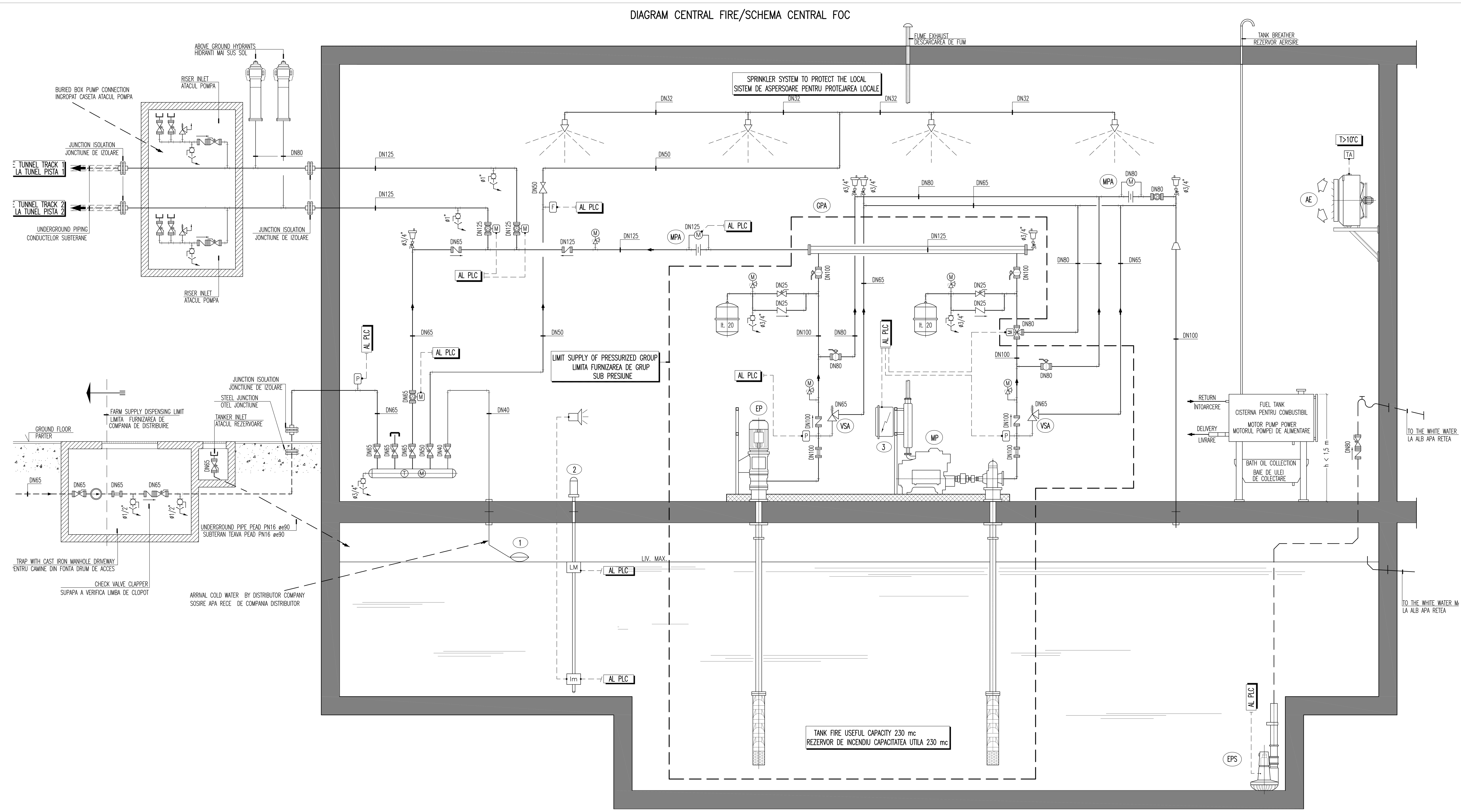

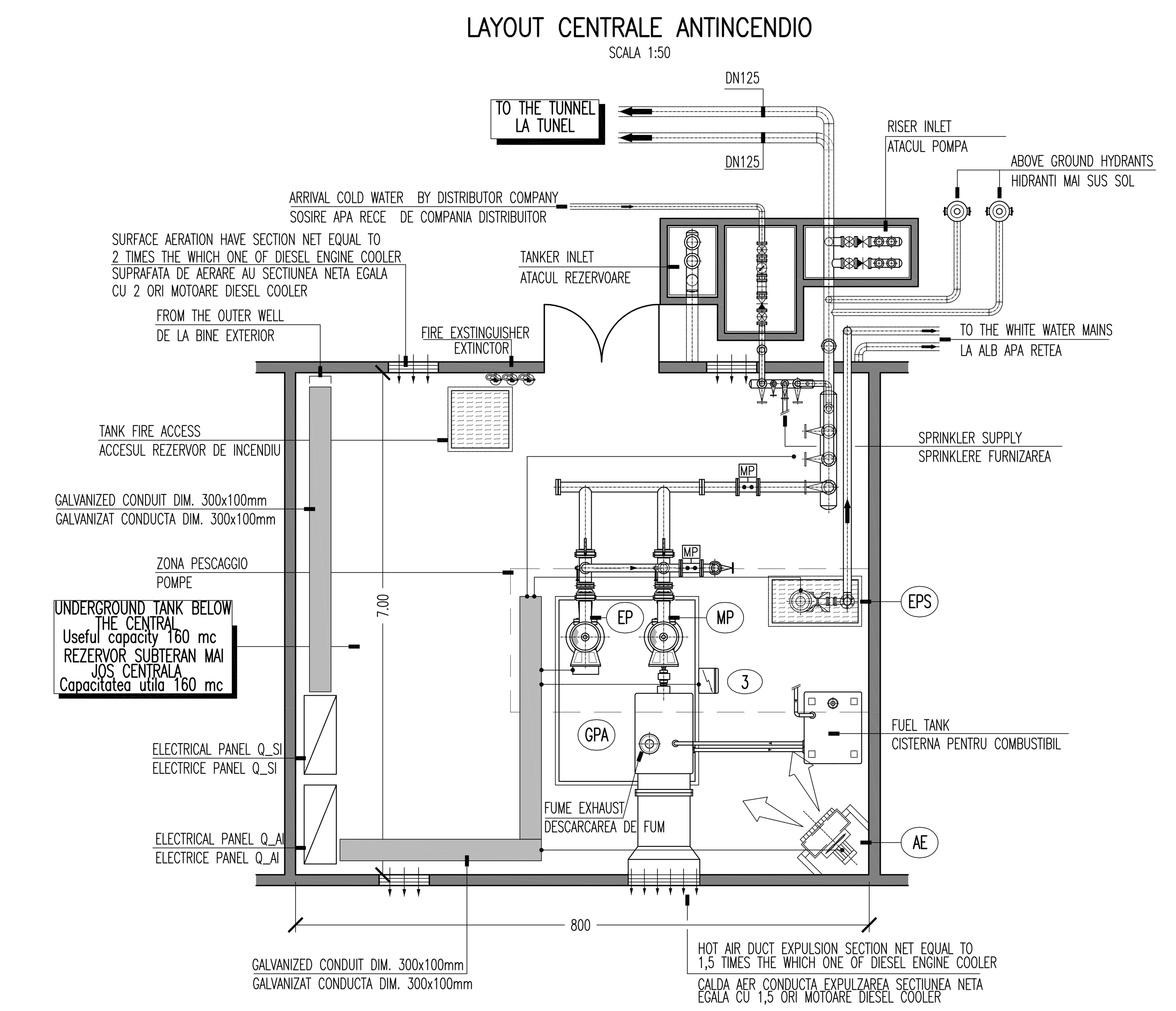

LEGEND/LEGENDA

Symbol	Description	
GPA	PRESSURE GROUP DETECTION FIRE SYSTEM WITH AXIAL FLOW PUMP IMMERSED CONSISTING OF A MAIN ELECTRIC, RESERVE PUMP, TWO TANKS OF PRESSURE FROM 20 lt, CIRCUIT RELIEF, TEST CIRCUIT MANIFOLDS, INTERCEPTION, VIBRATION TEST CIRCUIT MANIFOLDS, INTERCEPTION, VIBRATION GRUP PRESIUNEA DIN SISTEM DE DETECTARE A INCENDIULUI CU POMPA AXIAL FLOW SCUFUNDATE, ALCATUIT DINTR-O ELECTRIC PRINCIPAL,REZERVA PUMP, DOUA REZERVOARE DE PRESIUNE DIN 20 LT RELIEF CIRCUITUL ,CIRCUITUL VARIETATI TEST, INTERCEPTAREA, VIBRATII	
	PUMPING FEATURES:	DELIVERY/LIVRAREA
	ELECTRIC PUMP/POMPA ELECTRICA FLOW RATE/FLUXUL CURS: PRESSURE GAUGE/PRESIUNE GAUGE: POWER/PUTERE:	 48 mc/h 630 kPa 30 kW
	* RISER/POMPA (MP) FLOW RATE/FLUXUL CURS: PRESSURE GAUGE/PRESIUNE GAUGE: GIRI/MIN POWER/PUTERE:	 48 mc/h 630 kPa 2900 26,5 kW
EPS	SUBMERSIBLE PUMPS FOR EMPTY TANK – POWER 1,9 kW POMPE SUBMERSIBLE PENTRU REZERVOR GOL – PUTERE 1,9 kW	
MPA	FIRE WATER FLOW METER DEBITMETRULUI APA PENTRU STINGEREA INCENDIILOR	
VSA	RELIEF VALVE CALIBRATION SUPAPA CALIBRARE	
AE	ELECTRIC AIR HEATER WITH THERMOSTAT – THERMAL POWER 6,5 kW ELECTRICE DE INCALZIRE A AERULUI CU TERMOSTAT – 6,5 kW PUTERE TERMICA	
1	POWER VALVE FLOAT BOWL POWER ROBINET FLOTOR BOL	
2	LEVEL/NIVEL	
3	ELECTRIC STARTER MOTOR PUMP ELECTRIC STARTER MOTOR POMPA	
EP	AXIAL FLOW ELECTRIC PUMP IMMERSED, PART OF PRESSURE GROUP	
MP	AXIAL FLOW RESERVE PUMP IMMERSED, PART OF PRESSURE GROUP	

LEGEND/LEGENDA

- NORMALLY CLOSED VALVE/NORMAL ÎNCHIS ROBINET
- NORMALLY OPENED VALVE/NORMAL DESCHIS ROBINET
- VALVE BALL FULL BORE PN16 – THREADED INLET
  ROBINET CU BILA COMPLET BORE PN16 – ATACUL FILETATE
- VALVE BALL FULL BORE PN16 – FLANGED INLET
  ROBINET CU BILA COMPLET BORE PN16 – ATACUL FLANSA
- BUTTERFLY VALVE – FLANGED INLET
  ROBINET FLUTURE – ATACUL FLANSA
- GATE VALVE, CAST IRON SCREW EXTERNAL PN16 – FLANGED CONNECTIONS
  GATE VALVE, CAST IRON SCREW EXTERNAL PN16 – FLANGED CONNECTIONS
- SWING CHECK VALVE – FLANGED CONNECTIONS
  SWING SUPAPA – ATACUL FLANSA
- CHECK VALVE – THREADED CONNECTIONS
  SUPAPA DE RETINERE – ATACUL FILETATE
- PRESSURE REDUCER/REDUCTOR DE PRESIUNE
- POWERED BY-PASS VALVE FOR THE OPERATION OF THE PUMP OPEN DURING DELIVERY AND CLOSED AT TIME OF FILLING – FLANGED CONNECTIONS
  PRESURIZATE TUB DE BYPASS PENTRU FUNCTIONAREA POMPEI DESCHIS IN TIMPUL NASTERII SI INCHISA LA TIMPUL UMPLERII – FLANSA
- JOINT VIBRATION PN16 – FLANGED CONNECTIONS/MIXT VIBRATION PN16 – ATACUL FLANSA
- BALL VALVE DRAIN WITH HOSE/ROBINET CU BILA DE EVACUARE CU FURTUNUL
- FUNNEL DRAIN/FUNNEL SCURGERE
- AIR VENT VALVE WITH SHUT-OFF VALVE/AER VENT VALVE CU ROBINET DE ÎNCHIDERE
- DIAL THERMOMETER CHARGE OF INERT GASES: -10 to 50 ° C SCALE
  DIAL CHARGE TERMOMETRU DE GAZE INERTE: -10 LA 50 ° C SCALA
- DIAL GAUGE, BOURDON SYSTEM, COMPLETE THREE-WAY VALVE AND CURLY GAUGE APEL, BOURDON SISTEMUL, COMPLET TREI CAI SI CÂRLIONTAT (SCALE 0-.... bar)
- PRESSURE SWITCH/PRESOSTAT
- LEVEL SWITCH-(LM) MAXIMUM-(LM) MINIMUM/COMUTATOR DE NIVEL-(LM) MAXIM-(LM) MINIMUM
- FLOW SWITCH/FLUXUL SWITCH
- TEMPERATURE SENSOR/SENZOR DE TEMPERATURA
- VE – EXPANSION VALVE CLOSED/ROBINET DE EXPANSIUNE ÎNCHIS

LEGEND/LEGENDA

- (dashed line) ELECTRICAL CONNECTION/CONEXIUNI ELECTRICE
- (solid line) GALVANIZED STEEL PIPE FIRE/GALVANIZAT TEAVA DE OTEL FOC
- (long dashed line) UNDERGROUND PIPE GALVANIZED STEEL COATED/TEAVA SUBTERANE ZINCATA FILMATE OTEL

* PROVIDE VENTS IN SYSTEM HIGH POINTS AND DISCHARGE IN LOW POINTS
* THE VALVES MUST BE KIND OF FLANGED/ROBINETI TREBUIE SA FIE FEL DE FLANSA:
  THE CHARACTERISTICS OF SEAL (PN) AND TEMPERATURE SHOULD BE SUITABLE FOR FLUID CONSIDERING AN INCREASE OF 20% COMPARED TO THE MAXIMUM VALUES REACHED IN THE CIRCUIT SERVED/
  CARACTERISTICILE DE FOCA (PN) SI TEMPERATURA TREBUIE SA FIE ADECVATA DE LICHID AVÂND ÎN VEDERE O CRESTERE DE 20% FATA DE MAXIME ATINSE ÎN CIRCUITUL SERVIT
* FOR ALL THE INTERCEPTION, UNLESS OTHERWISE SPECIFIED, PREDICT/PENTRU TOATE INTERCEPTARE, CU EXCEPTIA CAZULUI ÎN CARE SE PREVEDE ALTFEL, PREDICT:
  – BUTTERFLY VALVE PN16 ON THE PRESSURE GROUP/ROBINET FLUTURE PN16 ASUPRA GRUP DE PRESIUNI
  – CAST IRON VALVES/EXPRIMATE SUPAPE DE FIER
* FORECAST FOR THE CHECK VALVES VALVES SWING/PROGNOZA PENTRU SUPAPE DE RETINERE VENTILE SWING
* THE VALVE MUST HAVE DIAMETER NOT LESS THE PIPES ON WHICH ARE INSTALLED/
  VALVE TREBUIE AU DIAMETRUL NU MAI CONDUCTELE CARE SUNT INSTALATE
* ALL WASTE, TO BE PERFORMED IN GEBERIT (MAX WATER UP TO 80 ° C) OD GALVANIZED STEEL MUST BE CONNECTED AND PIPED TO THE WELLS OR PREPARED CONDUIT /
  OATE DESEURILE, SA FIE EXECUTATE ÎN GEBERIT (MAX APA PÂNA LA 80 ° C) OTEL GALVANIZAT TREBUIE SA FIE CONECTAT SI TRANSMIS PUTURI SAU CANALE PREGĂTITE

PIPES/TEVI

* FIRE SYSTEM PIPING IN CENTRAL IN STEEL GALVANIZED/CONDUCTE SISTEM DE FOC IN CENTRALE IN OTEL GALVANIZAT
* FIRE SYSTEM PIPING NETWORK, GALVANIZED STEEL PLAIN END, POLYETHYLENE COATING/
  CONDUCTE SISTEM DE FOC, RETEAUA DE DISTRIBUTIE,OTEL GALVANIZAT,CAPETE NETEDE, DE ACOPERIRE DIN POLIETILENA
* UNDERGROUND PIPE GALVANIZED STEEL PLAIN END, POLYETHYLENE COATING, STAY IN SIMILAR PIPE CHARACTERISTICS
  CONDUCTA SUBTERANA, GALVANIZAT OTEL, CAPETE NETEDE, DE ACOPERIRE DIN POLIETILENA, STATI ÎN CARACTERISTICI SIMILARE DE CONDUCTA
* WATER SUPPLY PIPE GALVANIZED STEEL DRAWN S-S/CONDUCTA SISTEM DE APA GALVANIZAT OTEL INTOCMITE S-S
* THE PIPES NOT ISOLATED OR NOT COATED, MUST BE PAINTED WITH RUST OR PRIMER IF ZINC AND TWO HANDS OF POLISH OLEOSINTETICO IN TRADITIONAL SOLID (RED FIRE)
  CONDUCTE NU IZOLATE ACOPERITA SAU NU, TREBUIE SA FIE VOPSITE CU RUST SAU PRIMER SI ZINC DACA DOI MÂINILE DE TRADITIONALE POLONEZA (ROSU FOC)

INSULATION/IZOLATIE

* COLD WATER: INSULATING AT CLOSED CELL, TYPE ARMAFLEX, RESISTANCE TO STEAM> 3000, THICK. 13 mm
  APA RECE: IZOLARE A CELULE ÎNCHISE, TIP ARMAFLEX, REZISTENTA LA ABUR> 3000, GROSIME 13 mm
* FINISH FOR ALL THE INSULATION WITH SHEATH IN SEMI-RIGID PVC TYPE ISOGENOPACK/
  FINISAJ PENTRU TOATE IZOLATIE CU TECII DIN PVC SEMI-RIGIDE TIP ISOGENOPACK
* CONDUCTIVITY INSULATION <0,04 W/m°C AT 40° C/CONDUCTIVITATE IZOLATIE <0,04 W/m°C la 40°C
* CLASS OF REACTION TO FIRE INSULATION <1/CLASA DE REACTIE LA FOC IZOLARE <1
* THE INSULATION SHOULD BE OF APPROPRIATE TYPE TO TEMPERATURE OF FLUID THAT RUNS THE PIPELINE
  IZOLATIA TREBUIE SA FIE TIPUL POTRIVIT DE LA O TEMPERATURA DE LICHID CARE EXECUTA CONDUCTE

PLEASE NOTE THAT FOR ALL EQUIPMENT AND COMPONENTS MINIMUM MECHANICAL PN16
VA RUGAM SA RETINETI FAPTUL CA PENTRU TOATE ECHIPAMENTE S COMPONENTE MECANICE MINIME PN16

Indice / Index	Data / Date	Modificare / Modification/Revision	Proiectant / Designer	Aprobat Consultant / Approved Consultant	Aprobat CFR / Approved CFR
D					
C					
B					
A					

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANȚAT DE UNIUNEA EUROPEANĂ
EUROPEAN UNION FINANCED PROJECT

CLIENT / CLIENT

C.N.C.F. "C.F.R." - S.A.

ITALFERR GRUPPO FERROVIE DELLO STATO Joint Venture leader · Scott Wilson · OBERMEYER PLANEN + BERATEN GmbH · TECNIC Consulting Engineers

CONSULTANT / CONSULTANT

Role		Name	Data / Date	Semnătură / Signature
Aprobat / Approved	Șef proiect / Project manager	R. Liuzza		(signature)
Aprobat / Approved	Coordonator Secțiune 1 / Section 1 Coordinator	C. Gambelli		(signature)
Verificat / Checked	Tunel Expert / Tunnel Expert	C. Gambelli		(signature)
Întocmit / Elaborated	Proiectant / Designer	P. Amodio		(signature)

SUBCONSULTANT / SUBCONSULTANT

Role		Name
Aprobat / Approved	Responsabil Subconsultant / Subconsultant Responsible	
Întocmit / Elaborated	Proiectant / Designer	

Reabilitarea liniei de cale ferata Brașov - Simeria, parte componentă a coridorului IV Pan European, pentru circulația trenurilor cu viteza maximă de 160 km/h. Secțiune 1 Brasov - Sighisoara

Rehabilitation of the railway line Brașov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h. Section 1 Brasov - Sighisoara

Proiect/Project 2004/RO/16/P/PA/003

Faza / Phase: P.Th. / T.D.

Denumire desen / Drawing Title : **TUNNEL/TUNELUL ORMENIS**
ORMENIS SIDE/INSPRE ORMENIS
Emergency and fire protection systems/Sisteme de urgență și de incendiu
Emergency system - Plan and schema central fire C1/Sistemul de urgență - Plan și schiță de incendiu centrale C1

Codificare / Codification System	Scara / Scale	LOT	Nr. / No
E A 5 1	0 1	C	1 0	L X	T S	1 0	2	3	0 0 1	0	-		-