

PREPARING WORK
GROUND WORK
REMOVAL/DEMOLISH WORK

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1	Construction site preparing work, temporary material and tools storage setup, temporary water, waste water and power supply setup, temporary office setup (chief of construction site and supervisor). One set of main design must be available on construction site at all time.	LS	1.00			
2	Longitudinal trench axle marking with wooden poles, including the trench bottom relatively level marking. Based on points measured on distance 30 m each, total length of marking 3035 m (120 markers)	LS	1.00			
3	Asphalt cutting (thickness 10 cm) with mechanical saw. No power available on site, need generator support or petrol engine machine. 660x2 = 1320	m	1,320.00			
4	Permanent removal of the asphalt (road pass removal) to the local authorized depot (max. distance 10 km). 330 m ² x 0.1 = 33.0 m ³	m ³	33.00			
5	Mechanical trench digging, soil class VI including the soil storage 3.0 m far from trench. 0.8x0.5x2975.0 m	m ³	1,190.00			
6	Hand (manual) trench digging where is required (locations with no access to the civil engineers-genset pad), soil class V/VI including soil temporary storage 3.0 m far from trench. 0,75x0,75x0,80x53 = 23.85 m ³	m ³	23.85			
7	Purchase, transport and installing of the sand (for MDPE pipes bed), granulation 0-4 mm, consumption 0.16 m ³ /m of trench length. 0.8x0.2x2975,0 m	m ³	476.00			
8	Purchase, transport and installing asphalt (trench road cross), type BNS 22, thickness 10 cm in standard width of repair 0.4 m. 660x0.5 = 330 m ²	m ²	330.00			
9	Purchase, transport and installing final layer of the gravel, size 0-16 mm, including planning and compacting to the pressure resistance 6 Mpa. Approx. thickness of the layer 10 cm. 1.2x1.2x0.2x53 = 15.26 m ³	m ³	15.26			
10	Purchase, transport and installing final layer of the gravel, size -32 mm, including planning and compacting to the pressure resistance 6 Mpa. Approx. thickness of the layer 25 cm. 1.2x1.2x0.1 = 6.2 m ³	m ³	6.20			
11	Soil for permanent removal transport and unloading to the local authorized depot max. 10 km distance (location shall approve supervisor). 0.40x0,50x2975 m = 595 m ³	m ³	595.00			

REINFORCED
CONCRETE WORK

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1	Workshop producing of manhole all in reference with detailed drawing. Type of concrete is MB30. The concrete shall be vibrated with nozzle min. DN 30 mm Price shall be reference the completely manhole construction including the street light additional foundation (see attached drawing), steel cover (Q=100 kN), lock, hinges, stairs etc.	SET	53.00			
2	Loose concrete slab construction with poor concrete MB15 with no reinforcement. Loose slab shall be constructed on top of the compacted gravel pad (min. gravel thickness 20 cm) to the compacting level 4 MPa. 53 x 1.20x1.20x0.20 = 15.26 m ³	m ³	15.26			
3	Stand alone steel pole foundation (movable camera street lights) construction with concrete MB30, reinforcement included. Cross section of foundation is 1.0 x 0.7x0.7 m each. 1.0x0.7x0.7x30 set	m ³	14.70			
4	Stand alone cadastral survey reinforced concrete poles (standard H-0.6 m) - markers all along the trench axle. Price include pole numeration. 120 sets	SET	120.00			

**REINFORCEMENT
WORK**

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1	Provision, transport and installing flat round reinforcement steel class GA-240/360, cleaning, cutting, forming and installing (simple structure).	kg	750.00			
2	Provision, transport and installing round rebar reinforcement steel DN 12 mm, class RA-450/500, cleaning, cutting, forming and installing (simple structure).	kg	750.00			
3	Provision, transport and installing reinforcement steel mesh type Q185, class MA-500/600, formatting, cutting, cleaning and installing (unit price include distance pieces). Q185-600x220-36 pcs.	kg	2480.00			

**METAL WORKSHOP
WORK**

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1	Provision, transport and construction and installing of the standalone (PTZ) camera poles in reference with detailed drawing. The steel pole shall be protected with two coats of corrosive protection paint + two coats of paint/varnish in green color. Price include all screws, bolts washers and anchors. L=450 cm, 100X100X5MM	pcs	4			
2	Provision, transport, construction and installing of the external light fixtures steel poles (brick and concrete wall structure) all in reference with light fixture producer manual. The steel poles shall be protected with two coats of corrosive protection paint + two coats of paint/varnish in green color. Price include all screws, bolts, washers and anchors. L=400 cm, 100X100X5MM	pcs	22			
3	Provision, transport, construction and installing of the frame for the synoptic map (wall installing) what include the metal frame (steel boxed pipe 40x40x2.6 mm) size 250x150 cm, plexy glass 5 mm thickness (transparent), white PVC support 3 mm thickness (LED elements set up described in hardware bill of qty). switch cabinet support in reference with detailed drawing. The frame shall be protected with two coats of corrosive protection paint + two coats of paint/varnish in green color. Price include all screws, bolts washers and anchors. Synoptic map shall be drawn on heavy coated HP plotter paper in scale 1:1000-survey drawing).	SET	1			
4	Provision, transport, construction and installing of the switch cabinet support in reference with detailed drawing. The support shall be protected with two coats of corrosive protection paint + two coats of paint/varnish in green color. Price include all screws, bolts washers and anchors.	EA	22			

DUCTING WORK

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1	Purchase, transport and installing the MDPE pipes (nominal size DN 100 mm) in a sand bed. Price include pipe end sealing with SIKA sealing material.	m	5,010			
2	Purchase, transport and installing the MDPE pipes (nominal size DN 75 mm). Price include MDPE pipe set ups and sealing to the manhole. 462 m	m	462			
3	Purchase, transport and installing the MDPE pipes protection of exposed part (wall exposed) with steel pipe DN 76.1 x 2.9 mm, L=120 cm each. Price include and two steel anshors. Price include steel pipe painting with 2 layer of corrosive paint and two layers of the oil paint color on supervisor approval. 17 x 1.20 m	set	22			
4	Purchase, transport and installing warning tape red in color 10 cm width.	m	5,010			

B1 CABLE CABINETS

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1	<p>MAIN DISTRIBUTION BOARD INSTALLING Purchase, transport and installing: The existing board is designed and installed as a surface-mounting, steel profile and twice pickled steel sheet 2 mm thick, corrosion protected method of electrostatic powder coating, RAL 7003, fully equipped with the single pole scheme. Approximate dimensions (600x600x2000) mm (width x depth x height).</p> <ul style="list-style-type: none"> • degree of mechanical protection IP43 • Introduction of cables from below • Space for installation of the UPS • 30% reserve space for mounting equipment • All equipment used must be new, first-class quality, the product of one of reputable manufacturers. • All new equipment must be marked. On the board will be labels and warnings, and inside single line diagram. <p>- The supply part consists the automatic transfer switch 63A network-generator; 4-phase surge arresters 10kA, voltmeter's switch with voltmeter; at the door of the cabinet are installed signal lamps for the voltage presence - Outgoing part consists of network-generator part and UPS-part. In outgoing:</p> <ul style="list-style-type: none"> • contactor 10A, 2 pcs • Automatic fuse 25A, 10kA, 3-pole, 1 pcs • Automatic fuse 25A, 10kA, 4-pole, 1 pcs • Automatic fuse 16A, 10kA, 2 pcs • Automatic fuse 6A, 10kA, 5 pcs • Automatic fuse 4A, 10kA, 4 pcs • Included all necessary installation material, associated works (trade and construction), connection of cables, wired and tested 	LS	1			
2	<p>CABLE CABINET KO Purchase, transport and installing: Cable cabinet KO made of polycarbonate, the mechanical protection IP54, outdoor mounting, dimension (400x350x200)mm.</p> <p>Equipped with:</p> <ul style="list-style-type: none"> - three-pole fuse- switch 160A, 1 pcs - fuse NV00C 10A, 1 kom - null busbar - terminal block 16A for outdoor lighting - Automatic fuse, 2A, 6kA, 1pcs - Included all necessary installation material, associated works, connection of cables, wired and tested 	LS	22			
3	Testing and putting into operation	LS	22			

ASS KULA 2
INTRUDER DETECTION SYSTEM
B) POWER SUPPLY WORK

B2 CABLES

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1	Purchase, transport and installing in cable trench in the the pipe cable PP00 4x25mm2 Included all necessary installation material	M	1750			
2	Purchase, transport and installing in cable trench in the the pipe cable PP00 4x4mm2 Included all necessary installation material	M	1750			
4	Purchase, transport and installing cable joints Cu 6-25mm2, all completely	LS	44			
5	Purchase, transport and installing cable lugs Cu 6-25mm2	LS	140			
6	Purchase, transport and installing in cable trench FeZn tapes, PVC shield, warning tape, all completely per m of the trench	M	1750			
7	Purchase, transport and installing perforated cable shelf dimensions (150x80) mm. Includes all necessary mounting and the fixing materials	M	20			
8	Testing and putting into operation	LS	1			

ASS KULA 2
INTRUDER DETECTION SYSTEM
C) DATA COMMUNICATION

C1) PASSIVE EQUIPMENT

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1.	Supply and laying of fiber optical cable 9/125mm, 4 fibers with rodent protection for outdoor installation. Cable is laid into pipe in excavated trench.	m	5050			
2	<p>Upgrade of the existing main standalone 19" communication cabinet, dimensions 42U, (HxWxD) 2200x800x800mm, housing is powder-painted, made of steel sheet with min. 1.5 mm thickness, transparent front door with a lock, horizontal and vertical cable guides, sides that are removable, with the possibility of removing the rear. The following equipment is to be mounted in the cabinet:</p> <ul style="list-style-type: none"> - 1 pc., fan unit with min. 3 fans 35W (flow rate 160m³ / h per fan) and thermostat (+5 to +55 C), with a switch to turn on and off. - 1 pcs., 230VAC power socket unit, with surge protection, switch, 7 sockets (at angle 30 degrees) and standard cable length of 1.5 m. - 1pc. copper earthing bar for installation in 19" cabinet - 4 set vertical cable organizer made of steel U profiles, - 2 pcs cable management panel 19" with 5 plastic rings, suitable for conducting optical fiber cables - 2 pcs. 19" shelf depth min. 460mm to accommodate active equipment. Simplified installation with "click" system. Minimum shelf payload 80kg. - 1 pcs. 19" full patch panel series TOOLLES LINE with 24 modular shielded RJ45 connectors, 10GB / s, production Schrack or eq. - 2 pc. 19" fiber optic panel with 12 ports, depth 240mm (depth adjustable), height 1U equipped with 12 duplex SC adapters, OM2 category, a set of "pigtailed" with ceramic ferrule, and cover and the accompanying splice box and cable arrangement box - 6 pcs duplex fiber optic patch cable 2m, OM2 category, terminated at both one end with SC connectors and LC connectors on other side. - 5 pcs FTP patch cable RJ45 8/8, length 1,5 m, Cat6a 	set	1			
3	Delivery and installation of optical fiber endings SC (pigtail) and connecting to cable endings. The price includes all the necessary materials for ending cables.	set	244			
4	Work on the welding of optical fibers	set	244			
5	Supply and laying of cable SFTP Cat6a into PVC pipe	m	2650			
6	Supply and connection of metal male RJ45 Cat6a connector on both ends of SFTP cable	pcs	92			
7	Functional testing of a structured network with a device for testing communication networks and the creation of appropriate test protocol with a detailed specification of measurements for each connection. All copper and optical connections must be tested and included in protocol.	ls.	1			
8	Unspecified material	ls.	1			

C2) ACTIVE EQUIPMENT

Item	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
9	<p>Delivery of polyester wall mounting enclosure dimensions (HxWxD)1200mmx1000mmx350mm, IP46 including mounting accessories. Cable glands are mounted from bottom side. Front door is equipped with lock. Following equipment is installed inside cabinet:</p> <ul style="list-style-type: none"> - 2 pcs ventilation unit with termostat - 1 set including filters - 1 pc resistance heater 55W with termostat - 1 pc fluo light with end switch - 1 pc Rotary switch single pole, DIN mounting, 16A - 8 pc Miniature single pole circuit breaker 6A, C - 1pc surge protection 2 poles, 20kA, 230VAC - 1 pc. 19" fiber optic panel with 12 ports, equipped with 12 duplex SC adapters, OM2 category, a set of "pigtaills" with ceramic ferul, and cover and the accompanying splice box and cable arrangement box. - industrial type for wall mounting - 4 pcs duplex fiber optic patch cable 2m, OM2 category, terminated at one end with SC connectors and LC connectors on other side. <p>All complete including wiring and test protocol</p>	set	24			
10	<p>Delivery and install of active equipment for computer network</p> <p>Managed L2 switch with IP cammeras support - SEE TERMS OF REFERENCE</p> <p>Interfaces Gigabit Ethernet</p> <p>Ports 8 x 10/100/1000 + 4 x combo Gigabit SFP</p> <p>Power Over Ethernet (PoE): PoE+</p> <p>PoE Budget:123.2W (8x IEEE 802.3AF CLASS2/ 8xIEEE 802.3AF CLASS3/4x IEEE 802.3AT CLASS4</p> <p>Performance: Bandwidth : 35.7 Mpps</p> <p>Switching capacity : 24 Gbps</p> <p>MAC Address Table Size: 8K entries</p> <p>Jumbo Frame Support: 9216 bytes</p> <p>Remote Management Protocol: HTTP, RMON 1, RMON 2, RMON 3, RMON 9, SNMP 1, SNMP 2, Telnet</p> <p>Encryption Algorithm: SSL</p> <p>Authentication Method: RADIUS, Secure Shell (SSH), TACACS</p> <p>Compliant Standards: IEEE 802.1D, IEEE 802.1p, IEEE 802.1w, IEEE 802.1x, IEEE 802.3, IEEE 802.3ab, IEEE 802.3ad (LACP), IEEE 802.3u, IEEE 802.3x</p> <p>RAM: 128 MB</p> <p>Min Operating Temperature -0^oC (-30oC) - non working temp.</p> <p>Max Operating Temperature +40^oC (+70 oC) -non working temp.</p> <p>Humidity Range Operating:5..90%</p> <p>Features: Broadcast Storm Control, auto-uplink (auto MDI/MDI-X), flow control, layer 2 switching, port mirroring, DHCP support, Link Aggregation Control Protocol (LACP), Quality of Service (QoS), RADIUS support, Trivial File Transfer Protocol (TFTP) support, VLAN support, Weighted Round Robin (WRR) queuing, auto-negotiation</p> <p>4x SFP Trancievers SMF, 1000Mbps, 10 km, 1310 nm, LC</p> <p>Complete set</p>	set	24			
11	Commissioning and testing of active equipment	ls.	1			

ASS KULA 2
INTRUDER DETECTION SYSTEM
D) VIDEO AND ALARM EQUIPMENT

STORAGE BULDING - SH

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1	5Mpix Outdoor Fixed IP Camera with IR and analytics:	LS	2			
2	Alarm Control Panel DIRECT SOFTWARE CONTROL	LS	1			
3	Ethernet communication module	LS	1			
4	Fire safety barrier	LS	2			
5	Manual call point for hazardous areas - EX class IID	LS	2			
6	Optical smoke detector for hazardous areas with base detector - EX class IIC T5	LS	2			
7	Outside siren wit agu. Bat 12V/2,4Ah - FITED TO THE BELONGS CAMERA POLE	LS	1			
8	UPS - Type 2 (600 KVA)	LS	2			
9	Installation of the connection box and makeing all the required connections in it. All with work and cables. - MONITORING ROOM	LS	1			
10	All survilence system elements installing, system testing, functional testing and set up, connecting of elements, camera parameter set up, Final written report required.	LS	1			
11	Testing and putting into operation	LS	1			
12	TOTAL AMMOUNT FOR 1 STORAGE	LS	1			
13	TOTAL AMMOUNT FOR 22 STORAGES	LS	22			

PTZ

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1	2MP Outdoor PTZ 30x IP Camera with IR and analytics:	LS	4			
2	Installing, Testing and putting into operation	LS	4			

ASS KULA 2
INTRUDER DETECTION SYSTEM
D) VIDEO AND ALARM EQUIPMENT

MONITORING CENTRE

No.	ITEM DESCRIPTION	UNIT	QTY	PRICE WITHOUT VAT (EUR)	VAT	TOTAL PRICE (EUR)
1	NVR Video recorder - SEE TECHNICAL DESCRIPTION	LS	1			
2	Video monitoring workstation	LS	1			
3	42" LCD/LED monitor	LS	3			
4	24" LCD/LED monitor	LS	1			
5	Single line IP alarm receiver	LS	1			
6	UPS - Type 2 (6000 KVA smart line)	LS	1			
7	Ethernet switch -Type 2	LS	1			
8	Keyboard for control of PTZ	LS	1			
9	IP Input/output module for configuration of hardware synoptic map	LS	1			
10	Alarm monitoring software programming - SEE TECHNICAL DESCRIPTION	LS	1			
11	Video monitoring and recording software	LS	1			
12	Connection all items inside the racks, beetwin the racks and outside of the racks	LS	1			
13	Alarm monitoring software programming	LS	1			
14	Video monitoring and recording software programming	LS	1			
15	Testing and putting all the system into operation, Training of the personel	LS	1			

RECAPITULATION			TOTAL (EURO)
I	A - CONSTRUCTION		
II	B - POWER SUPPLY		
III	C - OPTIC CABLE SYSTEM		
IV	D - HARDWARE/ SOFTWARE SYSTEM		
	TOTAL ASS KULA 2		