TECHNOLOGICAL CARD-FOUNDATION

GENERAL

This technological card consists in the construction of deep foundation. The depth of piles is 5 m and the diameter is 40 cm. We are going to made reinforced concrete on-site piles.
I choose this type of execution because is cheaper and we can control the whole process.

DESCRIPTION AND SEQUENCE OF WORKS

The basics components of our foundation are:

-Concrete HA-25
-Iron armors B500s

CONSTRUCTION SEQUENCE:

1. Drilling
2. Withdrawal and concreting
3. Steel cage installation
4. Headed pile
5. Beam formwork
6. Beam steel cage
7. Beam concrete

QUALITY CONTROL

Ranges of tolerances:

a) The eccentricity of the axis of the pile relative to the set position, shall be less than 10 cm, for piles with diameter up to one meter (Ø ≤ 1.0 m) and tenth (1/10) of the diameter otherwise, but always less than 15 cm.

b) For vertical slope inclination error piles shall not exceed two percent 2% of the value of the slope.

HUMAN SAFETY

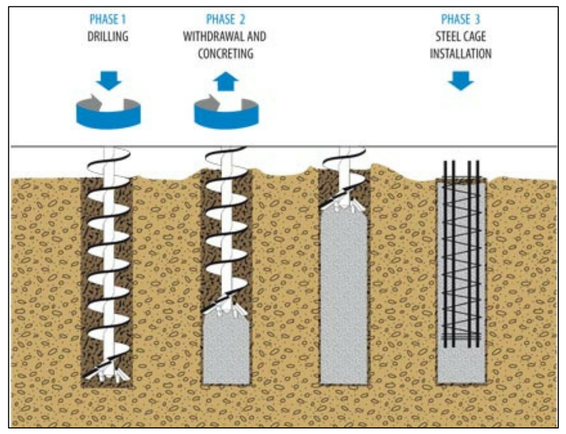
The work will be carried out in accordance "with health and safety rules in construction request".

1. Workers are allowed to work only with the knowledge of safety equipment.
2. Each worker must use protective equipment (special clothing, footwear and gloves)
3. Unnecessary collection of materials and debris from the workplace.
4. Should be grounded electrical equipment.
5. Must be all electrical devices absolutely clean.

All cables must be in perfect condition.

ORGANIZATION

Id	Modo de tarea	Nombre de tarea	Duración	Comienzo
1		DRILLING	5 días	lun 19/05/14
2		WITHDRAWAL AND CONCRETING	5 días	lun 19/05/14
3		STEEL CAGE	5 días	lun 19/05/14
4		HEADED PILE	2 días	lun 26/05/14
5		BEAM	9 días	mié 28/05/14



MECHANICS, MATERIALS AND TOOLS

Number	Name	Quantity
1	TOOLS	
1.1	Metal roulette 2PK	2
1.2	Levels Topcon AT-B4	1
1.3	Crowbar LM-24	3
1.4	Theodolite Prexiso T.O.2	1
1.5	Guying weight 13.3 Kg	3
1.6	Visor welding	2
1.7	Helmet	6
1.8	Security belts	3
1.9	Metal brushes	3
1.10	Chemical cleaning detail and found	3
2	MECHANISMS	
2.1	Electric welding machine for Tc-500 Q=1.2kW	1
2.2	Crane 130 EC-B6	1
2.3	Traverse TS-12, 5 weight 242 Kg	1
2.4	Compressor hammer	3
2.5	Continuous flight auger	1
2.4	Hook and versatile sling	4
3	Structures and materials bored piles installed Construction	
3.1	Metal cage	60

TECHNICAL-ECONOMICS INDICATORS

CPI080 m **Drilling and concreting pile for core tube auger.**

Pilote reinforced concrete core drilling and concreting for drill pipe, diameter 40 cm, made of concrete HA-25 manufactured in Central and poured from a stationary pump truck, and steel

Decomposed	Ud	Decomposition	Yield	Unit Price	Price
mt07ace020m	Ud	Approved separator for piles.	3,000	0,09	0,27
mt07ace010c	kg	Corrugated steel B 500 S	5,600	1,00	5,60
mt10haf010naa	m³	Central concrete HA-25	0,200	82,88	16,58
mq03pii106a	h	Hidráulic digger wheels 84 CV	0,090	174,72	15,72
mq06bhe020	h	Stationary pump for pumping concrete.	0,055	55,91	3,08
mo041	h	Steel worker	0,619	18,10	11,20
mo084	h	Steel helper	0,619	16,94	10,49
	%	Auxiliary works	2,000	62,94	1,26
	%	Indirect costs	3,000	64,20	1,93
Ten-year maintenance cost: € 1.32 in the first 10 years.				Total:	66,19

CAV020 m² **Beam formwork system**

Mounting of recoverable formwork wood beam foundation tied.

Decomposed	Ud	Decomposition	Yield	Unit Price	Price
mt08ema050	m³	Pine plank 2,50/4,06x205x55	0,020	255,00	5,10
mt08var050	kg	Wire 1,30 mm.	0,100	1,33	0,13
mt08var060	kg	Studs 20x100	0,050	7,00	0,35
mo041	h	Steel worker	0,374	18,10	6,77
mo084	h	Steel helper	0,374	16,94	6,34
	%	Auxiliary works	2,000	18,69	0,37
	%	Indirect costs	3,000	19,06	0,57
				Total:	19,63

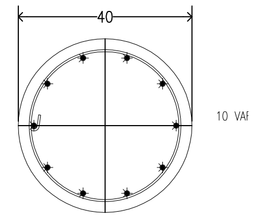
CPI200 m **Headed pile**

Headed pile of concrete, 40 cm diameter, with compressor with jackhammer and mechanical load on truck or

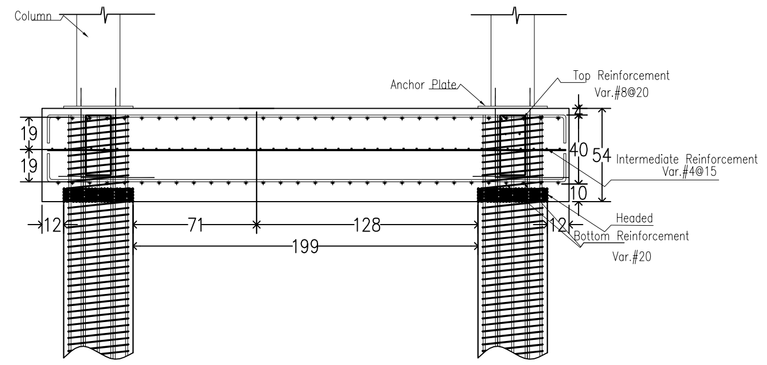
Decomposed	Ud	Decomposition	Yield	Unit Price	Price
mq05pdm010c	h	Port.compre.diesel m.p. 2 m3/min 7 bar	0,268	12,23	3,25
mq05mai030	h	Jackhammer.	0,531	4,07	2,16
mq01exn010i	h	Hidráulic digger wheels 84 CV	0,008	45,59	0,27
mo104	h	Construction helper	0,644	16,25	10,47
	%	Auxiliary works	2,000	16,15	0,32
	%	Indirect costs	3,000	16,47	0,49
				Total:	16,96
				Total:	33,92

PILE CONSTRUCTION SEQUENCE

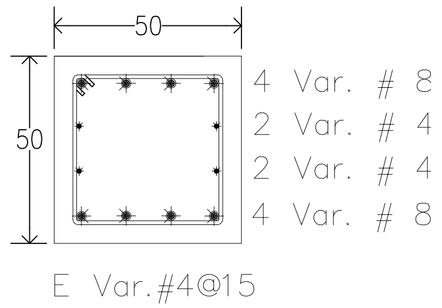
STEEL CAGE OF PILE



SECTION 1-1
PILE STEEL CAGE

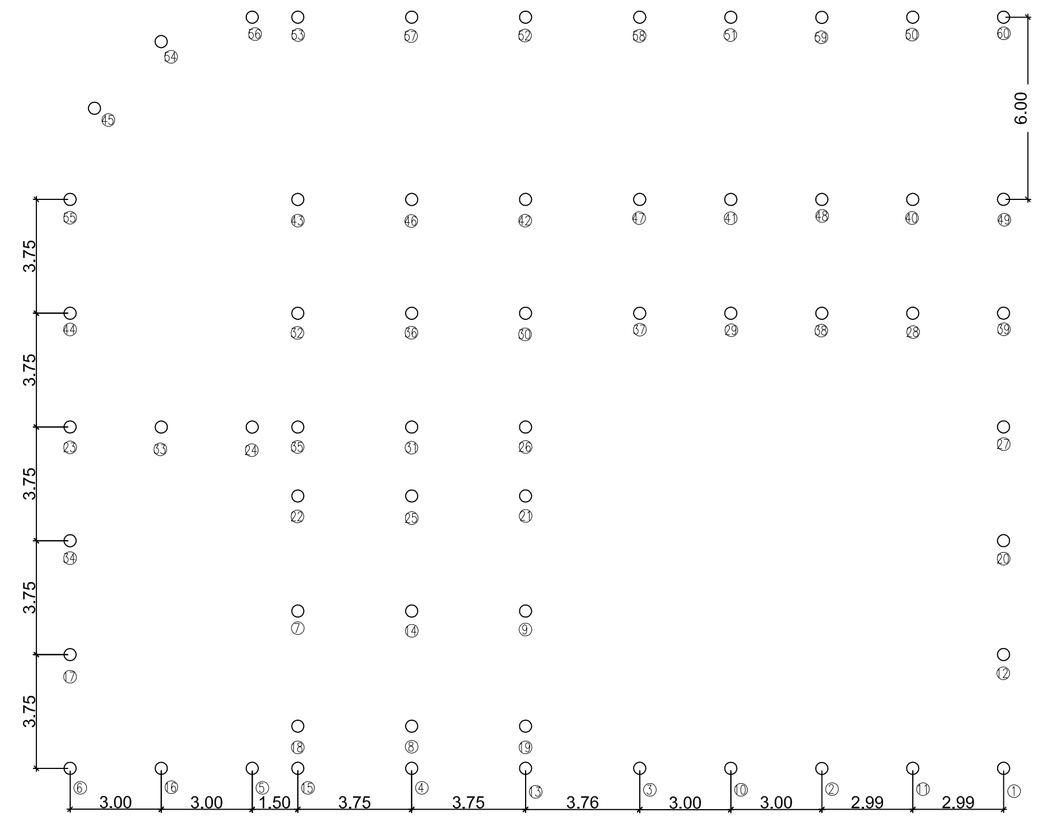


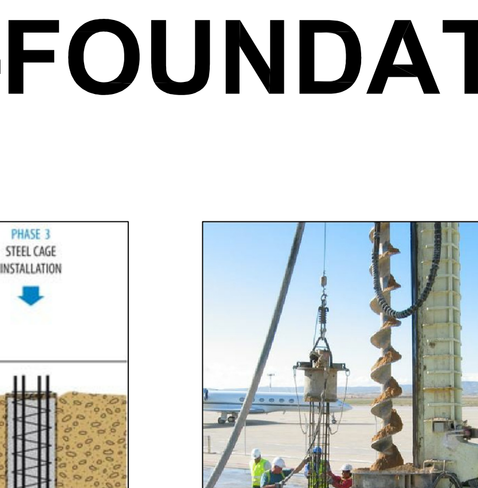
DETAIL



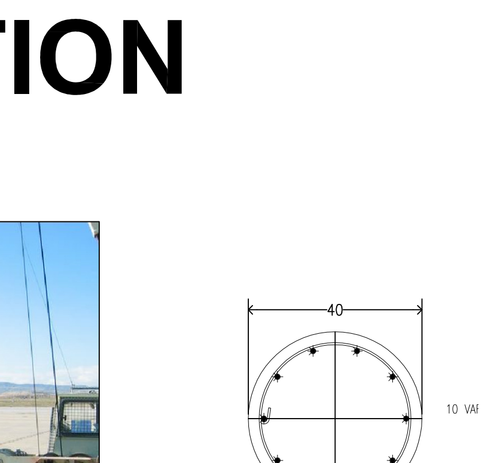
BEAM

PILES DRILLING SEQUENCE





BEAM FORMWORKS



CRANE BUCKET
Form of bucket Droite
Type of hanging Oreille LEVAGE
Type mechanism kit TU
Type Download Central
Type of hatch opening pair Levi

CAV010 m³ **Concrete for beams**

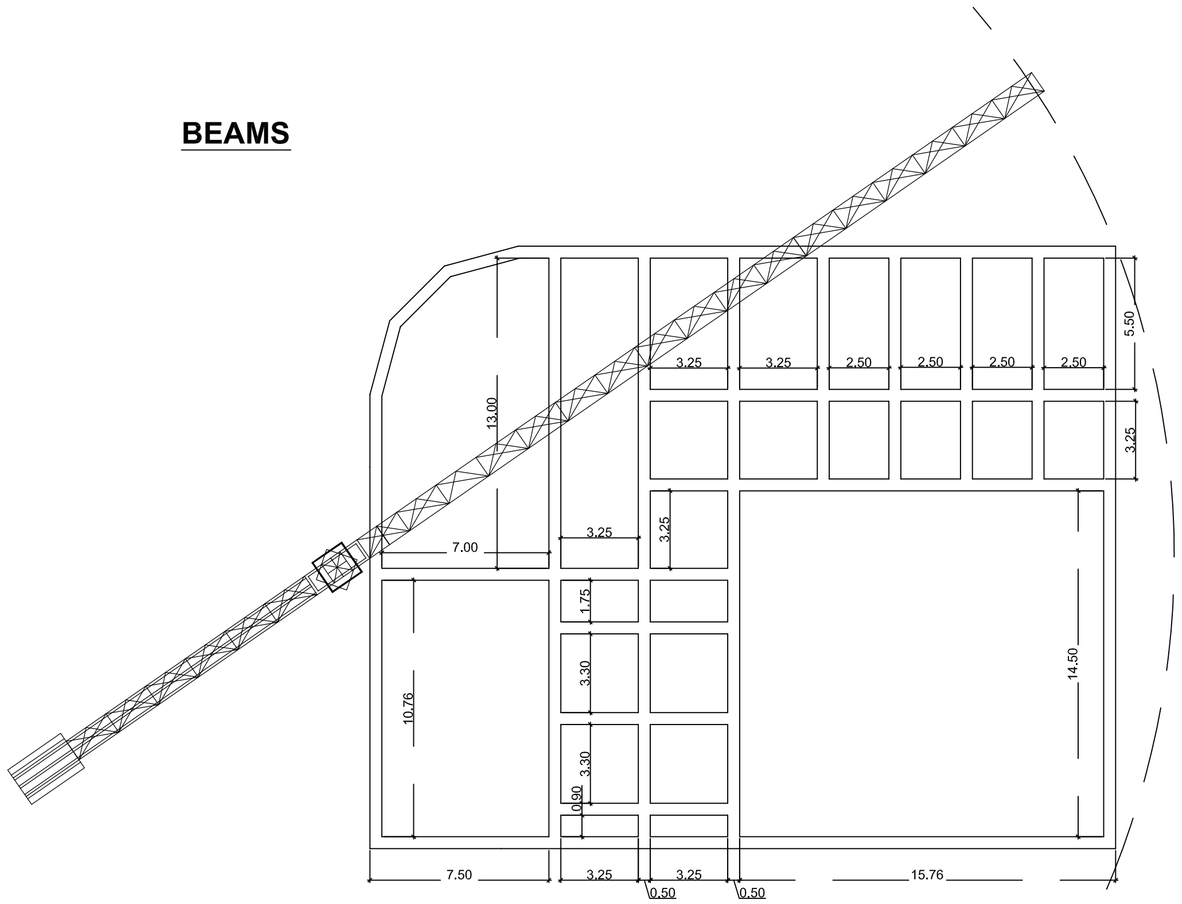
Beam tied reinforced concrete on concrete HA-25 manufactured in Central and discharge from truck and steel.

Decomposed	Ud	Decomposition	Yield	Unit Price	Price
mt07acp020a	Ud	Approved separator for piles.	10,000	0,13	1,30
mt07ace010c	kg	Corrugated steel B 500 S	60,000	1,00	60,00
mt10haf010nea	m³	Central concrete HA-25	1,050	76,88	80,72
mo041	h	Steel worker	0,061	18,10	1,10
mo084	h	Steel helper	0,061	16,94	1,03
	%	Auxiliary works	2,000	144,15	2,88
	%	Indirect costs	3,000	147,03	4,41
Ten-year maintenance cost: € 1.32 in the first 10 years.				Total:	151,44

TECHNICAL-ECONOMICS INDICATORS

1. Quantity of works: 5 m x 60 Piles = 300 m.
2. Installation cost: 66.13€/m x 300 = 19,839€ or 68,444.55 Litas.
3. Quantity of works: 0.5 m x 60 Piles = 30 m.
4. Installation cost: 33.92€/m x 30 = 1,017.60€ or 3,510.72 Litas.
5. Quantity of works: 288 m2
6. Installation cost: 19.63€/m2 x 288 = 5,653.44€ or 19,504.37 Litas.
7. Quantity of works: 72 m3
8. Installation cost: 151.44€/m3 x 72 = 10,903.68€ or 37,617.70 Litas.
9. Works duration: 16 Days
10. Wage:
    Specialist Steel Piles: 300 x 11.20€/m = 3360€ or 11,592 Litas.
    Steel worker Beams: 288 x 6.77€/m2 = 1,949.76€ or 6,726.67 Litas.
    Steel worker Formworks: 72 x 1.10€/m2 = 79.20€ or 273.24 Litas.
    Continuous flight auger: 300 meter x 15.72€/m = 4,716€ or 16,270.20 Litas.

BEAMS



	Name and Surename	Signature	Date	
Student	Adrian Anula López			Automobilių serviso pastato Dariaus ir Girėno g. 15 Vilniuje statybos projektavimas Construction planning of a garage building at Darius and Girėnas str. 15 in Vilnius
Supervisor	Jonas Šaparauskas			Department of Construction Technology and Management — PAGE 2/6
Head of Department				2013/2014
Reviewer				DRAWING: TECHNOLOGICAL CARD — FINAL THESIS WORK