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Architectural Review Board Staff Report

Project Type: Amended Site Development Section Plan

Meeting Date: November 12, 2015

From: Purvi Patel
Project Planner

CC: Aimee Nassif, Planning & Development Services Director

Location: North side of North Outer 40 Road, west of Timberlake Manor Parkway

Applicant: Stock and Associates Consulting Engineers, Inc., on the behalf of Opus Development Company, LLC.

Description: **Kraus Farm Office Center (OPUS I & II):** An Amended Site Development Section Plan, Amended Landscape Plan, Amended Lighting Plan, Amended Architectural Elevations and an Architect's Statement of Design for a 14.41 acre tract of land zoned "PC" Planned Commercial District located on the north side of North Outer 40 Road, west of Timberlake Manor Parkway.

PROPOSAL SUMMARY

The request is for a four story, 149,669 square foot office building with a bi-level parking garage located at the northwest corner of North Outer 40 Road and Timberlake Manor Parkway. The subject site is zoned "PC" Planned Commercial District and is governed under the terms and conditions of City of Chesterfield Ordinance Number 2464. The exterior building materials will be comprised of architectural precast panels, high efficiency tinted glass, and accent metal panels with a TPO (Thermoplastic Polyolefin) roofing system with precast panels and metal panel system for screening roof-top equipment.

HISTORY OF SUBJECT SITE

On June 16, 2008, the City of Chesterfield approved Ordinance 2464, which changed the zoning of the subject site from an "NU" Non- Urban District to a "PC" Planned Commercial District. Furthermore, a Site Development Concept Plan and Site Development Section Plan were approved by the Planning Commission on September 8th, 2008, but the lot was never developed and is currently vacant. In conjunction with the Amended Site Development Section Plan, Staff is also reviewing an Amended Site Development Concept Plan for the subject site.

Figure 1 – Subject Site Aerial

STAFF ANALYSIS

The subject site is zoned "PC" Planned Commercial District under the terms and conditions of City of Chesterfield Ordinance 2464. This ordinance allows for a maximum of 345,330 square foot total building floor area. As discussed above, an application for an Amended Site Development Concept Plan is under review at this time as well. With the current Amended Site Development Concept Plan, the applicant is proposing a 149,669 square foot building with the first phase followed by a second phase addition of 73,400 square feet, bringing the total building floor area to 223,069 square feet. The proposal before you only includes the first phase of this plan.

General Requirements for Site Design:

A. Site Relationships

The subject site sits along North Outer 40 Road in between the Timberlake Corporate Center and the Mercy Rehabilitation facilities. Additionally, there are some residential properties to the north along Conway Road. While vehicular access to the site will be provided from Timberlake Manor Parkway, the site has direct visibility from Interstate 64/US Highway 40. The site has been designed to take advantage of this view and the main façade of the building will face the Interstate. Furthermore, as required by the ordinance, the applicant is providing a water feature in a prominent location, visible both from the Interstate and the main entrance drive into the development.

B. Circulation System and Access

The site is currently accessed via an entrance from Conway Road; however, this access will be eliminated and access to the site will be provided via two entrances from Timberlake Manor Parkway as seen in Figure 2 on the next page. The northernmost entrance will provide access to the loading area, parking garage and will connect to the development to the west. The southern

entrance will serve as main entrance to the site, with visitor parking area, drop-off areas and parking garage access from this drive. The visitor parking and drop-off area are separated from the two main drives, to provide a safe area for the visitors in front of the building. Employee parking will be provided in the bi-level parking garage, with a future area reserved for a parking expansion to the south of the proposed garage.

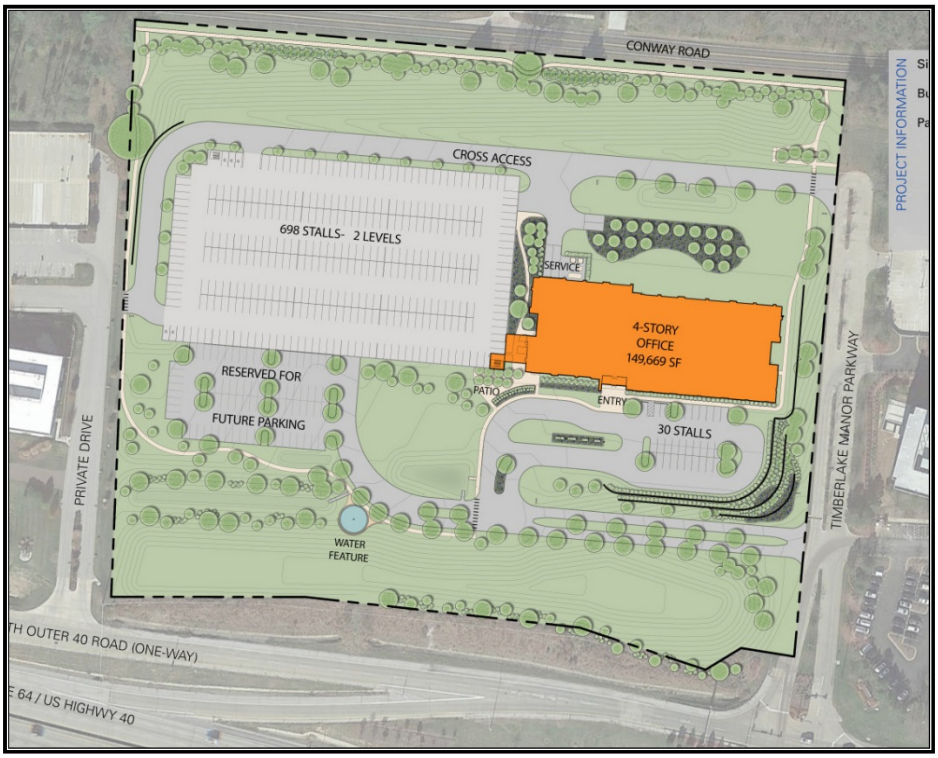

Figure 2 – Colored Site Plan

The proposal includes a sidewalk along Conway Road which will connect to the on-site sidewalks creating a path that loops the site. This loop runs along the eastern and southern edges of the building, down to the proposed water feature and bio-retention area south of the garage and up along the western edge of the development. A sidewalk connection is also provided to the east and west as required by the ordinance.

C. Topography

The site is designed to take advantage of the significant slope of the site which runs from the northwest corner of the site to the southeast corner. The parking structure is tucked into the hillside, providing a visual relief from the height and mass of such structures. The applicant is proposing significant grading on both the northern and southern ends of the site. There is a landscape berm proposed along Conway Road to assist in screening the site from the residential properties to the north. Additionally, a detention basin is proposed along the southern portion of the site.

D. Retaining Walls

The proposal includes a tier of retaining walls along the southeast corner of the site which will be softened by a variety of plantings to provide screening and architectural interest to the walls. The tallest wall, closest to the visitor's parking area will include a guardrail for safety purposes. A retaining wall with a guardrail is also proposed north of the access drive near the western edge of the site. These walls are proposed to manage the soils on the site while minimizing the environmental impact to the development, as detailed in the Architect's Statement of Design.

General Requirements for Building Design:

A. Scale

The applicant is proposing a four story building that is approximately 83 feet in height, including roof-top equipment. The building height is comparable with the developments to the east and west. Additionally, the contemporary design of the proposed building ties into the surrounding area architecture via the use similar materials, such as large glass expanses and precast concrete. The building has been designed "to provide sculpted, off-set massing to add visual interest and reduce the sense of scale. This is reinforced by the stepping of the building at the corners, and the recessed entry at the 1st level."[1] Furthermore, the building design features a substantially varied array of architectural elements, including vertical glass entry, horizontal and vertical framing components, recessed glass and columns, horizontal screens and changes in the precast color.

As previously discussed, the bi-level parking garage will be tucked into the hillside, providing an appearance of being on grade from the north, and in turn reducing the overall mass and sense of scale for the structure especially when viewed from the north. The applicant is proposing to link the parking garage and main building via a covered pedestrian path.

B. Design

The highly contemporary design of the buildings is achieved through the innovative use of color and materials. Through a comprehensive site design, the building is integrated with the topography of the site to highlight both architectural and natural site elements. A four sided building design provides interesting views from each direction. The following are points included in the Architect's Statement of Design regarding the building's design:

- The office building is designed to provide sculpted, off-set massing to add visual interest and reduce the sense of scale. This is reinforced by the stepping at the building corners, and the recessed entry at the 1st level.
- The buildings vertical length is broken by the architectural framing element and vertical glass entry expression, along with the recessed glass and column expressions at the first level creating a building base. Architectural precast color changes at individual massing areas create unique massing elements.
- The architectural framing element visually connects the main entry and fourth floor balcony adding a strong point of interest from the highway view.
- The main south entry will be recessed and sheltered by a canopy, creating a sense of pedestrian scale and providing a protected entrance.

[1] Architect's Statement of Design, 2015

- The building presents a strong sustainable statement with horizontal sunscreens and large areas of high performance vision glass. The sunscreens also enhance the building image through a constantly changing play of light and shadow throughout the day.

There is a landscaped outdoor dining patio proposed west of the main entrance and the area in front of the building will feature a landscaped island with a flag display. As previously mentioned, the site specific ordinance requires that a water feature be provided on the site. In accordance with this requirement, this feature is prominently located as a focal point to the public entering via the main entry drive and will be visible from North Outer 40 Road as well. The water feature will consist of a hard slash surface with a 12 to 14 foot vertical water jet. The proposal also includes benches around the water feature.

C. Materials and Color

The choice of materials for the building includes architectural precast panels, pre-finished aluminum accent metal panels, high efficiency tinted glass windows and curtainwall elements in prefinished aluminum frames, and functional prefinished sunscreens. The precast panels will be comprised of three (3) complimentary colors ranging from white to dark gray. To accent these colors, the pre-finished aluminum accent "wrap on the south and east façades will be white in color and the entry canopies will be dressed in a pre-finished metal to match the window systems. The curtainwall will have pre-finished silver frames with a light gray tinted and insulated glass. The proposed spandrel glass will be the same glass as the vision glass. The roof-top equipment will be screened by the use of a painted horizontal ribbed, architectural metal panel roof screen and precast panels to match the building.

The parking garage will utilize the same architectural precast panels, glass and metal as the office building for its finishes.

Figure 3 – Rendering

D. Landscape Design and Screening

The north side of the site will be a landscaped berm which stretches along the frontage of the site. The required buffer plantings are provided at the top of the berm, just south of the sidewalk along Conway Road, and the south side of the berm will include native prairie plantings. North of the proposed building, the applicant has also proposed a grove of ornamental trees; a feature visible from the north side of the building. The southern entry drive is lined with trees leading to the water feature. The required landscape buffer along North Outer 40 Road has been broken up into two main areas due to existing site constraints and the proposed drainage area along the southern edge of the site. The area on the southeast corner will include buffer plantings near the property line; whereas, the buffer plantings are provided behind the drainage swale at the southwest corner. Furthermore, a garden is proposed on the northwestern edge of the building, east of the parking garage. This is the day-to-day pedestrian route from the parking garage to the building. This area will also serve to provide screening of the service area of the building – loading dock, mechanical equipment and dumpsters. Additional precast walls matching the building will provide screening of this area. As previously discussed, the roof-top equipment will be screened by painted horizontal ribbed, architectural metal panel roof screens and precast panels.

There will be 58% open space provide in the first phase of development; this percentage takes into account the future proposed parking south of the parking garage.

E. Signage

Ordinance 2464 requires a Sign Package for this development and one is currently under review with Staff. Once Staff completes the review of this submittal, it will be presented to the Planning Commission for consideration.

F. Lighting

Site lighting is proposed for walkways and parking fields to assure security and safe travel while on the site and not contribute to light pollution. The applicant is proposing light column bollards along the walkways/sidewalks and metal halide area lights for the driveways, parking areas and top level of the parking garage. Additional street lights are provided along Conway Road. Wall packs will illuminate the service area, with down lights integrated into the canopy designs to illuminate the visitor and employee entrances. To maintain the modern look of the building, no additional fixtures are proposed on the building.

DEPARTMENTAL INPUT

Staff has reviewed the Amended Site Development Section Plan, Amended Landscape Plan, Amended Lighting Plan, Amended Architectural Elevations and Architect's Statement of Design. Be advised, this project is still going through development review by City Staff and will not proceed to the Planning Commission until all outstanding items have been addressed. All recommendations made by the ARB will be included in Staff's report to the Planning Commission.

Staff requests action on the Amended Site Development Section Plan, Amended Landscape Plan, Amended Lighting Plan, Amended Architectural Elevations and Architect's Statement of Design for Kraus Farm Office Center (OPUS I & II).

MOTION

The following options are provided to the Architectural Review Board for consideration relative to this application:

1) "I move to forward the Amended Site Development Section Plan, Amended Landscape Plan, Amended Lighting Plan, Amended Architectural Elevations and Architect's Statement of Design for Kraus Farm Office Center (OPUS I & II) as presented, with a recommendation for approval (or denial) to the Planning Commission."

2) "I move to forward the Amended Site Development Section Plan, Amended Landscape Plan, Amended Lighting Plan, Amended Architectural Elevations and Architect's Statement of Design for Kraus Farm Office Center (OPUS I & II), to the Planning Commission with the following recommendations…"

Attachments

1. Architectural Review Packet Submittal

SHEET INDEX

City of Chesterfield

ARCHITECTURAL REVIEW BOARD
Project Statistics and Checklist

Date of First Comment Letter Received from the City of Chesterfield 9-28-2015

Project Title: Opus I at Kraus Farms **Location:** 1391 Timberlake Manor Pkwy.

Developer: Opus Devel. Comp. **Architect:** Opus AE Group **Engineer:** Stock & Assoc.

PROJECT STATISTICS:

Size of site (in acres): 14.41 **Total Square Footage:** 149,669 **Building Height:** 4 Stories

Proposed Usage: Office Building / Free Standing Parking Sturcture

Exterior Building Materials: Architectural Precast Panels, Glass, Arhitectural Metal Panel

Roof Material & Design: TPO Roofing System

Screening Material & Design: Combination of Architectural Precast Walls and Metal Panel Systems

Description of art or architecturally significant features (if any): Amenities include covered balcony, metal sun shades, architectural metal panel "wrap" feature, site features include fountain visible from north outer forty, flagpoles, south side plaza.

ADDITIONAL PROJECT INFORMATION: Parking Structure Constructed of Same Architectural Precast as Office Building

Checklist: Items to be provided in an 11" x 17" format

- [X] Color Site Plan with contours, site location map, and identification of adjacent uses.
- [X] Color elevations for all building faces.
- [X] Color rendering or model reflecting proposed topography.
- [X] Photos reflecting all views of adjacent uses and sites.
- [X] Details of screening, retaining walls, etc.
- [X] Section plans highlighting any building off-sets, etc. (as applicable)
- [X] Architect's Statement of Design which clearly identifies how each section in the Standards has been addressed and the intent of the project.
- [X] Landscape Plan.
- [X] Lighting cut sheets for any proposed building lighting fixtures. (as applicable)
- [X] Large exterior material samples. (to be brought to the ARB meeting)
- [X] Any other exhibits which would aid understanding of the design proposal. (as applicable)
- [X] Pdf files of each document required.

Opus I at Kraus Farm Office Center

Architect Statement of Design Intent

October 29th, 2015

The proposed building is scheduled to be a four-story 149,669 square foot office building. The project is located on the site north of Highway 40 and west of Timberlake Manor Parkway.

I. Site Layout

A. Physical Features

1. The existing site is currently a vacant farm and grounds with a small house and 4-5 out-buildings located on the property.
2. There is a significant amount of slope on the site from the northwest corner, (598) sloping down toward the southeast corner (522). The project design attempts to maintain this unique characteristic of the site, tucking the parking structure into the hillside at the northeast corner, reducing its visual height and mass, and creating a landscaped tier of walls stepping the site down at the southeast corner, all while balancing the soils on the site, minimizing the environmental impact of the development.

B. Vegetation

1. The site is currently a field with several vacant buildings. There is a limited amount of trees and brush on the perimeter of the property with several "yard" trees located around the vacant home and out-buildings. We will be preserving a Monarch tree along Conway road and 3 trees along the western property line. We have achieved compliance with the 30% preservation requirement of the Tree Preservation and Landscape Requirements. See attached Landscape plan.

C. Site Relationship

1. The building site is bordered on the north by Conway Road, to the east by Timberlake Manor Parkway, to the south by North Outer Forty Road and to the west by a private access drive to Mercy Rehabilitation Hospital. The main visitor, employee and service site entrance will be from Timberlake Manor Parkway and a new shared access drive that will be constructed as part of the new development.

D. Vehicular Circulation

1. The entries/exits for the site will be located along Timberlake Manor to the east and the shared access drive of Mercy Rehabilitation Hospital to the west. Both of these drives join North Outer Forty Road. The vehicles will enter the site and circulate to the parking garage on drives both to the south and north of the building, reducing the traffic flow and congestion on either road. The visitor parking and drop-off area is separated from these drives, creating a safe area for the visitor and visitor handicap parking in front of the building. Employee handicapped parking is located at the premium spots on the first level of the parking structure, closest to the employee entry.
2. Delivery vehicles will be able to enter from the shared access drive and proceed directly to the loading area located at the northwest corner of the office of building
3. A fire lane/access drive has been incorporated into the front entry drive and visitor parking area at the request of Monarch Fire Protection District.

E. Pedestrian Circulation

1. The visitor and visitor accessible parking spaces will be located directly in front of the building to allow easy, close, access to the main entry, separate from the main access drive through the site.
2. The employee entry to the building is linked to the parking garage with decorative paving and a canopy to provide safe and covered access from the parking ramp to the building for employees.
3. An employee walking/jogging path loops the site, connecting to the sidewalk along Conway Road, providing an enjoyable outdoor amenity for the project.

II. Building Structure

A. Scale and Design

1. The office building will be a four-story, contemporary design with an exciting vocabulary of materials including architectural precast panels, pre-finished aluminum accent metal panels, high efficiency glass windows and curtainwall elements in prefinished aluminum frames, and functional prefinished sunscreens on the east, west and south facades.
2. The office building is designed to provide sculpted, off-set massing to add visual interest and reduce the sense of scale. This is reinforced by the stepping at the building corners, and the recessed entry at the 1st level.
3. The buildings vertical length is broken by the architectural framing element and vertical glass entry expression, along with the recessed glass and column expressions at the first level creating a building base. Architectural precast color changes at individual massing areas create unique massing elements.
4. The architectural framing element visually connects the main entry and fourth floor balcony adding a strong point of interest from the highway view.
5. The main south entry will be recessed and sheltered by a canopy, creating a sense of pedestrian scale and providing a protected entrance.
6. The building presents a strong sustainable statement with horizontal sunscreens and large areas of high performance vision glass. The sunscreens also enhance the building image through a constantly changing play of light and shadow throughout the day.
7. The two story parking structure will be tucked into the hillside at the northwest corner of the site, creating an "on grade" appearance from the north and reducing the overall sense of scale and mass for the structure.
8. The ramp will utilize the same high quality architectural precast, glass and metal as the office building for its exterior finishes.
9. There will be a covered pedestrian link between the parking structure and the office building.
10. The buildings will be compatible in scale with the other adjacent commercial developments along North Outer Forty Road.
11. The screen wall surrounding the roof type equipment will be a combination of architectural precast and metal panel and will integrate into the design of the building through the use of color and material.

B. Relationship to Adjacent Development

1. This development with its contemporary style, architectural pre-cast concrete and high performance glass design will tie in nicely with the adjoining Timberlake Corporate Center buildings to the east and the Mercy Rehabilitation Hospital to west. Both of these buildings are also contemporary, architectural pre-cast concrete and glass in style.

C. Materials and Colors

1. The exterior of the building will be predominately architectural pre-cast concrete, pre- finished aluminum panels, and high performance tinted insulated glass in aluminum curtain wall and both strip and punched window systems.
2. The architectural pre-cast concrete will be comprised of three compatible, complimentary colors ranging from a white to dark gray. The pre-finished aluminum accent "wrap" will be white in color. The entry canopies will be clad in a prefinished metal to match the window systems.
3. The curtainwall window system will have pre-finished silver frames with a light gray tinted insulated glass. Spandrel glass will be the same glass as the vision glass with a ceramic frit on the number 4 surface.
4. Soffits and other architectural elements will be finished with materials compatible with the other exterior materials.
5. Please refer to the exterior rendering and to the larger samples to be submitted at the Architectural Review Board meeting.

Non-Residential Architecture

A. General

1. The two sides and rear façades will be designed with similar detailing as the front/primary façade. The south elevation will have a pre-finished aluminum accented "wrap". Please see attached colored exterior building elevations for more information.
2. The parking garage will be designed with similar detailing, materials and colors as the building to create an overall uniform development. The parking structure is tucked into the hillside to minimize the scale and height presented to the residential area to the north.

B. Building Equipment and Service

1. Delivery vehicles will enter from cross access road off of the shared Timberlake Manor Drive to the east and proceed directly to the loading areas located to the northwest of the building. The intent is to separate these areas from the parking areas and the main circulation of vehicles and pedestrians.
2. Screening elements including landscaping and screen walls will be used to screen exterior equipment as required.

C. Chesterfield Guidelines

1. All utilities will be installed underground.
2. The two sides and rear façades will be designed with similar detailing as the front/primary façade with the south elevation having a pre-finished aluminum accented "wrap", which faces North Outer Forty Road and Interstate 64/US Highway 40.
3. This project will be designed to meet the required open space requirements as stated in the *City of Chesterfield Unified Development Code*. See attached Site Plan.
4. This project will be designed to meet the required landscape requirements as stated in the *City of Chesterfield Unified Development Code*. See attached Landscape plan.

III. Landscape Design

1. A simple yet refined landscape treatment has been created to enhance the visual appearance of the building and parking structure from the public thoroughfares of North Outer Forty Road and Timberlake Manor Drive. Plantings are utilized to frame views of the buildings, reduce the linear nature of the parking structure and to assist with way-finding for visitors to the facility.
2. A landscaped berm will stretch from west to east along the northern border of the site, with buffer plantings located at the crest of the berm The berm and planting will provide privacy to the area north of Conway Road. The south side of the berm will be converted into a native prairie planting in order to re-establish native habits beneficial to birds and butterfly populations.
3. On campus users will appreciate the garden located on the day-to-day pedestrian route from the parking structure into the building as well as the groves of shade trees located at the dining patio. Another grove of ornamental trees will be created north of the office building as a landscape feature visible from all of the north facing offices.
4. Three distinct water quality bio-retention basins will be constructed in accordance with MSD specifications. These basins will be planted with grasses, sedges and forbs in distinctive mass plantings to provide water quality benefits as well as aesthetic appeal.

IV. Miscellaneous

A. Signage

A comprehensive signage package will be submitted to the planning commission.

B. Lighting

1. To maintain the sleek, modern look of the building and reduce dark sky light trespass, building lighting has been kept to a minimum. Wall pack units illuminate the building service area and exits. Down lights, integrated into the canopy designs, illuminate the visitor and employee entrances.
2. The site lighting will be oriented toward the building and parking areas to avoid affecting adjacent properties.
3. The proposed monument sign will be ground lit individual letters.

C. Utilities

1. All utilities will be installed underground.
2. Landscaping and or screen walls will be used to screen exterior electrical transformers, gas meters or other equipment required to be screened.

D. Storm Water Drainage

1. Storm water will be drained from the rooftop of the building and parking garage with interior roof drains.
2. The parking area will be sloped to allow storm water to drain away from the building and off the parking area to the storm water collection inlets or directly to bio-retention basins.
3. The storm water will be treated with pervious pavement areas and bio-retention basins prior to discharging to the detention basin. See the civil plan for more detailed information.

E. Energy Conservation

1. The building shall be designed and constructed to meet or exceed energy guidelines that are enforced at the current time.

F. Screening (Fences & Walls)

1. A painted horizontal ribbed, architectural metal panel roof screen, compatible with the building architecture, will be located in the center bays of the roof to screen all roof top equipment.
2. The trash dumpsters will be screened from view by a two-sided architectural precast wall to match the building. This enclosure will be enhanced with plant materials to allow this element to blend into the landscape, including enhance planting and landscaping along the west side of the service drive to screen views from the west. Please see the Landscape Plan for details.
3. The series of retaining walls along the southeast corner of the site will be softened and screened by a variety of plant materials where these walls do not function as architectural or "entry statement" elements.

G. Water Feature

1. Located in a prominent location as a focal point to the main visitor entry drive, the water feature will consist of a hard splash surface (concealed water basis) with a 12 to 14 foot high vertical water jet. The water feature is placed to be visible from on site and also enjoyed by the public driving on North Outer 40. It will have an understated elegance for those viewing from off the property as well as visitors and guests arriving at the building visitor's entry. See representative photos.

Sincerely,

Grant A. Peterson, AIA
Vice President
Opus AE Group, L.L.C.

OPUS
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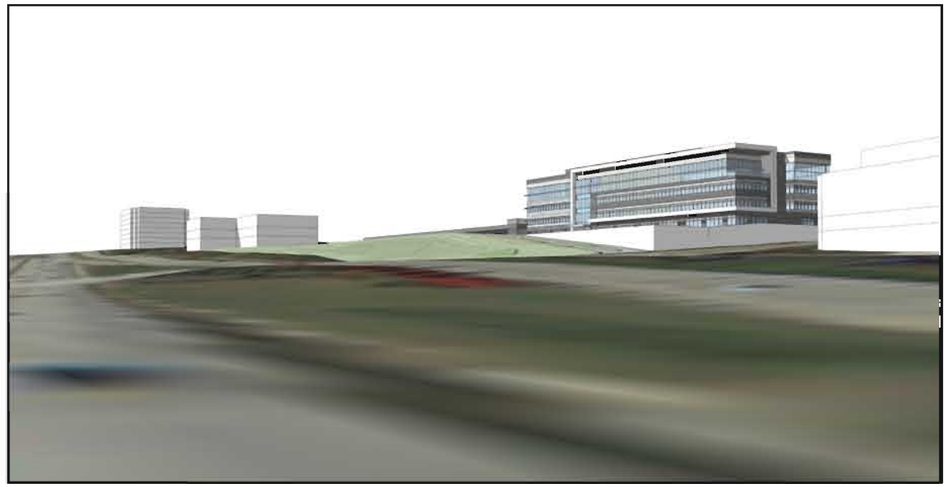
OPUS I at Kraus Farm Office Center

Chesterfield, Missouri

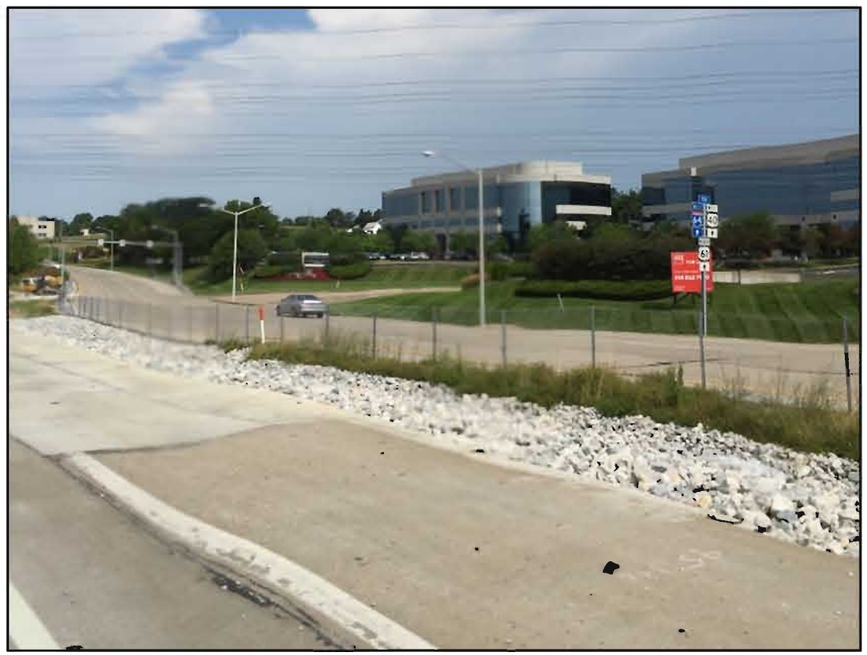
Site Context

10.29.2015



Conceptual progression heading West

View Looking West Toward
Timberlake Corporate Center



View Looking West Toward
Timberlake Corporate Center

View Looking West Toward
40 West Office Building & Mercy Rehab Hospital

Photographic progression heading West

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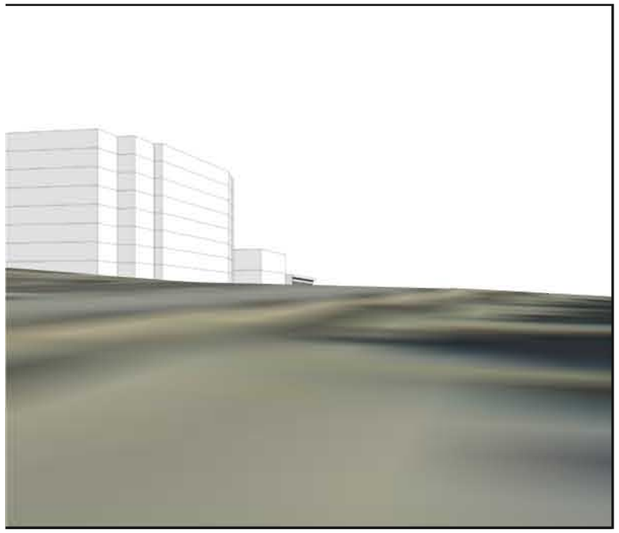
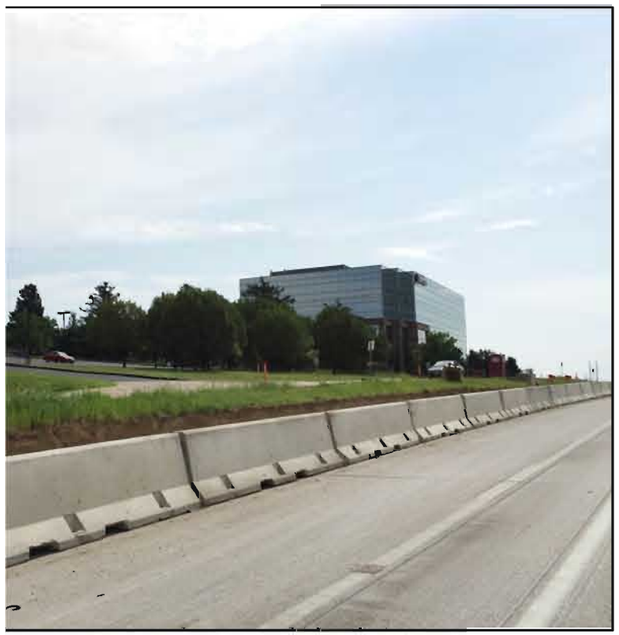
OPUS I at Kraus Farm Office Center
Chesterfield, Missouri

Surrounding Context- I-64 / N. Outer 40 West
10.29.2015



Conceptual progression heading East

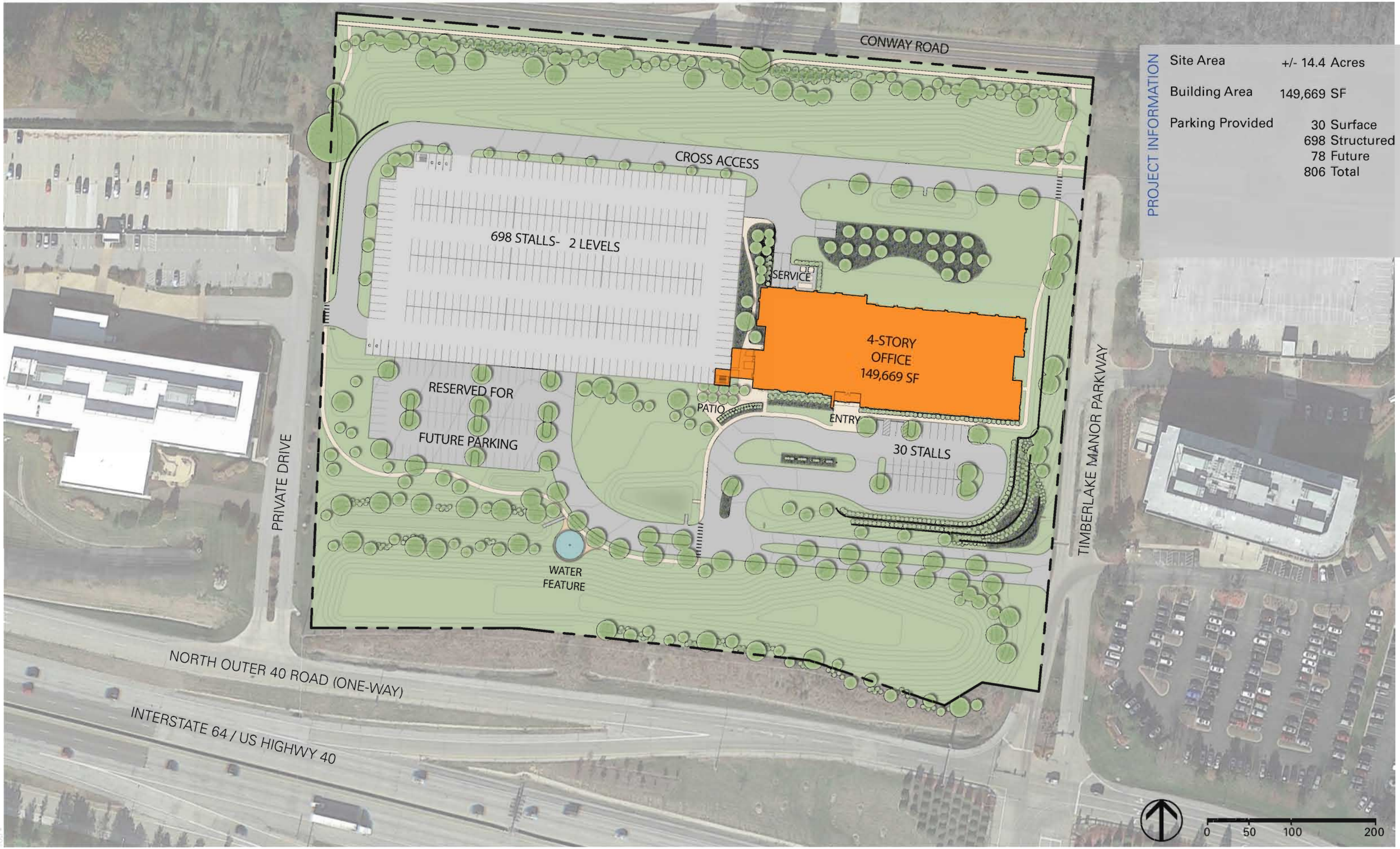


View Looking East Toward
40 West Office Building

View Looking East Toward
40 West Office Building

View Looking East Toward
Mercy Rehab Hospital

Photographic progression heading East



PROJECT INFORMATION

Site Area	+/- 14.4	Acres
Building Area	149,669	SF
Parking Provided	30	Surface
	698	Structured
	78	Future
	806	Total

OPUS
THE OPUS GROUP

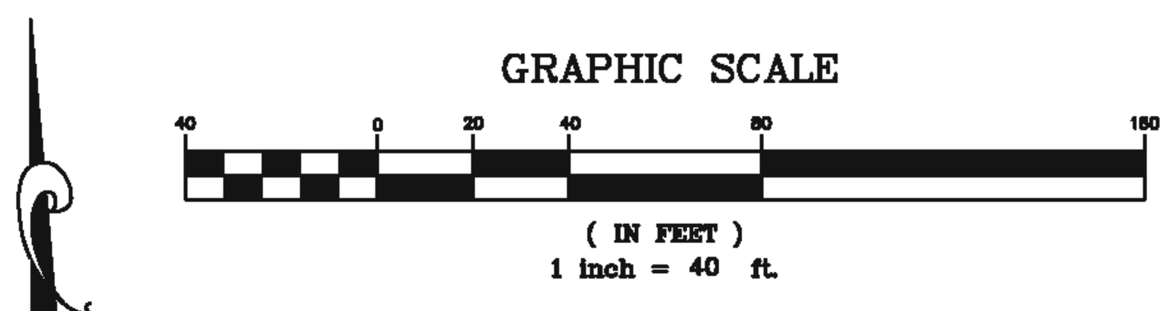
OPUS I at Kraus Farm Office Center

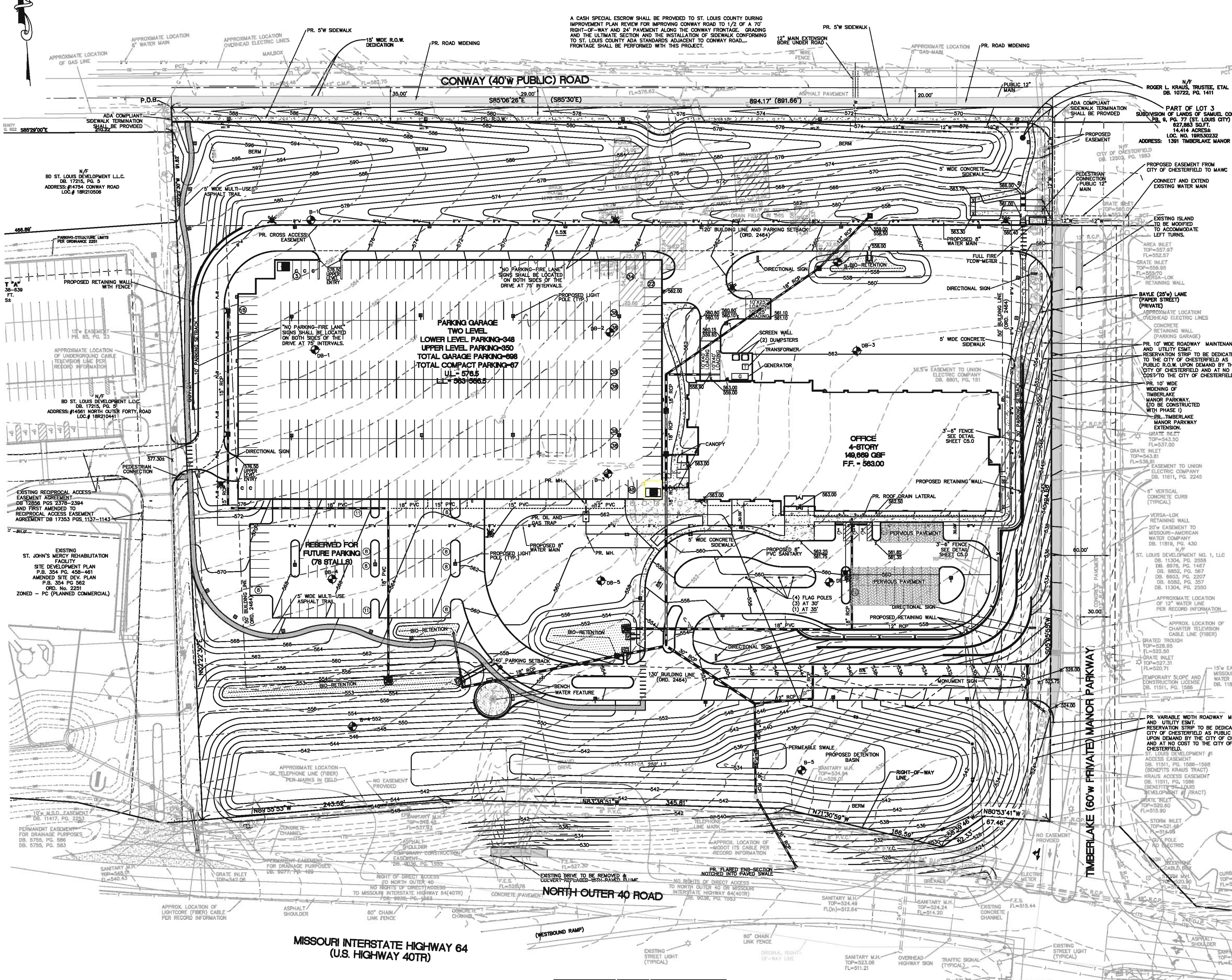
Chesterfield, Missouri

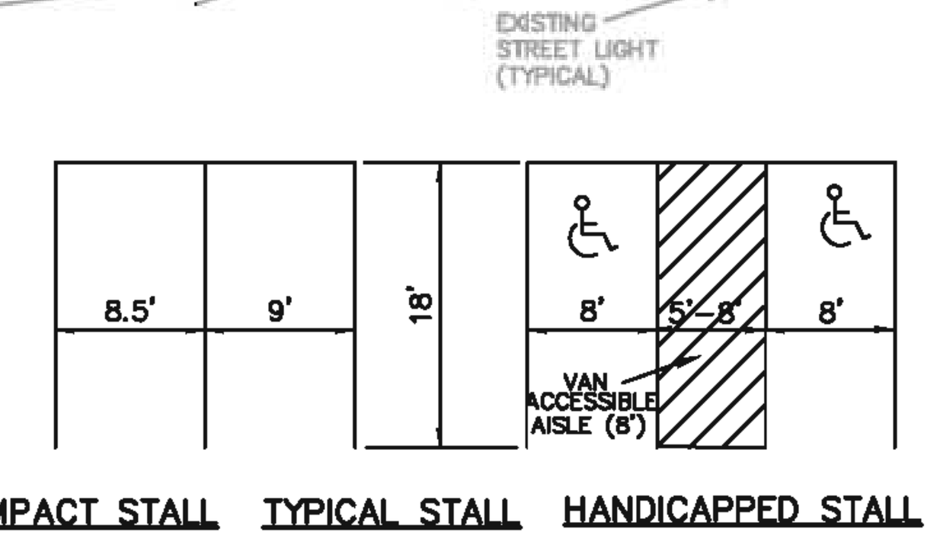
Colored Site Plan

10.29.2015

AMENDED SITE DEVELOPMENT SECTION PLAN







PERTINENT DATA

SITE ACREAGE	=	14.414 ± ACRES
EXISTING ZONING	=	PC – PLANNED COMMERCIAL
ORDINANCE No.	=	2464
LOCATOR No.	=	19R530232
SEWER DISTRICT	=	METROPOLITAN ST. LOUIS SEWER DISTRICT
FIRE DISTRICT	=	MONARCH FIRE PROTECTION
WATERSHED	=	MISSOURI RIVER
SCHOOL DISTRICT	=	PARKWAY DISTRICT
WATER SERVICE	=	MISSOURI AMERICAN WATER COMPANY
GAS SERVICE	=	LACLEDE GAS
ELECTRIC SERVICE	=	AmerenUE ELECTRIC
TELEPHONE SERVICE	=	AT&T
FIRM NO.	=	29189C0170 K (DATE FEB. 4, 2015)

GENERAL NOTES

1. GRADING AND DRAINAGE IN R.O.W. PER MO. DEPARTMENT OF TRANSPORTATION.
2. GRADING AND DRAINAGE PER CITY OF CHESTERFIELD AND M.S.D. STANDARDS AND SPECIFICATIONS. STORM WATER TO DISCHARGE AT AN ADEQUATE NATURAL DISCHARGE POINT.
3. THE LOCATION OF STORM AND SANITARY SEWER IMPROVEMENTS ARE APPROXIMATE ONLY. ACTUAL LOCATIONS SHALL BE DETERMINED BY FIELD CONDITIONS AND SHALL BE INDICATED ON THE IMPROVEMENT PLANS.
4. STREET TREES, STREET LIGHTS AND SIDEWALKS SHALL BE PER CITY OF CHESTERFIELD, MODOT, & ST. LOUIS CO. HWY. DEPT. STANDARDS.
5. PARKING CALCULATIONS:
   PARKING FORMULA:
   MIN. 3.33 SPACES / 1000 S.F.
   TOTAL REQUIRED MIN. SPACES: 149,669 SF /1,000 * 3.33 = 499 SPACES
   MAX. 4.5 SPACES / 1000 S.F.
   TOTAL REQUIRED MAX. SPACES: 149,669 SF /1,000 * 4.5 = 674 SPACES
   TOTAL PROVIDED SPACES = 806 SPACES * SEE PARKING DEMAND STUDY PROVIDED (INCLUDES 78 DEFERRED PARKING STALLS)

PROVIDED PARKING

TYPE:	LEVEL:	QUANTITY
ACCESSIBLE PARKING SPACE	LOWER LEVEL 1	13
COMPACT (8.5'X18')	LOWER LEVEL 1	62
PARKING SPACE	LOWER LEVEL 1	273
COMPACT (8.5'X18')	UPPER LEVEL 2	5
PARKING SPACE	UPPER LEVEL 2	345
PARKING SPACE	SURFACE	105
ACCESSIBLE PARKING SPACE	SURFACE	3
	TOTAL PROVIDED:	806

REQUIRED LOADING:
10'X25' MIN. – 2 FOR 25,000 SF – 100,000 SF
10'X40' MIN. – 1 FOR 25,000 SF – 100,000 SF
10'X40' MIN. – 1 FOR EACH ADDITIONAL 100,000 SF
REQUIRED 10'X25' MIN. = 2
REQUIRED 10'X40' MIN. = 2
PROVIDED LOADING DOCKS = 4

6. BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY STOCK & ASSOC.
7. ALL EXISTING STRUCTURES AND PAVEMENTS ARE TO BE REMOVED FROM SITE.
8. SUBJECT PROPERTY LIES WITHIN FLOOD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 500 YR FLOODPLAIN) ACCORDING TO THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP FOR ST. LOUIS COUNTY, MISSOURI AND INCORPORATED AREAS. THE MAP IS IDENTIFIED AS MAP NO 29189C0170 K (DATE FEB. 4, 2015)
9. ALL UTILITIES WILL BE INSTALLED UNDERGROUND.
10. SIGNAGE APPROVAL IS A SEPARATE PROCESS.
11. ALL SIDEWALKS TO BE CONSTRUCTED TO ADA STANDARDS AS REQUIRED BY SAINT LOUIS COUNTY AND CITY OF CHESTERFIELD.
12. ALL PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED TO SAINT LOUIS COUNTY, CITY OF CHESTERFIELD AND MISSOURI DEPARTMENT OF TRANSPORTATION STANDARDS.
13. ALL GRADING AND DRAINAGE TO BE IN CONFORMANCE WITH SAINT LOUIS COUNTY, MSD AND CITY OF CHESTERFIELD STANDARDS.
14. NO SLOPES WITHIN SAINT LOUIS COUNTY RIGHT-OF-WAY SHALL EXCEED 3 (HORIZONTAL) TO 1 (VERTICAL).
15. STORM WATER SHALL BE DISCHARGED AT AN ADEQUATE NATURAL DISCHARGE POINT. SINKHOLES ARE NOT ADEQUATE DISCHARGE POINTS.
16. PRIOR TO SPECIAL USE PERMIT ISSUANCE BY THE SAINT LOUIS COUNTY DEPARTMENT OF TRANSPORTATION, A SPECIAL CASH ESCROW OR A SPECIAL ESCROW SUPPORTED BY AN IRREVOCABLE LETTER OF CREDIT, MUST BE ESTABLISHED WITH THE SAINT LOUIS COUNTY DEPARTMENT OF TRANSPORTATION TO GUARANTEE COMPLETION OF THE REQUIRED ROADWAY IMPROVEMENTS.
17. IMPROVE CONWAY ROAD TO ONE-HALF OF A 70' RIGHT-OF-WAY AND A 24' PAVEMENT.
18. PROVIDE A SIDEWALK CONFORMING TO SAINT LOUIS COUNTY ADA STANDARDS ADJACENT TO CONWAY ROAD.
19. ADJUST ALL MoDOT UNDERGROUND FACILITIES TO THE PROPER DEPTH/ELEVATION.

SITE COVERAGE

Total Site Area	= 627,883 s.f.
Total Site Coverage	
Prop. Bldg.	= 37,961 s.f. (6.05%)
Prop. Garage	= 103,807 s.f. (16.53%)
Prop. Pvmt.	= 116,543 s.f. (18.56%) (Included Phase I deferred parking)
Total Coverage	= 258,311 s.f.(41.14%)
Openspace Area	= 369,572 s.f.(58.86%)

F.A.R. = 149,669 s.f. / 627,883 s.f. = 0.24

ST. LOUIS COUNTY NOTES

1) ALL PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED TO ST. LOUIS COUNTY STANDARDS.
2) NO SLOPES WITHIN ST. LOUIS COUNTY RIGHT-OF-WAY SHALL EXCEED 3 (HORIZONTAL) TO 1 (VERTICAL).
3) STORM WATER SHALL BE DISCHARGED AT AN ADEQUATE NATURAL DISCHARGE POINT. SINKHOLES ARE NOT ADEQUATE DISCHARGE POINTS.
4) ALL PROPOSED ACCESS TO ST. LOUIS COUNTY ROADS SHALL MEET MINIMUM ST. LOUIS COUNTY SIGHT DISTANCE REQUIREMENTS.
5) ALL SIDEWALKS AND ASSOCIATED ACCESSIBILITY IMPROVEMENTS SHALL BE CONSTRUCTED TO ST. LOUIS COUNTY ADA STANDARDS.
6) A SIGNED/SEALED NOTE SHALL BE ADDED TO THE CONSTRUCTION PLANS INDICATING THAT THE UNIMPROVED EXISTING SIDEWALK ALONG THE PROJECT FRONTAGE MEETS CURRENT ST. LOUIS COUNTY ADA STANDARDS.
7) ALL GRADING AND DRAINAGE SHALL BE IN CONFORMANCE WITH ST. LOUIS COUNTY AND MSD STANDARDS.
8) ALL HYDRANTS, POWER POLES OR OTHER POTENTIAL OBSTRUCTIONS WITHIN THE ST. LOUIS COUNTY ROAD RIGHT-OF-WAY SHALL HAVE A MINIMUM TWO (2) FOOT SETBACK FROM FACE OF CURB OR EDGE OF PAVEMENT, AS DIRECTED BY THE ST. LOUIS COUNTY DEPARTMENT OF TRANSPORTATION.
9) ANY ENTITY THAT PERFORMS WORK ON ST. LOUIS COUNTY MAINTAINED PROPERTY SHALL PROVIDE THE COUNTY WITH A CERTIFICATE OF INSURANCE EVIDENCING GENERAL LIABILITY COVERAGE (BODILY INJURY AND PROPERTY DAMAGE) IN THE AMOUNTS SPECIFIED AS THE LIMITS OF LIABILITY SET BY THE STATE FOR PUBLIC ENTITIES. SUCH CERTIFICATE SHALL INCLUDE "ST. LOUIS COUNTY" AS AN ADDITIONAL INSURED AND SHALL BE PROVIDED PRIOR TO THE ISSUANCE OF ANY PERMIT. CERTIFICATE SHALL PROVIDE FOR A 30 DAY POLICY CANCELLATION NOTICE TO ST. LOUIS COUNTY. UPON REQUEST, THE COUNTY WILL PROVIDE THE SPECIFIC AMOUNTS FOR BOTH PER PERSON AND PER OCCURRENCE LIMITS.
10) PRIOR TO "SPECIAL USE PERMIT" ISSUANCE BY THE ST. LOUIS COUNTY DEPARTMENT OF TRANSPORTATION, A SPECIAL CASH ESCROW OR A SPECIAL ESCROW SUPPORTED BY AN IRREVOCABLE LETTER OF CREDIT, MAY BE REQUIRED TO BE ESTABLISHED WITH THE ST. LOUIS COUNTY DEPARTMENT OF TRANSPORTATION TO GUARANTEE COMPLETION OF THE REQUIRED ROADWAY IMPROVEMENTS.

UTILITY NOTE:

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS, RECORDS AND INFORMATION, AND , THEREFORE DO NOT NECESSARILY REFLECT THE ACTUAL EXISTENCE, NON-EXISTENCE, SIZE, TYPE, NUMBER, OR LOCATION OF THESE FACILITIES, STRUCTURES AND UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION OF ALL UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES, EITHER SHOWN OR NOT SHOWN ON THESE PLANS. THE UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES SHALL BE LOCATED IN THE FIELD PRIOR TO ANY GRADING, EXCAVATION OR CONSTRUCTION OF IMPROVEMENTS. THESE PROVISIONS SHALL IN NO WAY ABSOLVE ANY PARTY FROM COMPLYING WITH THE UNDERGROUND FACILITY SAFETY AND DAMAGE PREVENTION ACT, CHAPTER 319 RSMo..

DRAWING FILE: F:\Draw5300\2145370\Civil\5370-xref.dwg LAYOUT: C02 - Site Section Plan PLOTTED: Oct 28, 2015 - 11:37am PLOTTED BY: ryan.schriber

STOCK & ASSOCIATES
Consulting Engineers, Inc.
257 Chesterfield Business Parkway
St. Louis, MO 63005
PH. (636) 530-9100 FAX (636) 530-9130
e-mail: general@stockassoc.com
Web: www.stockassoc.com

REGISTRATION

STATE OF MISSOURI – GEORGE MICHAEL STOCK – NUMBER PE-25116 – 10/28/15

GEORGE M. STOCK E-25116

ISSUE RECORD

1.) CITY COMMENTS 2015.10.08
2.) CITY COMMENTS 2015.10.28

DESIGN NUMBER

PROJECT NUMBER
214-5370

DATE
09/03/15

PROJECT MANAGER

DRAWN BY
R.E.S.

CHECKED BY
G.M.S.

Prepared For
OPUS.
The Opus Group
7733 Forsyth Blvd.
Suite 1100
St. Louis, MO 63105
314-296-6100

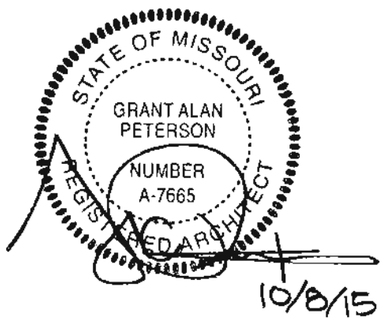
PROJECT
OPUS I
at KRAUS FARM
OFFICE CENTER

LOCATION
1391 Timberlake Manor Pkwy.
Chesterfield, MO 63017

SHEET TITLE
AMENDED SITE DEVELOPMENT SECTION PLAN

SHEET NUMBER
C2.0

PLOT DATE: October 28, 2015 – 11:37am

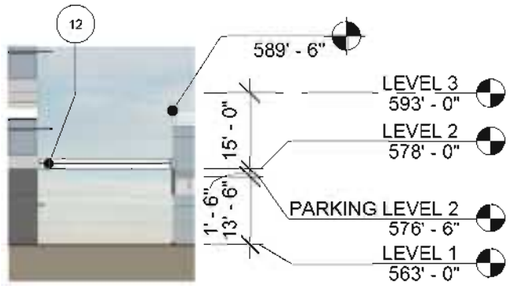


1 NORTH ELEV.
1" = 30'-0"

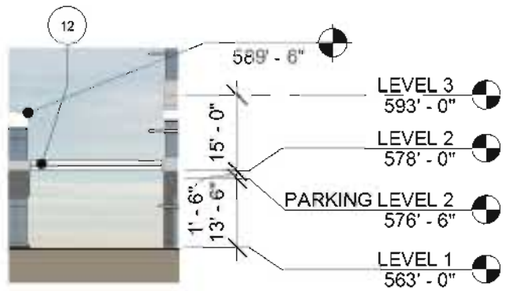
ELEVATION KEY NOTES

1. PRECAST COLOR- DARK GRAY
2. PRECAST COLOR- MEDIUM GRAY
3. PRECAST COLOR- LIGHT GRAY
4. VISION GLASS- VE1-85 CLEAR LOW E
5. INSULATED SPANDREL GLASS- VE-908 GRAY
6. FLAT METAL PANEL- (BM) CHANTILLY LACE
7. RIBBED METAL PANEL- (BM) ANCHOR GRAY
8. METAL SUNSCREEN- CLEAR ANODIZED ALUMINUM
9. GLASS RAILING
10. MULLIONS- CLEAR ANODIZED ALUMINUM
11. EXTERIOR LIGHTING
12. METAL CANOPY- CLEAR ANODIZED ALUMINUM

2 SOUTH ELEV.
1" = 30'-0"



3 CANOPY NORTH ELEV.
1" = 30'-0"



4 CANOPY SOUTH ELEV.
1" = 30'-0"

ELEVATION KEY NOTES

1. PRECAST COLOR- DARK GRAY
2. PRECAST COLOR- MEDIUM GRAY
3. PRECAST COLOR- LIGHT GRAY
4. VISION GLASS- VE1-85 CLEAR LOW E
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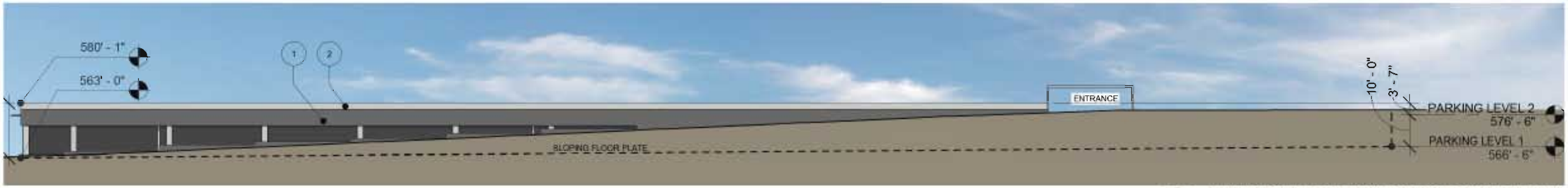
9. GLASS RAILING
10. MULLIONS- CLEAR ANODIZED ALUMINUM
11. EXTERIOR LIGHTING
12. METAL CANOPY- CLEAR ANODIZED ALUMINUM

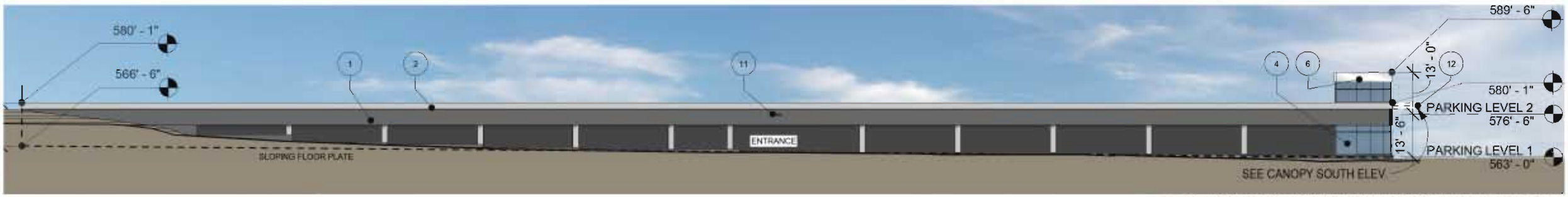
1 EAST ELEV.
1" = 30'-0"

2 WEST ELEV.
1" = 30'-0"

STATE OF MISSOURI
GRANT ALAN PETERSON
NUMBER A-7665
REGISTERED ARCHITECT
10/8/15



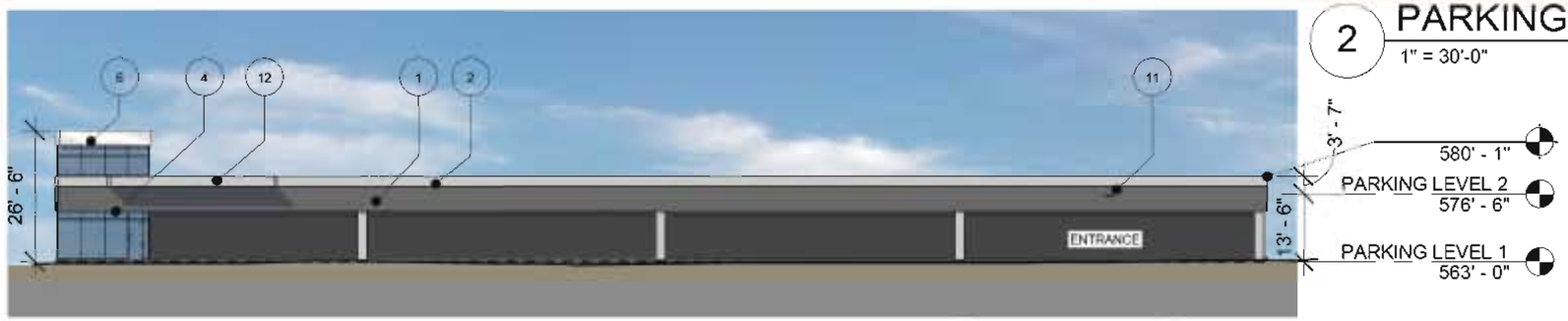
1 PARKING RAMP NORTH ELEV.
1" = 30'-0"



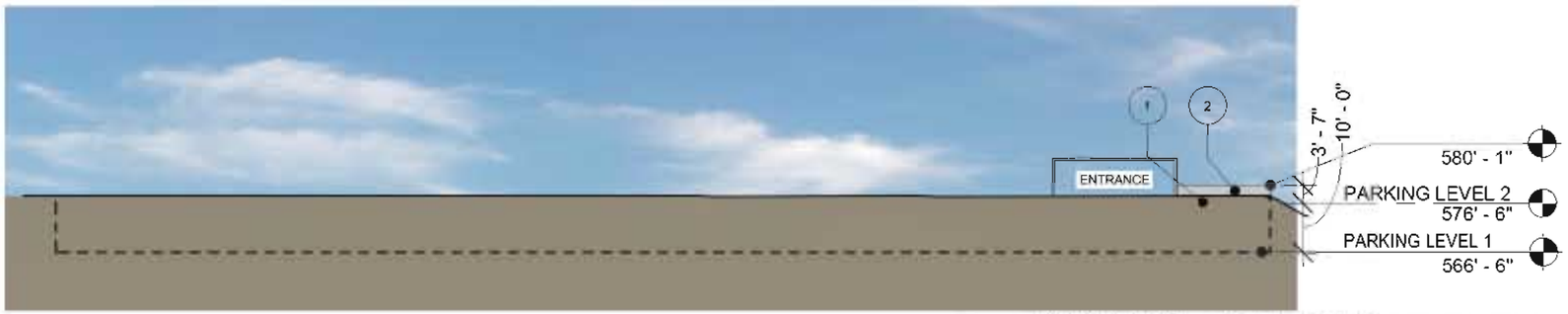
2 PARKING RAMP SOUTH ELEV.
1" = 30'-0"

ELEVATION KEY NOTES

1. PRECAST COLOR- DARK GRAY
2. PRECAST COLOR- MEDIUM GRAY
3. PRECAST COLOR- LIGHT GRAY
4. VISION GLASS- VE1-85 CLEAR LOW E
5. INSULATED SPANDREL GLASS- VE-906 GRAY
6. FLAT METAL PANEL- (BM) CHANTILLY LACE
7. RIBBED METAL PANEL- (BM) ANCHOR GRAY
8. METAL SUNSCREEN- CLEAR ANODIZED ALUMINUM
9. GLASS RAILING
10. MULLIONS- CLEAR ANODIZED ALUMINUM
11. EXTERIOR LIGHTING
12. METAL CANOPY- CLEAR ANODIZED ALUMINUM



3 PARKING RAMP EAST ELEV.
1" = 30'-0"



4 PARKING RAMP WEST ELEV.
1" = 30'-0"

STATE OF MISSOURI
GRANT ALAN PETERSON
NUMBER A-7665
REGISTERED ARCHITECT
10/8/15

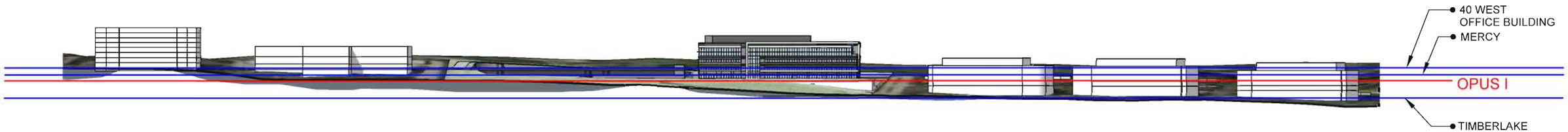
OPUS
THE OPUS GROUP

OPUS I at Kraus Farm Office Center

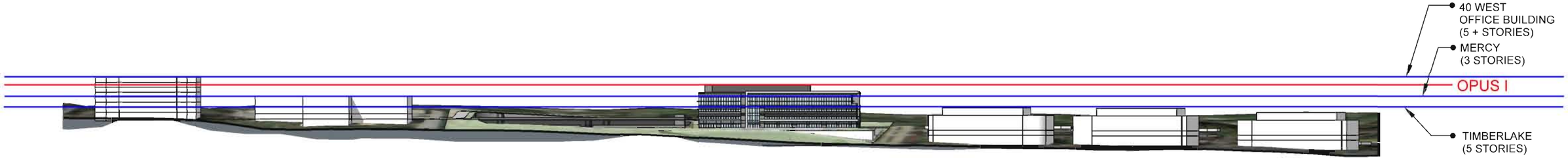
Chesterfield, Missouri

Conceptual Rendering

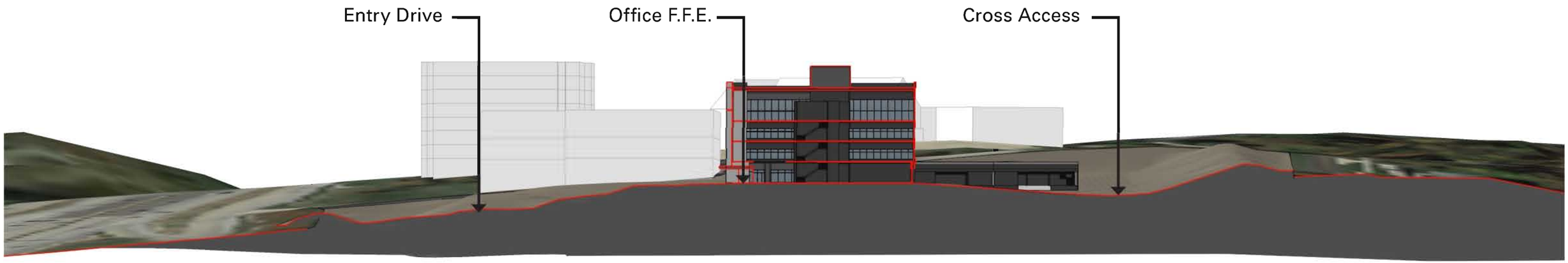
10.29.2015



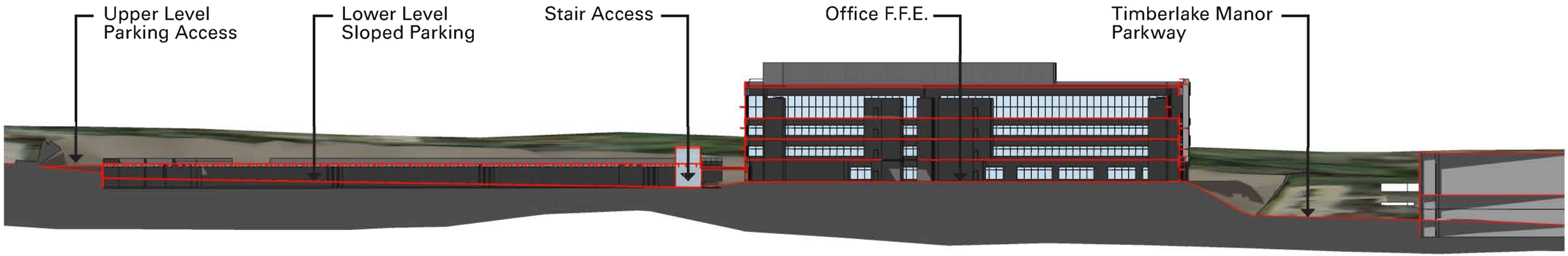
GROUND LEVEL SECTION ANALYSIS



ROOF LEVEL SECTION ANALYSIS



North-South Section Through Office Entry



East-West Section Through Parking and Office

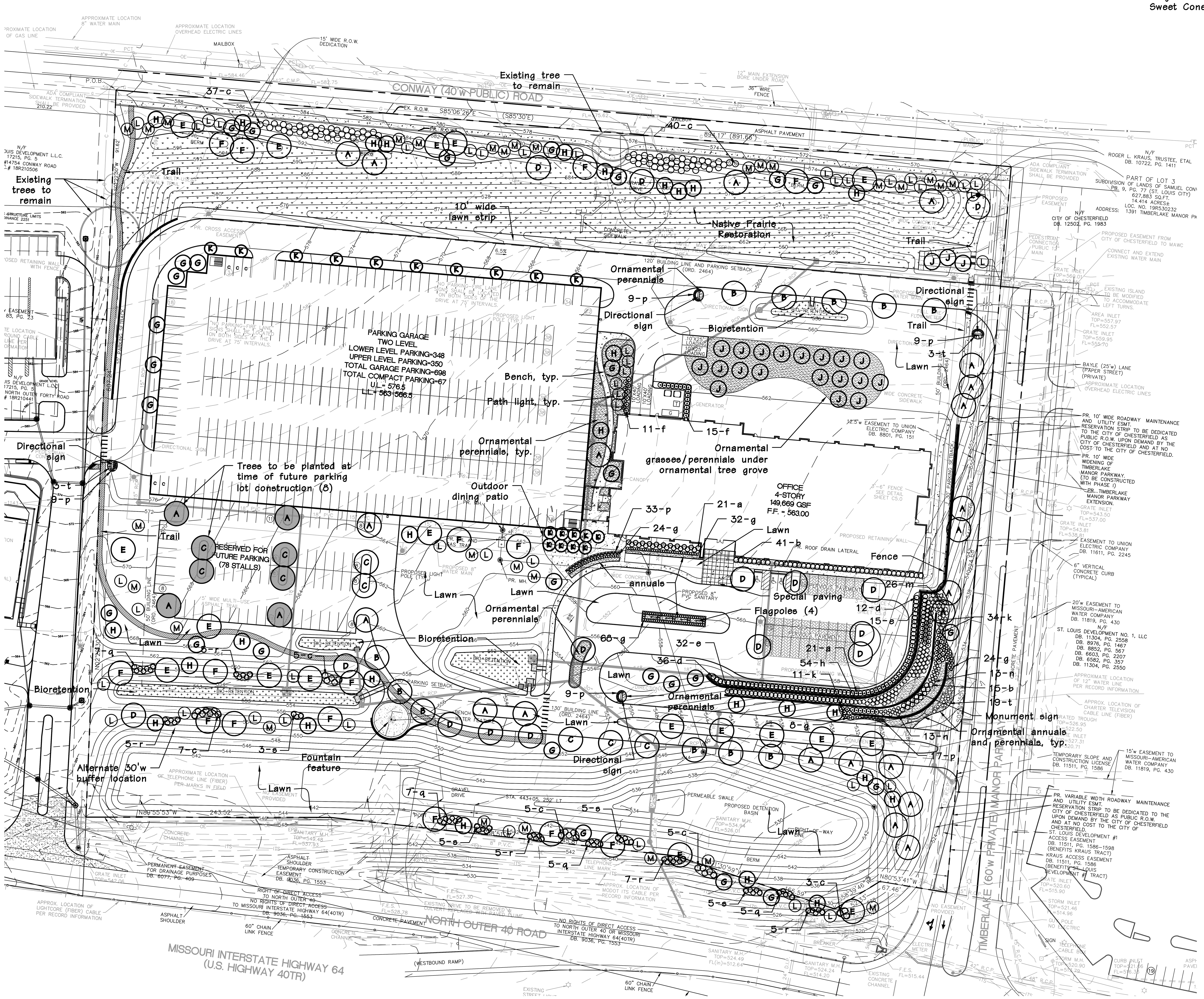
TREE PLANTING SCHEDULE								
SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS	TYPE	GROWTH RATE	SIZE CLASS
DECIDUOUS TREES								
A	26	Quercus rubra	Northern Red Oak	2.5" cal	B&B	Deciduous	Med/Fast	Large
B	11	Ginkgo biloba 'Autumn Gold'	Autumn Gold Ginkgo	2.5" cal	B&B	Deciduous	Slow/Med	Large
C	9	Gleditsia triacanthos f. inermis 'Skycole'	Skyline Honeylocust	2.5" cal	B&B	Deciduous	Fast	Large
D	15	Acer x freemanii 'Jeffersred'	Autumn Blaze Maple	2.5" cal	B&B	Deciduous	Med/Fast	Large
E	18	Quercus bicolor	Swamp White Oak	2.5" cal	B&B	Deciduous	Medium	Large
F	15	Zelkova serrata 'Green Vase'	Green Vase Zelkova	2.5" cal	B&B	Deciduous	Fast	Large
G	28	Amelanchier arborea	Downy Serviceberry	2.5" cal	B&B	Ornamental	Deciduous	Medium
H	27	Cercis canadensis	Eastern Redbud	2.5" cal	B&B	Ornamental	Fast	Medium
J	22	Prunus serrulata 'Kwanzan'	Kwanzan Cherry	2.5" cal	B&B	Ornamental	Medium	Medium
K	19	Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Ginkgo	2.5" cal	B&B	Deciduous	Slow/Med	Large
EVERGREEN TREES								
L	43	Pinus strobus	Eastern White Pine	6' ht	B&B	Evergreen	Fast	Large
M	29	Picea pungens	Colorado Blue Spruce	6' ht	B&B	Evergreen	Medium	Medium

TREE PERCENTAGE CALCULATIONS:
TOTAL TREES = 258 TREES
DECIDUOUS CANOPY TREES = 113 TREES (44%)
ORNAMENTAL TREES = 74 TREES (29%)
EVERGREEN TREES = 71 TREES (27%)

Openspace area = 369,572 s.f. (58.86%)

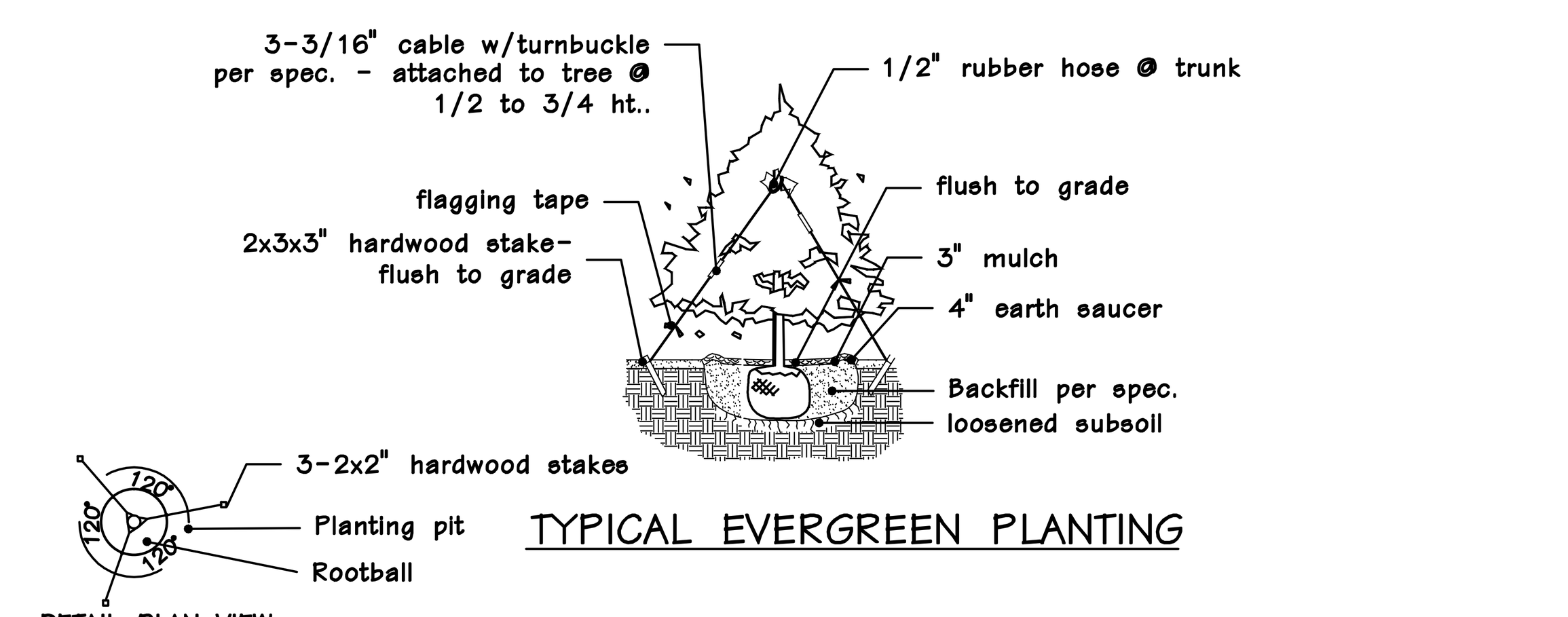
SHRUBS, PERENNIALS, AND SEED MIX PLANTING SCHEDULE				
SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE
SHRUBS				
a	42	Hydrangea paniculata 'Jane'	Little Lime Hydrangea	24"
b	56	Juniperus virginiana 'Grey Owl'	Grey Owl Juniper	24"
c	102	Juniperus x pfitzeriana	Pfitzer Juniper	24-36"
d	48	Ilex x meserveae 'Mesdob/Mesog'	China Boy/Girl Holly (1:9 ratio)	24"
e	47	Ligustrum 'Vicaryi'	Vicaryi Golden Privet	24"
f	26	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	6'
g	156	Buxus sinica var. insularis 'Winter Gem'	Winter Gem Boxwood	24"
h	54	Viburnum dentatum 'Blue Muffin'	Blue Muffin Viburnum	24"
k	45	Weigela florida 'Alexandra'	Wine & Roses Weigela	24"
m	26	Forsythia 'Courtasol'	Gold Tide Forsythia	24"
n	26	Miscanthus sinensis 'Gracillimus'	Maiden Grass	5 gal.
p	86	Calamagrostis x acutiflora 'Karl Foerster'	Karl Foerster Feather Reed Grass	5 gal.
q	24	Viburnum x burkwoodii	Burkwood Viburnum	24"
r	27	Hamamelis vernalis	Ozark Witchhazel	24"
s	18	Viburnum rhytidophyllum	Leatherleaf Viburnum	24"
t	25	Juniperus horizontalis 'Wiltonii'	Blue Rug Juniper	24"
		Ornamental annuals and perennials		plugs/qts/gal
	63,695sf	Native Prairie Restoration (see below for varieties)		seed mix
	6,637sf	Bioretention plantings per MSD requirements		plugs

PRAIRIE RESTORATION SEED MIX (planted at 8lb. PLS per acre):
Grasses (3.5lb. per acre):
Big Bluestem, Canada Wild Rye, Switch Grass, Indian Grass,
Little Bluestem, Mixed prairie sedges
Forbs (4.5lb. per acre):
Butterfly Milkweed, New England Aster, White False Indigo,
Lance-leaved Coreopsis, Tall Coreopsis, Pale Purple Coneflower,
Rattlesnake Master, False Sunflower, Western Sunflower,
Round-head Bushclover, Prairie Blazing Star, Wild Bergamot,,
Gray-headed Coneflower, Black-eyed Susan, Stiff Goldenrod,
Sweet Coneflower, Ironweed, Ohio Spiderwort

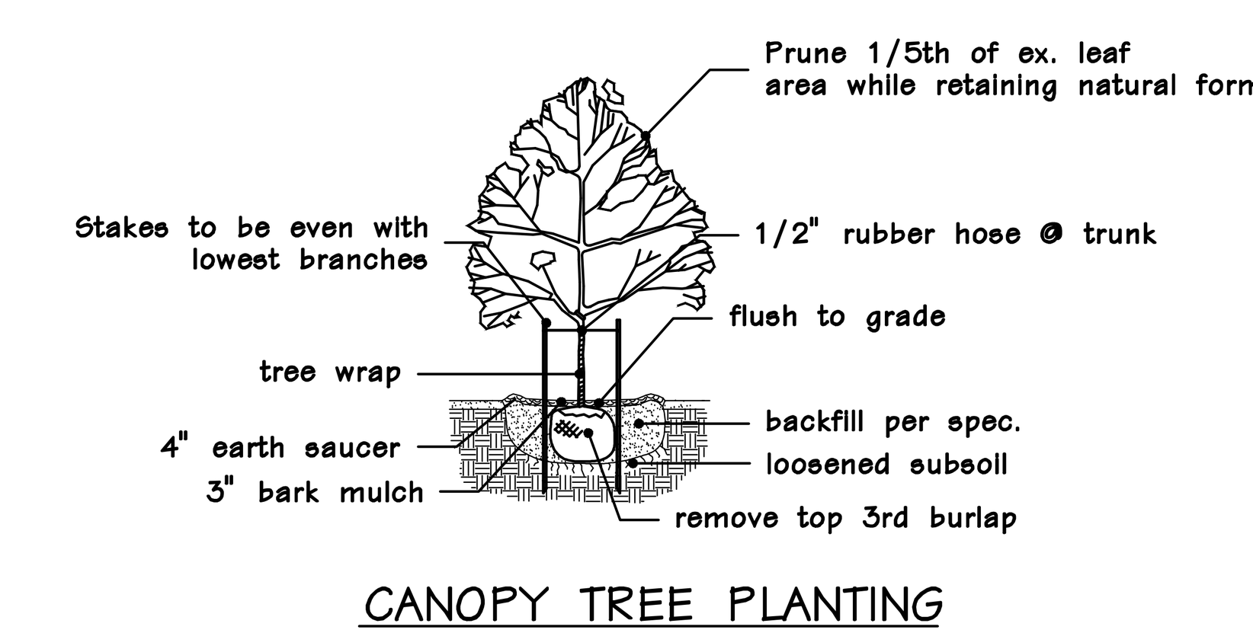


Section Landscape Plan
SCALE 1"=50'

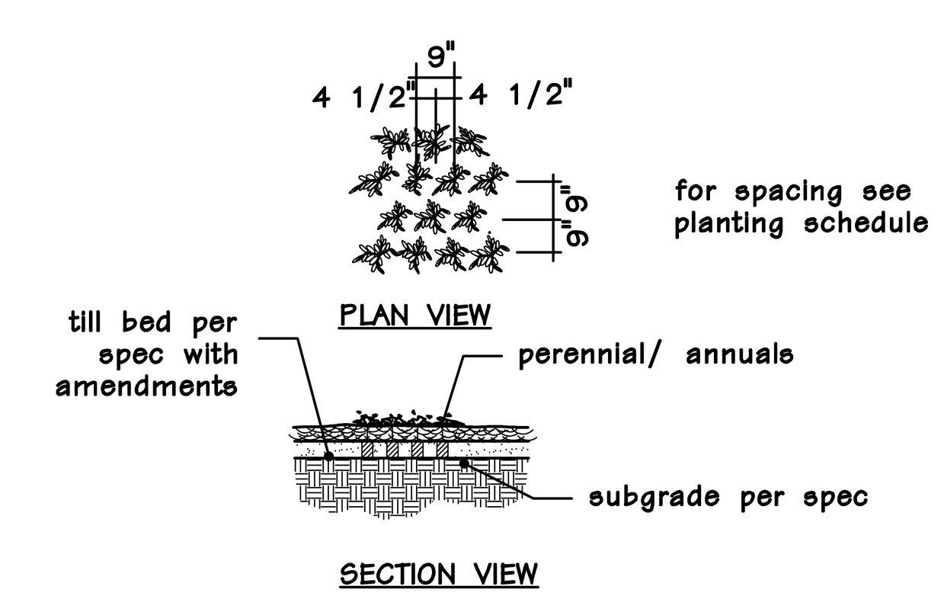
0 50 100 200



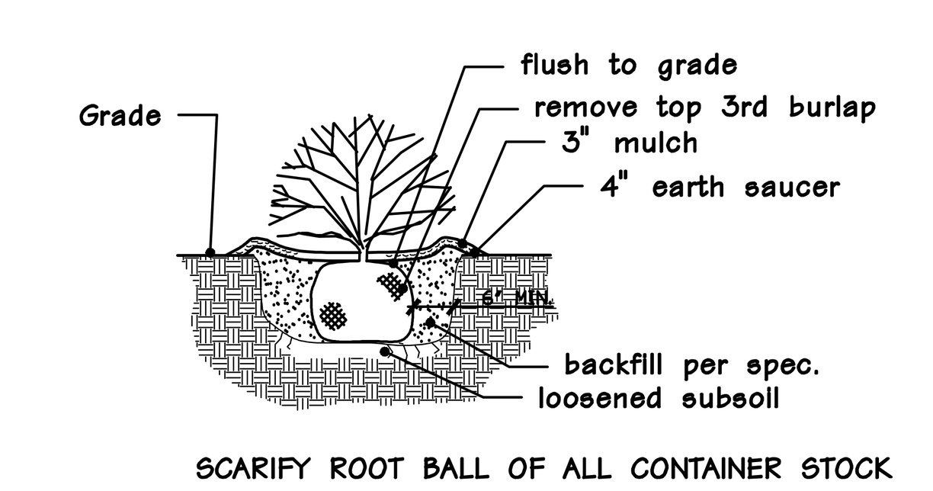
TYPICAL EVERGREEN PLANTING



CANOPY TREE PLANTING



TYPICAL PERENNIAL PLANTING



TYPICAL SHRUB PLANTING

STATE OF MISSOURI
JERALD A. SAUNDERS
NUMBER
LA-7
LANDSCAPE ARCHITECT
10/28/15
Jerald Saunders - Landscape Architect
MO License # LA-007

Consultants:

Opus I at Kraus Farm Office Center

Chesterfield, MO

Revisions:

Date	Description	No.
10-8-15	City Comments	1
10-28-15	City Comments	2

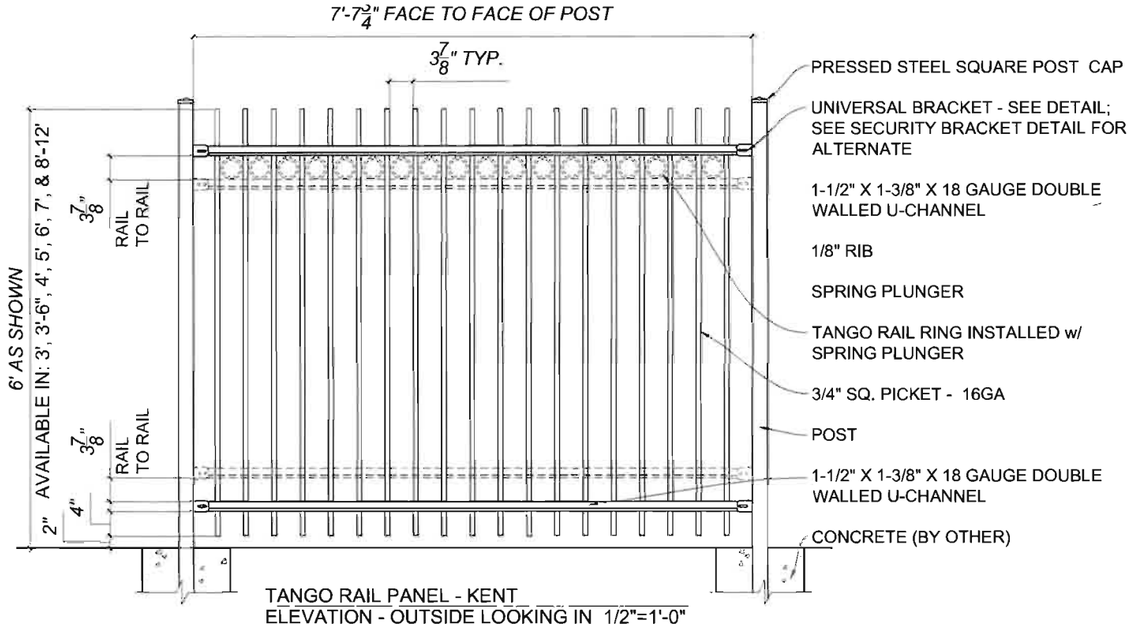
Drawn: LWH
Checked: JAS

loomisAssociates
landscapeArchitects|planners
707 Spirit 40 Park Drive, Suite 135
Chesterfield, Missouri 63005-1194
(636) 519-8668 Fax:(636)519-0797
e-mail: lainfo@loomis-associates.com
Loomis Associates Inc.
Missouri State Certificate of Authority #: LAC #000019

Sheet Title: Section Landscape Plan

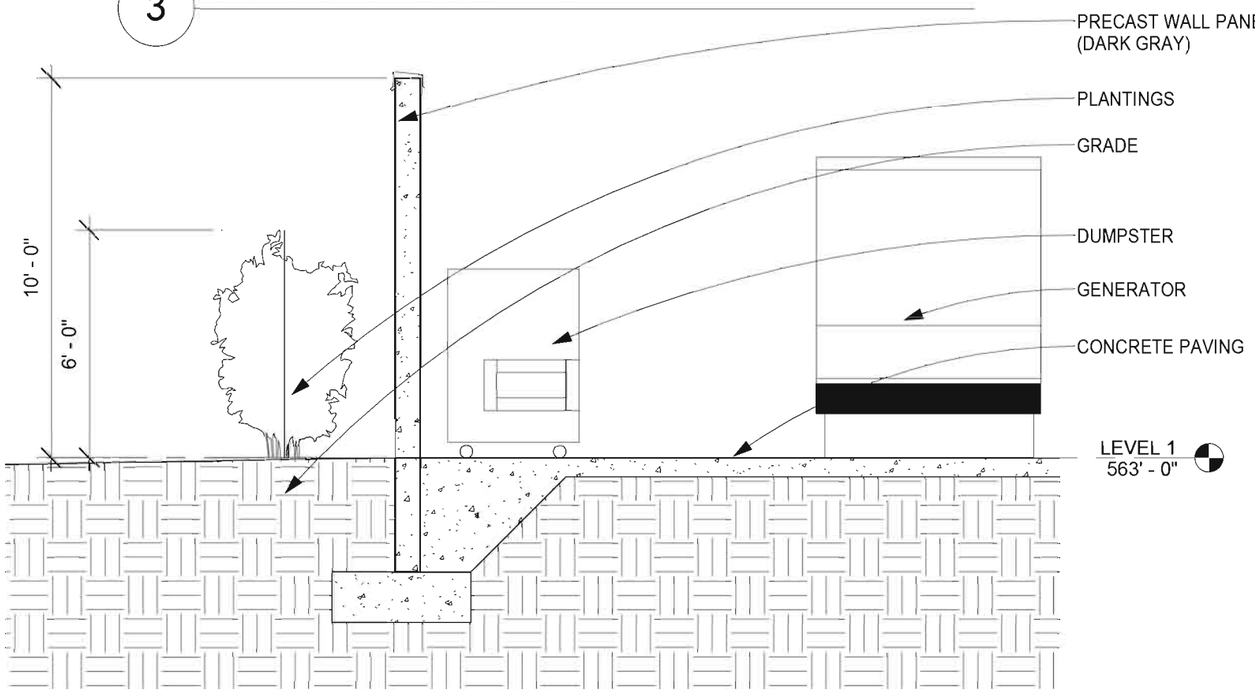
Sheet No: L-1

Date: 09/03/15
Job #: 742.007



TANGO RAIL PANEL - KENT
ELEVATION - OUTSIDE LOOKING IN 1/2"=1'-0"

3 GUARDRAIL DETAIL

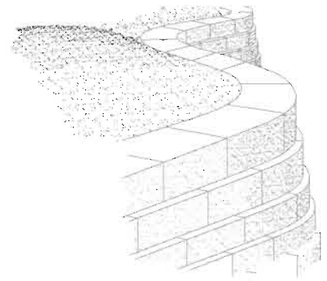


1 SERVICE AREA SCREEN WALL SECTION

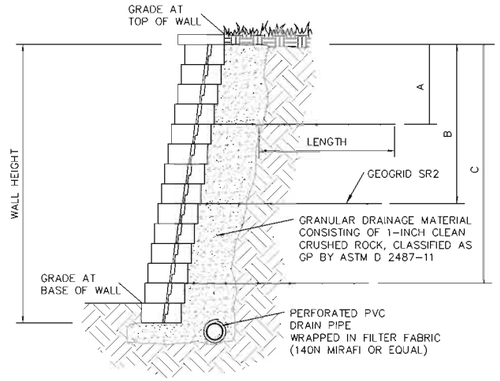
1/4" = 1'-0"

NOTES:

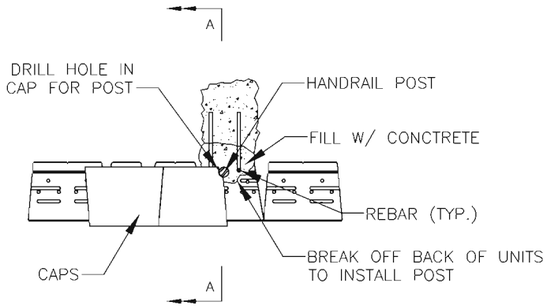
1.) ALL CONSTRUCTION SHALL BE PER THE MANUFACTURERS RECOMMENDATION.
2.) THE ABOVE INFORMATION IS A CONCEPT ONLY. ACTUAL DESIGN OF RETAINING WALL SHALL BE BY A LICENSED PROFESSIONAL ENGINEER & SUBMITTED TO STOCK AND ASSOCIATES FOR GENERAL COMPLIANCE WITH GRADING PLAN.
3.) ACCEPTED ALTERNATE WALL SYSTEM: VERSA-LOK OR UNILOCK PISA.
4.) TW= TOP OF RETAINING WALL, BW= GRADE AT BASE OF WALL.
5.) VERTICAL WALL SYSTEM ASSUMED FOR THIS PROJECT. ZERO BATTER.
6.) WALL DESIGNER SHALL CONSULT GEOTECHNICAL ENGINEER FOR GLOBAL STABILITY.
7.) RETAINING WALL WILL REQUIRE A SEPARATE PERMIT (BUILDING PERMIT) PRIOR TO CONSTRUCTION



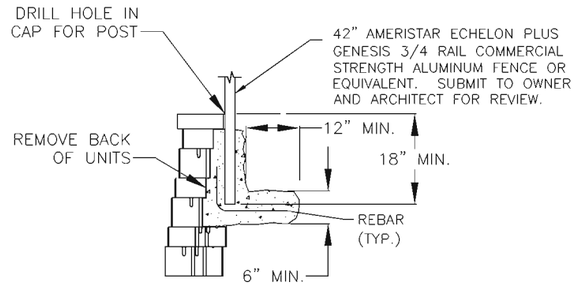
ISOMETRIC VIEW



SECTION "A-A"



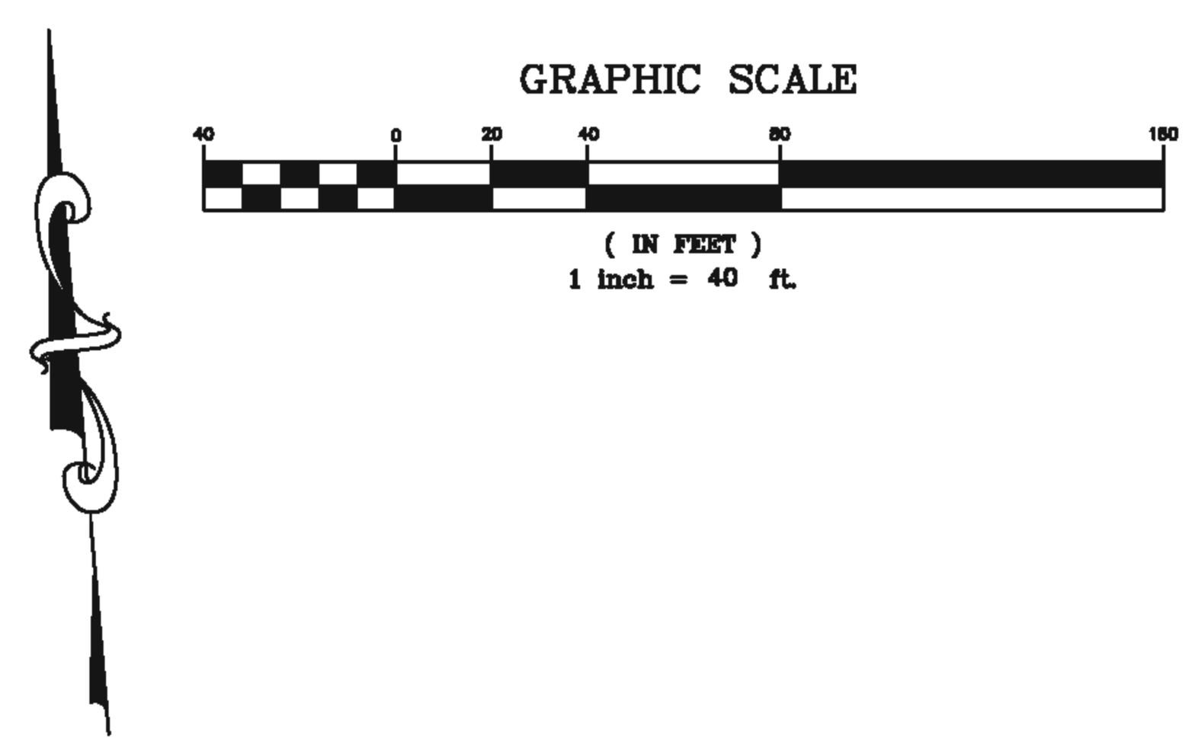
POST DETAIL-PLAN VIEW
MOSAIC-TYPICAL HANDRAIL AND/OR FENCE POST
SCALE: NONE



POST DETAIL-SECTION A-A
MOSAIC-TYPICAL HANDRAIL AND/OR FENCE POST
SCALE: NONE

VERSA-LOK RETAINING WALL
TYPICAL SECTION

2 RETAINING WALL DETAILS



POLE FIXTURE MOUNTING HEIGHT INCLUDES BASE
PARKING GARAGE TOP DECK POLES MOUNTED 20' ABOVE DECK
ALL LIGHT LEVELS CALCULATED ON THE GROUND

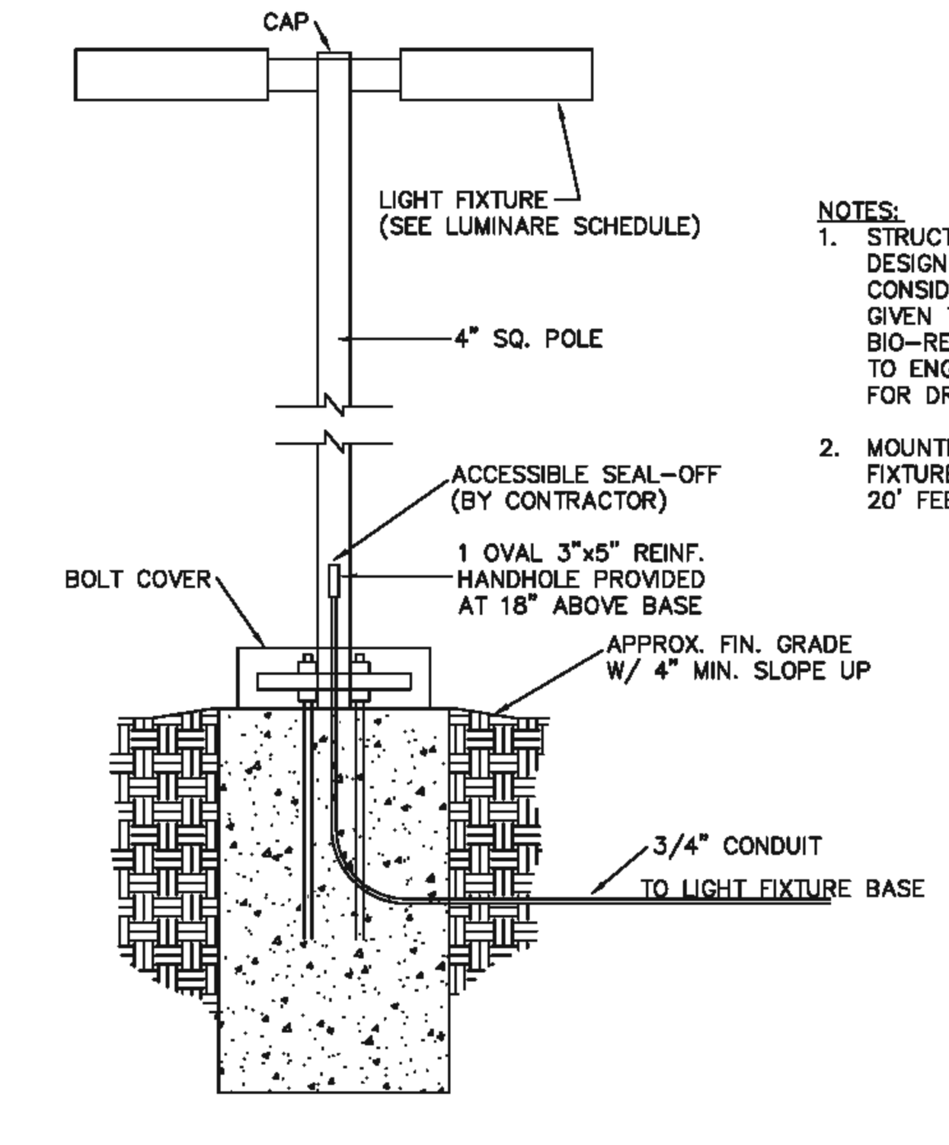
Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CONWAY ROAD	Illuminance	Fc	1.22	3.5	0.3	4.07	11.67
ENTRANCE 1	Illuminance	Fc	12.13	13.9	10.6	1.14	1.31
ENTRANCE 2	Illuminance	Fc	12.15	12.5	11.8	1.03	1.06
ENTRANCE 3	Illuminance	Fc	11.50	13.5	10.0	1.15	1.35
ENTRANCE 4	Illuminance	Fc	10.06	13.3	7.0	1.44	1.90
ENTRANCE 5	Illuminance	Fc	11.18	14.0	8.8	1.27	1.59
ENTRANCE 6	Illuminance	Fc	12.35	13.6	11.3	1.09	1.20
ENTRANCE 7	Illuminance	Fc	12.78	13.7	11.9	1.07	1.15
GARAGE LEVEL 1	Illuminance	Fc	5.34	11.7	2.0	2.67	5.85
PROPERTY LINE	Illuminance	Fc	0.11	0.6	0.0	N.A.	N.A.
SIDEWALK 1	Illuminance	Fc	3.21	9.3	0.5	6.42	18.60
SIDEWALK 2	Illuminance	Fc	2.16	7.4	0.2	10.80	37.00
SIDEWALK 3	Illuminance	Fc	1.49	6.0	0.2	7.45	30.00
SIDEWALK 4	Illuminance	Fc	1.48	6.1	0.1	14.80	61.00
SITE	Illuminance	Fc	2.27	8.9	0.5	4.54	17.80
TOP DECK_Top	Illuminance	Fc	1.76	4.7	0.3	5.87	15.67

Luminaire Schedule

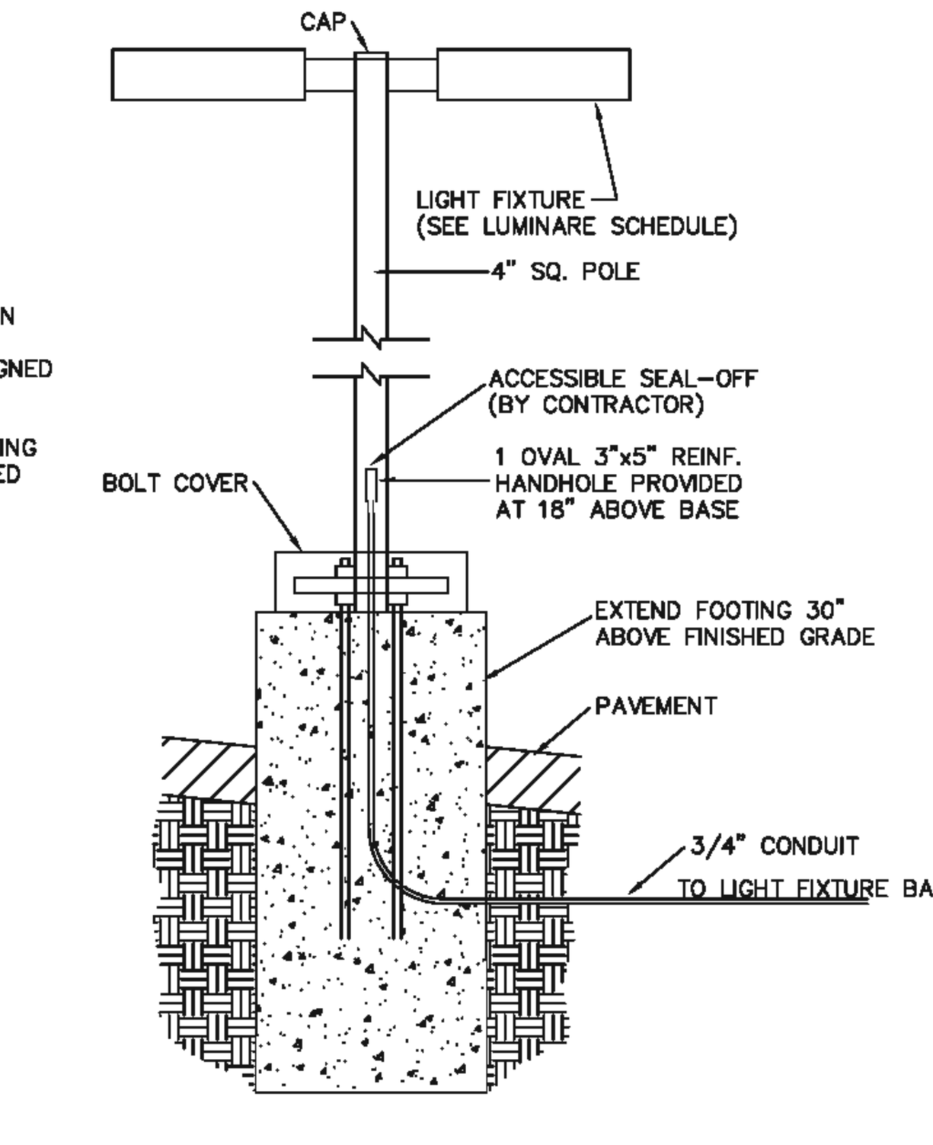
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	14	F1	SINGLE	34000	1.000	GSM-AM-320-MP-MT-AS-FG
	8	F2	SINGLE	34000	1.000	GSM-AM-320-MP-MT-3V-FG
	6	WP1	SINGLE	14000	1.000	VWS-150-MP-MT-4S
	6	F5	SINGLE	22000	1.000	GSM-AM-250-MP-MT-3S-FG-HS
	7	WP2	SINGLE	9000	1.000	VWS-100-MP-MT-4S
	16	F6	SINGLE	6000	1.000	BSL-42-70-MP-MT
	5	R1	SINGLE	N.A.	1.000	PRV-A40-D-UNV-T2-BZ
	111	G1	SINGLE	N.A.	1.000	TT-B3-LED-E1-WQ

DESIGN IS BASED ON CURRENT INFORMATION PROVIDED AT THE TIME OF REQUEST. ANY CHANGES IN MOUNTING HEIGHT OR LOCATION, LAMP WATTAGE, LAMP TYPE, AND EXISTING FIELD CONDITIONS, THAT EFFECT ANY OF THE PREVIOUSLY MENTIONED, WILL VOID CURRENT LAYOUT AND REQUIRE A CHANGE REQUEST AND RECALCULATION.

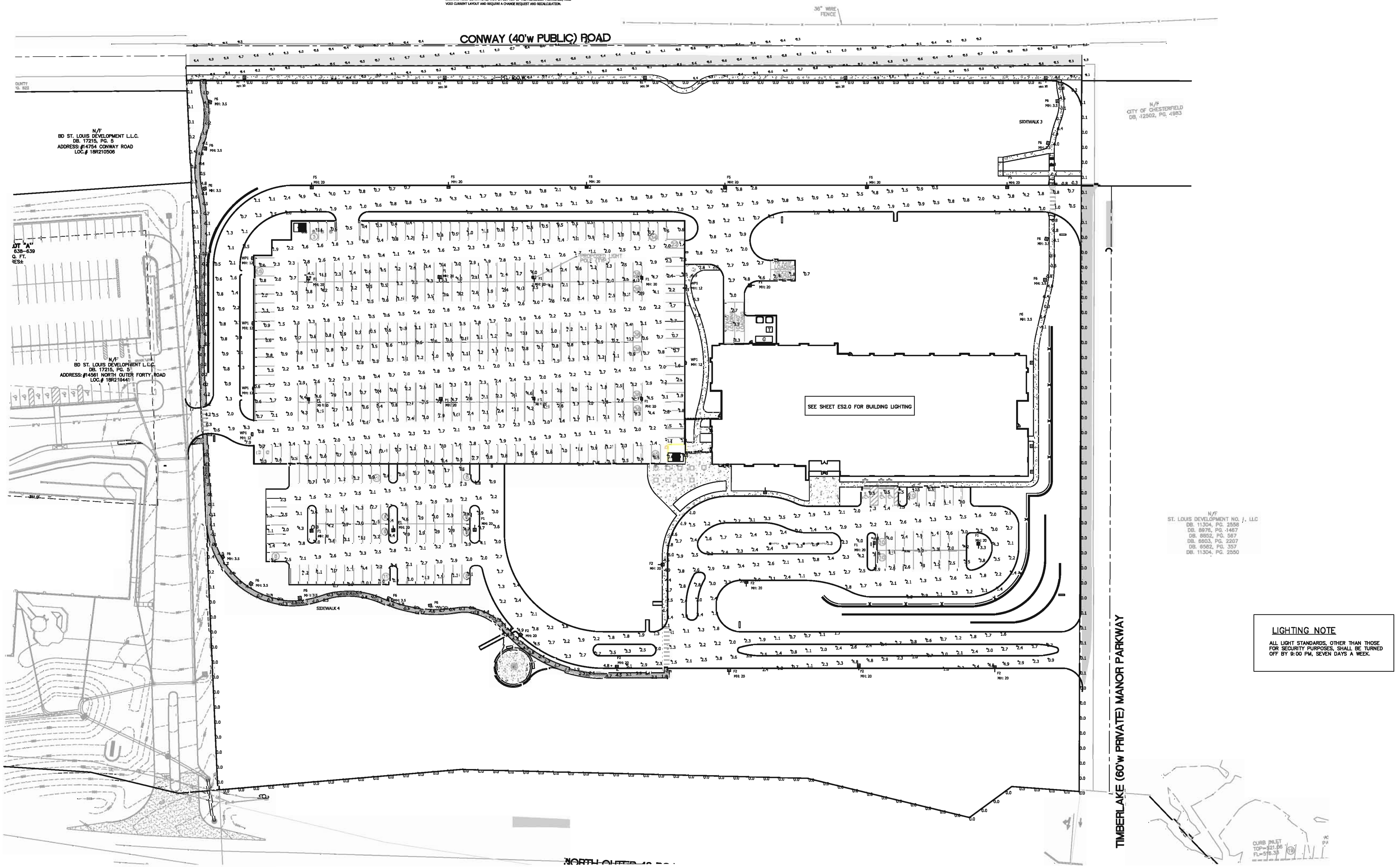


LIGHT POLE DETAIL (GRASS)
(n.t.s.)

NOTES:
1. STRUCTURAL ENGINEER TO DESIGN FOOTINGS. SPECIAL CONSIDERATION SHOULD BE GIVEN TO POLES LOCATED IN BIO-RETENTION AREAS DUE TO ENGINEERED SOILS DESIGNED FOR DRAINAGE.
2. MOUNTING HEIGHT OF LIGHTING FIXTURES SHALL NOT EXCEED 20' FEET.



LIGHT POLE DETAIL (PAVEMENT)
(n.t.s.)



LIGHTING NOTE

ALL LIGHT STANDARDS, OTHER THAN THOSE FOR SECURITY PURPOSES, SHALL BE TURNED OFF BY 9:00 PM, SEVEN DAYS A WEEK.

STOCK & ASSOCIATES
Consulting Engineers, Inc.
257 Chesterfield Business Parkway
St. Louis, MO 63005
PH. (636) 530-9100 FAX (636) 530-9130
e-mail: general@stockassoc.com
Web: www.stockassoc.com

REGISTRATION

STATE OF MISSOURI
GEORGE MICHAEL STOCK
NUMBER PE-25116
10/28/15

GEORGE M. STOCK E-25116

ISSUE RECORD
1.) CITY COMMENTS 2015.10.08
2.) CITY COMMENTS 2015.10.28

DESIGN NUMBER

PROJECT NUMBER
214-5370

DATE
09/03/15

PROJECT MANAGER

DRAWN BY
R.E.S.

CHECKED BY
G.M.S.

Prepared For
OPUS.
The Opus Group
7733 Forsyth Blvd.
Suite 1100
St. Louis, MO 63105
314-296-6100

PROJECT
OPUS I
at KRAUS FARM
OFFICE CENTER

LOCATION
1391 Timberlake Manor Pkwy.
Chesterfield, MO 63017

SHEET TITLE
SITE LIGHTING PLAN

SHEET NUMBER
ES1.0

PLOT DATE: October 28, 2015 – 11:36am

POLE FIXTURE MOUNTING HEIGHT INCLUDES BASE
PARKING GARAGE TOP DECK POLES MOUNTED 20' ABOVE DECK
ALL LIGHT LEVELS CALCULATED ON THE GROUND

Calculation Summary							
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	6	F5	SINGLE	22000	1.000	GSM-AM-250-MP-MT-3S-FG-HS
	7	WP2	SINGLE	9000	1.000	VWS-100-MP-MT-4S
	16	F6	SINGLE	6000	1.000	BSL-42-70-MP-MT
	5	R1	SINGLE	N.A.	1.000	PRV-A40-D-UNV-T2-BZ
	111	G1	SINGLE	N.A.	1.000	TT-B3-LED-E1-WQ

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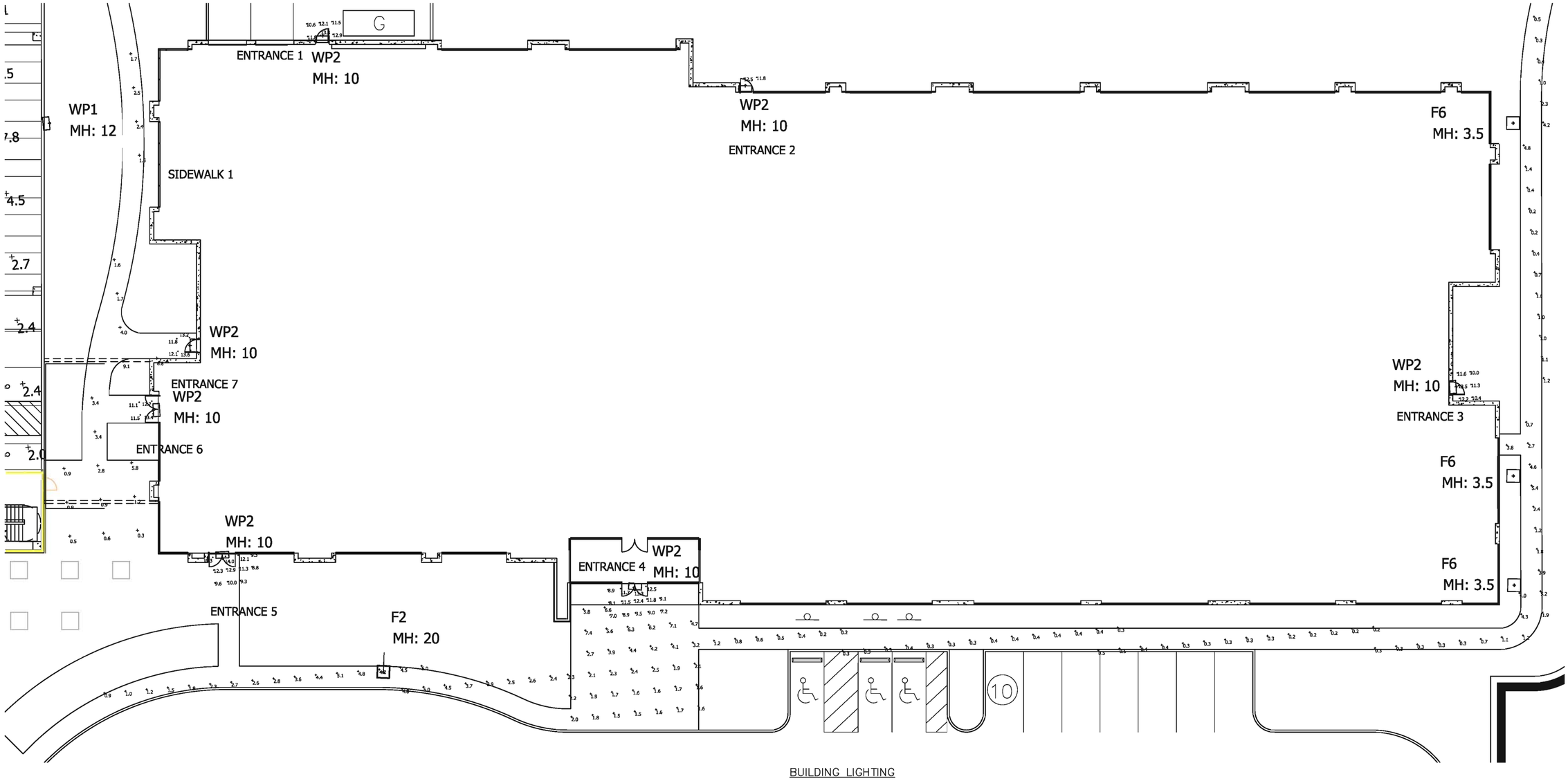


BUILDING LIGHTING

DRAWING FILE: F:\Jobs\2300\214-5370\CAD\5370-arch.dwg LAYOUT: ES2.0 Site Lighting Plan PLOTTED: Oct 28, 2015 - 11:36am PLOTTED BY: ryan.eschker

STOCK & ASSOCIATES
Consulting Engineers, Inc.
257 Chesterfield Business Parkway
St. Louis, MO 63005
PH. (636) 530-9100 FAX (636) 530-9130
e-mail: general@stockassoc.com
Web: www.stockassoc.com

REGISTRATION

GEORGE MICHAEL STOCK NUMBER PE-25116 STATE OF MISSOURI 10/28/15

GEORGE M. STOCK E-25116

ISSUE RECORD
1.) CITY COMMENTS 2015.10.08
2.) CITY COMMENTS 2015.10.28

DESIGN NUMBER

PROJECT NUMBER
214-5370

DATE
09/03/15

PROJECT MANAGER

DRAWN BY
R.E.S.

CHECKED BY
G.M.S.

Prepared For
OPUS.
The Opus Group
7733 Forsyth Blvd.
Suite 1100
St. Louis, MO 63105
314-290-8100

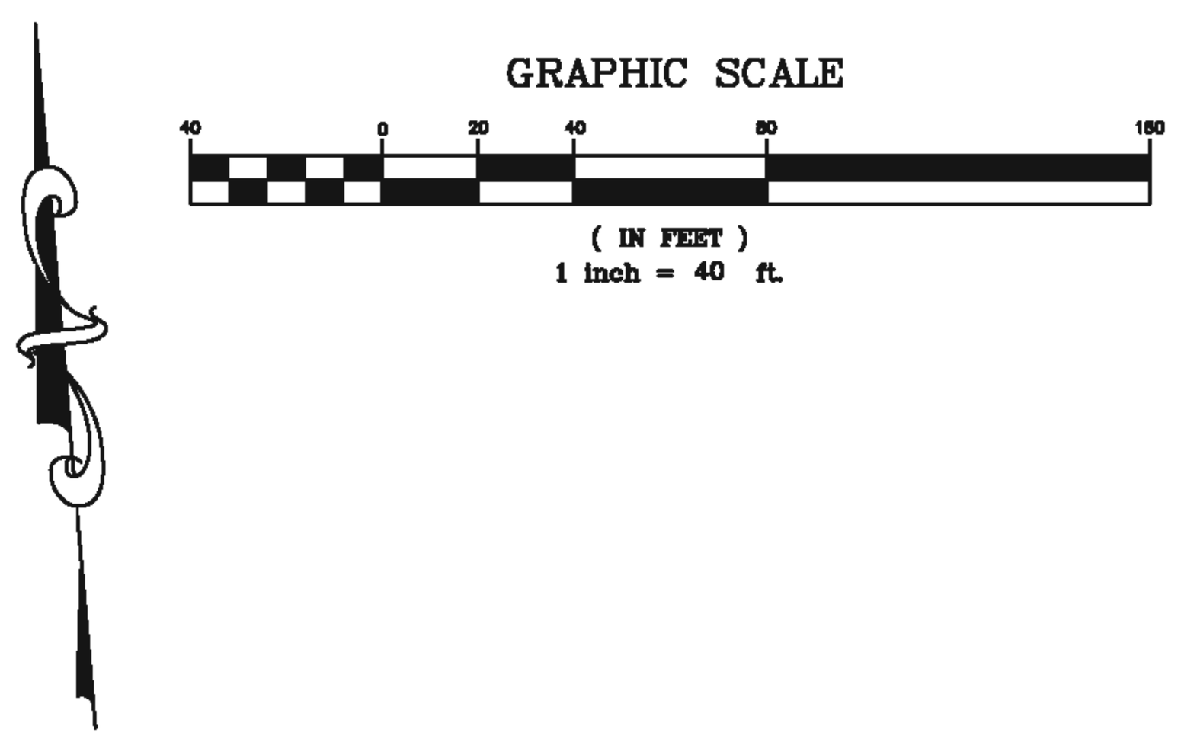
PROJECT
OPUS I
at KRAUS FARM
OFFICE CENTER

LOCATION
1391 Timberlake Manor Pkwy.
Chesterfield, MO 63017

SHEET TITLE
SITE LIGHTING PLAN

SHEET NUMBER
ES2.0

PLOT DATE: October 28, 2015 - 11:36am



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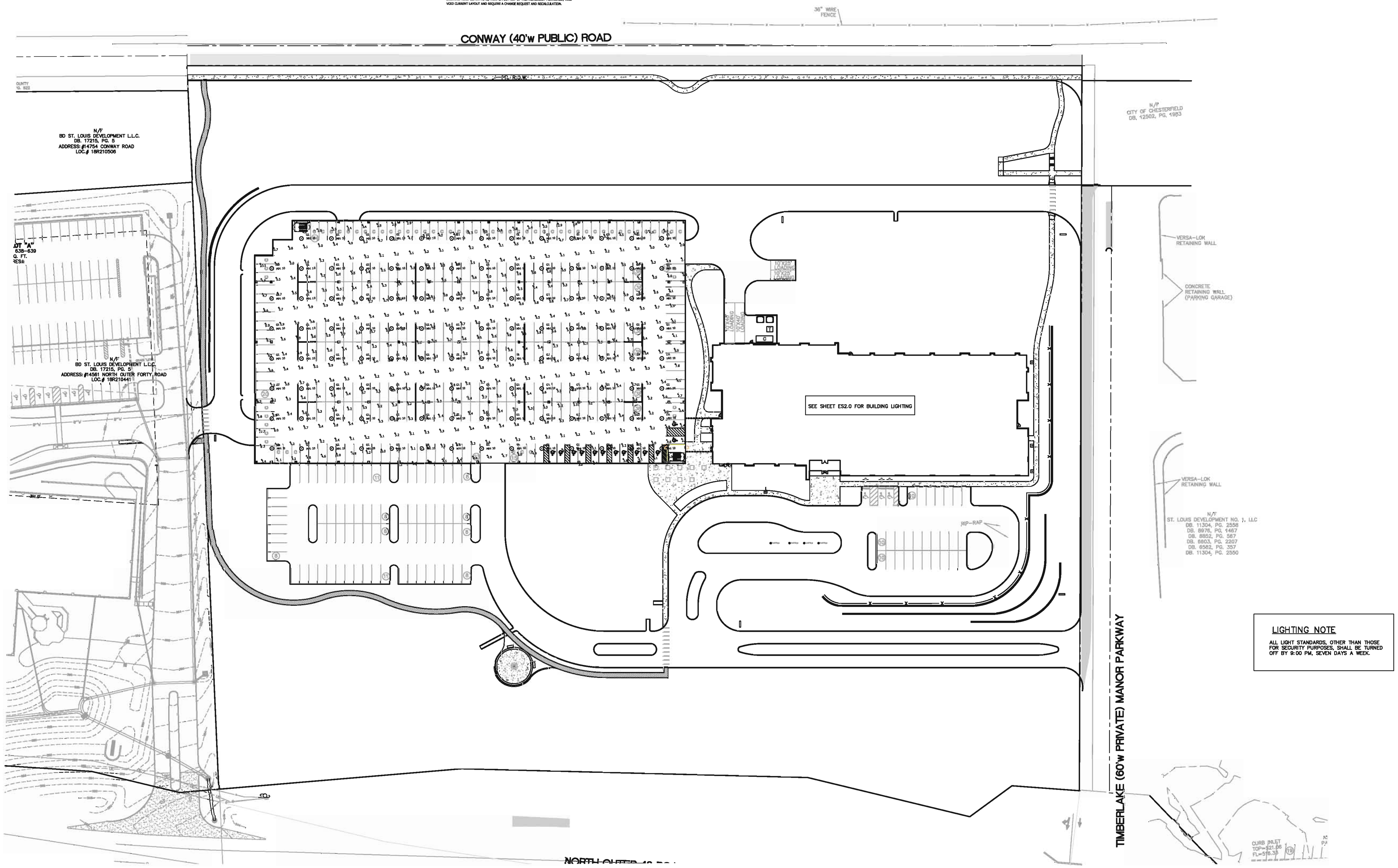

LIGHTING NOTE

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STATE OF MISSOURI — GEORGE MICHAEL STOCK — NUMBER PE-25116 — 10/28/15

GEORGE M. STOCK E-25116

ISSUE RECORD

1.) CITY COMMENTS 2015.10.08
2.) CITY COMMENTS 2015.10.28

DESIGN NUMBER

PROJECT NUMBER 214-5370

DATE 09/03/15

PROJECT MANAGER

DRAWN BY R.E.S.

CHECKED BY G.M.S.

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Prepared For

OPUS.

The Opus Group
7733 Forsyth Blvd.
Suite 1100
St. Louis, MO 63105
314-296-6100

PROJECT
OPUS I
at KRAUS FARM
OFFICE CENTER

LOCATION
1391 Timberlake Manor Pkwy.
Chesterfield, MO 63017

SHEET TITLE
SITE LIGHTING PLAN

SHEET NUMBER
ES3.0

PLOT DATE: October 28, 2015 - 11:36am

INVUE energy solutions

DESCRIPTION

The classic lines and sophisticated construction of the Vision Wall luminaire make it an ideal complement to architectural site design. IP65 Ingress Rating standard. U.L. listed and CSA Certified for wet locations in up or down mounting applications with no necessary modifications to the door or housing.

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

SPECIFICATION FEATURES

Construction
HOUSING: One piece die-cast aluminum construction for precise tolerance control and repeatability in manufacturing. DOOR: One piece die-cast aluminum with continuous silicone gasket accommodates either up or down mounting configurations. Door frame is hinged and secured to the housing via four (4) captive stainless steel Allen head fasteners. Lens is impact-resistant 1/8" thick tempered clear or optional frosted flat glass, sealed to the door with a one-piece silicone gasket.

Optical
OPTICAL SYSTEM: Choice of five (5) high efficiency optical systems. Type II, III, IV, and FX optical systems constructed of premium 95% reflective anodized aluminum sheet. Optical segments are rigidly mounted inside a heavy-wall aluminum housing for superior protection. All segment faces are clean of rivet heads, tabs, or other means of attachment which may cause streaking in the light distribution. TS optic constructed of spun and polished specular anodized aluminum. All reflector modules feature toolless removal, quick disconnect wiring plugs, and are field rotatable in 90 degree increments. HID lamp sources in VWS small housing optics feature medium-base lampholders. OPTICAL ASSEMBLY: Optical systems are secured to an internal rotating assembly that allows up to 10 degrees of outward adjustment. A concealed stainless steel adjustment screw is provided on the exterior surface of the housing to allow for tilt adjustment of the optical module while under full power without accessing internals of the fixture or affecting the outward appearance of the luminaire.

Mounting
Standard zinc plated attachment plate fits directly to 4" J-Box. Two (2) threaded studs with locking nuts allow for fixture mounting via keyhole slots on backside of housing. Mounting plate features one-piece EPDM gasket on either side of plate to firmly seal fixture to wall surface, forbidding entry of moisture and particulates. Optional mounting arrangements include an embedded mount bracket, or cast aluminum surface conduit adapter, each available as accessories.

Finish
Housing and door finished in a 5 stage premium TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum, and graphite metallic. RAL and custom color matches available. Consult your INVUE Lighting Systems Representative for more information.

VWS VISION WALL SMALL

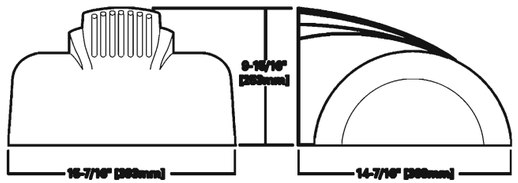
28 - 175W
Pulse Start Metal Halide
Metal Halide
High Pressure Sodium
Compact Fluorescent

ARCHITECTURAL WALL LUMINAIRE

DARK SKY COMPLIANT FCO Full Cutoff

VWS with in downlight applications only.

DIMENSIONS



CERTIFICATION DATA

IP65 Rated
U.L. 1598 Listed
CSA Listed
25°C Ambient Temperature Rating
ISO 9001
Full Cutoff

WATTAGE TABLE

Lamp Type	Wattage
Pulse Start Metal Halide (MP)	50, 70, 100, 150W
High Pressure Sodium (HPS)	50, 70, 100, 150W
Metal Halide (MH)	175W
Compact Fluorescent (CF)	26, 32, 42, 57W

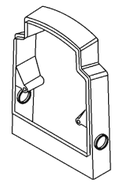
SHIPPING DATA

(Approximate)
Net Weight (lbs.): 25
Volume (cu. ft): 4.5

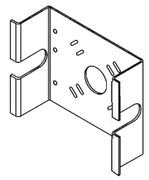
AVU082421 pc
2010-06-29 15:33:57

ACCESSORIES (ORDER SEPARATELY)

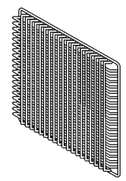
Thru-way Mounting Box



Embedded Mount

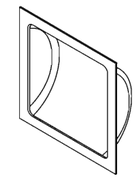


Wire Guard



OPTIONS (ADD AS SUFFIX)

Polycarbonate Vandal Shield



ORDERING INFORMATION

Sample Number: VWS-175-MH-MT-3S-BK-L

Product Family
VWS=Vision Wall Small

Lamp Wattage [1]
MP
50=50W
70=70W
100=100W
150=150W
MH [2]
175=175W
HPS
50=50W
70=70W
100=100W
150=150W
Compact Fluorescent [3]
26=26W
32=32W
42=42W
57=57W[4]

Lamp Type
MP=Pulse Start Metal Halide
MH=Metal Halide
HPS=High Pressure Sodium
CF=Compact Fluorescent[5]

Voltage [6]
120=120V
208=208V
240=240V
277=277V
347=347V
480=480V
DT=Dual-Tap [7] wired 277V
MT=Multi-Tap [8] wired 277V
TT=Triple-Tap [9] wired 347V
UNV=120-277V Universal Electronic Ballast

Optical System
2S=Type II
3S=Type III
4S=Type IV
FX=Wall Grazing Optic
TS=Tight Spot

Color [10]
BK=Black
AP=Grey
BZ=Bronze
WH=White
DP=Dark Platinum
GM=Graphite Metallic

Options [11]
F=Single Fuse (120, 277 or 347V) Specify Voltage
FF=Double Fuse (208, 240 or 480V) Specify Voltage
Q=Quartz Restrike[12]
EM=Quartz Restrike w/ Time Delay[12] (Also Strikes at Cold Start)
EM/SC=Quartz Emergency Separate[12] Circuit
PC=Button Type Photocontrol (Specify Voltage)
HS=House Side Shield[13]
VS=Polycarbonate Vandal Shield
FR=Frosted Flat Glass Lens
L=Lamp Included

Accessories [14]
VWS/EM=Embedded Mount
VWS/TB-XX=Thru-way Box[15]
VWS/WG-XX=Wire Guard

Notes:
1. All HID lamps are medium-base.
2. MH products available for non-U.S. markets only.
3. Available in Type 3S, 4S, and 5S distributions only.
4. Nominal M.O.L lamp length of 57W CFL not to exceed 7".
5. CF ballasts are 120 through 277V. Specify with UNV voltage designation.
6. Products also available in non-US voltages and 50Hz for international markets. Consult factory for availability and ordering information.
7. Dual-tap is 120/277V wired 277V.
8. Multi-tap is 120/208/240/277V wired 277V.
9. Triple-tap is 120/277/347V wired 347V.
10. Custom and RAL color matching available upon request. Consult your INVUE Lighting Systems Representative for further information.
11. Add as suffix in the order shown.
12. Quartz options not available with FX or TS distributions.
13. House side shield not available with FX and TS optics.
14. Order separately, replace XX with color suffix.
15. For use in down lighting applications only.

McGRAW-EDISON®

energy solutions

Catalog #		Type
Project		
Comments		Date
Prepared by		

DESCRIPTION

The McGraw-Edison BSL / BRL Bollard Series, available in heights from 24" to 42", has crisp, clean lines which blend with any architectural setting. Constructed of seamless, heavy-duty aluminum and finished with a tough polyester powder coat finish, the McGraw-Edison Louvered Bollard Series is gasketed to seal out external contaminants. U.L. 1598 listed and CSA certified for wet locations.

Bollards are designed for walkways, entranceways, drives and other small-area lighting applications where low mounting heights are desirable.

SPECIFICATION FEATURES

Construction

TOP: Rugged, minimum 5/32" thick cast aluminum top cap secured via a concealed stainless steel allen screw with twist removal mechanism for lamp access. Flow through ventilation assure cool to the touch top. LOUVERS: Cast Aluminum Louver blades provide sharp cutoff delivering no direct light above 90°. Louvers are secured to the shaft via tamper stainless steel rods and fasteners. LOWER HOUSING: Nominal 1/8" thick aluminum extruded housing. Bollard housing is secured to the base with flathead, counter-sunk screws for smooth, uncluttered appearance. BASE: Rugged cast aluminum. Completely concealed.

Electrical

HID High Power Factor ballast for -20°F starting. CFL Electronic ballast for 0°F starting. Product is factory mounted to the base. Quick disconnects provided between lamp and electrical assembly. Metal Halide and High Pressure Sodium lamp sources up to 100W and up to 42W Compact Fluorescent sources.

Optical

LAMP ENCLOSURE: One piece tempered glass with internal flutes for even disbursement of illumination. Decorative colored glass optional. Globe is fully gasketed via EPDM material. Socket is porcelain, medium-base for HID lamp sources and polycarbonate/PBT GX24q-3/q-4 base for compact fluorescent lamps.

Mounting

Base mounts onto foundation with three (3) 1/2" x 12 1/2" anchor bolts on a 5" Dia. bolt circle (a centrally located 2 7/8" x 3 1/2" wire entrance opening provided).

Finish

Premium fade and abrasion resistant,TGIC Polyester Powder Coat Finish. Standard colors are Black, Grey, Bronze, White, Dark Platinum and Graphite Metallic. Other finish colors available including all RAL matches.

BSL/BRL BOLLARD

26 - 100W

Pulse Start Metal Halide

High Pressure Sodium

Compact Fluorescent

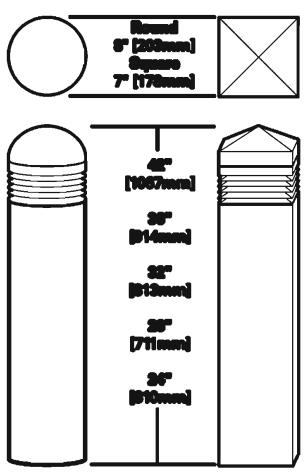
Incandescent

PATHWAY LUMINAIRE

DARK SKY COMPLIANT CO Cutoff

NOTE: In select finishes only.

DIMENSIONS



WATTAGE TABLE

Lamp Type	Wattage
Pulse Start Metal Halide (MP)	50, 70, 100W
High Pressure Sodium (HPS)	35, 50, 70, 100W
Compact Fluorescent (CF)	(1) 26, (1) 32, (1) 42W
Incandescent (IN)	100W

Energy Data

Reactor Ballast Input Watts
35W HPS NPF (46 Watts)

High Reactance Ballast Input Watts
50W HPS HPF (62 Watts)
50W MP HPF (68 Watts)
70W HPS HPF (88 Watts)
70W MP HPF (94 Watts)
100W HPS HPF (115 Watts)
100W MP HPF (129 Watts)
150W HPS HPF (170 Watts)
150W MP HPF (185 Watts)

SHIPPING DATA

Approximate Net Weight:
26 lbs. (12 kgs.)

ISO

COOPER Lighting
www.cooperlighting.com

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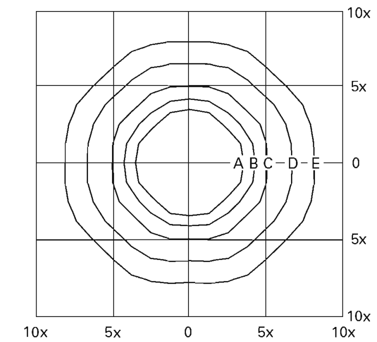
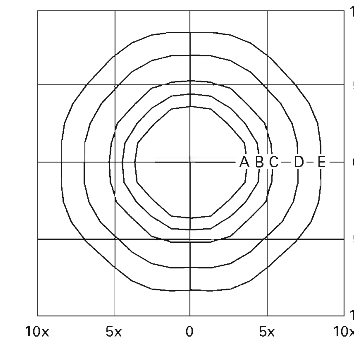
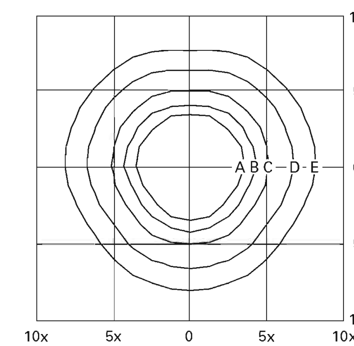
PHOTOMETRICS



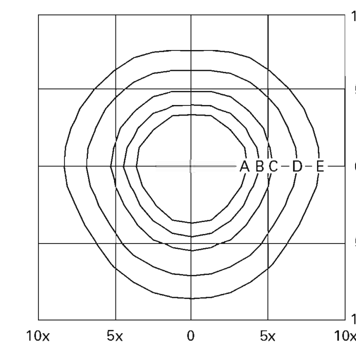
BSL-36-100-MP
100-Watt MP
7,900-Lumen Lamp (Coated ED-17)



BSL-36-100-HPS
100-Watt HPS
8,800-Lumen Lamp (Coated ED-17)



BRL-36-100-MP
100-Watt MP
7,900-Lumen Lamp (Coated ED-17)



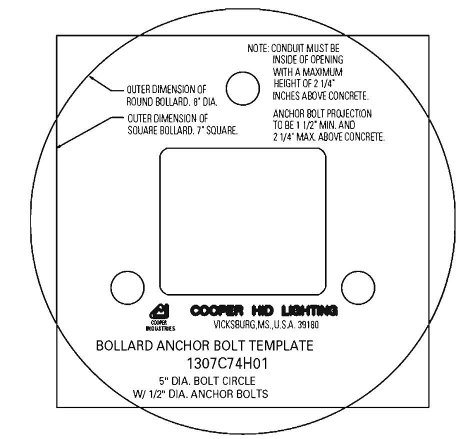
BRL-36-100-HPS
100-Watt HPS
8,800-Lumen Lamp (Coated ED-17)

Footcandle Table

Select mounting height and read across for footcandle values of each isofootcandle line. Distance in units of mounting height.

Mounting Height	Footcandle Values for Isofootcandle Lines				
	A	B	C	D	E
42"	1.20	0.60	0.30	0.12	0.06
36"	2.00	1.00	0.50	0.20	0.10
32"	2.40	1.20	0.60	0.24	0.12
28"	3.20	1.60	0.80	0.32	0.16
24"	4.40	2.20	1.10	0.44	0.22

ANCHOR BOLT TEMPLATE (NOT TO SCALE)



ORDERING INFORMATION

Sample Number: BSL-36-100-MH-MT-BK

Product Family
BSL=Square Bollard with Stacked Louvers and Pyramidal Top
BRL=Round Bollard with Stacked Louvers and Dome Top

Fixture Height
24=24"
28=28"
32=32"
36=36"
42=42"

Lamp Wattage [1]
MP
50=50W
70=70W
100=100W
HPS
35=35W[2]
50=50W
70=70W
100=100W
CF
26= (1) 26W
32= (1) 32W
42= (1) 42W
IC
100= 100W

Lamp Type
MP=Pulse Start Metal Halide
HPS=High Pressure Sodium
CF=Compact Fluorescent
IC=Incandescent

Voltage [3]
120=120V
208=208V
240=240V
277=277V
347=347V
MT=Multi-Tap[4]
TT=Triple-Tap[4]
UNV=Universal[5] 120-277V

Color [6]
AP=Grey
BZ=Bronze
BK=Black
WH=White
DP=Dark Platinum
GM=Graphite Metallic

Options [7]
F=Single Fuse (120, 277 or 347V)
FF=Double Fuse (208, 240 or 480V)
L=Lamp Included[8]
R1=Provisional cut for GFI Receptacle[9]
R2=Installed GFI Receptacle[9]
CF/EM=Emergency Battery Pack[10]
AB=Aqua Marine Blue Glass Jar
HG=Hunter Green Glass Jar
OR=Orange Glass Jar
RB=Royal Blue Glass Jar
RE= Red Glass Jar

Notes:
1. HID lamps are medium base. 175W MH is available for non-U.S. markets only.
2. 35W HPS available in 120V only.
3. Products also available in non-US voltages and 50Hz for international markets. Consult factory for availability and ordering information.
4. Multi-Tap ballast is 120/208/240/277V wired 277V. Triple-Tap ballast is 120/277/347V wired 347V.
5. Compact Fluorescent only Electronic ballast universal voltage 120-277V.
6. Other finish colors available, including a full line of RAL color matches. Consult your Cooper Lighting Representative.
7. Add as suffix in the order shown.
8. Coated lamp standard. Must specify clear lamp if desired.
9. Location of R1 and R2 option on housing subject to height of luminaire.
10. CF lamps only, rated minimum operating temperature 32° F (0° C).

COOPER Lighting
www.cooperlighting.com

NOTE: Specifications and dimensions subject to change without notice.
Visit our web site at www.cooperlighting.com
Customer First Center 1121 Highway 74 South Peachtree City, GA 30269 770.486.4800 FAX 770.486.4801

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DESCRIPTION

The Galleria luminaires beauty and versatility make it an excellent choice for roadway and general area lighting applications. An aesthetic reveal in the formed aluminum housing gives the Galleria luminaire a distinctive look while a variety of mounting options and lamp wattages provide maximum flexibility.

The Galleria luminaires superior light distributions makes it the optimum choice for almost any small, medium or large area lighting application.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction

HOUSING: Formed aluminum housing with stamped reveal has interior-welded seams for structural integrity and is finished in premium TGIC polyester powder coat. U.L. listed and CSA certified for wet locations. DOOR: Formed aluminum door has heavy-duty hinges, captive retaining screws and is finished in premium TGIC polyester powder coat. (Spider mount unit has steel door.)

Electrical

BALLAST TRAY: Ballast tray is hard-mounted to housing interior for cooler operation.

Optics

REFLECTOR: Choice of fourteen high efficiency optical systems utilizing horizontal and vertical lamp orientations. Optional high efficiency segmented optical systems constructed of premium 95% reflective anodized aluminum sheet. Optical segments are rigidly mounted inside a thick gauge aluminum housing for superior protection. All segment faces are clean of rivet heads, tabs or other means of attachment which may cause streaking in the light distribution. Standard with mogul-base socket. All optical modules feature quick disconnect wiring plugs and are field rotatable in 90° increments. LENS: Convex tempered glass lens or flat glass.

Mounting

Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during assembly. Specify arm-included mounting for contractor-friendly single carton packaging of housing and arm.

GSM/GSL GALLERIA SQUARE

100 - 1000W

Pulse Start Metal Halide

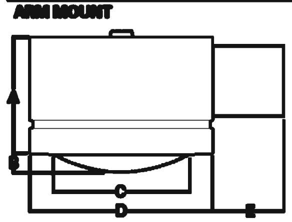
High Pressure Sodium

Metal Halide

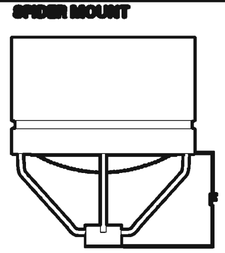
ARCHITECTURAL AREA LUMINAIRE

DIMENSIONS

ARM MOUNT



SPIDER MOUNT



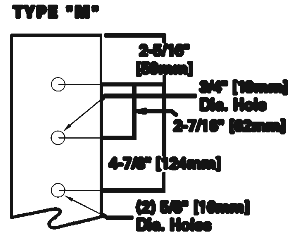
DIMENSIONAL DATA

Fixture	A	B	C	D	E	F
GSM	11" [279mm]	3-1/2" [89mm]	19-1/4" [489mm]	21-3/4" [552mm]	6" [152mm]	15" [381mm]
					14" [356mm]	16" [406mm]
GSL	14-1/2" [370mm]	4-1/4" [108mm]	25-7/8" [657mm]	27" [686mm]	6" [152mm]	18-3/4" [476mm]
					14" [356mm]	19-3/4" [502mm]

NOTE: Top cap used on GSM with 1000W flat glass vertically lamped optics only.

ARM DRILLING

TYPE "M"



ENERGY DATA

CWA Ballast Input Watts
150W MP HPF (185 Watts)
175W MP HPF (208 Watts) ●
250W MP HPF (283 Watts) ●
250W HPS HPF (295 Watts)
400W MP HPF (452 Watts) ●
400W HPS HPF (457 Watts)
750W MP HPF (820 Watts)
1000W MH HPF (1080 Watts)
1000W HPS HPF (1100 Watts)

EPA

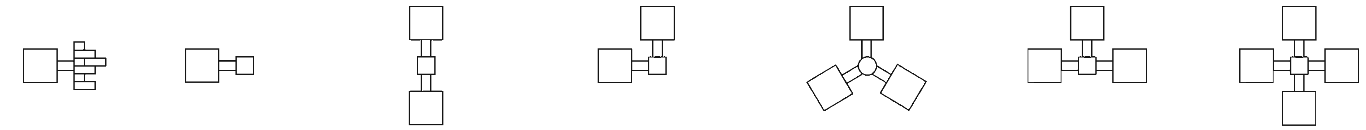
Effective Projected Area: (Sq. Ft.)
[Without Arm]
GSM: 2.40 GSL: 3.90
[Spider Mount]
GSM: 2.86 GSL: 4.45

SHIPPING DATA

Approximate Net Weight:
GSM: 79 lbs. (36 kgs.)
GSL: 88 lbs. (40 kgs.)

MOUNTING CONFIGURATIONS AND EPAS

Wall Mount	Arm Mount Single	Arm Mount 2 @ 180°	Arm Mount 2 @ 90°	Arm Mount 3 @ 120° (Round Pole Only)	Arm Mount 3 @ 90°	Arm Mount 4 @ 90°
	GSM: 2.9 **GSL:** 4.4	**GSM:** 5.8 **GSL:** 8.8	**GSM:** 6.8 **GSL:** 9.8	**GSM:** 9.2 **GSL:** 13.7	**GSM:** 9.2 **GSL:** 13.7	**GSM:** 10.4 **GSL:** 15.6



ORDERING INFORMATION

Sample Number: GSM-AM-400-MP-MT-3V-SG-BZ-L

Product Family	Mounting Method	Lamp Wattage [4]		Lamp Type	Voltage [9]	Distribution [6]	Lens Type	Color [17]
GSM=Galleria Square Medium **GSL**=Galleria Square Large	**Arm Mount** **AM**=Arm Mount [1] **AIR**=Arm Included for Round Pole [2] **AIS**=Arm Included for Square Pole [2] **Spider Mount** **SM2**=Spider Mount (3" O.D. Tenon) **SM3**=Spider Mount (3-1/2" O.D. Tenon) [3]	**Pulse Start Metal Halide** **150**=150W **175**=175W **200**=200W **250**=250W **320**=320W **350**=350W **400**=400W [5] **450**=450W [6] **750**=750W **875**=875W **1000**=1000W [7]	**High Pressure Sodium** **100**=100W **150**=150W **250**=250W **400**=400W **750**=750W **1000**=1000W [7] **Metal Halide** [8] **175**=175W **250**=250W **400**=400W **1000**=1000W [7]	**MP**=Pulse Start Metal Halide **HPS**=High Pressure Sodium **MH**=Metal Halide [8]	**120V**=120V **208V**=208V **240V**=240V **277V**=277V **347V**=347V **480V**=480V **MT**=Multi-Tap [10] **TT**=Triple-Tap [10] **5T**=5-Tap [11]	**Horizontal Lamp** **1F**=Type I Formed [12] **2F**=Type II Formed **2S**=Type II Segmented [13] **3F**=Type III Formed **3S**=Type III Segmented [13] **4S**=Type IV Segmented [13] **5S**=Type v Segmented [13] **FT**=Forward Throw **SL**=Spill Light Eliminator [14] **CA**=Cutoff Asymmetric w/EHS **Vertical Lamp** **AR**=Area Round **AS**=Area Square **3V**=Type III Vertical **RW**=Rectangular Wide [15]	**FG**=Flat Glass [16] **SG**=Sag Glass	**AP**=Grey **BZ**=Bronze **BK**=Black **WH**=White **DP**=Dark Platinum **GM**=Graphite Metallic

Options (Add as Suffix)	**Accessories** (Order Separately) [22]	
CEC=California Title 20 Compliant Ballast (Applies to 175-320W and 400W MP Only) **F**=Single Fuse (120, 277 or 347V) **FF**=Double Fuse (208, 240 or 480V) **L**=Lamp Included **EM**=Quartz Restrike w/Delay [18] **Q**=Quartz Restrike [18] **R**=NEMA Twistlock Photocontrol Receptacle **EHS**=External Adjustable House Side Shield **HS**=House Side Shield [19, 20] **VS**=Vandal Shield [21]	**GSM-EXTHS**=External House Side Shield - 2.24 EPA **GSL-EXTHS**=External House Side Shield - 2.46 EPA **MA1004XX**=14" Arm for Square Pole - 1.0 EPA [23] **MA1005XX**=6" Arm for Square Pole - 0.5 EPA **MA1006XX**=Direct Mount Kit for Square Pole **MA1007XX**=14" Arm for Round Pole - 1.0 EPA [23] **MA1008XX**=6" Arm for Round Pole - 0.5 EPA **MA1009XX**=Direct Mount Kit for Round Pole **MA1029XX**=Wall Mount Bracket with 10" Arm **MA1208XX**=11-1/2" Arm and Round Pole Adapter - 0.8 EPA **OA1066XX**=Mast Arm Adapter **MA1010XX**=Single Tenon Adapter for 3-1/2" O.D. Tenon **MA1011XX**=2@180° Tenon Adapter for 3-1/2" O.D. Tenon **MA1012XX**=3@120° Tenon Adapter for 3-1/2" O.D. Tenon **MA1013XX**=4@90° Tenon Adapter for 3-1/2" O.D. Tenon	**MA1014XX**=2@90° Tenon Adapter for 3-1/2" O.D. Tenon **MA1015XX**=2@120° Tenon Adapter for 3-1/2" O.D. Tenon **MA1016XX**=3@90° Tenon Adapter for 3-1/2" O.D. Tenon **MA1017XX**=Single Tenon Adapter for 2-3/8" O.D. Tenon **MA1018XX**=2@180° Tenon Adapter for 2-3/8" O.D. Tenon **MA1019XX**=3@120° Tenon Adapter for 2-3/8" O.D. Tenon **MA1045XX**=4@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1048XX**=2@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1049XX**=3@90° Tenon Adapter for 2-3/8" O.D. Tenon **MA1061**=House Side Shield for GSM - Field Installed [24] **MA1062**=House Side Shield for GSL - Field Installed [24] **OA/RA1016**=NEMA Twistlock Photocontrol - Multi-Tap **OA/RA1027**=NEMA Twistlock Photocontrol - 480V **OA/RA1201**=NEMA Twistlock Photocontrol - 347V

Notes:
1. Arm not included. See Accessories.
2. Arm length varies based on housing size: 11-1/2" for GSM and 14" for GSL.
3. Available on GSL housing only.
4. Standard with mogul-base lamp sockets. Wattage availability varies by housing size, see wattage table.
5. Requires reduced envelope ED-28 lamp when used with GSM housing and flat glass vertically lamped optics.
6. 450W Pulse start metal halide only available in vertical lamp orientations (AR, AS, 3V or RW distributions).
7. Requires reduced envelope BT-37 lamp when used with GSM housing.
8. 175, 250 and 400W Metal halide available for non-US markets only.
9. Products also available in non-US voltages and 50Hz for international markets. Consult factory for availability and ordering information.
10. Multi-Tap ballast is 120/208/240/277V wired 277V. Triple-Tap ballast is 120/277/347V wired to 347V.
11. 5-Tap ballast is 120/208/240/277/480V wired 480V. Only available in 400-1000W.
12. Medium housing fixture only.
13. Maximum wattage on segmented optical distributions is 400W. 400W Metal Halide lamp must use reduced envelope ED-28 lamp. Not available in GSL housing.
14. Must use reduced envelope lamp, not available in GSL housing.
15. RW optic not available with flat glass.
16. 1000W GSL with flat glass requires BT-37 lamp and is not available in AS, RW, SL or 3V distributions.
17. Other finish colors available, including a full line of RAL color matches. Consult your Eaton's Cooper Lighting business representative.
18. Quartz options not available with SL optics.
19. House side shield not available with 5S, RW, AS, AR, SL and CA optics.
20. Not available in 1000W.
21. Arm mount only, 400W maximum.
22. Replace XX with color suffix.
23. Use for mounting fixtures at 90° increments.
24. Compatible with sag lens vertical optics only.

Halo Commercial

DESCRIPTION

Recessed 6-inch LED lens downlight is available in various distributions, lumen and CRI/CCT options. Suitable for commercial construction and can be used for both new or renovation work. Insulation must be kept 3" from top and sides of housing. Use for general area lighting where high efficiency and visual comfort are required.

Catalog #		Type
Project		
Comments		Date
Prepared by		

PD610
PD615
PD620
PD630

PDM6A

61V

1000, 1500, 2000 & 3000 Lumen Series

LED 6-inch Aperture Lens Downlight

SPECIFICATION FEATURES

MECHANICAL

Frame
Boat shaped galvanized steel frame with adjustable plaster lip accommodates ceilings up to ½ - 2" thick. May be used for new construction or remodeling installations. Provided with (2) remodel clips to secure frame when installed from below the ceiling.

Mounting Brackets
Bar hanger receivers adjusts 2" vertically from above the ceiling or thru the aperture. Use with No Fuss™ bar hangers or with ½" EMT. Removable to facilitate installation from below the ceiling.

No Fuss™ Bar Hangers
Captive preinstalled bar hanger locks to tee grid with a screwdriver or pliers. Centering mechanism allows consistent positioning of fixtures.

OPTICAL

LED Module
Proximity phosphors over chip on board LEDs provide a uniform source with high efficiency and no pixilation. Available in 80 or 90 CRI minimum, accuracy within 3 SDCM provides color uniformity. See ordering information for available CRI / CCT options. Passive thermal management achieves L70 at 50,000 hours in non IC applications. Integral diffuse lens provides visual shielding. Integral connector allows quick connection to housing flex.

Reflector
One piece parabolic aluminum reflector provides cutoff for a visually comfortable optic. Attaches to LED module with (3) speed clamps minimizing light leaks to lens. Self-flanged standard with an optional white painted flange.

Trim Retention
Reflectors are retained with two torsion springs holding the flange tightly to the finished ceiling surface.

ELECTRICAL

Junction Box
(6) ½" and (2) ¾" trade size pry outs positioned to allow straight conduit runs. Listed for (12) #12 AWG (six in, six out) 90°C conductors and feed thru branch wiring.

Driver
Integral UNV 120 - 277V 50/60 Hz constant current driver provides noise free operation. For 347V input use Halo transformer H347 or H347200. Continuous, flicker-free dimming from 100% to 10% with leading or trailing edge phase cut at 120V or 0 -10V analog control.

Emergency Option
Provides 90 minutes of standby lighting meeting most life safety codes for egress lighting. Available with both integral or remote charge indicator and test switch.

Compliance
- cULus listed for wet location
- cCSAus listed for wet location
- IP66 Ingress Protection Rated
- Insulation must be kept 3" from top and sides.
- Airtight per ASTM-E283.
- Optional City of Chicago environmental air (CCEA) marking for plenum applications.
- EMI/RFI emissions per FCC 47CFR Part 18 non-consumer limits.
- Contains no mercury or lead and RoHS compliant.
- Photometric testing in accordance with IES LM-79-08.
- Lumen maintenance projections in accordance with IES LM-80-08 and TM-21-11.
- Can be used to comply with California Title 24 Non-Residential Lighting Controls requirements as a LED Luminaire.
- ENERGY STAR® listed for commercial applications, reference database for current listings.

THD: ≤ 20%	
PF: ≥ 0.90	
T Ambient -30 - +40°C	
Sound Rating ≤ 22dba	

Lumens	1000 Series	
Input Voltage	120V	277V
Input Current	.103 A	.058 A
Input Power	12.1 W	13.2 W
Efficiency	83 LPW	83 LPW
Inrush Current	.048 A	.080 A

Lumens	1500 Series	
Input Voltage	120V	277V
Input Current	.143 A	.1 A
Input Power	17.1 W	17.9 W
Efficiency	87 LPW	87 LPW
Inrush Current	1.920 A	0.960 A

Lumens	2000 Series	
Input Voltage	120V	277V
Input Current	.175 A	.536 A
Input Power	20.78 W	21.06 W
Efficiency	89 LPW	89 LPW
Inrush Current	.064 A	.128 A

Lumens	3000 Series	
Input Voltage	120V	277V
Input Current	.299 A	.145 A
Input Power	35.72 W	36.4 W
Efficiency	82 LPW	82 LPW
Inrush Current	.096 A	.928 A

EATON
Powering Business Worldwide

TD517003EN
6/29/2015

Halo Commercial

PD610/PD615/PD620/PD630
PDM6A
61V

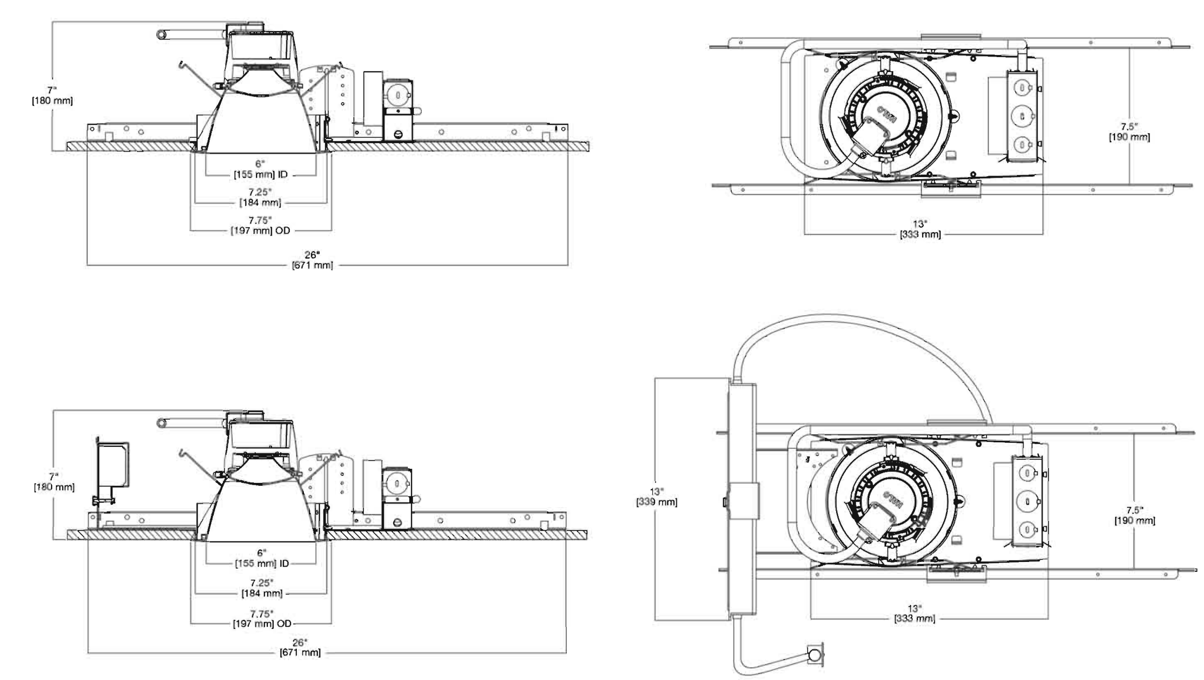
ORDERING INFORMATION

SAMPLE NUMBER: PD610ED010REM-PDM6A827-61VC
A complete luminaire consists of a housing, LED module and reflector, order separately.

Housing	Lumens	Driver	Options	LED Module	CRI/CCT
PD6 = 6" aperture LED downlight **PD6CP** = 6" aperture LED downlight, CCEA listed for City of Chicago plenum requirements	**10** = 1,000 lumens (nominal) **15** = 1,500 lumens (nominal) **20** = 2,000 lumens (nominal)	**ED010** = 120-277V 50/60Hz, 0-10V and LE/TE phase cut dimming	**REM** = Emergency operation with remote indicator and test switch **IEM** = Emergency operation with integral indicator and test switch, 60 Hz only (REM and IEM options not available with PD6CP housing)	**PDM6A** = Downlight LED module for PD6 housing, provides 1,000, 1,500, 2,000, or 3,000 lumens (nominal) depending on connected housing type	**827** = 80 CRI, 2700K CCT **927** = 90 CRI, 2700K CCT **830** = 80 CRI, 3000K CCT **930** = 90 CRI, 3000K CCT **835** = 80 CRI, 3500K CCT **935** = 90 CRI, 3500K CCT **840** = 80 CRI, 4000K CCT **940** = 90 CRI, 4000K CCT
	30 = 3,000 lumens (nominal)	**D010** = 120-277V 50/60Hz, 0-10V dimming (3,000 lumen only)			

Reflector	Finish Option	Flange Option	Accessories
61V = 6" vertical parabolic reflector **61VEM** = 6" vertical parabolic reflector for IEM	**C** = Specular clear **G** = Specular gold **H** = Semi-specular clear **W** = White (white flange) **BB** = Black baffle (white flange) **WB** = White baffle (white flange)	**Blank** = Polished flange standard with C, G & H reflector finishes **Blank** = White flange standard with W, BB, & WB **WF** = White flange option available with C, G, & H reflector finishes	**HB128APK** = L channel hanger bar, 26", 'No-Fuss', pair (replacement) **RMB22** = 22" long wood joist mounting bars, pair **H347** = Step down transformer for 347V input **H347** = Step down transformer for 347V input, 75VA max **H347200** = Step down transformer for 347V input, 200VA max

DIMENSIONS



EATON
Powering Business Worldwide

Lumark

DESCRIPTION

The Prevail LED area, site luminaire combines optical performance, energy efficiency and long term reliability in an advanced, patent pending modern design. Utilizing the latest LED technology, the Prevail luminaire delivers unparalleled uniformity resulting in greater pole spacing. A versatile mount standard arm facilitates ease of installation for both retrofit and new installations. With energy savings greater then 62%, the Prevail fixture replaces 150-400W metal halide fixtures in general area lighting applications such as parking lots, walkways, roadways and building areas.

Catalog #		Type	
Project			
Comments		Date	
Prepared by			

SPECIFICATION FEATURES

Construction
Construction is comprised of a heavy-duty, single-piece die-cast aluminum housing. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. The die-cast aluminum door is tethered to provide easy access to the driver if replacement is required. A one-piece silicone gasket seals the door to the fixture housing. The optics is mounted on a versatile, aluminum plate that dissipates haat from the LEDs resulting in longer life of the fixture. The fixture is IP66 and 3G vibration rated (ANSI C136.31) to insura strength of construction and longevity in the selected application.

Optics
Precision molded, high efficiency optics are precisely designed to shape the distribution, maximizing efficiency and application spacing. Available in Type II, III, IV and V distributions with lumen packagas ranging from 6,100 to 15,100 nominal lumens. Light engine configurations consist of 1 or 2 high-efficecy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L92/60,000 hours at 25°C) per IESNA TM-21. For the ultimate level of spill light control, an optional house side shield accessory can be field or factory installed.

Electricel
LED drivers are mounted to the fixture for optimal heat sinking and ease of maintenance. Thermal management incorporates both conduction and convection to transfer heat rapidly away from the LED source for optimal efficiency and light output. Class 1 electronic drivers have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Available in 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. 10kV/10 kA surge protection standard. 0-10V dimming driver is standard with leads external to the fixture to accommodate controls capability such as dimming and occupancy. Suitable for ambient temperatures from -40°C to 40°C. Optional 50°C HA (high ambient) available. Standard NEMA 3-PIN twistlock photocontrol receptacle and NEMA 7-PIN twistlock photocontrol receptacles are available as options.

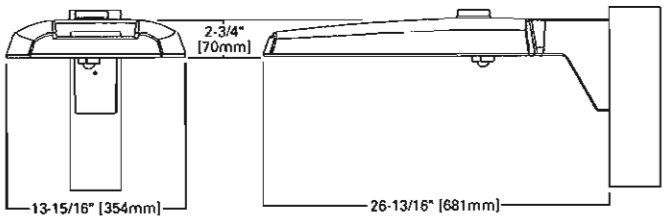
Controls
The Prevail LED luminaire control options are designed to be simple and cost-effective ASHRAE and California Title 24 compliant solutions. The ANSI C136.41 compliant NEMA 7-PIN receptacle enables wireless dimming when used with compatible photocontrol. An integrated dimming and occupancy sensor is a standalone control option available in on/off (MSP) and bi-level dimming (MSP/DIM) operation. The optional LumaWatt system is best described as a peer-to-peer wireless network of luminaire-integral sensors that operate in accordance with programmable profiles. Each sensor is capable of motion and photo sensing, metering power consumption and wireless communication.

Mounting
Standard pole mount arm is bolted directly to the pole and the fixture slides onto the arm and locks in place with a bolt facilitating quick and easy installation. The versatile, patent pending, standard mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the standard mounting arm enables wiring of the fixture without having to access the driver compartment. A knock-out on the standard mounting arm enables round pole mounting. Wall mount and mast arm mounting options are available. Mast arm adapter fits 2-3/8" O.D. tenon.

Finish
Housing and cast parts finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard color is bronze. Additional colors available in white, grey, black, dark platinum and graphite metallic.

Warranty
Five-year warranty.

DIMENSIONS



PRV PREVAIL

LED

AREA / SITE / ROADWAY LUMINAIRE

CERTIFICATION DATA
UL and cUL Wet Location Listed
IP66-Rated
3G Vibration Rated
ISO 9001
DesignLights Consortium™ Qualified*

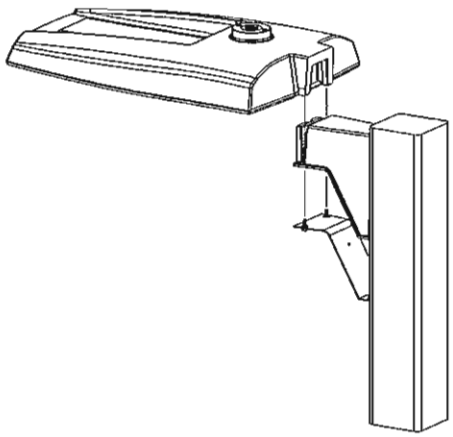
ENERGY DATA
Electronic LED Driver
0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 and 60Hz,
347V/60Hz, 480V/60Hz
-40°C Minimum Temperature Rating
+40°C Ambient Temperature Rating

EPA
Effective Projected Area (Sq. Ft.): 0.75

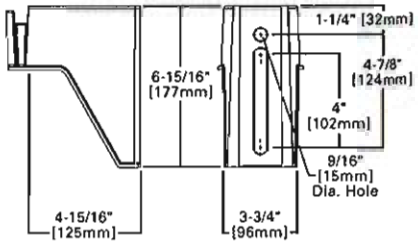
SHIPPING DATA
Approximate Net Weight:
20 lbs. (9.09 kgs.)

*www.designlights.org

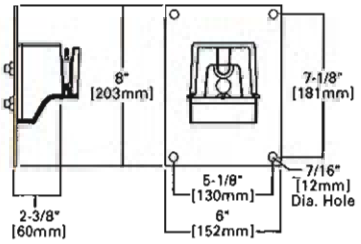
VERSATILE MOUNT SYSTEM



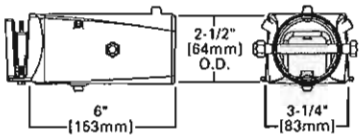
POLE MOUNT ARM (SA)



WALL MOUNT (WM)



MAST ARM MOUNT (MA)



MOUNTING CONFIGURATIONS AND EPAS

Wall Mount

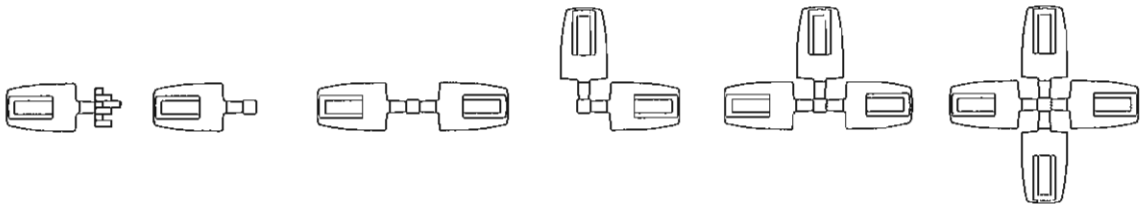
Arm Mount Single
EPA 0.75

Arm Mount 2 @ 180°
EPA 1.50

Arm Mount 2 @ 90°
EPA 1.50

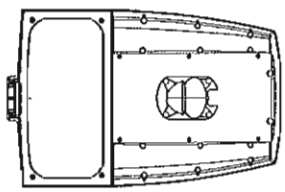
Arm Mount 3 @ 90°
EPA 2.25

Arm Mount 4 @ 90°
EPA 3.00

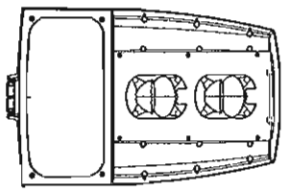


OPTICAL CONFIGURATIONS

A15 (6,100 Nominal Lumens)



A25/A40 (10,200/15,100 Nominal Lumens)



POWER AND LUMENS

Light Engine		A15	A25	A40
Nominal Power (Watts)		57W	87W	143W
Input Current @ 120V (A)		0.49	0.76	1.23
Input Current @ 277V (A)		0.22	0.35	0.54
Input Current @ 347V (A)		0.18	0.26	0.45
Input Current @ 480V (A)		0.13	0.21	0.33
Type II	Lumens	6,139	10,204	15,073
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3
Type III	Lumens	6,192	10,292	15,203
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3
Type IV	Lumens	6,173	10,261	15,157
	BUG Rating	B1-U0-G3	B2-U0-G3	B2-U0-G4
Type V	Lumens	6,393	10,627	15,697
	BUG Rating	B3-U0-G3	B4-U0-G3	B4-U0-G4

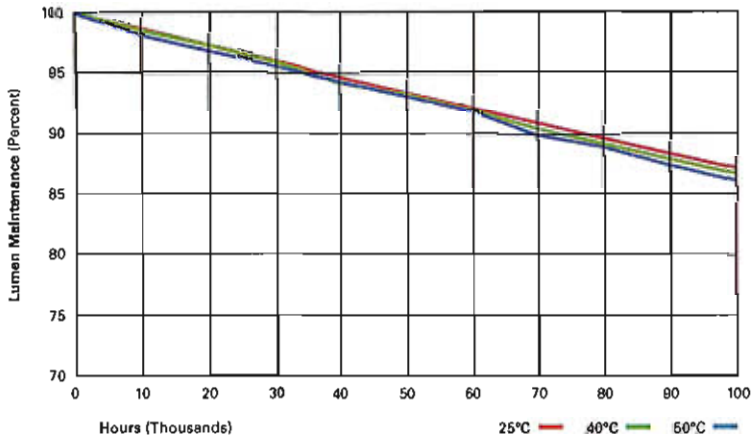
NOTE: Lumen output for standard bronze fixture color. Different housing colors impact lumen output. IES files for the non-standard colors are available upon request.

LUMEN MAINTENANCE

Ambient Temperature	25,000 Hours*	50,000 Hours*	60,000 Hours*	Theoretical 100,000 Hours	Theoretical L70 (Hours)*
25°C	> 96%	> 93%	> 92%	> 87%	> 260,000
40°C	> 96%	> 93%	> 92%	> 87%	> 255,000
50°C	> 95%	> 92%	> 91%	> 88%	> 250,000

LUMEN MULTIPLIER

Ambient Tempereture	Lumen Multiplier
10°C	1.02
15°C	1.01
25°C	1.00
40°C	0.99



Eaton
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.eaton.com/lighting

Specifications and dimensions subject to change without notice.

ORDERING INFORMATION

Sample Number: PRV-A25-D-UNV-T3-SA-BZ

Product Family [1]	Light Engine [2]	Driver [3]	Voltage	Distribution	Mounting	Color [5]
PRV=Prevail	A15=(1 LED) 6,100 Nominal Lumens A25=(2 LEDs) 10,200 Nominal Lumens A40=(2 LEDs) 15,100 Nominal Lumens	D=Dimming (0-10V)	UNV=Universal (120-277V) 347=347V 480=480V [4]	T2=Type II T3=Type III T4=Type IV T5=Type V	SA=Standard Versatile Arm MA=Mast Arm WM=Wall Mount Arm	AP=Grey BZ=Bronze (Standard) BK=Black DP=Dark Platinum GM=Graphite Metallic WH=White

Options (Add as Suffix)	Accessories (Order Separately) [10]
7030=70 CRI / 3000K CCT [6] 7050=70 CRI / 5000K CCT [6] 10K=10kV/10kA UL 1449 Fused Surge Protective Device DIMRF-LW=LumaWatt Wireless Sensor, Wide Lens for 8' - 16' Mounting Height [7,8] DIMRF-LN=LumaWatt Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height [7,8] MSP/DIM-L12=Integrated Sensor for Dimming Operation, 8' - 12' Mounting Height MSP/DIM-L30=Integrated Sensor for Dimming Operation, 12' - 30' Mounting Height MSP-L12=Integrated Sensor for ON/OFF Operation, 8' - 12' Mounting Height MSP-L30=Integrated Sensor for ON/OFF Operation, 12' - 30' Mounting Height PER=NEMA 3-PIN Twistlock Photocontrol Receptacle [9] PER7=NEMA 7-PIN Twistlock Photocontrol Receptacle [9] HSS=House Side Shield HA=50°C High Ambient Temperature	WM-XX=Wall Mount Kit MA-XX=Mast Arm Mounting Kit SA-XX=Standard Arm Mounting Kit HS/VERD=House Side Shield MA1010-XX=Single Tenon Adaptar for 3-1/2" O.D. Tenon MA1011-XX=2@180° Tenon Adapter for 3-1/2" O.D. Tenon MA1012-XX=3@120° Tenon Adapter for 3-1/2" O.D. Tenon MA1013-XX=4@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1014-XX=2@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1015-XX=2@120° Tenon Adapter for 3-1/2" O.D. Tenon MA1016-XX=3@90° Tenon Adapter for 3-1/2" O.D. Tenon MA1017-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon MA1018-XX=2@180° Tenon Adapter for 2-3/8" O.D. Tenon MA1019-XX=3@120° Tenon Adapter for 2-3/8" O.D. Tenon MA1045-XX=4@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1048-XX=2@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1049-XX=3@90° Tenon Adapter for 2-3/8" O.D. Tenon MA1191-XX=2@120° Tenon Adapter for 2-3/8" O.D. Tenon OA/RA1013=Photocontrol Shorting Cap OA/RA1014=NEMA Photocontrol - 120V OA/RA1016=NEMA Photocontrol - Multi-Tap 105-285V OA/RA1027=NEMA Photocontrol - 480V OA/RA1201=NEMA Photocontrol - 347V ISHH-01=Integrated Sensor Programming Remote

NOTES:

1. DesignLights Consortium™ Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.
2. Standard 4000K CCT and 70 CRI.
3. Consult factory for driver surge protection values.
4. Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
5. Different housing colors impact lumen output. IES files for the non-standard colors are available upon request.
6. Extended lead times apply. Use dedicated IES files for 3000K and 5000K when performing layouts. These files are published on the Prevail luminaire product page on the website.
7. LumaWatt wireless sensors are factory installed and require network components RF-EM-1, RF-GW-1 and RF-ROUT-1 in appropriate quantities. See website for LumaWatt application information.
8. LumaWatt wireless system is not available with photocontrol receptacle (Not needed).
9. Not available with MSP or DIMRF options.
10. Replace XX with paint color.

STOCK ORDERING INFORMATION

Stock Sample Number: PRVS-A25-UNV-T3

Product Family	Light Engine	Voltage	Distribution	Options (Add as Suffix)
PRVS=Prevail	A15=(1 LED) 6,100 Nominal Lumens A25=(2 LEDs) 10,200 Nominal Lumens A40=(2 LEDs) 15,100 Nominal Lumens	UNV=Universal (120-277V) 347=347V	T3=Type III T4=Type IV	MSP/DIM-L30=Integrated Sensor for Dimming Operation, Maximum 30' Mounting Height

NOTE: Bronze only, 4000K CCT, 120-277V, 347V, standard mounting arm, standard non-fused 10kV MOV and 0-10V dimming.

FOUNTAIN FEATURE EXAMPLES

Opus I at Kraus Farm Office Center