TOWNSHIP OF RADNOR
Villanova CICD CARE Group
Minutes of the Meeting of May 5, 2016

The Villanova CICD CARE Group met at 6:30 PM in the Administration Department located on the 2nd Floor in the Radnor Township Municipal Building, 301 Iven Avenue, Wayne, PA 19087

Present

Philip Ahr, Chair	*Robert Zienkowski, Vice Chair*	
Stephen Norcini, P.E.	*Jane Galli - Absent*	*Rick Leonardi*
Chris Kovolski	*Marilou Smith*	

Also Present: *Jennifer DeStefano, Executive Assistant to the Township Manager*

Phil Ahr called the meeting to order and led the assembly in the Pledge of Allegiance

Adoption of Agenda

Steve Norcini made a motion to adopt the agenda, seconded by Rick Leonardi. Motion passed 5-0.

Approval of Minutes

Steve Norcini made a motion to adopt the agenda, seconded by Rick Leonardi. Motion passed 5-0.

Chair Report

Steve Norcini briefly reviewed John Hosbach's report of the buffer which can be reviewed attached to the minutes. He noted that the threshold for noting removal of a planting was 20% of dead material. The report noted what plants were to be replaced, what plants to be pruned, and other remedies. A subsequent inspection will take place to review the replaced plants, as well as those to be monitored or have other work done (pruning, etc.) Upon final walk through inspection of the parking lot, the buffer will be reviewed again. As previously noted, this is a required buffer, and the University is required to maintain this buffer in perpetuity. There was a brief discussion amongst the group in regards to John Hosbach's report.

Public Comment
Mike Coffey – He inquired about replanting of the buffer if trees die off. Norcini noted again that the University shall maintain the buffer in perpetuity. Marilou Smith noted that residents can contact the University should they have any issues.

Review

West Lancaster Avenue lot – The lot will be open for graduation Thursday and Friday and then reclosed until the end of May. Most likely construction will be completed in early June.

Update on buffer inspection 5/2/16 (RT and VU) The buffer was discussed previously in the meeting.

Expected opening time (VU)

Tentative schedule of buffer walk-through (VU) – Expected the beginning of June. Will be discussed at next meeting.

Communication (VU)

Update on Lancaster Ave sidewalk project

Marilou Smith gave an update that the sidewalk project is tentatively slowed down because of the Verizon strike and need for pole relocation. They project is currently being designed and almost complete.

Norcini noted that based on the walk through inspection of trees that will be affected by the sidewalk project, the University shall hold in abeyance the planting of ten trees. Those ten trees may be used to fill in areas of the buffer, if needed, once construction is complete. The possible placement of these trees would be determined by the Township (Hosbach, Norcini) and the University. Hosbach and Norcini will drive through the area at night, to see if additional trees are needed, and if so, where would be the best location. This site visit will take place in August. The University will be notified and requested to attend. The proposed plantings will then be discussed with the University.

Site Lighting -

West Lancaster Avenue lot

CICD areas

Pedestrian Bridge

Chris Kovolski gave a brief presentation of the proposed bridge which you can find on the Township website at http://www.radnor.com/DocumentCenter/Home/View/13037.

Discussion of general dimensions

Lighting

Pike Lot Update

The project is moving along but has been delayed with weather. Precast is scheduled for delivery June 13, 2016.

Roadway improvements – Timelines and plan The intent is to have as much of the Ithan Avenue work completed while the University is not in session. As much work will be done from the site for the HOP work (Lancaster Avenue) to lessen the impact to traffic.

Ithan Avene

Lancaster Avenue

Public Comment

Lynn Ellis – She inquired about the April 7 minutes in regards to Aldwyn Lane residents entering and exiting the Lane.

Follow-up from Last Meeting

Addressing student crossings mid-block on Lancaster Avenue

New Business

None

Public Comment

Randy Maud – He inquired about noise prior to 7 a.m. Norcini stated to have residents contact him when the alleged work is actually taking place. If noted after the fact, there is little to that he can do.

Tish Long – She commented in regards to lighting and requested to have Police speak at a future meeting about lighting. She also requested that all of the neighbors on Aldwyn Lane backing up to the R100 have 8 ft. high fences installed. Manager Zienkowski said that this will be done at the Townships expense, Mr. Norcini will follow-up with fence choices.

Set Next Meeting Date – First Thursday, June 2nd?

This date was agreed upon by the committee.

Note 1: Equipment - VU will need large monitor for presentation; they will bring PC

Note 2: Villanova's latest Phase Update and Information is located at http://designconceptforlancasteravenue.com/news-updates/

There being no further business, the meeting adjourned on a motion duly made and seconded.

Respectfully submitted,

Jennifer DeStefano

ROCKWELL ASSOCIATES
URBAN FORESTRY • ARBORICULTURE • CONSULTING

www.RockwellConsultants.com

May 3, 2016

Meeting Minutes – Field Inspection

To: Steve Norcini – Robert Zienkowski, Marilou Smith
Cc / In attendance -Marilou Smith, Daniel J. Chieco, Tim Stringfellow, Doug Siebert, Jason Thompson, Mayfield Gardens
From: John Hosbach
Reference: Meeting 2 of 4 – WLA Buffer Planting

On May 2nd 2016 we conducted a thorough inspection of the landscape buffer that was installed winter 2015/2016. Our objective was to review the viability of the trees and plants at its current state. Our inspection started on the east side (bridge) of the buffer heading west for point of reference.

Numerous plants such as the Cherry Laurel, Spruce, Cryptomeria and Dogwood seem to be very slow to push new growth and are in a stagnant condition. The following list is intended help the landscape perform at its highest level. However, at our next scheduled meeting, we will review the conditions and the progression of the plants that were showing signs of slow growth.

Species	Tribulation	Management
Spruce	Dead Tops	Prune dead tree portions to a sufficient lateral
4 - Viburnum	Substandard	Remove and replace
3 - Leyland cypress	Stressed	Monitor
1 – Leyland cypress	Beyond recovery	Remove and replace
All serviceberry	Slow to push new growth	Monitor
1 - Oak	Immature tree growth has curled and is slow to regenerate.	Monitor
Norway maples	These pre-existing trees are inhibiting the growth of the new trees.	Raise prune 10-15 feet above new tree.
All Cherry laurel	Slow growth and winter burn.	Remove tagged plants, prune and fertilize remaining
Cryptomeria	Leaning / deadwood	Straiten tagged trees and remove deadwood
4 - Spruce	Dead/declining	Remove and replace

T: 610.731.7969 | F: 610.521.0108 | E: jhtrees@verizon.net
Po Box 542 - Ridley Park - PA - 19078

Spruce	Slow to regenerate new growth and terminal buds are desiccated	Fertilize, monitor
Arborvitae	Numerous dead branching throughout entire stand	Prune and Fertilize
Spruce	leaning	Straighten leaning spruce.
All plants	Inspect for excess soil	Contractor to remove excess soil where observed
All plants	Fertilize with a Doggett product	To encourage new growth and relieve stress
Severe grade section	grade not to plan	Build retaining wall or remove all plants, correct grade and reinstall plants. A schematic of this task must be presented to Steve Norcini.
All plants	Stress/ slow growth	Contractor and client to monitor weekly and make note of any declining or dying trees.
All trees	Leaning	Straighten
Trees	Damaged branching	Remove damaged branching – if greater than 20% remove and replace tree.

In addition, Steve Norcini and I will be performing a night inspection to observe any automobile headlight spillage that is not adsorbed by the buffer. Mitigation will be presented.

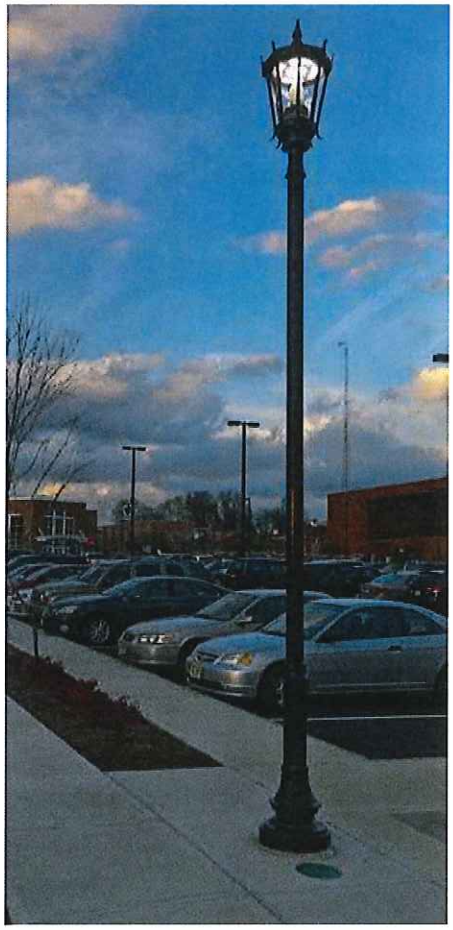
Our next meeting to review the buffer will be early July to review the progress of these plants.

Any plants that decline beyond recovery prior to the next meeting shall be photographed and pulled from the landscape.

Note: If any items in these minutes of the meeting are inconsistent with your understanding of what was discussed or decided upon please inform our office of your exceptions as soon as possible, but not later than three days from receipt of the minutes. Failure of such notification constitutes express acceptance of what is recorded herein.

EXHIBIT A-8

APPROVED - LUMEC METROSCAPE



PROPOSED - STERNBERG MAIN STREET

CURRENT VILLANOVA STANDARD

Villanova University - Site Lighting

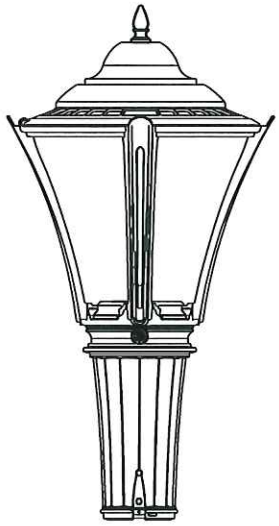
Light Fixture Comparison — 2016-03-03

VMA RAMSA

VOITH & MACTAVISH ARCHITECTS ROBERT A.M. STERN ARCHITECTS

Classic elegance meets advanced lighting technology

METROSCAPE LED POST-TOP URBAN LUMINAIRE



PHILIPS LUMEC METROSCAPE LED POST-TOP URBAN LUMINAIRE

The Philips Lumec MetroScape LED post-top luminaire features flexible, robust energy-saving solutions for heritage-styled urban architectural lighting. Crowned with an ornamental hood, the post-top model comes with a flat lens to highlight the thinness of the LEDs. The luminaire provides attractive lighting at night, adding appeal to the surroundings and promoting safe use of the environment.

Project:
Location:
Catalog No:
Fixture Type:
Mfg: Lamps: Qty:
Notes:

Ordering guide

example: MPTR-42W32LED4K-T-LE3-120-CDMGM25-PH8-BKTX

Luminaire: MPTR

LED Module:
- **MPTR[1]:** MetroScape Post-Top LED Luminaire
- **16W16LED4K-T**[2]
- **24W16LED4K-T**[2]
- **30W16LED4K-T**[2]
- **48W16LED4K-T**[2]
- **35W32LED4K-T**[2]
- **55W32LED4K-T**[2]
- **72W32LED4K-T**
- **97W32LED4K-T**[2]
- **55W48LED4K-T**
- **80W48LED4K-T**
- **108W48LED4K-T**
- **140W48LED4K-T**[2]
- **70W64LED4K-T**
- **110W64LED4K-T**
- **90W80LED4K-T**
- **135W80LED4K-T**

Optical System:
- **LE2:** Type II (ASYM) flat lens
- **LE3:** Type III (ASYM) flat lens
- **LE3W**[3]**:** Type III (ASYM) wide flat lens
- **LE4:** Type IV (ASYM) flat lens
- **LE5:** Type V (SYMM) flat lens

Voltage:
- **120:** 120V
- **208:** 208V
- **240:** 240V
- **277:** 277V
- **347:** 347V[4]
- **480:** 480V[4]

Driver Options:
- **CDMG:** Dynadimmer for standard dimming *(Consult pg 3 for complete Dynadimmer scenarios)*
- **CLO:** Pre-set driver to manage lumen depreciation
- **AST:** Pre-set driver for progressive start-up
- **OTL:** Pre-set driver to signal end of life of the lamp
- **DALI:** Pre-set driver compatible with the DALI control system

Luminaire Options:
- **HS:** House Side Shield
- **OVR:** Dynadimmer override function
- **PH8:** Photoelectric cell
- **PH8XL**[2]**:** Photoelectric cell, extended life
- **PH9:** Shorting Cap
- **RCD**[5]**:** 5-Pin receptacle for dimming photoelectric cell
- **TN3**[6]**:** Fitter to fit over a 3" (76 mm) O.D. by 4" (102 mm) long tenon
- **TN3.5**[6]**:** Fitter to fit over a 3 1/2" (89 mm) O.D. by 4" (102 mm) long tenon

Mounting: —
Consult the Philips web site for details and the complete line of Mountings

Pole: —
Consult the Philips web site for details and the complete line of Poles

Accessories:
- **SPC**[7,8]**:** Starsense Photo-cell Control Node On-Off
- **SPCD**[7,8]**:** Starsense Photo-cell Control Node Dimming

Finish:
- **BE2TX**
- **BE6TX**
- **BE8TX**
- **BG2TX**
- **BKTX**
- **BRTX**
- **GN4TX**
- **GN6TX**
- **GN8TX**
- **GNTX**
- **GR**
- **GY3TX**
- **NP**
- **RD2TX**
- **RD4TX**
- **TG**
- **TS**
- **WHTX**

(Consult pg 4 for code descriptions)

1. Luminaire is always shipped with a dimmable 0-10V driver *(except for 35W32LED4K)*.
2. 347V and 480V not available.
3. Not available with HS option.
4. Not available with driver options.
5. Use of photoelectric cell or shorting cap is required to ensure proper illumination.
6. Not available with Motion Response.
7. Luminaire option RCD is required with this accessory.
8. CDMG, CDMGP and DALI are not available with SPC and SPCD.

PHILIPS LUMEC

METROSCAPE LED POST-TOP URBAN LUMINAIRE

Ordering Guide (Accessories) - Motion Response*

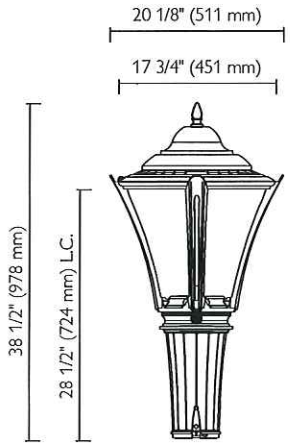
Must be ordered as a separate line item

example: ACC-120-MR4PGI-BKTX

Accessory	Voltage	Motion Response Module*	Finish
ACC	**120:** 120V **277:** 277V	**MR4PG1:** Single Grey **MR4PG2:** Double Grey **MR4PW1:** Single White **MR4PW2:** Double White	*(Consult pg 4 for Color codes and descriptions)*

*OVR option is required for Motion Response Accessory

Dimensions - MetroScape Post-Top LED (MPTR) Luminaire



EPA:
1.97 sq ft

Luminaire Weight:
31.1 lbs (14.1 kg)

Specifications

Cage:

In a round shape with 4 arms and a built-in mechanical ring, this cage is a one piece die cast A360 Aluminum alloy 0.100 (2.5mm) minimum thickness, mechanically assembled to the fitter.

Fitter:

Made of die cast A360.1 Aluminum alloy 0.100 (2.5mm) minimum thickness, the fitter is complete with a watertight access door giving access to the driver rated IP66, and a terminal block that accepts (#2 max.) wires from the primary circuit. Comes with an easy self adjusting system with two (2) set screws 3/8 16 UNC for ease of maintenance and installation. Fits on a 4" (102mm) outside diameter by 4" (102mm) long tenon.

Specifications (continued)

Finial:

Decorative cast 356 aluminum, mechanically assembled.

Hood:

Made of die cast A360.1 Aluminum alloy 0.100 (2.5mm) minimum thickness, mechanically assembled to the cast aluminum heat sink.

Access-Mechanism:

A die cast A360.1 Aluminum alloy 0.100 (2.5mm) minimum thickness technical ring with latch and hinge.

Light Engine:

LEDgine is composed of 4 main components: LED lamp / Optical System / Heat Sink / Driver Electrical components are RoHS compliant.

LEx Lens

Flat Lens: Made of soda lime clear tempered glass, mechanically assembled and sealed onto the ring of the access mechanism.

LED Module

LED type Philips Lumileds LUXEON T. Composed of high performance white LEDs. Color temperature of 4000 Kelvin nominal, 70 CRI. Operating lifespan 100,000 hours (see chart for specific lifetime based on mA) based on TM 21 extrapolation to get results after which 50% of LEDs still emits over 70% (L70) of its original lumen output. Use of metal core board ensures greater heat transfer and longer lifespan of the light engine.

Optical System:

Composed of high performance optical polymer refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. System is rated IP66. Performance shall be tested per LM 63, LM 79 and TM 15 (IESNA) certifying its photometric performance. Street side indicated. Dark Sky compliant with 0% uplight and U0 per IESNA TM 15.

Heat Sink:

Made of cast aluminum optimizing the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device).

Driver:

High power factor of 95%. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 and 347 to 480 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max. Maximum ambient operating temperature from 40F (40C) to 130F (55C) degrees. Certified in compliance to UL1310 cULus requirement. Dry and damp location. Assembled on a unitized removable tray with Tyco quick disconnect plug resisting to 221F(105C) degrees. Dimmable driver 0-10V.

The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

Surge Protector:

Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line Ground, Line Neutral and Neutral Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA.

PHILIPS LUMEC METROSCAPE

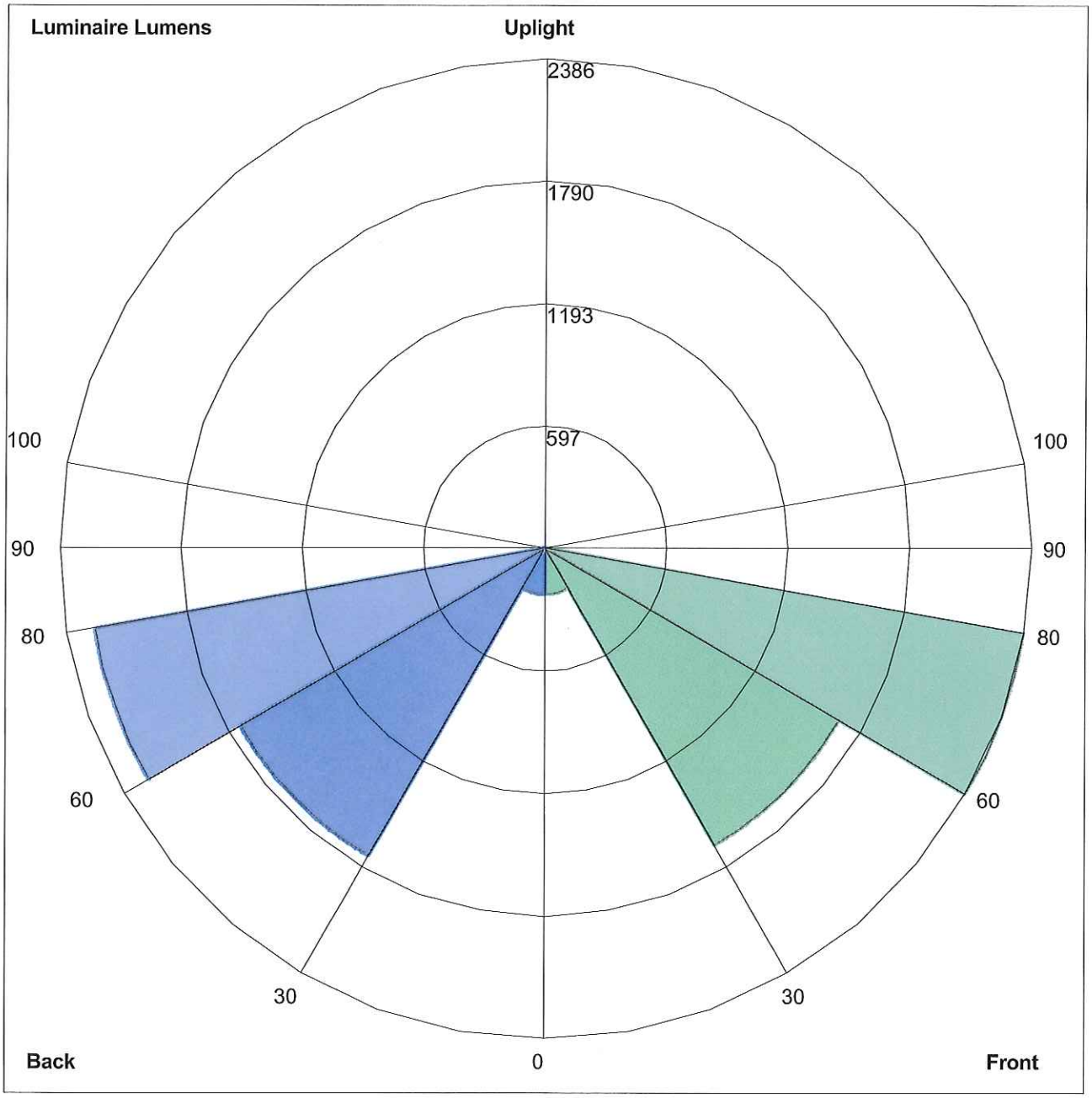
IES ROAD REPORT
PHOTOMETRIC FILENAME : MPTR-90W80LED4K-T-LE5 (S-AGI32.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	221.6	N.A.	2.6
FM - Front-Medium (30-60)	1667.9	N.A.	19.5
FH - Front-High (60-80)	2386.3	N.A.	28.0
FVH - Front-Very High (80-90)	33.0	N.A.	0.4
BL - Back-Low (0-30)	221.1	N.A.	2.6
BM - Back-Medium (30-60)	1727.6	N.A.	20.2
BH - Back-High (60-80)	2248.9	N.A.	26.4
BVH - Back-Very High (80-90)	25.4	N.A.	0.3
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	8531.8	N.A.	100.0
BUG Rating	B3-U0-G2		

IES ROAD REPORT
PHOTOMETRIC FILENAME : MPTR-90W80LED4K-T-LE5 (S-AGI32.IES

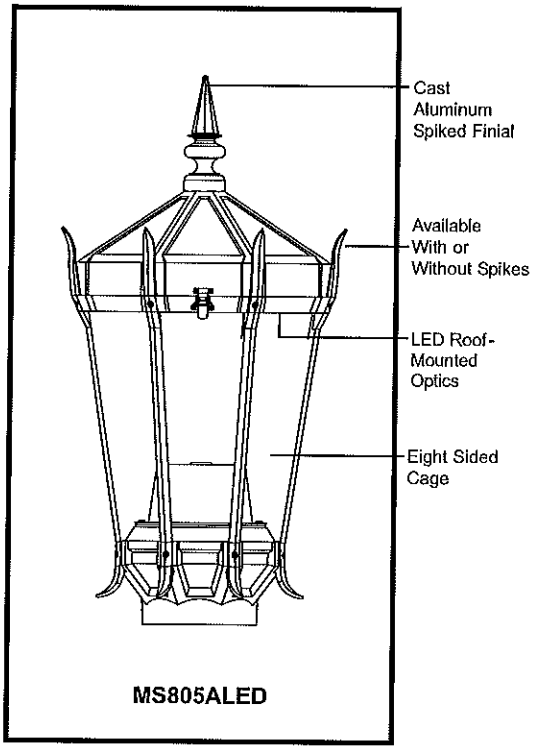
LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=221.6, Medium=1667.9, High=2386.3, Very High=33.0
Back: Low=221.1, Medium=1727.6, High=2248.9, Very High=25.4
Uplight: Low=0.0, High=0.0

BUG Rating : B3-U0-G2

MS805A / MS805B LED MAIN STREET SPECIFICATIONS



MS805ALED

EPA = 2.46 (ft²)
WEIGHT = 55 LBS

LUMINAIRE DESIGN

- The luminaire shall be a modern replica of a popularly styled octagonal fixture, available with (A) or without (B) decorative spikes.
- The MS805A LED luminaire shall be 17 ½" (19" on the diagonal) and 38" tall (with 3" tenon). The MS805B LED luminaire shall be 16" (17" on the diagonal) and 38" tall (with 3" tenon).
- The luminaire shall be appointed with a cast aluminum 6 ½" decorative spiked finial.
- The luminaire shall have LED light sources with roof mounted, downlighting optics.
- The luminaire shall be supplied with line-ground, line-neutral and neutral-ground electrical surge protection in accordance with IEEE/ANSI C62.41.2 guidelines.
- The luminaire shall be U.L. or E.T.L. listed in the U.S. and Canada.

POST FITTER

- The fitter shall be heavy wall cast aluminum for high tensile strength.
- The fitter shall have an inside diameter opening to attach to a 3", 4", 5", 6" or 7" pole or tenon.
- When ordered with a Sternberg pole, the fitter shall be attached by set-screw to the pole top or tenon.

DRIVER

- The LED driver shall be securely mounted inside the fitter, for optimized performance and longevity.
- The LED driver shall be supplied with a quick-disconnect electrical connector on the power supply, providing easy power connections and fixture installation.

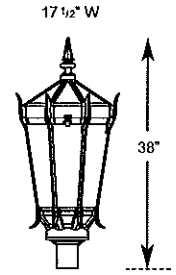
LIGHT SOURCES

- The luminaire shall use high output, high brightness LEDs.
- The LEDs shall be mounted in arrays, on printed circuit boards designed to maximize heat transfer to the heat sink surface.
- The LED arrays shall be roof mounted to minimize up-light.
- The LEDs shall be attached to the printed circuit board with not less than 90% pure silver to insure optimal electrical and thermal conductivity.
- The LEDs and printed circuit boards shall be protected from moisture and corrosion by a conformal coating of 1 to 3 mils.
- The LEDs and printed circuit board construction shall be environmentally friendly and 100% recyclable. They shall not contain lead, mercury or any other hazardous substances and shall be RoHS compliant.
- The LED life rating data shall be determined in accordance with IESNA LM-80.

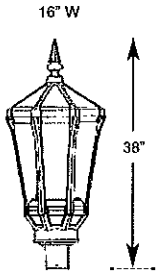
(Continued on next page)

MS805A / MS805B LED MAIN ST. ACORNS / FITTERS / ARMS PM - WB

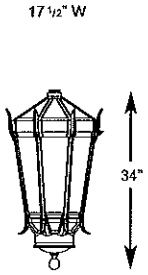
FIXTURES



MS805ALED
With Spikes



MS805BLED
Without Spikes



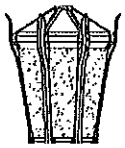
MS805ALED
Hanging Version

HS Hangstraights

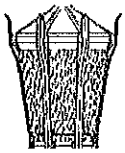
HS-HB*
Horizontal
8 1/4" W x
10 5/8" H

HS-V*
Vertical
4" W x
4 7/8" H

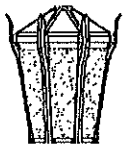
LENSES



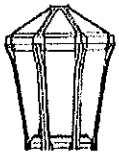
CSA
Clear
Seeded
Acrylic
(Standard)



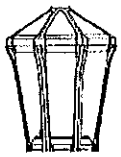
CTA
Clear
Textured
Acrylic



SV1
Flat
Diffused
Lens

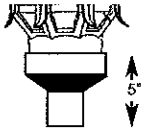


SV2
Flat
Frosted
Acrylic

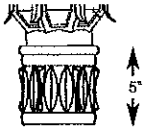


CA
Clear
Acrylic

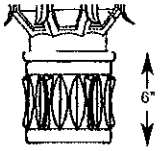
FITTERS



/3
Fits 3" poles
or tenons and
arms below



BD/4
Fits 4" poles
or tenons



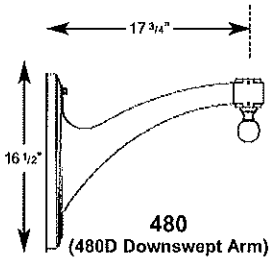
BD/5
Fits 5" poles
or tenons

/6
Fits 6" poles
or tenons

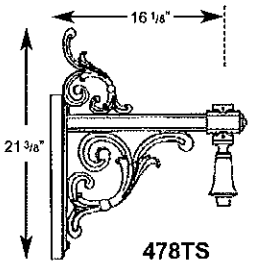
/7
Fits 7" poles
or tenons

ARMS - POST MOUNT (PM) or WALL BRACKETS (WB)

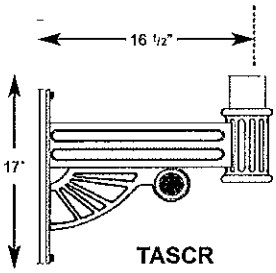
See Arms Section for more information



480
(480D Downswept Arm)



478TS



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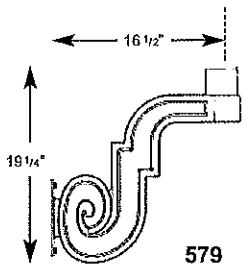

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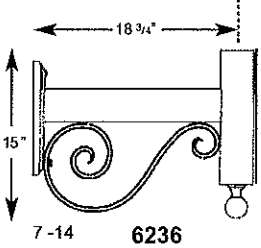
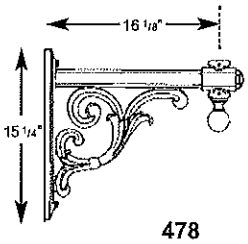


7 -14 **6236**



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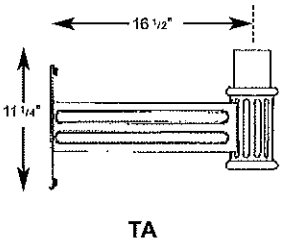

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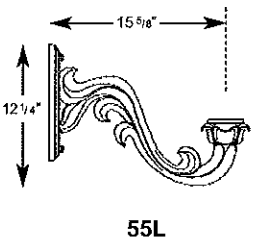

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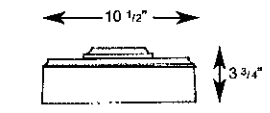


PIER BASE MOUNT
450PB

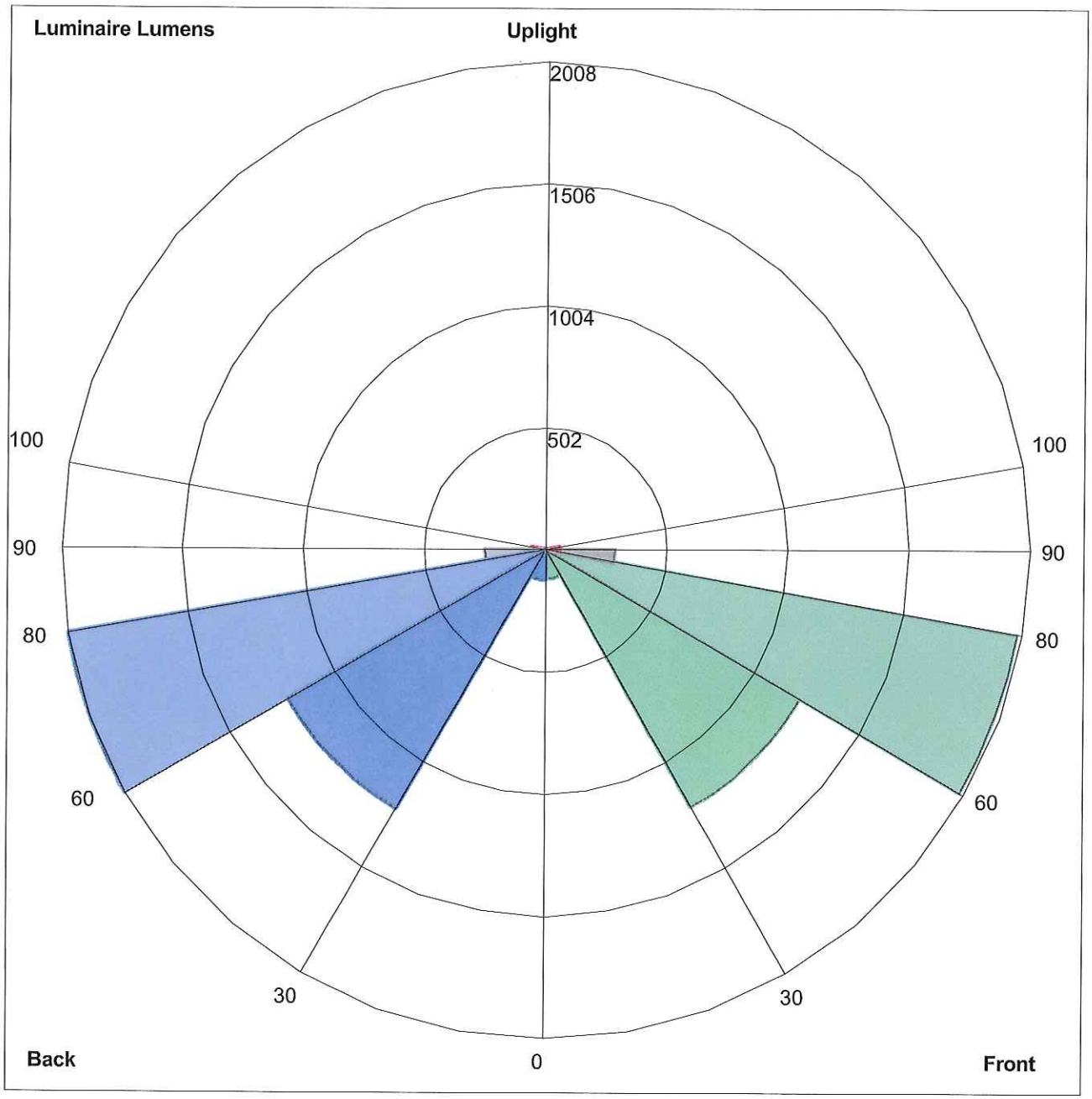
IES ROAD REPORT
PHOTOMETRIC FILENAME : EP01-TYPE V-AGI32.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	118.1	N.A.	1.6
FM - Front-Medium (30-60)	1217.4	N.A.	16.7
FH - Front-High (60-80)	1983.9	N.A.	27.3
FVH - Front-Very High (80-90)	283.2	N.A.	3.9
BL - Back-Low (0-30)	121.5	N.A.	1.7
BM - Back-Medium (30-60)	1226.0	N.A.	16.8
BH - Back-High (60-80)	2007.5	N.A.	27.6
BVH - Back-Very High (80-90)	252.6	N.A.	3.5
UL - Uplight-Low (90-100)	58.0	N.A.	0.8
UH - Uplight-High (100-180)	8.8	N.A.	0.1
Total	7277.0	N.A.	100.0
BUG Rating	B3-U3-G3		

IES ROAD REPORT
PHOTOMETRIC FILENAME : EP01-TYPE V-AGI32.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=118.1, Medium=1217.4, High=1983.9, Very High=283.2
Back: Low=121.5, Medium= 1226.0, High=2007.5, Very High=252.6
Uplight: Low=58.0, High=8.8

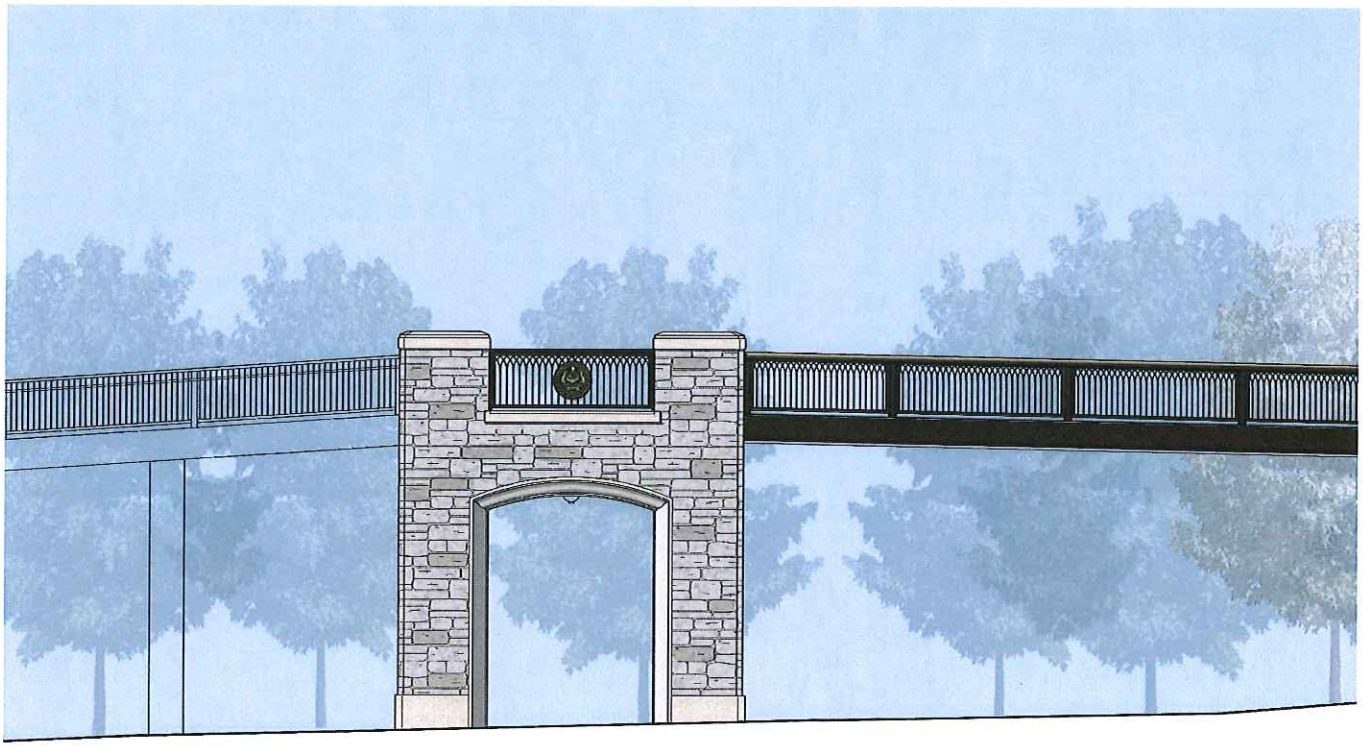
BUG Rating : B3-U3-G3

VILLANOVA UNIVERSITY PEDESTRIAN BRIDGE

ART ITEMS & DETAILS

FEBRUARY 11, 2016

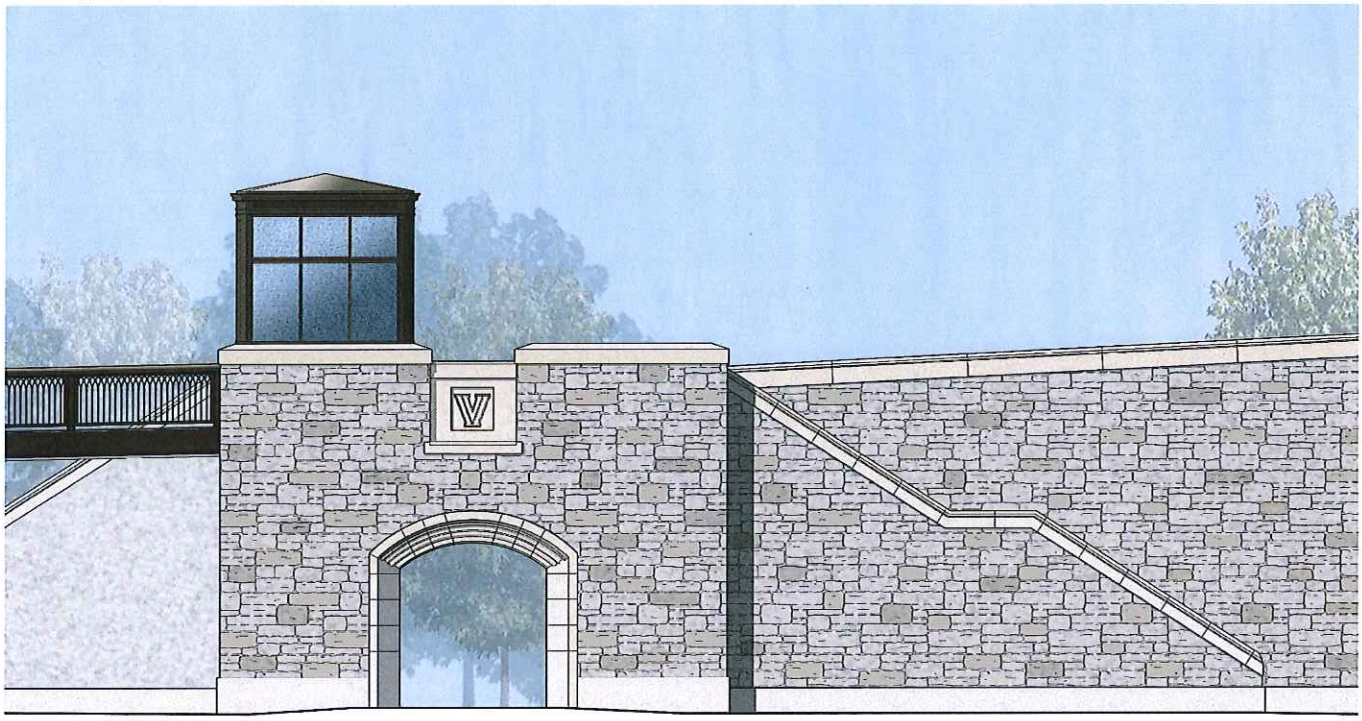
ROBERT A.M. STERN ARCHITECTS
VOITH & MACTAVISH ARCHITECTS



BRONZE SEAL AT GUARDRAIL
VILLANOVA STATION PAVILION
FEBRUARY 11, 2016

VILLANOVA UNIVERISTY PEDESTRIAN BRIDGE
VILLANOVA, PENNSYLVANIA

VILLANOVA UNIVERSITY
ROBERT A.M. STERN ARCHITECTS
VOITH & MACTAVISH ARCHITECTS

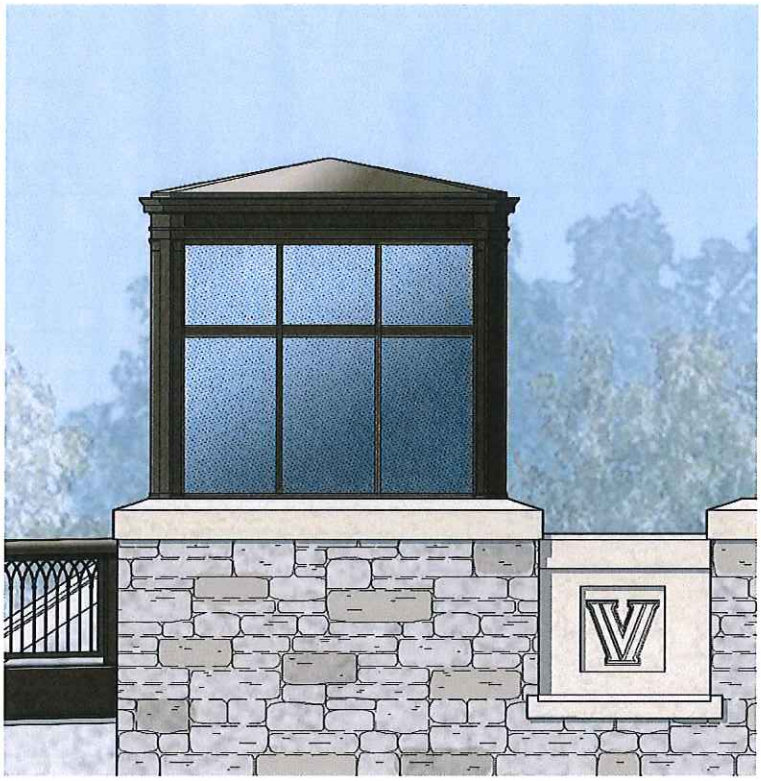


CURRENT CD ELEVATION
TRADITIONAL GLASS ENCLOSURE

FEBRUARY 11, 2016

VILLANOVA UNIVERISTY PEDESTRIAN BRIDGE
VILLANOVA, PENNSYLVANIA

VILLANOVA UNIVERSITY
ROBERT A.M. STERN ARCHITECTS
VOITH & MACTAVISH ARCHITECTS

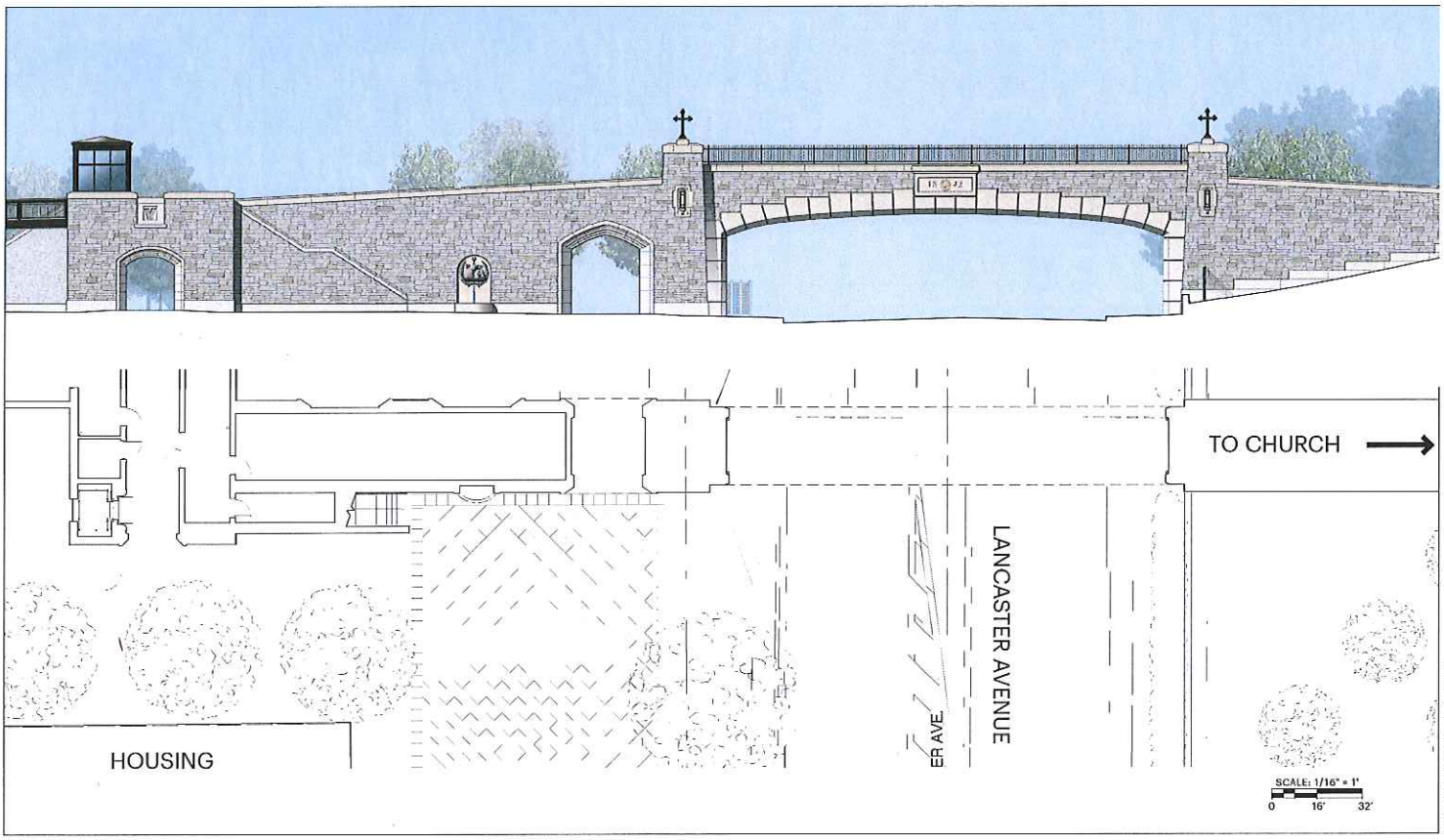


SCALE: 1/2" = 1'
0 3" 6" 1'

ENLARGED VIEW
GLASS ELEVATOR ENCLOSURE PRECEDENT
FEBRUARY 11, 2016

VILLANOVA UNIVERISTY PEDESTRIAN BRIDGE
VILLANOVA, PENNSYLVANIA

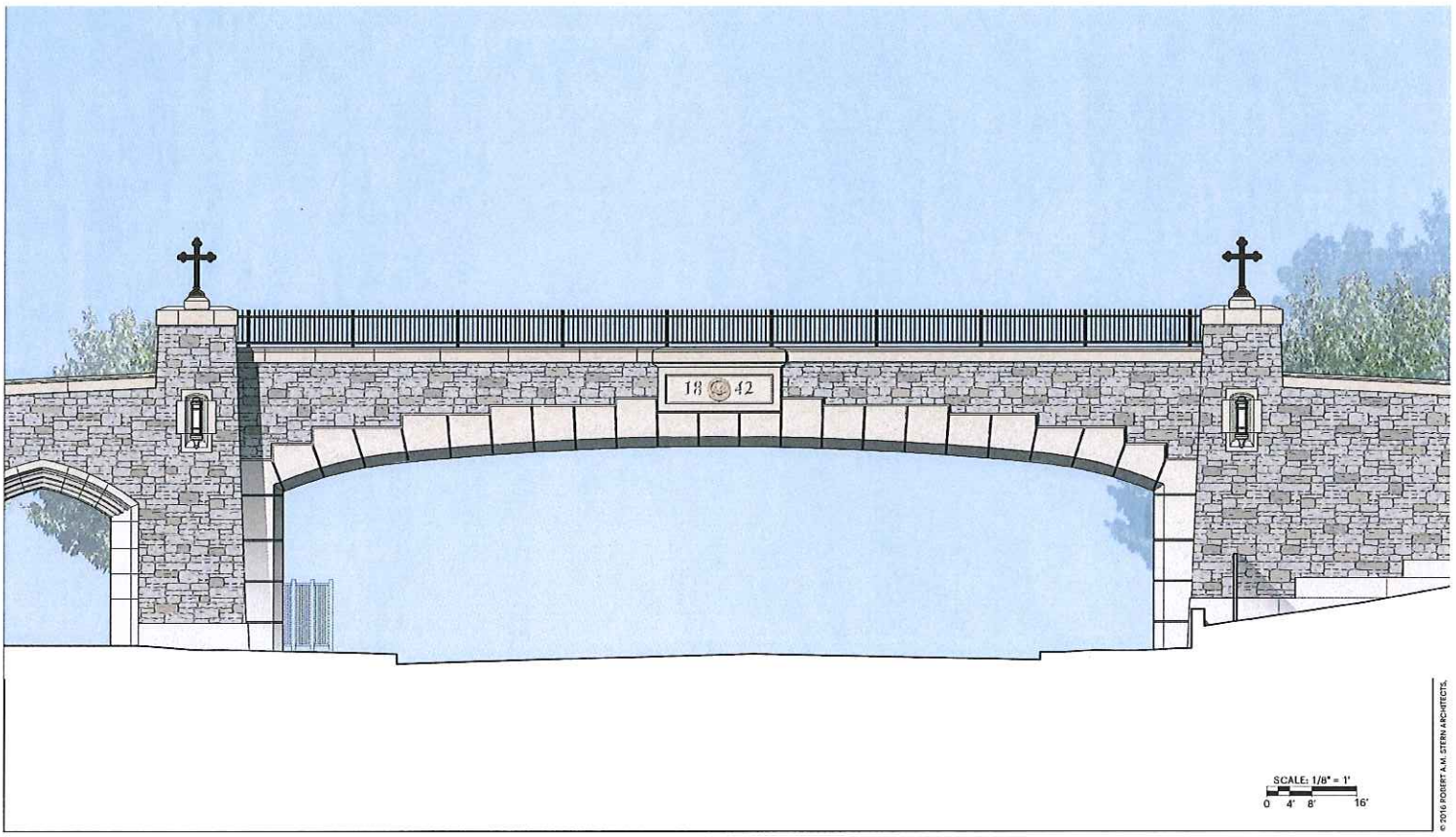
VILLANOVA UNIVERSITY
ROBERT A.M. STERN ARCHITECTS
VOITH & MACTAVISH ARCHITECTS



BRIDGE EAST ELEVATION
SCULPTURE NICHE
FEBRUARY 11, 2016

VILLANOVA UNIVERISTY PEDESTRIAN BRIDGE
VILLANOVA, PENNSYLVANIA

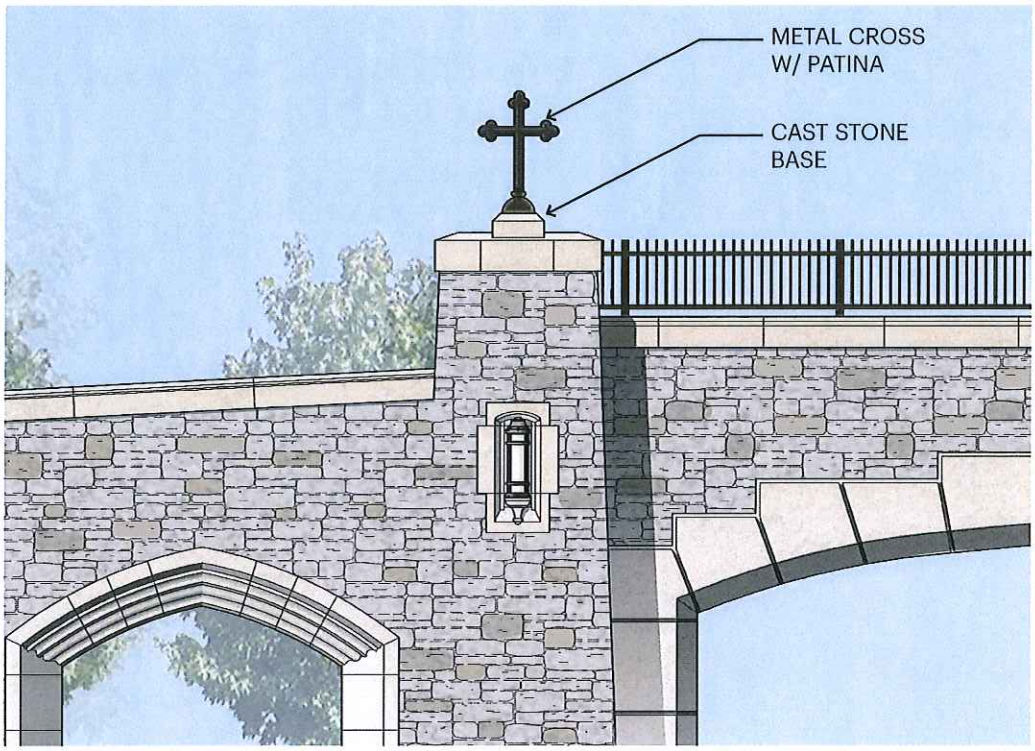
VILLANOVA UNIVERSITY
ROBERT A.M. STERN ARCHITECTS
VOITH & MACTAVISH ARCHITECTS



BRIDGE MAIN SPAN EAST ELEVATION
CROSSES
FEBRUARY 11, 2016

VILLANOVA UNIVERISTY PEDESTRIAN BRIDGE
VILLANOVA, PENNSYLVANIA

VILLANOVA UNIVERSITY
ROBERT A.M. STERN ARCHITECTS
VOITH & MACTAVISH ARCHITECTS

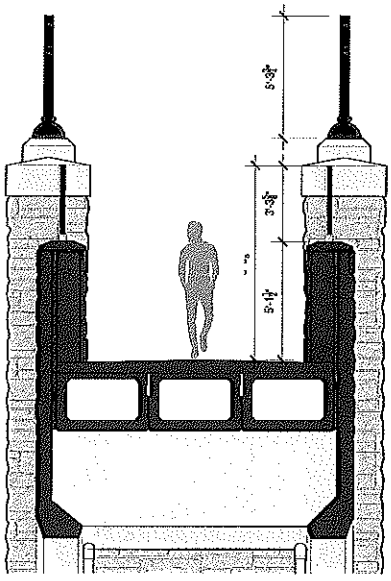


SCALE: 1" = 1'
0 6" 1' 2'

ENLARGED VIEW
CROSSES
FEBRUARY 11, 2016

VILLANOVA UNIVERISTY PEDESTRIAN BRIDGE
VILLANOVA, PENNSYLVANIA

VILLANOVA UNIVERSITY
ROBERT A.M. STERN ARCHITECTS
VOITH & MACTAVISH ARCHITECTS



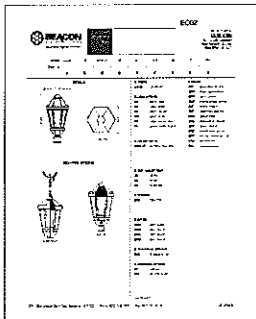
SCALE: 1/4" = 1'
0 1' 2' 4'

SECTIONAL VIEW
CROSSES

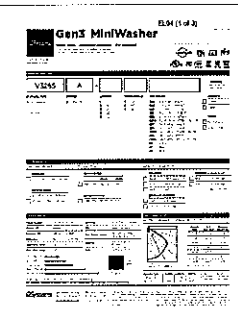
FEBRUARY 11, 2016

VILLANOVA UNIVERISTY PEDESTRIAN BRIDGE
VILLANOVA, PENNSYLVANIA

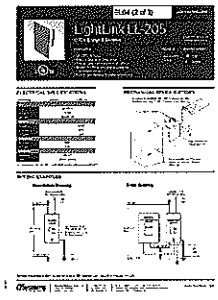
VILLANOVA UNIVERSITY
ROBERT A.M. STERN ARCHITECTS
VOITH & MACTAVISH ARCHITECTS

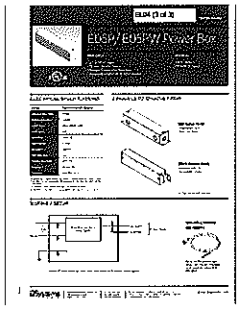


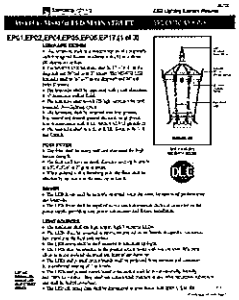
Fixture Type EC02



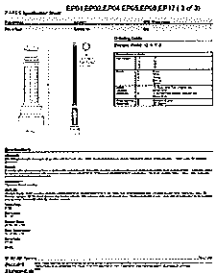
Fixture Type EL04

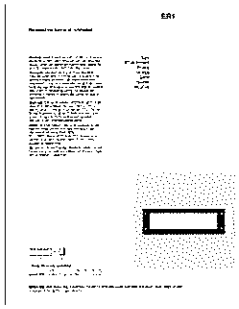




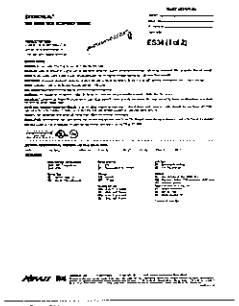


Fixture Types EP01, EP02, EP04, EP05, EP06, EP17 (NOTE FOR TYPICAL LIGHTING POLE HEIGHTS, REFER TO POLE HEIGHT DIAGRAM IN LIGHTING DESIGN BOOK.)

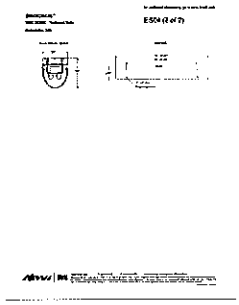


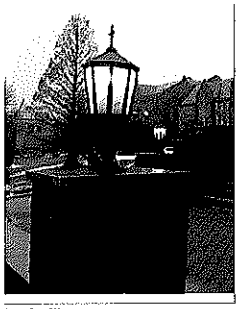


Fixture Type ER1



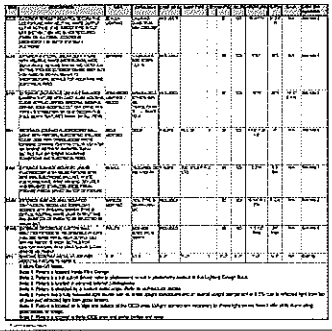
Fixture Type ES04





Fixture Type EP1

LIGHTING FIXTURE SCHEDULE



Villanova University
Church Walk and Bridge
Lancaster and Ithan Avenues
Villanova, PA 19085

VMA
RAMSA

FINAL LAND DEVELOPMENT PLANS

Project No: Aug. 07, 2015
Date: March 23, 2016
Title: Site Lighting Details

Scale: N.T.S.
Drawn By: JPDB

C7.3

Sheet No. 19 of 19

CONCEPTUAL PEDESTRIAN BRIDGE LIGHTING PLAN

UPPER LEVEL

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0030	–	1 OF 2

RADNOR TOWNSHIP

SCALE
0 10 20 FEET

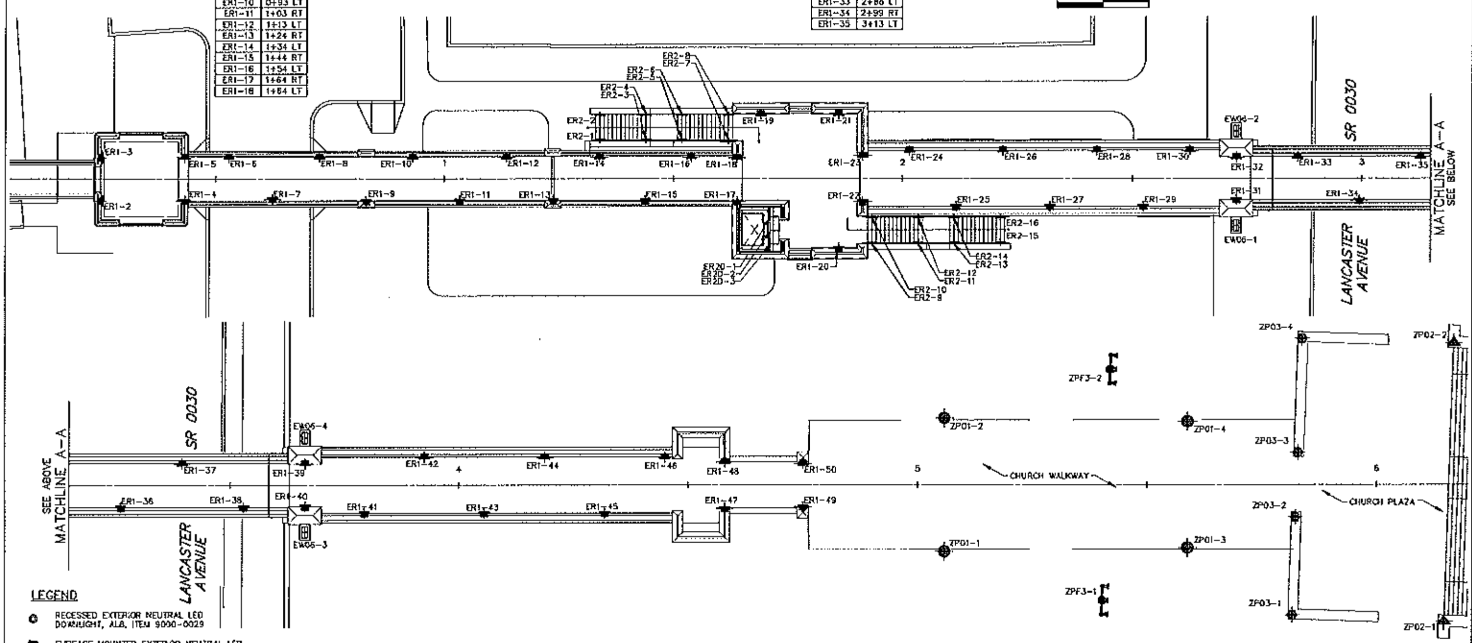
LIGHT	STATION
ER1-2	0+25 RT
ER1-3	0+25 LT
ER1-4	0+43 RT
ER1-5	0+43 LT
ER1-6	0+53 LT
ER1-7	0+62 RT
ER1-8	0+73 LT
ER1-9	0+83 RT
ER1-10	0+93 LT
ER1-11	1+03 RT
ER1-12	1+13 LT
ER1-13	1+24 RT
ER1-14	1+34 LT
ER1-15	1+44 RT
ER1-16	1+54 LT
ER1-17	1+64 RT
ER1-18	1+64 LT

LIGHT	STATION
ER2-1	1+34 LT
ER2-2	1+34 LT
ER2-3	1+44 LT
ER2-4	1+44 LT
ER2-5	1+52 LT
ER2-6	1+52 LT
ER2-7	1+62 LT
ER2-8	1+62 LT

LIGHT	STATION
ER1-19	1+69 LT
ER1-20	1+86 RT
ER1-21	1+86 LT
ER1-22	1+91 RT
ER1-23	1+91 LT
EWL2-1	1+72 RT
EWL2-2	1+72 RT
EWL2-3	1+72 RT

LIGHT	STATION
ER2-9	1+93 RT
ER2-10	1+93 RT
ER2-11	2+03 RT
ER2-12	2+03 RT
ER2-13	2+11 RT
ER2-14	2+11 RT
ER2-15	2+21 RT
ER2-16	2+21 RT

LIGHT	STATION
ER1-24	2+01 LT
ER1-25	2+12 RT
ER1-26	2+22 LT
ER1-27	2+32 RT
ER1-28	2+42 LT
ER1-29	2+52 RT
ER1-30	2+63 LT
ER1-31	2+73 RT
ER1-32	2+73 LT
ER1-33	2+86 LT
ER1-34	2+99 RT
ER1-35	3+13 LT



LEGEND

- RECESSED EXTERIOR NEUTRAL LED DOWNLIGHT, AL8, ITEM 9000-0029
- SURFACE MOUNTED EXTERIOR NEUTRAL LED CANOPY FIXTURE, EA1, ITEM 9000-0030
- EXTERIOR PENDANT MOUNTED DECORATIVE LED FIXTURE, EC02, ITEM 9000-0031
- RECESSED COMPACT FLUORESCENT WALL LIGHT, ER1, ITEM 9000-0032
- EXTERIOR RECESSED ROUND NEUTRAL LED STEP LIGHT, ER2, ITEM 9000-0033
- EXTERIOR RECESSED NEUTRAL LED STEP LIGHT, ER3, ITEM 9000-0034
- EXTERIOR RECESSED MEDIUM OUTPUT 4'-0" LED FIXTURE, ER40, ITEM 9000-0035
- EXTERIOR RECESSED MEDIUM OUTPUT 2'-0" LED FIXTURE, ER20, ITEM 9000-0049
- 4' LONG 2-LAMP INDUSTRIAL SURFACE/PENDANT TURRET TYPE FLUORESCENT LIGHT FIXTURE, BCE1, ITEM 9000-0049

LEGEND CONT'D

- EXTERIOR RECESSED MEDIUM OUTPUT LED FIXTURE, EW06, ITEM 9000-0050
- RELOCATED EXISTING EXTERIOR DECORATIVE POLE MOUNTED FIXTURE, ZP01, ITEM 9000-0036
- EXISTING EXTERIOR METAL HALIDE PIER MOUNTED FIXTURE TO REMAIN, ZP02
- RELOCATED EXISTING EXTERIOR DECORATIVE PIER MOUNTED FIXTURE, ZP03, ITEM 9000-0037
- RELOCATED EXISTING EXTERIOR 3-HEAD POLE MOUNTED FLOOD LIGHT, ZPF3, ITEM 9000-0048

LIGHT	STATION
ER1-36	3+26 RT
ER1-37	3+40 LT
ER1-38	3+53 RT
ER1-39	3+66 LT
ER1-40	3+66 RT
ER1-41	3+79 RT
ER1-42	3+93 LT
ER1-43	4+06 RT
ER1-44	4+19 LT
ER1-45	4+32 RT
ER1-46	4+45 LT
ER1-47	4+58 RT
ER1-48	4+58 LT
ER1-49	4+75 RT
ER1-50	4+75 LT

LIGHT	STATION
EW06-1	2+73 RT
EW06-2	2+73 LT
EW06-3	3+66 RT
EW06-4	3+66 LT

LIGHT	STATION
ZP01-1	5+06 RT
ZP01-2	5+06 LT
ZPF3-1	5+40 RT
ZPF3-2	5+42 LT
ZP01-3	5+59 RT
ZP01-4	5+59 LT
ZP03-1	5+82 RT
ZP03-2	5+82 RT
ZP03-3	5+83 LT
ZP03-4	5+84 LT

UNDER PENNDOT REVIEW
PLANS SUBJECT TO CHANGE
DATE: 03-03-2016

NOTE:

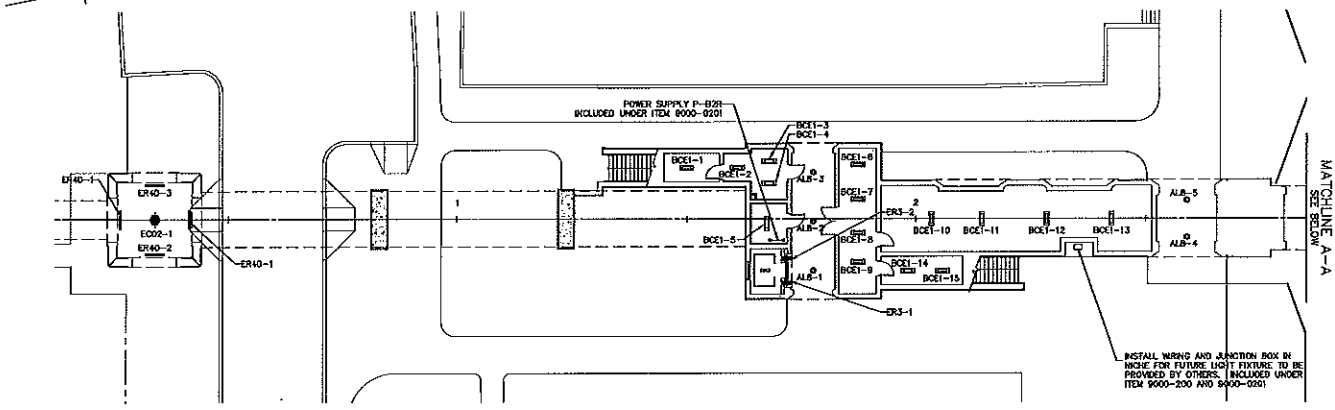
1. THIS PLAN IS FOR THE CONSTRUCTION OF LIGHTING FIXTURES ONLY. REFER TO DRAWINGS FOR CONSTRUCTION FOR FOR ALL OTHER WORK.
2. DESIGN OF ALL CIRCUITRY FOR PEDESTRIAN BRIDGE LIGHTING TO BE COMPLETED UNDER ITEM 9000-0202. DESIGN OF PEDESTRIAN BRIDGE STRUCTURE LIGHT FIXTURE POWER SUPPLY.
3. CONSTRUCTION OF ALL CIRCUITRY FOR PEDESTRIAN BRIDGE LIGHTING TO BE COMPLETED UNDER ITEM 9000-0701; CONSTRUCTION OF PEDESTRIAN BRIDGE STRUCTURE LIGHT FIXTURE POWER SUPPLY.
4. LIGHTING LOCATIONS SHOWN ARE APPROXIMATE. REFER TO ARCHITECTURAL DRAWINGS AND ELEVATOR PAVILION ELECTRICAL PLAN FOR INSTALLATION DETAILS AND ADDITIONAL INFORMATION.

CONCEPTUAL PEDESTRIAN BRIDGE LIGHTING PLAN

LOWER LEVEL

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	DELAWARE	0030	–	2 OF 2
	RADNOR TOWNSHIP			

REVISION NUMBER	REMARKS	DATE	BY



NOTE:

1. THIS PLAN IS FOR THE CONSTRUCTION OF LIGHTING FIXTURES ONLY. REFER TO DRAWINGS FOR CONSTRUCTION FOR FOR ALL OTHER WORK.
2. DESIGN OF ALL CIRCUITRY FOR PEDESTRIAN BRIDGE LIGHTING TO BE COMPLETED UNDER ITEM 9000-0200; DESIGN OF PEDESTRIAN BRIDGE STRUCTURE LIGHT FIXTURE POWER SUPPLY.
3. CONSTRUCTION OF ALL CIRCUITRY FOR PEDESTRIAN BRIDGE LIGHTING TO BE COMPLETED UNDER ITEM 9000-0201; CONSTRUCTION OF PEDESTRIAN BRIDGE STRUCTURE LIGHT FIXTURE POWER SUPPLY.
4. LIGHTING LOCATIONS SHOWN ARE APPROXIMATE. REFER TO ARCHITECTURAL DRAWINGS AND ELEVATOR PAVILION ELECTRICAL PLAN FOR INSTALLATION DETAILS AND ADDITIONAL INFORMATION.

LIGHT	STATION
ER40-1	0+34 CL
ER40-2	1+33 RT
ER40-3	1+63 LT
ER40-4	1+63 CL
EC02-1	0+34 CL
ALB-1	1+78 RT
ALB-2	1+78 RT
ALB-3	1+78 LT
ER3-1	1+72 RT
ER3-2	1+72 RT
ALB-4	2+59 RT
ALB-5	2+59 LT
EA1-1	2+90 CL
EA1-2	3+49 CL

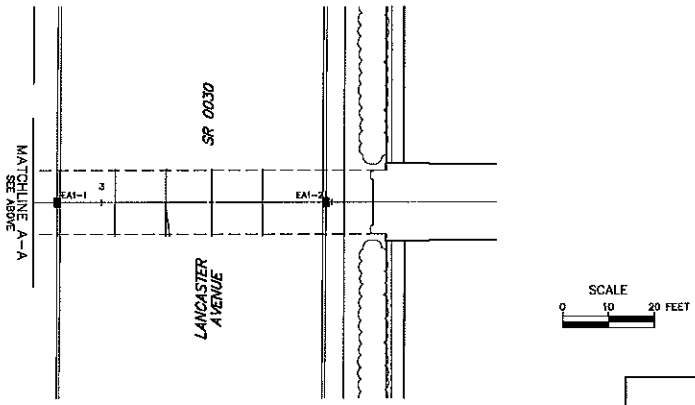
LIGHT	STATION
BCE1-1	1+50 LT
BCE1-2	1+81 LT
BCE1-3	1+70 LT
BCE1-4	1+87 RT
BCE1-5	1+97 RT
BCE1-6	1+87 LT
BCE1-7	1+87 LT
BCE1-8	1+87 RT
BCE1-9	1+97 RT
BCE1-10	2+03 CL
BCE1-11	2+14 CL
BCE1-12	2+28 CL
BCE1-13	2+43 CL
BCE1-14	1+98 RT
BCE1-15	2+08 RT

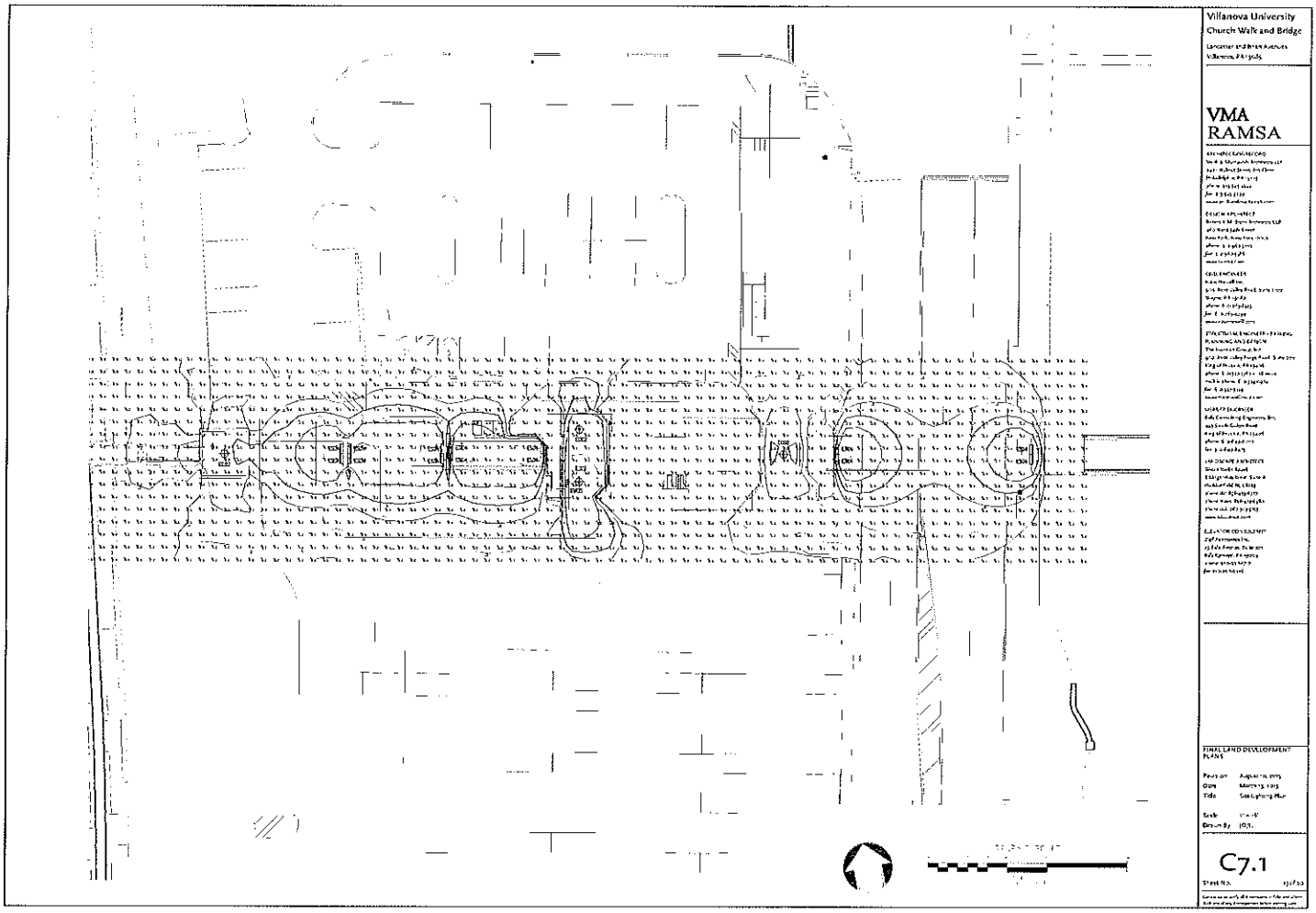
LEGEND

- RECESSED EXTERIOR NEUTRAL LED DOWNLIGHT, ALB, ITEM 9000-0029
- SURFACE MOUNTED EXTERIOR NEUTRAL LED CANOPY FIXTURE, EA1, ITEM 9000-0030
- EXTERIOR PENDANT MOUNTED DECORATIVE LED FIXTURE, EC02, ITEM 9000-0031
- RECESSED COMPACT FLUORESCENT WALL LIGHT, ER1, ITEM 9000-0032
- EXTERIOR RECESSED ROUND NEUTRAL LED STEP LIGHT, ER2, ITEM 9000-0033
- EXTERIOR RECESSED NEUTRAL LED STEP LIGHT, ER3, ITEM 9000-0034
- EXTERIOR RECESSED MEDIUM OUTPUT 4'-0" LED FIXTURE, ER40, ITEM 9000-0035
- EXTERIOR RECESSED MEDIUM OUTPUT 2'-0" LED FIXTURE, ER20, ITEM 9000-0049
- 4' LONG 2-LAMP INDUSTRIAL SURFACE/PENDANT TURRET TYPE FLUORESCENT LIGHT FIXTURE, BCE1, ITEM 9000-0048

LEGEND CONT'D

- EXTERIOR RECESSED MEDIUM OUTPUT LED FIXTURE, EW08, ITEM 9000-0050
- RELOCATED EXISTING EXTERIOR DECORATIVE POLE MOUNTED FIXTURE, ZP01, ITEM 9000-0036
- EXISTING EXTERIOR METAL HALIDE PIER MOUNTED FIXTURE TO REMAIN, ZP02
- RELOCATED EXISTING EXTERIOR DECORATIVE PIER MOUNTED FIXTURE, ZP03, ITEM 9000-0037
- RELOCATED EXISTING EXTERIOR 3-HEAD POLE MOUNTED FLOOD LIGHT, ZP73, ITEM 9000-0048





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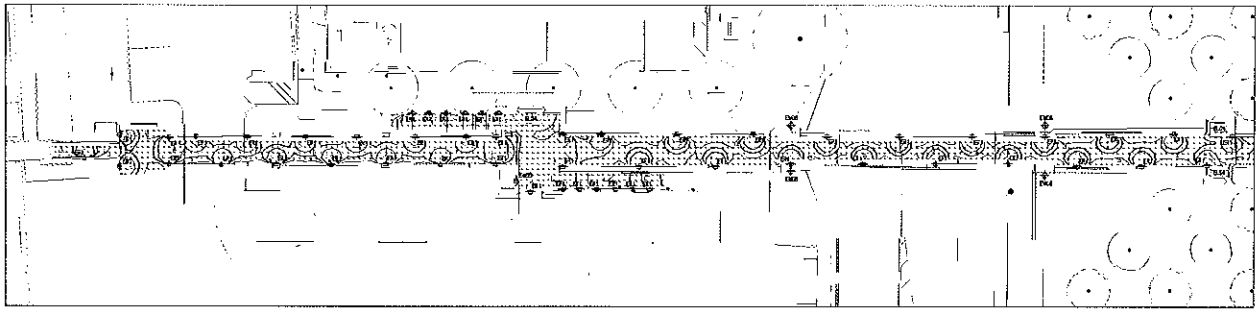
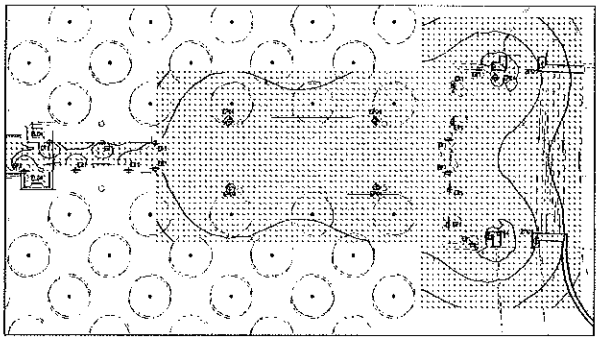
FINAL LAND DEVELOPMENT PLANS

Revision: August 19, 2015
Date: March 13, 2015
Title: Site Lighting Plan
Scale: 1" = 10'
Drawn By: JDS

C7.1

Sheet No. 13 of 33





Villanova University
Church Walk and Bridge

Lancaster and Ithan Avenues
Villanova, PA 19085

VMA
RAMSA

FINAL LAND DEVELOPMENT PLANS

Revision	August 14, 2015
Date	March 13, 2015
Title	Site Lighting Plan
Scale	1" = 40'
Drawn By	WJR

C7.2

Sheet No. 14 of 20

Ithan and Lancaster Paving Schedule
Lancaster Ave, East of Ithan- Middle of October
Lancaster Ave, West of Ithan- Early November
Ithan Ave, South of Lancaster- Early-Mid September
Ithan Ave, North of Lancaster- Early/Mid October