8	10
Impl						Specification of the GKTP products			

Формат А4

WORK SHEET OF WORKING DRAWINGS OF THE BASIC KIT

Sheet	Denomination	Note
01	General data	TX
02	Plan of pumping house on mark ±0,000.	TX
03	Section 1-1 with sections. M1: 50.	TX
04	Axonometric diagram of the VO networks	TX

WORKSHEET OF REFERENCE AND SUPPLIED DOCUMENTS

Designation	Denomination	Note
Reference documents		
CHT 2.04.02-00	**Water supply. External networks and facilities.**	
CHT 2.04.01-98	Internal water supply and sewerage system	
	Attached documents	
TX.C	Equipment Specification	On sheet 1

MAIN INDICATORS FOR DRAWINGS OF WATER SUPPLY AND SEWERAGE

Name of the system	Estimated expense			d POWER EL.	Note
	m3 / day	m^3/hour	l / sec		
B1	32400	1800.0	500.0		

The project was developed in accordance with the current regulations and rules and provides for activities that ensure an explosive, explosion and fire safety during operation of a building

Chief engineer of the project

GENERAL DATA

In this part of the project, technological solutions for the installation of the pump are presented.

Operation of the pump is provided without permanent staff on duty. Control of the pump is automatic.

Technical solutions are taken with account of above-ground execution and installation of pumps under the bay from the calculated level.

The pumping station for pumping water provides installation from a single pump with a capacity of Q = 1800m3 / h, H = 5.0m.

- The suction pipeline is introduced into the channel at an angle of 45 ° and is a steel pipe of 0630x14.0 mm by an input section equipped with a containment grate. The exhaust pipe must be equipped with a gate valve, mechanical filter, compensator and manometers.

After installation, the steel pipelines and pipeline valves should be painted on the surface of the PF-133 or PF-155 enamel, cleaned of rust, 1 layer of GF-0119 primer. Insulation of the outer surface of steel pipelines outside the pumping station should be “highly enhanced” based on bitumen mastics or polymer adhesive tapes in accordance with GOST 9.602-89. In places where pipelines pass through the walls of tanks, a device of ribbed branch pipes with flexible inserts is provided.

Installation of the systems and mandatory intermediate acceptance of the performed work shall be carried out in accordance with SNIP 3.05.01-85.

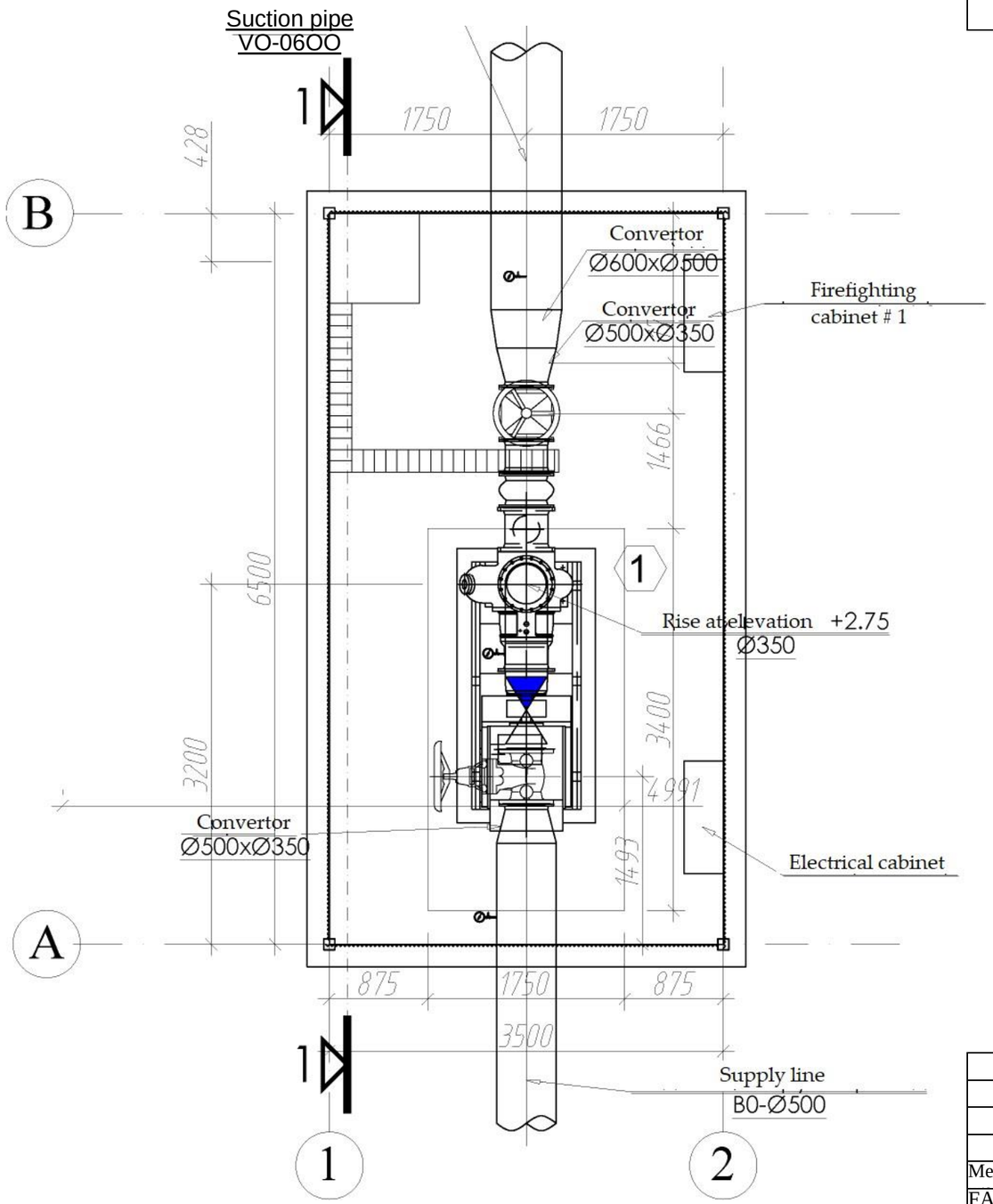
The pump station is equipped with two fireproof cabinets and two powder OP-6 and carbon dioxide OU-6 fire extinguishers.

The project provides for the installation of equipment supplied complete with units with shut-off, safety and control valves, control devices, as well as control and automation panels.

Meas	Q-ty	Sheet		Signatur	Date			
						Pumping of the1st lift	Stage	Sheet / Sheets
Impl.							РП	1 / 4
						General data		

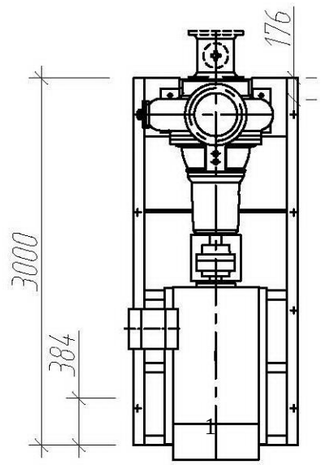
Формат А3

Plan of pumping house



SPECIFICATION OF MAIN EQUIPMENT

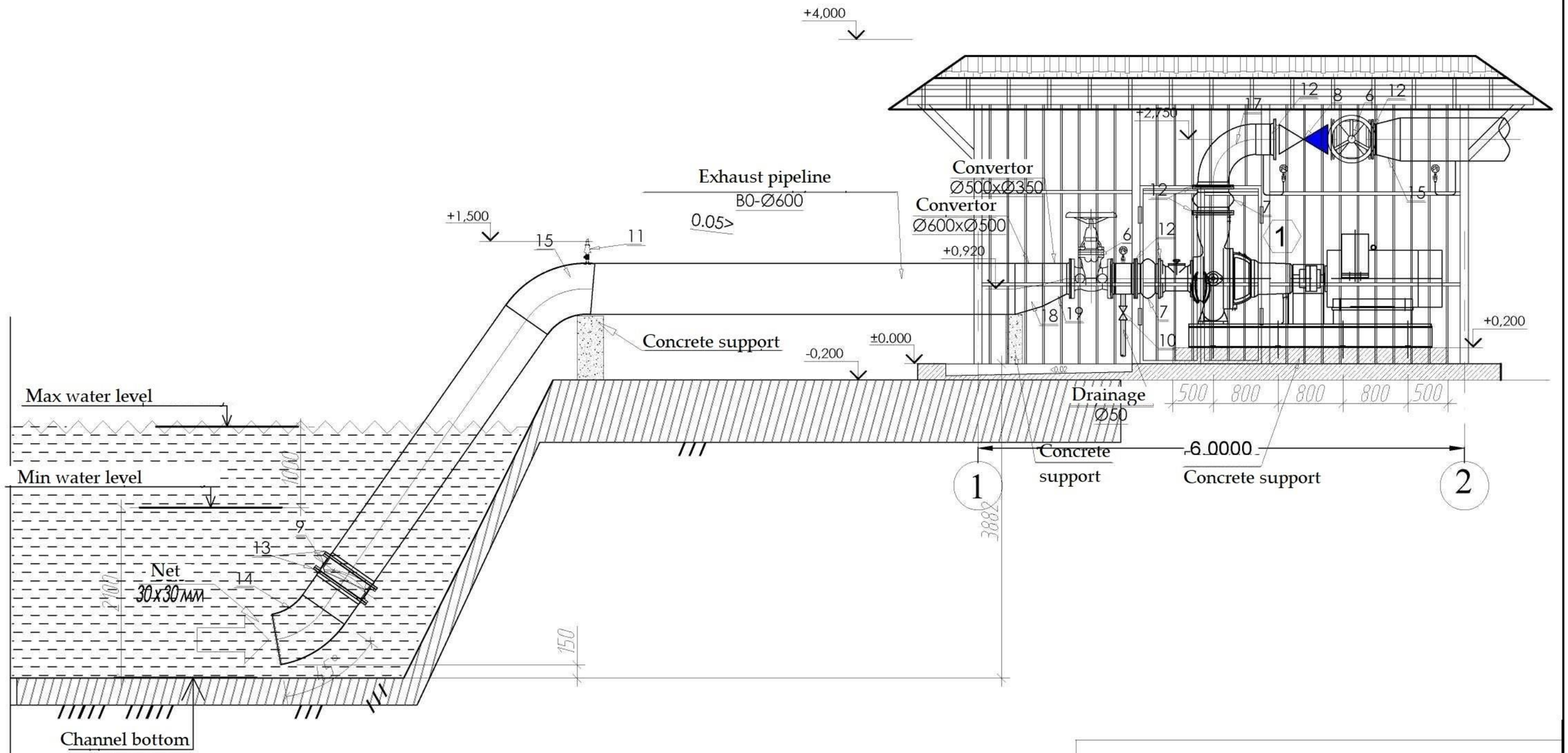
№ of pos	Denomination	Quantity	Note
1	Pressure boosting unit	1 worker	
	Q=1800.0 m3/h, H=5.0м		



						TX	
Meas		Sheet		Signatur	Date		
FAPS						Pumping of the 1st lift.	Stage: РП; Sheet: 2; Sheets: 4
Impl.							
						Plan of pumping house on mark. ±0,000.	

Формат А3

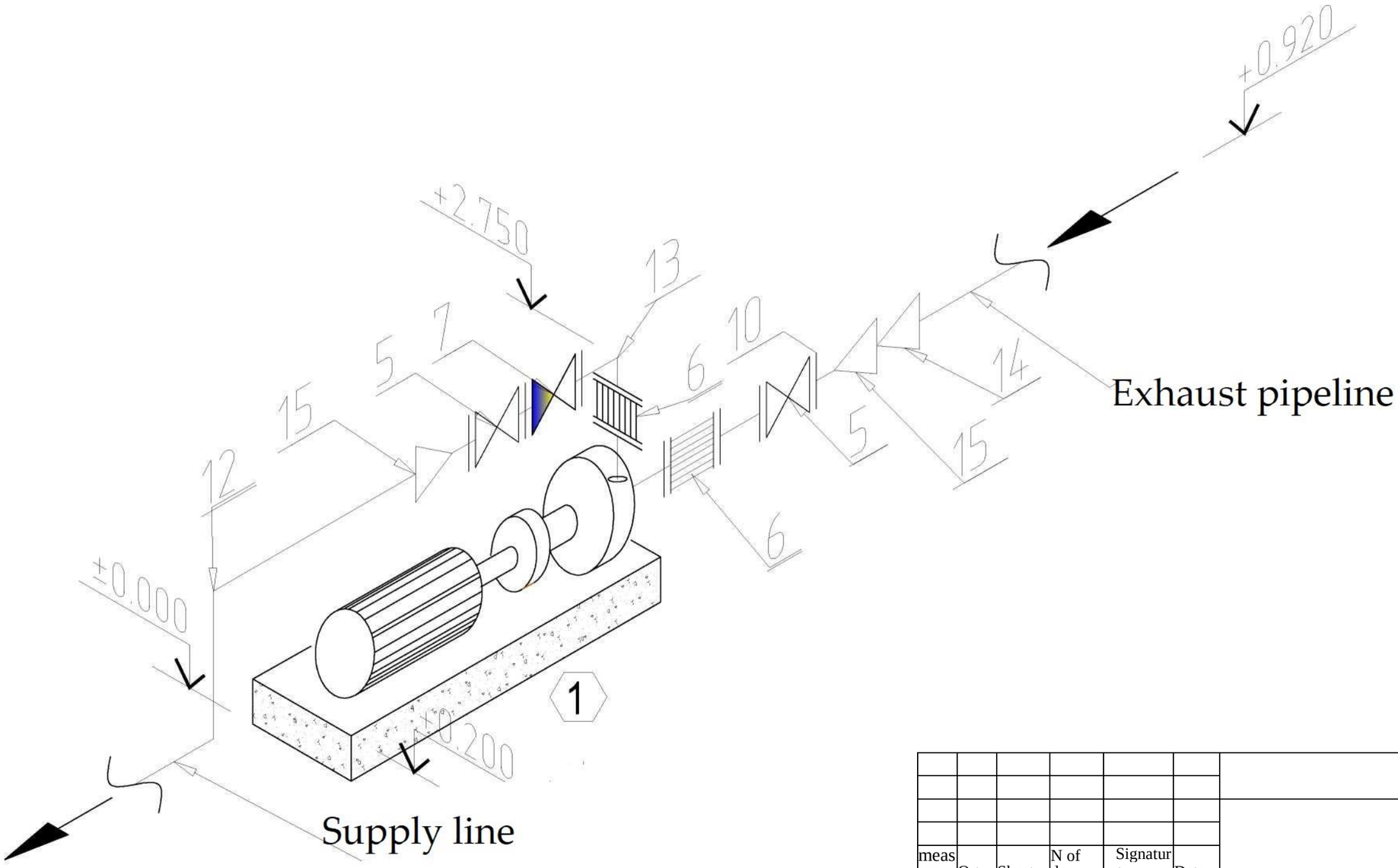
Cut 1-1
M1:100



	Stage	Sheet	Sheets
First lifting pump station	РП	3	4
Cut 1-1 with sections M1:50.			

Формат А2

Axonometric diagram of the VO networks.



						TX			
measyre	Q-ty	Sheet	N of doc	Signature	Date				
						Pumping house of the 1st lift	Stage	Sheet	Sheets
Impl.							РП	4	4
						Axonometric diagram of the VO networks.			

Формат А3

Position	Denomination and technical specification	Type, brand, designation of document, questionnaire	Equipment, item, material code	Factory-manufacturer.	Unit measure	Quantity	Weight unit, kg	Note
1	2	3	4	5	6	7	8	9
	Water supply system - VO							
1	Pressure boosting unit				set	1	By request	1 worker.
	Q=1800.0 m3/h, H=5.0 m,							
2	Electrically welded steel pipe DN630xl4.0 (600)	TDS 10704-91			m	12.0±1.0	212,68	
3	Electrically welded steel pipe DN530xl2,0 (500)	TDS 10704-91			m	29.5±1.0	153,30	The longest 29,5m.The shortest 9,0 m.
4	Electrically welded steel pipe DN377x9,0 (350)	TDS 10704-91			m	10,0	81,68	
5	Electrically welded steel pipe DN57x3.5 (50)	TDS 10704-91			m	1.0	4.26	
6	Flanged iron gate valve PN10/ DN350		02-350-75*		piece	2	320,0	
7	Rubber Compensator (flexible insert), flanged PN 10/ DN350				piece	2	39,7	
8	Check valve reversible full-bore with metal		302,0x		piece	1	250,0	
	By disc for contaminated liquids DN350							
9	Check valve with rotary disc, flanged Ру-1,0МПа 0600мм				piece	1	200,0	
10	Valve DN50				piece	1	7,6	
11	The valve air Ру-1,0МПа DN50 combined				piece	2	17,50	
12	Steel Flange PN10 DN350	TDS12821-80*			piece	8	24,0	
13	Steel Flange PN10 DN600	TDS12821-80*			piece	2	48,8	
14	Bend steel. 45° DN600	TDS17375-2001			piece	1	133,0	
15	Bend steel. 60° DN600	TDS17375-2001			piece	1	177,3	
16	Bend steel 90° DN500	TDS17375-2001			piece	2	162,0	
17	Bend steel. 90° DN350	TDS17375-2001			piece	3	78,0	
18	Junction steel DN600x500	TDS17378-2001			piece	1	94,0	
19	Junction steel DN500x350	TDS17378-2001		piece	piece	2	65,0	
20	Manometer showing (0/16 kg/sm2)	TDS 8625-77		piece	piece	3	0,9	
21	Painting of steel pipes 2 layers of enamel ПФ-133 or ПФ-155 on the primer layer ГФ-0119	TDS 926-82* /GOST (USSR Standard-Setting Authority) 23343-78*			m^2	252,5 / 252,5		
22								

Signature and date

Meas	Сол	Sheet	doc.	Signatur	Date	Pumping house of the 1st lift	Stage	Sheet	Sheets
FAPS							РП	1	1
Imp.						Specification of materials and equipment			