

GENERAL NOTES

1.0 GENERAL

- 1.1 DIMENSIONS SHOULD NOT BE MEASURED BY SCALING FROM DRAWINGS.
- 1.2 ALL DIMENSIONS SHOWN ON GENERAL DRAWINGS ARE IN METERS EXCEPT WHERE OTHERWISE NOTED. ALL DIMENSIONS SHOWN ON DETAIL DRAWINGS ARE IN CENTIMETERS EXCEPT WHERE OTHERWISE NOTED. ALL DIMENSIONS SHOWN ON DETAIL DRAWINGS IN STEEL STRUCTURES ARE IN MILLIMETERS EXCEPT WHERE OTHERWISE NOTED COORDINATES, STATIONS AND ELEVATIONS SHOWN IN METERS.
- 1.3 THE COORDINATE SYSTEM USED IN THIS PROJECT IS **KRGJSH 2010**, WITH THE BELOW GEODETIC PARAMETERS:
PROJECTION: GAUSS KRUGER
DATUM D. ETRS 1989
FALSE EASTING: 500'000.0000
FALSE NORTHING: 0.0000
CENTRAL MERIDIAN: 20.0000
SCALE FACTOR: 1.0000
LATITUDE OF ORIGIN: 0.0000
UNITS: METER (1.0)
- 1.4 THE ELEVATIONS ARE REFERRED TO MEAN SEA LEVEL.
- 1.5 CIVIL AND STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER DESIGN RELATED DRAWINGS FOR DIMENSIONS AND PRESENCE OF OPENINGS, INSERTS, MECHANICAL AND ELECTRICAL ELEMENTS.
- 1.6 CONTRACTOR MUST INFORM ENGINEER FOR ANY DISCREPANCY BETWEEN THE CIVIL, STRUCTURAL, MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS.
- 1.7 CONTRACTOR SHALL VERIFY ON SITE THE DIMENSIONS AND INFORM ENGINEER FOR ANY ABNORMAL CONDITIONS.
- 1.8 CLOUDS ON DRAWINGS INDICATES THAT THE INFORMATION IS NOT AVAILABLE OR UNCERTAIN AT THE TIME OF ISSUE. SEE MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS, IF NECESSARY.
- 1.9 ALL SITE SPECIFIC DATA (IN SITU PROPERTIES, ENVIRONMENTAL DATA, SEISMIC DATA ETC...) PROVIDED HEREIN ARE FOR REFERENCE ONLY AND SHALL BE USED FOR PRELIMINARY DESIGN EXCLUSIVELY. THE CONTRACTOR IS RESPONSIBLE FOR PROCURING, OBTAINING, MEASURING AND CONFIRMING ALL DATA TO BE USED IN DETAILED DESIGN.

2.0 STANDARDS

- 2.1 THE MOST STRINGENT OF THE FOLLOWING STANDARDS, CODES AND REFERENCES SHALL BE USED FOR THE CONSTRUCTION:
- ALBANIAN CONSTRUCTION AND BUILDING LAWS, REGULATIONS AND RULES.
- RELEVANT EN, ISO AND/OR DIN COVERING MATERIALS, METHODS, PROCESSES AND/OR PERFORMANCES TO BE USED IN THE TRANSPORT, INSTALLATION AND CONSTRUCTION OF ALL WORKS SHOWN OR DESCRIBED HEREIN OR IN THE TECHNICAL SPECIFICATION DOCUMENT.

3.0 EXCAVATION

- 3.1 TREE CLEARING TO BE KEPT TO A MINIMUM AND RESTRICTED TO PERMITTED AREA.
- 3.2 TEMPORARY SLOPE SUPPORT OR OTHER PROTECTION METHODS MAY BE REQUIRED TO SAFEGUARD WORKERS DURING CONSTRUCTION AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 3.3 TEMPORARY EXCAVATIONS AREAS SHALL BE DRAINED DURING ALL CONSTRUCTION PHASES.
- 3.4 THE LAST 10 CM OF FOUNDATION EXCAVATION SHOULD BE EXCAVATED BY HAND OR BY ANY EQUIPMENT THAT DOESN'T DAMAGE THE STRUCTURE OF SOIL.

4.0 BACKFILL AND FILL

- 4.1 REINFORCED CONCRETE RETAINING WALLS SHALL NOT BE BACKFILLED FOR A MINIMUM OF 28 CURING DAYS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- 4.2 DURING WORKS, THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL PROTECTIVE MEASURES TO PREVENT FROST PENETRATION INTO IN-PLACE SOIL, BACKFILL AND FOUNDATIONS BELLOW SLABS.
- 4.3 WHEN BACKFILLING AROUND UNDERGROUND REINFORCED CONCRETE ELEMENTS, WORK MUST BE PERFORMED IN SUCH A WAY SO AS TO ENSURE THE DIFFERENCE BETWEEN BACKFILL LEVELS ON EACH SIDE OF THE ELEMENTS ARE NEVER MORE THAN 1 METER.
- 4.4 BACKFILL MATERIAL FOR STRUCTURES SHALL BE WELL GRADED NATIVE MATERIAL WITH LESS THAN 15% PASSING THROUGH THE SIEVE #100 AND WITH A MAXIMUM PARTICLE SIZE OF 150 mm. THE MINIMUM INTERNAL FRICTION ANGLE SHALL BE ≥35°. BACKFILL MATERIAL SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 300 cm. THE BACKFILL MATERIAL SHALL BE COMPACTED TO AT LEAST 95% STANDARD PROCTOR MAXIMUM DRY DENSITY, AND WITH ± 2% OF ITS OPTIMUM MOISTURE CONTENT. THIS MATERIAL SHALL HAVE A MINIMUM MODULUS OF REACTION OF 50 MPa.
- 4.5 GEOLOGICAL SURVEYS AND AS A RESULT, THE ROAD PROFILE AND TYPICAL CROSS SECTIONS MAY BE REVISED BY THE CONTRACTOR TO MEET THE REQUIREMENTS FOR STABILITY.
- 4.6 THE SURFACING AND SUB BASE MATERIALS FOR THE ACCESS ROAD SHOULD CONFORM TO THE FOLLOWING TABLES:

ROAD SURFACING MATERIAL	
SIEVE SIZE (mm)	% PASSING (BY WEIGHT)
40.000	100
28.000	84 - 94
20.000	72 - 94
10.000	51 - 67
5.000	36 - 53
1.180	18 - 33
0.300	11 - 21
0.075	8-12

SUB BASE MATERIAL	
SIEVE SIZE (mm)	% PASSING (BY WEIGHT)
75.000	100
28.000	80 - 100
20.000	45-100
5.000	30-85
2.000	15-65
0.400	5-35
0.075	0-15

- 4.7 SELECTED ROCKFILL AND RIPRAP SHALL MEET THE FOLLOWING GRADATION LIMITS.

MATERIAL	D _{min}	D ₅₀	D _{max}
ROCKFILL	300	550	800

- 4.8 FILTER MATERIAL SHALL BE A WELL GRADED MATERIAL MEETING THE FOLLOWING GRADATION LIMITS WITH COEFFICIENT OF UNIFORMITY OF LESS THAN 5. THE FILTER MATERIAL SHALL BE COMPACTED TO 93% STANDARD PROCTOR MAXIMUM DRY DENSITY.

FILTER	
SIEVE SIZE (mm)	% PASSING (BY WEIGHT)
80	100
20	70 - 100
10	57 - 100
5	33 - 95
3	33 - 81
1	23 - 67
0	4 - 30
0	0 - 5

5.0 CONCRETE

5.1 STRUCTURAL CONCRETE

- CONCRETE CLASS C30/37 WITH CHARACTERISTIC CYLINDER COMPRESSIVE STRENGTH AT 28 DAYS: 30 N/mm².
- CONCRETE CLASS C25/30 WITH CHARACTERISTIC CYLINDER COMPRESSIVE STRENGTH AT 28 DAYS: 25 N/mm².
- 5.2 LEAN CONCRETE CLASS WILL C12/15 WITH CHARACTERISTIC CYLINDER COMPRESSIVE STRENGTH AT 28 DAYS, FOR LAYERS UNDER FOUNDATION: 12 N/mm².
- 5.3 CEMENT MATERIAL: GENERAL USE WITH UP 30% FLY ASH. SHALL COMPLY WITH REGULATION IN EN 197 PARTS 1 TO 3.
- 5.4 SLUMP: 80 mm +/- 20 mm (BEFORE ADDITION OF SUPERPLASTICIZER)
- 5.5 MAXIMUM AGGREGATE SIZE FOR CONCRETE: 20 mm.
- 5.6 AIR ENTRAINMENT: 4% TO 7 % (GENERAL)
5% TO 8 % (CONCRETE EXPOSED TO FREEZE-THAW).
- 5.7 CONSTRUCTION JOINT SHALL BE CLEANED, EXEMPT OF ALL LAITANCE AND INTENTIONALLY ROUGHENED TO EXPOSE AGGREGATES TO A FULL AMPLITUDE OF 5 MM.
- 5.8 ALL EXPOSED EDGES OF CONCRETE STRUCTURES MUST BE CHAMFERED 20 mm.
- 5.9 EXECUTION: SEE NOTE 2.1.
- 5.10 CONCRETE CURE: SEE NOTE 2.1.

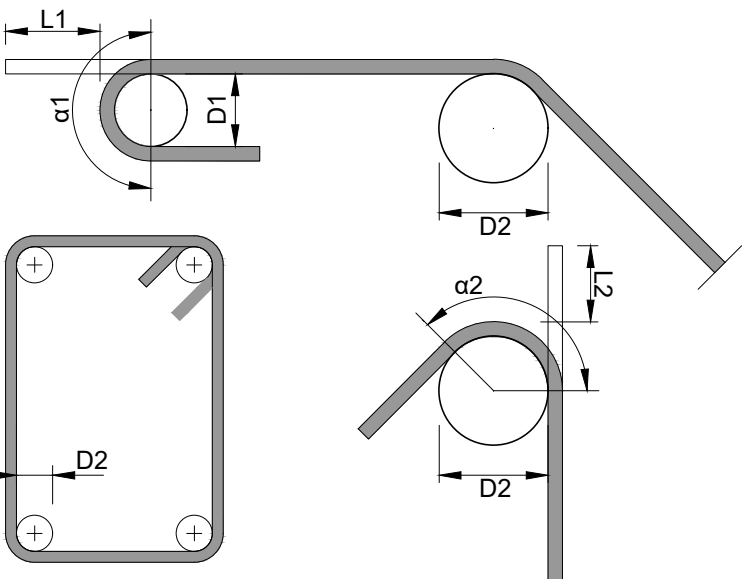
6.0 STEEL REINFORCEMENT

- 6.1 WELDABLE STEEL REINFORCEMENT CLASS SHALL BE B500C: WITH YIELD STRENGTH fyk = 500 N/mm².
- 6.2 THE CONTRACTOR MUST SUBMIT TO THE ENGINEER FOR REVIEW SHOP DRAWINGS OF ALL REINFORCEMENT PRIOR TO FABRICATION.
- 6.3 MINIMUM OVERLAP SHALL BE 60Ø IN TENSION ZONE (EXCEPT WHERE OTHERWISE NOTED ON DRAWINGS).
- 6.4 MINIMUM OVERLAP SHALL BE 50Ø IN COMPRESSIVE ZONE (EXCEPT WHERE OTHERWISE NOTED ON DRAWINGS).
- 6.5 COMPARISON BETWEEN NOMINAL SIZE OF BAR AND ACTUAL MAXIMUM SIZE (MM):

NOMINAL SIZE (MM)	6	8	10	12	16	20	25
ACTUAL MAXIMUM SIZE (MM)	8	11	13	14	19	23	29

- 6.6 THE MINIMUM LENGTH AND DIAMETER OF BENDING SHALL BE ACCORDING TO THE FOLLOWING TABLE:

NO.	NAME	BAR DIAMETER Ø [MM]	UNIT WEIGHT G [KG/M]	BARS				STIRRUPS		
				α1 [°]	L1 [MM]	D1 [MM]	D2 [MM]	α2 [°]	L2 [MM]	D3 [MM]
1	6	6	0.222	90	35	24	24	135	65	24
2	8	8	0.395	90	47	32	32	135	87	32
3	10	10	0.617	90	59	40	40	135	109	40
4	12	12	0.888	90	71	48	48	135	131	48
5	16	16	1.578	90	95	64	64	90	175	64
6	18	18	1.998	90	123	126	126	90	213	126
7	20	20	2.466	90	136	140	140	90	236	140
9	22	22	2.984	90	150	154	154	90	260	154
10	25	25	3.853	90	170	175	175	90	295	175



BAR SHAPE RULES ACCORDING TO EUROCODE 2: 2004.

- 6.7 TOLERANCE OF CUTTING AND BENDING OF BARS:

CUTTING AND BENDING PROCESSES	TOLERANCE [MM]
CUTTING OF STRAIGHT LENGTHS INCLUDING REINFORCEMENT FOR SUBSEQUENT BENDING	+25, -25
BENDING: < 1M 1 + 2M > 2M	+5, -5 +5, -10 +5, -25
MESH	THE GREATEST OF ± 25 OR ±0.5% OF LENGTH

- 6.8 DEDUCTIONS TO BAR DIMENSIONS TO ALLOW FOR DEVIATIONS BETWEEN TWO CONCRETE FACES:

DISTANCE BETWEEN CONCRETE FACES [MM]	TYPE OF BAR	TOTAL DEDUCTION [MM]
0 - 1000	STIRRUPS AND OTHER BENT BARS	10
1000 - 2000	STIRRUPS AND OTHER BENT BARS	15
OVER 2000	STIRRUPS AND OTHER BENT BARS	20
ANY LENGTH	STRAIGHT BARS	40

7.0 FORMWORKS

- 7.1 THE DESIGN AND CONSTRUCTION OF FORMWORKS AND SHORING ARE THE CONTRACTORS RESPONSIBILITY. THE DESIGN SHALL BE PERFORMED BY A QUALIFIED PROFESSIONAL ENGINEER.
- 7.2 CONCRETE COVER (TYPICAL EXCEPT WHERE OTHERWISE NOTED ON DRAWINGS):

EXPOSURE TO EARTH, WATER OR WEATHER	EXPOSED	NON EXPOSED
CAST AGAIN AND PERMANENTLY EXPOSED TO EARTH	75 mm	-
FOOTINGS, WALLS AND SLABS ON GROUND	50 mm	-
STIRRUPS	40 mm	30 mm
SLABS, BEAMS (20M AND LESS)	40 mm	30 mm
SLABS, BEAMS (25M AND MORE)	1.5 Ø (MAX. 50 mm)	1.0 Ø

7.3 VISIBLE CONCRETE SURFACES

WHEN THE SURFACE OF THE WALLS ARE VISIBLE, THE ROD HOLES MUST BE ALIGNED VERTICALLY AND HORIZONTALLY AND PATCHED WITH MORTAR APPROVED BY THE ENGINEER.

7.4 CONCRETE FINISH TOLERANCES:

	BURIED FINISH	EXPOSED FINISH	HYDRAULIC PASSAGE OR SUPERIOR FINISH
FORMED	F1	F2	F3
USING 1500 mm STRAIGHT EDGE	30 mm	12 mm	5 mm
UNFORMED	U1	U2	U3
USING 3000 mm STRAIGHT EDGE	20 mm	5 mm	3 mm

8.0 STRUCTURAL STEEL

- 8.1 STANDARDS: SEE NOTE 2

- 8.2 CONTRACTOR MUST SUBMIT TO ENGINEER, PRIOR TO FABRICATION, FOR REVIEW, SHOP DRAWINGS OF STRUCTURAL STEEL ELEMENTS SIGNED AND SEALED BY A QUALIFIED LICENSED PROFESSIONAL ENGINEER.

- 8.3 NO WELD IS ALLOWED ON A GALVANIZED ELEMENT.

- 8.4 ALL WELDS FOR STEEL TO BE GALVANIZED SHALL BE SEAL WELD TYPE.

- 8.5 WHEN WELDING OF GALVANIZED ELEMENTS IS PERMITTED ON SITE, THESE MODIFICATIONS MUST RECEIVE A COATING OF ZINC RICH PAINT.

- 8.6 VISUAL INSPECTION SHALL BE PERFORMED ON 100 % OF WELDS.

- 8.7 WELDING SEAM EXCEEDING THE LIMITS DEFINED IN THE STANDARDS SHALL BE GOUGED TO SOUND METAL WHICH SHALL BE VERIFIED BY NON-DESTRUCTIVE TESTING.

- 8.8 ALL SPLICES AND FREE EDGES SHALL BE GRIND.

9.0 SHOP DRAWINGS

- 9.1 STANDARDS: SEE NOTE 2.1

- 9.2 THE CONTRACTOR MUST SUBMIT SHOP DRAWINGS, PRODUCT DESCRIPTIONS AND SAMPLES TO THE ENGINEER FOR REVIEW.

- 9.3 WORK SHALL NOT START UNTIL SHOP DRAWINGS, SAMPLES AND PRODUCT DESCRIPTIONS ARE REVIEWED AND APPROVED BY THE ENGINEER.

10.0 MISCELLANEOUS

- 10.1 NOT ALL OPENINGS IN THE SLABS AND WALLS ARE NECESSARILY SHOWN ON THE CIVIL AND STRUCTURAL DRAWINGS.

- 10.2 CONTRACTOR MUST SUBMIT FOR APPROVAL TO ENGINEER ALL OPENING GREATER THAN 100 mm NOT SHOWN ON CIVIL AND STRUCTURAL DRAWINGS.

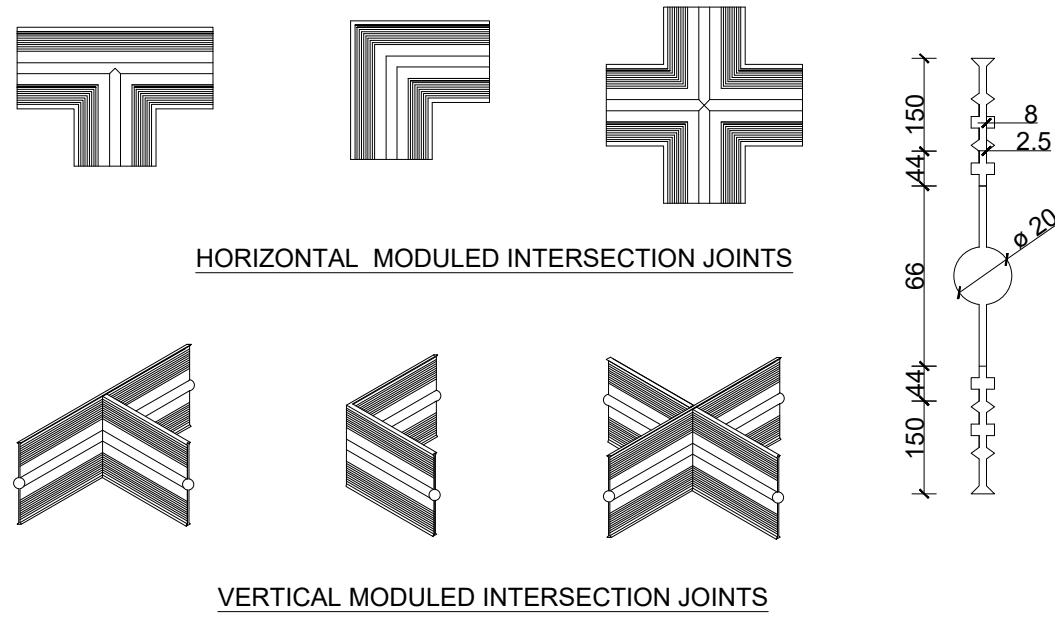
- 10.3 CONTRACTOR SHALL INSTALL ALL EMBEDDED ELEMENTS IN CONCRETE SPECIFIED ON THE DRAWINGS THAT ARE REQUIRED FOR COMPLETION OF WORKS.

- 10.4 ALL METAL STRUCTURES SHALL BE PAINTED UNLESS OTHERWISE NOTED.

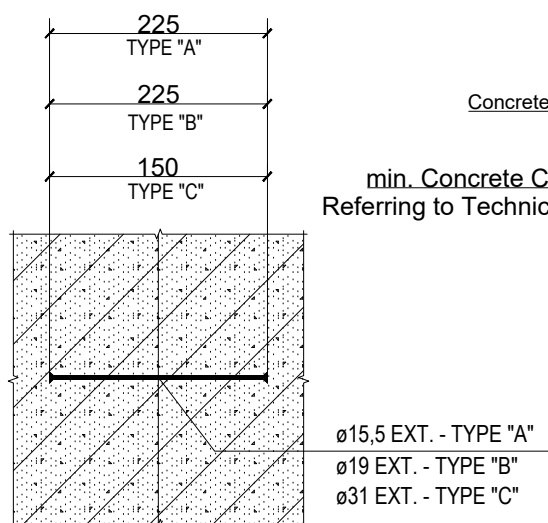
11.0 WATERSTOPS

- 11.1 WATERSTOPS SHALL BE PREMIUM GRADE.

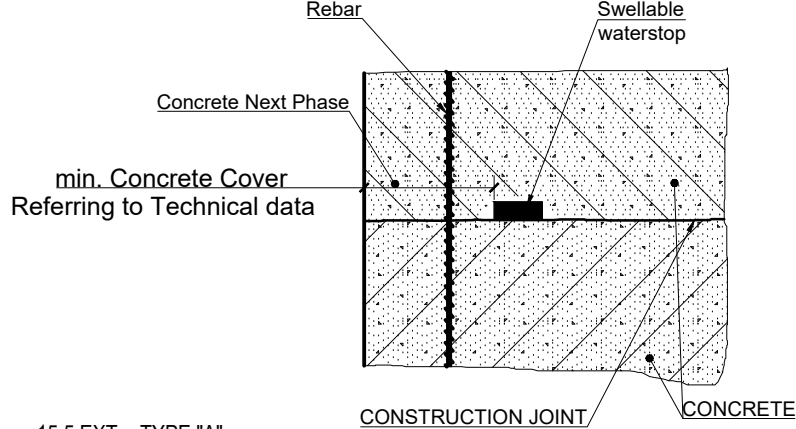
- 11.2 WATERSTOPS SHOULD BE PLACED 10 cm FROM OUTSIDE FACE OF CONCRETE ACCORDING TO SUPPLIER DATA SHEET



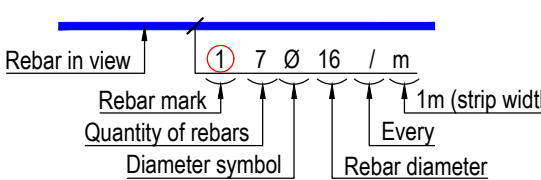
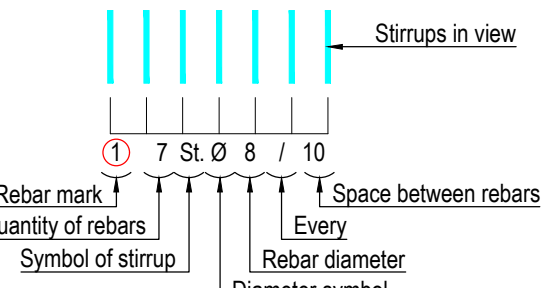
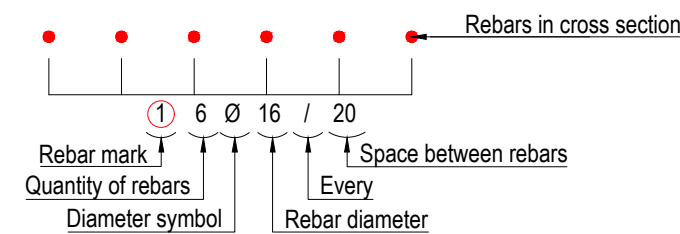
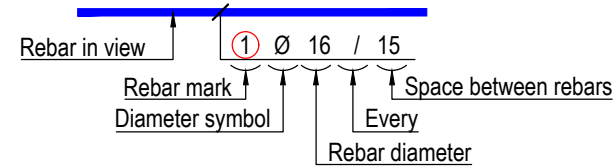
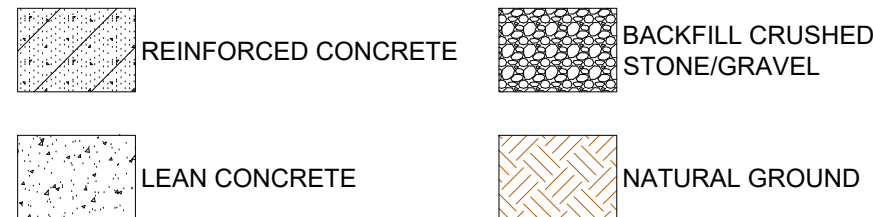
WATERSTOP



DETAIL OF SWELLABLE WATERSTOP



TYPES OF WATERSTOP



13.0 TRANSFORMERS

- 13.1 TRANSFORMERS ARE NOT PART OF THIS PROJECT. EXISTING TRANSFORMERS WILL BE USED.

PROJECT DESIGNER



Name	Position	Signature
Alban DOKO	Hydrotechnical & Civil Engineer	
Alban ALIAJ	Electrical Engineer	
Marsel PYLLA	Mechanical Eng., FF Expert	
Eris MOSHA	Architect	
Augustin DELESALLE	Project Coordinator	
Vincent JALBERT	Project Chief Engineer	

STAMPS

Licence No: 6713/12

DESIGNER OF RECORD

CONTRACTING AUTHORITY



CONTRACT REF: AL-AKUM 329913-CS-QCBS

PROJECT
ENERGY EFFICIENCY IMPROVEMENT AND PHOTOVOLTAIC PANELS IMPLEMENTATION FOR THE RWU Durrës.
PËRMIRËSIMI I EFICËNCËS SË ENERGJISË DHE IMPLEMENTIMI I PANELEVE FOTOVOLTAIKE PËR SHOQËRINË Durrës.
SUB PROJECT
Replacement of 3 booster pumps (VSD) at PST as well as rehabilitation of the well building at PST Fushë Krujë /
Rivendosja e 3 pompave shpërndaje (VSD) në STP si dhe rehabilitimi i ndërtesës së pusit në STP Fushë Krujë.

PHASE	RWU	PST
Detail Design	Durrës	D2
PROJECT SECTION	CATEGORY	DOC. NO.
DWG	GDC	040

DRAWING TITLE

General notes

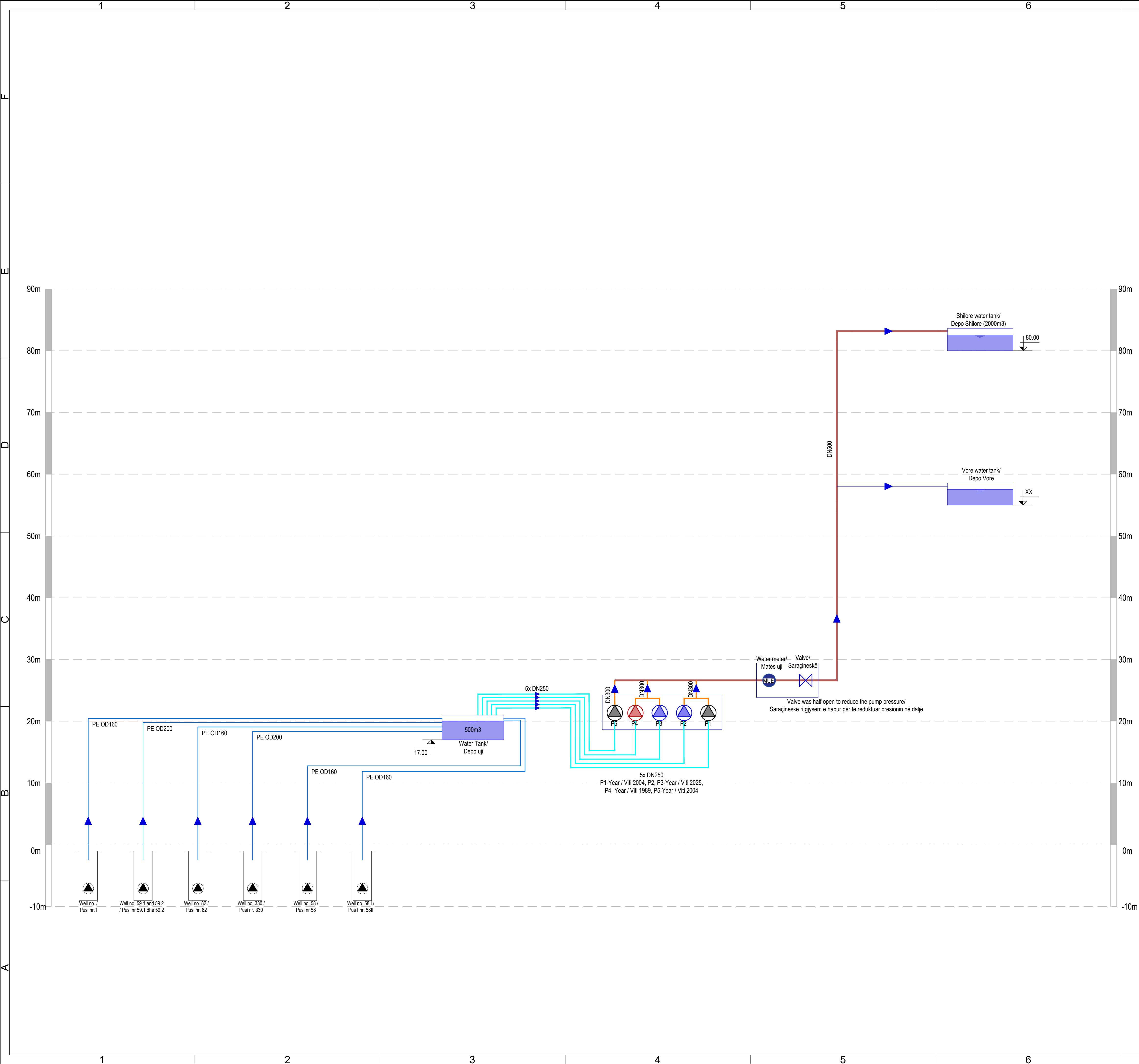
SIZE	SCALE	SCALE TYPE
A1	N/A	METRIC

FILE NAME: ALSP00504E-02-14-043-DWG-GDC-A1-General notes-R00.dwg



Pumping station pump Table / Tabela e pompave të stacionit të pompimit								
Name/ Emërtimi	Description / Përshkrimi	Flow/ Prurja	Head/ Presioni	Power/ Fuqia	Year / Viti	Measu. Flow/ Prurja e matur	Measu. Head / Presioni i matur	Measu. Power/ Fuqia e matur
P-1	Centrifugal horizontal pump / Pompë centrifugale horizontale	60 l/s	140 m	215 kW	2004	59.6 l/s	134.63 m	177 kW
P-2	Centrifugal horizontal pump/ Pompë centrifugale horizontale	90.5 l/s	202 m	315 kW	2025	-	-	-
P-3	Centrifugal horizontal pump/ Pompë centrifugale horizontale	90.5 l/s	202 m	315 kW	2025	-	-	-
P-4	Centrifugal horizontal pump/ Pompë centrifugale horizontale	90 l/s	202 m	300 kW	1989	87.5 l/s	134.63 m	303 kW
P-5	Centrifugal horizontal pump/ Pompë centrifugale horizontale	90 l/s	202 m	300 kW	2004			

DRAWING TITLE		
Current state / Gjendja ekzistuese		
SIZE	SCALE	SCALE TYPE
A1	1:200	METRIC
FILE NAME: ALSP00504E-02-74-115-DWG-SUR-A1-Current state-R00.dwg		



Technical Notes / Shënime teknike:

1. Pump no.2 and 3 are recently added / Pompa nr 2 dhe 3 janë të reja .

Legend / Legjenda:

- PE pipe / Tub PE
- Steel pipe DN250 / Tub çeliku DN250
- Steel pipe DN300 / Tub çeliku DN300
- Steel pipe DN500 / Tub çeliku DN500
- Horizontal centrifugal pump (Year 2004) / Pompë horizontale centrifugale (Viti 2004)
- Horizontal centrifugal pump (Year 1989) / Pompë horizontale centrifugale (Viti 1989)
- Horizontal centrifugal pump (Year 2025) / Pompë horizontale centrifugale (Viti 2025)
Q=90.5 l/s, H=202m, P=315kW

PROJECT DESIGNER



Name	Position	Signature
Prepared by: Alban DOKO	Hydrotechnical & Civil Engineer	
Alban ALIAJ	Electrical Engineer	
Marsel PYLLA	Mechanical Eng., FF Expert	
Eris MOSHA	Architect	
Checked by: Augustin DELESALLE	Project Coordinator	
Reviewed by: Vincent JALBERT	Project Chief Engineer	

STAMPS	DESIGNER OF RECORD
	Licence No.: 6713/12

REV. NO.	REV. DESCRIPTION	DATE
R00	First Issue	17/12/2025

CONTRACTING AUTHORITY



Project: National water supply and sanitation sector modernization program
Address: 34 Ibrahim Rugova St, Tirana, Albania
Tel.: +355 4 2280 650/1
info@waterbank.org

CONTRACT REF: AL-AKUM 329913-CS-QCBS
PROJECT
ENERGY EFFICIENCY IMPROVEMENT AND PHOTOVOLTAIC PANELS IMPLEMENTATION FOR THE RWU Durrës.
PËRMIRËSIMI I EFICINCËS SË ENERGJISË DHE IMPLEMENTIMI I PANELEVE FOTOVOLTAIKE PËR SHOQËRINË Durrës.
SUB PROJECT
Replacement of 3 booster pumps (VSD) at PST as well as rehabilitation of the well building at PST Fushe Krujë /
Rivendosja e 3 pompave shfytëse (VSD) në STP si dhe rehabilitimi i ndërtesës së pusit në STP Fushe Krujë.

PHASE	RWU	PST
Detail Design	Durrës	D2
PROJECT SECTION	CATEGORY	DOC. NO.
DWG	SUR	105

DRAWING TITLE
Existing hydraulics scheme /
Skema hidraulike ekzistuese

SIZE	SCALE	SCALE TYPE
A1	N/A	METRIC

FILE NAME: ALSP00504E-G2-T4-105-DWG-SUR-A1-Hydraulic scheme R00.dwg