

Northfleet School

Project code: G218481
Date: 30-04-2025
Designer: Andy Poplett
Description:

The nominal values shown in this report are the result of precision calculations, based upon precisely positioned luminaires in a fixed relationship to each other and to the area under examination. In practice the values may vary due to tolerances on luminaires, luminaire positioning, reflection properties and electrical supply.

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1. Project Description

1.1 Description

Main Pitch 91m x 55m (Fenced Area 97m x 61m) 200lux:-

Maintenance Factor:- 0.90

The design has been completed using the Philips
Asymmetric OptiVision LED GEN 3.5 4000k Floodlights.
A total of 12 no have been used.

Floodlights are mounted on 8 x 15 metre columns

All Floodlights fitted with integral LO (maximum cut off) louvres
to reducespill and glare.

Tennis courts (4no) - 400lux:-

Maintenance Factor:- 0.95

The design has been completed using the Philips
Asymmetric OptiVision LED GEN 3.5 4000k Floodlights.
A total of 10 no have been used.

All floodlights mounted on 10 x 8.0 metre columns

1.2 Top Project Overview



Scale
1:2500

2. Summary

2.1 Observer Information

Code	Observer	Position		
		X (m)	Y (m)	Z (m)
Aa	OB 1 - 145 Hall Rd	-93.50	-100.00	1.50
Bb	OB 2 - 155 Hall Rd	-97.00	-62.50	1.50
Cc	OB 3 - 165 Hall Rd	-96.50	-21.50	1.50
Dd	OB 4 - 175 Hall Rd	-99.00	16.80	1.50
Ee	OB 5 - 185 Hall Rd	-99.50	52.70	1.50
Ff	OB 6 - 195 Hall Rd	-100.00	79.00	1.50
Gg	OB 7 - 59 Tennyson Walk	215.00	-65.50	1.50
Hh	OB 8 - 69 Tennyson Walk	165.00	-99.00	1.50
Ii	OB 9 - Riverdale	190.00	25.00	1.50

2.2 Project Luminaires

Code	Qty	Luminaire Type	Lamp Type	Power (W)	Flux (lm)
A	4	BVP518 OUT T40 A35-NB LO	1 * LED1640-4S/740	946.2	1 * 164000
B	8	BVP528 OUT T40 A35-NB LO	1 * LED2480-4S/740	1427.4	1 * 248000
C	6	BVP518 OUT T40 A55-MNB LT	1 * LED1640-4S/740	946.2	1 * 164000
D	4	BVP518 OUT T40 A55-NMB LT	1 * LED1640-4S/740	946.2	1 * 164000

The total installed power: 24.67 (kWatt)

Number of Luminaires Per Switching Mode:

Switching Mode	Luminaire Code				Power (kWatt)
	A	B	C	D	
Main Pitch	4	8	0	0	15.20
Half Pitch	2	2	0	0	4.75
Tennis Court 1	0	0	2	2	3.78
Tennis Court 2	0	0	4	0	3.78
Tennis Court 3	0	0	4	0	3.78
Tennis Court 4	0	0	2	2	3.78
Netball Court 1	0	0	2	2	3.78
Netball Court 2	0	0	6	0	5.68
Netball Court 3	0	0	2	2	3.78
All ON	4	4	6	4	18.96

Number of Luminaires Per Arrangement:

Arrangement	Luminaire Code				Power (kWatt)
	A	B	C	D	
Centre 1	2	2	0	0	4.75
Centre 2	2	2	0	0	4.75
Corner 1	0	2	0	0	2.85
Corner 2	0	2	0	0	2.85
Individuals	0	0	6	4	9.46

2.3 Calculation Results

Switching Modes:

Code	Switching Mode	Maintenance factor
1	Main Pitch	0.90
2	Half Pitch	0.90
3	Tennis Court 1	0.95
4	Tennis Court 2	0.95
5	Tennis Court 3	0.95
6	Tennis Court 4	0.95
7	Netball Court 1	0.95
8	Netball Court 2	0.95
9	Netball Court 3	0.95
10	All ON	1.00

(II)luminance Calculations:

Calculation	Switching Mode	Type	Unit	Ave	Max	Min/Ave	Min/Max
Football	1	Surface Illuminance	lux	218	0.61	0.42	
Court 1 PPA	3	Surface Illuminance	lux	445	0.81	0.59	
Court 1 TPA	3	Surface Illuminance	lux	439	0.67	0.45	
Court 2 PPA	4	Surface Illuminance	lux	394	0.82	0.63	
Court 2 TPA	4	Surface Illuminance	lux	386	0.63	0.47	
Court 3 PPA	5	Surface Illuminance	lux	385	0.82	0.64	
Court 3 TPA	5	Surface Illuminance	lux	380	0.66	0.49	
Court 4 PPA	6	Surface Illuminance	lux	423	0.80	0.60	
Court 4 TPA	6	Surface Illuminance	lux	425	0.69	0.48	
Netball Court 1	7	Surface Illuminance	lux	432	0.69	0.46	
Netball Court 2	8	Surface Illuminance	lux	398	0.61	0.45	
Netball Court 3	9	Surface Illuminance	lux	417	0.64	0.44	
Eh Spillage	10	Surface Illuminance	lux	29.1	0.00	0.00	
Ev 145 - 197 Hall Road	10	Surface Illuminance	lux		0.13		
Ev 57-71 Tennyson Walk	10	Surface Illuminance	lux		0.69		
Ev Riverdale	10	Surface Illuminance	lux		0.44		
Tree Line (North)	1	Surface Illuminance	lux		0.45		
Tree Line (East)	1	Surface Illuminance	lux		1.14		

Obtrusive Light Calculations:

Switching Mode	Observer Code	Luminaire Code	Position			Aiming Angles			Maximum Intensity (cd)
			X (m)	Y (m)	Z (m)	Rot.	Tilt90	Tilt0	
10	Aa	B	48.00	31.00	15.00	-122.00	64.00	-0.00	302
10	Bb	D	142.87	12.57	8.20	168.43	62.00	0.00	487
10	Cc	D	142.87	12.57	8.20	168.43	62.00	0.00	555
10	Dd	C	115.91	-23.24	8.20	143.30	63.00	0.00	1116
10	Ee	D	142.87	12.57	8.20	168.43	62.00	0.00	1236
10	Ff	C	115.91	-23.24	8.20	143.30	63.00	0.00	1507
10	Gg	C	104.83	21.34	8.20	-36.70	63.00	0.00	2216
10	Hh	C	87.65	-2.14	8.20	-36.70	63.00	0.00	2131
10	Ii	C	104.83	21.34	8.20	-36.70	63.00	0.00	986

Switching Mode	ULR
1	0.00
2	0.00
3	0.00
4	0.00
5	0.00
6	0.00
7	0.00
8	0.00
9	0.00
10	0.00

3. Calculation Results

3.1 Football: Graphical Table

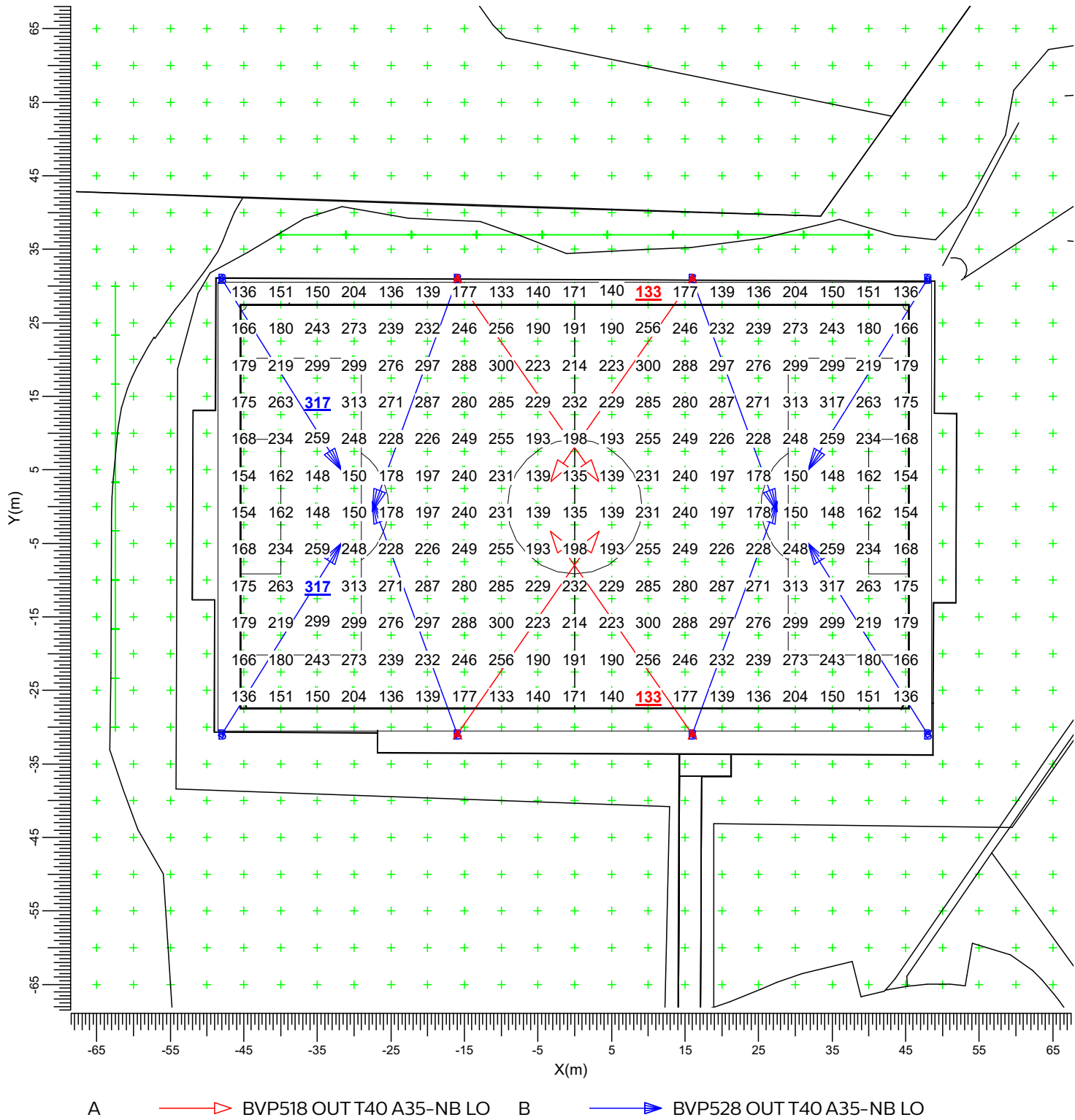
Main Pitch

Grid

Calculation

: Football at Z = -0.00 m

: Surface Illuminance (lux)



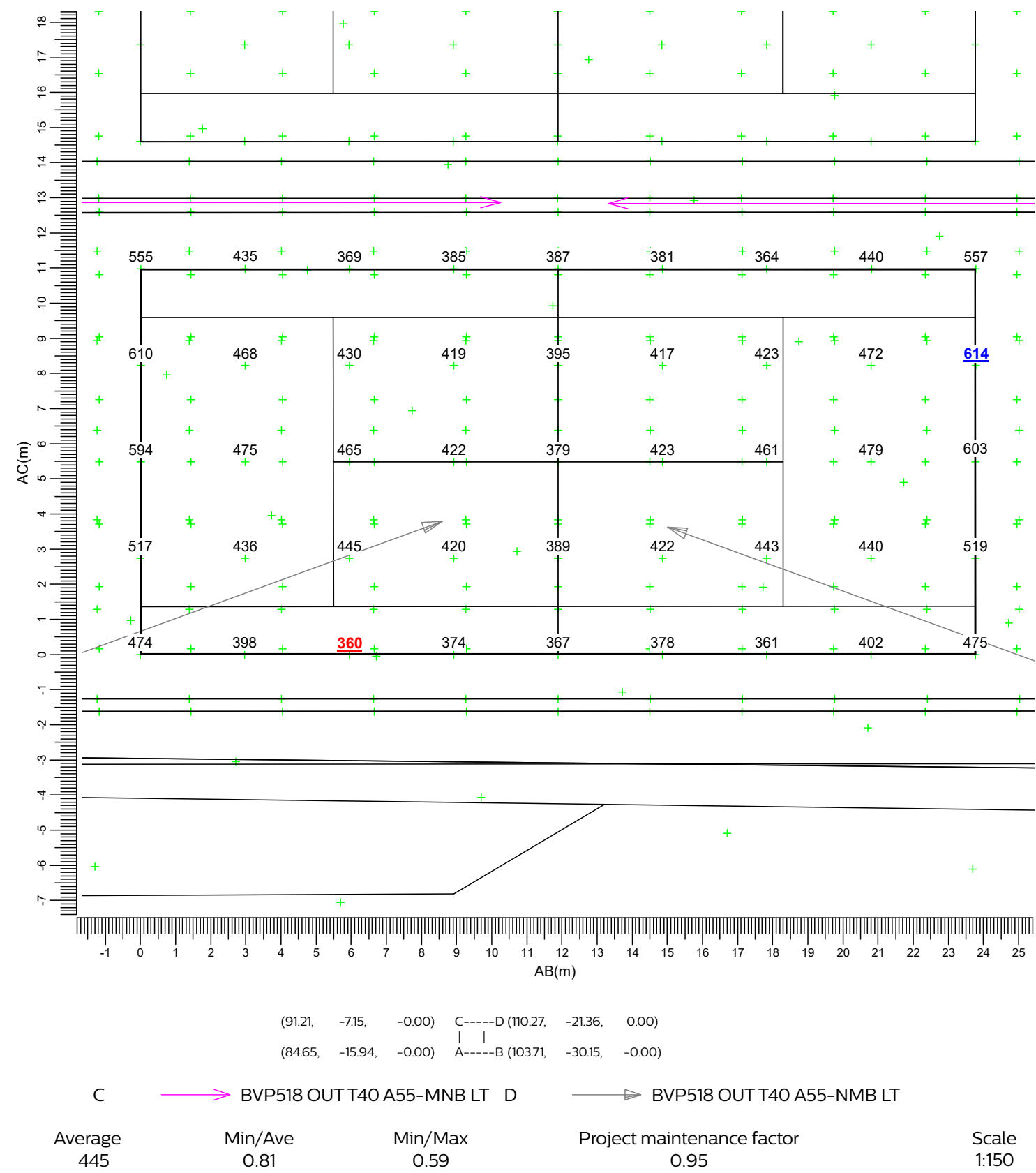
Average	Min/Ave	Min/Max	Project maintenance factor	Scale
218	0.61	0.42	0.90	1:750

3.2 Court 1 PPA: Graphical Table

Tennis Court 1

Grid : Court 1 PPA

Calculation : Surface Illuminance (lux)

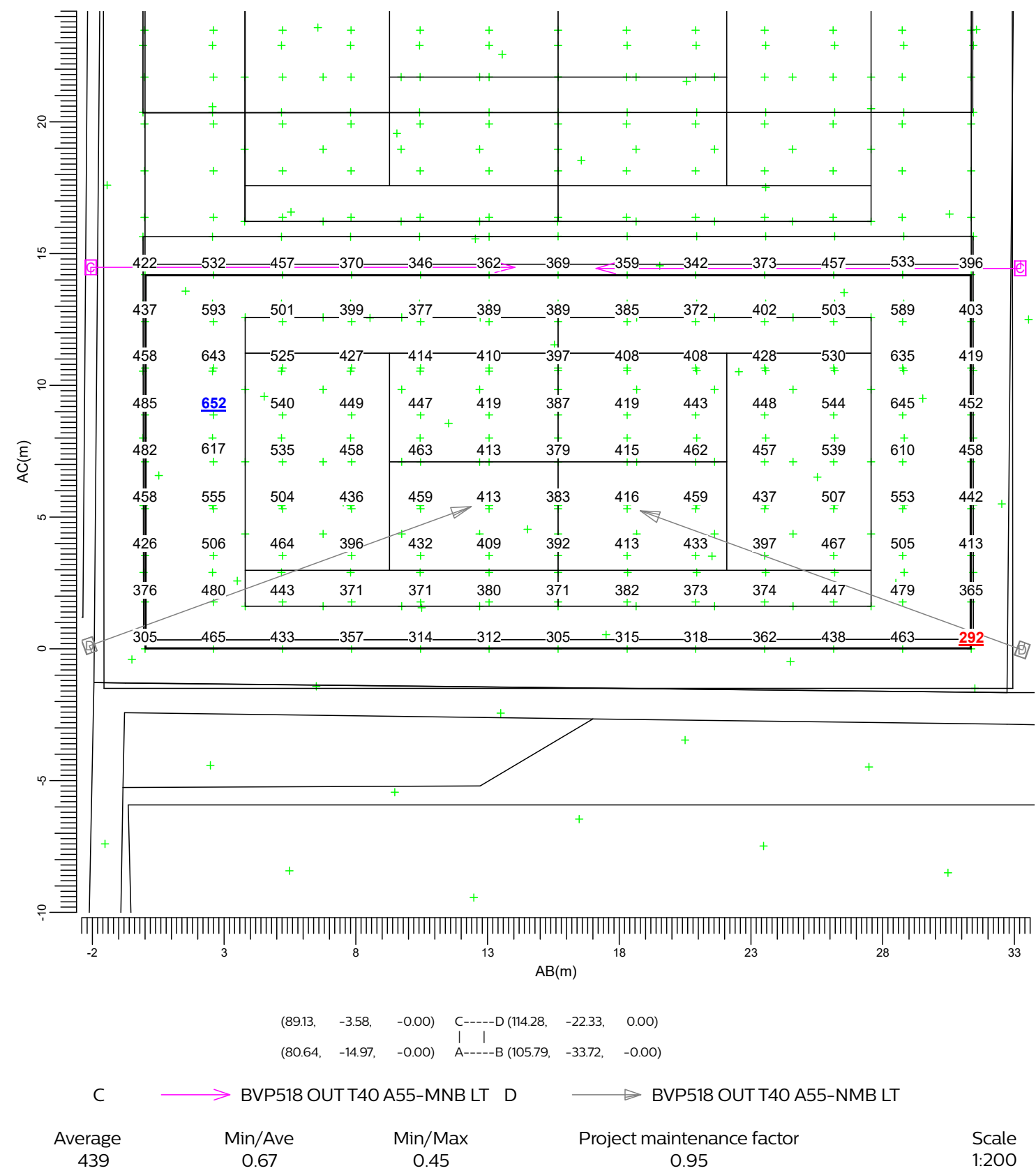


3.3 Court 1 TPA: Graphical Table

Tennis Court 1

Grid : Court 1 TPA

Calculation : Surface Illuminance (lux)

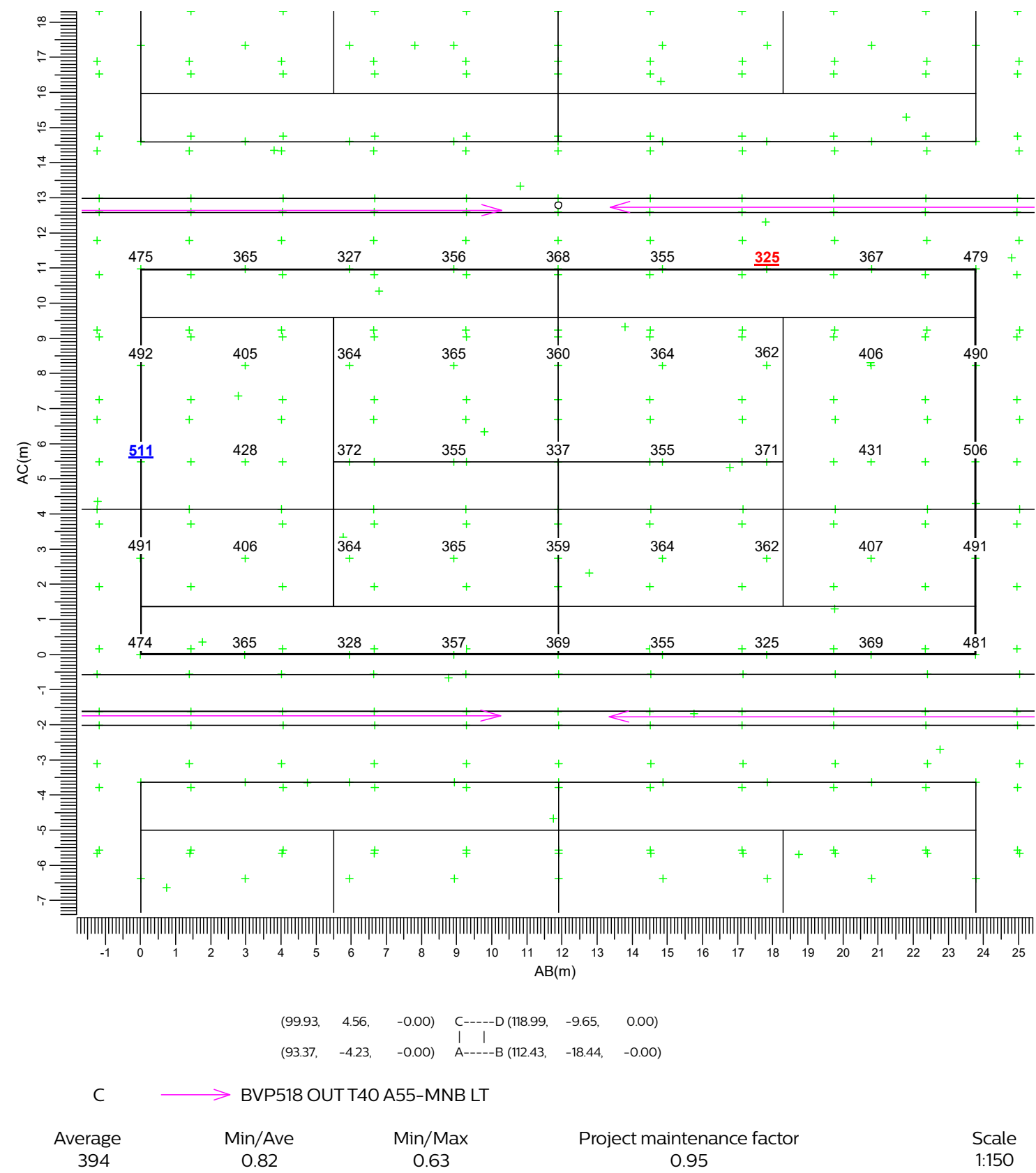


3.4 Court 2 PPA: Graphical Table

Tennis Court 2

Grid : Court 2 PPA

Calculation : Surface Illuminance (lux)

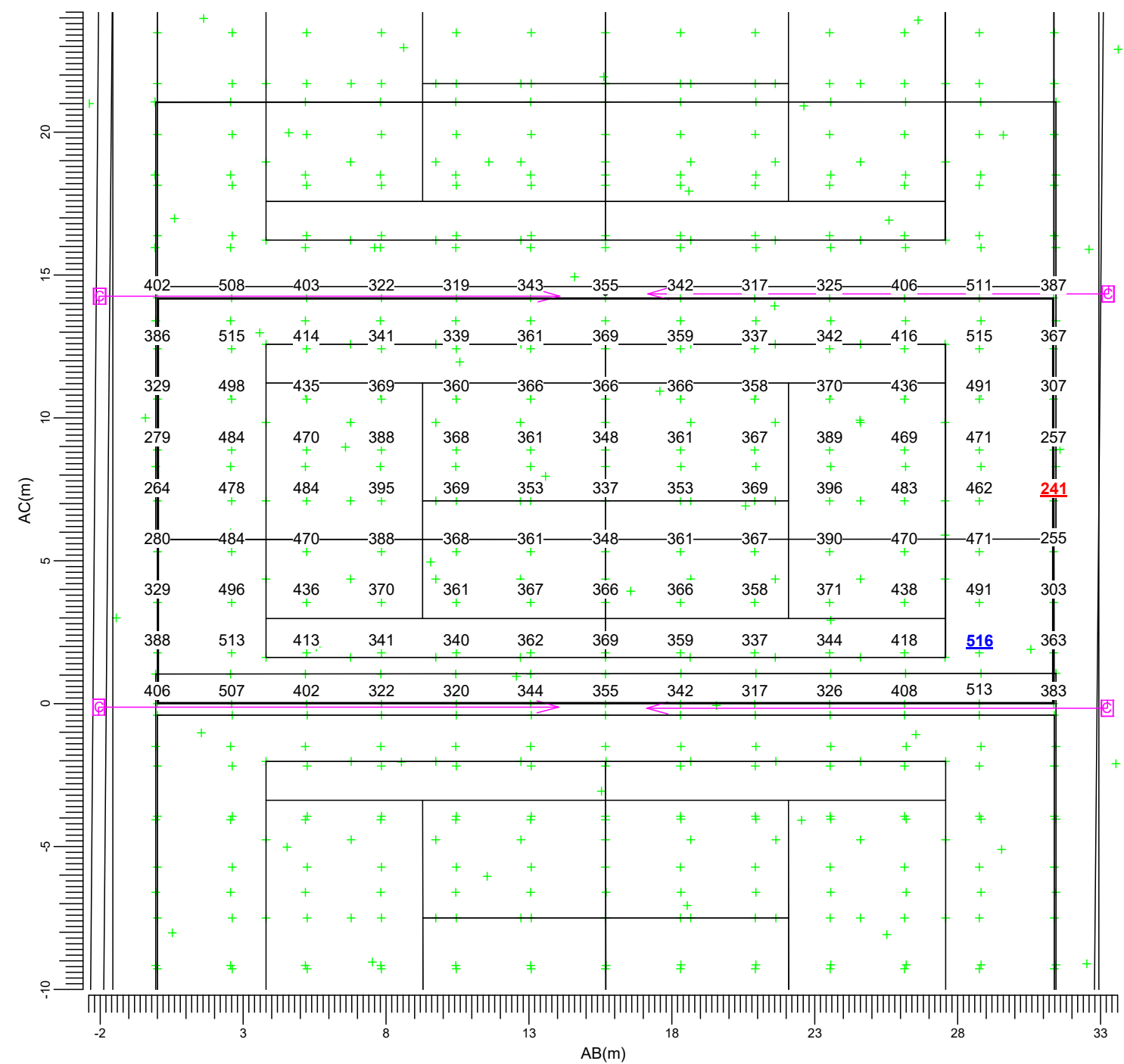


3.5 Court 2 TPA: Graphical Table

Tennis Court 2

Grid : Court 2 TPA

Calculation : Surface Illuminance (lux)



(97.85, 8.13, -0.00) C-----D (123.00, -10.62, 0.00)

(89.36, -3.26, -0.00) A-----B (114.51, -22.01, -0.00)

C

→ BVP518 OUT T40 A55-MNB LT

Average386

Min/Ave0.63

Min/Max0.47

Project maintenance factor0.95

Scale1:200

Tennis Court 3

C → BVP518 OUT T40 A55-MNB LT

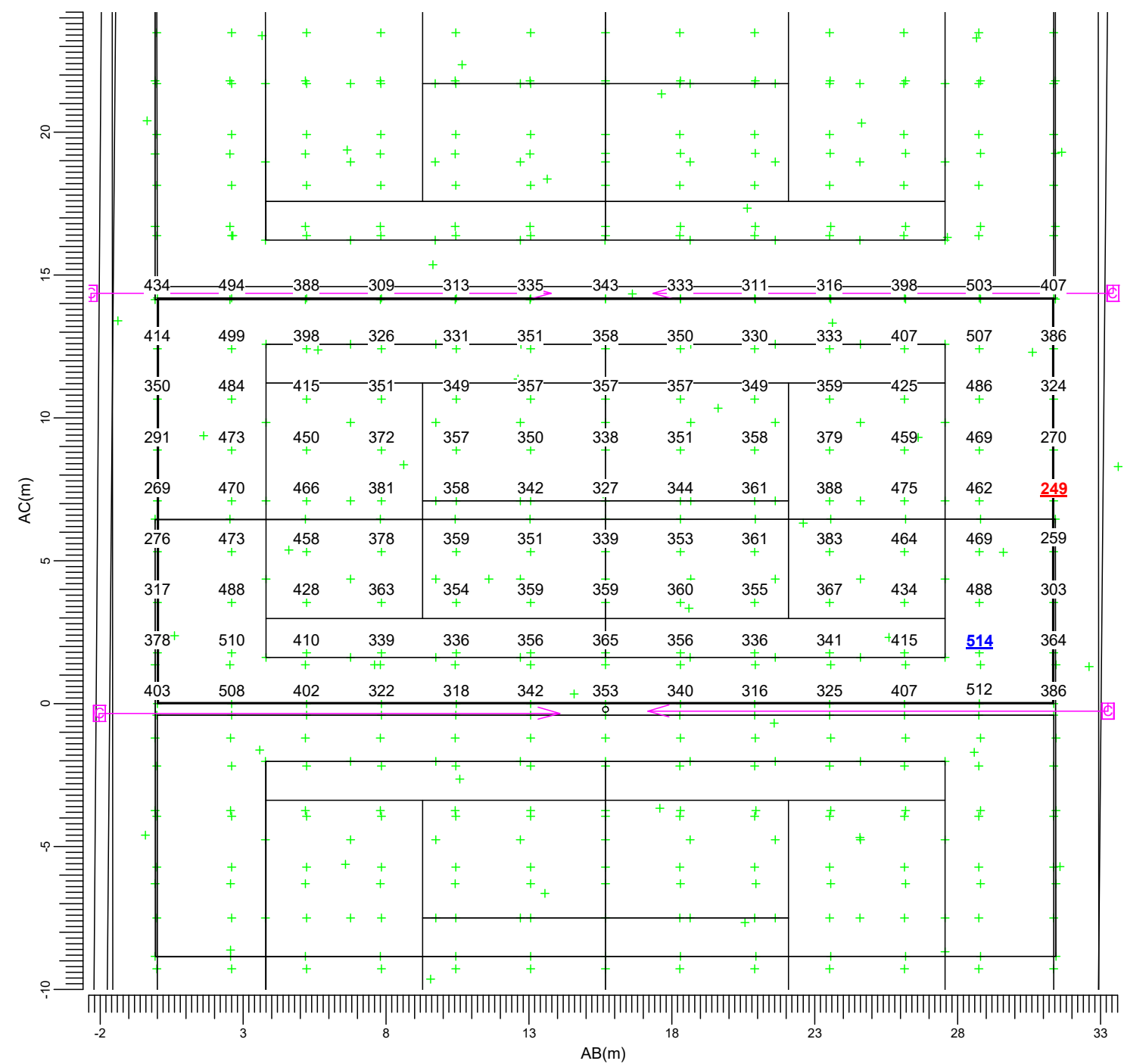
Page: 13/31

3.7 Court 3 TPA: Graphical Table

Tennis Court 3

Grid : Court 3 TPA

Calculation : Surface Illuminance (lux)



(106.58,	19.83,	-0.00)	C-----D (131.73,	1.08,	0.00)
(98.09,	8.44,	-0.00)	A-----B (123.24,	-10.31,	-0.00)

C

→ BVP518 OUT T40 A55-MNB LT

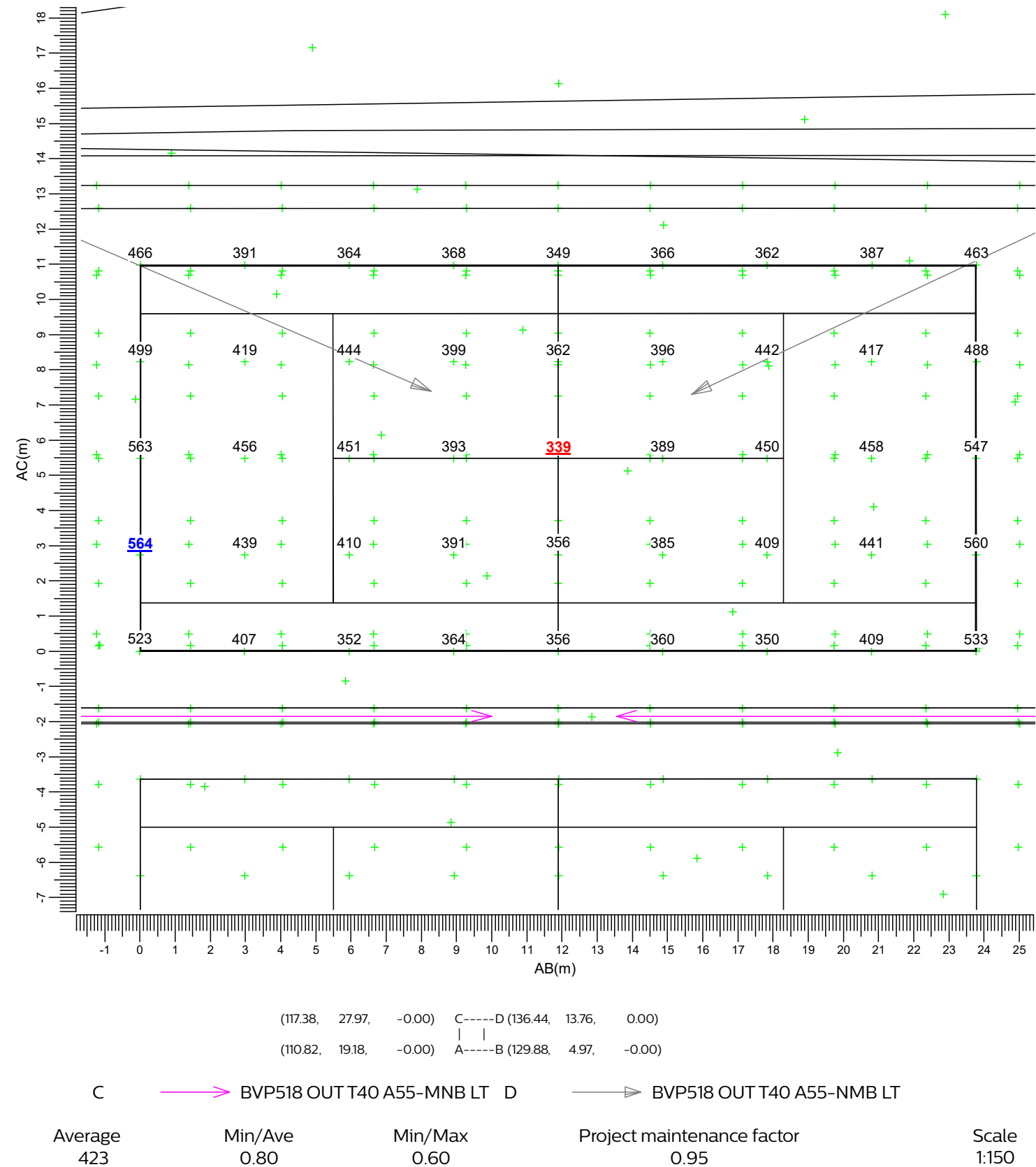
Average 380	Min/Ave 0.66	Min/Max 0.49	Project maintenance factor 0.95	Scale 1:200
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3.8 Court 4 PPA: Graphical Table

Tennis Court 4

Grid : Court 4 PPA

Calculation : Surface Illuminance (lux)

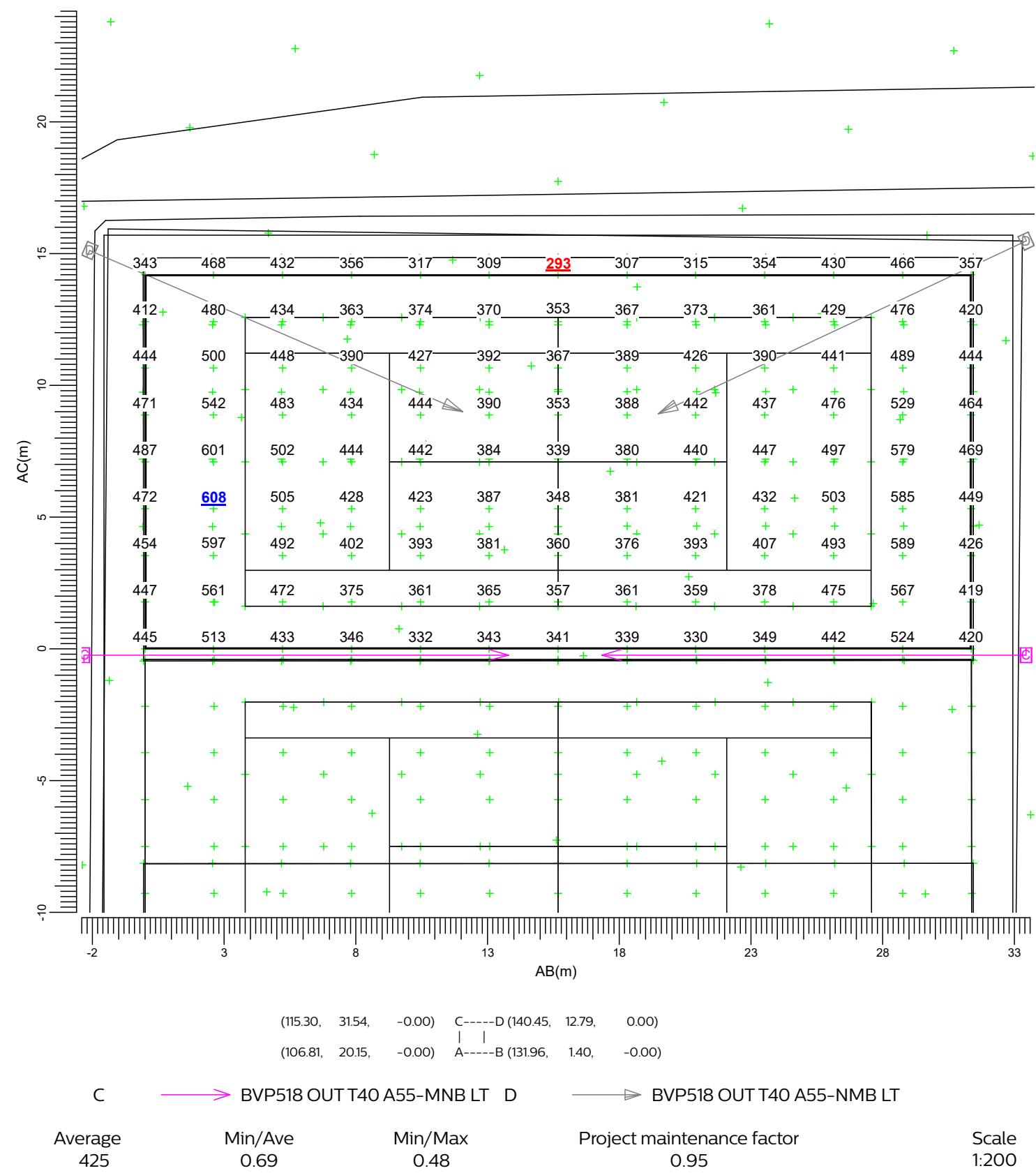


3.9 Court 4 TPA: Graphical Table

Tennis Court 4

Grid : Court 4 TPA

Calculation : Surface Illuminance (lux)

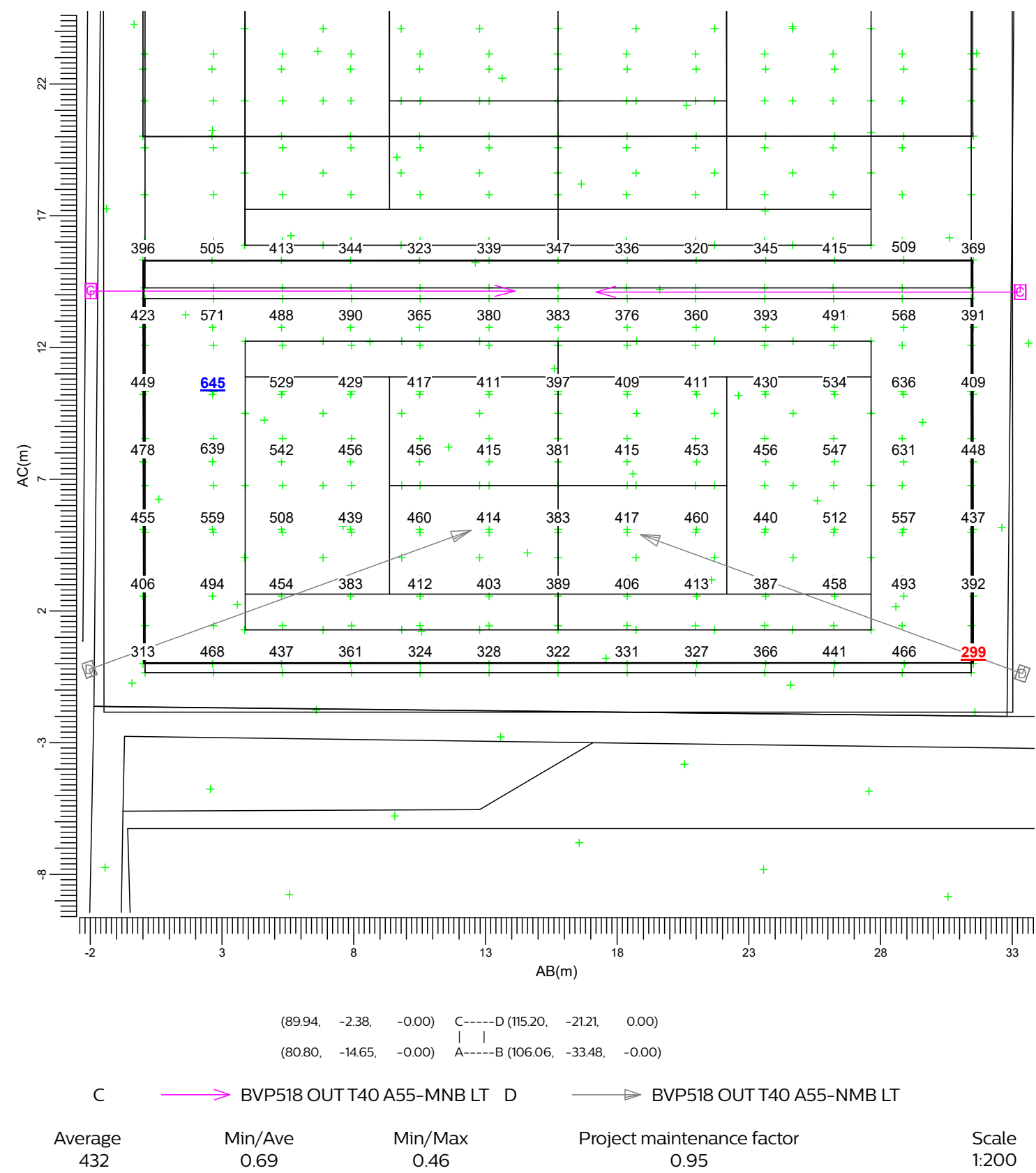


3.10 Netball Court 1: Graphical Table

Netball Court 1

Grid : Netball Court 1

Calculation : Surface Illuminance (lux)



Netball Court 2

(101.89, 13.66, -0.00) C-----D(127.15, -5.17, 0.00)
 (92.75, 1.39, -0.00) A-----B(118.01, -17.44, -0.00)

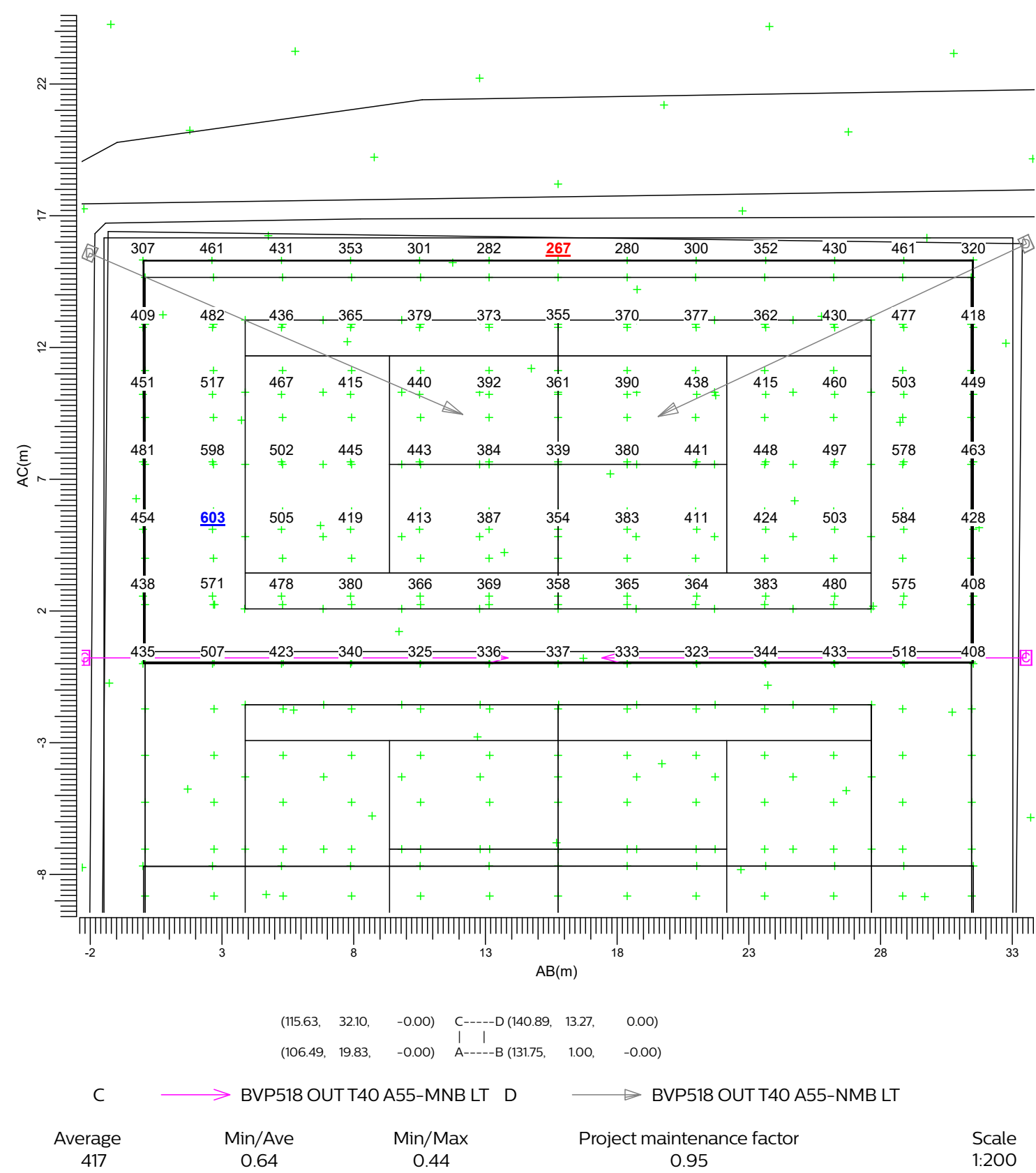
Average 398	Min/Ave 0.61	Min/Max 0.45	Project maintenance factor 0.95	Scale 1:200
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3.12 Netball Court 3: Graphical Table

Netball Court 3

Grid : Netball Court 3

Calculation : Surface Illuminance (lux)



3.13 Eh Spillage: Graphical Table

ALL ON

Grid : Spillage at Z = -0.00 m

Calculation : Surface Illuminance (lux)



3.14 Eh Spillage: Iso Contour

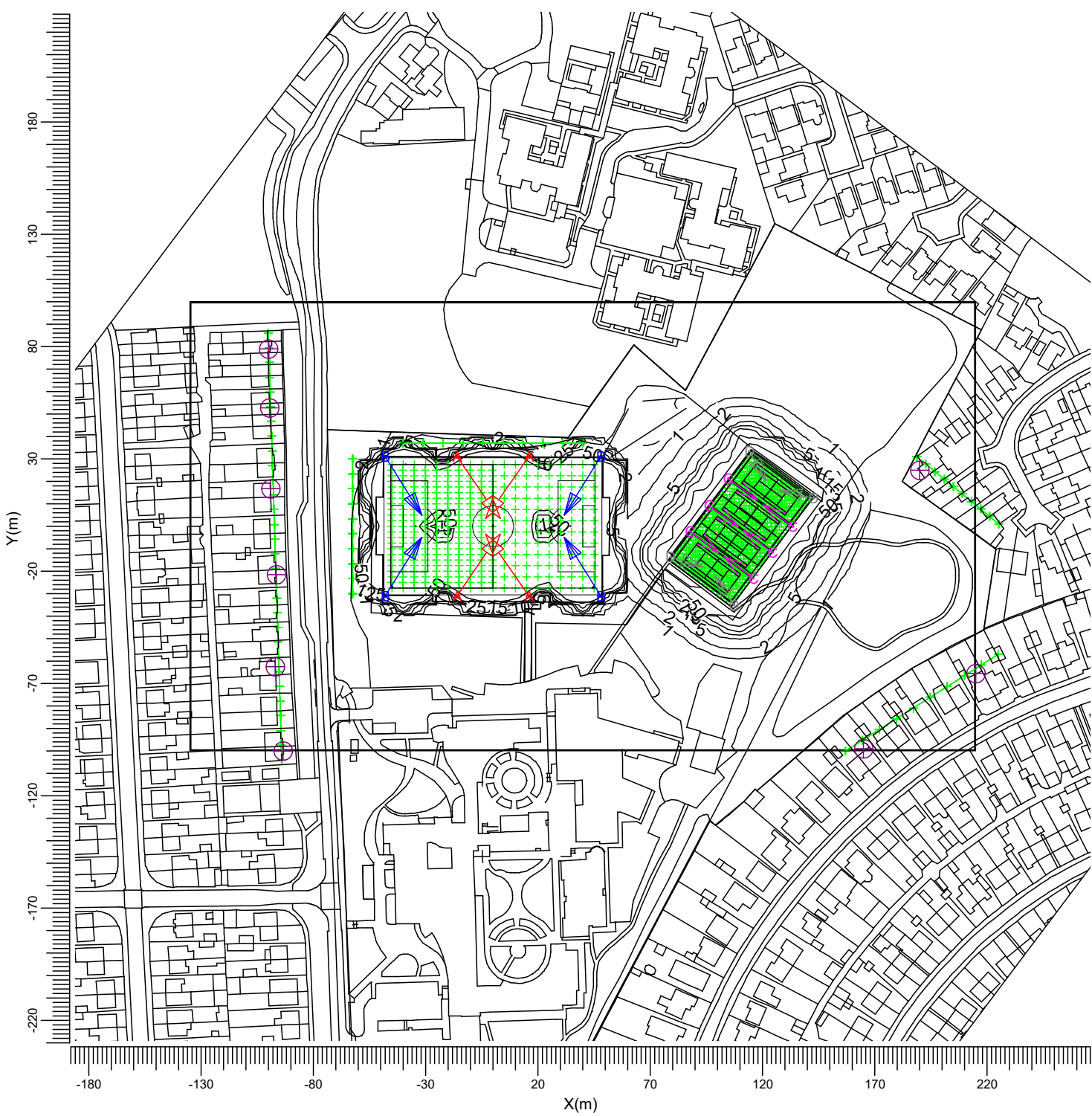
All ON

Grid

Calculation

: Spillage at Z = -0.00 m

: Surface Illuminance (lux)



- A

C

BVP518 OUT T40 A35-NB LO

BVP518 OUT T40 A55-MNB LT
- B

D

BVP528 OUT T40 A35-NB LO

BVP518 OUT T40 A55-NMB LT

Average29.1

Min/Ave0.00

Min/Max0.00

Project maintenance factor1.00

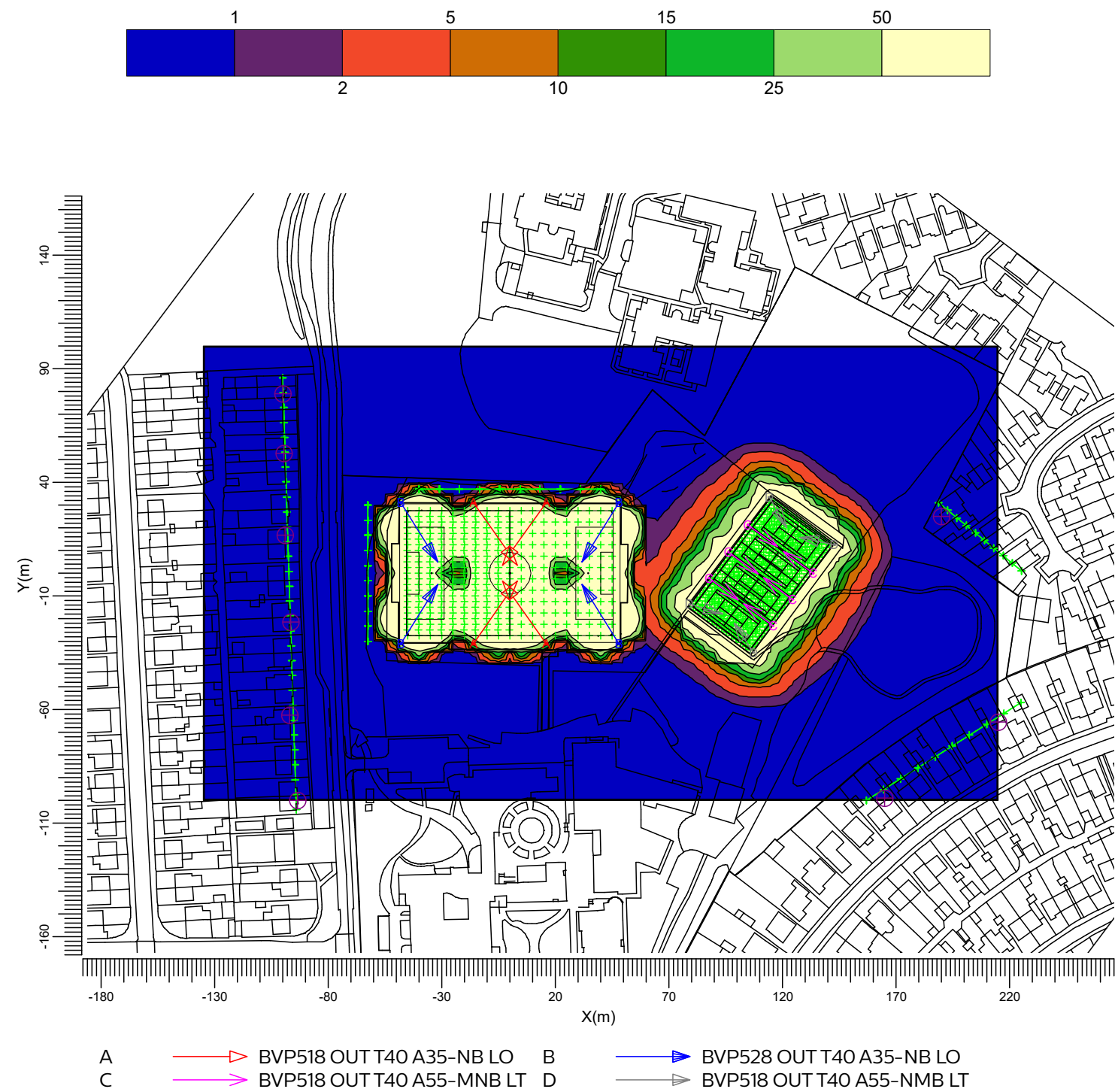
Scale1:2500

3.15 Eh Spillage: Filled Iso Contour

All ON

Grid : Spillage at Z = -0.00 m

Calculation : Surface Illuminance (lux)

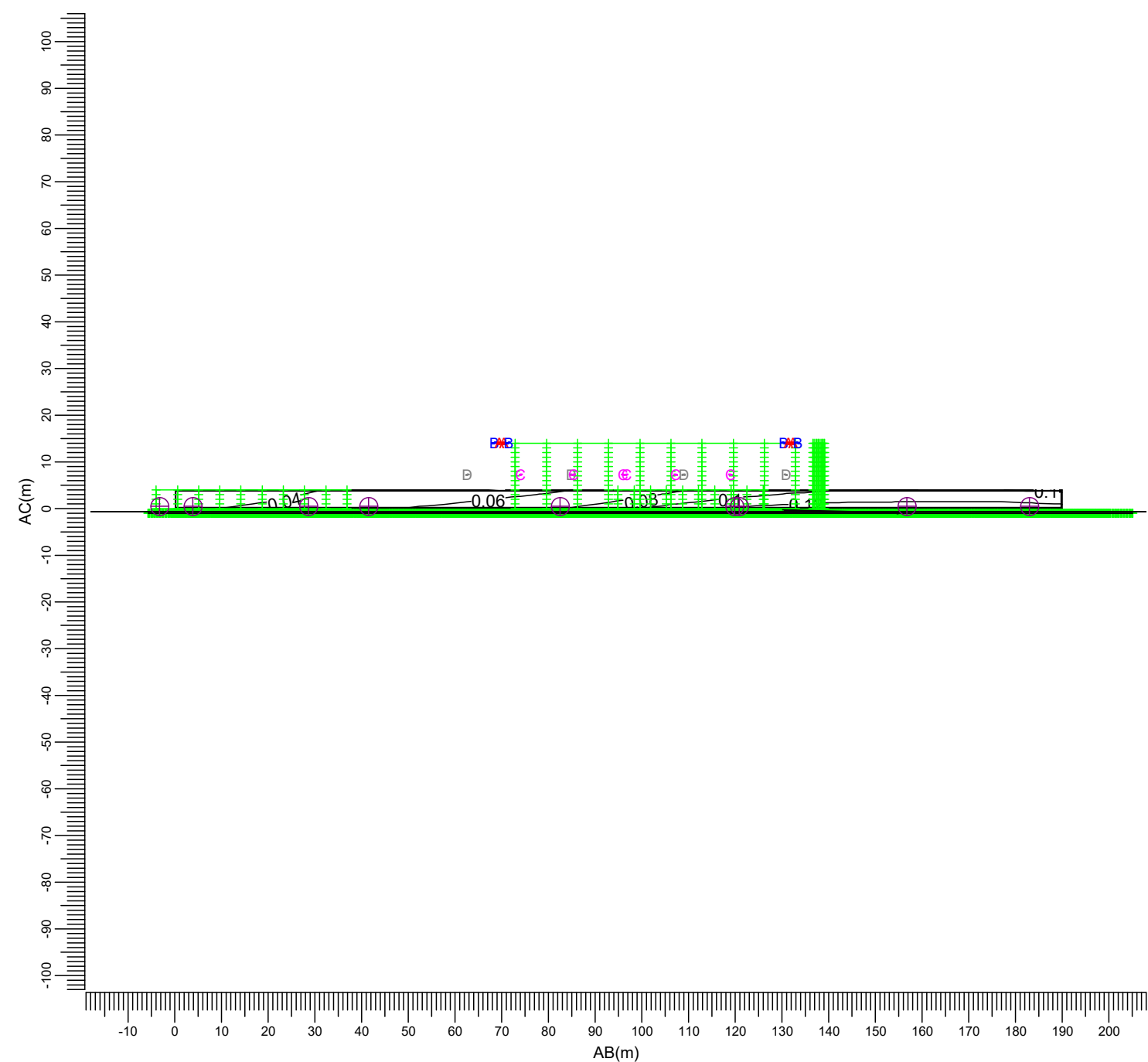


3.16 Ev 145 - 197 Hall Road: Iso Contour

All ON

Grid : Ev 145 - 197 Hall Road

Calculation : Surface Illuminance (lux)



- A : BVP518 OUT T40 A35-NB LO
- B : BVP528 OUT T40 A35-NB LO
- C : BVP518 OUT T40 A55-MNB LT
- D : BVP518 OUT T40 A55-NMB LT

Maximum0.13

Project maintenance factor1.00

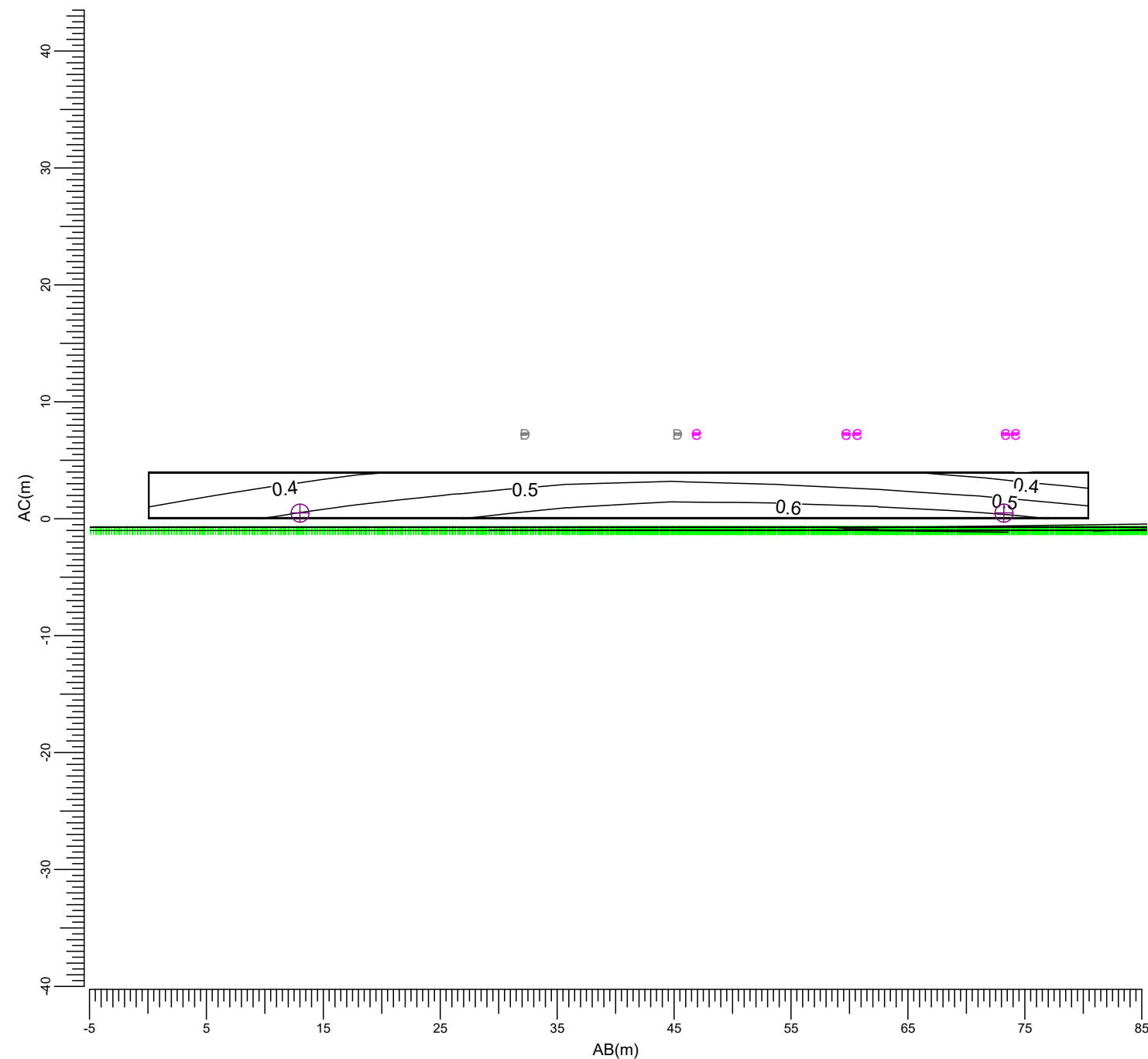
Scale1:1250

3.17 Ev 57-71 Tennyson Walk: Iso Contour

All ON

Grid : Ev 57-71 Tennyson Walk

Calculation : Surface Illuminance (lux)



(225.00, -57.00, 5.00) C-----D (157.00, -100.00, 5.00)

(225.00, -57.00, 1.00) A-----B (157.00, -100.00, 1.00)

A : BVP518 OUT T40 A35-NB LO

C : BVP518 OUT T40 A55-MNB LT

B : BVP528 OUT T40 A35-NB LO

D : BVP518 OUT T40 A55-NMB LT

Maximum0.69

Project maintenance factor1.00

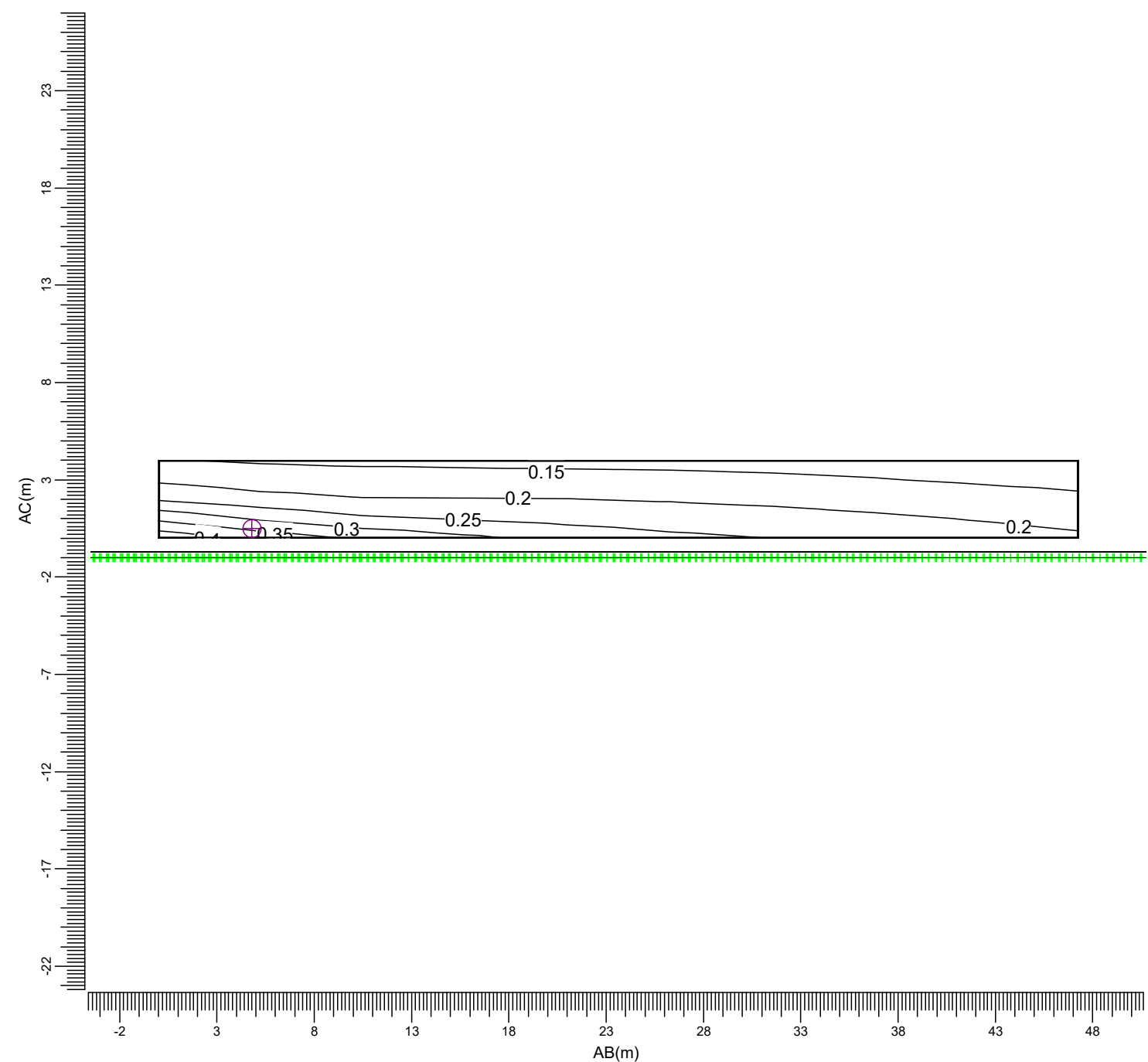
Scale1:500

3.18 Ev Riverdale: Iso Contour

All ON

Grid : Ev Riverdale

Calculation : Surface Illuminance (lux)



(188.70, 31.00, 5.00) C-----D (225.30, 1.10, 5.00)

(188.70, 31.00, 1.00) A-----B (225.30, 1.10, 1.00)

A : BVP518 OUT T40 A35-NB LO

C : BVP518 OUT T40 A55-MNB LT

B : BVP528 OUT T40 A35-NB LO

D : BVP518 OUT T40 A55-NMB LT

Maximum0.44

Project maintenance factor1.00

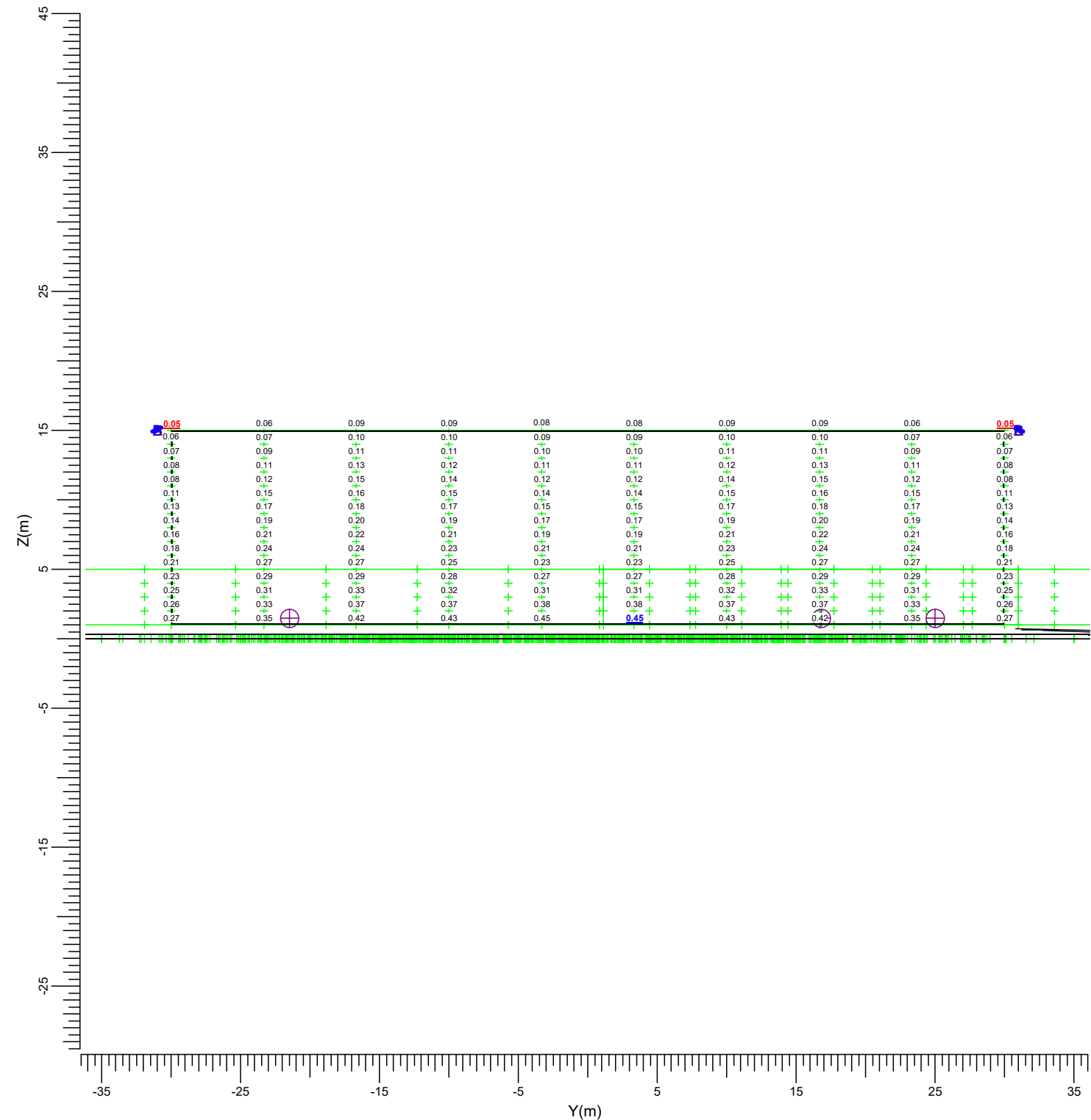
Scale1:300

3.19 Tree Line (North): Graphical Table

Main Pitch

Grid : Tree Line (North) at X = -62.50 m

Calculation : Surface Illuminance (lux)



A : BVP518 OUT T40 A35-NB LO

B : BVP528 OUT T40 A35-NB LO

Maximum 0.45

Project maintenance factor 0.90

Scale 1:400

3.20 Tree Line (North): Iso Contour

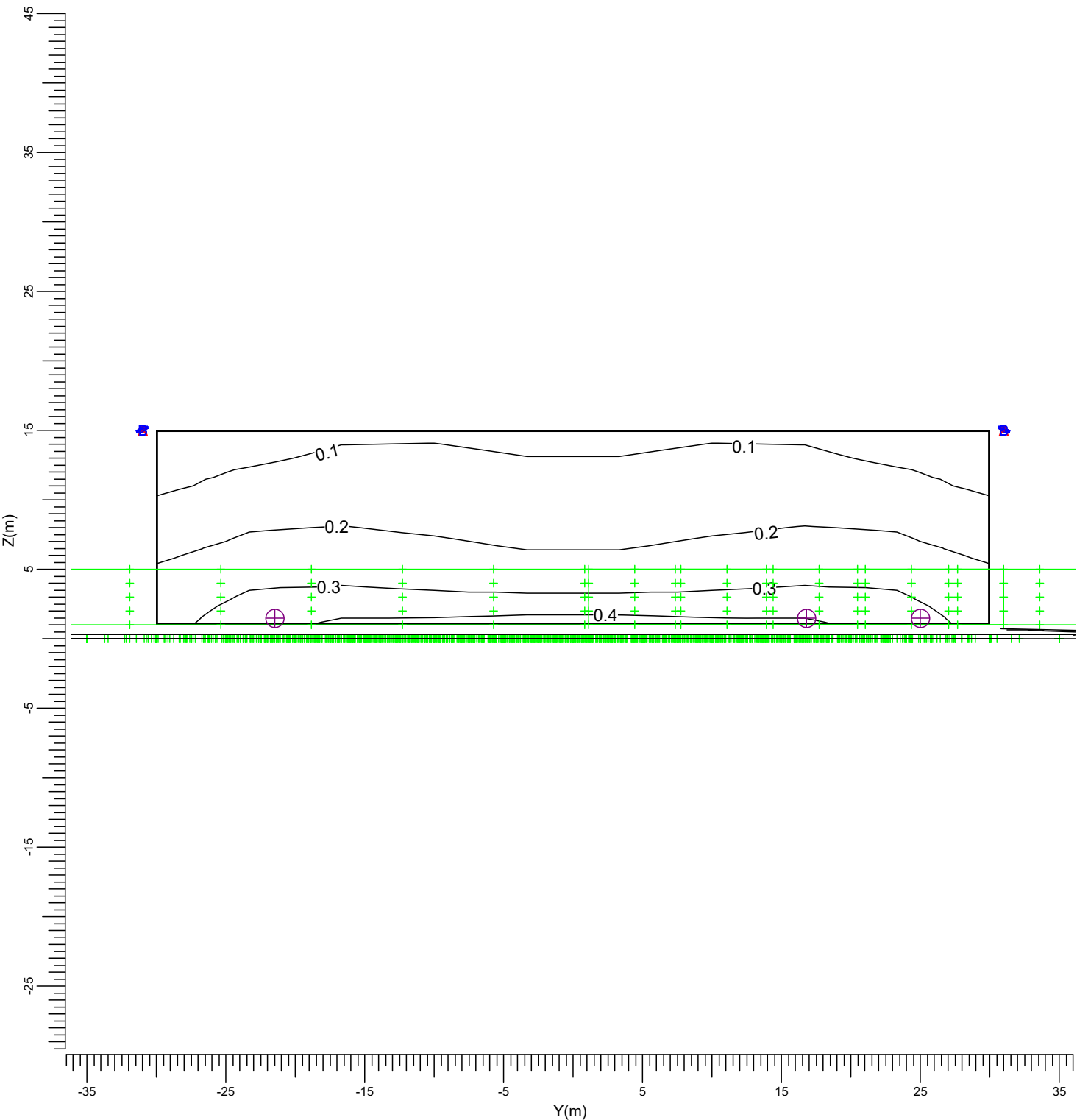
Main Pitch

Grid

Calculation

: Tree Line (North) at X = -62.50 m

: Surface Illuminance (lux)



A: BVP518 OUT T40 A35-NB LO

B: BVP528 OUT T40 A35-NB LO

Maximum
0.45

Project maintenance factor
0.90

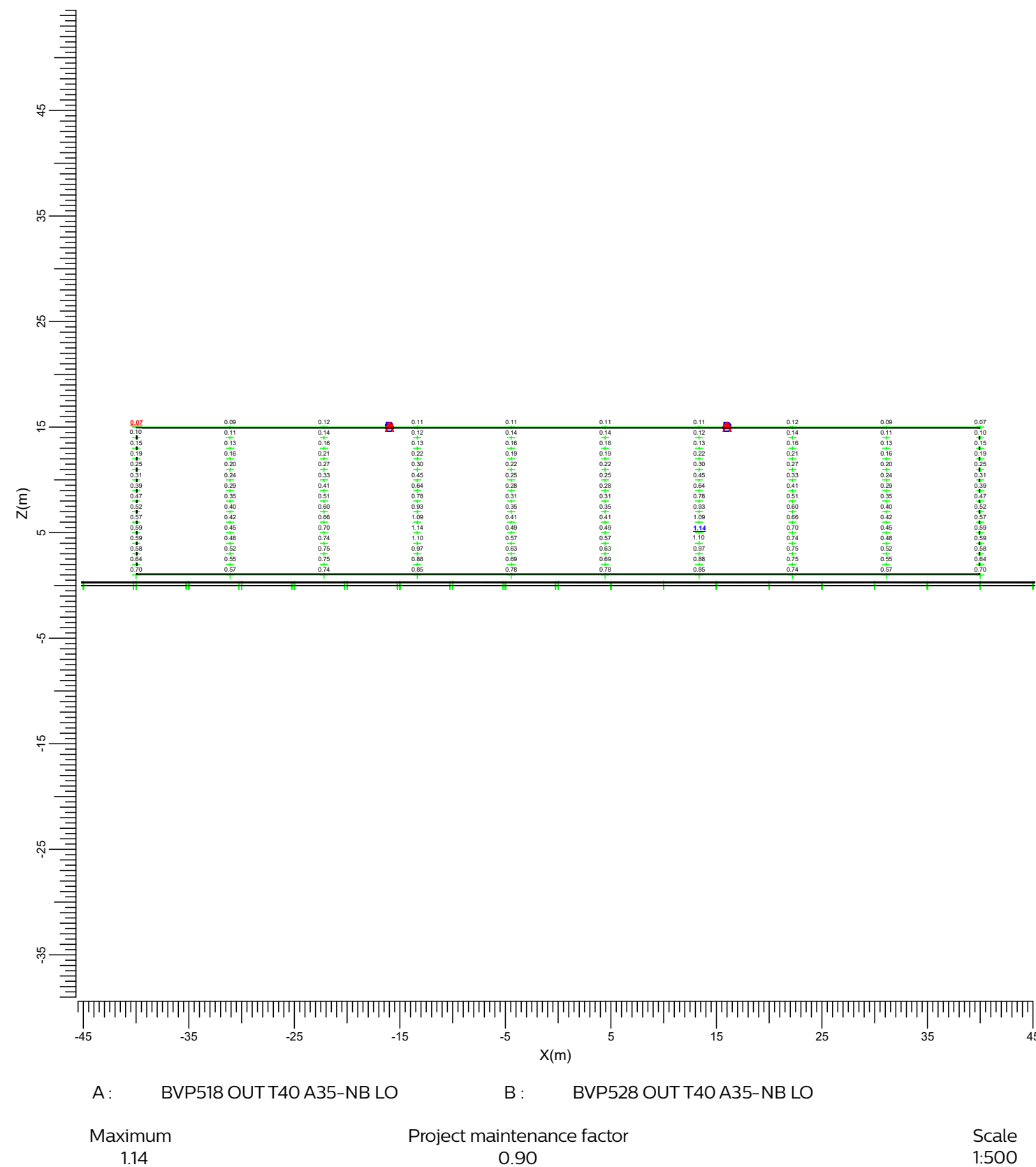
Scale
1:400

3.21 Tree Line (East): Graphical Table

Main Pitch

Grid : Tree Line (East) at Y = 37.00 m

Calculation : Surface Illuminance (lux)



3.22 Tree Line (East): Iso Contour

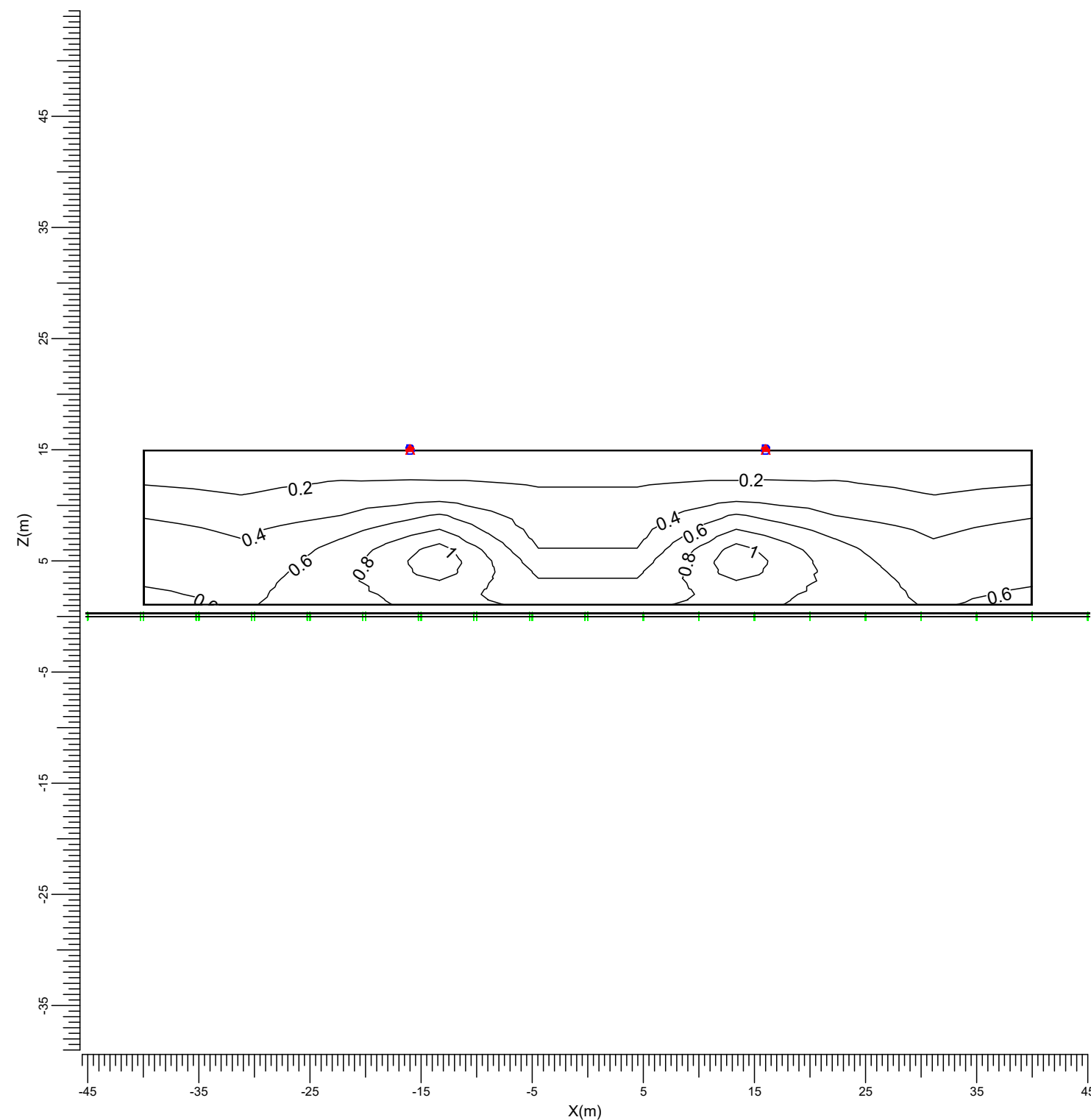
Main Pitch

Grid

Calculation

: Tree Line (East) at Y = 37.00 m

: Surface Illuminance (lux)



A: BVP518 OUT T40 A35-NB LO

B: BVP528 OUT T40 A35-NB LO

Maximum
1.14

Project maintenance factor
0.90

Scale
1:500

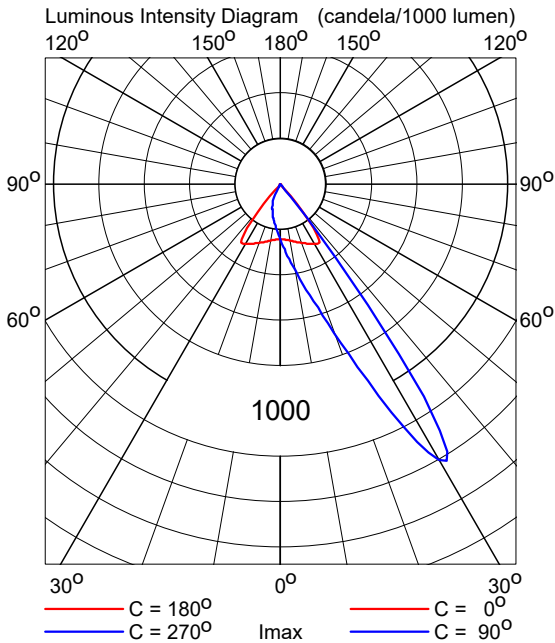
4. Luminaire Details

4.1 Project Luminaires

OptiVision LED gen3.5 2022
BVP518 OUT T40 1xLED1640-4S/740/740 E3/D4I A35-NB LO

Light output ratios	
DLOR	: 0.58
ULOR	: 0.00
TLOR	: 0.58
Ballast	: E3/D4I
Lamp flux	: 164000 lm
Luminaire wattage	: 946.2 W
Measurement code	: LVM2047300

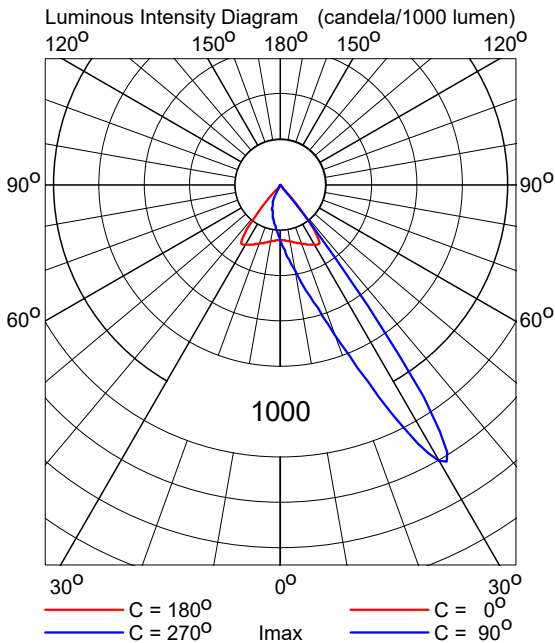
Note: Luminaire data not from database.



OptiVision LED gen3.5 2022
BVP528 OUT T40 1xLED2480-4S/740/740 E3/D4I A35-NB LO

Light output ratios	
DLOR	: 0.58
ULOR	: 0.00
TLOR	: 0.58
Ballast	: E3/D4I
Lamp flux	: 248000 lm
Luminaire wattage	: 1427.4 W
Measurement code	: LVM2047300

Note: Luminaire data not from database.

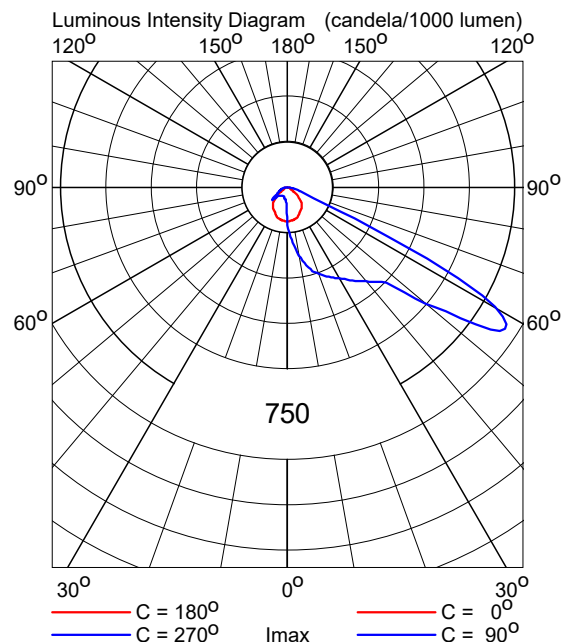


OptiVision LED gen3.5 2022
BVP518 OUT T40 1xLED1640-4S/740/740 E3/D4I A55-MNB LT

Light output ratios

DLOR	: 0.72
ULOR	: 0.00
TLOR	: 0.72
Ballast	: E3/D4I
Lamp flux	: 164000 lm
Luminaire wattage	: 946.2 W
Measurement code	: LVM2I548U1

Note: Luminaire data not from database.



OptiVision LED gen3.5 2022
BVP518 OUT T40 1xLED1640-4S/740/740 E3/D4I A55-NMB LT

Light output ratios

DLOR	: 0.71
ULOR	: 0.00
TLOR	: 0.71
Ballast	: E3/D4I
Lamp flux	: 164000 lm
Luminaire wattage	: 946.2 W
Measurement code	: LVM2I484U1

Note: Luminaire data not from database.

