KILLINARDEN PARK & GREENWAY
TALLAGHT
DUBLIN 24

PUBLIC LIGHTING AND CCTV DESIGN REPORT
FOR
PROPOSED STRATEGIC WALKWAY / CYCLEWAY
AT
KILLINARDEN PARK & GREENWAY

April 2021

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Revision	*Issue*	*Prepared By*	*Date*
A0	Initial Issue For Part 8 Planning	John Fahey	28th April 2021
A01	Revised Issue For Part 8 Planning	John Fahey	30th April 2021

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1.0 Introduction

Fahey O'Riordan Consulting Engineers have been commissioned by Nicholas De Jong Associates on behalf of South Dublin County Council to complete a planning stage public lighting and CCTV design for the proposed Strategic Walkway and Cycleway through Killinarden Park and Greenway as part of the Part 8 planning process.

This Report addresses all of the relevant issues concerning Public Lighting and provision of CCTV for the proposed Strategic Walkway and Cycleway and is accompanied by fully modelled lighting layout drawings complete with light/lux level contours.

The proposed public lighting scheme will locate the lighting columns in the grass margin to one side of the walkway / cycleway set back 600mm to reduce the risk of accidental impact by users. The proposed Public Lighting layout for the scheme is shown on the accompanying drawings 2120-EX-01, 2120-EX-02, 2120-EX-03 and 2120-EX-04 which include the calculated maintained lighting level lux contours for the scheme.

2.0 Relevant Design Standards for Public Lighting

The relevant design standards for public lighting on which this report is based are as follows:-

a) IS EN 13201 Road Lighting - European Standard
b) BS 5489 Code of Practice for Design of Road Lighting - British Standard
c) Guidance Note for the Reduction of Obtrusive Light – GN-01 : 2011 by Institute of Lighting Professionals
d) Lighting Handbook 2012 : Society of Light & Lighting CIBSE
e) Design and Assessment of Exterior Lighting Schemes : SLL / CIBSE Factfile No. 7
f) Guidance Note 08/18 Bats and Artificial Lighting in the UK by Institute of Lighting Professionals

3.0 Strategic Walkway & Cycleway

The proposed strategic pedestrian walkway and cycleway will run through Killinarden Park which is a 20.1 hectare public park in Tallaght 24, and through the Whitestown Stream corridor between Killinarden Park and Sean Walsh Park. The areas are located in Tallaght a suburban area of South Dublin with medium to high ambient light levels in the areas immediately adjoining the Park and the Whitestown Stream Greenway corridor.

The park is mainly public open space in grass with playing pitches and foot paths and adjoins mainly residential housing in Killinarden Estate, Killinarden Heights, Donomore and Knockmore Estates, with the Whitestown Stream corridor linking to Whitestown Drive and Whitestown Way adjoining Tallaght Business Park and South City Business Park, and onward to Sean Walsh Park.

The proposed strategic pedestrian walkway and Cycleway is 4 meters in width and links from the N81 on the western side, running through Killinarden Park and on to Whitestown Way on the eastern side running adjacent to Whitestown Stream with an overall length just under 1.4 km.

The strategic walkway and cycleway will run through Killinarden Park and along the Whitestown Stream Greenway as shown in the aerial montage below in **Figure 1**, which will be enhanced to introduce diverse habitat types and pollinator friendly species and which will be managed for biodiversity.

Figure 1:- Overall Photo Montage View of Proposed Killinarden Park Scheme

4.0 Bats and Artificial Lighting

The findings of the EcIA report prepared by JBA Consulting, which included night time surveys of Killinarden Park and Whitestown Stream Greenway corridor, confirm the presence of foraging and commuting bats. In this context it is necessary to consider the potential impact of artificial lighting on these bats and their habitats.

The ILP's *Guidance Note 08/18 Bats and Artificial Lighting in the UK* provides guidance on the design approach and mitigation measures that can be undertaken regarding public lighting to minimise impact on bats.

The Guidance Note details a 5 step process which should be followed where the impact on bats is being considered as part of a lighting scheme. The stepwise process is summarised in the flowchart reproduced in **Figure 2** below.

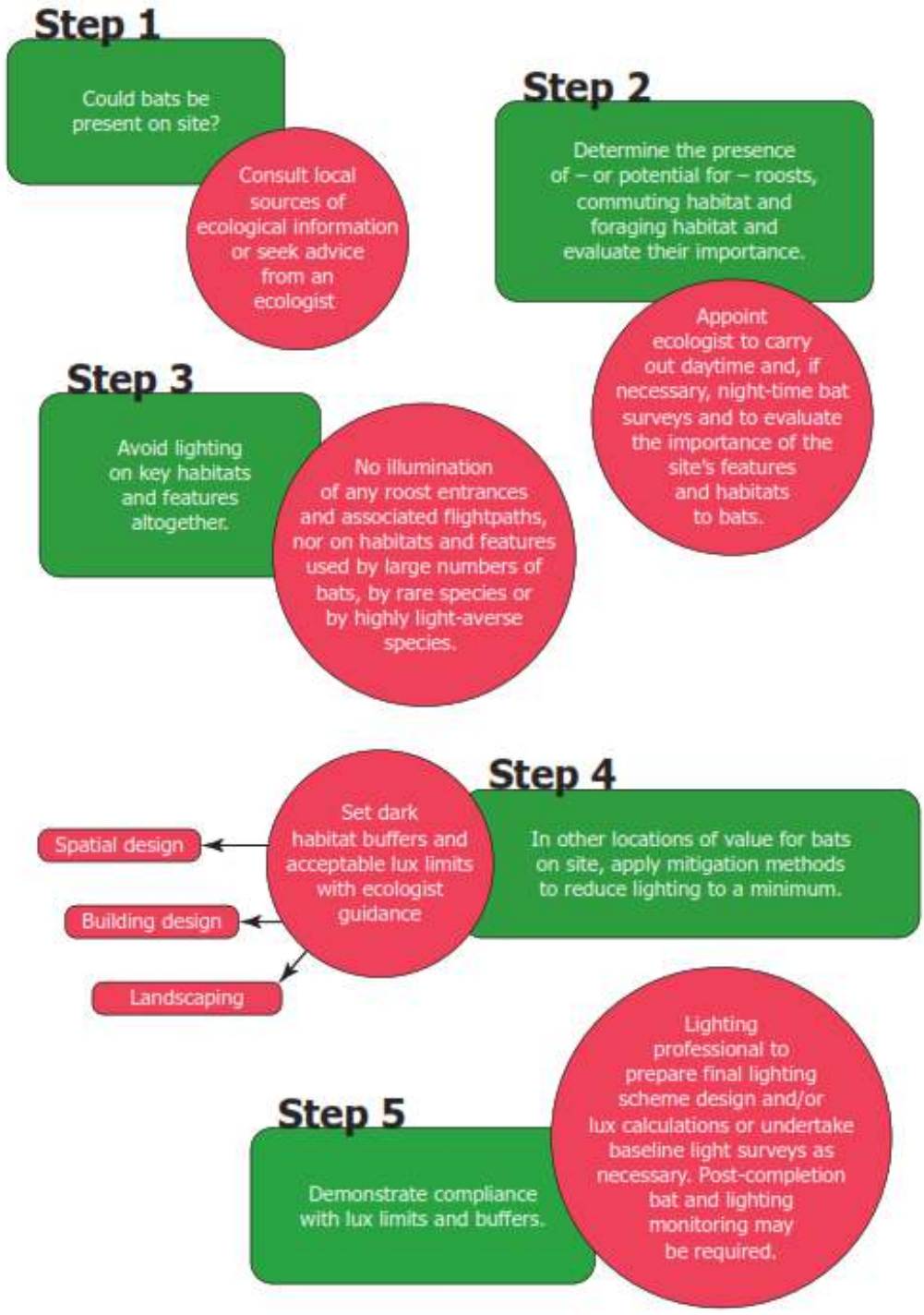

Figure 2:- ILP's Stepwise Process for Mitigation of Lighting Impact on Bats

4.1 Ecological Impact Assessment Report

The initial steps 1 and 2 have been undertaken by JBA Consulting as part of the Ecological Impact Assessment Report prepared for the proposed development of the Strategic combined walkway and cycleway, and has confirmed the presence of foraging and commuting bats in the Park, however the survey has found that "*the Park is of negligible importance to roosts"*.

In undertaking step 3 of the process we note that the ecological assessment is that the Park is of negligible importance to roosts, and that it is in order to proceed to step 4 of the process and to undertake a lighting design of the strategic walkway / cycleway.

The design approach recommended by the ILP at step 4 is to set dark habitat buffers, and acceptable lux limits, with ecological guidance, which is the design approach adopted.

The public lighting design will limit the artificial lighting to the walkway / cycleway only, to achieve the minimum required lighting levels of 5 lux maintained average and 1 lux minimum, as identified by the selection criteria detailed at in Section 5.1 below, and in accordance with the recommendations of the EcIA to avoid lighting the key habitats altogether in-so far as is practical. The report is accompanied by fully modelled lighting layout drawings complete with light/lux level contours which demonstrate compliance with the EcIA recommendations and ILP guidance.

Given the need to provide lighting to this strategic walkway / cycleway infrastructure for security and safety, refer to Section 4.2 below, we propose to mitigate the impact of the lighting on foraging and commuting bats and bat habitats as follows:-

a) Dark Buffers, Illuminance Limits and Zonation

   Dark buffer zones, with limited illuminance will be retained adjacent to key bat habitat such as the Whitestown Stream, woodland, hedgerows and scrub

b) Luminaire Specification / Light Source

   The light source proposed for the walkway is a Schréder (Urbis) Axia 2.1 energy efficient low wattage / low intensity LED source with a warm white spectrum (730 / 3000K) and directional hood and lenses with zero percent upward light output ratio and an asymmetric distribution pattern with sharp cut off which will light the path and minimise spill light to either side of the path. The proposed luminaire has been specifically developed for use in lighting cycle and pedestrian paths and the warm white LEDs spectrum is recommended by the ILP's GN 8/18 to minimise impact on bats.

c) Motion Sensors

   There will normally be a very low level of use of the pedestrian walkway and cycleway late at night / very early in the morning, which is the peak activity period for foraging bats. It is therefore proposed to use programmable motion sensors mounted on the light fittings that will automatically reduce the light output of the lanterns when the pathway / cycleway in not in use in order to minimise the impact on the Greenway habitat and foraging and commuting bats.

d) Mounting Height and Tilt

   It is proposed to mount the luminaires at six meter height to optimise the spacing and to minimise light spill, and to reduce the exposure of lanterns to vandalism. It is proposed to mount the luminaires on the horizontal with zero tilt to avoid any upward light and minimise spill light to adjacent habitats.

e) Creation of New Bat Foraging Habitat

   The proposed redevelopment of Killinarden Park will provide significant additional diverse habitats which will enhance the biological diversity and increase foraging territory for bat species and will act to mitigate the marginal loss of habitats caused by introduction of the public lighting to the strategic walkway and cycleway. Proposed habitat enhancement measures include the following:-

   - Introduction of diverse habitat types with pollinator-friendly species
   - Continuous wildflower meadow around western side of park and extended along parts of Whitestown Stream

- Clumps of willow scrub along Whitestown Stream for enhanced amenity and biodiversity
- Continuous woodland around eastern side of park with native tree and shrub species
- Community orchard to north of park with over 100 heritage fruit and nut trees
- Informal tree groups dispersed throughout the park at key activity points
- Semi-mature Signature Trees to reinforce the Primary Ovalfootpath
- Existing tree groups retained
- Existing scrub along Green Infrastructure Link managed for biodiversity

4.2 Crime Prevention Report

BS 5489-1 advises that "*where street crime is a major problem and the police use CCTV for prosecution, they should be consulted regarding the lighting requirements, including colour rendering and level.*"

In assessing the need for artificial lighting we have reviewed feedback provided by An Garda Síochána Crime Prevention Unit at Tallaght Garda Station.

The Garda feedback has outlined current issues with anti-social behaviour in the environs of the Park. The Garda Síochána have recommended that the pathway which runs along the boundary should be light up sufficiently to encourage use in the evening by walkers, runners and others. The provision of lighting will encourage activity later in the evenings and so bring natural surveillance over an extended period of time. An Garda Síocháná advise that the more people using the park the safer it is for people to use and in turn this will discourage antisocial gatherings and behaviour over time. Then as people use the park more they will take ownership of the park and in turn this will encourage the reporting of antisocial behaviour"

In support of the Garda advice, and in line with the ILP Guidance Note 08/18 we recommend undertaking a balanced approach in providing the lighting levels of 5 lux average / 1 lux minimum on the strategic path, to provide the perception of safety and security and to encourage use into the evenings, and help to discourage antisocial gatherings and behaviour while at the same time minimising spill light to surrounding habitats, including in particular the Whitestown Stream, by using uni-directional lanterns with tightly controlled photometrics which will minimise the impact on foraging and commuting bats.

5.0 Assessment of the Lighting Requirements

5.1 Lighting Class Selection

The proposed strategic walkway and cycleway development consists of 1.4 kilometres of a 4 meter wide path through parkland and the Whitestown Stream Greenway, which is located within an urbanised setting, with medium to high ambient light levels present in the immediately adjacent roadways, housing estates and business parks.

The main purpose of lighting footpaths and cycle tracks not directly associated with roads is to show the direction that the route takes, to enable cyclists and pedestrians to orientate themselves, to reveal the presence of other cyclists and pedestrians and other hazards, and to discourage crime against people and property. It also has a wider social role, with the potential of helping to reduce crime and the fear of crime, and can contribute to increased social use of the walkway / cycleway at night by improving the night-time appearance.

IS EN 13201 and BS 5489 provide guidance on the requirements to provide appropriate lighting to roads and public amenity areas.

These standards indicate the appropriate lighting class for the proposed strategic amenity walkway / cycleway development would be the S class and Table 3 of IS EN 13201 provides the performance criteria relevant to the S – series of lighting classes which is included below for reference.

Table 3 — S-series of lighting classes

Class	Horizontal illuminance	
	$\overline{E}$ in lx [a] [minimum maintained]	E_{min} in lx [maintained]
S1	15	5
S2	10	3
S3	7,5	1,5
S4	5	1
S5	3	0,6
S6	2	0,6
S7	performance not determined	performance not determined

[a] To provide for uniformity, the actual value of the maintained average illuminance may not exceed 1,5 times the minimum $\overline{E}$ value indicated for the class.

Table 1 – S Series of Lighting Classes (Table 3 of IS EN 13201)

Guidance on selection of lighting classes is given in BS5489-1 : 2013, Annex A and the parameters relevant for selection of the appropriate S lighting class are summarised in Table A.6 of the Annex which is reproduced below for reference.

Table A.6 **Lighting classes for subsidiary roads with mainly slow-moving vehicles, cyclists and pedestrians**

Traffic flow	Lighting class	
	Ambient luminance: very low (E1) or low (E2)	Ambient luminance: moderate (E3) or high (E4)
Busy [A)]	S4 or P4	S4 or P4
Normal [B)]	S5 or P5	S5 or P5
Quiet [C)]	S6 or P6	S6 or P6

Table 2 – Lighting Classes for Walkways / Cycleways (Table A5 – BS 5489-1)

Our assessment, of the proposed walkway / cycleway development, is that the appropriate category is 'Busy' which refers to areas where traffic usage is high and can be associated with local amenities such as public parks and the proposed strategic walkway / cycleway.

The proposed development including Killinarden Park and the Whitestown Stream Greenway Corridor is located within the greater Tallaght suburban area with medium to high ambient light levels in the immediately adjacent areas. Based on the suburban location of the proposed development the appropriate environmental zone is E3 as defined in ILP GN01 which is a "*suburban surrounding, medium district brightness area small town centres or urban location"* - refer to **Table 3** below with Table 1 extracted from ILP GN01 : 2011.

Table 1 – Environmental Zones

Zone	Surrounding	Lighting Environment	Examples
E0	Protected	Dark	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Natural	Intrinsically dark	National Parks, Areas of Outstanding Natural Beauty etc
E2	Rural	Low district brightness	Village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Small town centres or suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night-time activity

Table 3 – Environmental Zones – (Table 1 of GN01 : 2011)

Selection of Environmental category E3 results in an S4 – P4 lighting class for the development which requires a minimum maintained average light level of **5 lux** with a minimum maintained level of **1 lux** as per Table 1 above. This is the selected lighting design criteria for the strategic walkway / cycleway development, based on the relevant standards listed at section 2.0 above and will be limited to the actual walkway and cycleway only, with uni-directional lantern / lens diffusers to tightly limit spill light to the surrounding areas in compliance with the mitigation measures recommended in ILP GN 108/18.

In implementing the requirement to light the walkway / cycleway to the IS EN 13201 and BS 5489 design standards, in line with Garda Síochána advice, we must also mitigate the impact of the lighting on the existing habitats which are used by foraging and commuting bat species and implement the mitigation measures as outlined in section 4.1 above in line with ILP GN 08/18 guidance and as demonstrated on the accompanying light / lux level drawing plans.

5.2 Obtrusive Light Limitations

The ILP's Guidance Notes for the Reduction of Obtrusive Light GN01 :2011 provides design guidance for exterior lighting installations, as reproduced below in **Table 4**.

Table 2 – Obtrusive Light Limitations for Exterior Lighting Installations – General Observers

Environmental Zone	Sky Glow ULR [Max %] (1)	Light Intrusion (into Windows) E_v [lux] (2)		Luminaire Intensity I [candelas] (3)		Building Luminance Pre-curfew (4)
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew	Average, L [cd/m^2]
E0	0	0	0	0	0	0
E1	0	2	0 (1*)	2,500	0	0
E2	2.5	5	1	7,500	500	5
E3	5.0	10	2	10,000	1,000	10
E4	15	25	5	25,000	2,500	25

Table 4 – Obtrusive Light Limitations (Table 2 of GN01 : 2011)

The recommended maximum Upward Light Ratio (ULR) for an E3 zone is 5% which is the maximum permitted percentage of luminaire flux that goes directly into the sky, and requires the use of a directional luminaire with an appropriate cut off hood / lighting control lens.

Light intrusion into windows is limited to a maximum of 10 lux average pre-curfew and 2 lux post curfew, while luminaire intensity in the potentially obtrusive direction outside of the area being lit is limited to 10,000 candelas pre-curfew and 1,000 post-curfew. This criteria has been complied with for the development through the proposed location orientation and type of luminaire proposed which have downwards only light output and lighting column locations are not within close proximity to any residential property that could be impacted. The building luminance does not apply as there are no proposals to directly illuminate any buildings. Curfew hours are normally taken as 23:00 to 07:00 unless specifically dictated by the local authority.

6.0 Proposed Public Lighting Design

The proposed public lighting scheme for the strategic walkway / cycleway development at Killinarden Park will use energy efficient, low wattage, low intensity warm white LED lanterns mounted on 6 meter lighting columns, on the horizontal with 0° tilt at a an optimum design spacing of 33 meters.

The proposed luminaire, on which the design calculations are based is the Schreder Axia 2.1 5165 with colour 730 / 3000K warm white LED light source – refer to Appendix C for luminaire technical data sheet.

The maintenance factor used for the design calculations is 0.83 based on BS5489-1:2013 Table B1 assuming criteria as follows:-

- Cleaning Frequency = 72 months
- Environmental Zone E1/2 = 0.92
- Percentage of initial light output for 100,000 hours = 90%
- LED rated life 100,000 hours (Fy) : no catastrophic failures

6.1 Walkway / Cycleway Calculation Results

The proposed walkway / cycleway lighting scheme has been modelled and optimised using Dialux lighting design software and the typical scheme Isolux diagram for a 4 meter wide footpath between two columns spaced at 33 meters on one side of the path is shown below as **Figure 3**.

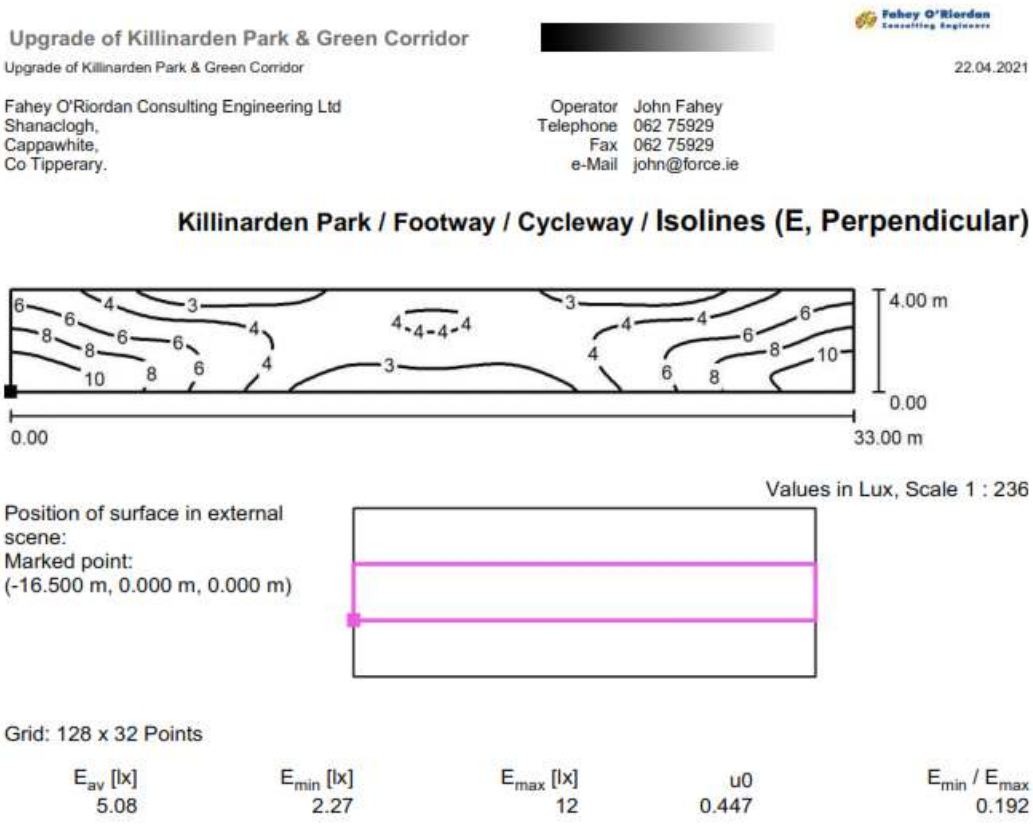

Figure 3:- Walkway / Cycleway - Calculated Lighting Results

The calculated results for the sample section of 4 meter wide path between 2 lighting columns spaced at 33 meters yields an average maintained light level of 5.08 lux and a minimum maintained lux level of 2.27 lux.

These maintained light levels meet the required levels for the S4 class and are within the permissible 1.5 times the minimum average value of 5 lux for the S4 lighting class and exceeds the minimum required level of 1.0 lux.

The proposed lighting scheme has been fully modelled for the entire length of the strategic walkway/cycleway and adjacent areas including the Whitestown Stream and the calculation results with lux level contours are plotted on the accompanying Design Calculation Report included at Appendix A and on the Public Lighting Scheme Drawings 2120-EX-01 to 04 accompanying this report to demonstrate the very controlled lighting scheme design proposed.

6.2 Spill Light Calculated Results

The proposed LED lanterns light distribution optics have an asymmetrical pattern with zero upward light output and very tightly controlled sideways cut off distribution pattern which achieves the required light levels on the walkway / cycleway with very low levels of spill light beyond the path.

The Dialux model was used to calculate spill light on a 4 meter wide strip of grass margin at either side of the path. The calculation results confirm the tight cut off control provided by the proposed luminaire.

The spill light on the near side to the lighting columns is calculated at an average of 2.18 lux and a minimum of 0.11 as shown in **Figure 4** below:-

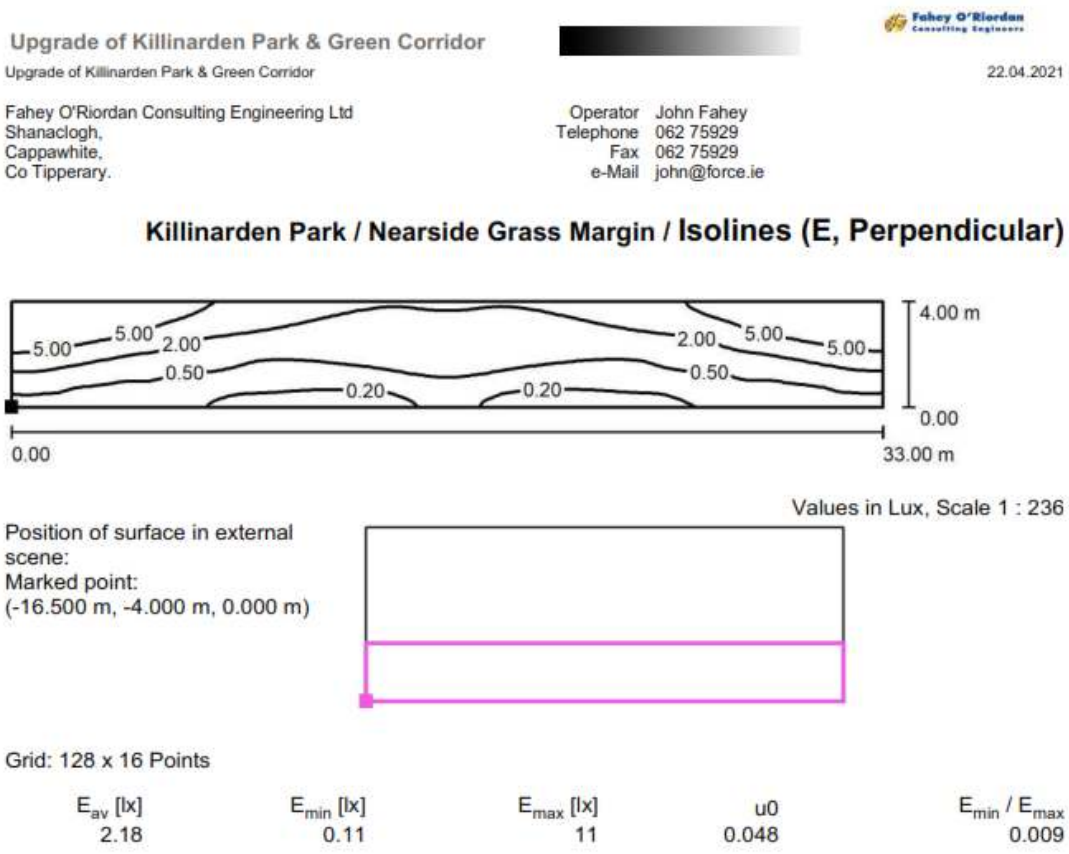

Figure 4:- Nearside Grass Margin - Calculated Spill Light

These calculations confirm that the levels of spill light at 4 meters from the path are down to very low levels of the order of 0.2 lux and will have minimal impact on the adjacent bat habitats. The lux level contours are plotted on the Public Lighting Scheme Drawings 2120-EX-01 to 04 accompanying this report and demonstrate the very controlled lighting scheme design being proposed.

The spill light on the offside grass margin to the lighting columns is calculated at an average of 1.27 lux and a minimum of 0.13 as shown in **Figure 5** below:-

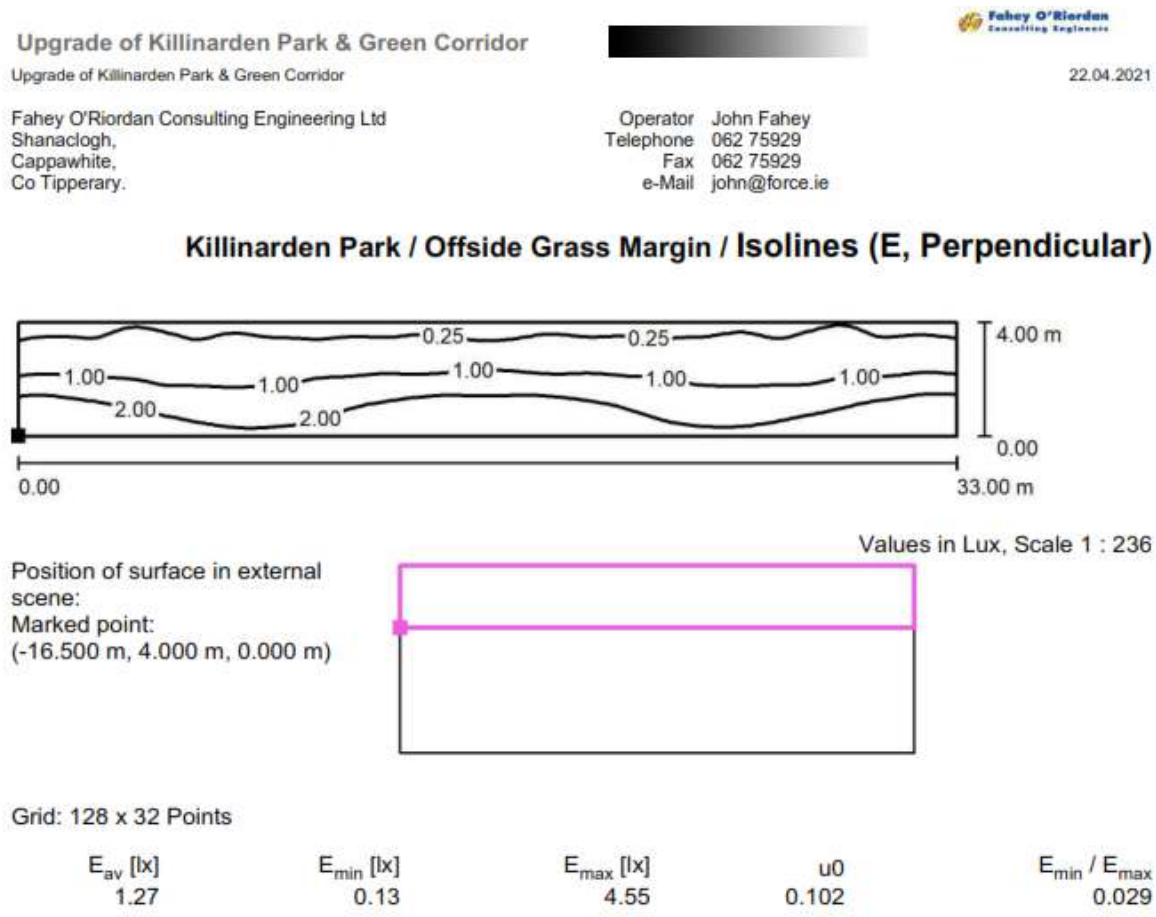

Figure 5:- Offside Grass Margin - Calculated Spill Light

6.3 Whitestown Stream Spill Light Calculated Results

The Whitestown Stream is a special habitat for fish and bat species and the proposed lighting scheme has been designed to minimise any spill light to the stream. The section of walkway / cycle at the Whitestown Way end is closest to the stream and will therefore be the worst case scenario. The calculated spill light onto the stream at this location is zero as shown below in **Figure 6** and as also shown on the accompanying Public Lighting Drawings 2120-EX-01 to 04.

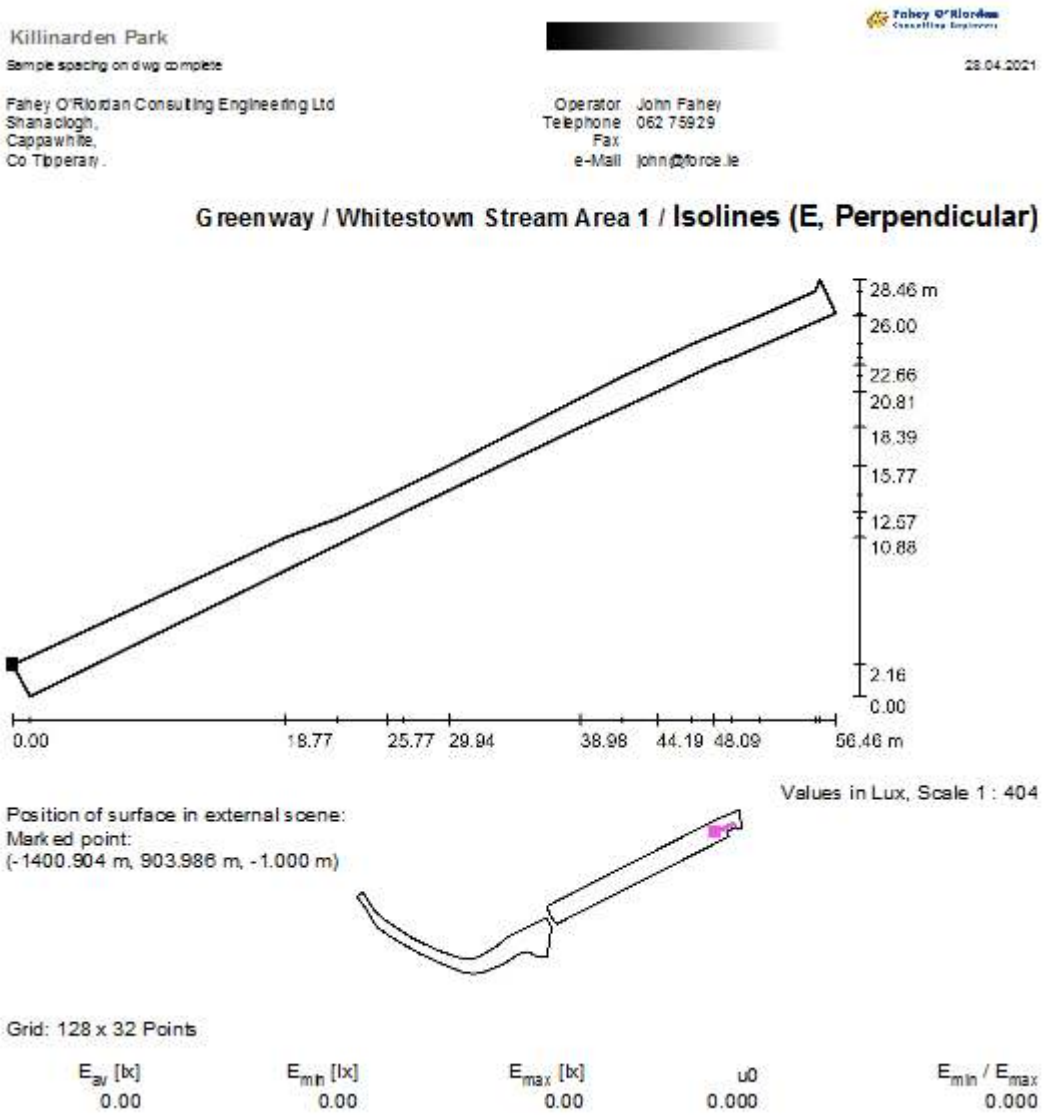

Figure 6:- Whitestown Stream at Whitestown Way End - Calculated Spill Light

These calculations confirm that there will be very low levels of spill light emanating from the proposed strategic walkway / cycleway development with minimal impact on nearby adjacent habitats including the Whitestown Stream.

6.4 Primary Entrance Plaza

The Primary Entrance Plaza is a wider section than the general walkway / cycleway and a higher output 26 watt lantern is proposed in this location in order to achieve the required light levels. For full calculation report refer to Appendix A.

Due to the nature and layout of the site the actual spacing of luminaires may vary slightly from the optimum 33 meter design spacing and will typically be between 30 and 33 meters which will result in marginal variations over the 1.4 km length of walkway / cycleway.

The entire length of the walkway has been modelled using Dialux software and the complete calculation report is included as Appendix A for reference.

7.0 CCTV

An Garda Síochána Crime Prevention Unit has recommended the inclusion of CCTV in the scheme to act as a deterrent to antisocial behaviour and illegal dumping which are live issues at present and to assist in identifying and prosecuting offenders. The CCTV would be live streamed to Tallaght Garda Station.

The proposed development will require full function zoom, pan and tilt CCTV at the main entrances and at the junctions with Whitestown Drive and Whitestown Way with exact positioning to be co-ordinated with An Garda Síochána to optimise viewing angles of locations where anti social behaviour has been an issue.

8.0 Overall Impact Assessment / Conclusions

The proposed public lighting scheme is based on the current relevant Design Standards and best practice Guidance Notes, as listed at section 2.0 above, and in relation to Guidance Note 08/18 'Bats and Artificial Lighting in the UK' will include a suite of mitigation measures to minimise spill light / light pollution through selection of an appropriate lantern with low intensity, warm white light LED light source, with tightly controlled asymmetrical light distribution, zero upward light output fitted with motion sensors to automatically reduce light output late at night when unused. The scheme design complies with requirements of the guidelines contained in Guidance Note GN-01 2011 and GN 08/18 as issued by the Institution of Lighting Professionals.

The proposed lighting scheme is designed to achieve the S4 lighting class appropriate for walkway / cycleway located within a suburban environment and will have minimal impact on existing foraging and commuting bat species which use the wider landscape and habitats which will essentially remain unlit apart from the walkway / cycleway corridor as demonstrated by the accompanying lighting calculation report and lux contours shown on the accompanying public lighting drawings.

The hours of use for the scheme will be dusk to dawn to ensure the security and safety of the users, with motion sensors to automatically reduce light output when the walkway is not being used.

The proposed scheme public lighting, as detailed on the accompanying drawings using LED light source delivering a full spectrum warm white light with colour rendering Ra greater than 70 with positive impact on pedestrian and cyclist safety compared to the mono chromatic light output from SON / SOX lamp sources traditionally used on public lighting schemes. The scheme provides a maintained average light level of 5 lux on the walkway/cycleway with a minimum greater than 1 lux. The asymmetric light distribution results in very low level spill light on the adjacent margins which quickly reduce to 0 and will have minimal impact on the adjacent habitats and in particular on the Whitestown Stream which will receive zero spill light from the walkway / cycleway lighting.

An Garda Síochána Crime Prevention advice has recommended the inclusion of CCTV in the scheme to act as a deterrent to antisocial behaviour and illegal dumping which are live issues at present and to assist in identifying and prosecuting offenders. The CCTV would be live streamed to Tallaght Garda Station with final positioning to be agreed in consultation with the Gardaí.

John Fahey Chartered Engineer
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For and on behalf of
Fahey O'Riordan Consulting Engineering Ltd

APPENDIX A

DIALUX LIGHTING CALCULATION REPORT

Killinarden Park

Lighting Design Calculation Report

This Lighting Design Calculation Report presents the calculated lighting levels for the proposed pedestrian strategic walkway / cycleway and the adjoining areas including Whitestown Stream at Killinarden Park and Greenway between Whitestown Way and the N81.

The appropriate lighting class is selected from BS EN 13201-2:2003 Table 3 defined in terms of horizontal illuminance and uniformity. The proposed selection Class is S4 / P4 to provide a average of 5 lux and a minimum of 1 lux on the path.

The report also presents the calculated spill light on the margins at either side of the proposed walkway / cycleway to demonstrate the tight light cut off angles provided by the proposed LED luminaires.

Calculated lux levels on the Whitestown Stream are also presented.

The lighting contributions from existing road lighting is excluded.

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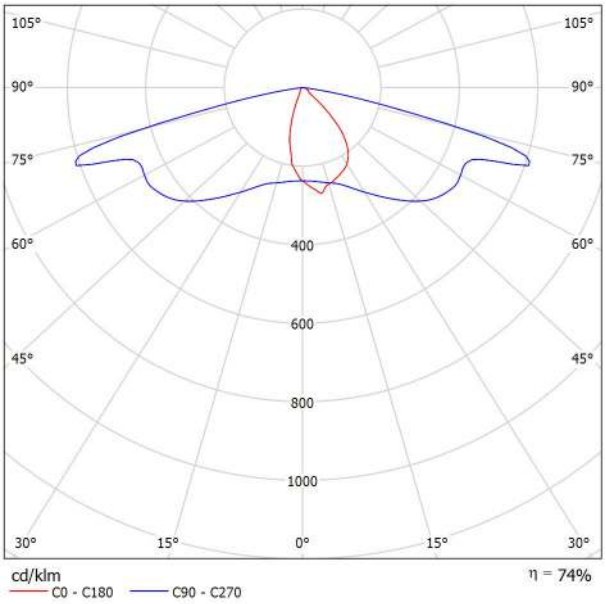
SCHREDER AXIA 2.1 5165 16 OSLON SQUARE GIANT@500mA WW 730 230V Rear louvers AXIA 2.1 / Luminaire Data Sheet

See our luminaire catalog for an image of the luminaire.

Luminous emittance 1:



Luminaire classification according to CIE: 100
CIE flux code: 40 70 95 100 73

Due to missing symmetry properties, no UGR table can be displayed for this luminaire.

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SCHREDER AXIA 2.1 5167 16 OSLON SQUARE GIANT@500mA WW 730 230V Rear louvers AXIA 2.1 / Luminaire Data Sheet

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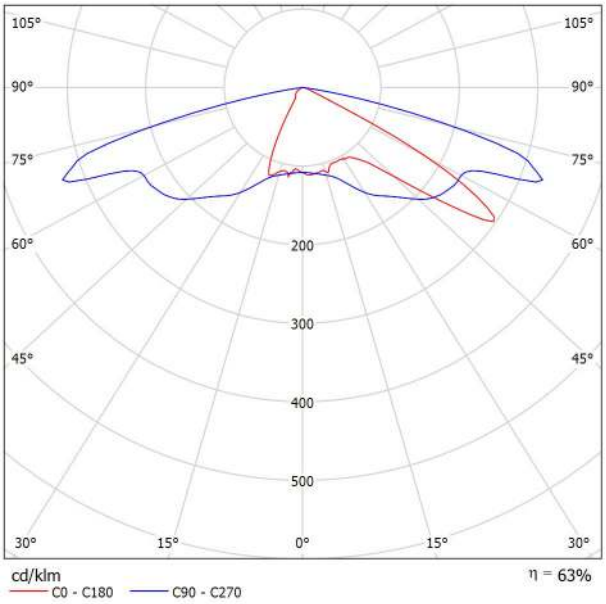

Luminaire classification according to CIE: 100
CIE flux code: 26 54 93 100 63

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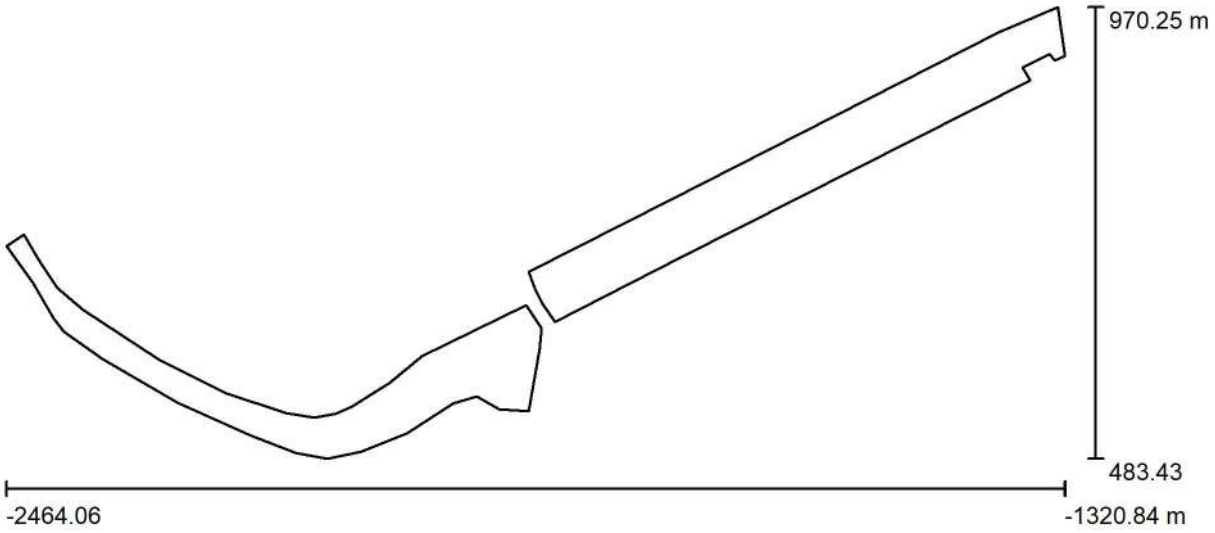
Greenway / Planning data



Maintenance factor: 0.83, ULR (Upward Light Ratio): 0.0%

Scale 1:8174

Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	42	SCHREDER AXIA 2.1 5165 8 OSLON SQUARE GIANT@500mA WW 730 230V Rear louvers AXIA 2.1 (1.000)	1405	1901	14.2
2	4	SCHREDER AXIA 2.1 5167 16 OSLON SQUARE GIANT@500mA WW 730 230V Rear louvers AXIA 2.1 (1.000)	2402	3803	26.1
			Total: 68608	Total: 95054	700.8

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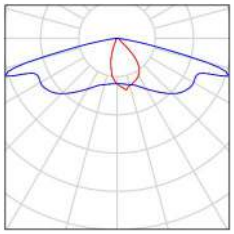
Greenway / Luminaire parts list

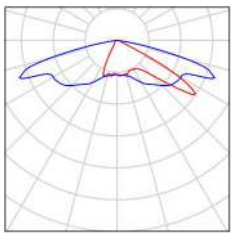
42 Pieces SCHREDER AXIA 2.1 5165 8 OSLON SQUARE GIANT@500mA WW 730 230V Rear louvers AXIA 2.1
Article No.: AXIA 2.1 5165 8 OSLON SQUARE GIANT@500mA WW 730 230V Rear louvers
Luminous flux (Luminaire): 1405 lm
Luminous flux (Lamps): 1901 lm
Luminaire Wattage: 14.2 W
Luminaire classification according to CIE: 100
CIE flux code: 40 70 95 100 73
Fitting: 1 x 8 OSLON SQUARE GIANT@500mA WW 730 230V (Correction Factor 1.000).

See our luminaire catalog for an image of the luminaire.



4 Pieces SCHREDER AXIA 2.1 5167 16 OSLON SQUARE GIANT@500mA WW 730 230V Rear louvers AXIA 2.1
Article No.: AXIA 2.1 5167 16 OSLON SQUARE GIANT@500mA WW 730 230V Rear louvers
Luminous flux (Luminaire): 2402 lm
Luminous flux (Lamps): 3803 lm
Luminaire Wattage: 26.1 W
Luminaire classification according to CIE: 100
CIE flux code: 26 54 93 100 63
Fitting: 1 x 16 OSLON SQUARE GIANT@500mA WW 730 230V (Correction Factor 1.000).

See our luminaire catalog for an image of the luminaire.



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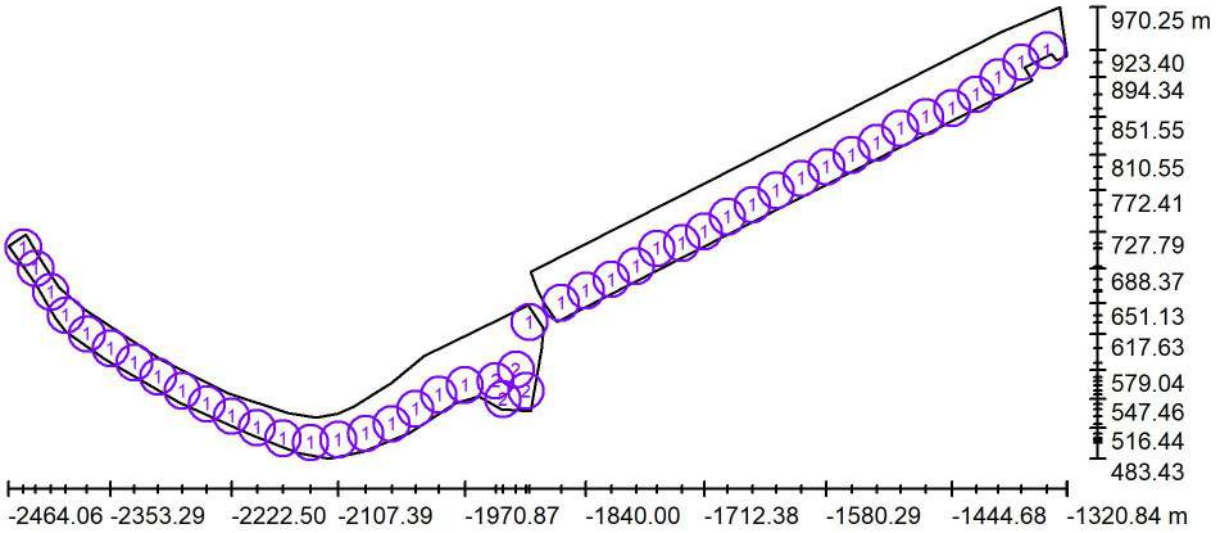
Greenway / Luminaires (layout plan)



Scale 1 : 8174

Luminaire Parts List

No.	Pieces	Designation
1	42	SCHREDER AXIA 2.1 5165 8 OSLON SQUARE GIANT@500mA WW 730 230V Rear louvers AXIA 2.1
2	4	SCHREDER AXIA 2.1 5167 16 OSLON SQUARE GIANT@500mA WW 730 230V Rear louvers AXIA 2.1

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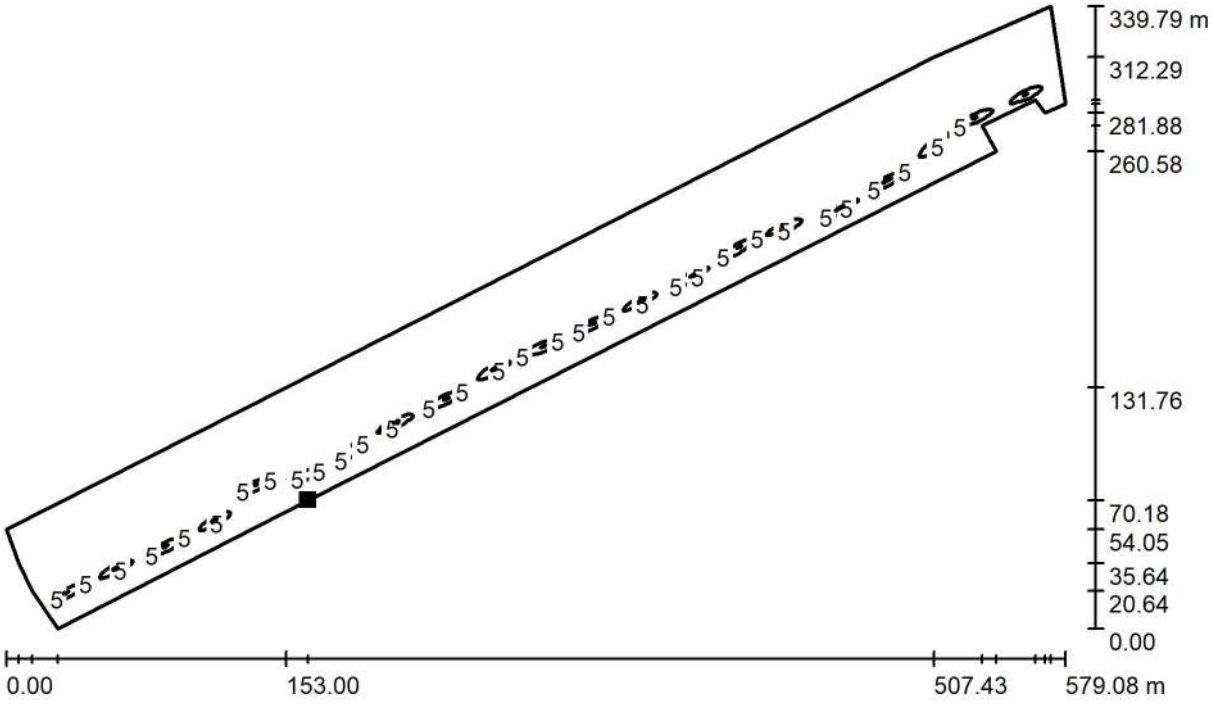
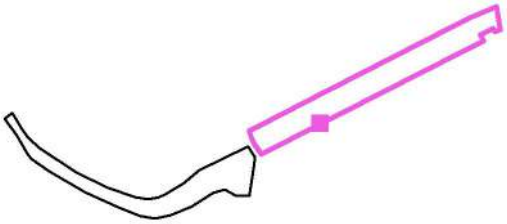
Greenway / Greenway / Surface 1 / Isolines (E)



Values in Lux, Scale 1 : 4140

Position of surface in external scene:
Marked point:
(-1734.908 m, 700.640 m, 0.000 m)



Grid: 128 x 128 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.64	0.00	12	0.000	0.000

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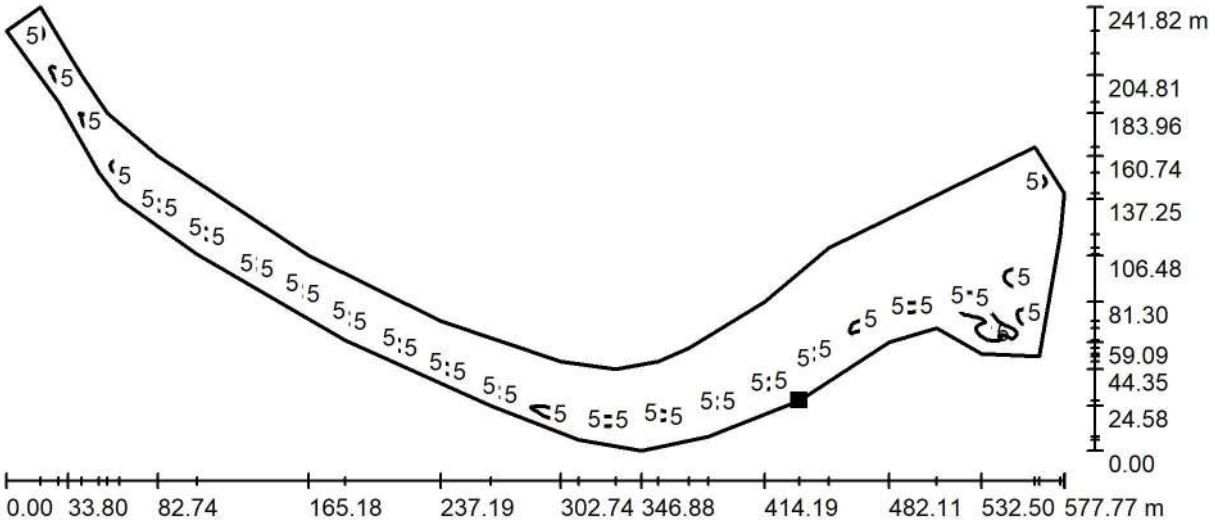
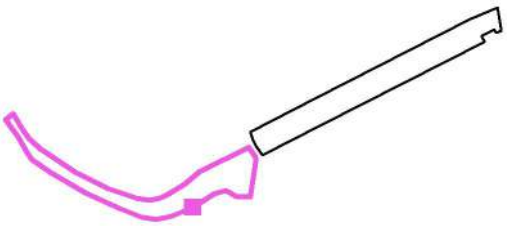
Greenway / Park / Surface 1 / Isolines (E)



Values in Lux, Scale 1 : 4131

Position of surface in external scene:
Marked point:
(-2031.015 m, 510.805 m, 0.000 m)



Grid: 128 x 128 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.10	0.00	12	0.000	0.000

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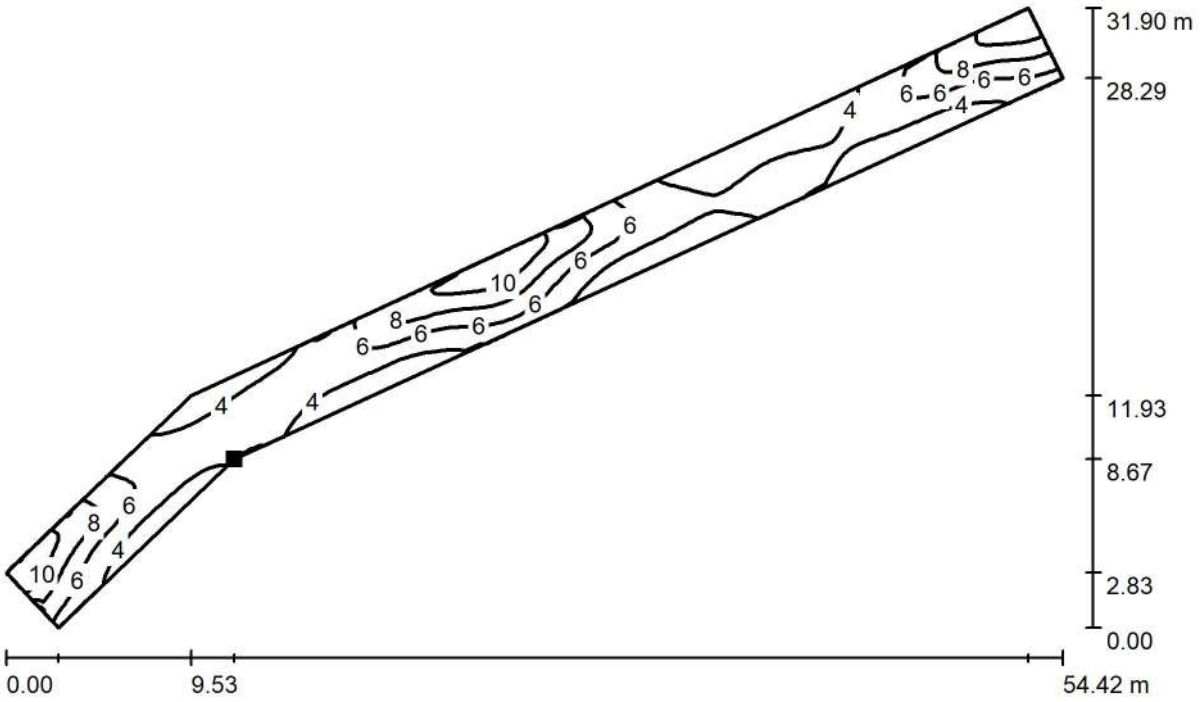
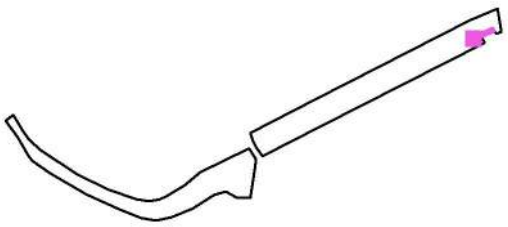
Greenway / Walkway / Cycleway Area 1 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 390

Position of surface in external scene:
Marked point:
(-1382.919 m, 899.917 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.57	2.26	12	0.407	0.189

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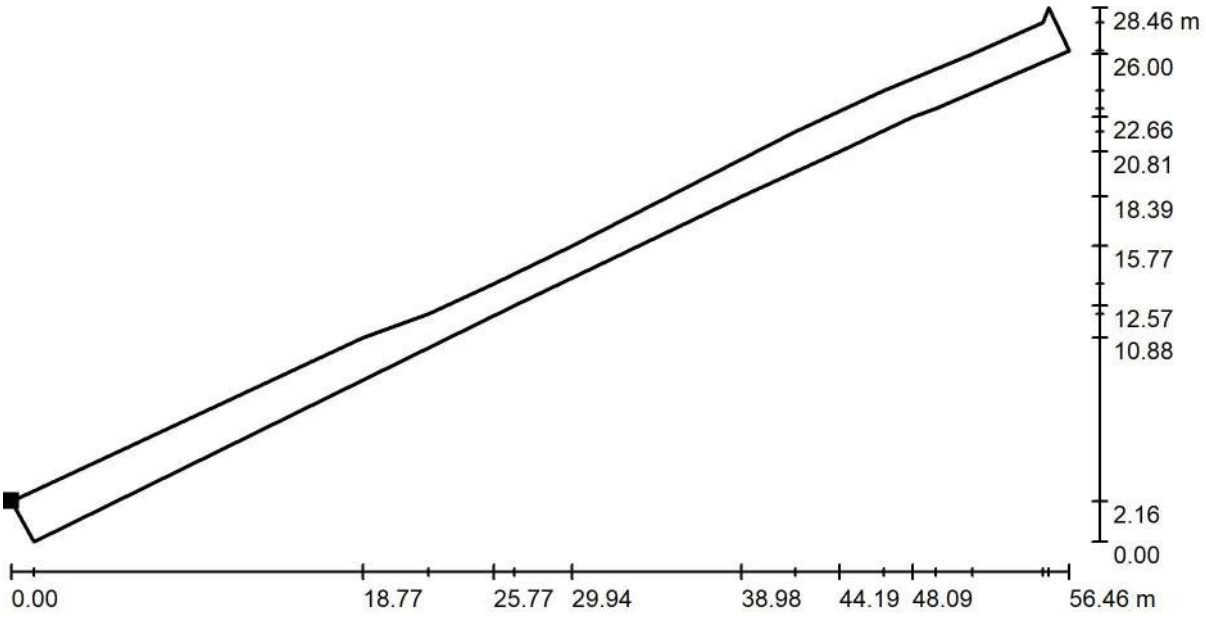
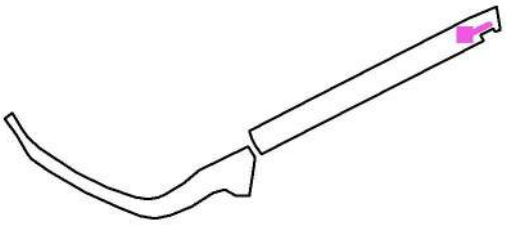
Greenway / Whitestown Stream Area 1 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 404

Position of surface in external scene:
Marked point:
(-1400.904 m, 903.986 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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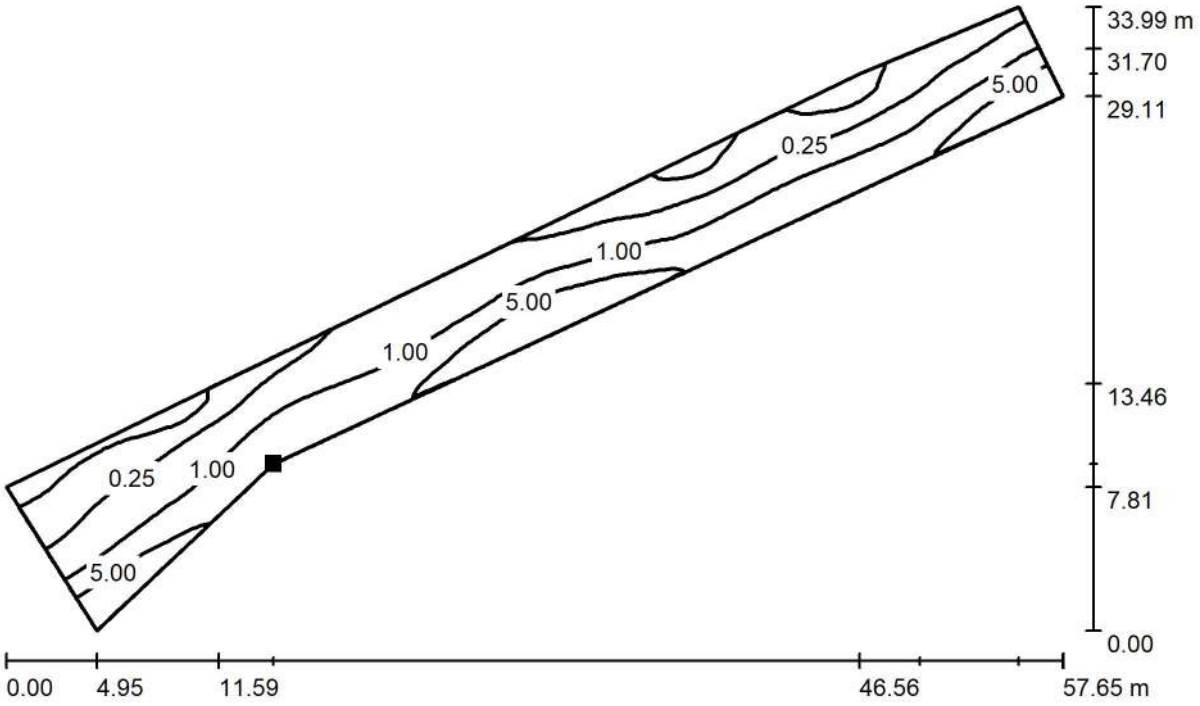
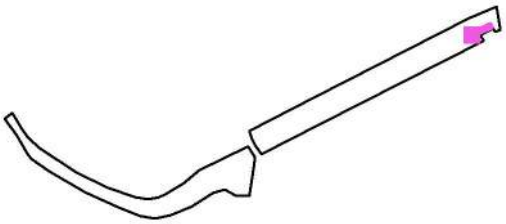
Greenway / Stream to Path Area 1 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 413

Position of surface in external scene:
Marked point:
(-1385.088 m, 903.101 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.84	0.06	12	0.034	0.005

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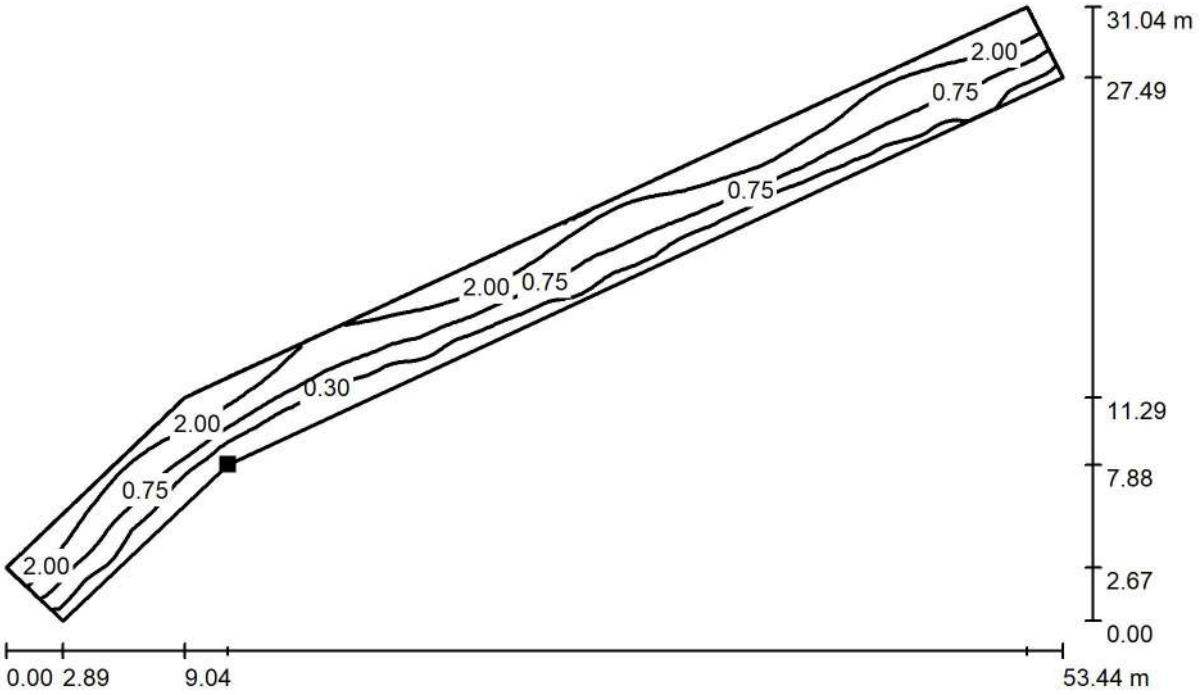
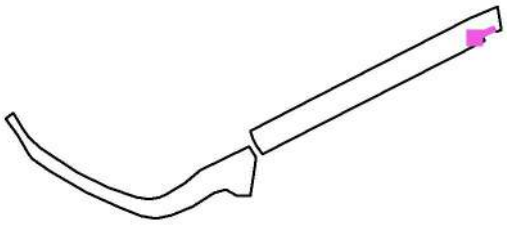
Greenway / Offside Margin Area 1 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 383

Position of surface in external scene:
Marked point:
(-1380.676 m, 896.421 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.26	0.09	4.60	0.074	0.020

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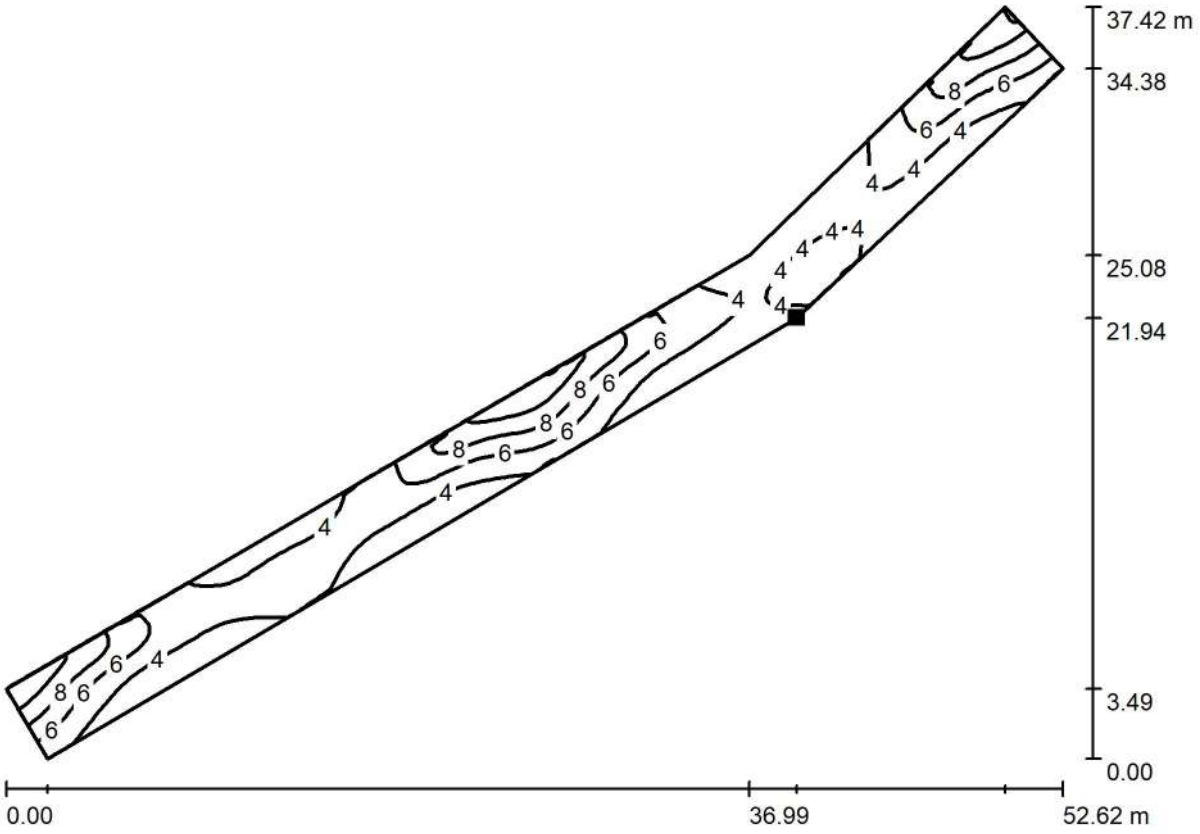
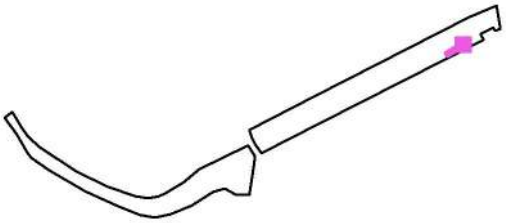
Greenway / Walkway / Cycleway Area 2 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 377

Position of surface in external scene:
Marked point:
(-1404.996 m, 878.676 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.26	2.18	12	0.415	0.181

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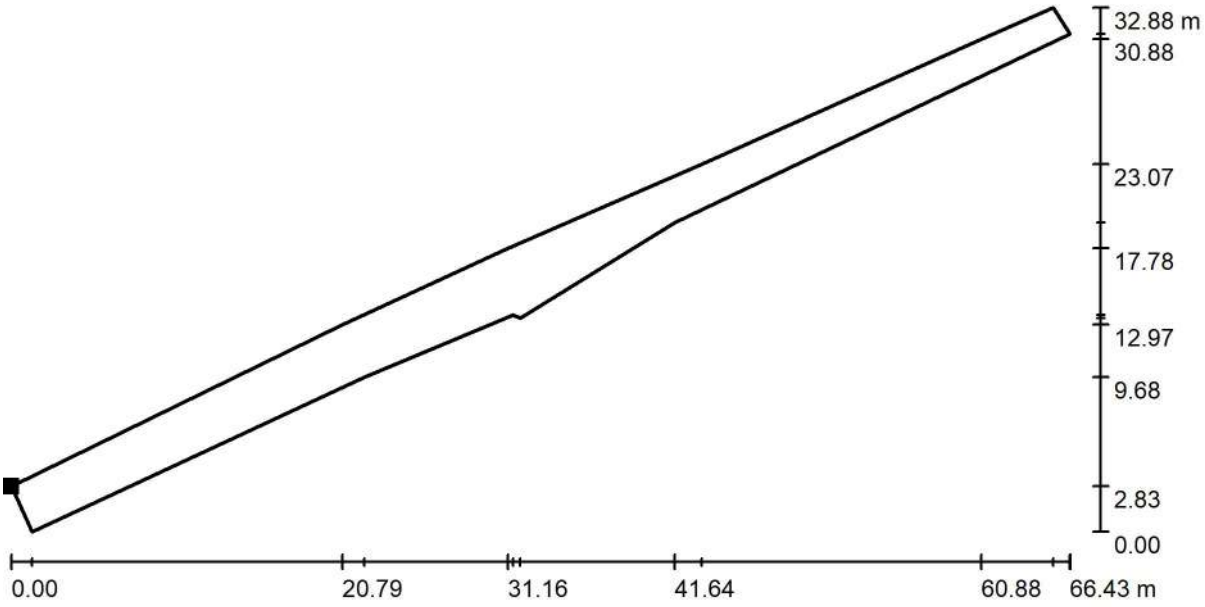
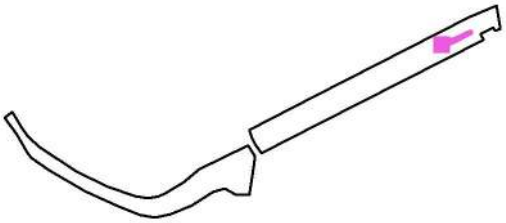
Greenway / Whitestown Stream Area 2 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 475

Position of surface in external scene:
Marked point:
(-1454.605 m, 879.095 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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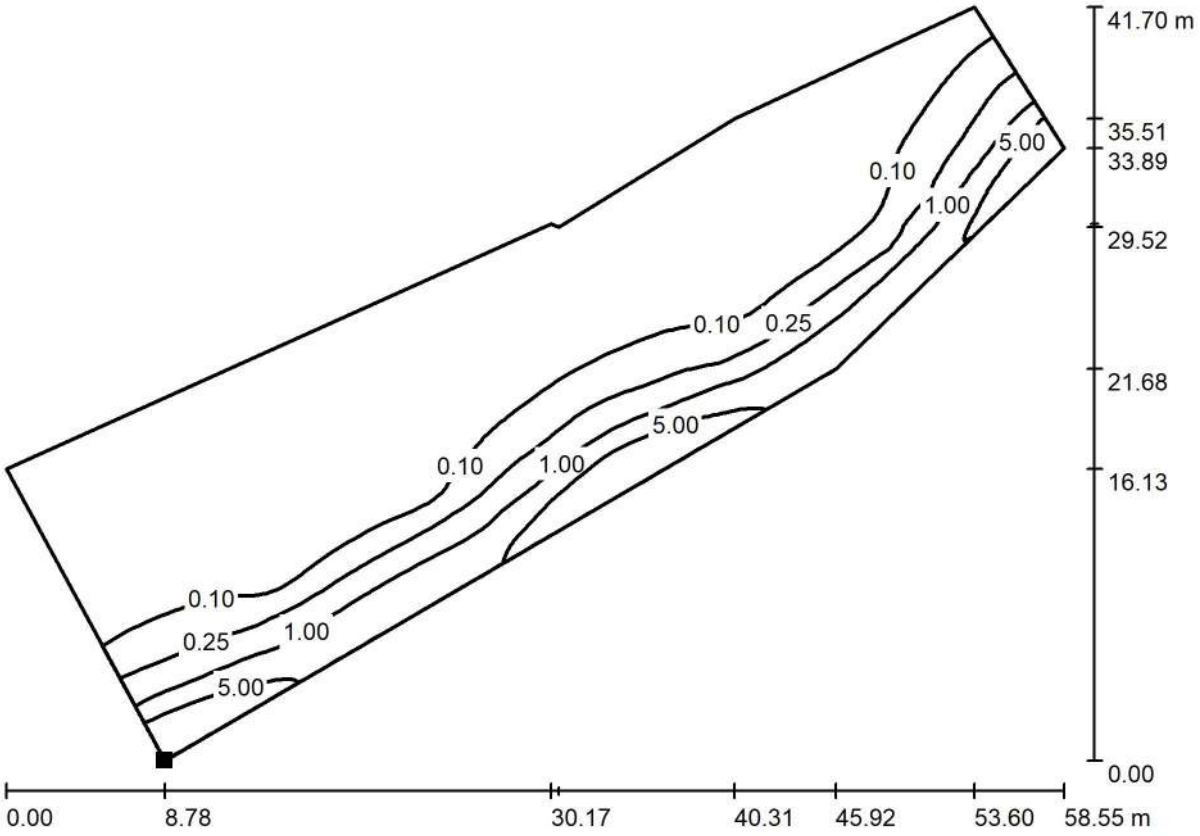
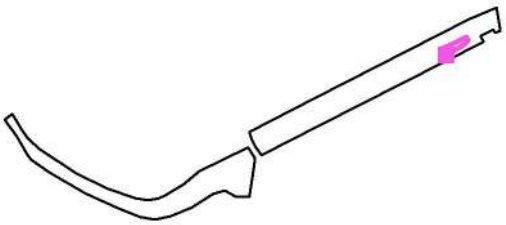
Greenway / Stream to Path Area 2 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 419

Position of surface in external scene:
Marked point:
(-1444.503 m, 860.133 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.81	0.00	12	0.005	0.000

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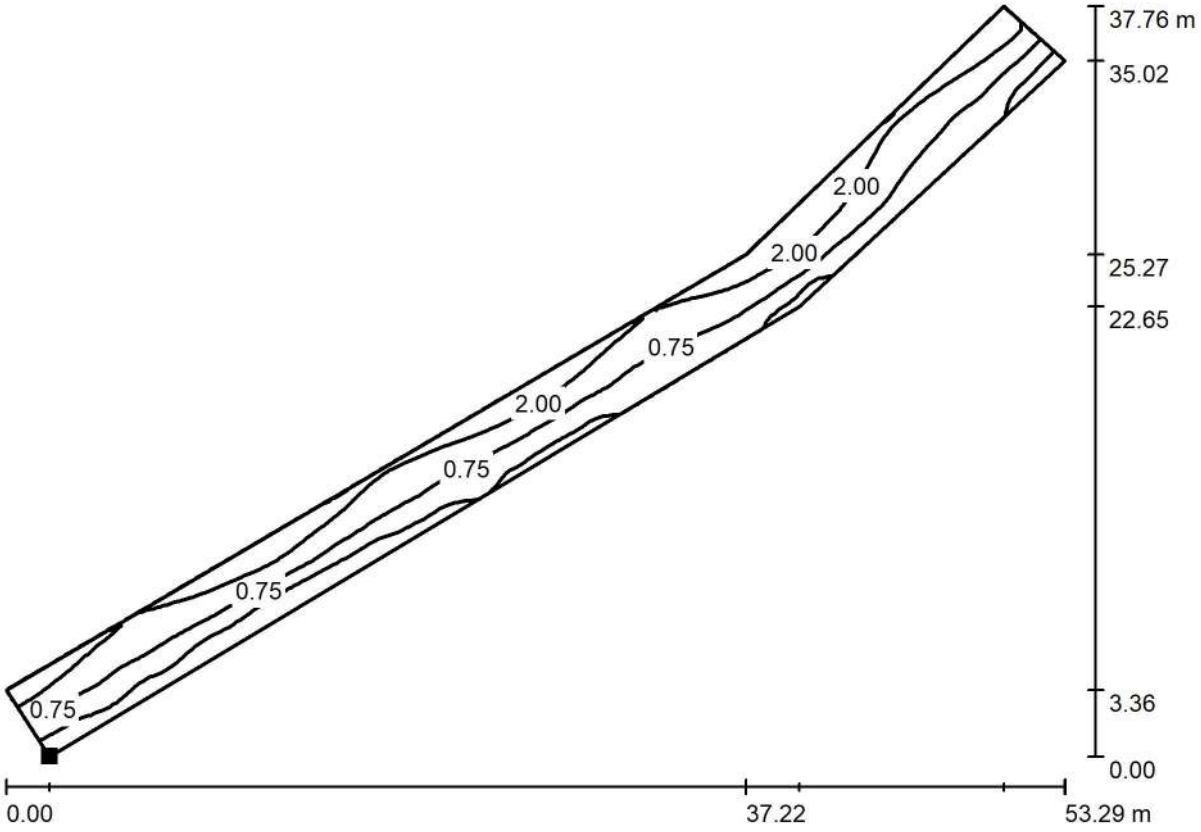
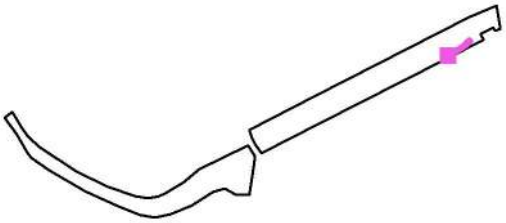
Greenway / Offside Margin Area 2 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 381

Position of surface in external scene:
Marked point:
(-1440.027 m, 853.404 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.25	0.11	4.43	0.092	0.026

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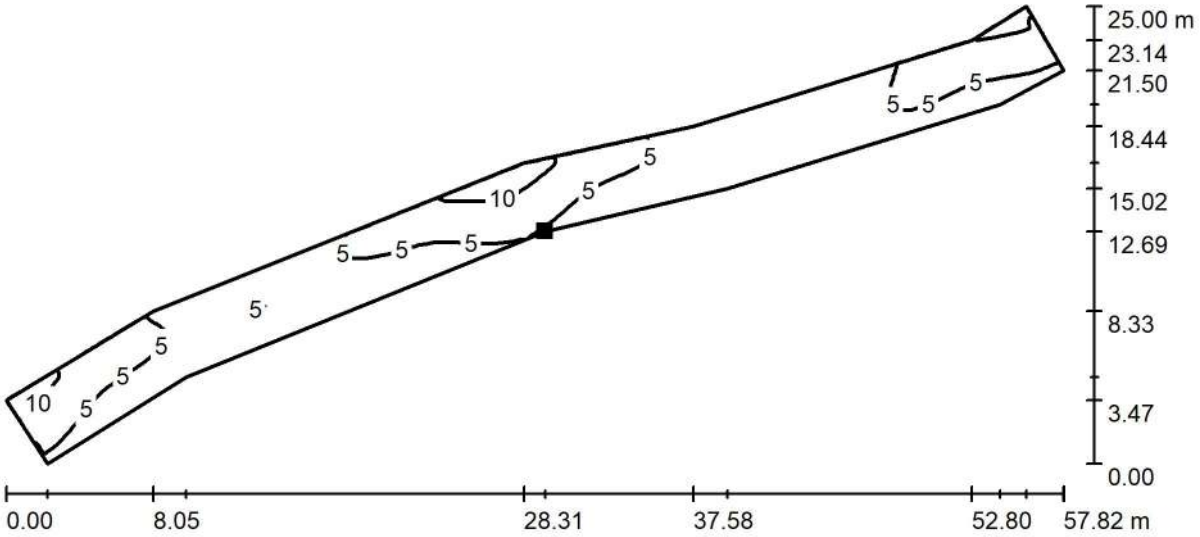
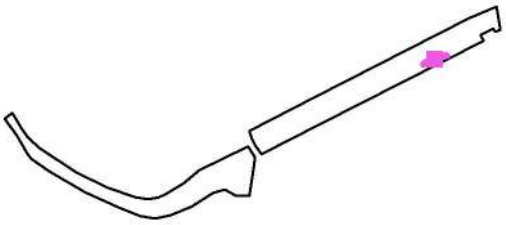
Greenway / Walkway / Cycleway Area 3 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 414

Position of surface in external scene:
Marked point:
(-1470.659 m, 847.904 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.21	1.89	12	0.362	0.156

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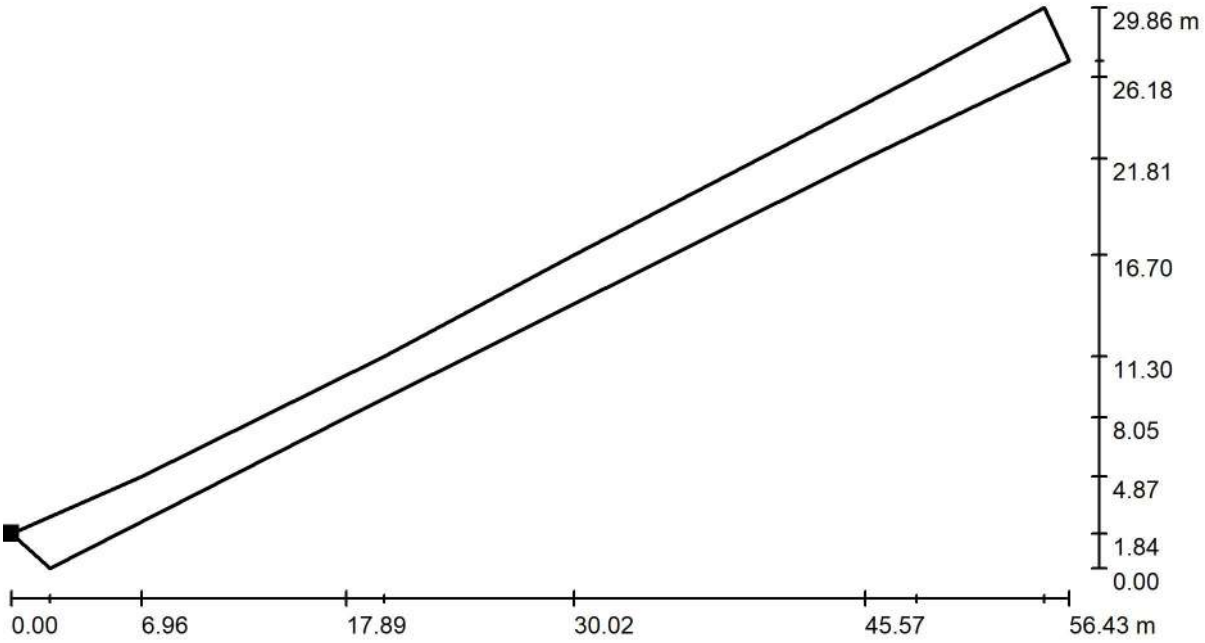
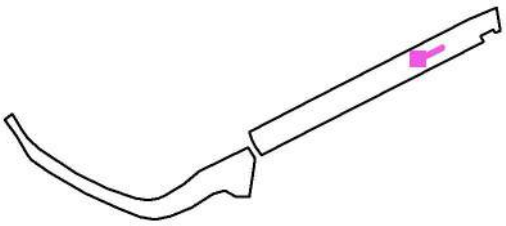
Greenway / Whitestown Stream Area 3 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 404

Position of surface in external scene:
Marked point:
(-1509.709 m, 851.074 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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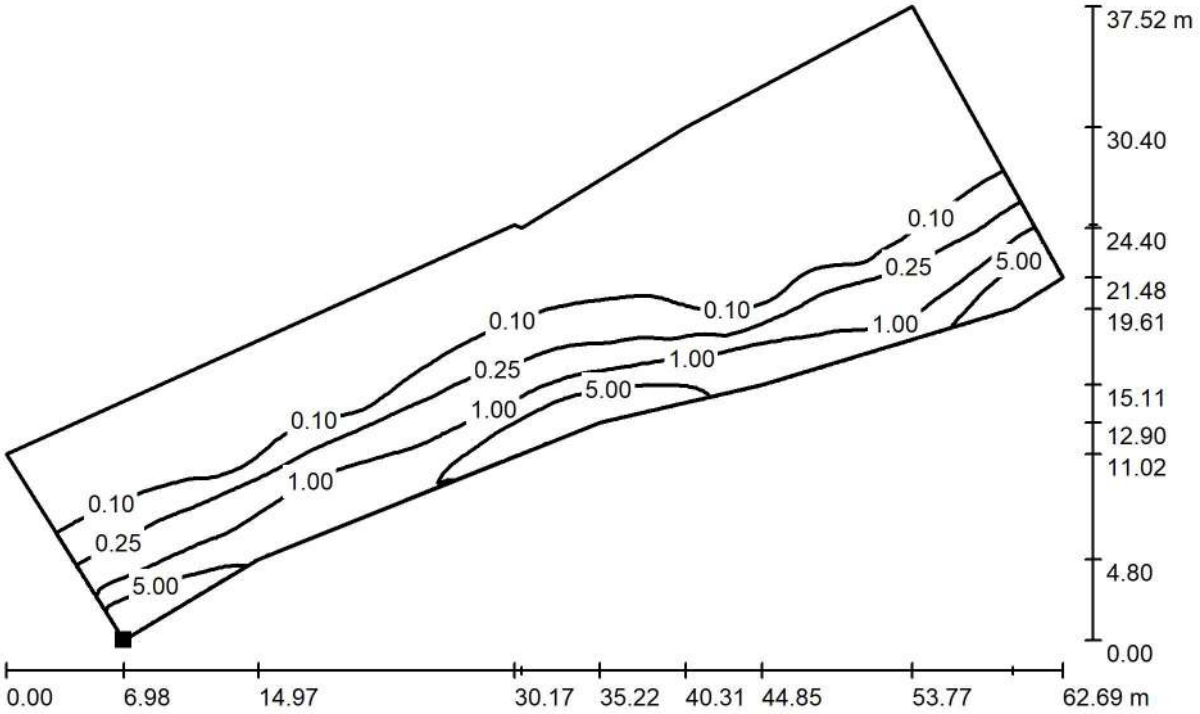
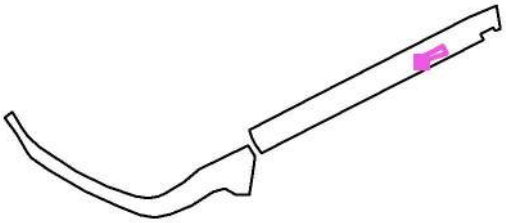
Greenway / Stream to Path Area 3 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 449

Position of surface in external scene:
Marked point:
(-1500.068 m, 838.740 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.90	0.00	12	0.005	0.000

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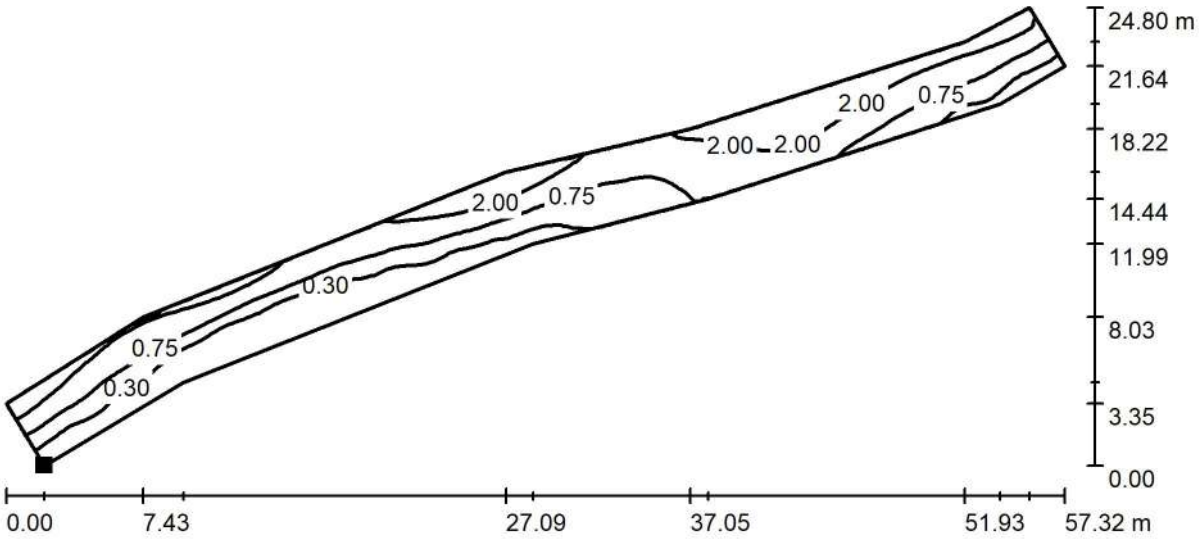
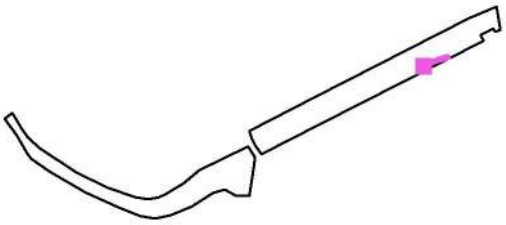
Greenway / Offside Margin Area 3 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 410

Position of surface in external scene:
Marked point:
(-1495.642 m, 831.918 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.15	0.07	4.08	0.060	0.017

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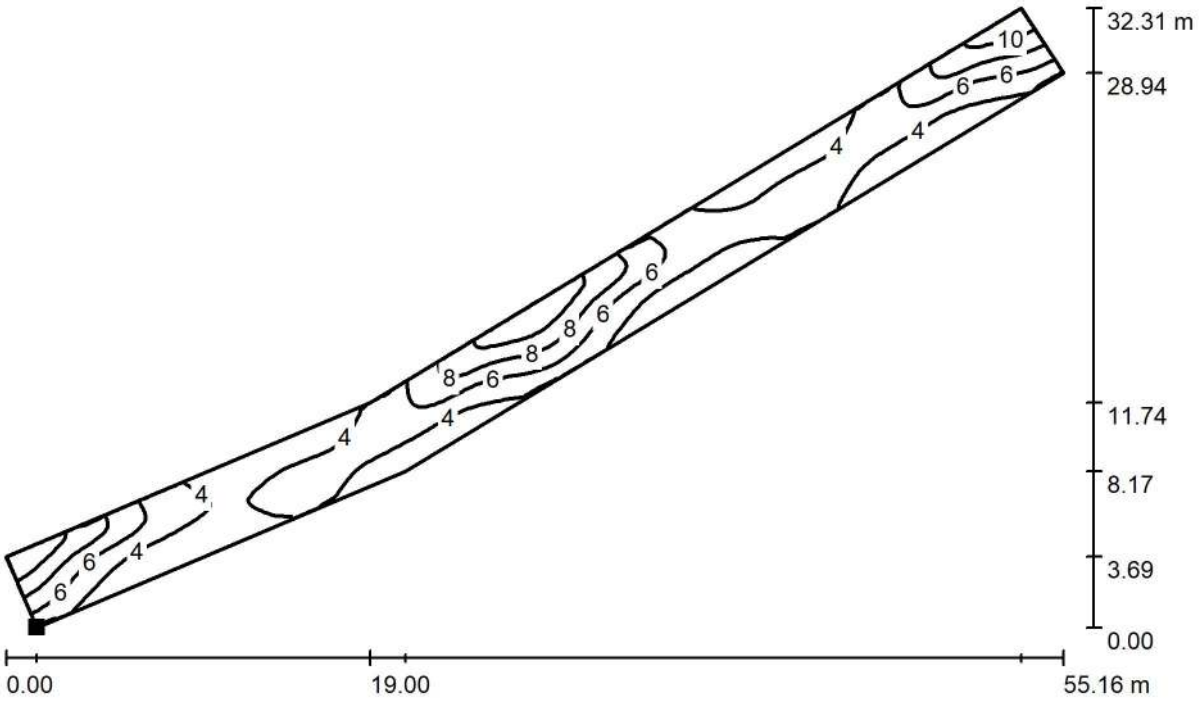
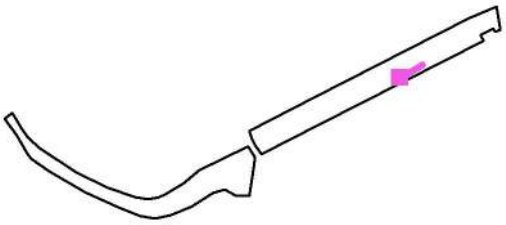
Greenway / Walkway / Cycleway Area 4 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 395

Position of surface in external scene:
Marked point:
(-1551.481 m, 806.371 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.33	2.03	12	0.380	0.168

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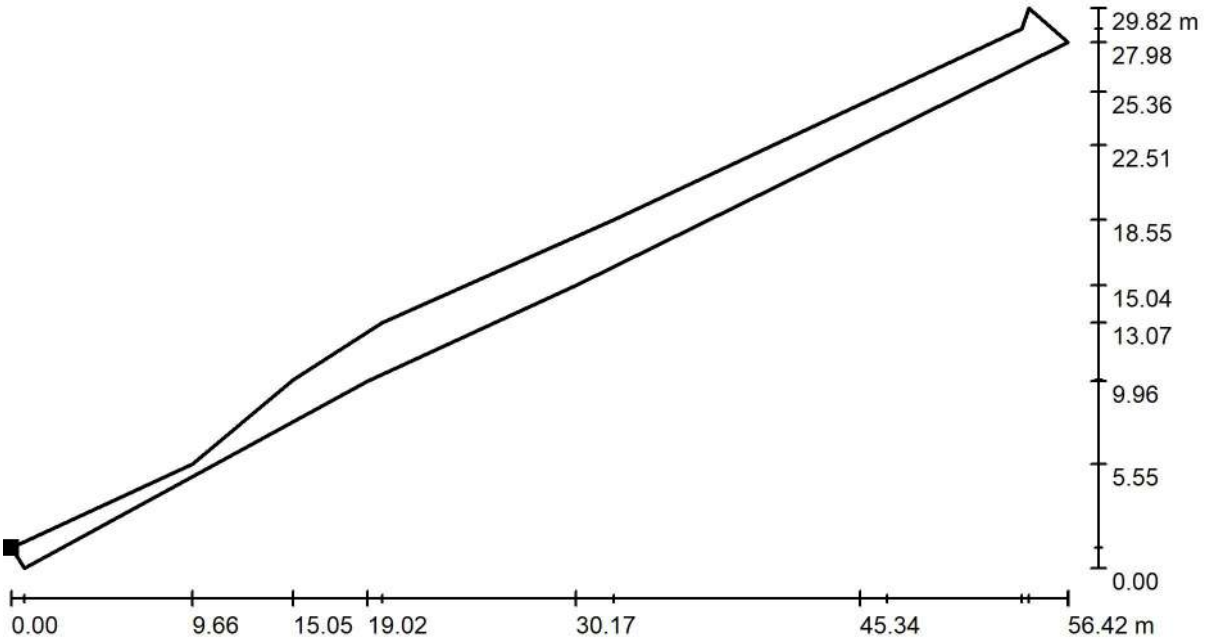
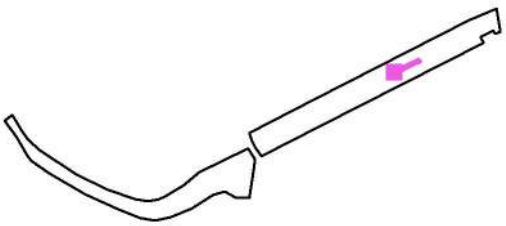
Greenway / Whitestown Stream Area 4 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 404

Position of surface in external scene:
Marked point:
(-1564.044 m, 822.327 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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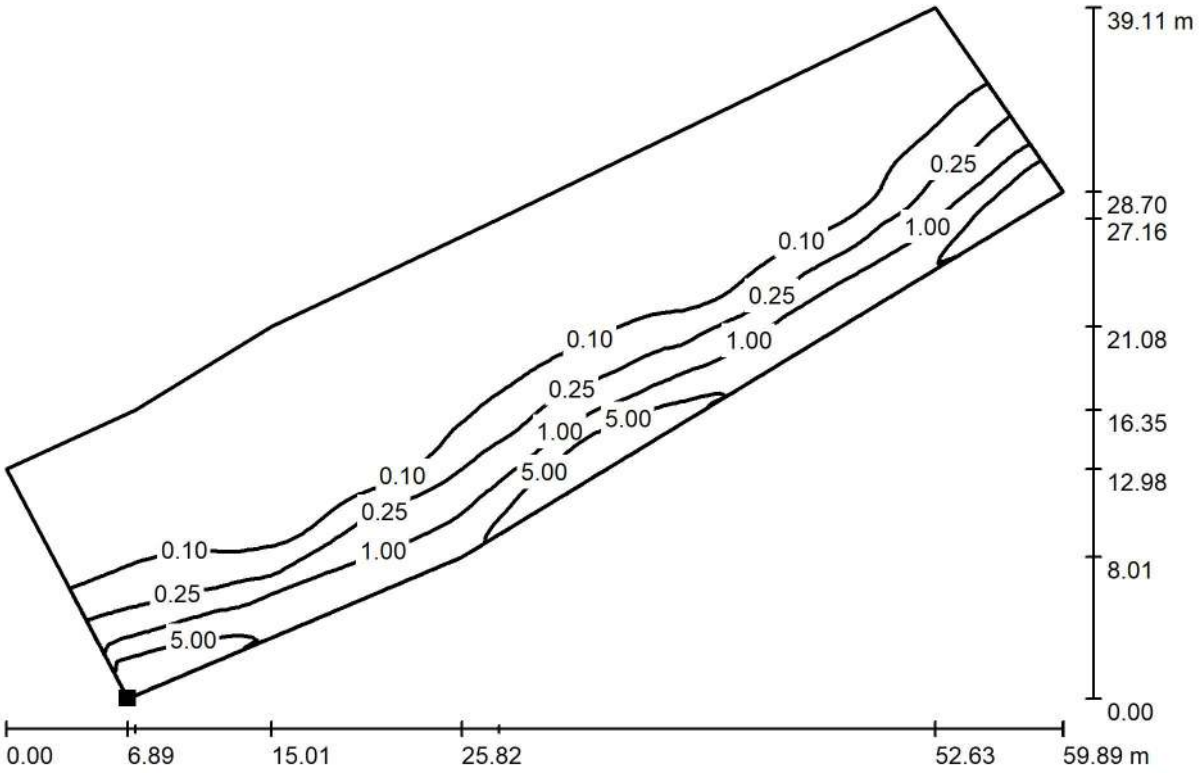
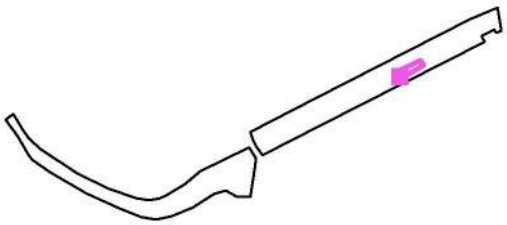
Greenway / Stream to Path Area 4 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 429

Position of surface in external scene:
Marked point:
(-1553.002 m, 810.100 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.80	0.01	12	0.007	0.000

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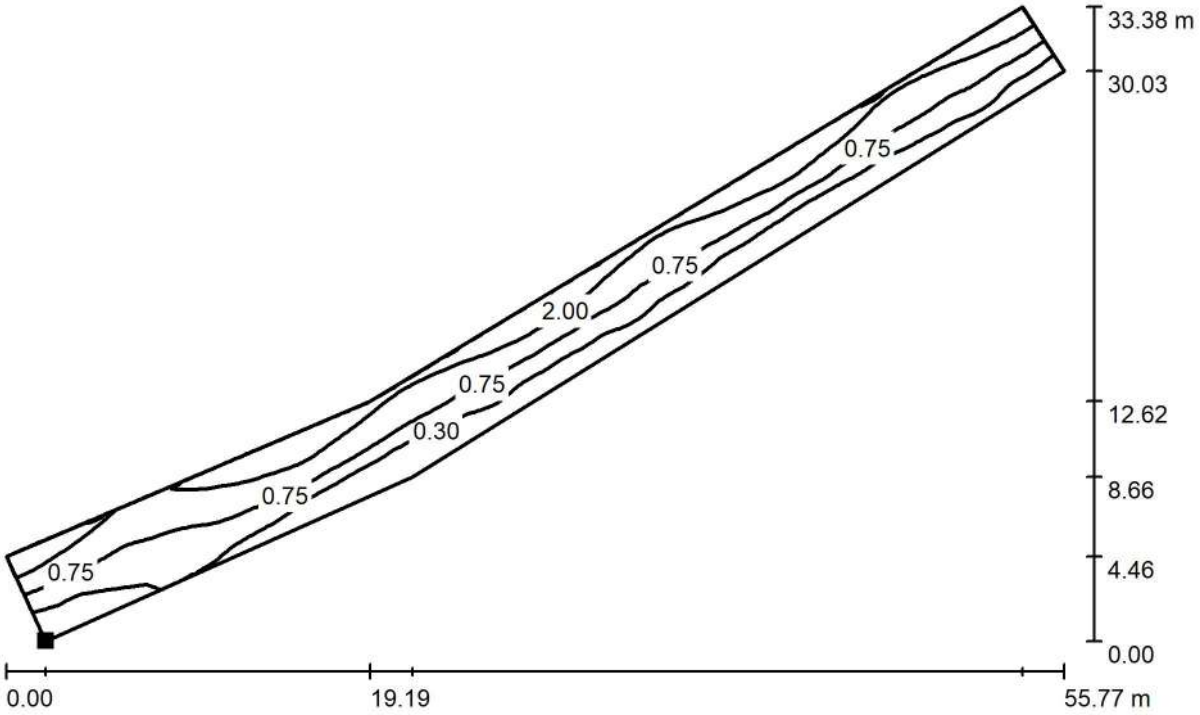
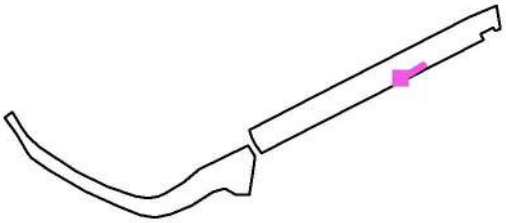
Greenway / Offside Margin Area 4 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 399

Position of surface in external scene:
Marked point:
(-1549.345 m, 801.921 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.10	0.09	4.30	0.079	0.020

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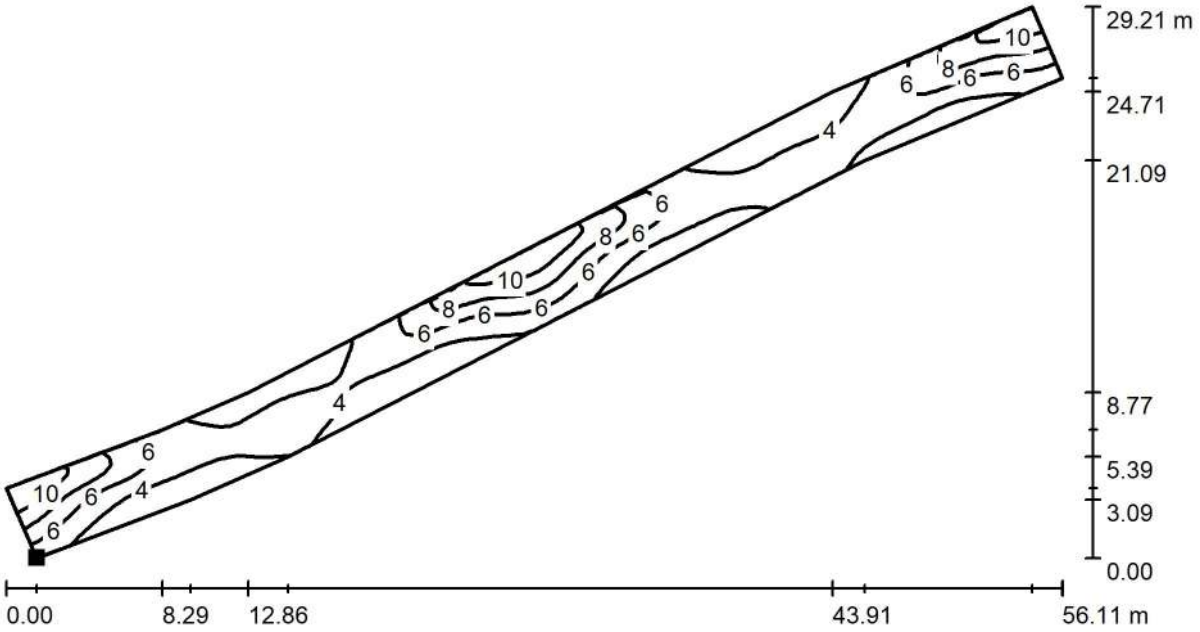
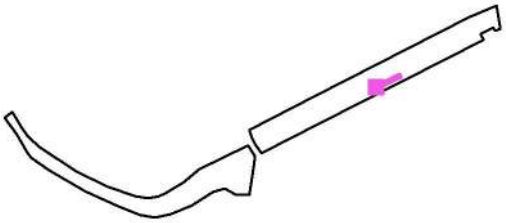
Greenway / Walkway / Cycleway Area 5 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 402

Position of surface in external scene:
Marked point:
(-1605.875 m, 780.891 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.38	2.11	12	0.391	0.175

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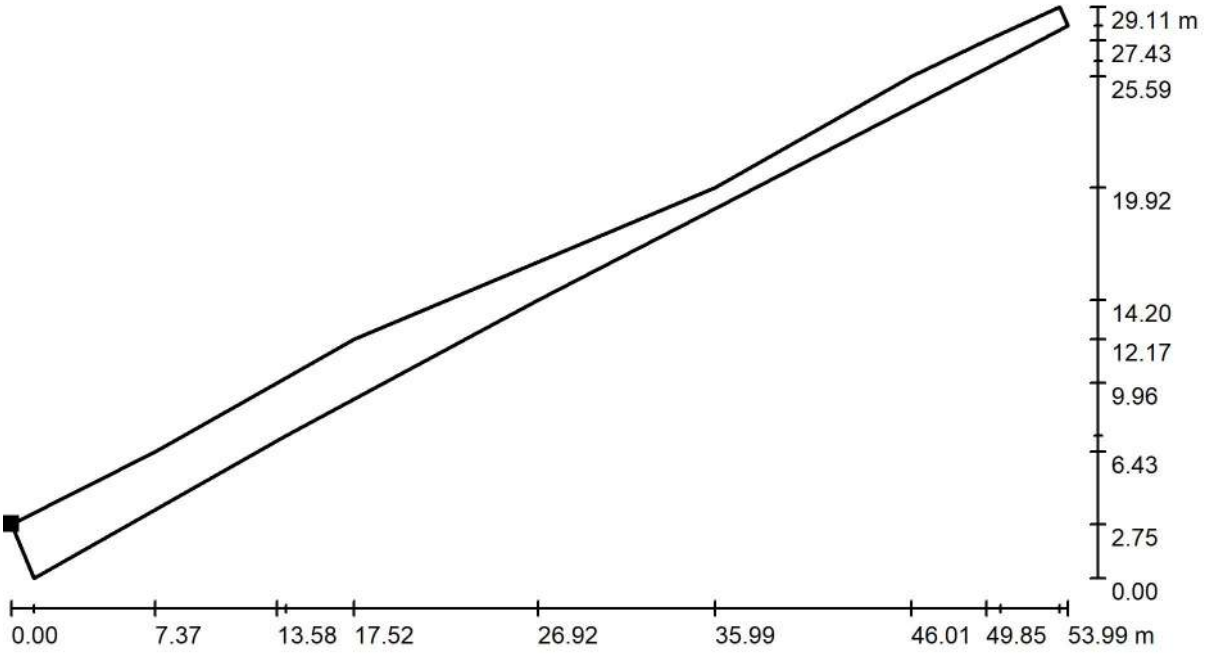
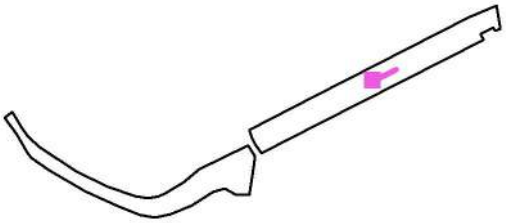
Greenway / Whitestown Stream Area 5 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 387

Position of surface in external scene:
Marked point:
(-1613.889 m, 797.649 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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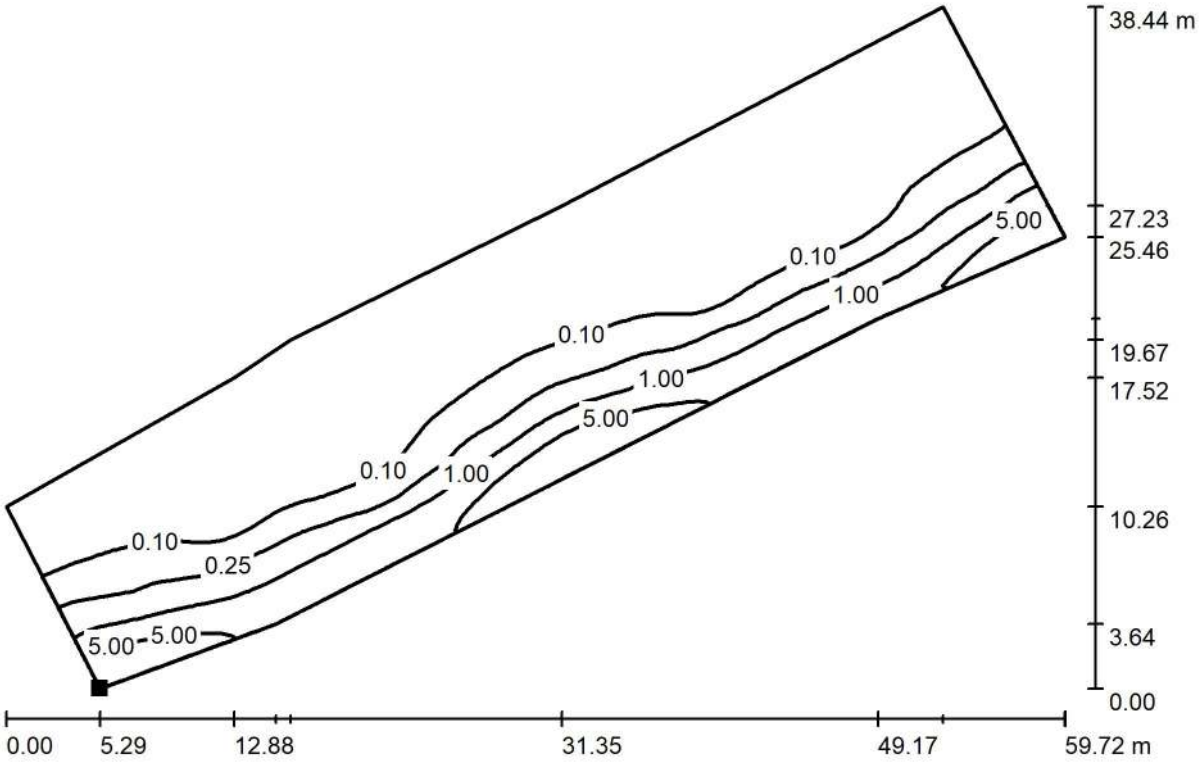
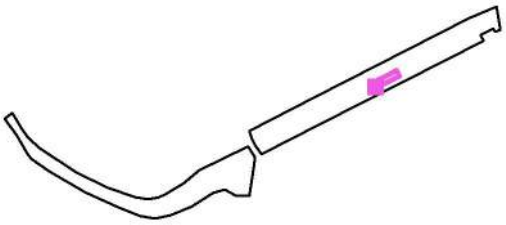
Greenway / Stream to Path Area 5 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 427

Position of surface in external scene:
Marked point:
(-1607.426 m, 784.639 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.85	0.01	12	0.008	0.001

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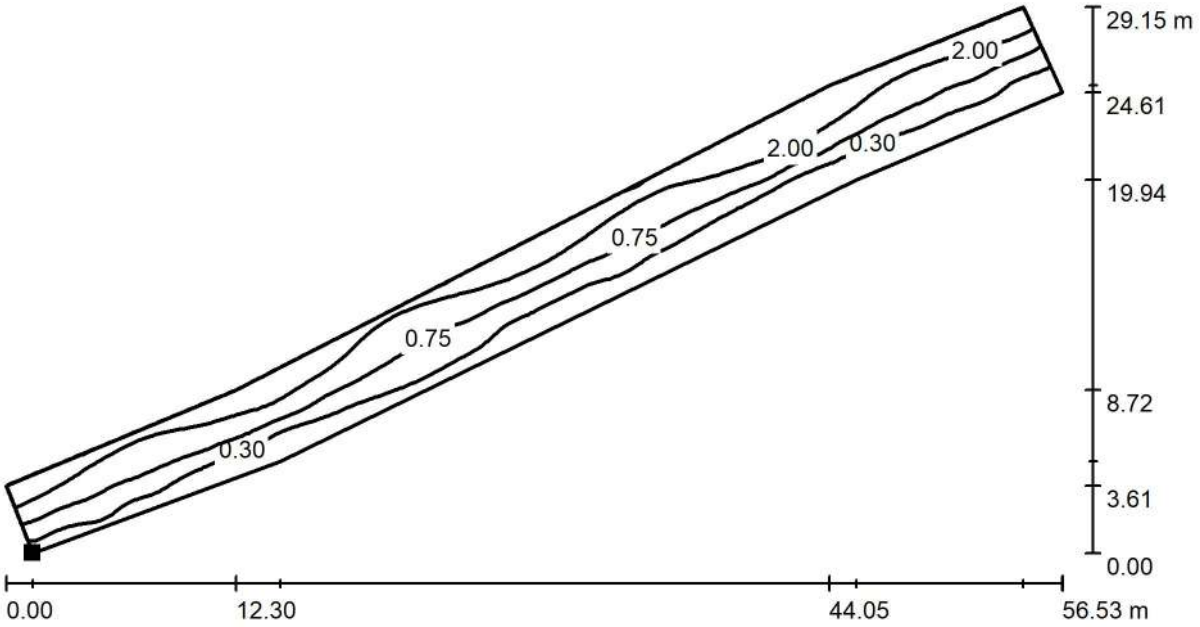
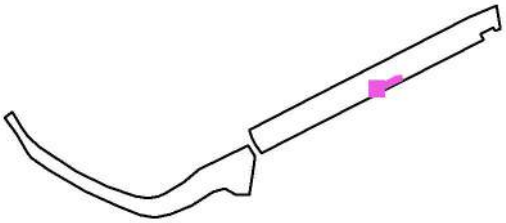
Greenway / Offside Margin Area 5 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 405

Position of surface in external scene:
Marked point:
(-1604.467 m, 777.279 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.22	0.08	4.84	0.065	0.016

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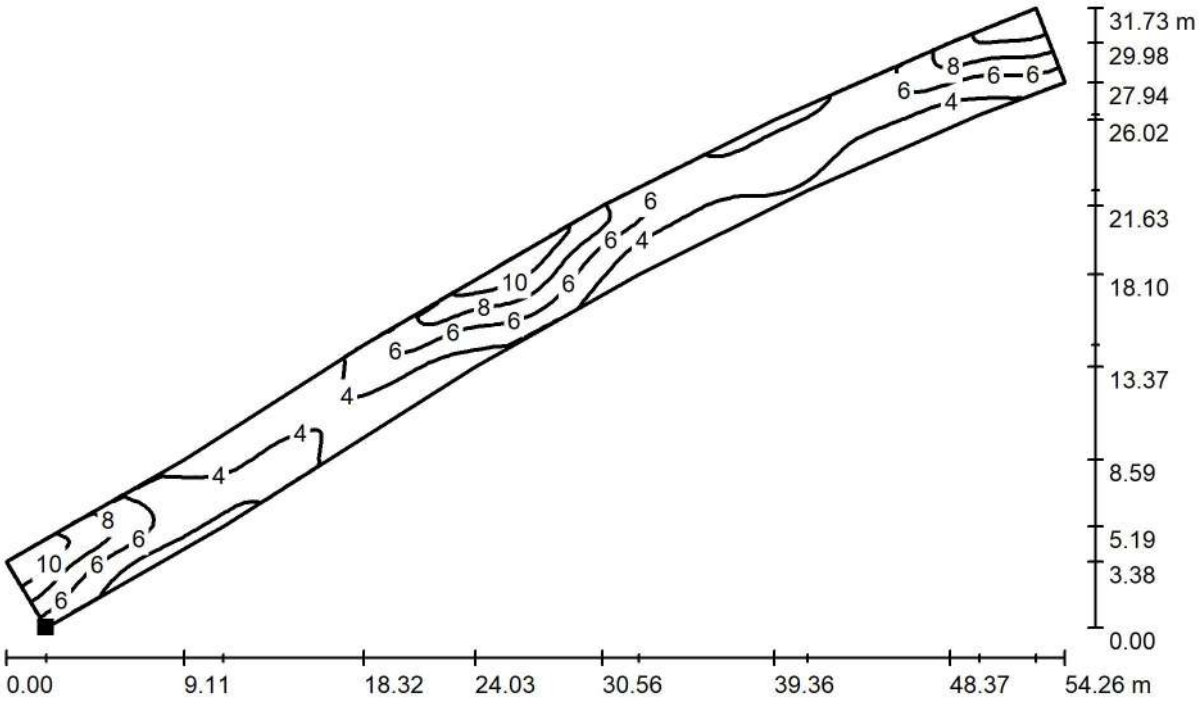
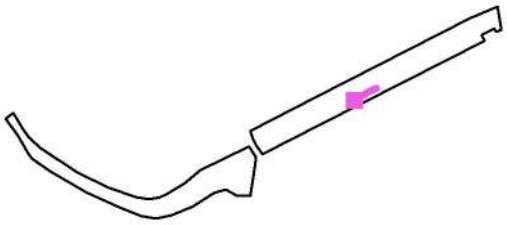
Greenway / Walkway / Cycleway Area 6 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 388

Position of surface in external scene:
Marked point:
(-1658.090 m, 752.947 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.39	2.19	12	0.406	0.182

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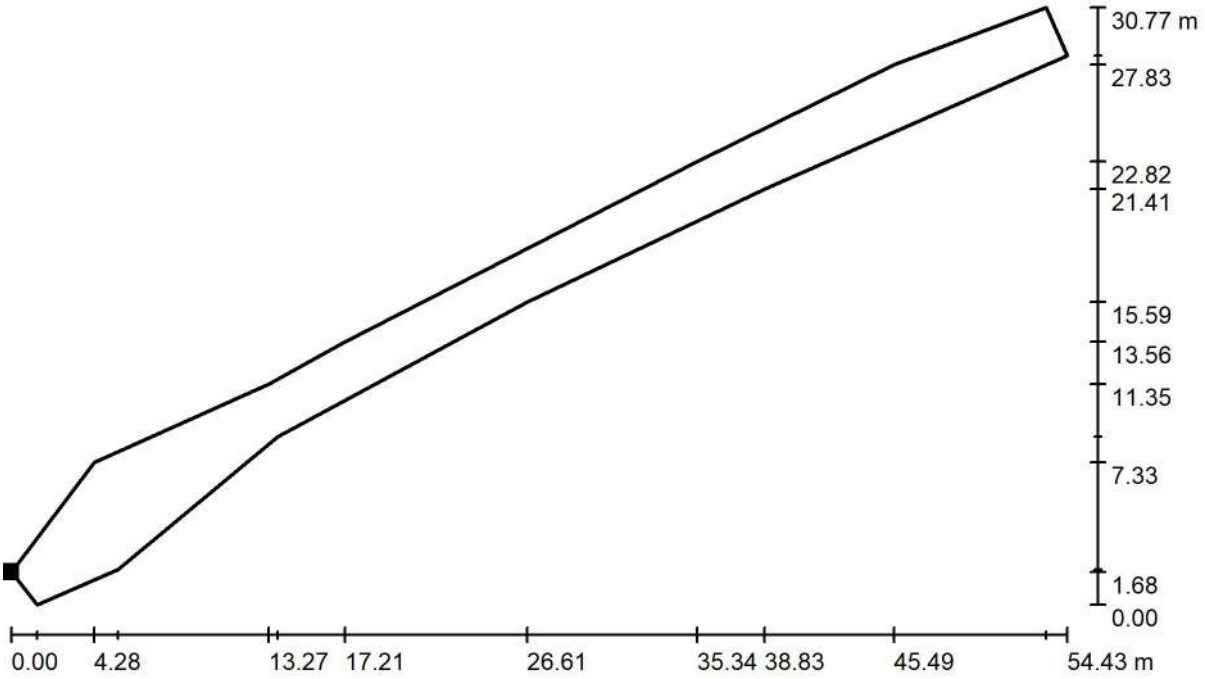
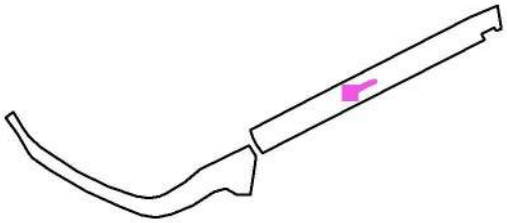
Greenway / Whitestown Stream Area 6 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 390

Position of surface in external scene:
Marked point:
(-1667.150 m, 768.283 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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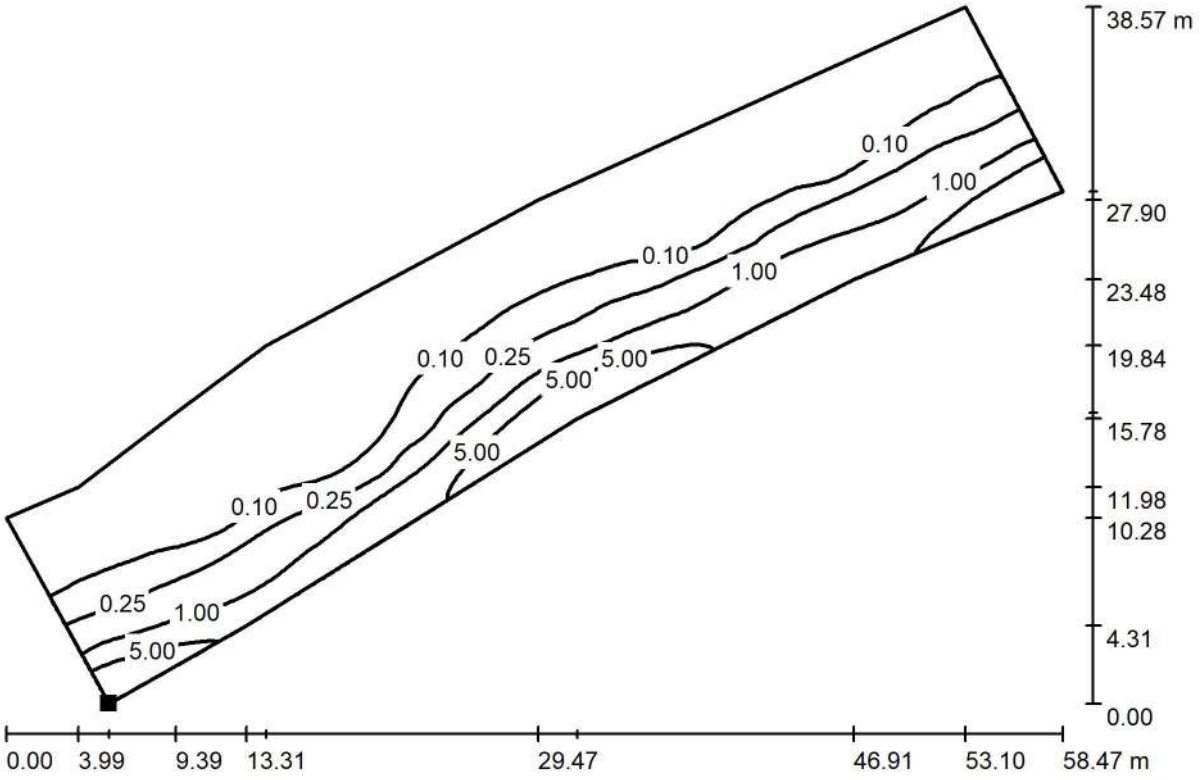
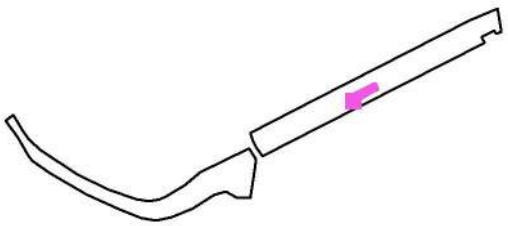
Greenway / Stream to Path Area 6 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 419

Position of surface in external scene:
Marked point:
(-1660.133 m, 756.325 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.02	0.01	12	0.009	0.001

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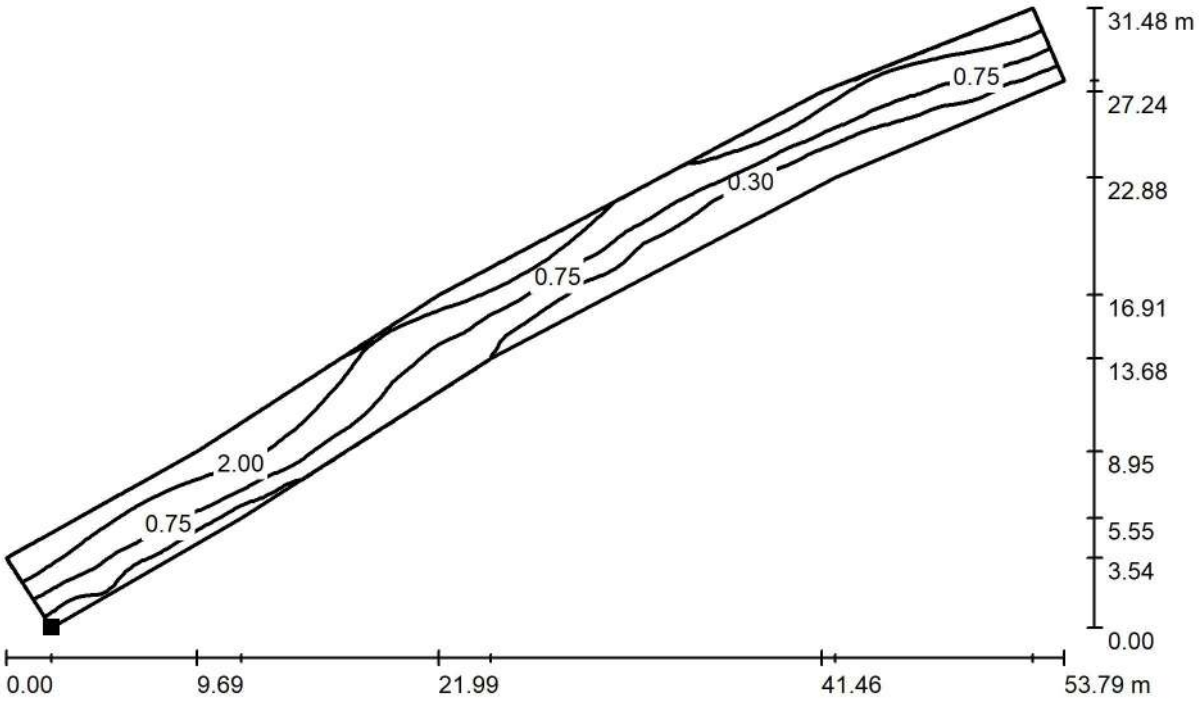
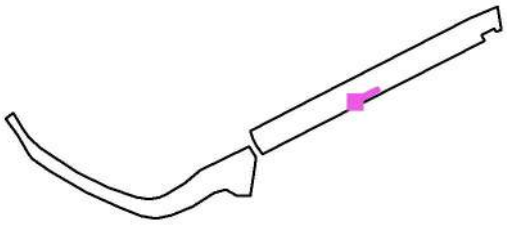
Greenway / Offside Margin Area 6 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 385

Position of surface in external scene:
Marked point:
(-1655.776 m, 749.407 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.16	0.07	4.36	0.059	0.016

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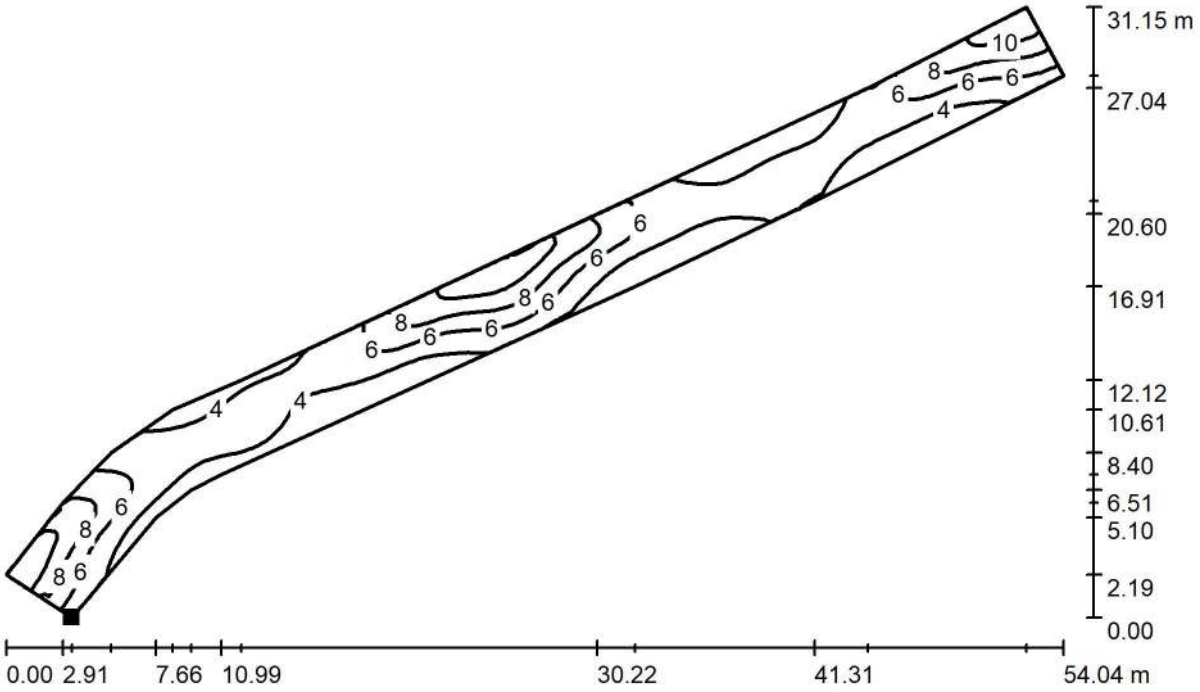
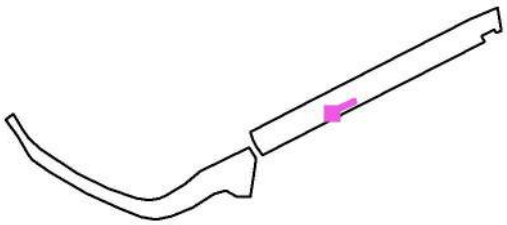
Greenway / Walkway / Cycleway Area 7 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 387

Position of surface in external scene:
Marked point:
(-1708.776 m, 725.272 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.53	2.06	12	0.372	0.172

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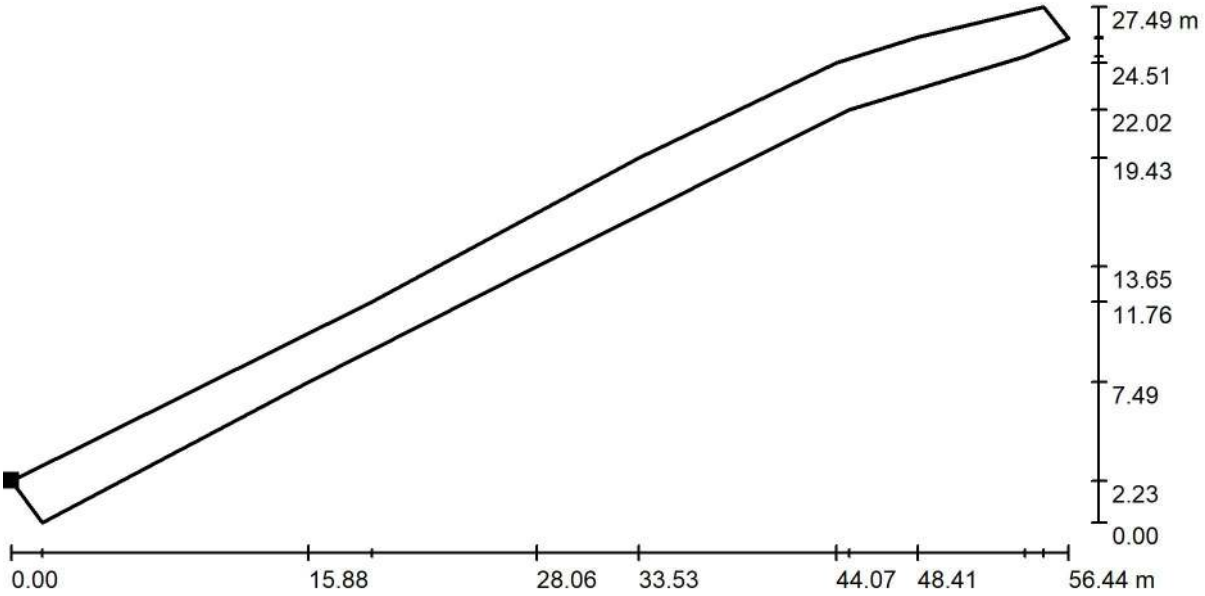
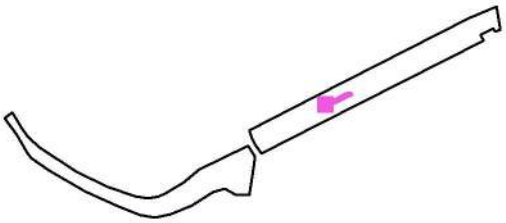
Greenway / Whitestown Stream Area 7 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 404

Position of surface in external scene:
Marked point:
(-1722.262 m, 743.019 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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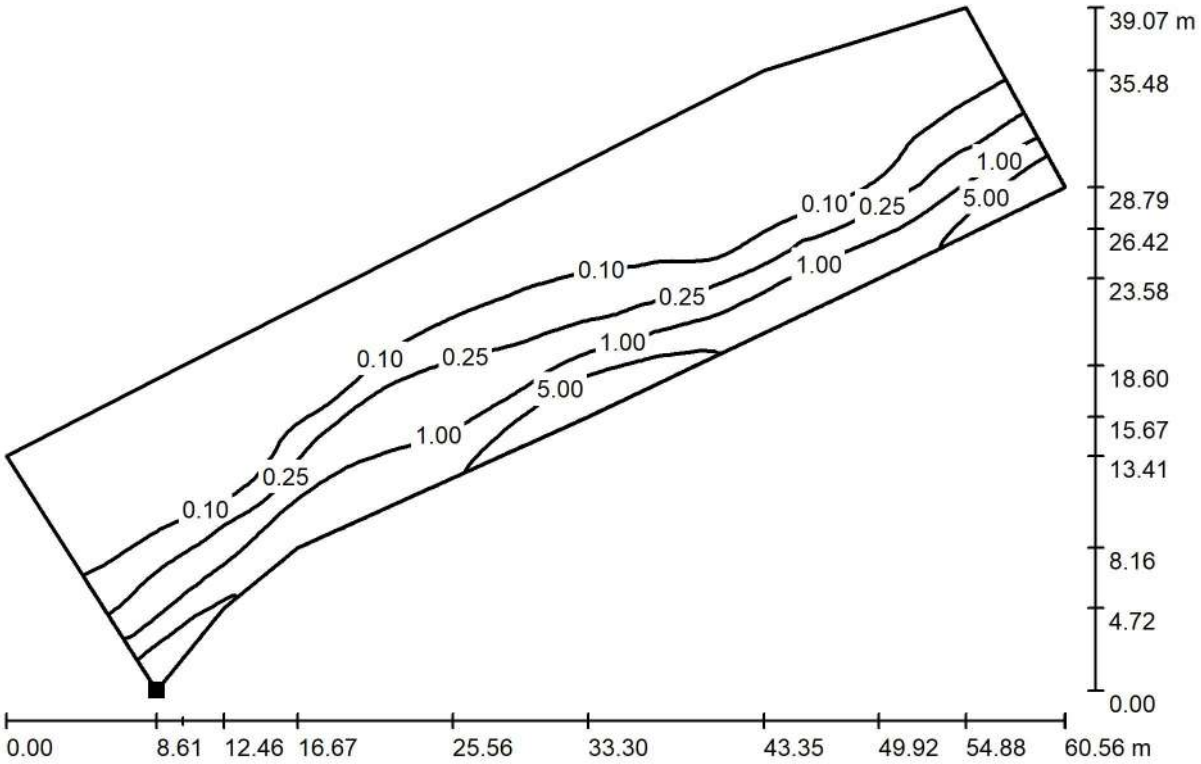
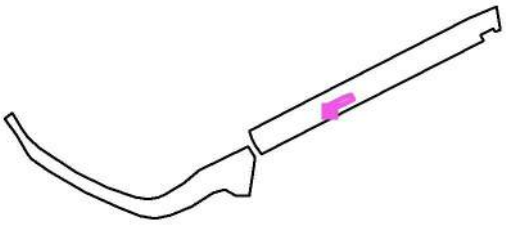
Greenway / Stream to Path Area 7 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 433

Position of surface in external scene:
Marked point:
(-1712.084 m, 727.533 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.88	0.01	12	0.008	0.001

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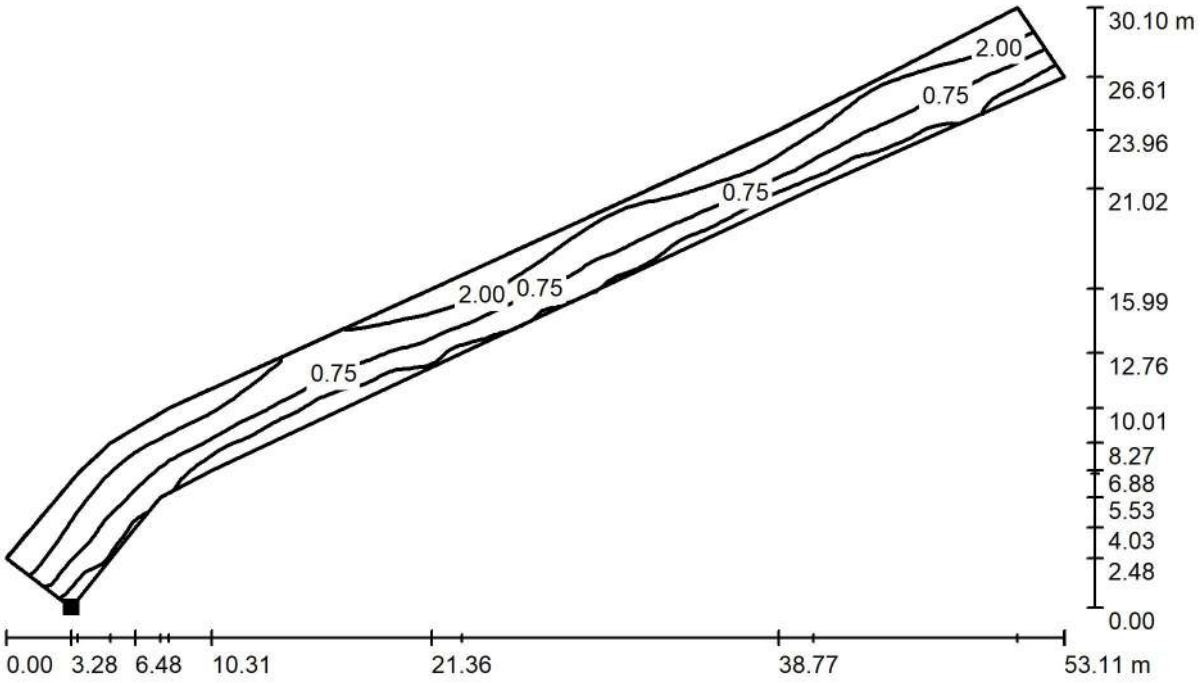
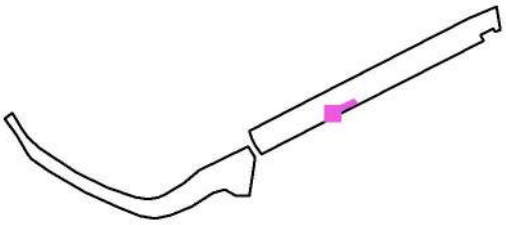
Greenway / Offside Margin Area 7 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 380

Position of surface in external scene:
Marked point:
(-1705.578 m, 722.848 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.30	0.11	4.81	0.088	0.024

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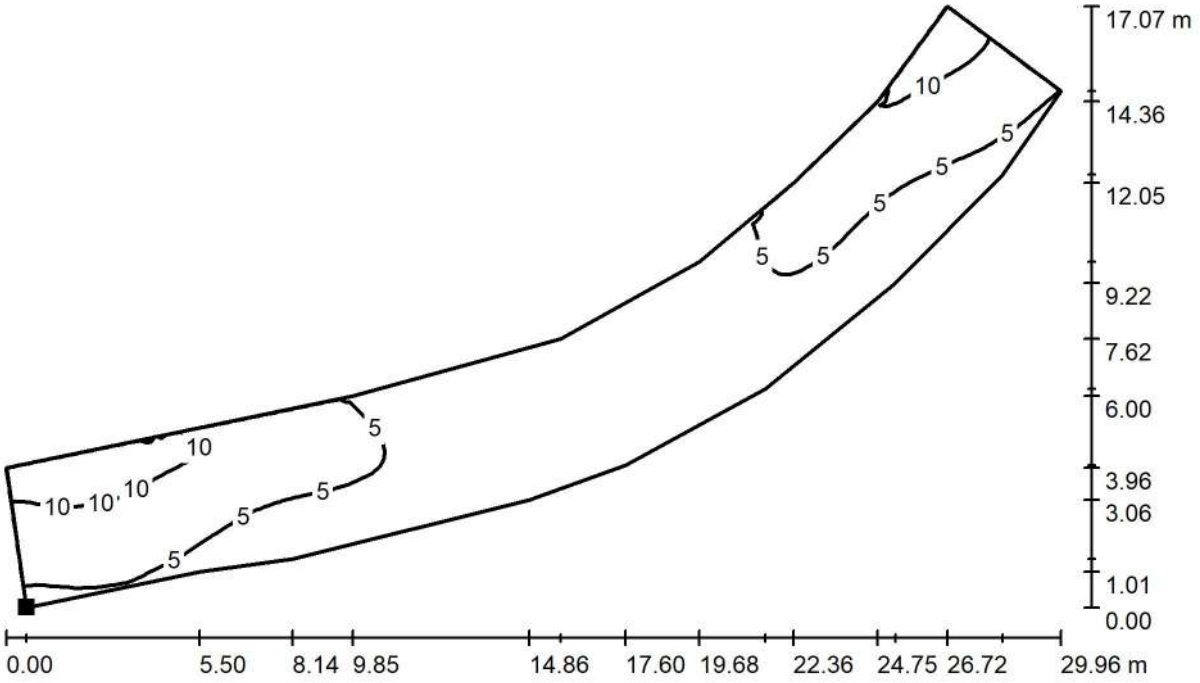
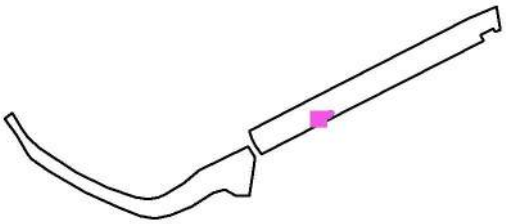
Greenway / Walkway / Cycleway Area 8 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 215

Position of surface in external scene:
Marked point:
(-1738.154 m, 710.622 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.44	1.78	12	0.327	0.147

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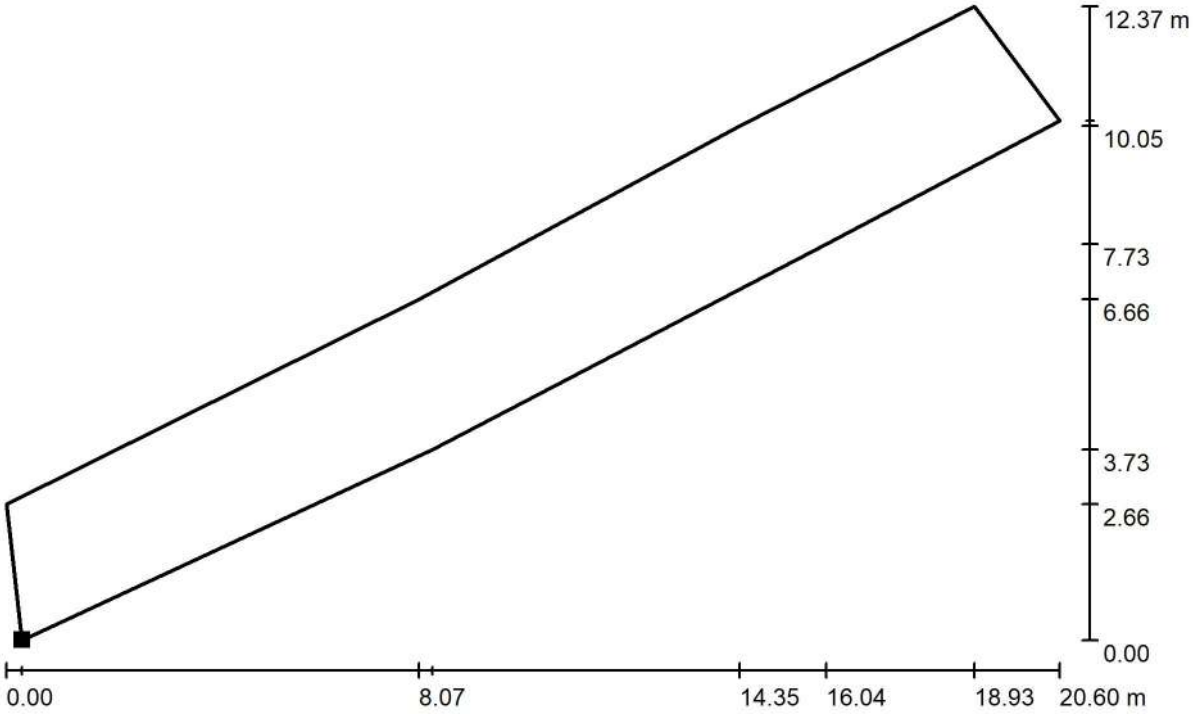
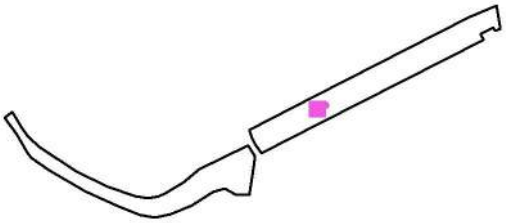
Greenway / Whitestown Stream Area 8 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 148

Position of surface in external scene:
Marked point:
(-1740.878 m, 730.651 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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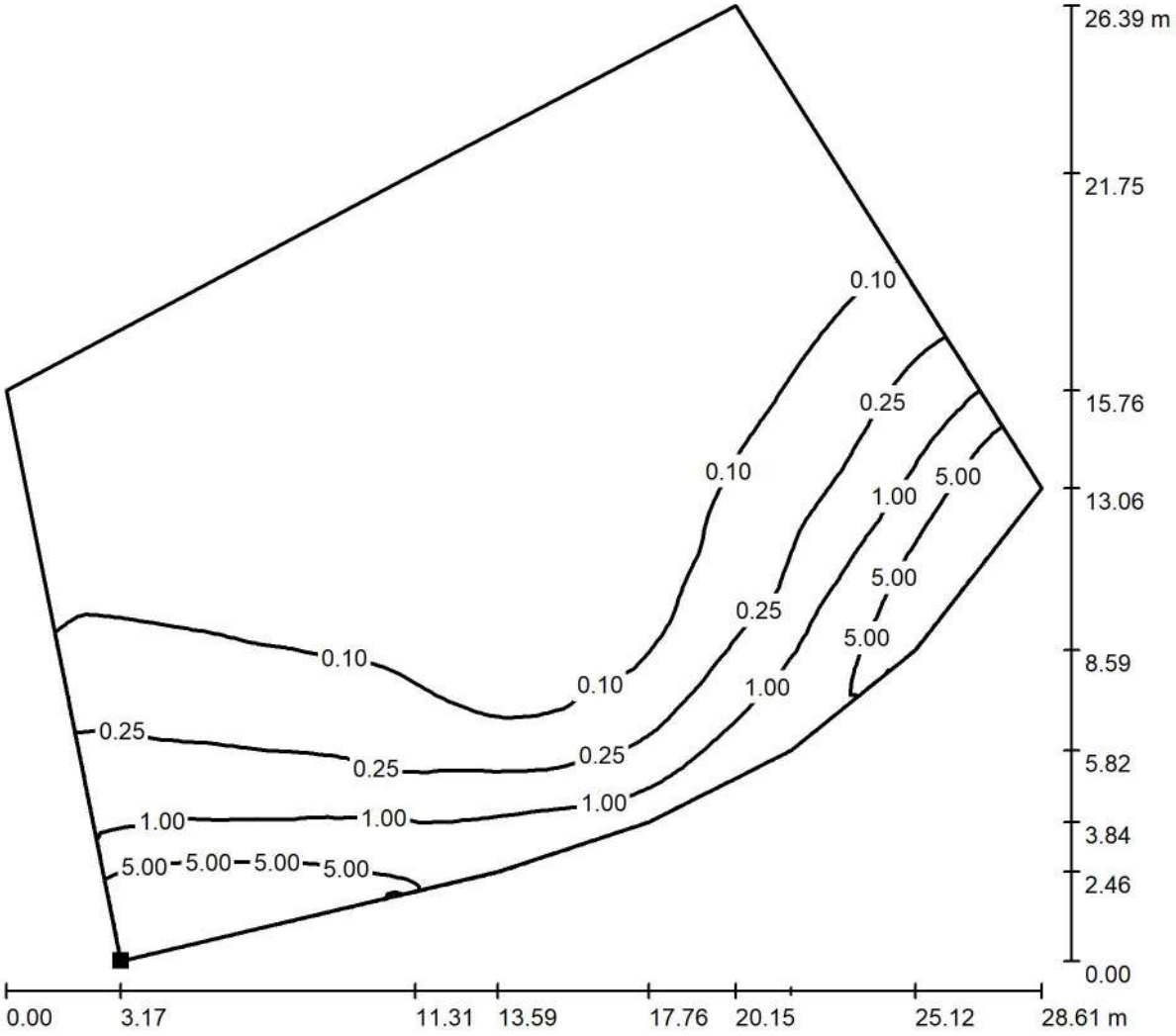
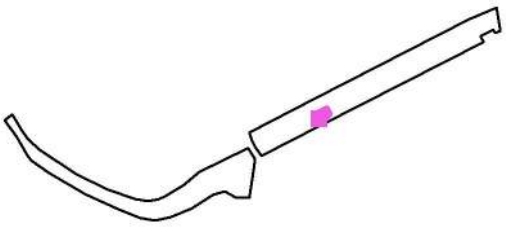
Greenway / Stream to Path Area 8 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 207

Position of surface in external scene:
Marked point:
(-1737.568 m, 714.403 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.78	0.01	12	0.008	0.001

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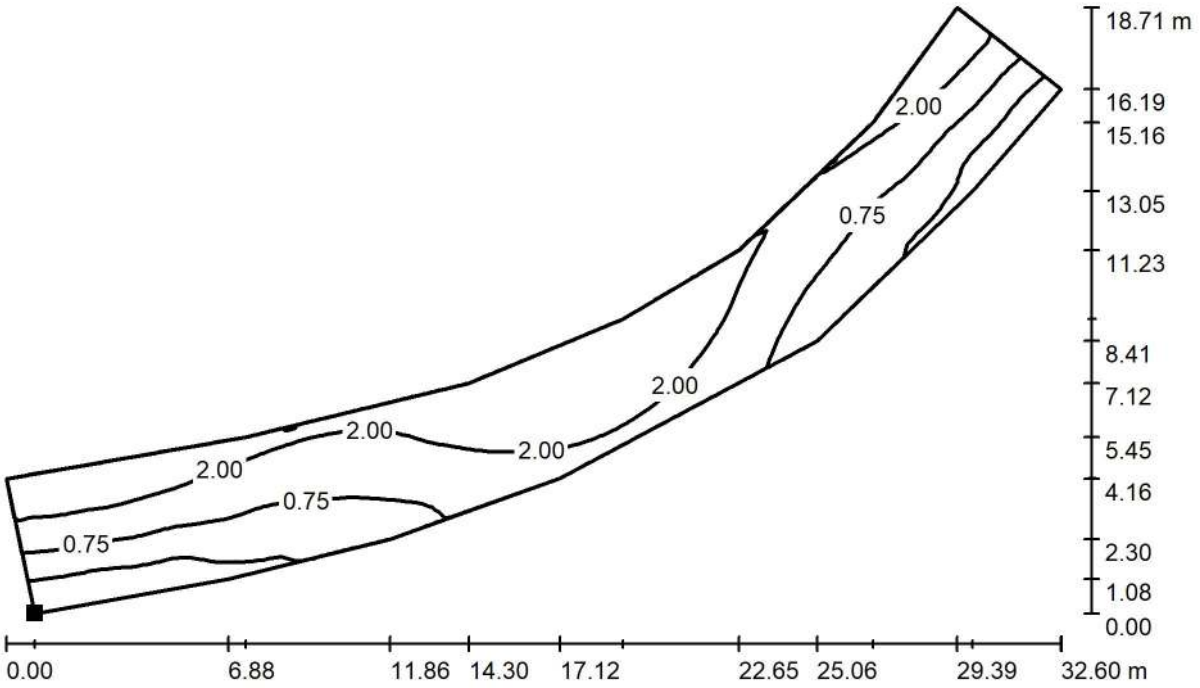
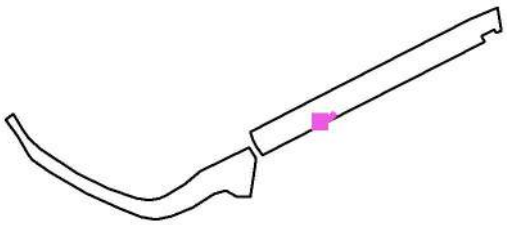
Greenway / Offside Margin Area 8 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 234

Position of surface in external scene:
Marked point:
(-1737.278 m, 706.562 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.63	0.18	4.75	0.110	0.038

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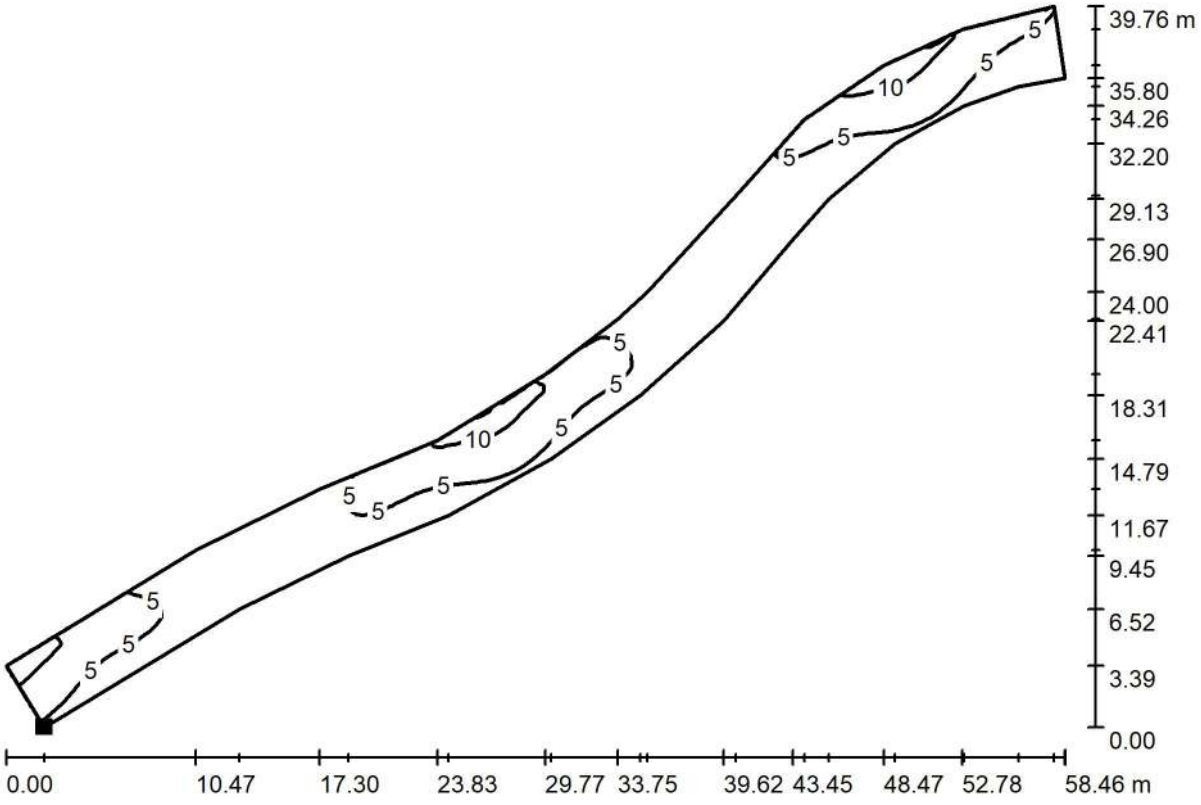
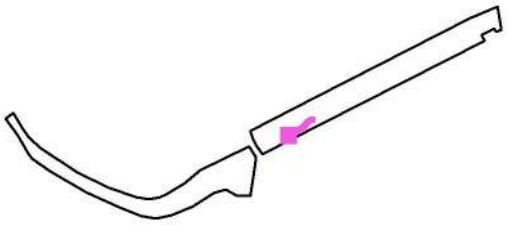
Greenway / Walkway / Cycleway Area 9 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 418

Position of surface in external scene:
Marked point:
(-1810.080 m, 672.530 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.14	1.23	12	0.239	0.103

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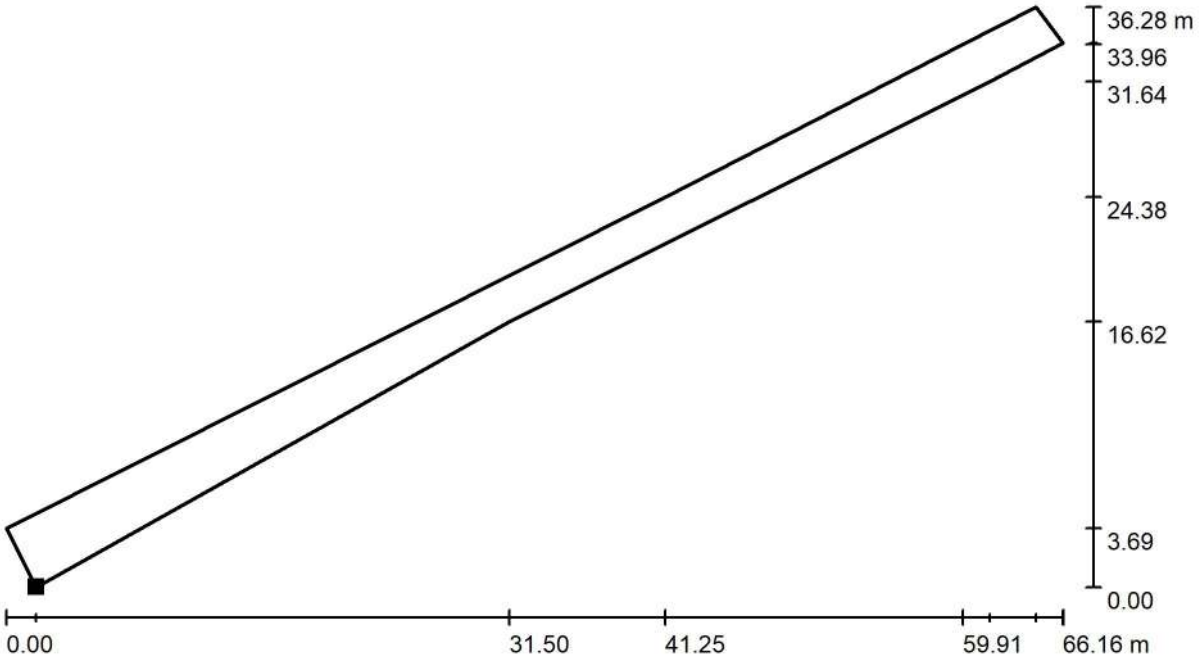
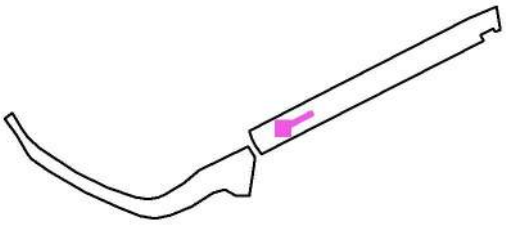
Greenway / Whitestown Stream Area 9 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 474

Position of surface in external scene:
Marked point:
(-1819.945 m, 688.736 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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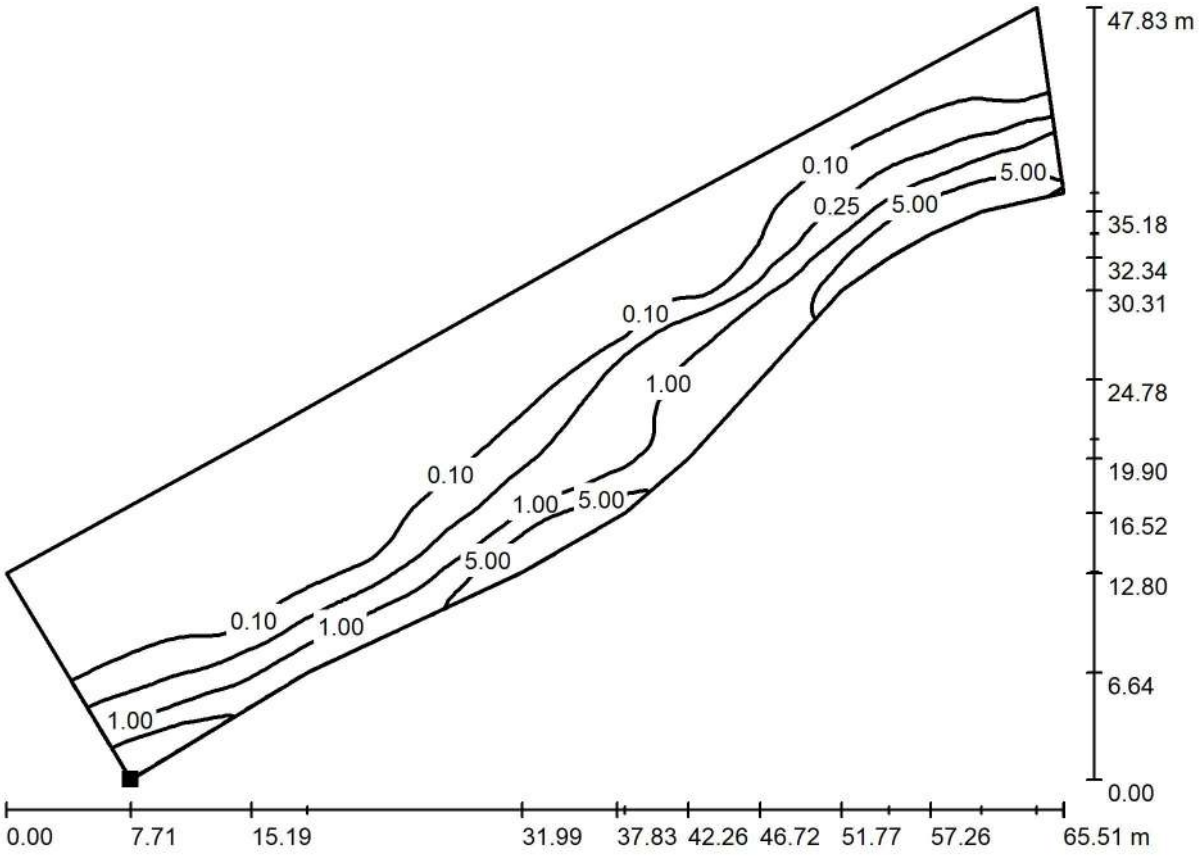
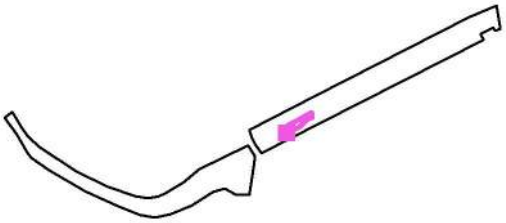
Greenway / Stream to Path Area 9 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 469

Position of surface in external scene:
Marked point:
(-1812.225 m, 675.885 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.97	0.01	12	0.006	0.001

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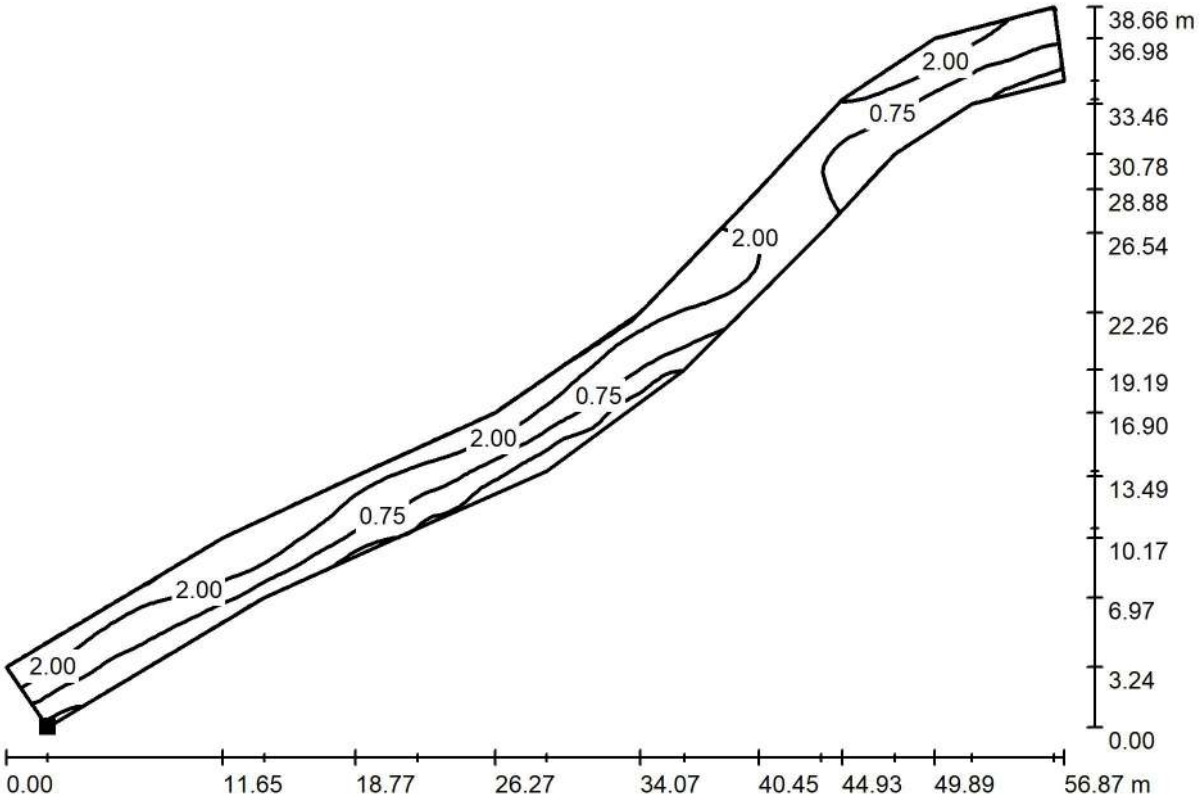
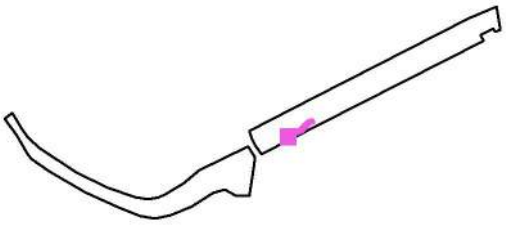
Greenway / Offside Margin Area 9 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 407

Position of surface in external scene:
Marked point:
(-1807.903 m, 669.469 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.44	0.16	4.82	0.111	0.033

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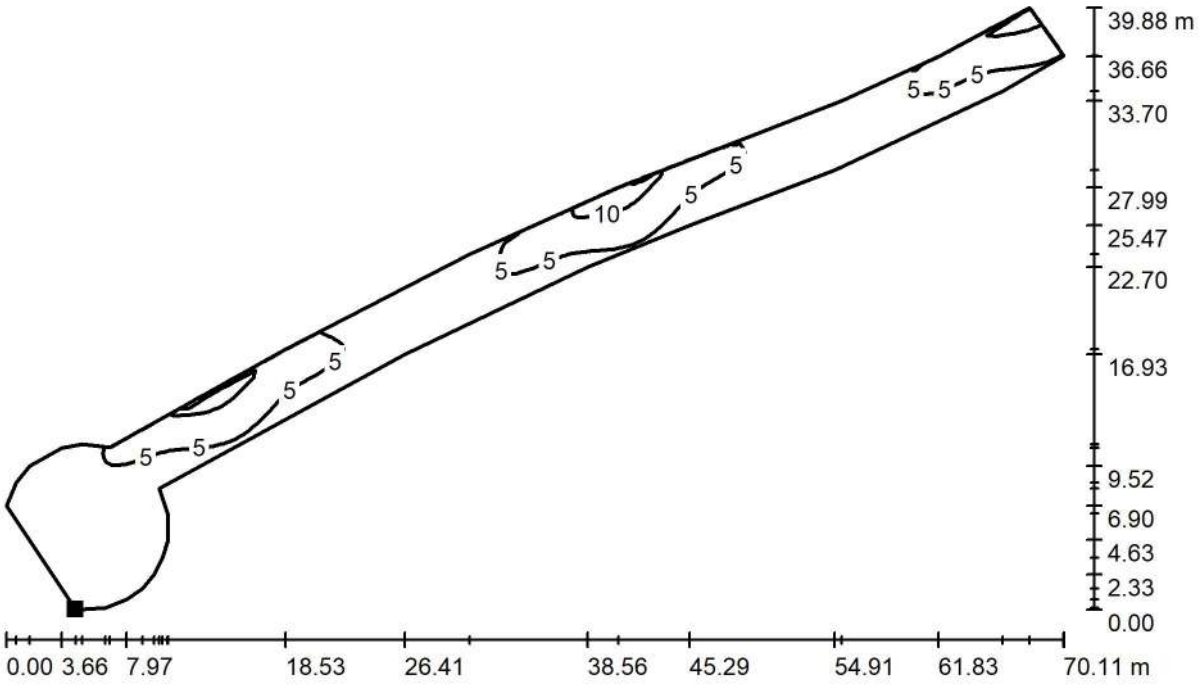
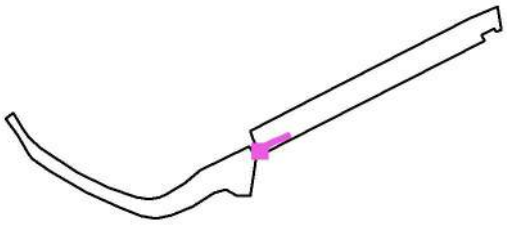
Greenway / Walkway / Cycleway Area 10 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 502

Position of surface in external scene:
Marked point:
(-1875.552 m, 636.078 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
4.59	0.03	12	0.007	0.003

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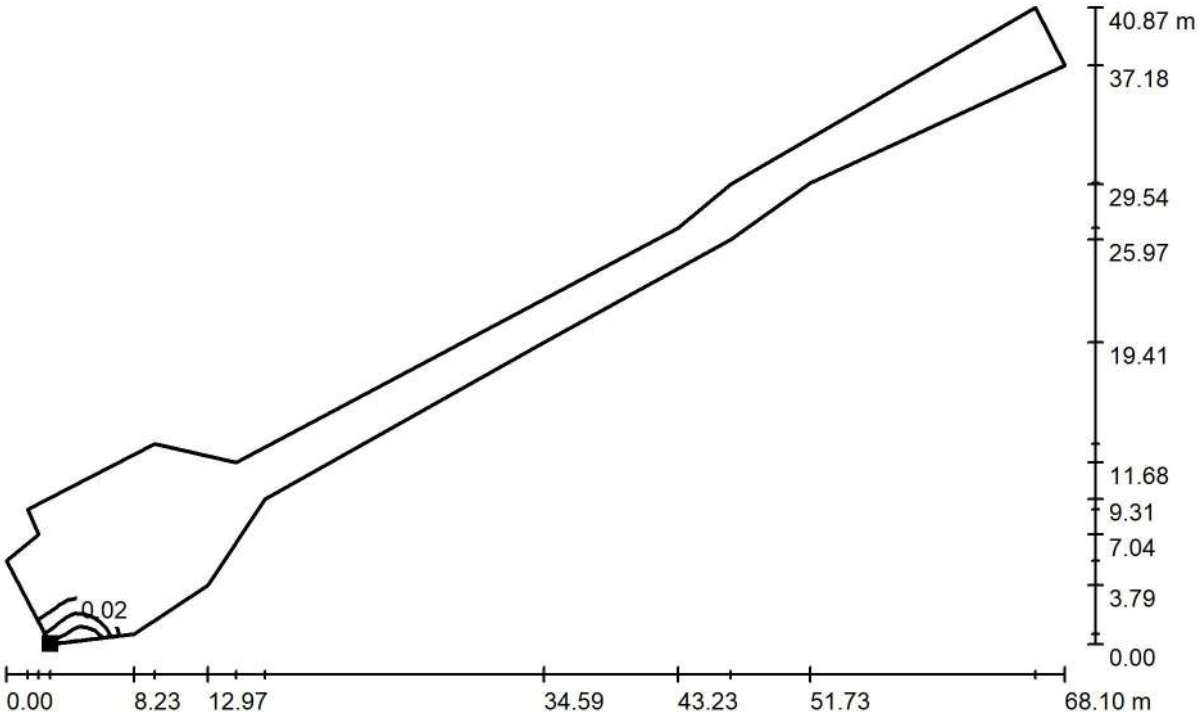
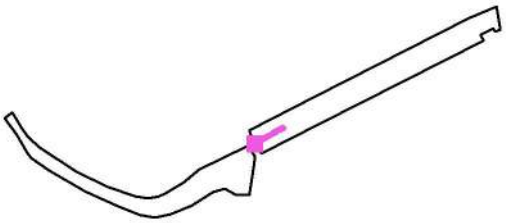
Greenway / Whitestown Stream Area 10 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 487

Position of surface in external scene:
Marked point:
(-1885.205 m, 651.554 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.09	0.000	0.000

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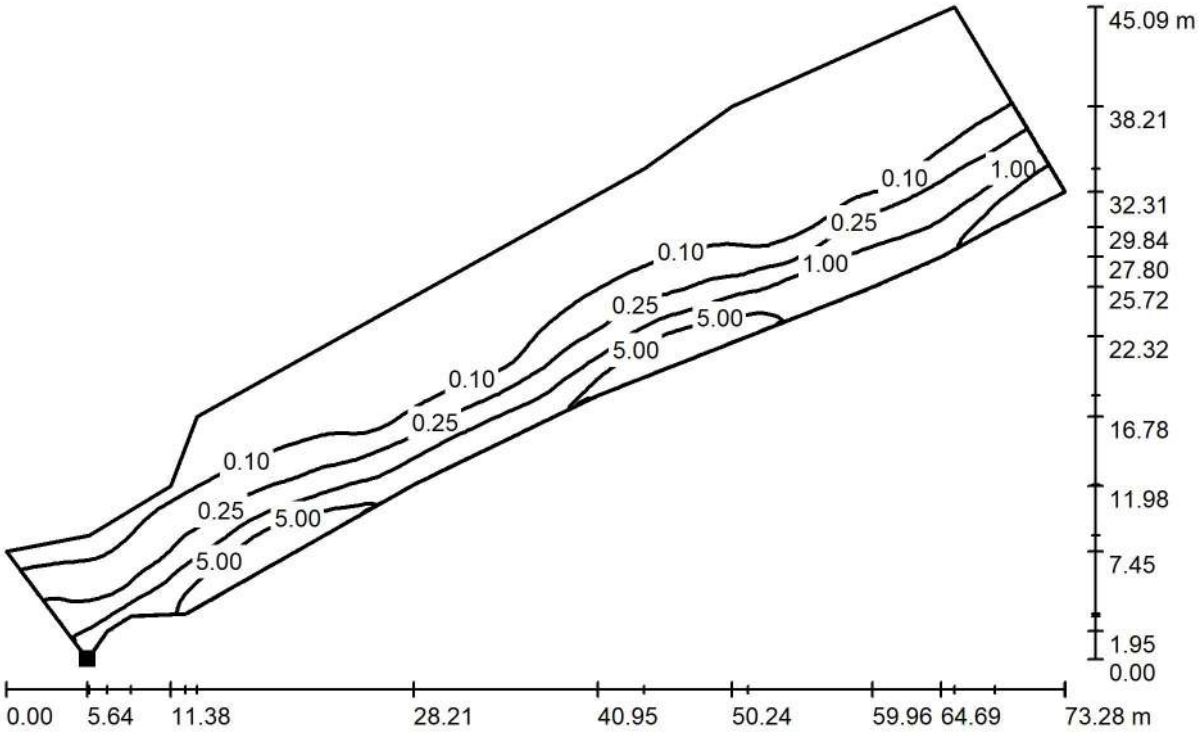
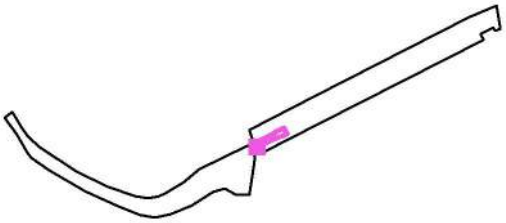
Greenway / Stream to Path Area 10 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 524

Position of surface in external scene:
Marked point:
(-1879.954 m, 643.649 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.97	0.01	12	0.006	0.001

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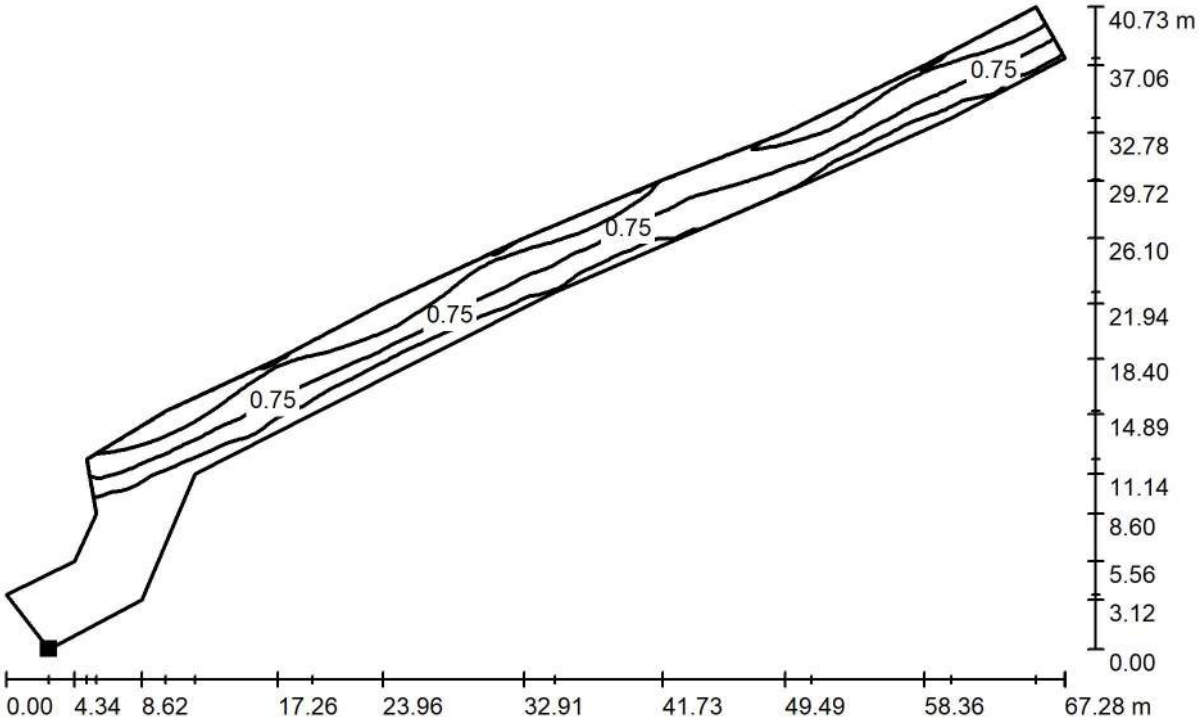
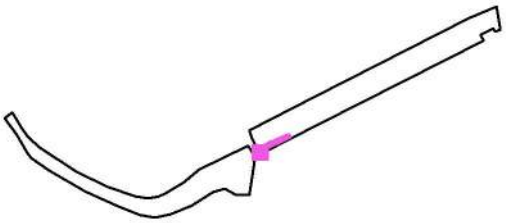
Greenway / Offside Margin Area 10 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 481

Position of surface in external scene:
Marked point:
(-1872.458 m, 632.105 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.99	0.02	4.40	0.017	0.004

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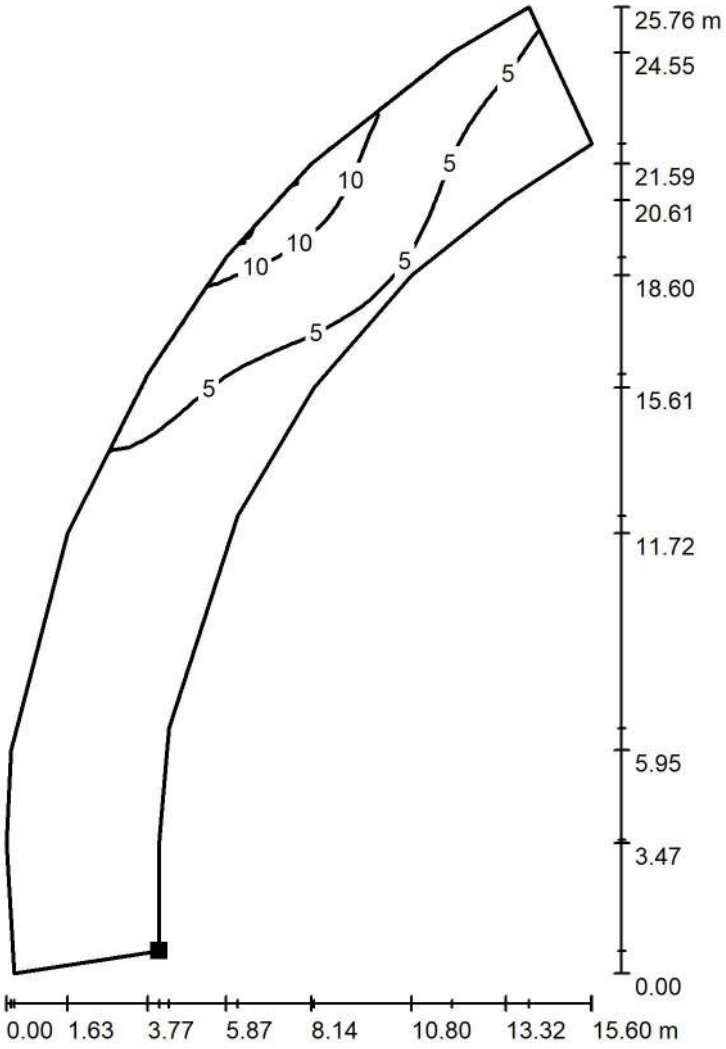
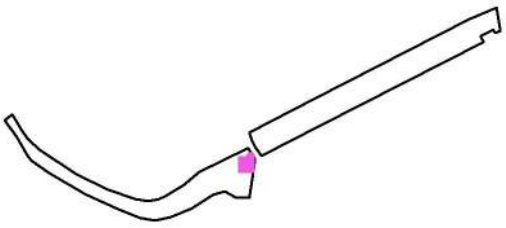
Greenway / Walkway / Cycleway Area 11 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 202

Position of surface in external scene:
Marked point:
(-1904.153 m, 609.576 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
3.58	0.02	12	0.005	0.001

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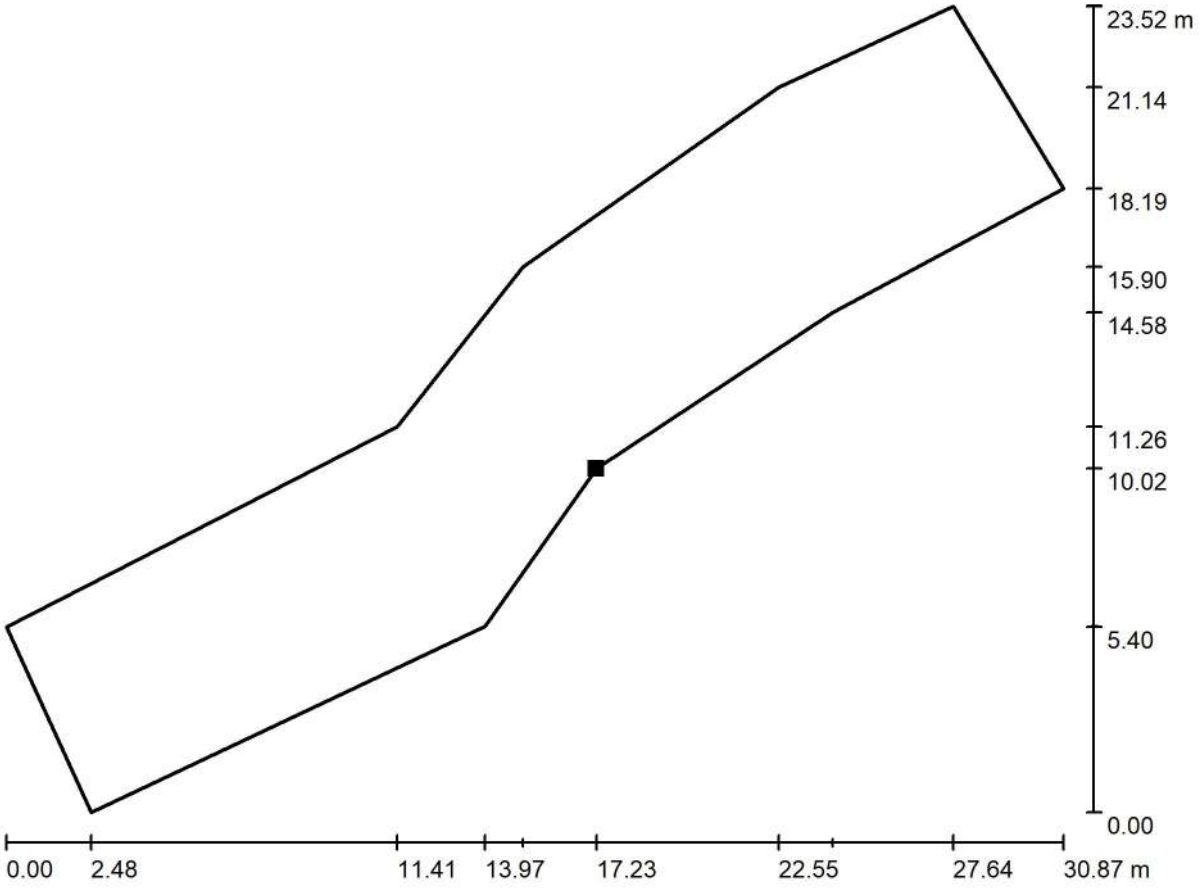
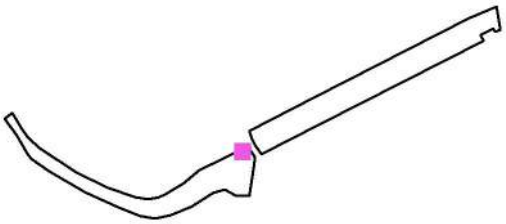
Greenway / Whitestown Stream Area 11 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 221

Position of surface in external scene:
Marked point:
(-1912.811 m, 635.550 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.065	0.007

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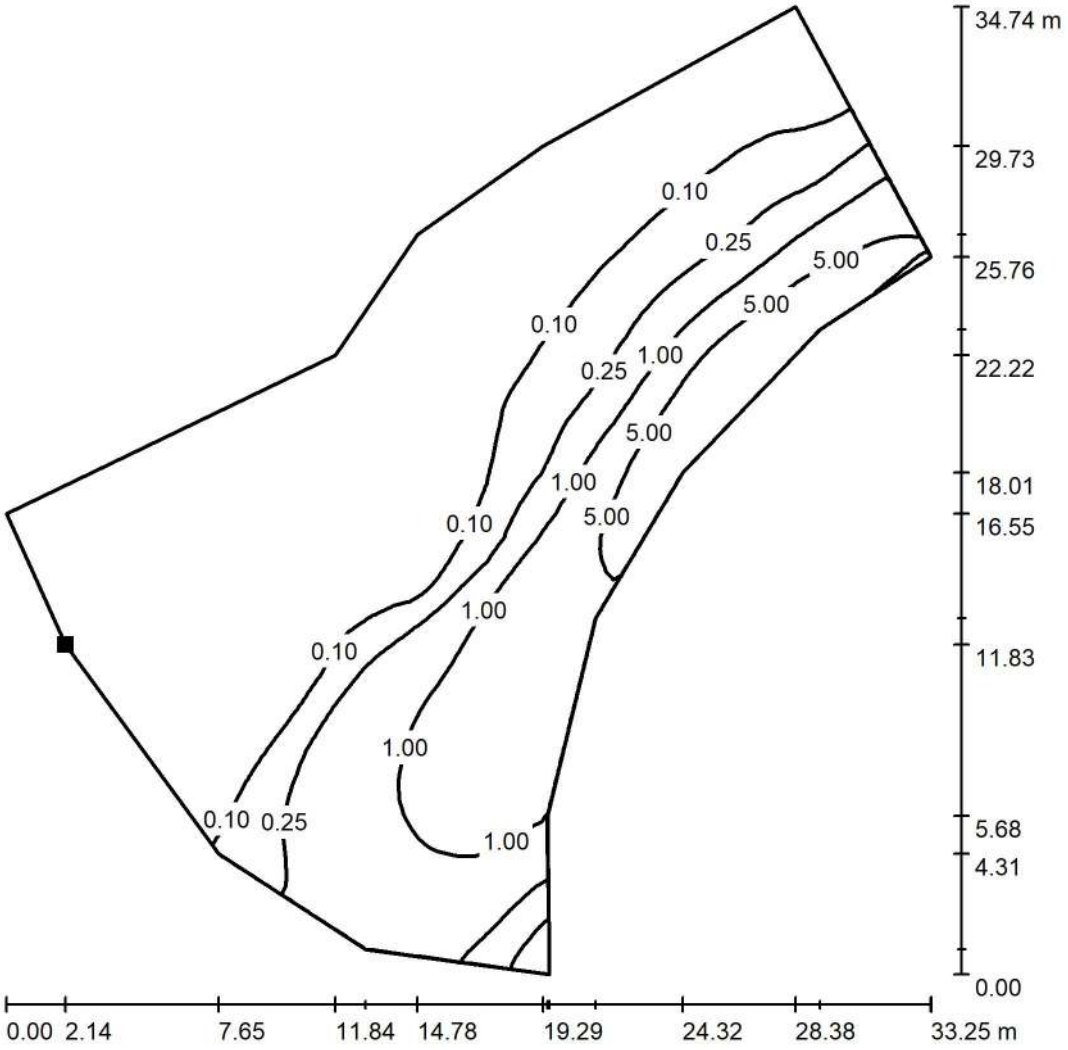
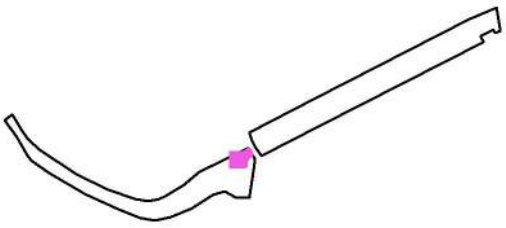
Greenway / Stream to Path Area 11 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 272

Position of surface in external scene:
Marked point:
(-1925.417 m, 620.811 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.93	0.00	12	0.002	0.000

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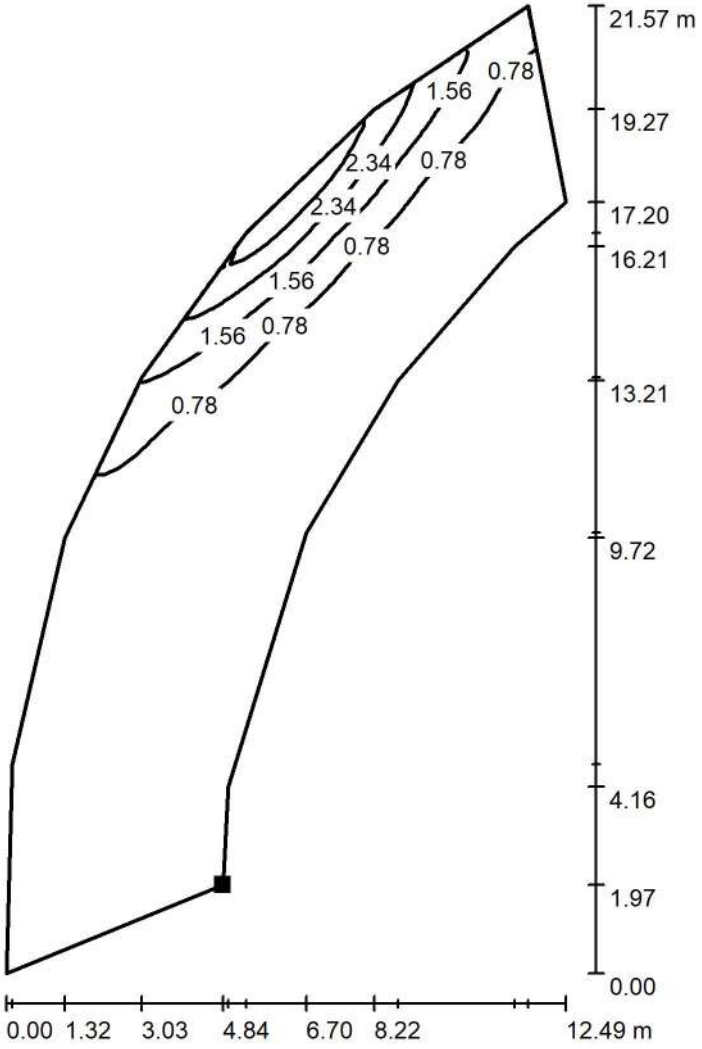
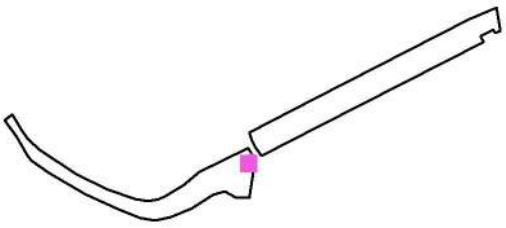
Greenway / Offside Margin Area 11 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 169

Position of surface in external scene:
Marked point:
(-1899.318 m, 611.599 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.50	0.02	4.13	0.033	0.004

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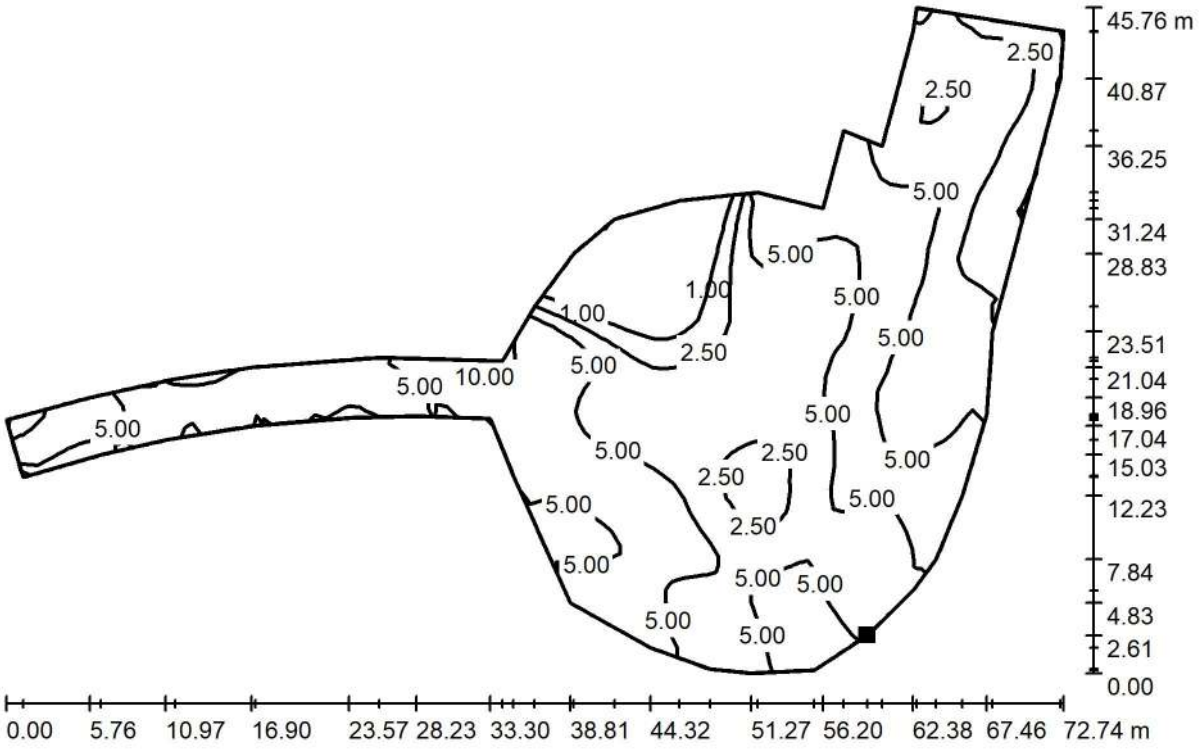
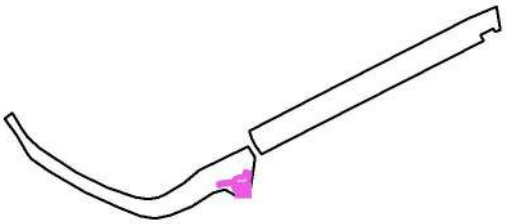
Greenway / Walkway / Cycleway / Plaza Area 12 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 521

Position of surface in external scene:
Marked point:
(-1911.424 m, 547.287 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
4.19	0.11	12	0.025	0.009

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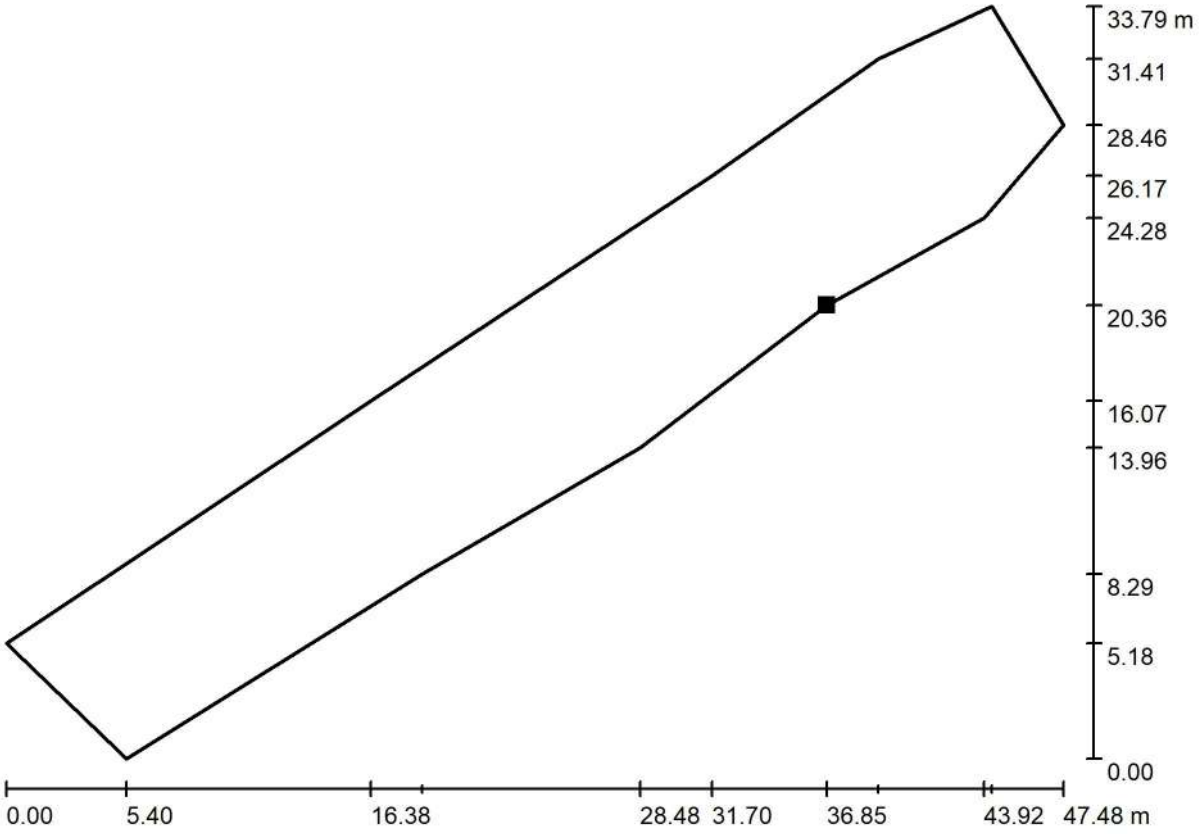
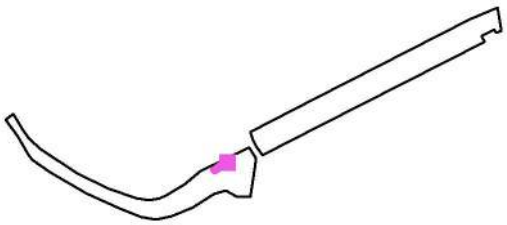
Greenway / Whitestown Stream Area 12 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 340

Position of surface in external scene:
Marked point:
(-1950.007 m, 612.281 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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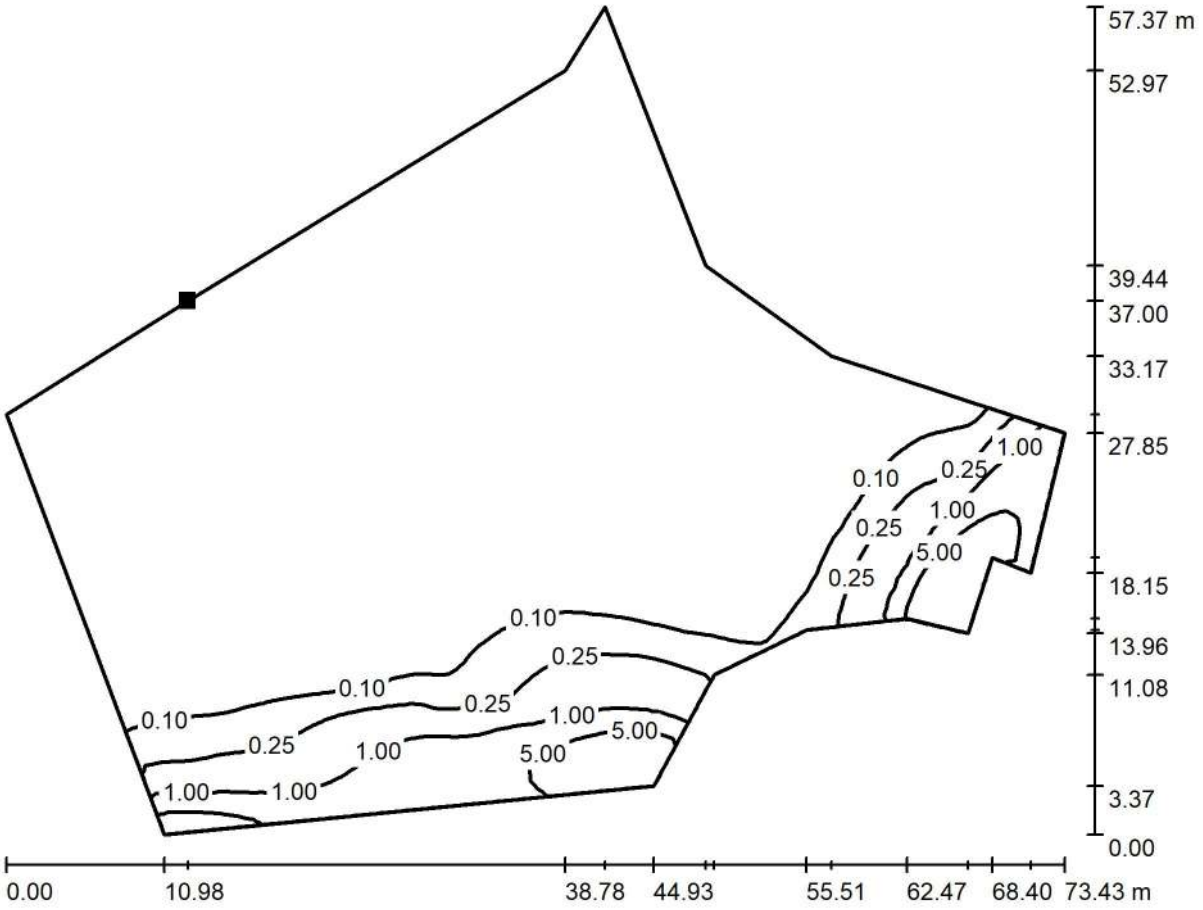
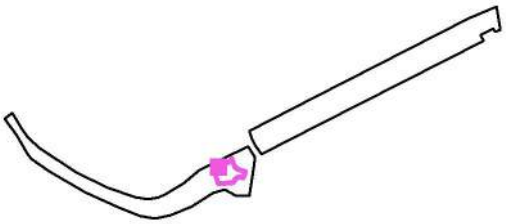
Greenway / Stream to Path Area 12 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 525

Position of surface in external scene:
Marked point:
(-1968.843 m, 599.777 m, 0.000 m)



Grid: 128 x 64 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.49	0.00	11	0.002	0.000

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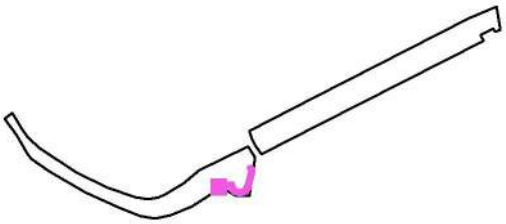
Greenway / Offside Margin Area 12 / Isolines (E, Perpendicular)

Values in Lux, Scale 1 : 566

Position of surface in external scene:
Marked point:
(-1968.051 m, 554.088 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
2.82	0.07	10	0.026	0.007

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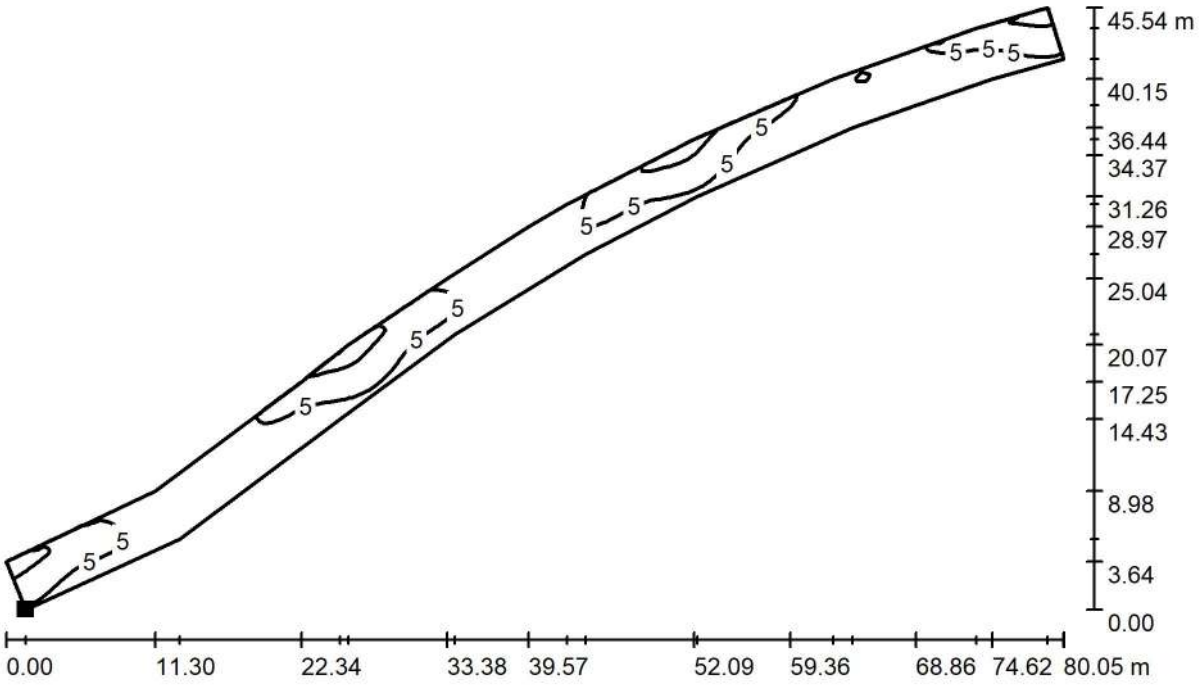
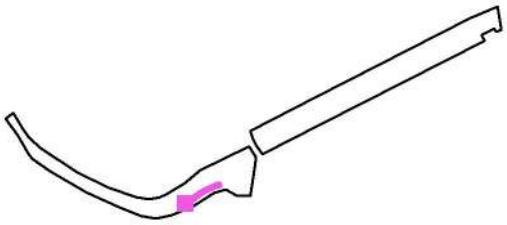
Greenway / Walkway / Cycleway Area 13 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 573

Position of surface in external scene:
Marked point:
(-2048.053 m, 516.584 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.04	0.75	12	0.148	0.062

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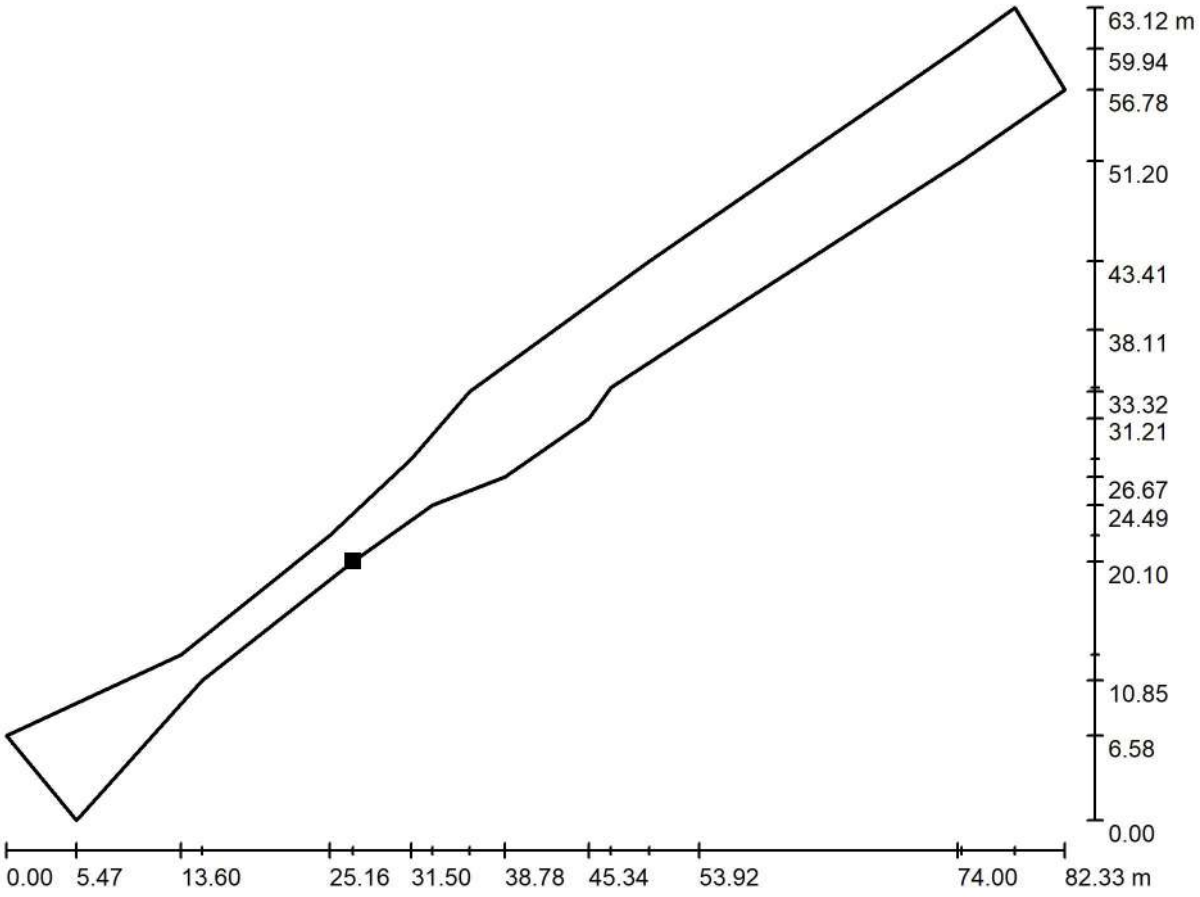
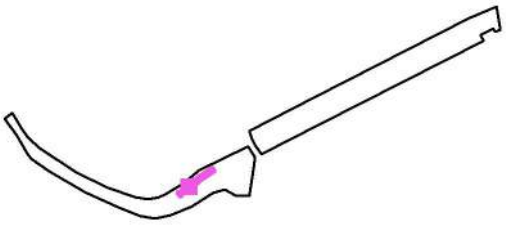
Greenway / Whitestown Stream Area 13 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 589

Position of surface in external scene:
Marked point:
(-2036.798 m, 555.240 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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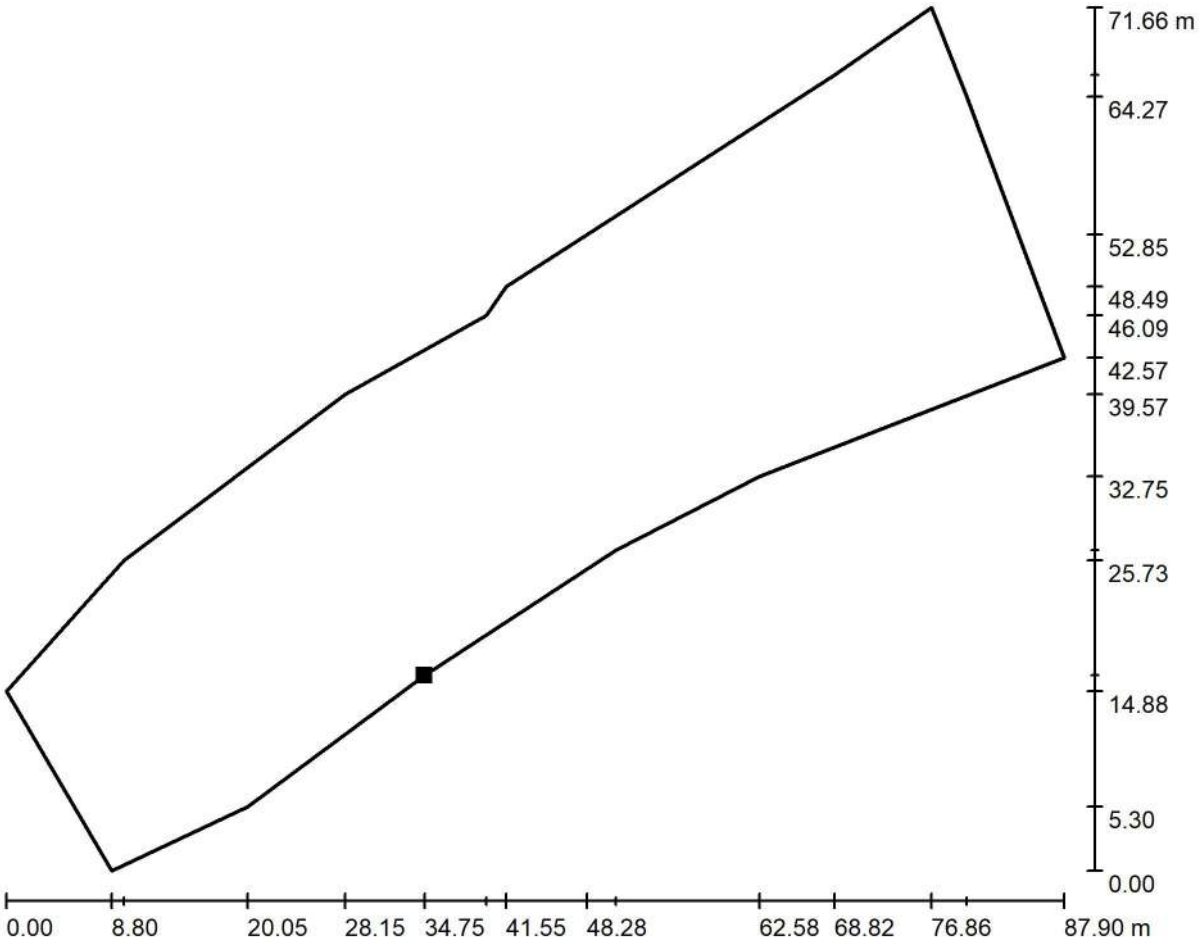
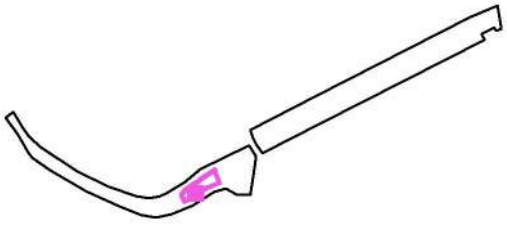
Greenway / Stream to Path Area 13 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 629

Position of surface in external scene:
Marked point:
(-2023.560 m, 536.462 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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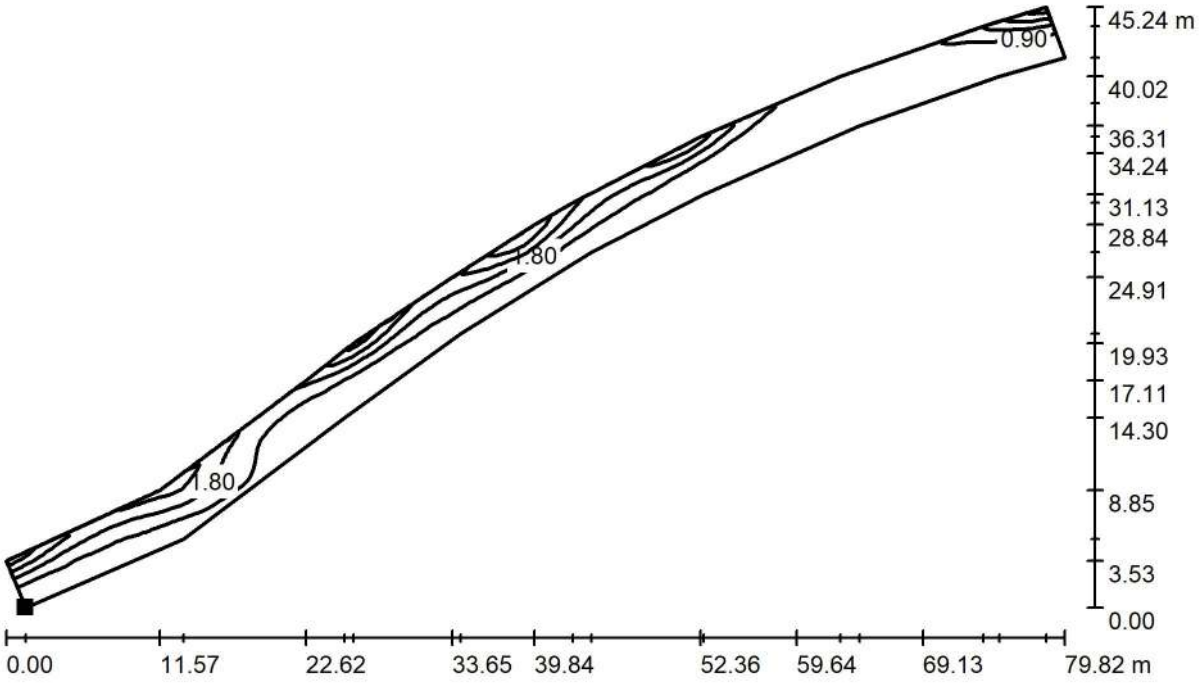
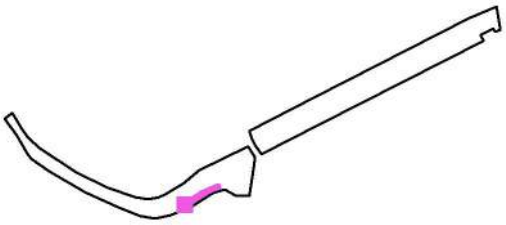
Greenway / Offside Margin Area 13 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 571

Position of surface in external scene:
Marked point:
(-2046.521 m, 513.024 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.05	0.05	4.57	0.048	0.011

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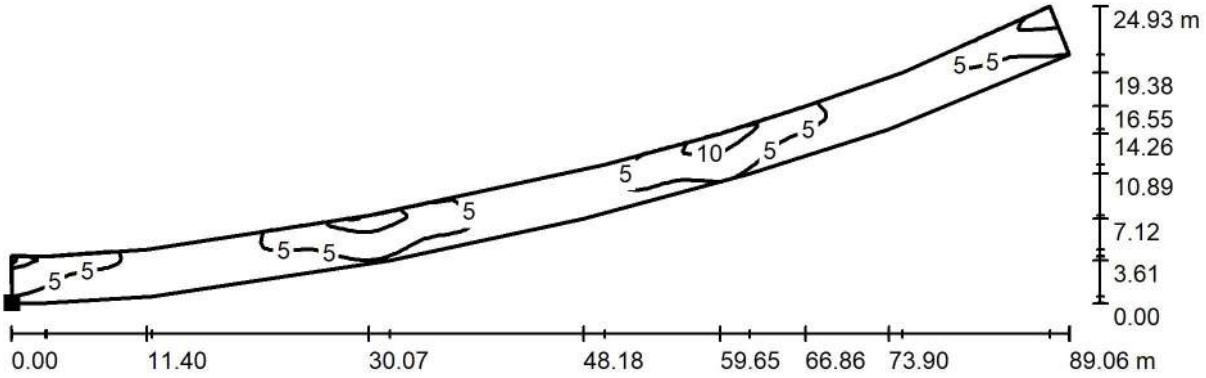
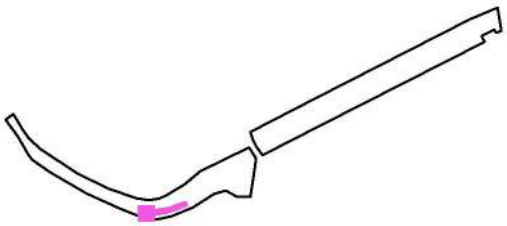
Greenway / Walkway / Cycleway Area 14 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 637

Position of surface in external scene:
Marked point:
(-2137.261 m, 495.680 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.24	1.36	12	0.258	0.113

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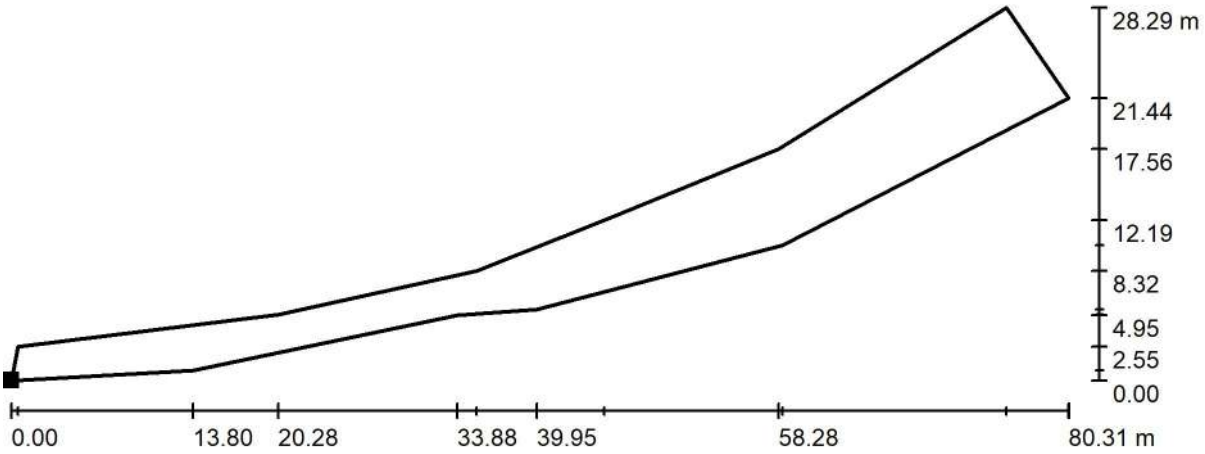
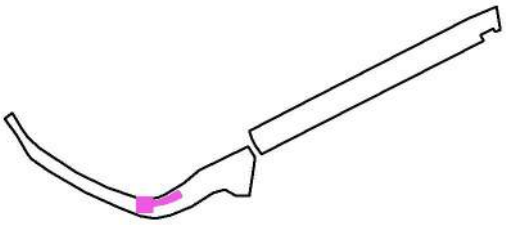
Greenway / Whitestown Stream Area 14 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 575

Position of surface in external scene:
Marked point:
(-2139.388 m, 513.430 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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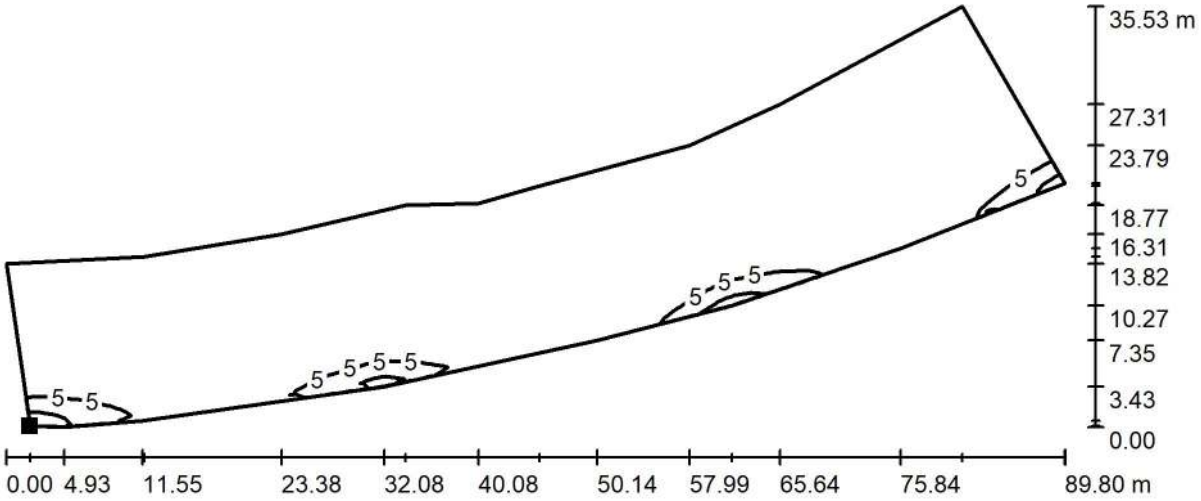
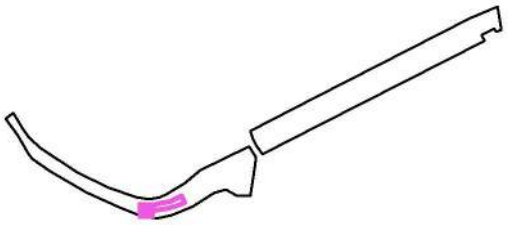
Greenway / Stream to Path Area 14 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 642

Position of surface in external scene:
Marked point:
(-2137.354 m, 499.696 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.81	0.00	12	0.005	0.000

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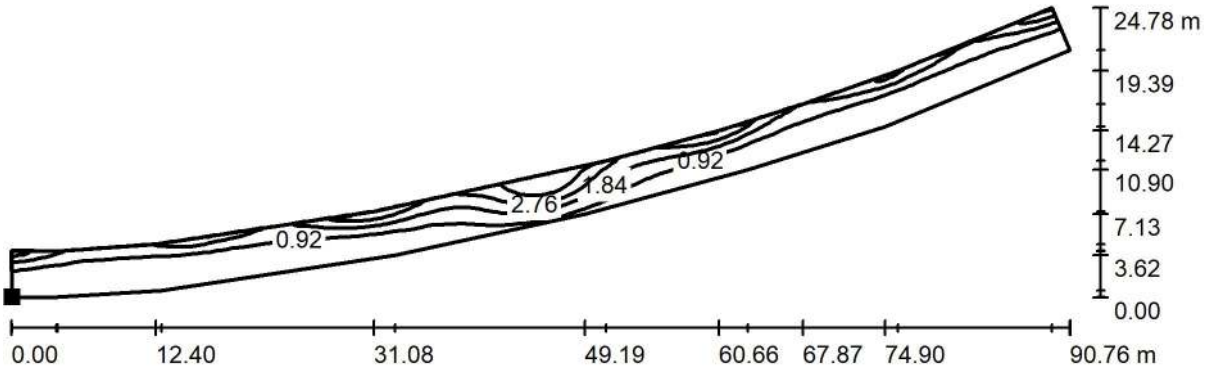
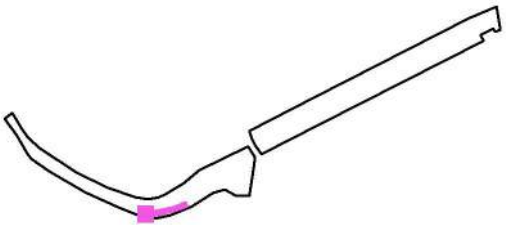
Greenway / Offside Margin Area 14 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 649

Position of surface in external scene:
Marked point:
(-2137.054 m, 491.637 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.17	0.06	4.68	0.054	0.013

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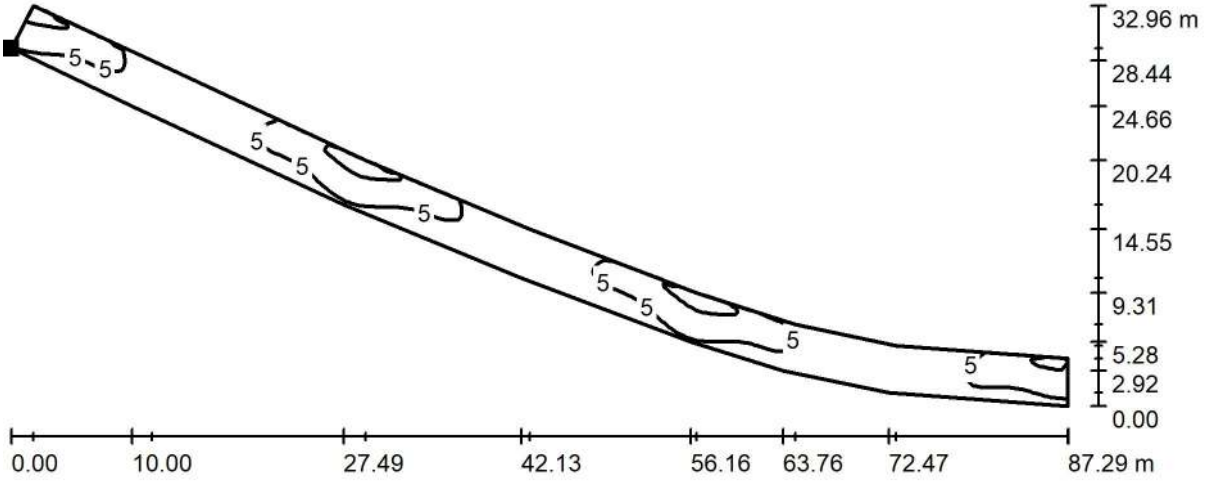
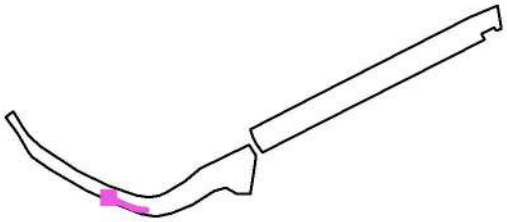
Greenway / Walkway / Cycleway Area 15 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 625

Position of surface in external scene:
Marked point:
(-2224.566 m, 525.143 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.25	1.04	12	0.198	0.086

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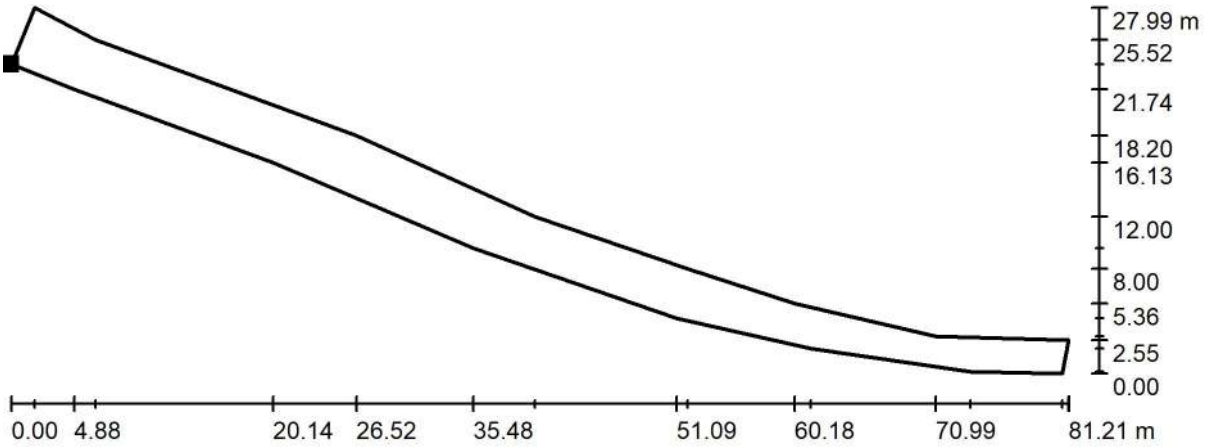
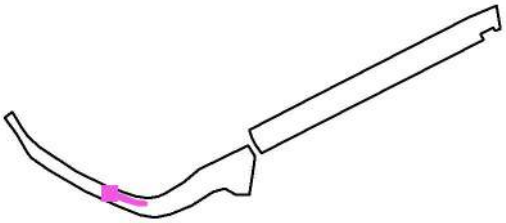
Greenway / Whitestown Stream 15 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 581

Position of surface in external scene:
Marked point:
(-2220.068 m, 537.107 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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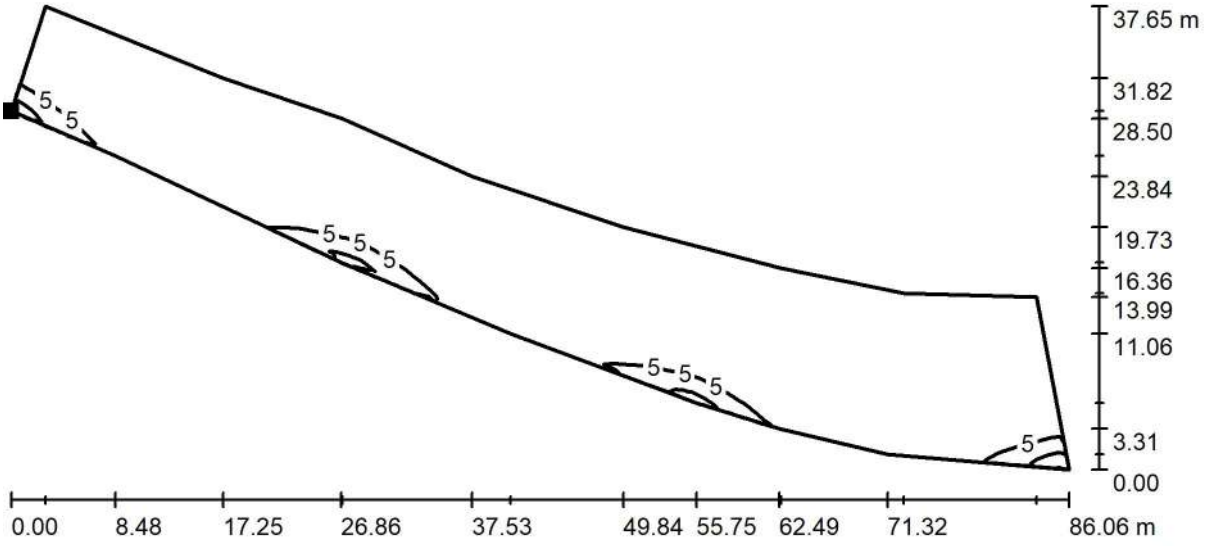
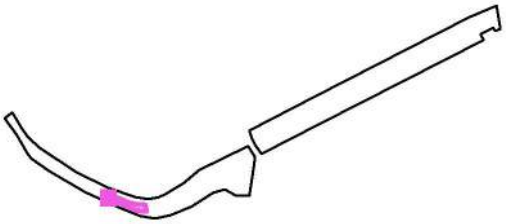
Greenway / Stream to Path Area 15 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 616

Position of surface in external scene:
Marked point:
(-2222.797 m, 528.574 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.90	0.01	12	0.007	0.001

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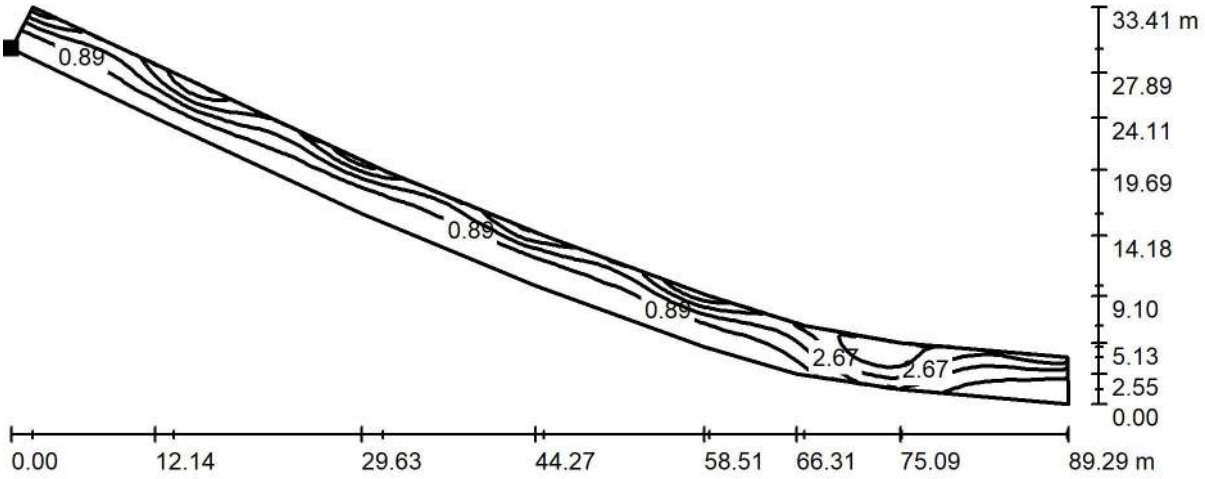
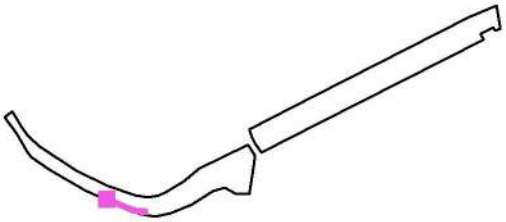
Greenway / Offside Margin Area 15 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 639

Position of surface in external scene:
Marked point:
(-2226.381 m, 521.586 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.50	0.08	4.75	0.056	0.018

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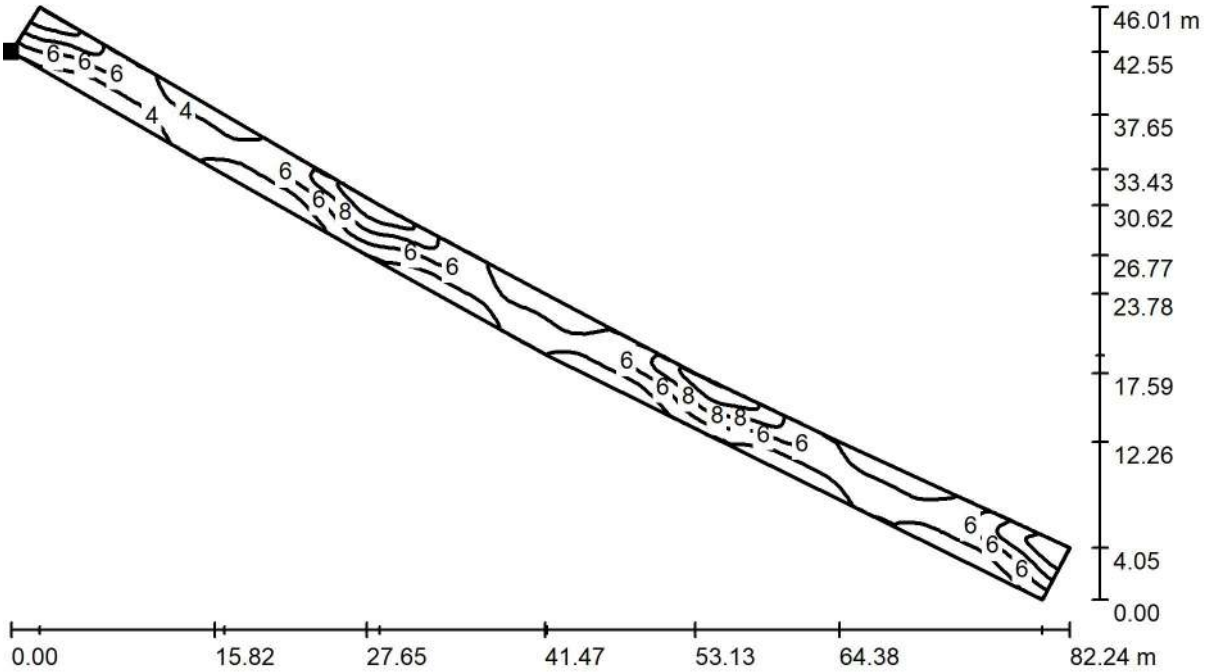
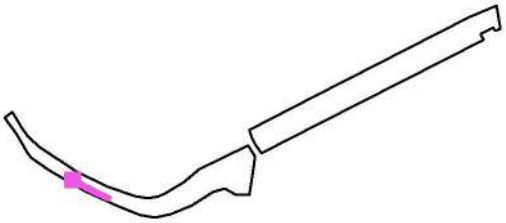
Greenway / Walkway / Cycleway Area 16 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 588

Position of surface in external scene:
Marked point:
(-2304.740 m, 567.623 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.41	2.25	12	0.416	0.187

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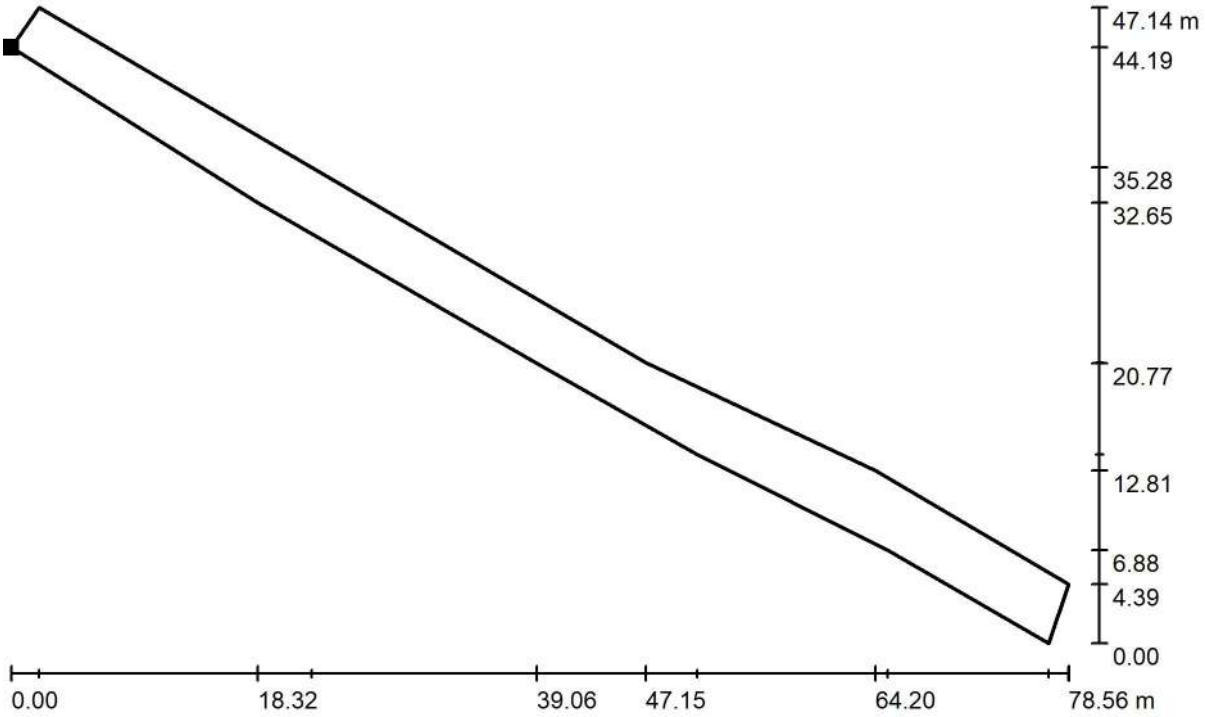
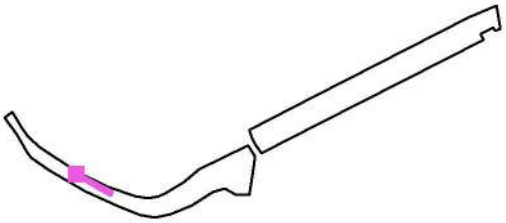
Greenway / Whitestown Stream 16 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 562

Position of surface in external scene:
Marked point:
(-2296.826 m, 581.218 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.769

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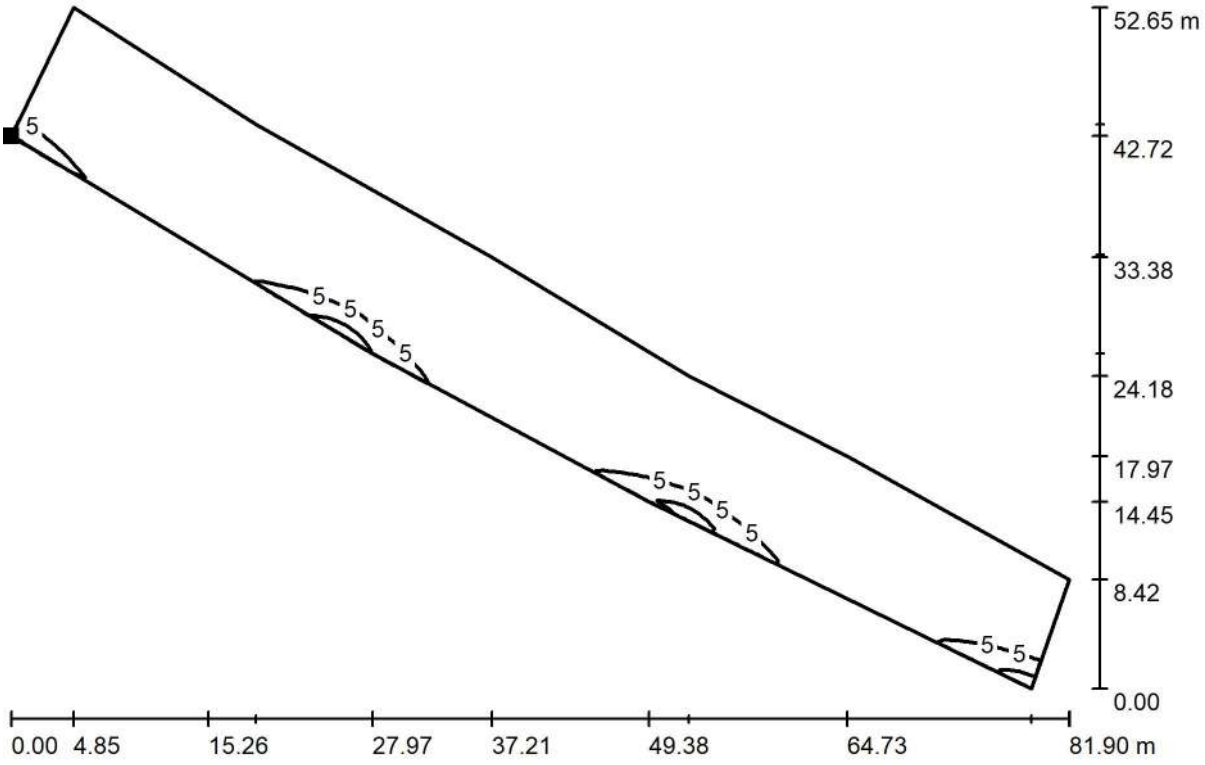
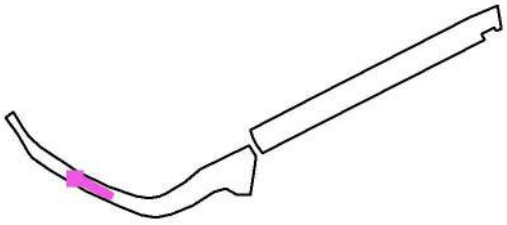
Greenway / Stream to Path Area 16 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 586

Position of surface in external scene:
Marked point:
(-2301.679 m, 571.280 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.05	0.01	12	0.011	0.001

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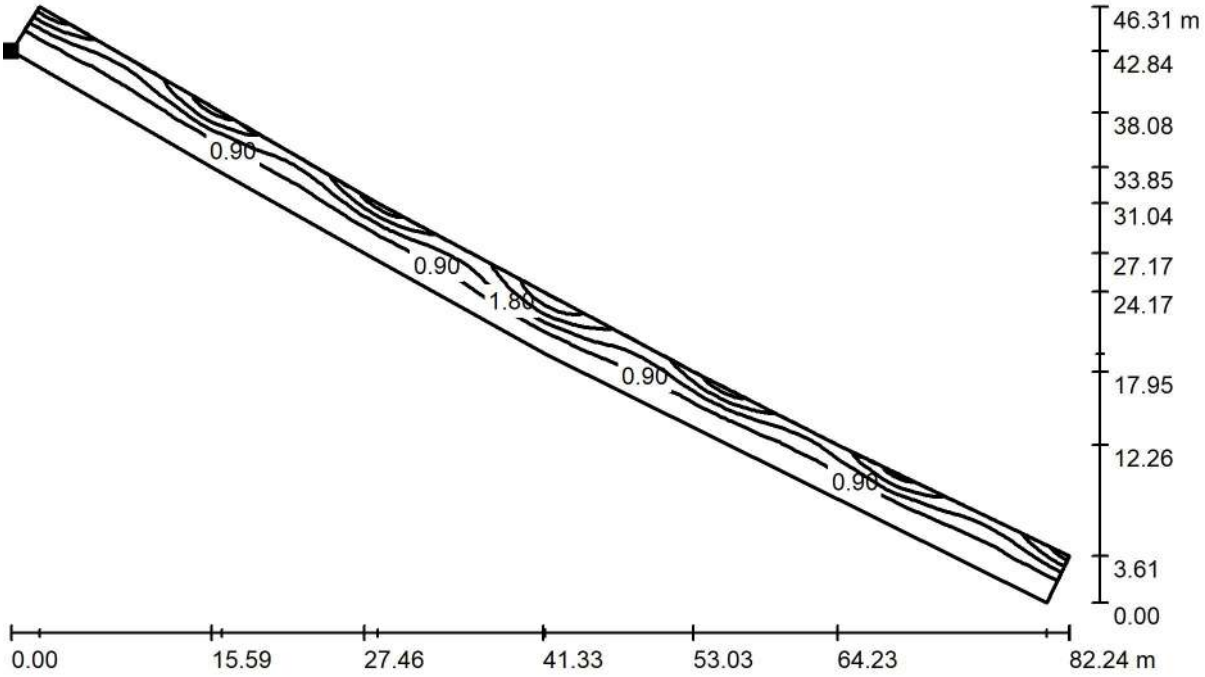
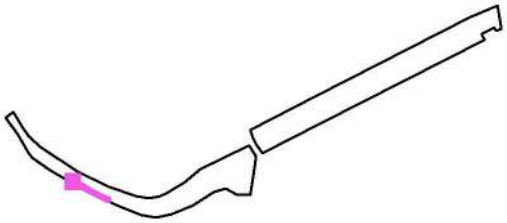
Greenway / Offside Margin Area 16 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 588

Position of surface in external scene:
Marked point:
(-2306.852 m, 564.341 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.30	0.11	4.63	0.082	0.023

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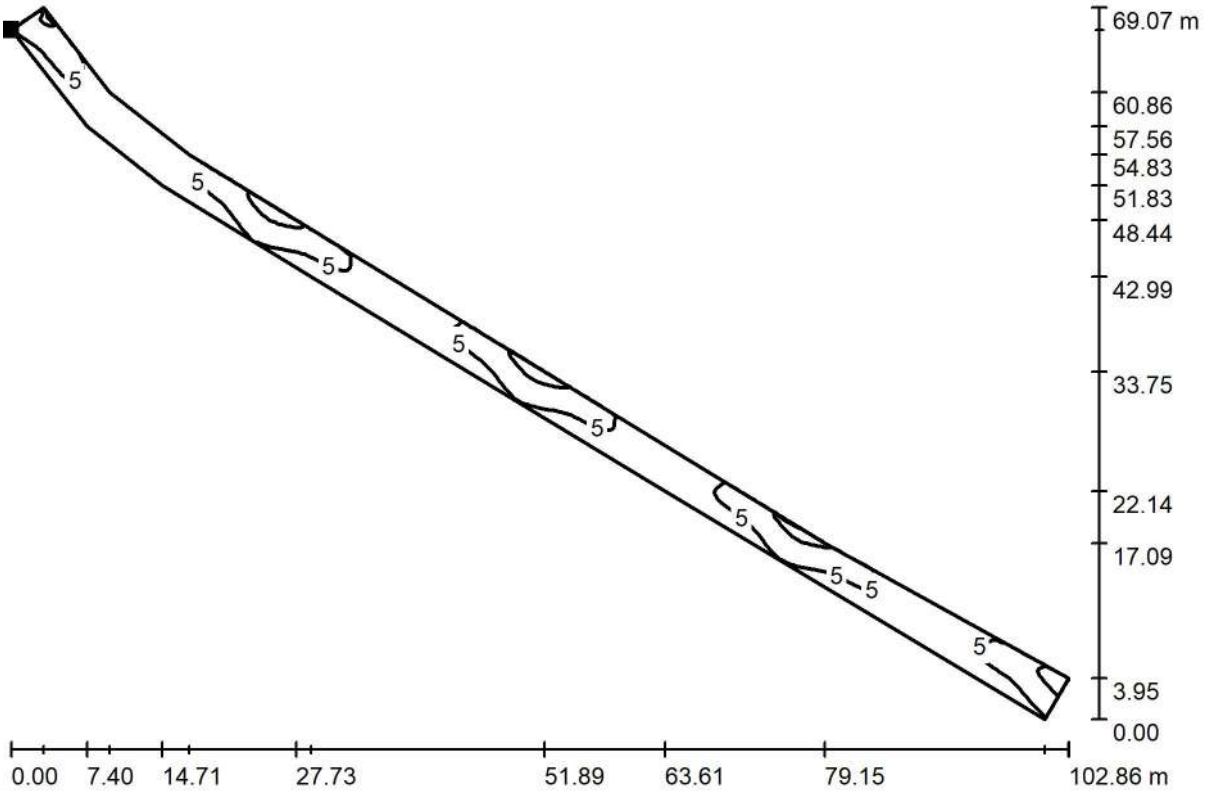
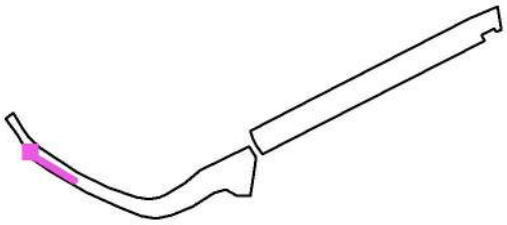
Greenway / Walkway / Cycleway Area 17 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 736

Position of surface in external scene:
Marked point:
(-2404.926 m, 634.442 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.32	1.50	12	0.283	0.125

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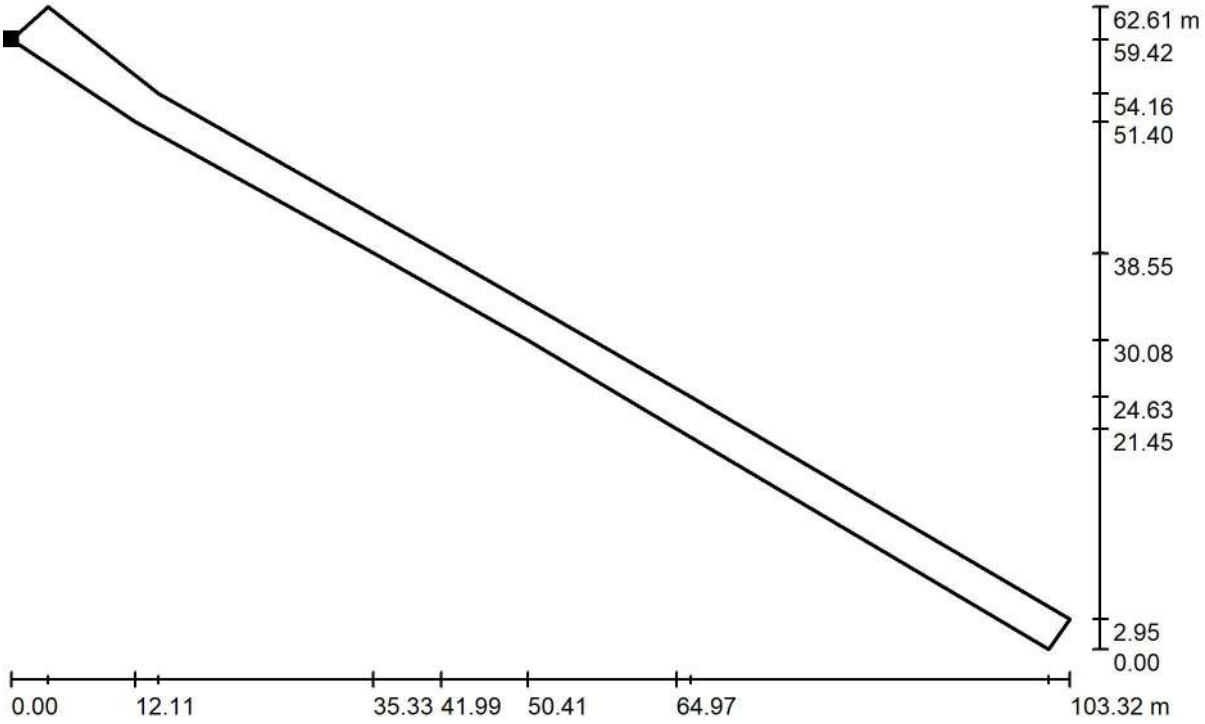
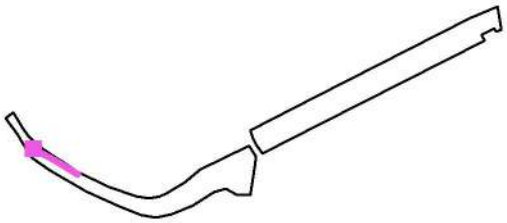
Greenway / Whitestown Stream 17 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 739

Position of surface in external scene:
Marked point:
(-2398.071 m, 640.641 m, -1.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
0.00	0.00	0.00	0.000	0.000

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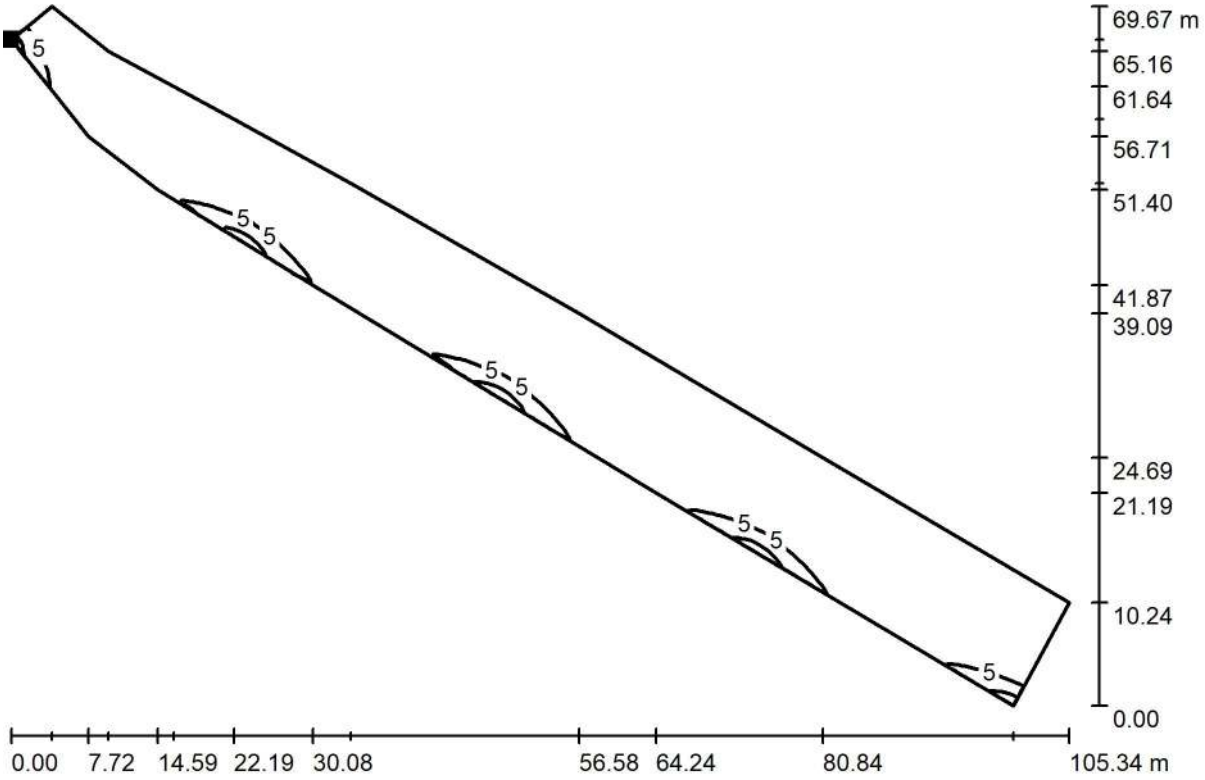
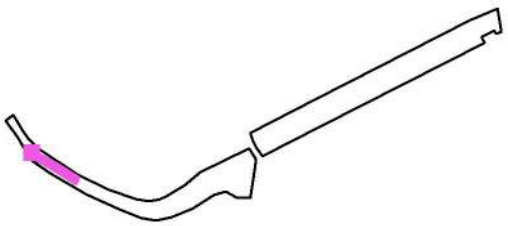
Greenway / Stream to Path Area 17 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 754

Position of surface in external scene:
Marked point:
(-2402.169 m, 637.302 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.04	0.01	12	0.010	0.001

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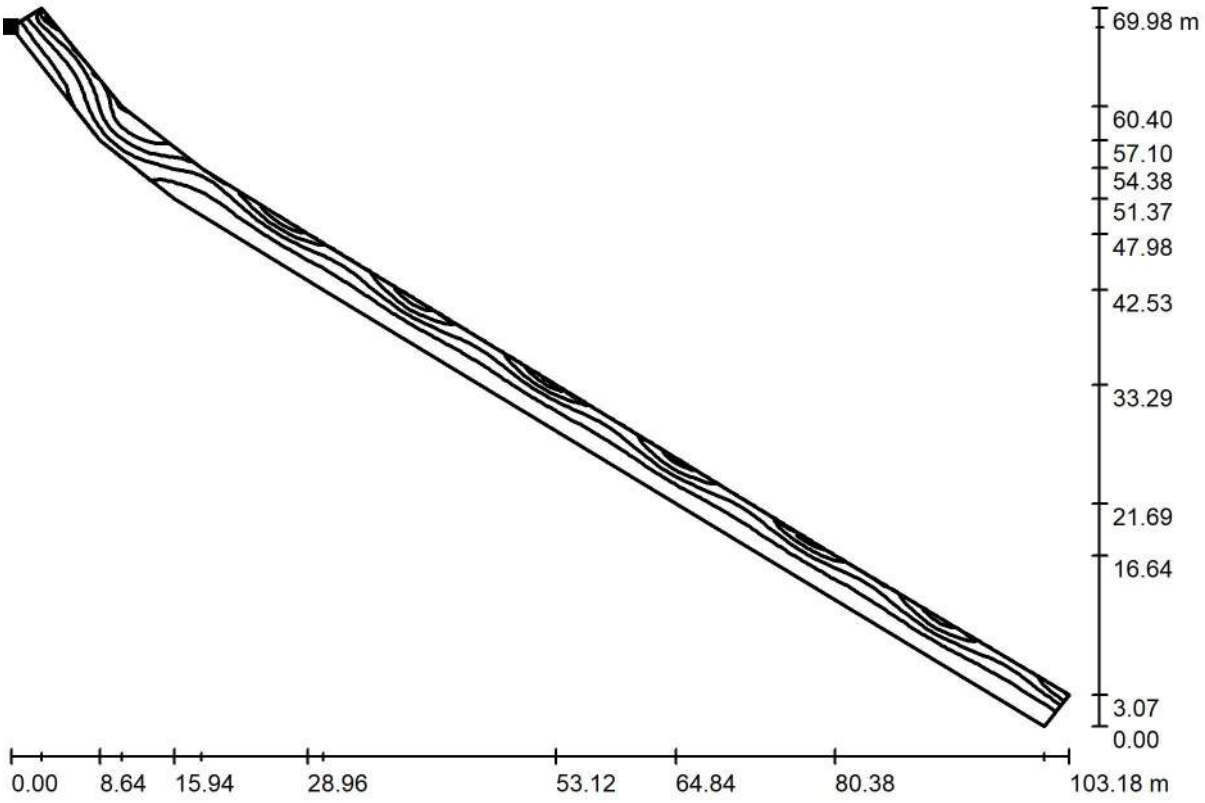
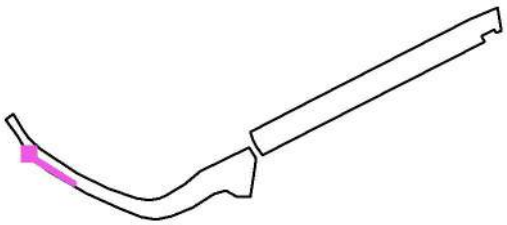
Greenway / Offside Margin Area 17 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 738

Position of surface in external scene:
Marked point:
(-2407.786 m, 632.523 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.39	0.12	4.40	0.083	0.026

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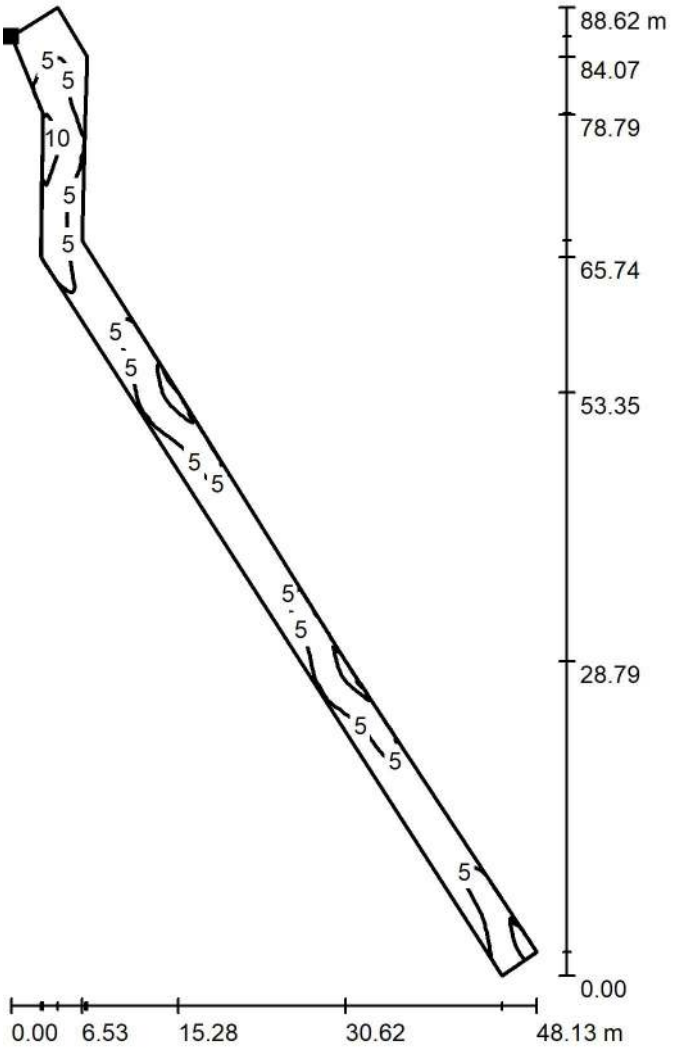
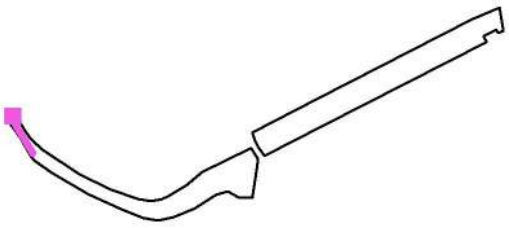
Greenway / Walkway / Cycleway Area 18 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 693

Position of surface in external scene:
Marked point:
(-2449.983 m, 720.608 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
5.48	0.18	12	0.034	0.015

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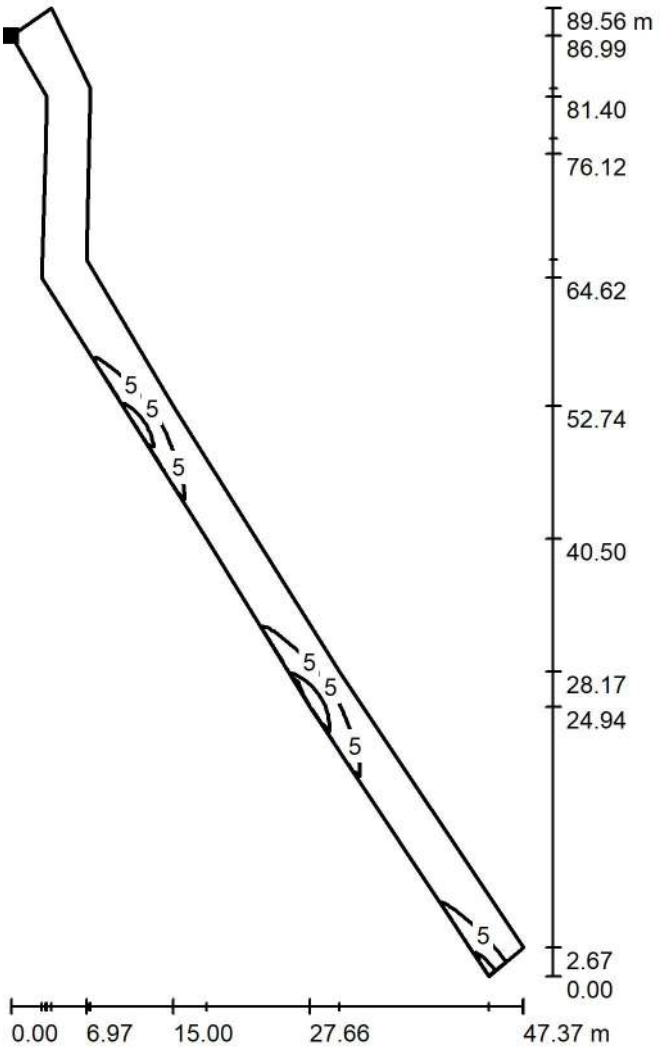
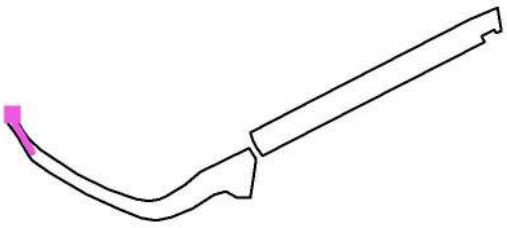
Greenway / Nearside Margin Area 18 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 701

Position of surface in external scene:
Marked point:
(-2446.303 m, 724.313 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
2.53	0.09	12	0.037	0.008

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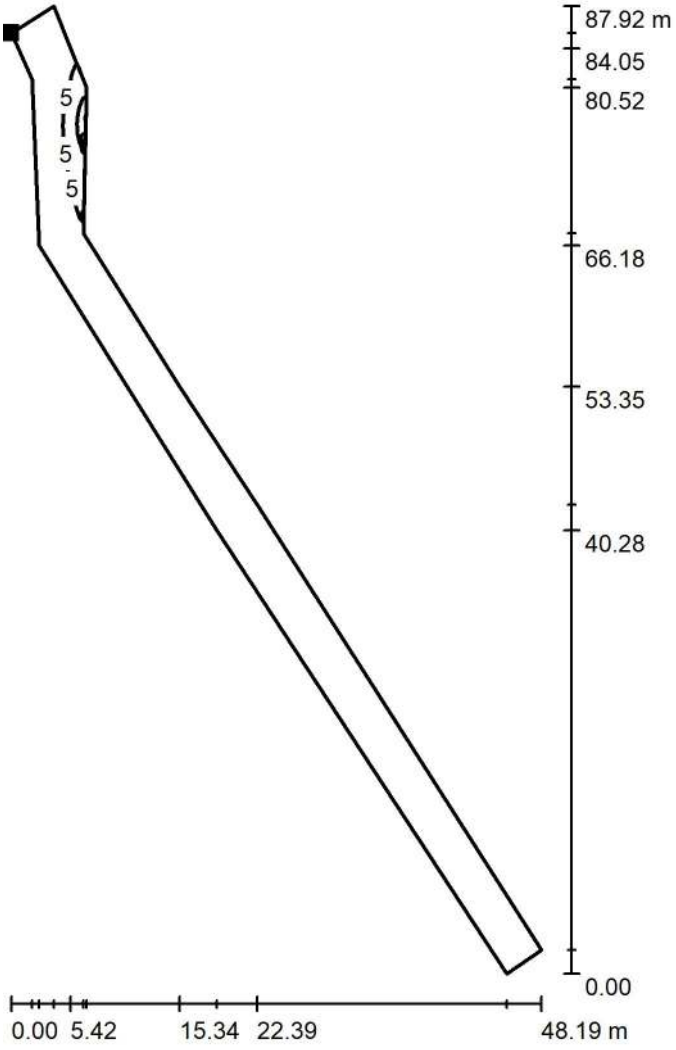
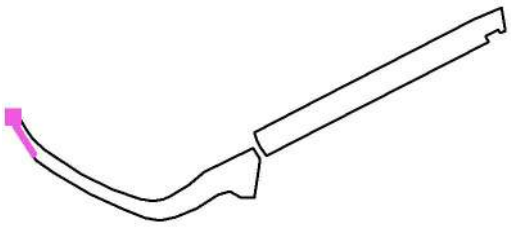
Greenway / Offside Margin Area 18 / Isolines (E, Perpendicular)



Values in Lux, Scale 1 : 688

Position of surface in external scene:
Marked point:
(-2453.957 m, 718.500 m, 0.000 m)



Grid: 128 x 32 Points

E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0	E_{min} / E_{max}
1.58	0.08	12	0.049	0.007

APPENDIX B

SCHRÉDER AXIA 2
LUMINAIRE DATA SHEET

Schréder
Experts in lightability™

ROAD

AXIA 2

owlet®

PRO FLEX™

The most comprehensive and economical LED lighting solution

AXIA 2 provides the most comprehensive and best value LED solution for lighting any road, street or pedestrian area. It offers all the advantages of LED lighting, without the high cost associated with LEDs.

With its photometric engine providing light distributions adapted to various applications, AXIA 2 is one of the highest performing luminaires available on the market to offer a fast return on investment.

Building on the strengths of the ground breaking AXIA, this second-generation luminaire, is designed to be the ultimate multi-purpose fixture, providing a cost-effective solution for those looking to reduce their energy costs.

IP 66 | IK 10 | IK 09 | IK 08

URBAN & RESIDENTIAL STREETS | BIKE & PEDESTRIAN PATHS | RAILWAY STATIONS & METROS | CAR PARKS | LARGE AREAS | SQUARES & PEDESTRIAN AREAS | ROADS & MOTORWAYS

Concept

AXIA 2 is composed of a high-pressure, die-cast aluminium body, universal fixation and a polycarbonate protector with integrated lenses.

For optimised heat dissipation, the electronical components and the LED engine are in separate compartments and juxtaposed in a horizontal section. The body integrates cooling fins to maintain performance in the long term.

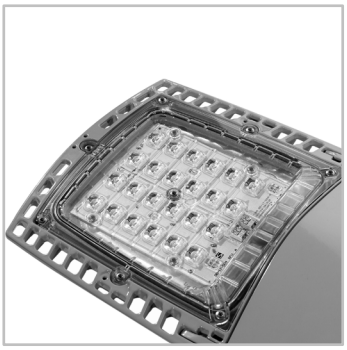
Available in two sizes, AXIA 2 is a very efficient LED lighting solution for streets, roads and any other outdoor environments where it is crucial to maximise energy savings.

The complete range is available with a universal fixation adapted for side-entry (Ø32, Ø42, Ø48 or Ø60mm) and post-top (Ø60 or Ø60mm) mounting. The inclination angle can be adjusted on-site in steps of 2.5°.

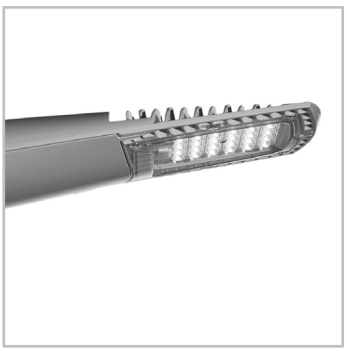
With its high ingress protection (IP 66) and strong resistance to impacts (IK 08 to IK 10), AXIA 2 is built to withstand harsh conditions and to deliver a quality lighting with the minimum power consumption over decades.

Universal fixation for side-entry or post-top mounting with adjustable inclination in steps of 2.5°.

Easy access to the electronical compartment for maintenance.



ProFlex™ photometric engine for precise light distributions with the highest efficiency.



Cooling fins for optimised thermal management and long lasting performance.

TYPES OF APPLICATION

- URBAN & RESIDENTIAL STREETS
- BIKE & PEDESTRIAN PATHS
- RAILWAY STATIONS & METROS
- CAR PARKS
- LARGE AREAS
- SQUARES & PEDESTRIAN AREAS
- ROADS & MOTORWAYS

KEY ADVANTAGES

- Cost-effective and efficient lighting solution for a fast return on investment
- Smart City connectivity
- Photometric engine with light distributions adapted to various applications
- ThermiX® for long lasting performance
- FutureProof: follows the principles of circular economy
- Universal fixation adapted for side-entry and post-top mounting
- Adjustable inclination in steps of 2.5°

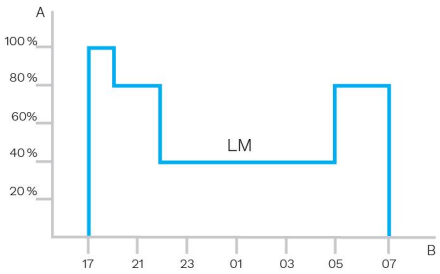
ProFlex™

The ProFlex™ photometric engine integrates the lenses into a polycarbonate protector. This integration increases the output and reduces the reflection inside the optical unit. The polycarbonate used for the ProFlex™ photometric engine offers essential characteristics such as high optical clarity for a superior light transmission, better impact resistance compared to glass and a long life span with UV-stabilisation treatment. The ProFlex™ concept enables a compact design with a thin optical compartment. It provides extensive light distributions so that the spacing between the luminaires can be increased.

Custom dimming profile

Intelligent luminaire drivers can be programmed with complex dimming profiles. Up to five combinations of time intervals and light levels are possible. This feature does not require any extra wiring.

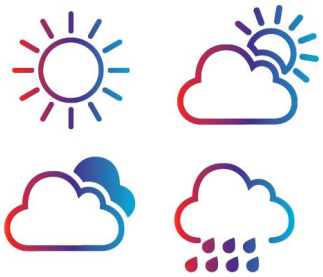
The period between switching on and switching off is used to activate the preset dimming profile. The customised dimming system generates maximum energy savings while respecting the required lighting levels and uniformity throughout the night.



A. Dimming level | B. Time

Daylight sensor / photocell

Photocell or daylight sensors switch the luminaire on as soon natural light falls to a certain level. It can be programmed to switch on during a storm, on a cloudy day (in critical areas) or only at nightfall so as to provide safety and comfort in public spaces.



PIR sensor: motion detection

In places with little nocturnal activity, lighting can be dimmed to a minimum most of the time. By using passive infrared (PIR) sensors, the level of light can be raised as soon as a pedestrian or a slow vehicle is detected in the area.

Each luminaire level can be configured individually with several parametres such as minimum and maximum light output, delay period and ON/OFF duration time. PIR sensors can be used in an autonomous or interoperable network.

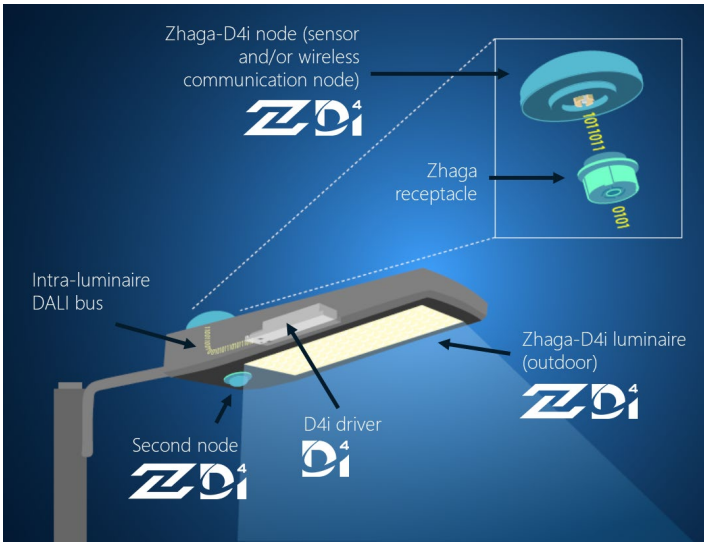
The Zhaga consortium joined forces with the DiiA and produced a single Zhaga-D4i certification that combines the Zhaga Book 18 version 2 outdoor connectivity specifications with the DiiA's D4i specifications for intra-luminaire DALI.

Standardisation for interoperable ecosystems

As a founding member of the Zhaga consortium, Schréder has participated in the creation of, and therefore supports, the Zhaga-D4i certification program and the initiative of this group to standardise an interoperable ecosystem. The D4i specifications take the best of the standard DALI2 protocol and adapt it to an intra-luminaire environment but it has certain limitations. Only luminaire mounted control devices can be combined with a Zhaga-D4i luminaire. According to the specification, control devices are limited respectively to 2W and 1W average power consumption.

Certification program

The Zhaga-D4i certification covers all the critical features including mechanical fit, digital communication, data reporting and power requirements within a single luminaire, ensuring plug-and-play interoperability of luminaires (drivers) and peripherals such as connectivity nodes.



Cost-effective solution

A Zhaga-D4i certified luminaire includes drivers offering features that had previously been in the control node, like energy metering, which has in turn simplified the control device therefore reducing the price of the control system.

2 sockets: top and bottom

The Zhaga socket is small and suited to applications where aesthetics is essential. The architecture of Zhaga-D4i also foresees the possibility of putting two sockets on one luminaire, allowing for instance, the combination of a detection sensor and a control node. This also has the added value of standardising certain detection sensor communications with the D4i protocol.

Schréder EXEDRA is the most advanced lighting management system on the market for controlling, monitoring and analysing streetlights in a user-friendly way.

Standardisation for interoperable ecosystems

Schréder plays a key role in driving standardisation with alliances and partners such as uCIFI, TALQ or Zhaga. Our joint commitment is to provide solutions designed for vertical and horizontal IoT integration. From the body (hardware) to the language (data model) and the intelligence (algorithms), the complete Schréder EXEDRA system relies on shared and open technologies.

Schréder EXEDRA also relies on Microsoft™ Azure for cloud services, provided with the highest levels of trust, transparency, standards conformance and regulatory compliance.

Breaking the silos

With EXEDRA, Schréder has taken a technology-agnostic approach: we rely on open standards and protocols to design an architecture able to interact seamlessly with third-party software and hardware solutions. Schréder EXEDRA is designed to unlock complete interoperability, as it offers the ability to:

- control devices (luminaires) from other brands
- manage controllers and to integrate sensors from other brands
- connect with third-party devices and platforms

A plug-and-play solution

As a gateway-less system using the cellular network, an intelligent automated commissioning process recognises, verifies and retrieves luminaire data into the user interface. The self-healing mesh between luminaire controllers enables real-time adaptive lighting to be configured directly via the user interface.

Tailored experience

Schréder EXEDRA includes all advanced features needed for smart device management, real-time and scheduled control, dynamic and automated lighting scenarios, maintenance and field operation planning, energy consumption management and third-party connected hardware integration. It is fully configurable and includes tools for user management and multi-tenant policy that enables contractors, utilities or big cities to segregate projects.

A powerful tool for efficiency, rationalisation and decision making

Data is gold. Schréder EXEDRA brings it with all the clarity managers need to drive decisions. The platform collects massive amounts of data from end devices and, aggregates, analyses and intuitively displays them to help end-users take the right actions.

Protected on every side

Schréder EXEDRA provides state-of-the-art data security with encryption, hashing, tokenisation, and key management practices that protect data across the whole system and its associated services.

GENERAL INFORMATION

Recommended installation height	5m to 10m | 16' to 33'
Driver included	Yes
CE mark	Yes
ENEC+ certified	Yes
ROHS compliant	Yes
Zhaga-D4i certified	Yes
French law of December 27th 2018 - Compliant with application type(s)	a, b, c, d, e, f, g
Testing standard	LM 79-08 (all measurements in ISO17025 accredited laboratory)

HOUSING AND FINISH

Housing	Aluminium
Optic	Polycarbonate
Protector	Polycarbonate (with integrated lenses)
Housing finish	Polyester powder coating
Standard colour(s)	RAL 7040 window grey
Tightness level	IP 66
Impact resistance	IK 08, IK 09, IK 10
Vibration test	Compliant with modified IEC 68-2-6 (0.5G)
Access for maintenance	By loosening screws on the bottom cover

· Any other RAL or AKZO colour upon request

· IK may be different according to the size/configurations. Please consult us.

OPERATING CONDITIONS

Operating temperature range (Ta)	-30°C up to +50°C / -22°F up to 122°F

· Depending on the luminaire configuration. For more details, please contact us.

ELECTRICAL INFORMATION

Electrical class	Class I EU, Class II EU
Nominal voltage	220-240V – 50-60Hz
Power factor (at full load)	0.9
Surge protection options (kV)	10
Electromagnetic compatibility (EMC)	EN 55015 / EN 61000-3-2 / EN 61000-4-5 / EN 61547
Control protocol(s)	1-10V, DALI
Control options	AmpDim, Bi-power, Custom dimming profile, Photocell, Remote management
Socket	Zhaga (optional) NEMA 3-pin (optional) NEMA 6-pin (optional) NEMA 7-pin (optional)
Associated control system(s)	Owlet Nightshift Owlet IoT Schréder EXEDRA
Sensor	PIR (optional)

OPTICAL INFORMATION

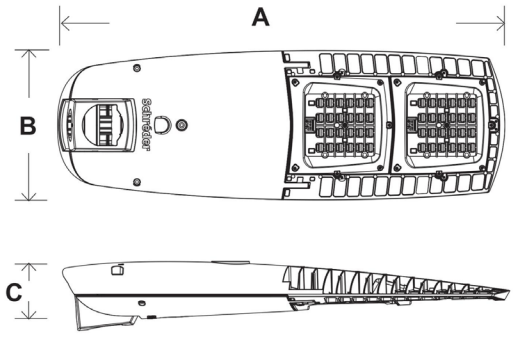
LED colour temperature	2700K (Warm White 727) 3000K (Warm White 730) 3000K (Warm White 830) 4000K (Neutral White 740)
Colour rendering index (CRI)	>70 (Warm White 727) >70 (Warm White 730) >80 (Warm White 830) >70 (Neutral White 740)
Upward Light Output Ratio (ULOR)	0%

LIFETIME OF THE LEDS @ TQ 25°C

All configurations	100,000h - L90

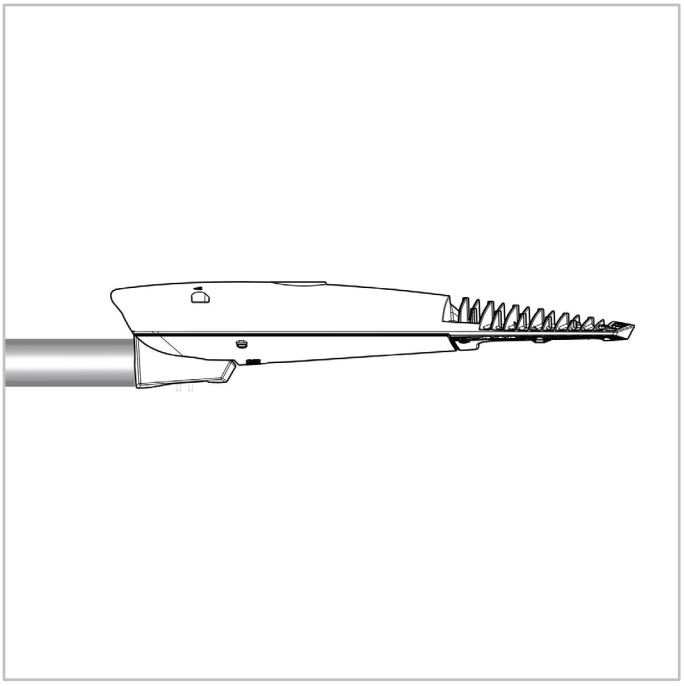
DIMENSIONS AND MOUNTING

AxBxC (mm | inch)	AXIA 2.1 - 650x132x250 | 25.6x5.2x9.8 AXIA 2.2 - 895x132x300 | 35.2x5.2x11.8
Weight (kg | lbs)	AXIA 2.1 - 6.7 | 14.7 AXIA 2.2 - 9.5 | 20.9
Aerodynamic resistance (CxS)	AXIA 2.1 - 0.05 AXIA 2.2 - 0.07
Mounting possibilities	Side-entry slip-over – Ø32mm Side-entry slip-over – Ø42mm Side-entry slip-over – Ø48mm Side-entry slip-over – Ø60mm Post-top slip-over – Ø60mm Post-top slip-over – Ø76mm



AXIA 2 | Post-top - Slip-over mounting for Ø60 or Ø76mm spigot - 2xM10 screws

AXIA 2 | Side-entry - Slip-over mounting for Ø32 (with accessory) or Ø42-60mm spigot - 2xM10 screws



Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Neutral White 740		Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Warm White 830		Power consumption (W)		Luminaire efficacy (lm/W)	Photometry
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Up to	
AXIA 2.1	4	300	200	500	-	-	-	-	-	-	5.1	5.1	98	PRO FLEX
	4	300	-	-	200	500	200	500	200	500	5	5	100	PRO FLEX
	4	350	200	600	-	-	-	-	-	-	5.8	5.8	103	PRO FLEX
	4	350	-	-	200	600	200	600	200	500	5.7	5.7	105	PRO FLEX
	4	400	200	700	-	-	-	-	-	-	6.5	6.5	108	PRO FLEX
	4	400	-	-	200	600	200	700	200	600	6.4	6.4	109	PRO FLEX
	4	500	300	800	-	-	-	-	-	-	8	8	100	PRO FLEX
	4	500	-	-	300	800	300	800	300	700	7.8	7.8	103	PRO FLEX
	4	600	300	1000	-	-	-	-	-	-	9.4	9.4	106	PRO FLEX
	4	600	-	-	300	900	400	1000	300	900	9.2	9.2	109	PRO FLEX
	4	680	400	1100	-	-	-	-	-	-	10.6	10.6	104	PRO FLEX
	4	680	-	-	400	1000	400	1100	400	1000	10.3	10.3	107	PRO FLEX
	8	300	400	1100	-	-	-	-	-	-	9.3	9.3	118	PRO FLEX
	8	300	-	-	400	1000	400	1000	400	1000	9	9	122	PRO FLEX
	8	350	400	1200	-	-	-	-	-	-	10.6	10.6	113	PRO FLEX
	8	350	-	-	400	1200	500	1200	400	1100	10.3	10.3	117	PRO FLEX
	8	400	500	1400	-	-	-	-	-	-	11.9	11.9	118	PRO FLEX
	8	400	-	-	500	1300	500	1400	500	1300	11.6	11.6	121	PRO FLEX
	8	500	600	1700	-	-	-	-	-	-	14.5	14.5	117	PRO FLEX
	8	500	-	-	600	1600	700	1700	600	1500	14.2	14.2	120	PRO FLEX
	8	600	700	2000	-	-	-	-	-	-	17.4	17.4	115	PRO FLEX
	8	600	-	-	700	1900	800	2000	700	1800	17	17	118	PRO FLEX
	8	700	800	2300	-	-	-	-	-	-	20.2	20.2	114	PRO FLEX
	8	700	-	-	900	2100	900	2200	800	2100	19.7	19.7	117	PRO FLEX
	8	820	1000	2600	-	-	-	-	-	-	23.7	23.7	110	PRO FLEX
	8	820	-	-	1000	2400	1000	2600	900	2400	23.1	23.1	113	PRO FLEX
	16	300	800	2200	-	-	-	-	-	-	16.4	16.4	134	PRO FLEX
	16	300	-	-	800	2000	800	2100	800	2000	15.9	15.9	138	PRO FLEX
	16	350	900	2500	-	-	-	-	-	-	18.8	18.8	133	PRO FLEX
	16	350	-	-	900	2400	1000	2500	900	2300	18.2	18.2	137	PRO FLEX
	16	400	1100	2800	-	-	-	-	-	-	21.4	21.4	131	PRO FLEX

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Neutral White 740		Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Warm White 830		Power consumption (W)		Luminaire efficacy (lm/W)	Photometry
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Up to	
AXIA 2.1	16	400	-	-	1100	2700	1100	2800	1000	2600	20.6	20.6	136	PRO FLEX
	16	500	1300	3500	-	-	-	-	-	-	26.7	26.7	131	PRO FLEX
	16	500	-	-	1300	3300	1400	3400	1300	3100	26.1	26.1	134	PRO FLEX
	16	600	1500	4100	-	-	-	-	-	-	31.7	31.7	129	PRO FLEX
	16	600	-	-	1500	3800	1600	4000	1500	3700	31	31	129	PRO FLEX
	16	700	1800	4600	-	-	-	-	-	-	37	37	124	PRO FLEX
	16	700	-	-	1800	4300	1800	4500	1700	4200	36.1	36.1	127	PRO FLEX
	16	760	1900	5000	-	-	-	-	-	-	40	40	125	PRO FLEX
	16	760	-	-	1900	4600	2000	4800	1800	4500	39.2	39.2	125	PRO FLEX
	24	200	900	2300	-	-	-	-	-	-	15.9	15.9	145	PRO FLEX
	24	200	-	-	800	2100	900	2200	800	2000	15.3	15.3	144	PRO FLEX
	24	300	1300	3300	-	-	-	-	-	-	23.1	23.1	143	PRO FLEX
	24	300	-	-	1200	3100	1300	3200	1200	3000	22.4	22.4	147	PRO FLEX
	24	350	1500	3800	-	-	-	-	-	-	26.8	26.8	142	PRO FLEX
	24	350	-	-	1400	3600	1500	3700	1400	3400	26	26	146	PRO FLEX
	24	400	1700	4300	-	-	-	-	-	-	30.6	30.6	141	PRO FLEX
	24	400	-	-	1600	4000	1700	4200	1600	3900	29.7	29.7	145	PRO FLEX
	24	500	2000	5200	-	-	-	-	-	-	38.2	38.2	136	PRO FLEX
	24	500	-	-	2000	4900	2100	5100	1900	4700	37.2	37.2	140	PRO FLEX
	24	540	2200	5600	-	-	-	-	-	-	41.5	41.5	135	PRO FLEX
	24	540	-	-	2100	5200	2200	5500	2100	5100	40.5	40.5	138	PRO FLEX
	24	600	2400	6100	-	-	-	-	-	-	46.5	46.5	131	PRO FLEX
	24	600	-	-	2300	5700	2400	6000	2300	5600	45.5	45.5	134	PRO FLEX
	24	700	2700	7000	-	-	-	-	-	-	54.5	54.5	128	PRO FLEX
	24	700	-	-	2700	6500	2800	6800	2600	6300	53	53	130	PRO FLEX
	24	800	3000	7800	-	-	-	-	-	-	62.5	62.5	125	PRO FLEX
	24	800	-	-	3000	7300	3100	7600	2900	7100	61	61	126	PRO FLEX
	24	890	3300	8400	-	-	-	-	-	-	69.5	69.5	121	PRO FLEX
	24	890	-	-	3200	7900	3400	8300	3100	7700	68	68	124	PRO FLEX

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

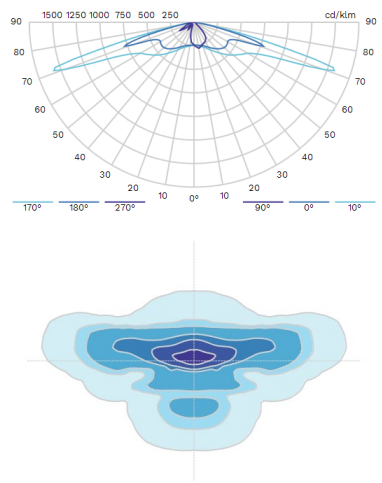
Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Neutral White 740		Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Warm White 830		Power consumption (W)		Luminaire efficacy (lm/W)	Photometry
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Up to	
AXIA 2.2	32	300	1700	4400	-	-	-	-	-	-	30.3	30.3	145	PRO FLEX
	32	300	-	-	3900	4100	4100	4300	3800	4000	29.4	29.4	150	PRO FLEX
	32	350	2000	5100	-	-	-	-	-	-	35.4	35.4	144	PRO FLEX
	32	350	-	-	4500	4800	4700	5000	4400	4600	34.3	34.3	149	PRO FLEX
	32	400	2300	5800	-	-	-	-	-	-	40.5	40.5	143	PRO FLEX
	32	400	-	-	5100	5400	5300	5600	4900	5200	39.3	39.3	145	PRO FLEX
	32	500	2800	7000	-	-	-	-	-	-	50.5	50.5	139	PRO FLEX
	32	500	-	-	6200	6500	6500	6800	6000	6300	49.5	49.5	139	PRO FLEX
	32	600	3200	8200	-	-	-	-	-	-	61	61	134	PRO FLEX
	32	600	-	-	7300	7700	7600	8000	7100	7400	59.5	59.5	136	PRO FLEX
	32	700	3700	9400	-	-	-	-	-	-	69.5	69.5	135	PRO FLEX
	32	700	-	-	8300	8700	8600	9100	8000	8400	67.5	67.5	136	PRO FLEX
	32	800	5800	10300	-	-	-	-	-	-	80	80	129	PRO FLEX
	32	800	-	-	9200	9700	9600	10100	8900	9400	78	78	132	PRO FLEX
	32	860	4300	11000	-	-	-	-	-	-	86	86	128	PRO FLEX
	32	900	6300	11300	-	-	-	-	-	-	90	90	126	PRO FLEX
	32	900	-	-	10100	10600	10500	11100	9800	10300	88	88	128	PRO FLEX
	32	960	4700	12000	-	-	-	-	-	-	97	97	124	PRO FLEX
	32	960	-	-	10600	11200	11100	11600	10300	10800	94	94	127	PRO FLEX
	40	300	2200	5500	-	-	-	-	-	-	37.2	37.2	148	PRO FLEX
	40	300	-	-	4900	5200	5100	5400	4800	5000	36	36	153	PRO FLEX
	40	350	2500	6300	-	-	-	-	-	-	43.5	43.5	145	PRO FLEX
	40	350	-	-	5700	6000	5900	6200	5500	5800	42	42	150	PRO FLEX
	40	400	2800	7200	-	-	-	-	-	-	49.5	49.5	145	PRO FLEX
	40	400	-	-	6400	6700	6700	7000	6200	6500	48	48	148	PRO FLEX
	40	500	3500	8800	-	-	-	-	-	-	60.5	60.5	145	PRO FLEX
	40	500	-	-	7800	8200	8100	8500	7500	7900	59	59	147	PRO FLEX
	40	600	4100	10300	-	-	-	-	-	-	73	73	141	PRO FLEX
	40	600	-	-	9100	9600	9500	10000	8800	9300	71	71	144	PRO FLEX

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Neutral White 740		Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Warm White 830		Power consumption (W)		Luminaire efficacy (lm/W)	Photometry
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Up to	
AXIA 2.2	40	700	4600	11700	-	-	-	-	-	-	86	86	136	PRO FLEX
	40	700	-	-	10400	10900	10800	11400	10000	10600	84	84	138	PRO FLEX
	40	800	5200	13100	-	-	-	-	-	-	99	99	132	PRO FLEX
	40	800	-	-	11500	12100	12000	12700	11200	11800	97	97	133	PRO FLEX
	40	900	5700	14300	-	-	-	-	-	-	113	113	127	PRO FLEX
	40	900	-	-	12700	13300	13200	13900	12300	12900	110	110	128	PRO FLEX
	40	1000	6100	15500	-	-	-	-	-	-	128	128	121	PRO FLEX
	40	1000	-	-	13700	14400	14300	15000	13300	14000	124	124	123	PRO FLEX
	48	200	1800	4500	-	-	-	-	-	-	29.8	29.8	151	PRO FLEX
	48	200	-	-	4100	4300	4200	4500	3900	4100	28.6	28.6	157	PRO FLEX
	48	300	2600	6700	-	-	-	-	-	-	44	44	152	PRO FLEX
	48	300	-	-	5900	6200	6200	6500	5700	6000	42.5	42.5	155	PRO FLEX
	48	350	3000	7600	-	-	-	-	-	-	51.5	51.5	148	PRO FLEX
	48	350	-	-	6800	7200	7100	7500	6600	6900	50	50	152	PRO FLEX
	48	400	3400	8700	-	-	-	-	-	-	59	59	147	PRO FLEX
	48	400	-	-	7700	8100	8000	8400	7400	7800	57	57	151	PRO FLEX
	48	500	4200	10600	-	-	-	-	-	-	73	73	145	PRO FLEX
	48	500	-	-	9300	9800	9800	10300	9100	9500	71	71	146	PRO FLEX
	48	600	4900	12400	-	-	-	-	-	-	88	88	141	PRO FLEX
	48	600	-	-	10900	11500	11400	12000	10600	11200	86	86	142	PRO FLEX
	48	700	5600	14100	-	-	-	-	-	-	103	103	137	PRO FLEX
	48	700	-	-	12400	13100	13000	13700	12100	12700	100	100	139	PRO FLEX
	48	800	6200	15600	-	-	-	-	-	-	120	120	130	PRO FLEX
	48	800	-	-	13900	14600	14500	15200	13400	14100	117	117	132	PRO FLEX
	48	900	6800	17200	-	-	-	-	-	-	136	136	126	PRO FLEX
	48	900	-	-	15200	16000	15800	16700	14700	15500	132	132	129	PRO FLEX
	48	1000	7400	18700	-	-	-	-	-	-	152	152	123	PRO FLEX
	48	1000	-	-	16500	17400	17200	18100	16000	16800	148	148	124	PRO FLEX

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

PRO FLEX™ 5165



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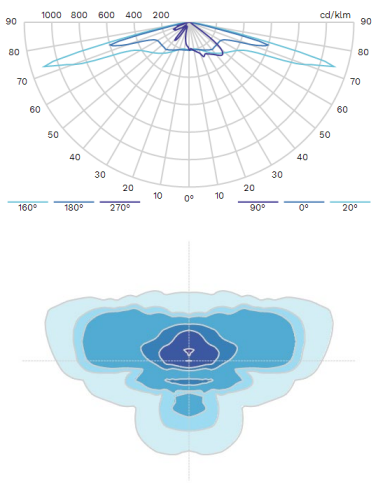

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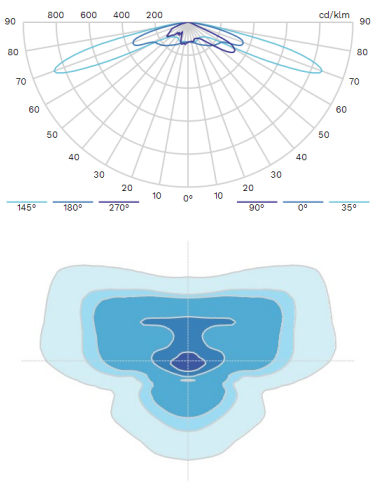

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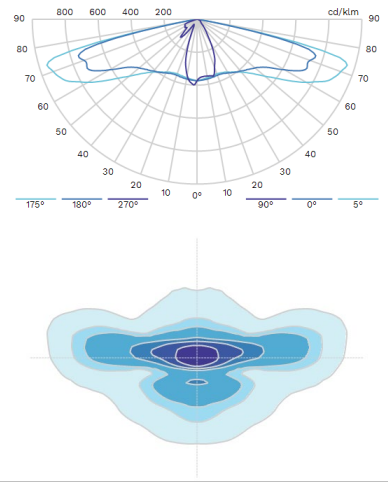

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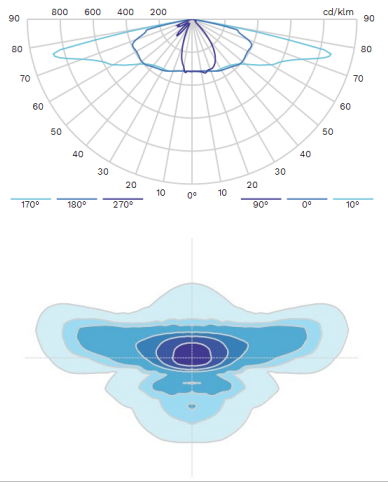
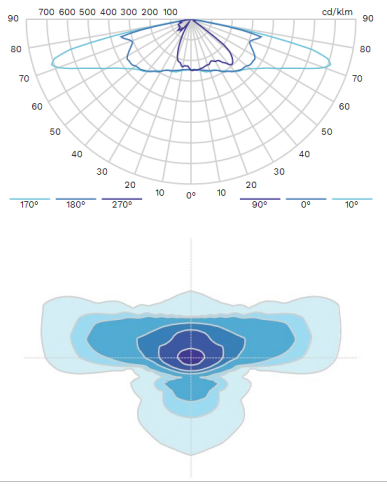


5179



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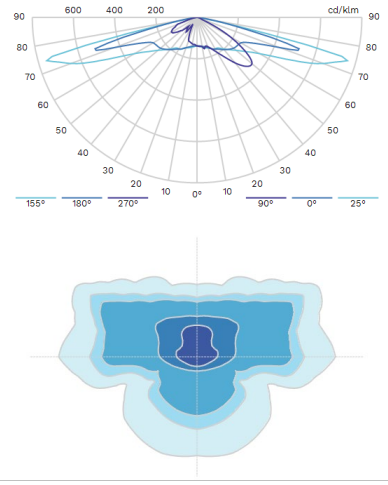

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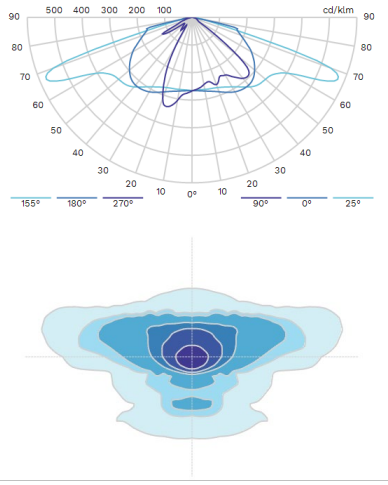
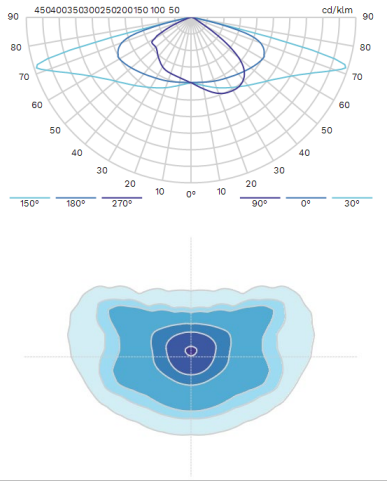


PRO FLEX™ 5233



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5241