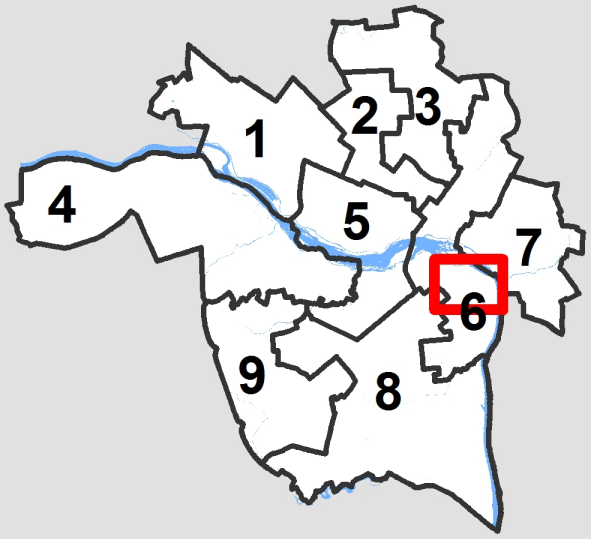
City of Richmond
Department of Planning & Development Review

Location, Character, and Extent

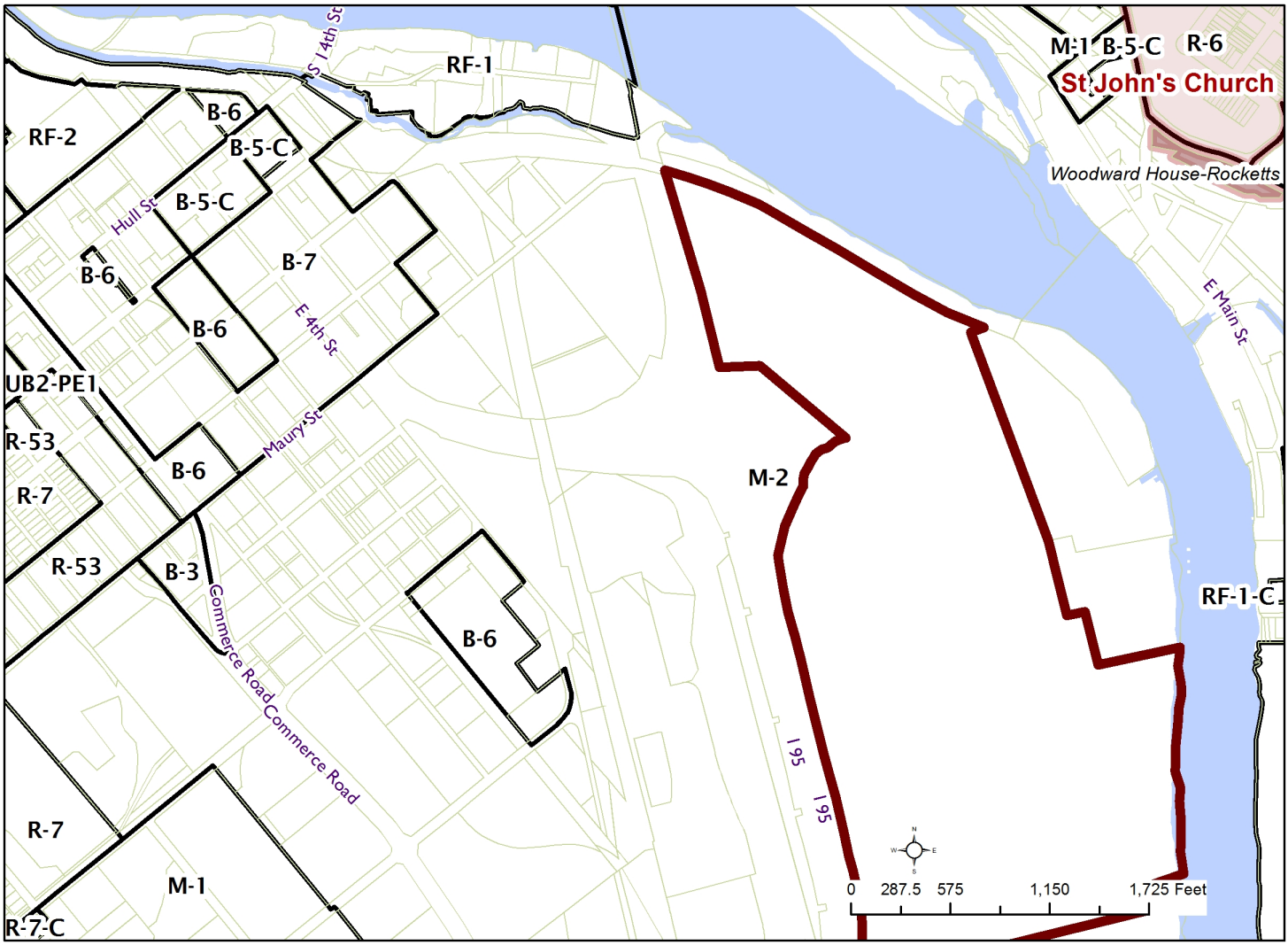
LOCATION: 1400 Brander Ave, City Wastewater Treatment Plant

COUNCIL DISTRICT: 6

PROPOSAL: To construct a new sand & grit facility at the Wastewater Treatment Plant.



For questions, please contact Kathleen Onufer at 646-5207 or Kathleen.Onufer@richmondgov.com



CSO Control Program

Wastewater Treatment Plant

Special Order No. 14 – Division 46

Wet Weather Disinfection Facility and Other Improvements

Special Order No. 15A – Division 47

Screenings and Grit Removal Facilities

UDC Final Review Submittal – UDC No. 2015-30

February 18, 2016

For

March 10, 2016 UDC Meeting

Department of Public Utilities

Greeley and Hansen

Environ-Civil Engineering, Ltd.

Application for URBAN DESIGN COMMITTEE Review

Department of Planning and Development Review
Planning & Preservation Division
900 E. Broad Street, Room 510
Richmond, Virginia 23219
(804) 646-6335
http://www.richmondgov.com/CommitteeUrbanDesign

Application Type

- ☐ Addition/Alteration to Existing Structure
- ☑ New Construction
- ☐ Streetscape
- ☐ Site Amenity
- ☐ Encroachment
- ☐ Master Plan
- ☐ Sign
- ☐ Other

Review Type

- ☐ Conceptual
- ☑ Final

Project Name: Wet Weather Disinfection Facility and Screen and Grit Facility

Project Address: 1400 Brander Street, Richmond, VA 23224-2399

Brief Project Description (this is not a replacement for the required detailed narrative) :

These are wastewater treatment projects at the wastewater treatment plant mandated by the state water control control board under the City's CSO Control Program.

Applicant Information

(on all applications other than encroachments, a City agency representative must be the applicant)

Name: Robert W. Stone Email: ROBERT.STONE@RICHMONDGOV.COM

City Agency: Department of Public Utilities Phone: 804-646-8557

Address: 400 Jefferson Davis Highway, Richmond, VA 23224

Main Contact (if different from Applicant): George Guhse

Company: Greeley and Hansen Phone: 804-513-3338

Email: gguhse@greeley-hansen.com

Submittal Deadlines

All applications and support materials must be filed no later than 21 days prior to the scheduled meeting of the Urban Design Committee (UDC). Please see the schedule on page 3 as actual deadlines are adjusted due to City holidays. **Late or incomplete submissions will be deferred to the next meeting.**

Filing

Applications can be mailed or delivered to the attention of "Urban Design Committee" at the address listed at the top of this page. **It is important that the applicant discuss the proposal with appropriate City agencies, Zoning Administration staff, and area civic associations and residents prior to filing the application with the UDC.**

UDC Background

The UDC is a ten member committee created by City Council in 1968 whose purpose is to advise the City Planning Commission on the design of projects on City property or right-of-way. The UDC provides advice of an aesthetic nature in connection with the performance of the duties of the Commission under Sections 17.05, 17.06 and 17.07 of the City Charter. The UDC also advises the Department of Public Works in regards to private encroachments in the public right-of-way.

Application for URBAN DESIGN COMMITTEE Review

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Submission Requirements

• 10 copies of the application cover sheet and all support materials (see below), unless the application is for an encroachment, in which case only 6 copies are required. Plan sheets should be 11" x 17", folded to 8 1/2" x 11". If it is not possible to scale plans to these dimensions, please provide one set of larger, scaled plans.
• An electronic copy (PDF preferred) of all application materials, which can be burned to disc, emailed, or delivered by FTP.

All applications must include the attached cover sheet and the following support materials, as applicable to the project:

For Conceptual Review

• A detailed project narrative which includes the following: purpose of the project, project background, project budget and funding sources, description of construction program and estimated construction start date (description should also provide information on the surrounding area to provide context).
• A site plan for the project indicating site characteristics which include: building footprints, parking areas, pedestrian routes, recreation areas, open areas and areas of future expansion.
• A set of floor plans and elevations, as detailed as possible.
• A landscaping plan which shows the general location and character of plant materials and notes any existing tree to be removed.

For Final Review

• A detailed project narrative which includes the following: purpose of the project, project background, project budget and funding sources, description of construction program and estimated construction start date (description should also provide information on the surrounding area to provide context).
• A site plan for the project indicating site characteristics which include: building footprints, parking areas, pedestrian routes, recreation areas, open areas and areas of future expansion.
• A set of floor plans and elevations, as detailed as possible.
• A landscaping plan that includes a complete plant schedule, the precise location of all plant materials, and a landscape maintenance analysis. The plant schedule must show number, size and type of each planting proposed. If existing trees are to be removed, their size, type and location must be noted on the landscape plan.
• The location of all lighting units should be noted on a site plan, including wall-mounted, site and parking lot lighting. Other site details, such as benches, trash containers and special paving materials, should also be located. Include specification sheets for each item.
• Samples of all proposed exterior building materials, including but not limited to brick, mortar, shingles, siding, glass, paint and stain colors. When as actual sample cannot be provided, a product information sheet that shows the item or a photo of an existing item may be substituted.

Review and Processing

Once an application is received, it is reviewed by staff, who compiles a report that is sent to the UDC. A copy of the report and the meeting agenda will be sent to the applicant prior to the meeting. The applicant or a representative should be present at the UDC meeting or the application may be deferred to the next regularly scheduled meeting. It is also strongly suggested that a representative of the City Agency which will have final responsibility for the item be present at the meeting (if the applicant and the representative are not the same). Once the UDC recommends action on the application, it is automatically placed on the agenda for the next City Planning Commission (CPC) meeting. An exception to this is encroachment applications, recommendations for which are forwarded to the Department of Public Works. The applicant or a representative must be present at the CPC meeting or the application may be deferred to the next regularly scheduled meeting.

Item No.	Description
1.	***Project Narrative for S.O. No.14 and No.15***: Purpose, Background, Budget, Funding, Schedule, WWTP Area View
2.	***Special Order No.14 Additional Equipment in Existing Facilities***
3.	***Special Order No.15 Site Plan***: Building Footprint, Parking, Sidewalks, Open Areas
4.	***Special Order No.15 Floor Plans and Elevations***
5.	***Special Order No.15 Landscape Plan***: Locations of Plant Materials, Plant Schedule, Paving
6.	***Special Order No.15 Outside Site Lighting***: Plans Showing Wall Mounted Units, Light Poles, Cut Sheets of Lighting Fixtures
7.	***Special Order No.15 Exterior Building Materials***: Samples of Materials of Walls, Trim, Window Walls, Doors, Glass, 3D Views

Item No. 1

Project Narrative	
Item No.	Sheet
1.1	Project Description
1.2	WWTP Area View

City of Richmond, Virginia

Department Of Public Utilities

Wastewater Treatment Plant

Project Description for Special Order No. 14 and No.15 Projects

Wet Weather Disinfection Facility and Screen and Grit Facility

February 18, 2016

The City of Richmond's wastewater collection system consists of a combined sewer system and a separated sewer system. The combined sewer system conveys both sanitary sewage and stormwater runoff to the WWTP. In the occurrence of a peak storm event, the combined system discharges flow into the James River at previously constructed combined sewer overflow (CSO) control structures. The Phase II CSO Control improvements were constructed to connect multiple CSO control structures, to convey additional wet weather flow to the WWTP, and to reduce overflows in the more sensitive free flow sections of the James River. Richmond's combined sewer system includes storage facilities intended to control the discharge of CSO. The current WWTP VPDES Permit requires the operators to increase the flow through the WWTP to 75 MGD during rainfall events until CSO conditions cease to exist and the storage facilities are emptied.

In March 2005 the State Water Control Board issued the City a Special Order for Phase III CSO Controls which were identified in the City's LTCP Re-Evaluation from 2002. The Special Order required the City to implement Special Order Requirement No. 14, UV disinfection of primary effluent, and the screenings and grit facility portion of Special Order Requirement No. 15. The wastewater plan will be required to increase the wet weather flow through the WWTP up to 140 MGD during rainfall events while CSO conditions exist. When CSO conditions no longer exist, the operators will then be required to pump 75 MGD through the WWTP until the storage facilities are emptied.

The Phase III CSO Control improvements, including those required under Special Order Requirement No. 14 and No. 15, serve to further increase the volume of CSO captured, conveyed to the WWTP site, and disinfected prior to discharge to the James River.

The Special Order No. 14 project, Wet Weather Disinfection Facility, will include the following equipment being installed in existing buildings, structures or tanks at the wastewater treatment plant: Main Pump Station Venturi Flow Meter, electrical upgrades, pumps in the Primary Sludge Pumping Station, gates at the Settled Sewage Control Structure, improvements to the Primary Effluent Storage Tank (PEST), and additional UV units in the UV Building. The estimated construction cost is $10.6 million.

The Special Order No. 15 project, Screen and Grit Facilities, will include the equipment in a new building: screening, grit removal, truck loading, and odor control. Equipment being installed in existing buildings, structures or tanks includes: replacement screens and gates and electrical upgrades. The existing temporary construction mangers office and the City's collection personnel building will be relocated on the plant site. At the end of construction the existing Screen and Grit Facilities will be demolished and a parking area constructed. The estimated construction cost is $23.0 million.

Program funding for both projects is from State CSO Grants and City Utility Funding. The Program Schedules for both projects are as follows:

Program Schedule – Special Order No. 14, Wet Weather Disinfection Facility UV Disinfection Facility	
Design Completion	April 2016
Bid and Award	October 2016
Construction Complete	October 2018

Program Schedule – Special Order No. 15, Screenings and Grit Removal Facility	
Design Completion	September 2016
Bid and Award	February 2017
Construction Complete	February 2019

Richmond WWTP Area

GREELEY AND HANSEN

Environ-Civil Engineering, Ltd.
Engineers • Scientists • Construction Managers

CITY OF RICHMOND

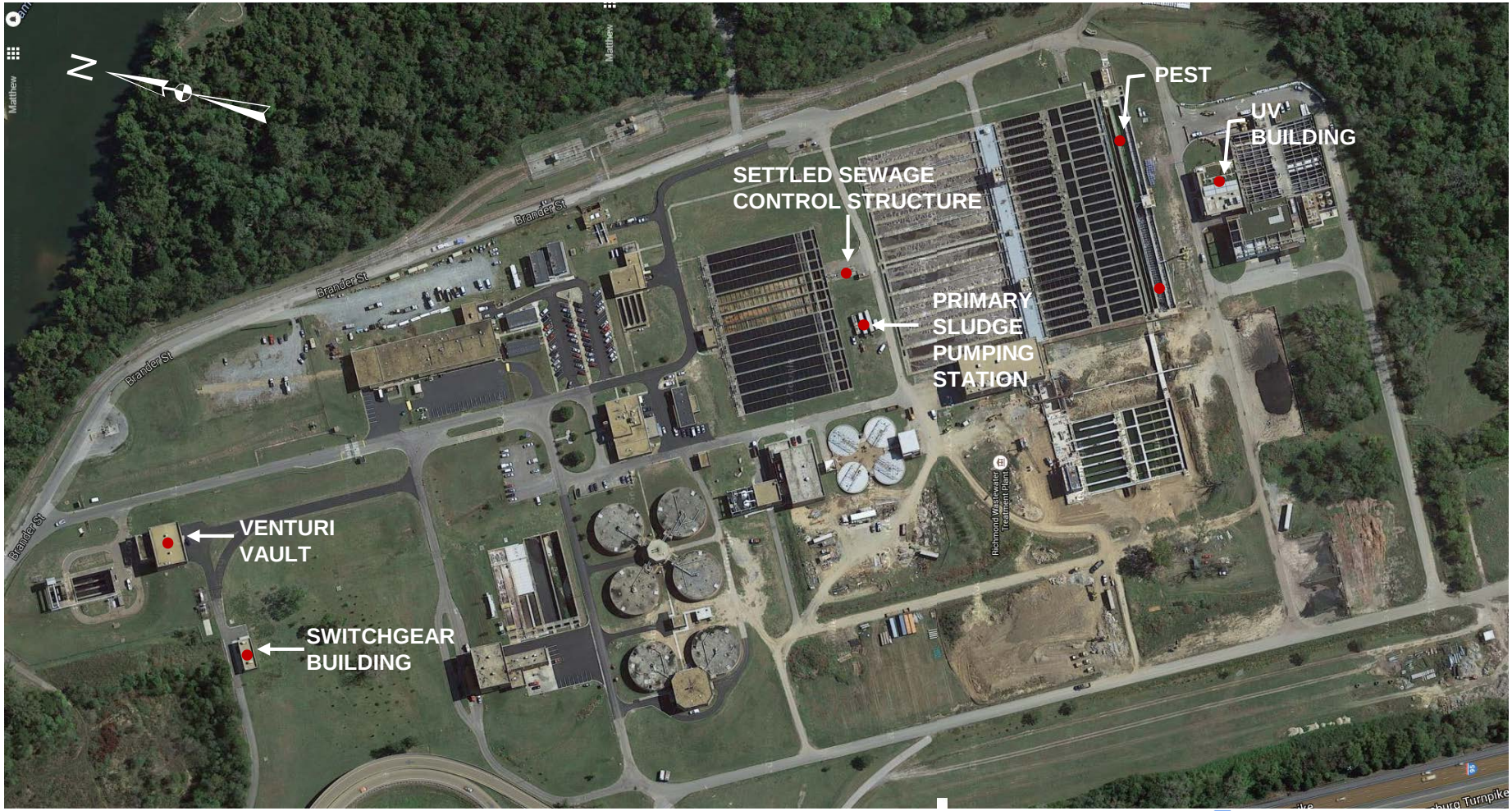
GREELEY AND HANSEN

Environ-Civil Engineering, Ltd.
Engineers • Scientists • Construction Managers

DANIELS & ASSOCIATES, P.C.
Consulting Engineers

Special Order No. 14 Additional Equipment in Existing Facilities

Special Order No. 14 – Additional Equipment in Existing Facilities



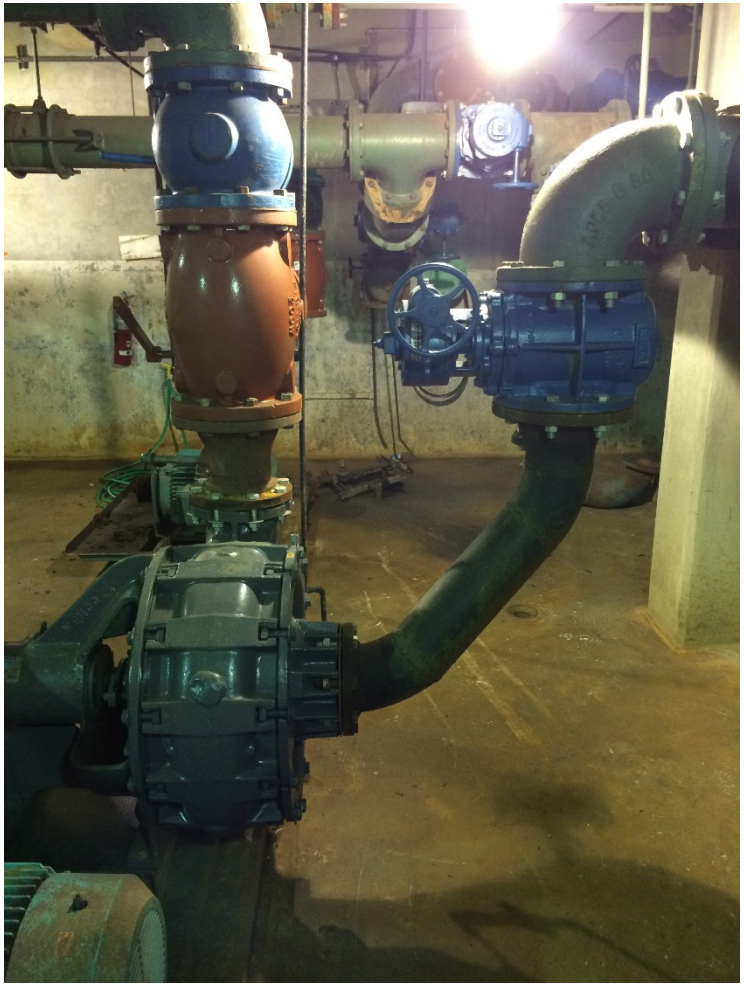
Additional Equipment in Existing Facilities

- Venturi Meter in Main Pumping Station
- Switchgear Building Electrical Equipment
- Primary Sludge Pumps at Primary Sludge Pumping Station
- Weir Gates at Settled Sewage Control Structure
- Structural Modifications and Gates at Pest
- Additional UV Units in UV Disinfection Facility

Venturi Meter

Switchgear Building

Primary Sludge Pumping Station, Sludge Pumps



Settled Sewage Control Structure

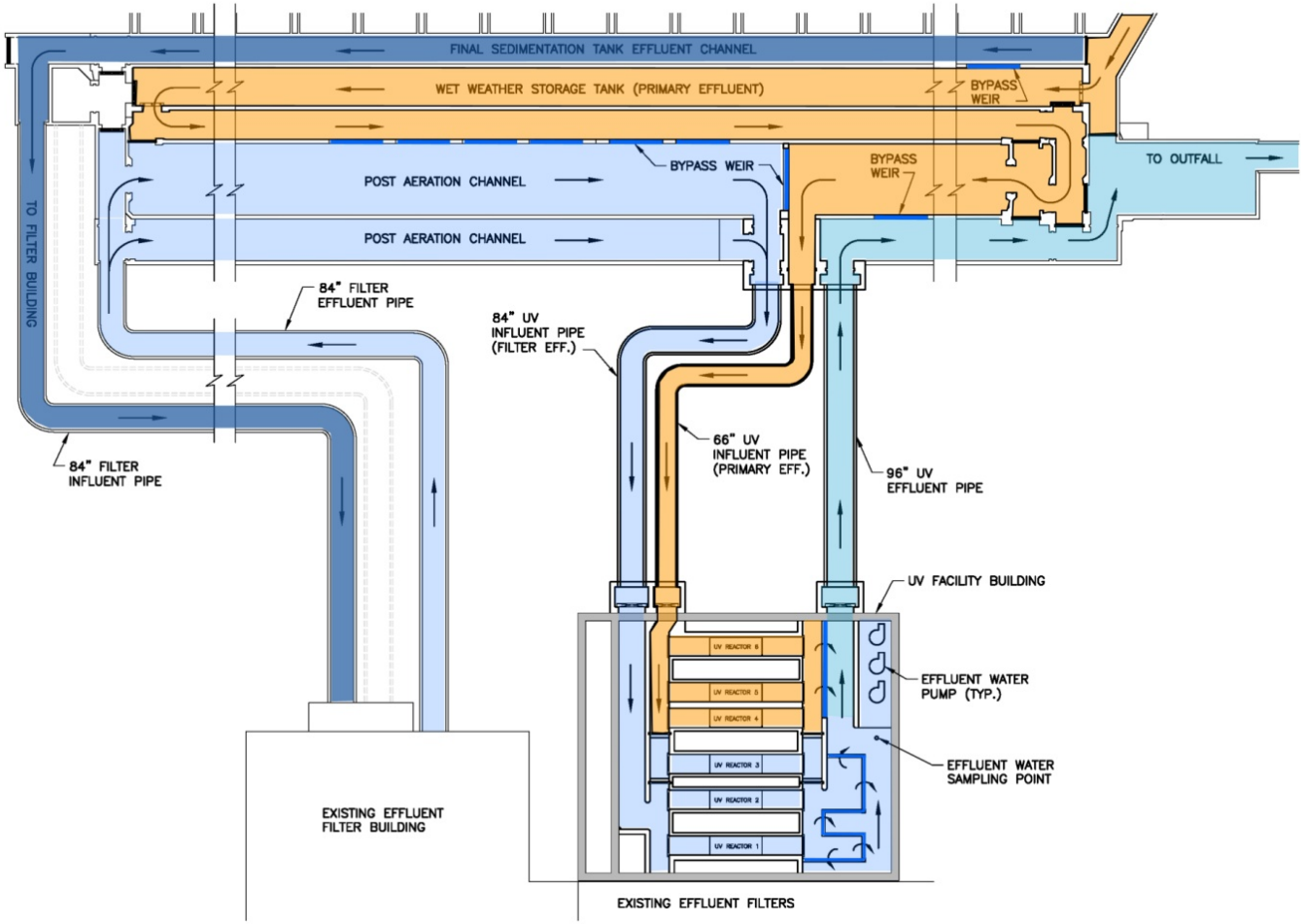
PEST

GREELEY AND HANSEN

Environ-Civil Engineering, Ltd.
Engineers • Scientists • Construction Managers

DANIELS & ASSOCIATES, P.C.
Consulting Engineers

PEST
Flow Path to UV Building



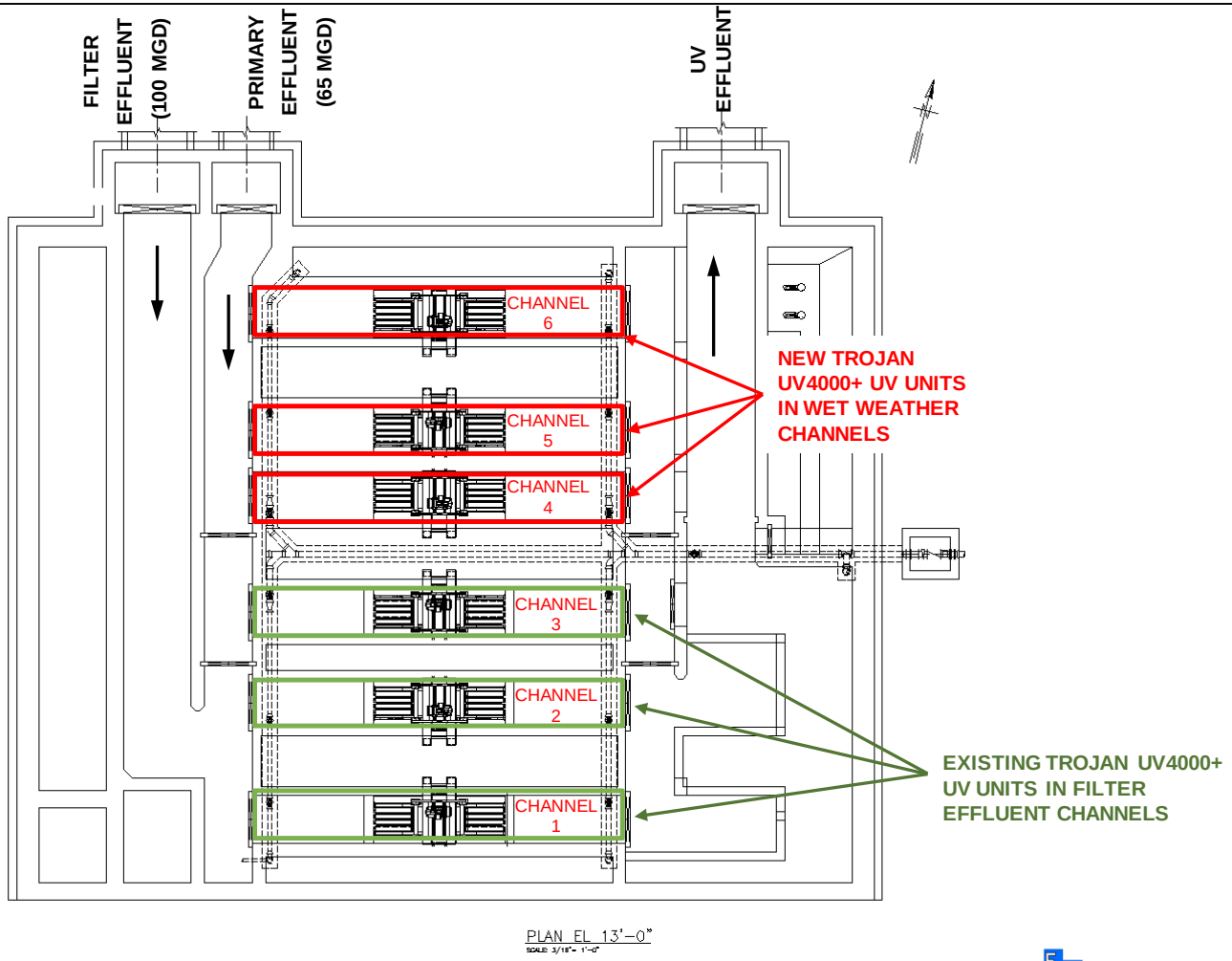
GREELEY AND HANSEN

Environ-Civil Engineering, Ltd.

DANIELS & ASSOCIATES, P.C.

UV Disinfection Facility, Additional UV Units

Additional UV Equipment



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DANIELS & ASSOCIATES, P.C. Consulting Engineers

UV Equipment

GREELEY AND HANSEN

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Engineers • Scientists • Construction Managers

DANIELS & ASSOCIATES, P.C.
Consulting Engineers

Item No. 3

Site Plan		
Item No.	Sheet	Sheet Title
3.1	AG10	Paving and Grading Plan

NOTES:

1. CONTRACTOR SHALL REFER TO SPECIFICATIONS FOR GEOTECHNICAL REPORT.
2. CONTRACTOR SHALL PROVIDE CONCRETE ADJUSTING RINGS AS REQUIRED TO BRING MANHOLE COVER FLUSH WITH GRADE.

LEGEND

- NEW PAVEMENT
- NEW PERMEABLE PAVERS
- EXISTING PAVEMENT

SUPPLEMENTAL PUMPING STATION
MAINTENANCE AND TRAINING BUILDING ELECTRIC PANEL BOARD AND METERS
NEW HANDICAP ACCESS RAMP AND SIDEWALK
SLUICE GATE STRUCTURE
BY-PASS AND OVERFLOW CHAMBER
STOP LOG STRUCTURE
NEW DIVERSION CHAMBER
GRAVEL AREA
TRAINING BUILDING
MAINTENANCE BUILDING
NEW WALK
RELOCATED MODULAR BUILDING
NEW CURB SEE DETAIL 1/AG12 (TYP)
PIPE TRENCH
NEW SIDEWALK (TYP)
NEW SHELTER (20'X10)
PAVE NEW ROAD TO MEET FLUSH WITH EXISTING ROAD (TYP)
NEW HYDRANT (TYP)
NEW CONCRETE APRON (TYP)
NEW PAVED ACCESS ROAD SEE DETAIL 2/AG12
DROP INLET (TYP)
HANDICAPPED CURB ACCESS RAMP
NEW ODOR CONTROL AREA
NEW RAMP (TYP)
NEW PARKING AREA
WAREHOUSE
B-2
B-4
NEW SCREENINGS AND GRIT REMOVAL BUILDING
CONTOUR (TYP)
B-5
SIDEWALK
NEW SIDEWALK SEE DETAIL 3/AG12 (TYP)
SOIL BORING SEE NOTE 1 (TYP)
NEW SIDEWALK
NEW STAIRS (TYP)
B-1
B-3
RELOCATED FENCE
RELOCATED GATE
NEW MH (TYP)
NEW BOILER ROOM
PARKING AREA
NEW PRIMARY INFLUENT CONDUIT
PARKING AREA
NEW PAVED ACCESS ROAD
GTO SLUICE GATE STRUCTURE
NEW SIDEWALK
SLUDGE PUMPING STATION
VALVE BOX (TYP)
MH SEE NOTE 2 (TYP)
NEW CONCRETE APRON (TYP)
TIE NEW CURB INTO EXISTING CURB, MATCH FACE AND ELEVATION (TYP)

PAVING AND GRADING PLAN

SCALE: 1" = 20'

Environ-Civil Engineering, Ltd.
Engineers • Scientists • Construction Managers
501 East Franklin Street, Suite 527 Richmond, VA 23219

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED GLG
DRAWN PMY
CHECKED EJC

APPROVED

NO.	DATE	APPD	REVISION

SCALE: 20 0 20 40 FT — 1"=20'

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15A WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

GENERAL

PAVING AND GRADING PLAN

PROJECT NO. 0217E.K6
DWG AG10
SHEET 11 OF XX
DATE SEPTEMBER 2016 REV 0

Item No. 4

Floor Plans and Elevations		
Item No.	Sheet	Sheet Title
4.1	DA1	Lower Level Floor Plan
4.2	DA2	First Floor Plan
4.3	DA3	Second Floor Plan
4.4	DA4	Second Floor Plan – Upper Level
4.5	DA5	Low Roof Plan
4.6	DA6	High Roof Plan
4.7	DA7	Building Elevations - North
4.8	DA8	Building Elevations - East
4.9	DA9	Building Elevations - South
4.10	DA10	Building Elevations - West
4.11	DA11	Building Sections – Sheet 1
4.12	DA12	Building Sections – Sheet 2
4.13	DA13	Building Sections – Sheet 3
4.14	DA14	Building Sections – Sheet 4

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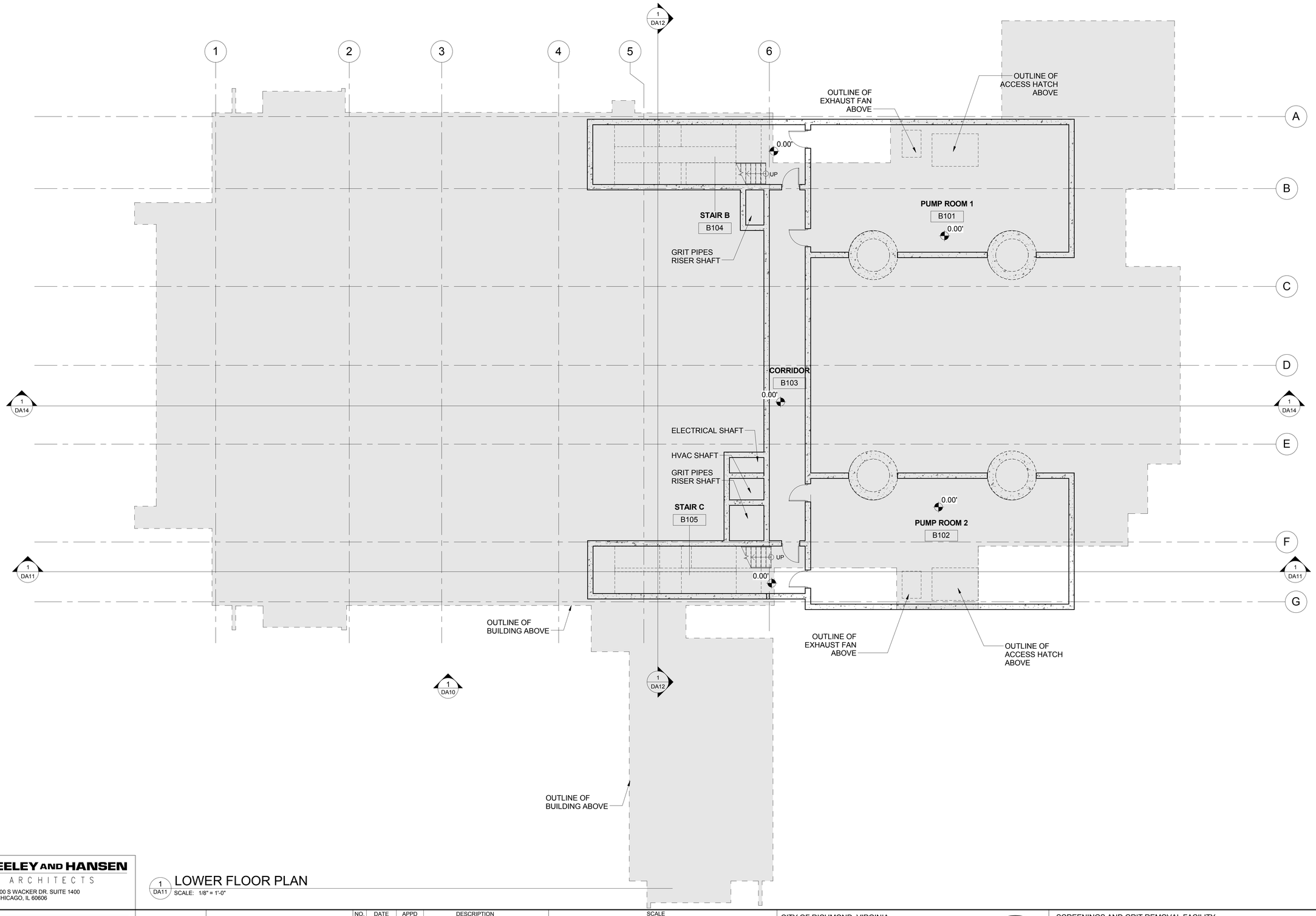
MAX MEASURE 4' ON FULLSIZE SHEETS



1 DA11 LOWER FLOOR PLAN

SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
ARCHITECTS
100 S WACKER DR. SUITE 1400
CHICAGO, IL 60606

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

SCALE

8 0 8 16 FT

1/8"=1'-0"

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

LOWER LEVEL FLOOR PLAN

PROJECT NO.:	0217E.K6
DWG	DA1
SHEET	-- OF ###
DATE	OCTOBER 2015
REV	

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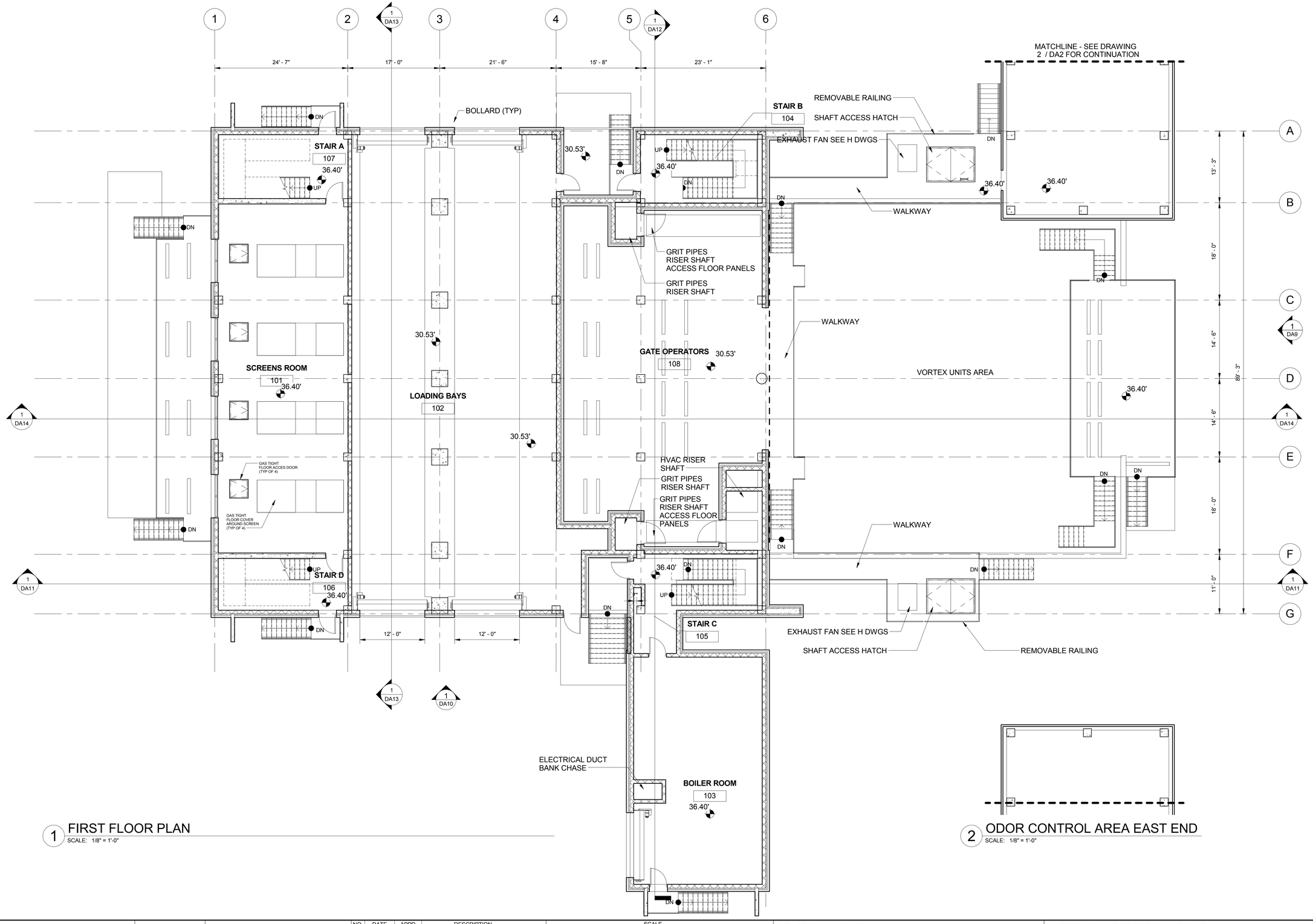

1 FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

2 ODOR CONTROL AREA EAST END
SCALE: 1/8" = 1'-0"

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9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

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CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

SCALE
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1/8"=1'-0"

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

FIRST FLOOR PLAN

PROJECT NO.:	0217E.K6
DWG	DA2
SHEET	-- OF ###
DATE	OCTOBER 2015 REV

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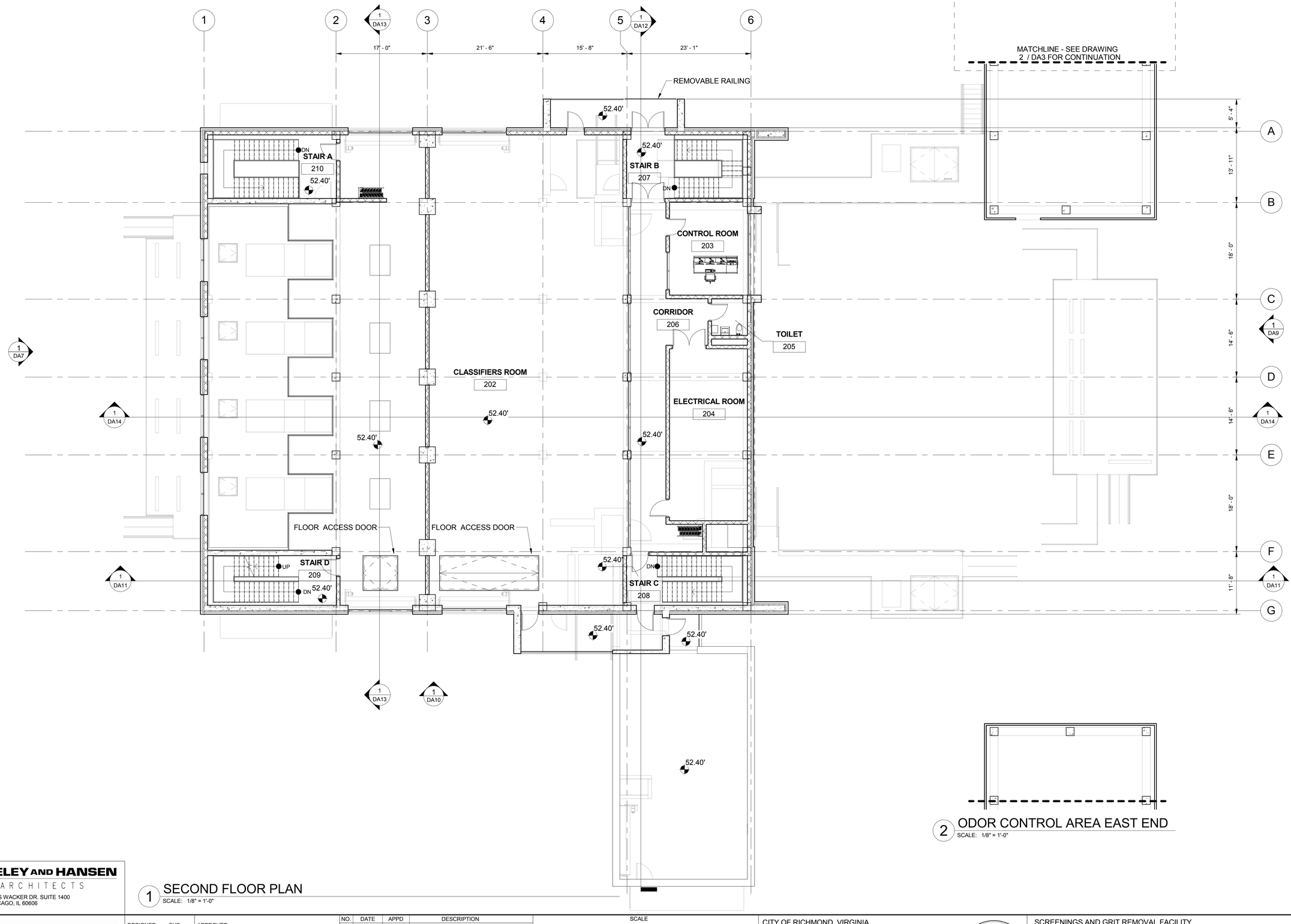

1 SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

2 ODOR CONTROL AREA EAST END
SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
ARCHITECTS
100 S WACKER DR. SUITE 1400
CHICAGO, IL 60606

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

SCALE
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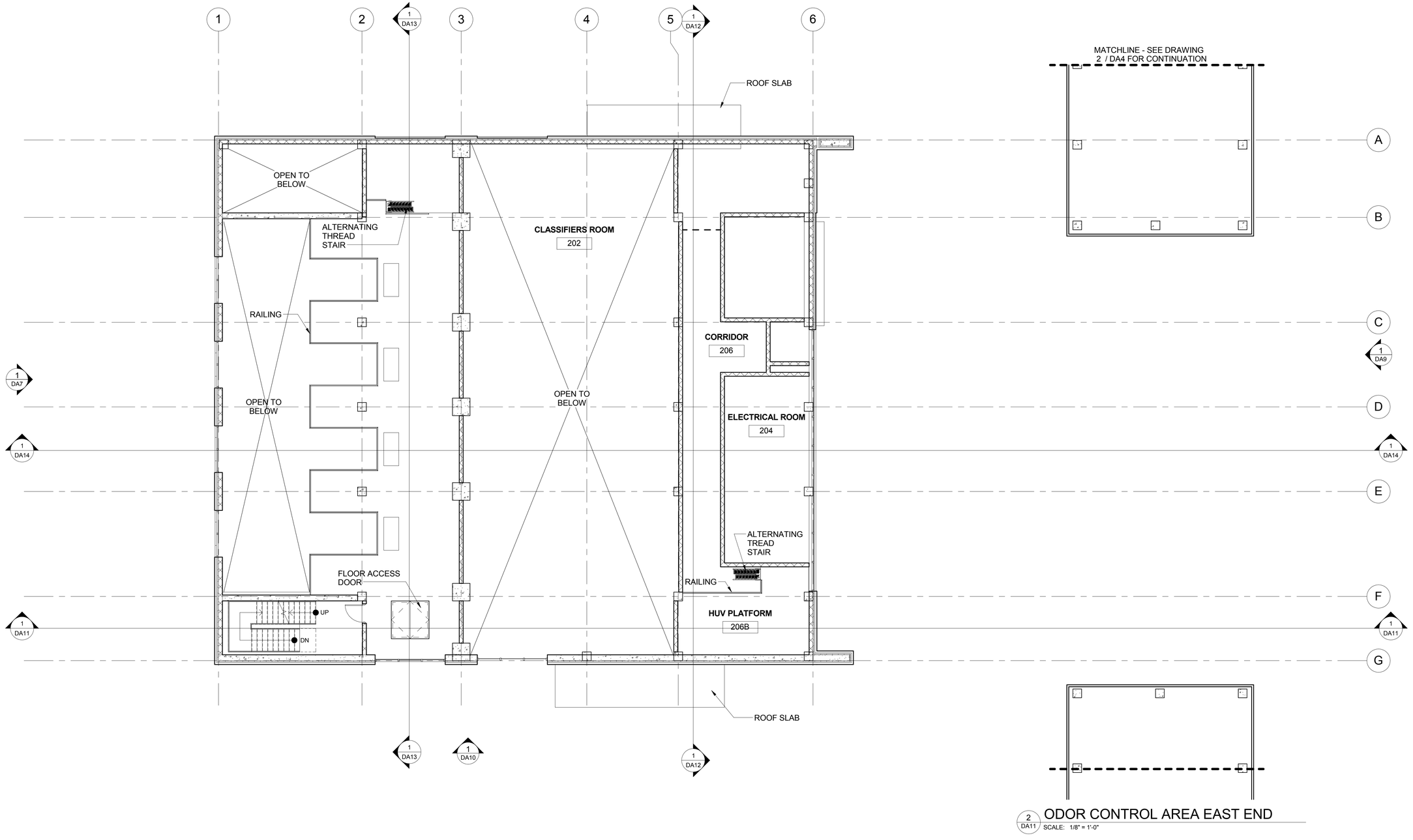
1/8"=1'-0"

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL
ORDER 15 WWTP SCREENINGS
AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

SECOND FLOOR PLAN

PROJECT NO.: 0217E.K6
DWG DA3
SHEET -- OF ###
DATE OCTOBER 2015 REV



2 DA11 ODOR CONTROL AREA EAST END
SCALE: 1/8" = 1'-0"

1 DA11 SECOND FLOOR - UPPER LEVEL
SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

SCALE

VIEWS ARE NOT TO SCALE

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL
ORDER 15 WWTP SCREENINGS
AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY

SECOND FLOOR PLAN-UPPER LEVEL

PROJECT NO.:	0217E.K6
DWG	DA4
SHEET	– OF ###
DATE	OCTOBER 2015
REV	

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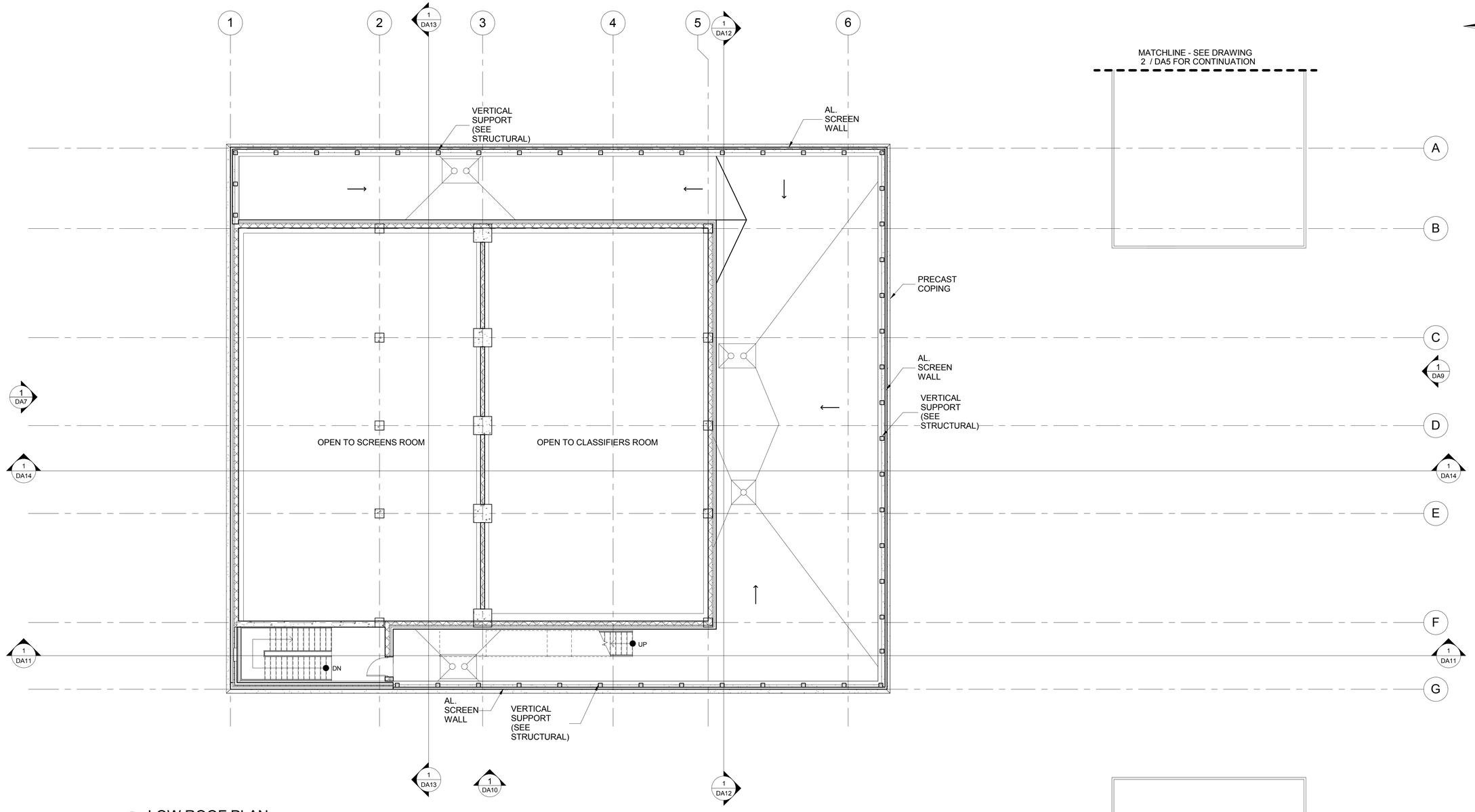

1 DA11 LOW ROOF PLAN
SCALE: 1/8" = 1'-0"

2 DA11 ODOR CONTROL AREA EAST END
SCALE: 1/8" = 1'-0"

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CHICAGO, IL 60606

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

SCALE
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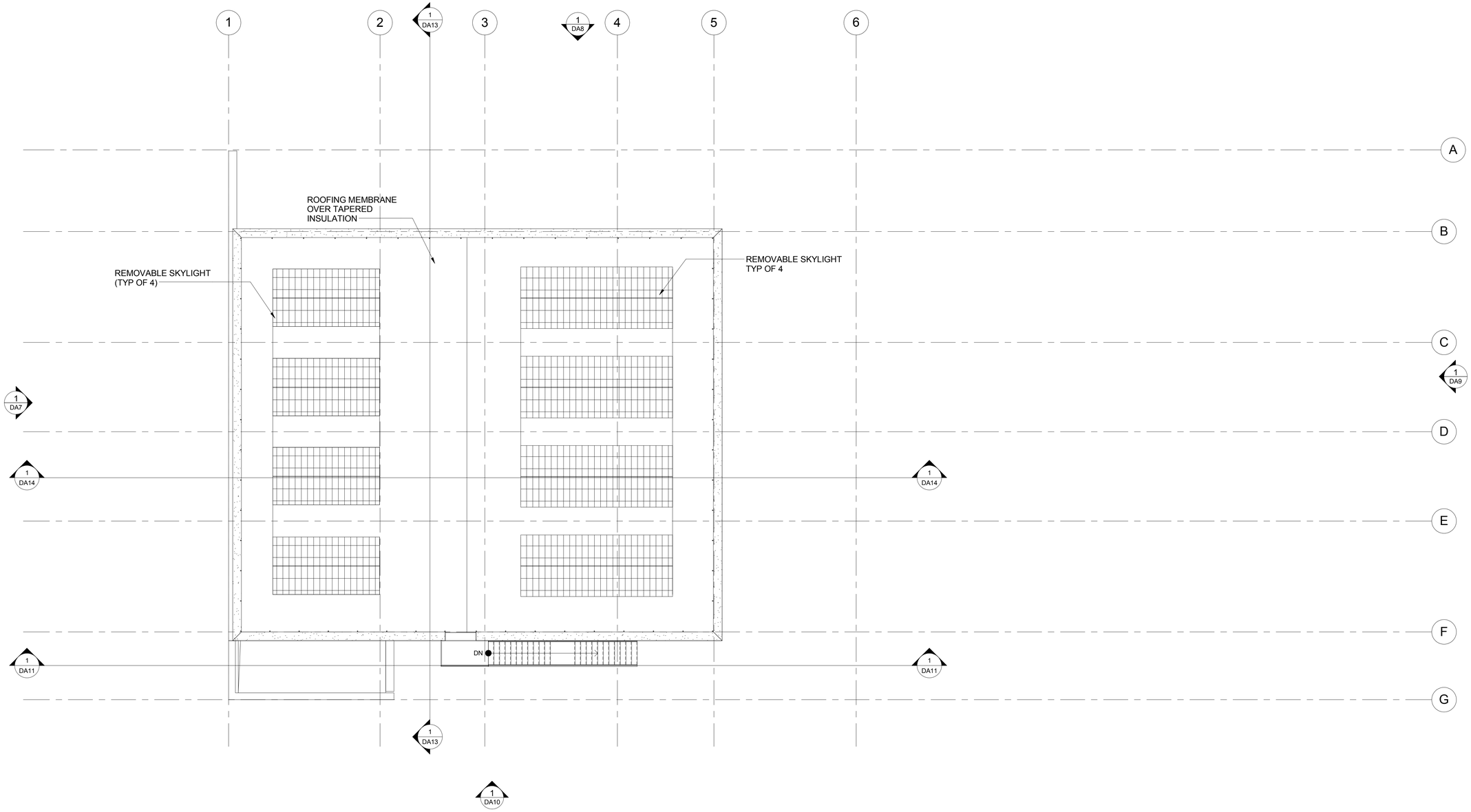
CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL
ORDER 15 WWTP SCREENINGS
AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

LOW ROOF PLAN

PROJECT NO.:	0217E.K6
DWG	DA5
SHEET	-- OF ###
DATE	OCTOBER 2015 REV



1 DA11 HIGH ROOF PLAN
SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
ARCHITECTS
100 S WACKER DR. SUITE 1400
CHICAGO, IL 60606

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

SCALE
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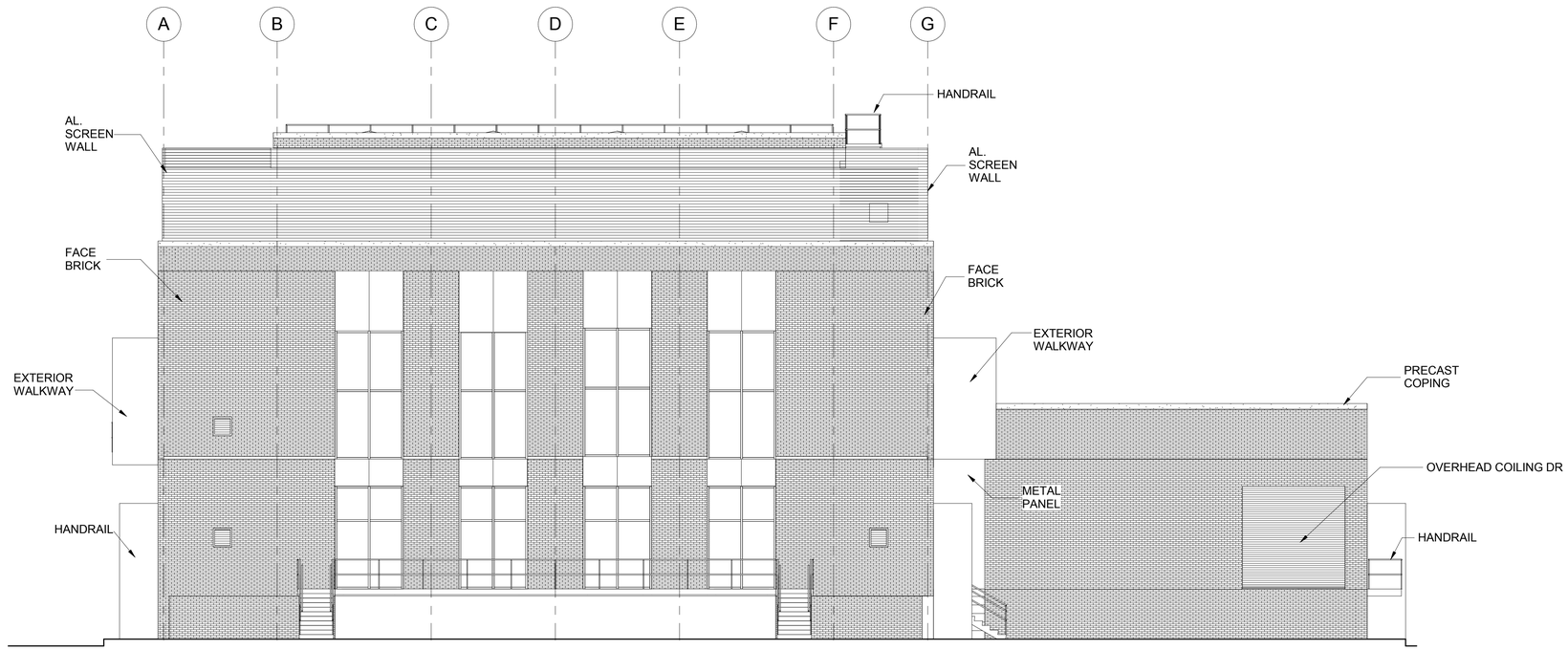
1/8"=1'-0"

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

HIGH ROOF PLAN

PROJECT NO.: 0217E.K6
DWG DA6
SHEET -- OF ###
DATE OCTOBER 2015 REV



1 BUILDING ELEVATION - NORTH
SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

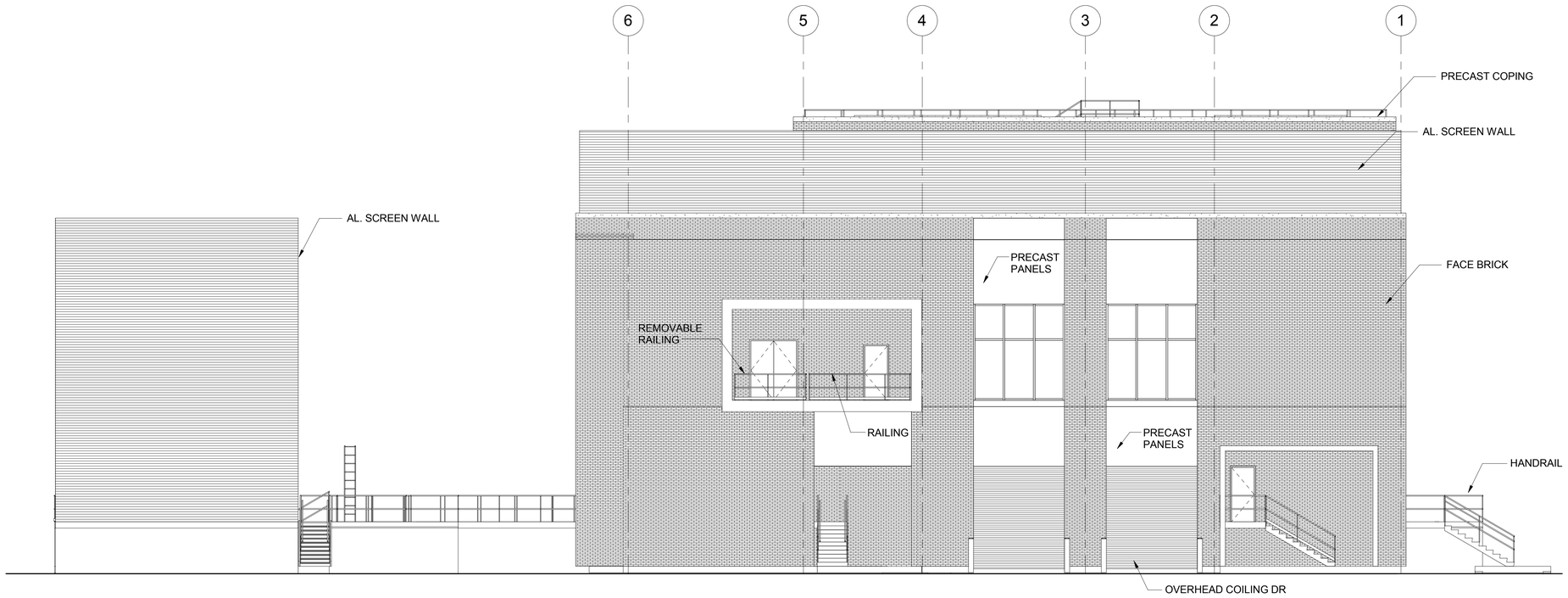
SCALE
8 0 8 16 FT
1/8"=1'-0"

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

BUILDING ELEVATIONS - NORTH

PROJECT NO.: 0217E.K6
DWG DA7
SHEET -- OF ###
DATE OCTOBER 2015 REV



1 DA2 BUILDING ELEVATION - EAST

SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

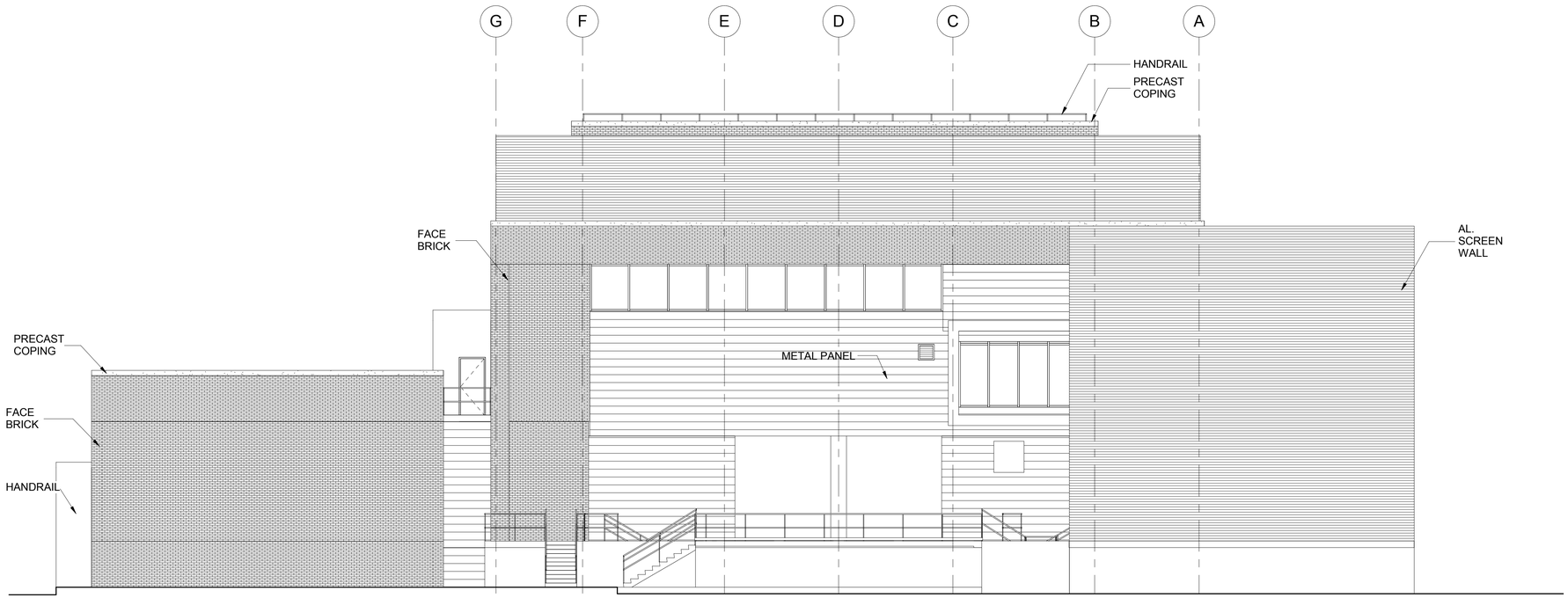
SCALE
8 0 8 16 FT
1/8"=1'-0"

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

BUILDING ELEVATIONS - EAST

PROJECT NO.: 0217E.K6
DWG DA8
SHEET – OF ###
DATE OCTOBER 2015 REV



1 DA2 BUILDING ELEVATION - SOUTH
SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED SHS
DRAWN JJS
CHECKED SHS

APPROVED

NO.	DATE	APPD	DESCRIPTION

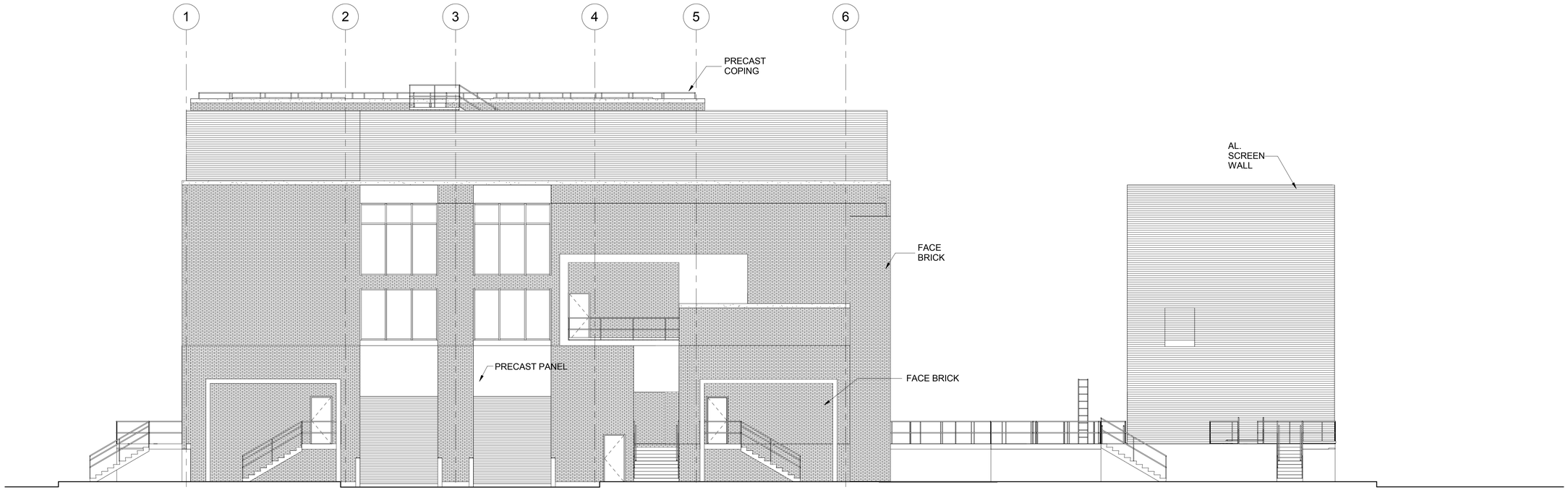
SCALE
8 0 8 16 FT
1/8"=1'-0"

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

BUILDING ELEVATIONS - SOUTH

PROJECT NO.: 0217E.K6
DWG DA9
SHEET -- OF ###
DATE OCTOBER 2015 REV



1 DA1 BUILDING ELEVATION - WEST
SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
ARCHITECTS
100 S WACKER DR. SUITE 1400
CHICAGO, IL 60606

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

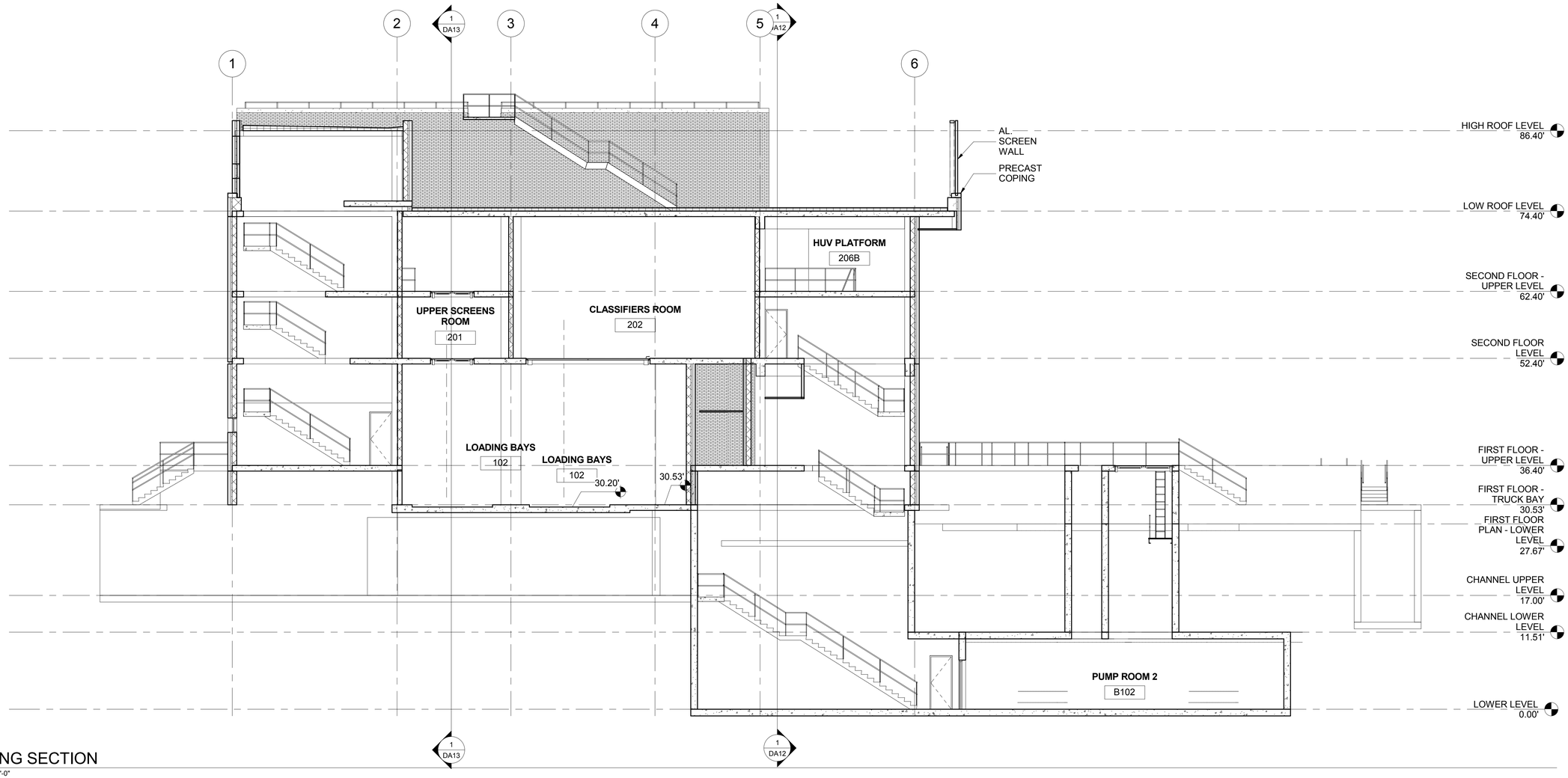
SCALE
8 0 8 16 FT
1/8"=1'-0"

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

BUILDING ELEVATIONS - WEST

PROJECT NO.: 0217E.K6
DWG DA10
SHEET -- OF ###
DATE OCTOBER 2015 REV



1 DA1 BUILDING SECTION
SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

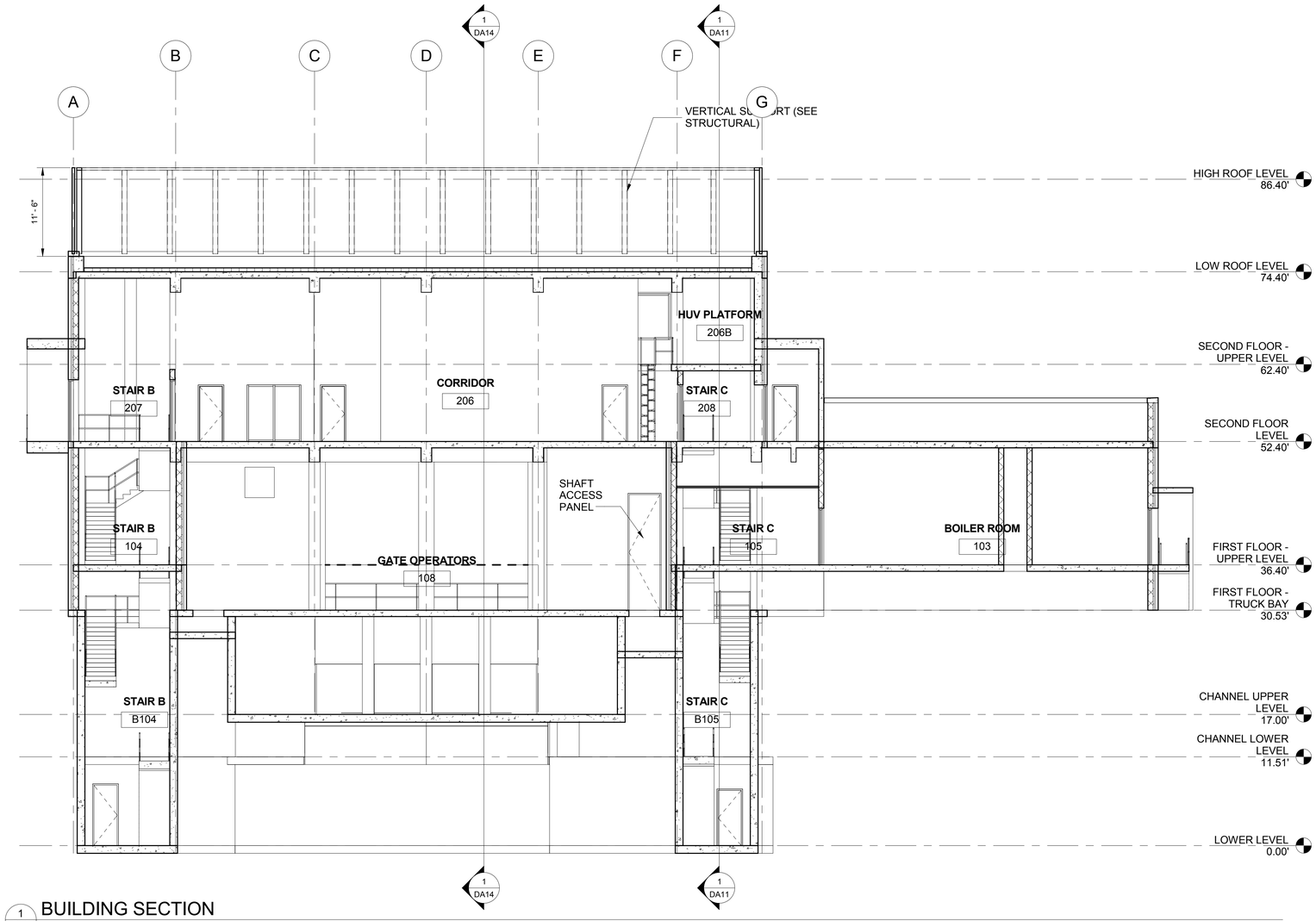
SCALE

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

BUILDING SECTIONS - SHEET 1

PROJECT NO.:	0217E.K6		
DWG	DA11		
SHEET	--	OF	###
DATE	OCTOBER 2015		REV



1 DA1 BUILDING SECTION
SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

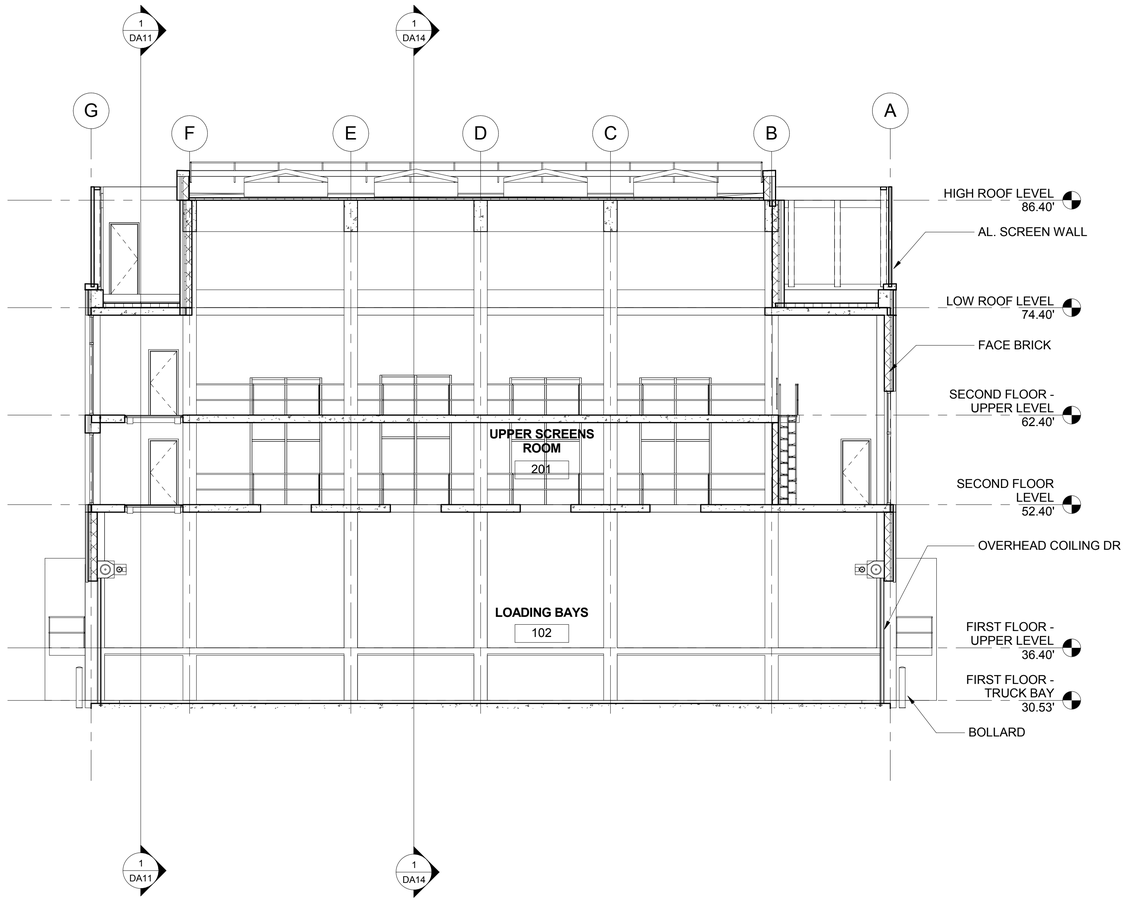
SCALE
8 0 8 16 FT
1/8"=1'-0"

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

BUILDING SECTIONS - SHEET 2

PROJECT NO.: 0217E.K6
DWG DA12
SHEET – OF ###
DATE OCTOBER 2015 REV



1/DA2 BUILDING SECTION

SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

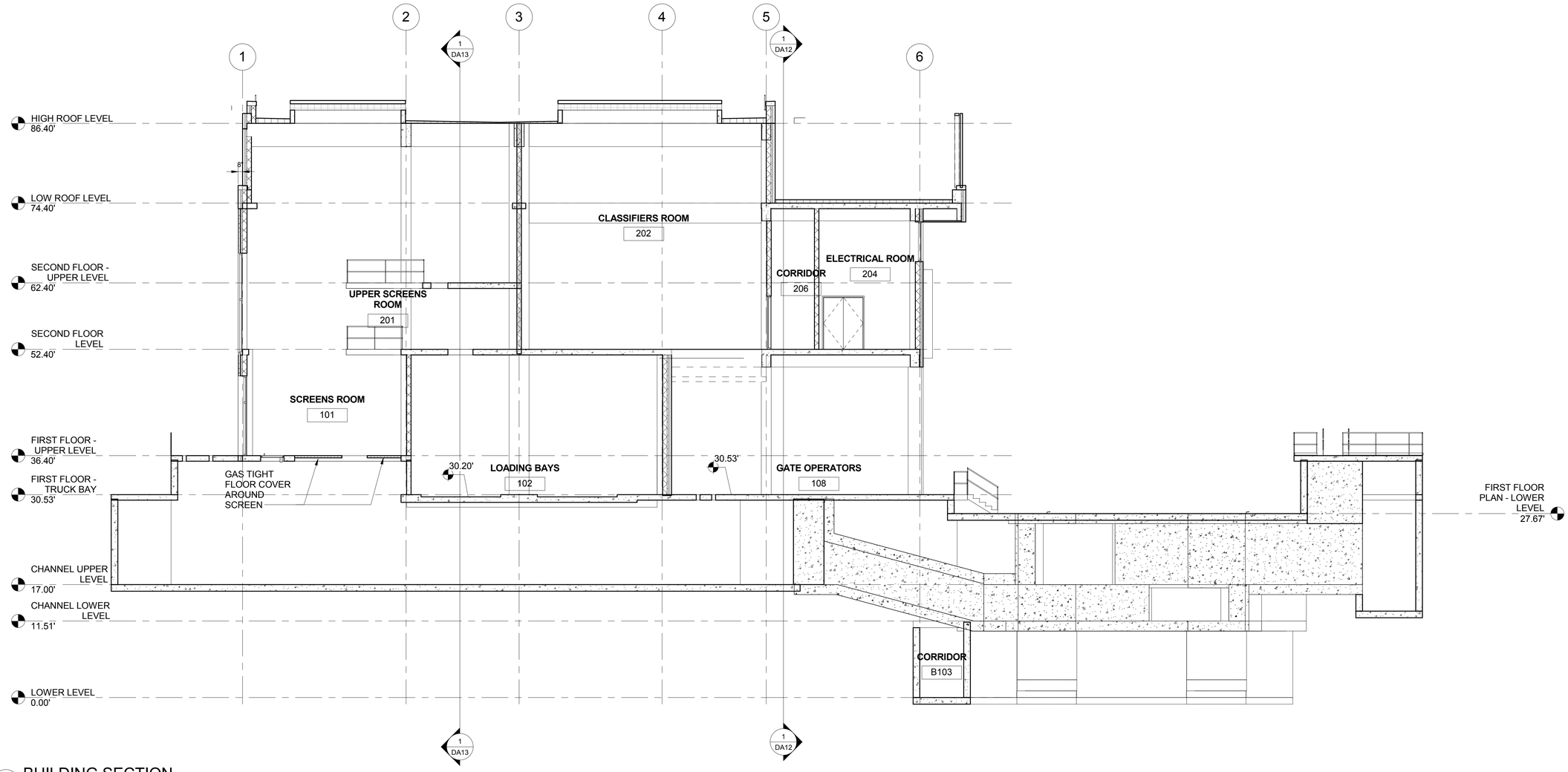
SCALE
8 0 8 16 FT
1/8"=1'-0"

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

BUILDING SECTIONS - SHEET 3

PROJECT NO.: 0217E.K6
DWG DA13
SHEET -- OF ###
DATE OCTOBER 2015 REV



1 DA1 BUILDING SECTION
SCALE: 1/8" = 1'-0"

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED	SHS	APPROVED
DRAWN	JJS	
CHECKED	SHS	

NO.	DATE	APPD	DESCRIPTION

SCALE

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15 WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

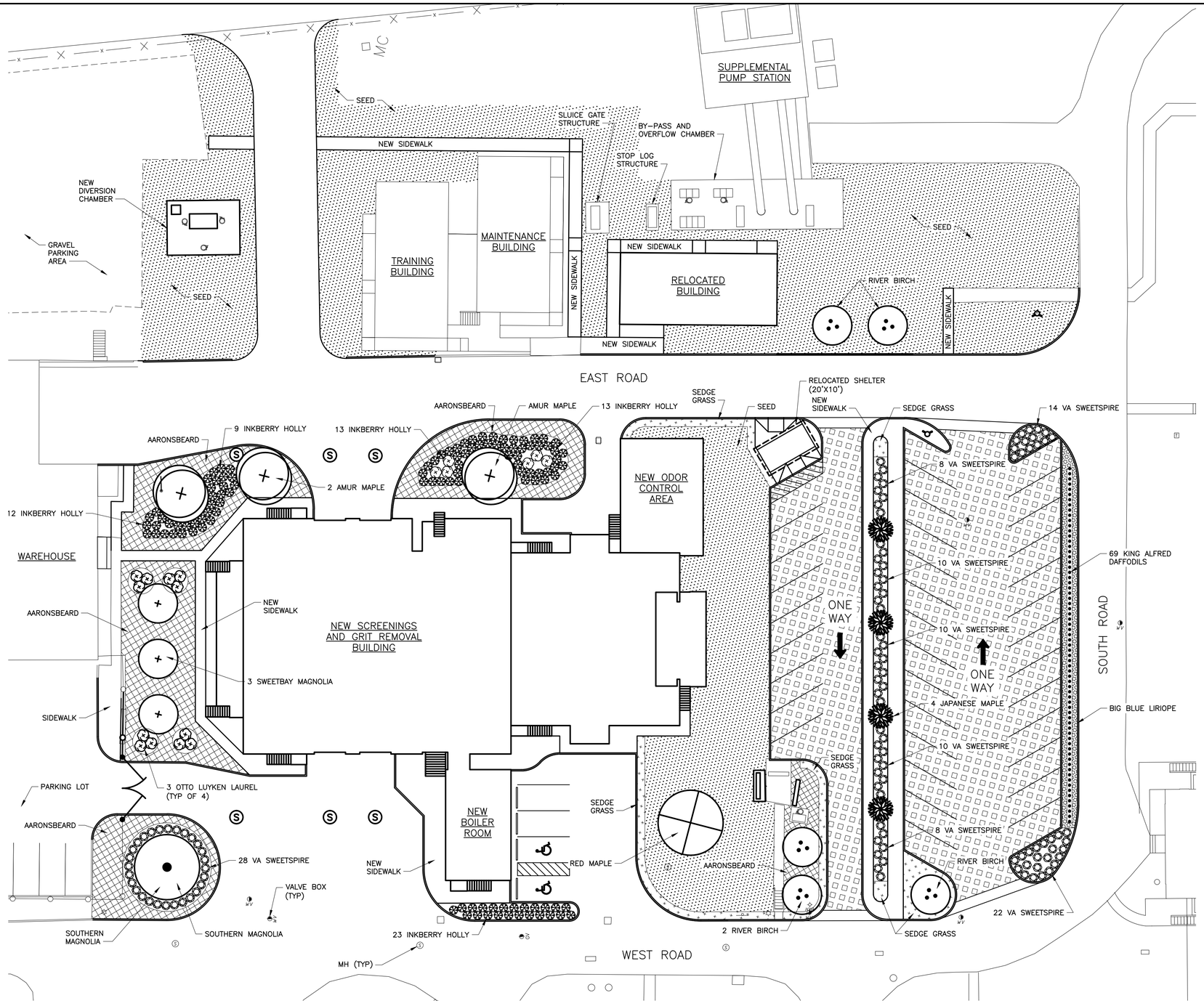
SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

BUILDING SECTIONS - SHEET 4

PROJECT NO.:	0217E.K6
DWG	DA14
SHEET	-- OF ###
DATE	OCTOBER 2015 REV

Item No. 5

Landscape Plans		
Item No.	Sheet	Sheet Title
5.1	AG11	Landscaping Plan
5.2	AG12	Paving, Grading, and Landscaping Details



LANDSCAPING PLAN

SCALE: 1" = 20'

NOTES:

1. CONTRACTOR SHALL REFER TO DWG AG12 FOR PLANT MATERIAL SCHEDULE AND LANDSCAPING DETAILS.

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501 East Franklin Street, Suite 527 Richmond, VA 23219

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED GLG
DRAWN PMY
CHECKED EJC

APPROVED

NO.	DATE	APPD	REVISION

SCALE: 20 0 20 40 FT — 1"=20'

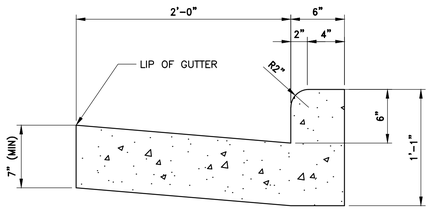
CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15A WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

GENERAL

LANDSCAPING PLAN

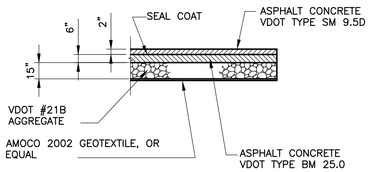
PROJECT NO. 0217E.K6
DWG AG11
SHEET 12 OF XX
DATE SEPTEMBER 2016 REV 0

PLANTING AND STAKING DETAILS:



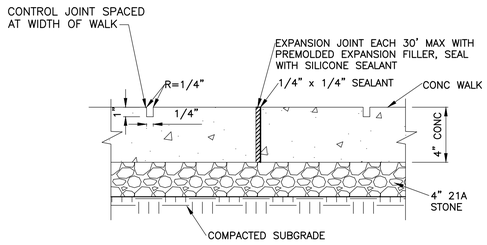
DETAIL 1/AG12 – TYPICAL CONC CURB AND GUTTER SECTION

NOT TO SCALE



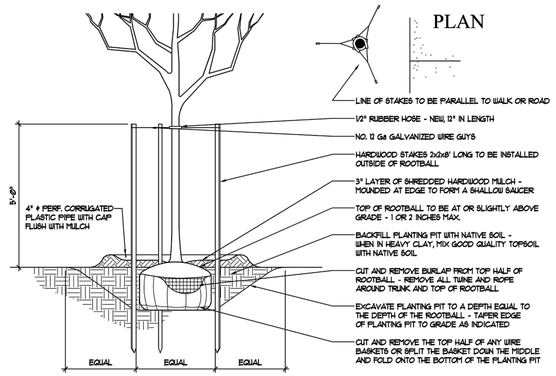
DETAIL 2/AG12 – TYPICAL BITUMINOUS PAVEMENT DETAIL

NOT TO SCALE



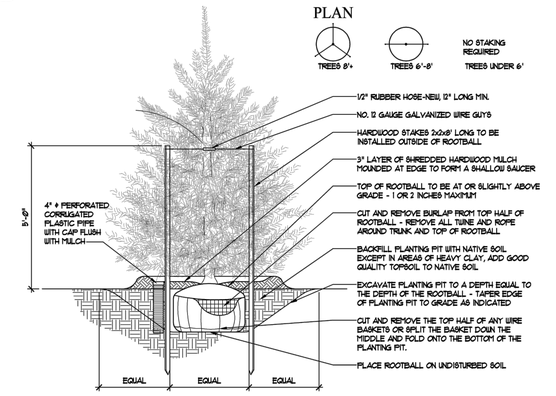
DETAIL 3/AG12 CONCRETE SIDEWALK

SCALE: NOT TO SCALE



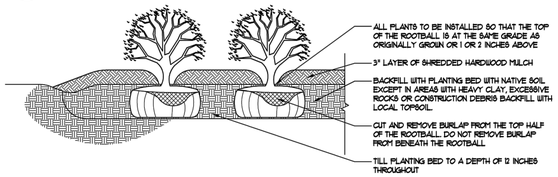
(A) DECIDUOUS TREE STAKING DETAIL

NOT TO SCALE



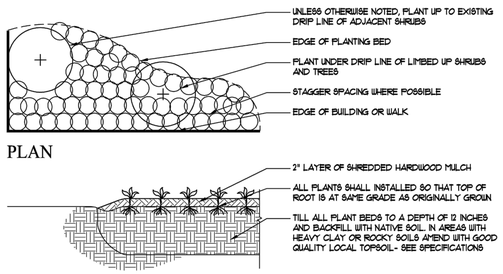
(B) CONIFER AND EVERGREEN TREE STAKING DETAIL

NOT TO SCALE



(C) SHRUB PLANTING DETAIL

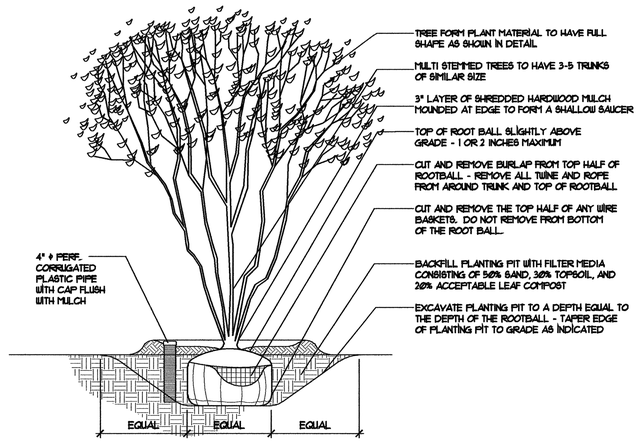
NOT TO SCALE



(D) GROUNDCOVER BED PLANTING DETAIL

NOT TO SCALE

PLANT MATERIAL SCEDULE								
Quantity	Botanical Name	Common Name	Spacing	Caliper	HT./Spread	Root Type	Detail	Remarks
TREES								
	Magnolia Virginiana	Sweetbay Magnolia	Shown	1 1/2"	8-10'	B & B	E	3-5 Trunks
	Magnolia Grandflora DD Blanchard	Southern Magnolia	Shown	2"	18'-12'	B & B	B	Single Leader Branch to Ground
	Acer Palmatum	Japanese Maple	Shown	1 1/2"	8-10'	B & B	A	Single Leader
	Acer ruburn	Red Maple	Shown	1 1/2"	8-10'	B & B	A	Single Leader
	Acer ginnala	Amur Maple	Shown	1 1/2"	8-10'	B & B	E	Single Leader
	Betulus Nigra 'heritage'	River Birch	Shown	3 1/2" min.	8-10'	B & B	A	Multi Stem
SHRUBS								
	Hpericum Calycinum	Aaronsbeard	18" O/C			1 Gal	C	Mulch Entire Bed, Full
	Itea Virginica 'Sprich'	Virginia Sweetspire	36" O/C		18 - 24"	Cont.	C	Mulch Entire Bed, Full
	Ilex Glabra 'Shamrock'	Inkberry Holley	36" O/C		36 - 42"	Cont./ B & B	C	Mulch Entire Bed, Full
	Prunus laurocerasus 'Otto Luken'	Otto Luyken Laurel	48" O/C		24 - 36	Cont.	C	Mulch Entire Bed, Full
ANNUALS, PERENNIALS, GRASSES & GROUND COVERS								
	Carex Elata	Sedge Grass	18" O/C			1 Gal	C	Mulch Entire Bed, Full
	Liriope Muscari 'Big Blue'	Big Blue Liriope	12" O/C		5 - 8"	1 QT. Cont.	D	Mulch Entire Bed, Full
	Narcissus King Alfred	King Alfred Daffodils	12" O/C		5 - 8"	1 QT. Cont.	D	Mulch Entire Bed, Full



(E) MULTI STEM TREE PLANTING DETAIL

NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL VERIFY PLANT MATERIAL QUANTITIES SHOWN ON PLAN WITH TOTALS IN PLANTING SCHEDULE. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES PRIOR TO FINAL BIDDING.
2. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE FULL YEAR TO BE IN HEALTHY GROWING CONDITION. PLANT MATERIALS WHICH DO NOT FULFILL THIS GUARANTEE SHALL BE REPLACED AT NO COST TO THE OWNER. REPLACEMENT SHALL BE GUARANTEED THROUGHOUT THE ORIGINAL GUARANTEE PERIOD. PLANTS THAT DIE WITHIN 60 DAYS OF INSTALLATION SHALL BE REPLACED IMMEDIATELY.
3. CONTRACTOR IS RESPONSIBLE FOR WATERING ALL PLANT MATERIAL DURING INSTALLATION AND UNTIL FINAL INSPECTION AND ACCEPTANCE BY OWNER.
4. CONTRACTOR IS RESPONSIBLE FOR CONTACTING MISS UTILITY PRIOR TO BEGINNING OF CONSTRUCTION FOR LOCATION OF ALL UTILITY LINES. TREES SHALL BE LOCATED A MINIMUM OF 5 FEET FROM SEWER WATER CONNECTIONS. NOTIFY LANDSCAPE ARCHITECT IF ANY CONFLICTS OCCUR.
5. THE LANDSCAPE ARCHITECT IS THE OWNER'S REPRESENTATIVE AND SHALL BE THE APPROVING AUTHORITY FOR INFORMATION PROVIDED IN THESE PLANS AND SPECIFICATIONS.
6. ALL PLANT MATERIALS, TOPSOIL, MULCH, FERTILIZERS, SOIL AMENITIES, PLANTING SUPPLIES AND METHODS SHALL BE SUBJECT TO LANDSCAPE ARCHITECTS APPROVAL. REJECTED MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT DELAY.
7. ALL PLANT MATERIALS AND PLANTING METHODS SHALL CONFORM TO AAN STANDARDS.
8. CONTRACTOR SHALL LAYOUT AND MARK LOCATION FOR ALL PLANT MATERIAL, PLANTING BEDS AND IMPROVEMENTS SHOWN AND REQUEST IN FIELD APPROVAL FROM LANDSCAPE ARCHITECT.
9. BEDS TO CONTAIN SHRUBS OR GROUND COVER SHALL BE TILLED TO A DEPTH OF 12" AND THE SOIL CONDITIONED BY ADDING CLEAN, WELL-ROTTED MANURE. IF EXISTING SOIL IS CONSIDERED TO BE UNUSABLE BY OWNER, BEDS SHALL BE TREATED TO ELIMINATE WEEDS AND WEED SEEDS.
10. ALL PLANTING BED AREAS SHALL BE COVERED WITH A 2" MINIMUM LAYER OF MEDIUM TEXTURE SHREDDED HARDWOOD MULCH.
11. ALL SUBSTITUTIONS OF PLANT MATERIAL SHALL BE REQUESTED IN WRITING TO THE LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNER.
12. ALL PLANTING OPERATIONS SHALL BE UNDER THE SUPERVISION OF AN EXPERIENCED PLANTSMAN.
13. LANDSCAPE ARCHITECT RESERVES THE RIGHT TO SELECT PLANT MATERIALS IN THE NURSERY.
14. UPON COMPLETION OF LANDSCAPE INSTALLATION, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR WHO WILL VERIFY COMPLETENESS INCLUDING THE REPLACEMENT OF ALL DEAD PLANT MATERIAL AND SCHEDULE A FINAL INSPECTION FOR ACCEPTANCE BY OWNER.
15. THE ONE YEAR GUARANTEE PERIOD SHALL BEGIN UPON THE OWNER'S APPROVAL AND ACCEPTANCE OF THE PLANTING INSTALLATION. THE OWNER SHALL ASSUME RESPONSIBILITY FOR MAINTENANCE INCLUDING WATERING AND WEEDING.
16. FOR TREES BALLED IN WIRE BASKETS, CUT AND REMOVE TOP AND SIDES OF BASKET AFTER INSTALLATION.
17. CONTRACTOR SHALL REMOVE STAKING FROM TREES AT THE END OF THE ONE YEAR WARRANTY PERIOD.
18. LANDSCAPE ARCHITECT RESERVE THE RIGHT TO REJECT ANY PLANTS AND MATERIALS THAT ARE IN AN UNHEALTHY OR UNSIGHTLY CONDITION, AS WELL AS PLANTS AND MATERIALS THAT DO NOT CONFORM TO AAN STANDARDS. SEE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1- (CURRENT EDITION).

Environ-Civil Engineering, Ltd.
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501 East Franklin Street, Suite 527 Richmond, VA 23219

GREELEY AND HANSEN
9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED GLG
DRAWN PMY
CHECKED EJC

APPROVED

NO.	DATE	APPD	REVISION

SCALE
NO SCALE

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15A WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

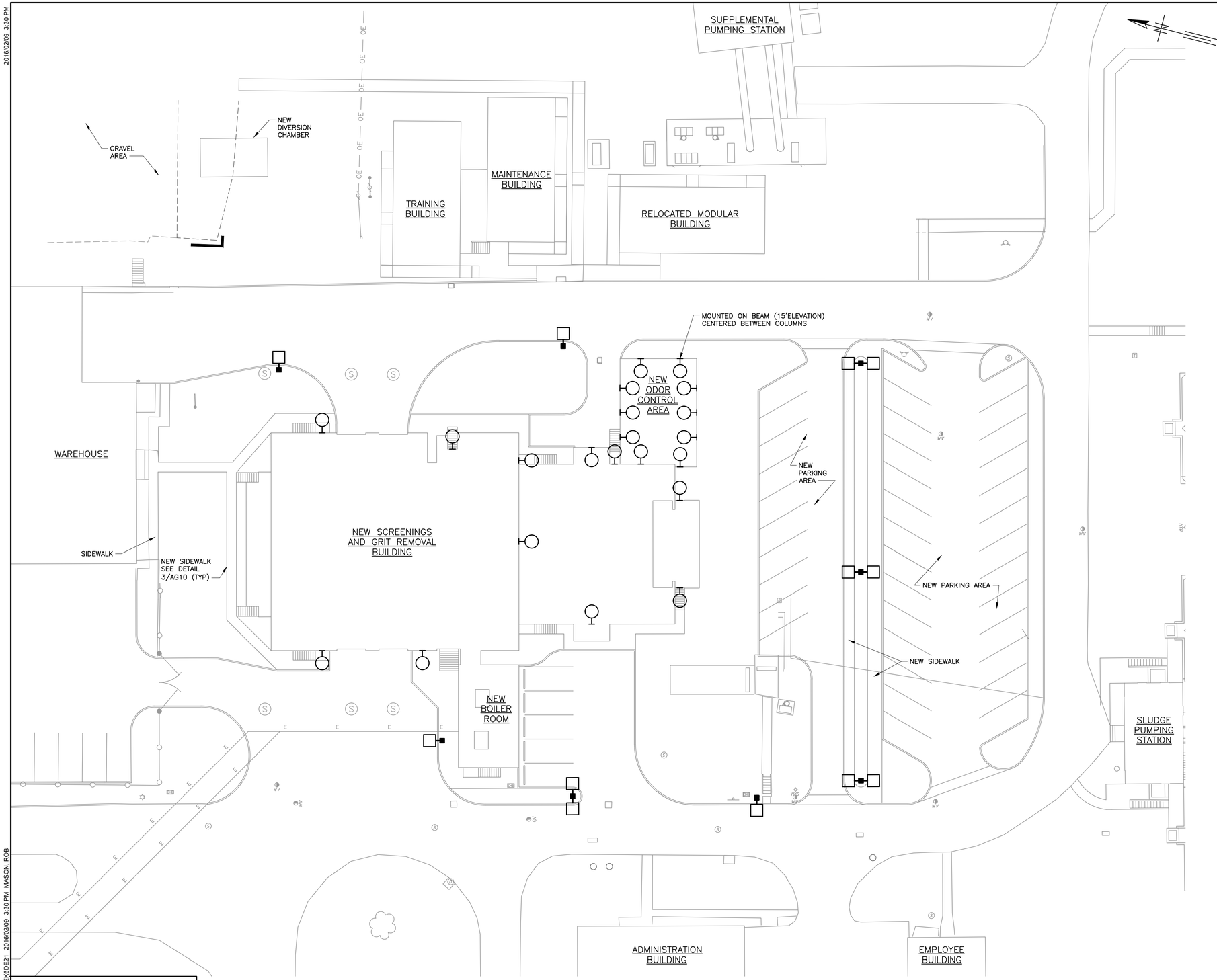
GENERAL

PAVING, GRADING AND LANDSCAPING DETAILS

PROJECT NO. 0217E.K6
DWG AG12
SHEET 13 OF XX
DATE SEPTEMBER 2016 REV 0

Item No. 6

Outside Site Lighting		
Item No.	Component	Manufacturer / Model / Finish
6.1	DE21	Site Lighting Plan
6.2	LED Area Luminaire	Lithonia Lighting / CSX2 LED – Natural Aluminum
6.3	LED Wall Luminaire	Lithonia Lighting / CSXW LED - Natural Aluminum



SITE LIGHTING PLAN

SCALE: 1" = 20'

LEGEND:

- WALL MOUNTED LIGHTING FIXTURE
- POLE MOUNTED LIGHTING FIXTURE

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9020 STONY POINT PARKWAY, SUITE 475
RICHMOND, VIRGINIA 23235

DESIGNED GLG
DRAWN PMY
CHECKED EJC

APPROVED

NO.	DATE	APPD	REVISION

SCALE: 20 0 20 40 FT — 1"=20'

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL ORDER 15A WWTP SCREENINGS AND GRIT REMOVAL FACILITIES

GENERAL

SITE LIGHTING PLAN

PROJECT NO. 0217E.K6
DWG DE21
SHEET OF XX
DATE SEPTEMBER 2016 REV 0

CSX2 LED
LED Area Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The Contour® Series luminaires offer traditional square dayforms with softened edges for a versatile look that complements many applications.

The CSX2 combines the latest in LED technology with the familiar aesthetic of the Contour® Series for stylish, high-performance illumination that lasts. It is ideal for replacing traditional metal halide in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Specifications

EPA: 1.2 ft² (0.11 m²)

Length: 34-1/3" (87.1 cm)

Width: 18-1/2" (46.9cm)

Height: 5-3/4" (14.6 cm)

Weight (max): 59 lbs (26.8 kg)

Ordering Information

EXAMPLE: CSX2 LED 120C 1000 40K T5M MVOLT SPA DDBXD

CSX2 LED 120C

Series	LEDs	Drive current	Color temperature	Distribution	Voltage	Mounting	Options	Finish (required)
CSX2 LED	120C 120 LEDs	700 700 mA 1000 1000 mA (1 A)	40K 4000 K 50K 5000 K	T2M Type II T3M Type III T4M Type IV T5M Type V TFTM Forward throw	MVOLT [1] 120 [1] 208 [1] 240 [1] 277 [1] 347 480	**Shipped included** SPA Square pole mounting RPA Round pole mounting WBA Wall bracket **Shipped Separately [2]** SPUMBA Square pole universal mounting adaptor [3] RPUMBA Round pole universal mounting adaptor [3] KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish) [4]	**Shipped installed** PER NEMA twist-lock receptacle only (no controls) DCR Dimmable and controllable via ROAM® (no controls) [5] DMG 0-10V dimming driver (no controls) HS House-side shield [2] SF Single fuse (120, 277, 347V) [6] DF Double fuse (208, 240, 480V) [6] DS Dual switching [7,8] BL30 Bi-level switched dimming, nominal 30% [8,9] BL50 Bi-level switched dimming, nominal 50% [8,9] **Shipped separately [2]** VG Vandal guard BS Bird-deterrant spikes	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Accessories

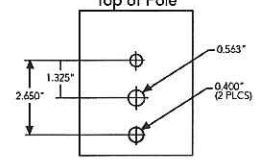
Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) [10]
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) [10]
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) [10]
SC U	Shorting cap [10]
KMA8 DDBXD U	Mast arm mounting bracket adaptor (specify finish) [4]
PUMBA DDBXD U*	Round and square pole universal mounting bracket adaptor (specify finish)
CSX2HS U	House-side shields (includes 4 shields)
CSX2VG U	Vandal guard accessory
CSX2BS U	Bird-deterrent spikes accessory

For more control options, visit DTL and ROAM.

Drilling

Template #8



CSX2 shares a unique drilling pattern with the AERIS™ family. Specify this drilling pattern when specifying poles.

DM19AS Single unit
DM29AS 2 at 90° *
DM28AS 2 at 180°
DM39AS 3 at 90° *
DM49AS 4 at 90° *
DM32AS 3 at 120° **

Example: SSA 20 4C **DM19AS** DDBXD

** Round pole requires 3.25" O.D. minimum.*

*** For round pole mounting (RPA) only.*

Tenon Mounting Slipfitter **

Tenon O.D.	Single Unit	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

NOTES

1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options).
2. Also available as a separate accessory; see Accessories information at left.
3. 1.5 G vibration load rating per ANCI C136.31.
4. Requires "SPA" mounting option. Must be ordered as a separate accessory; see Accessories information. For use with 2-3/8" mast arm (not included).
5. Specifies a ROAM® enabled luminaire with 0-10V dimming capability; PER option required. Not available with 347 or 480V. Additional hardware and services required for ROAM® deployment; must be purchased separately. Call 1-800-442-6745 or email: sales@roamservices.net. N/A with BL30, BL50, or DS.
6. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
7. Provides 50/50 luminaire operation via two independent drivers on two separate circuits. N/A with PER or DCR.
8. Requires an additional switched line.
9. Dimming driver standard. MVOLT only. Not available with DCR.
10. Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.

LITHONIA LIGHTING

One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • Fax: 770.918.1209 • www.lithonia.com

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	40K (4000 K, 70 CRI)					50K (5000 K, 67 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
120C (120 LEDs)	700 mA	120C 700 --K	268W	T2M	26,094	3	0	4	97	28,107	3	0	4	105
				T3M	27,757	3	0	4	104	29,897	3	0	4	112
				T4M	27,658	3	0	4	103	29,792	3	0	5	111
				T5M	28,025	5	0	4	105	30,186	5	0	4	113
				TFTM	28,304	3	0	4	106	30,487	3	0	4	114
	1000 mA	120C 1000 --K	416W	T2M	34,700	4	0	4	83	37,406	4	0	5	90
				T3M	36,910	4	0	5	89	39,789	4	0	5	96
				T4M	36,780	3	0	5	88	39,649	4	0	5	95
				T5M	37,267	5	0	4	90	40,174	5	0	5	97
				TFTM	37,638	3	0	5	90	40,574	3	0	5	98

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	**77°F**	**1.00**
30°C	86°F	1.00
40°C	104°F	0.99

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **CSX2 LED 120C** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.94	0.90	0.83

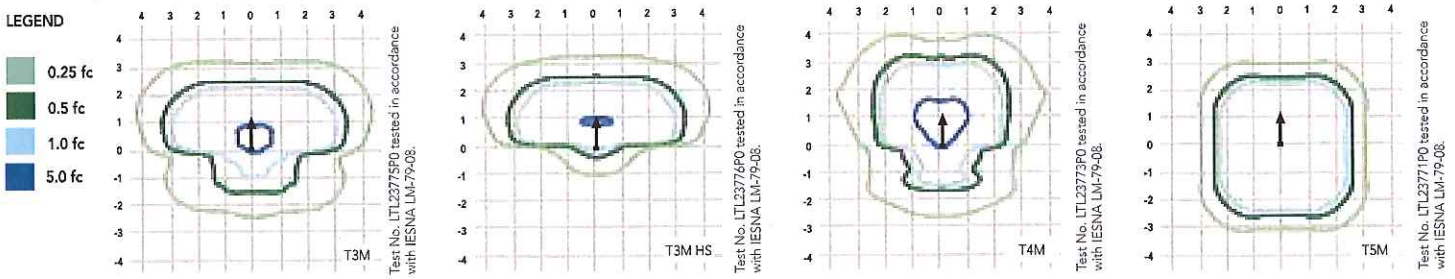
Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A)					
			120V	208V	240V	277V	347V	480V
120C	700	268W	2.643	1.511	1.318	1.159	0.923	0.674
	1000	416W	4.135	2.397	2.111	1.886	1.527	1.210

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's CSX2 homepage.

Isofootcandle plots for the CSX2 LED 120C 1000 40K. Distances are in units of mounting height (30').



FEATURES & SPECIFICATIONS

INTENDED USE
The Contour Series LED area luminaire is ideal for streets, walkways, parking lots, and surrounding areas that call for high-performance LED lighting in a transitional dayform.

CONSTRUCTION
Single-piece die cast housing has a unique flow-through design that allows for optimized thermal management through convective cooling. A metallic screen covers the top of the housing, preventing debris build-up while allowing natural cleaning of the heat sinks. Modular design allows for ease of maintenance and future light engine upgrades. The LED driver(s) and electronics are thermally isolated from the light engines, ensuring long life. Housing is completely sealed against moisture and environmental contaminants.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

OPTICS
Precision-molded acrylic lenses provide optimal luminaire spacing and improved uniformity. Lenses are indexed to the circuit board to ensure consistent optical alignment and delivering repeatable photometric performance. Light engines are available in standard 4000 K (70 CRI) or optional 5000 K (67 CRI) configurations. The CSX2 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engines consist of 120 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L70). Class 1 electronic driver designed to have a power factor >90%, THD <20%, with an expected life of 100,000 hours with <1% failure rate. Easily-serviceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION
Integral arm provides easy installation to a pole and assists in alignment and leveling. Secure connection withstands up to 2.0 G vibration load rating per ANSI C136.31. The CSX2 utilizes the AERIS™ series pole drilling pattern for SPA and RPA options.

LISTINGS
CSA Certified to U.S. and Canadian standards. Light engines are IP66 rated. Luminaire is IP65 rated. **U.S. Patent No. D632830. U.S. Patent No. D653,382 S.**

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY
Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

CSXW LED
LED Wall Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

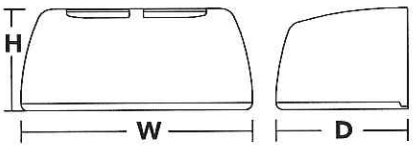
Introduction

The Contour® Series luminaires offer traditional square dayforms with softened edges for a versatile look that complements many applications.

The CSXW LED combines the latest in LED technology with the familiar aesthetic of the Contour® Series for stylish, high-performance illumination that lasts. It is ideal for replacing 100-400W metal halide in wall-mounted applications with typical energy savings of 80% and expected service life of over 100,000 hours.

Specifications

Height:	7-1/8" *(29.2 cm)*
Width:	16-3/8" *(41.6cm)*
Depth:	9-5/16" *(23.6 cm)*
Weight (max):	30 lbs *(13.6 kg)*



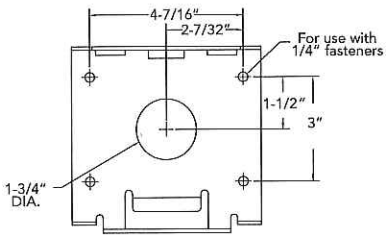
Ordering Information

EXAMPLE: CSXW LED 30C 700 40K T3M MVOLT DDBXD

CSXW LED

Series	LEDs	Drive current	Color temperature[1]	Distribution	Voltage	Mounting	Options	Finish *(required)*
CSXW LED	30C 30 LEDs	700 700 mA 1000 1000 mA	40K 4000K 50K 5000K	T2M Type II, medium T3M Type III, medium T4M Type IV, medium TFTM Type forward throw, medium	MVOLT[2] 120[2] 208[2] 240[2] 277[2] 347[3] 480[3]	**Shipped included** (blank) Surface mount **Shipped separately** BBW Surface-mounted back box (for conduit entry)[4]	**Shipped installed** PE Photoelectric cell, button type[5,6] DMG 0-10V dimming driver (no controls) SF Single fuse (120, 277, 347V)[7] DF Double fuse (208, 240, 480V)[7] **Shipped separately**[4] VG Vandal guard WG Wire guard	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Mounting Detail



Accessories

Ordered and shipped separately.

CSXWBBW DDBXD U	Back box accessory (specify finish)
CSXWWG U	Wire guard accessory
CSXWVG U	Vandal guard accessory

NOTES

1. Configured with 4000K (/40K) provides the shortest lead times. Consult factory for 5000K (/50K) lead times.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options) or photocontrol (PE option).
3. Available with 700 mA options only (30C 700).
4. Also available as a separate accessory; see Accessories information at left.
5. Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option.
6. Must be ordered with fixture; cannot be field installed.
7. Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	Performance Package	System Watts	Dist. Type	40K (4000K, 70 CRI)					50K (5000K, 67 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
30C (30 LEDs)	700 mA	30C 700 --K	69W	T2M	6,695	2	0	2	97	7,183	2	0	2	104
				T3M	7,068	2	0	2	102	7,582	2	0	2	110
				T4M	7,017	2	0	2	102	7,528	2	0	2	109
				TFTM	7,158	2	0	2	104	7,679	2	0	2	111
	1000 mA	30C 1000 --K	104W	T2M	8,868	2	0	2	85	9,560	2	0	2	92
				T3M	9,361	2	0	2	90	10,091	2	0	2	97
				T4M	9,293	2	0	2	89	10,018	2	0	2	96
				TFTM	9,481	2	0	2	91	10,220	2	0	2	98

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	**77°F**	**1.00**
30°C	86°F	1.00
40°C	104°F	0.99

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **CSXW LED** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.94	0.91	0.85

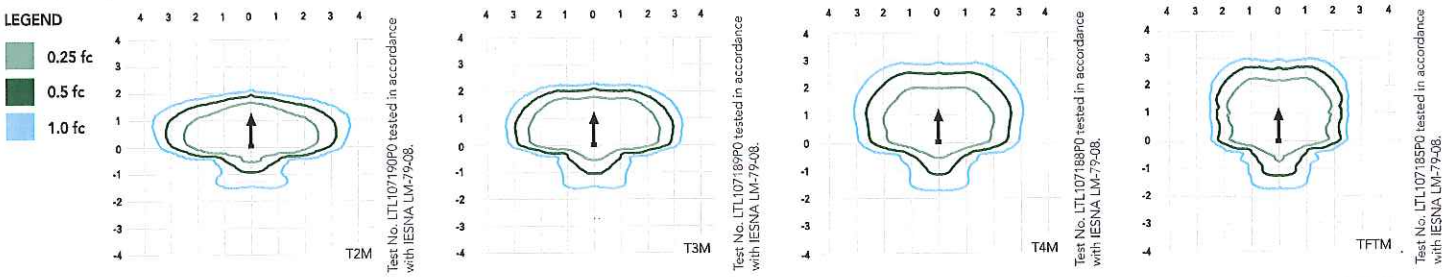
Electrical Load

Number of LEDs	Drive Current (mA)	System Watts	Current (A)					
			120V	208V	240V	277V	347V	480V
30C	700	70W	0.695	0.412	0.367	0.331	0.247	0.186
	1000	104W	1.034	0.599	0.528	0.472	0.382	0.302

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's CSXW homepage.

Isofootcandle plots for the CSXW LED 30C 1000 40K. Distances are in units of mounting height (20').



FEATURES & SPECIFICATIONS

INTENDED USE
The Contour Series Wall LED luminaire is ideal for commercial building mounted applications from over-the-door to 20 ft mounting heights.

CONSTRUCTION
Rugged, die-cast, single-piece aluminum housing. Unique flow-through design for optimized thermal management. Modularity allows for ease of maintenance and potential for future system upgrades. Metallic screen covers the top of the housing, preventing debris build-up while allowing for air flow. Housing is completely sealed against moisture and environmental contaminants.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

OPTICS
Precision-molded acrylic lenses provide optimal luminaire spacing and improved uniformity. Lenses are indexed to the circuit board to ensure consistent optical alignment and delivering repeatable photometric performance. Light engines are available in standard 4000K (70 CRI) or optional 5000K (67 CRI) configurations. The CSXW has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL
Light engine consists of 30 high-efficacy LEDs mounted to a metal-core circuit board to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L70). Class 1 electronic driver has a power factor >90%, THD <20%, and has an expected life of 100,000 hours with <1% failure rate. Easily-serviceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

INSTALLATION
Universal mounting mechanism with integral mounting support allows fixture to hinge down. Bubble level provides correct alignment with every installation.

LISTINGS
CSA Certified to U.S. and Canadian standards. Rated for -40°C minimum ambient. Light engine is IP66 rated. Luminaire is IP65 rated.

DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org to confirm which versions are qualified.

WARRANTY
Five year limited warranty. Full warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Specifications subject to change without notice.
Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.

LITHONIA LIGHTING®

Catalog Number	
Notes	Type

FEATURES & SPECIFICATIONS

CONSTRUCTION — Weldable-grade, hot-rolled, commercial-quality carbon steel tubing with a minimum yield of 55,000 psi (11-gauge), or 50,000 psi (7-gauge). Uniform wall thickness of .125" or .188". Shaft is one-piece with a full-length longitudinal high-frequency electric resistance weld. Uniformly square in cross-section with flat sides, small corner radii and excellent torsional qualities. Available shaft widths are 4, 5 and 6 inches.

Poles have mastic coating on embedded depth +6" above grade level. Base shroud is finished to match pole. Two drilled conduit access holes, 180 degrees apart, are located 18" below grade.

A handhole having nominal dimensions of 3" x 5" for all shafts. Included is a cover with attachment screws.

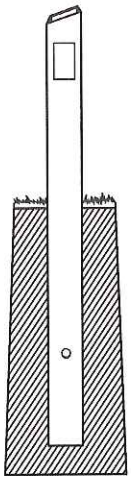
Top cap provided with all drill-mount poles.

Fasteners are high-strength galvanized, zinc-plated or stainless steel.

Finish: Must specify finish.

Grounding: Provision located immediately inside handhole rim. Grounding hardware is not included (provided by others).

NOTE: Specifications subject to change without notice.



Direct Burial

SSSDB

SQUARE STRAIGHT STEEL

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: SSSDB 20 5C DM19 DDB

SSSDB

Series	Nominal fixture mounting height	Nominal shaft base size/ wall thickness	Mounting[1]	Options	Finish[9]
SSSDB	10 – 30 feet (see back page.)	(See back page.)			

Mounting[1]

Tenon mounting

PT	Open top
T20	2-3/8" O.D. (2" NPS)
T25	2-7/8" O.D. (2-1/2" NPS)
T30	3-1/2" O.D. (3" NPS)
T35	4" O.D. (3-1/2" NPS)

Drill mounting[2]

DM19	1 at 90°
DM28	2 at 180°
DM28PL	2 at 180° with one side plugged
DM29	2 at 90°
DM39	3 at 90°
DM49	4 at 90°

CSX/DSX/ALX/AERIS™/OMERO™ Drill mounting[2]

DM19AS	1 at 90°
DM28AS	2 at 180°
DM29AS	2 at 90°
DM39AS	3 at 90°
DM49AS	4 at 90°

AERIS™ Suspend drill mounting[2,3]

DM19AST_	1 at 90°
DM28AST_	2 at 180°
DM29AST_	2 at 90°
DM39AST_	3 at 90°
DM49AST_	4 at 90°

OMERO™ Suspend drill mounting[2,3]

DM19MRT_	1 at 90°
DM28MRT_	2 at 180°
DM29MRT_	2 at 90°
DM39MRT_	3 at 90°
DM49MRT_	4 at 90°

Options

Shipped installed

VD	Vibration damper
TP	Tamper proof
H1-18Sxx	Horizontal arm bracket (1 fixture)[4,5]
FDLxx	Festoon outlet less electrical[4]
CPL12 xx	1/2" coupling[4]
CPL34 xx	3/4" coupling[4]
CPL1 xx	1" coupling[4]
NPL12 xx	1/2" threaded nipple[4]
NPL34 xx	3/4" threaded nipple[4]
NPL1 xx	1" threaded nipple[4]
EHHxx	Extra handhole[4,6]
MAEX	Match existing[7]
USPOM	United States point of manufacture[8]

Finish[9]

Standard colors

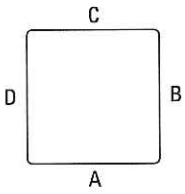
DDB	Dark bronze
DWH	White
DBL	Black
DMB	Medium bronze
DNA	Natural aluminum
GALV	Galvanized finish

Classic colors

DSS	Sandstone
DGC	Charcoal gray
DTG	Tennis green
DBR	Bright red
DSB	Steel blue

Architectural colors (powder finish)[9]

HANDHOLE ORIENTATION



Handhole

NOTES:

1 When ordering tenon mounting and drill mounting for the same pole, follow this example: DM28/T20. The combination includes a required extra handhole.

2 The drilling template to be used for a particular luminaire depends on the luminaire that is used. Refer to the Technical Data Section of the Outdoor Binder for Drilling Templates.

3 Insert "1" or "2" to designate fixture size; e.g. DM19AST**2**.

4 Specify location and orientation when ordering option.

For 1st "x": Specify the height in feet above base of pole.
Example: 5ft = 5 and 20ft = 20

For 2nd "x": Specify orientation from handhole (A,B,C,D)
Refer to the Handhole Orientation diagram above.

5 Horizontal arm is 18" x 2-3/8" O.D. tenon standard.

6 Combination of tenon-top and drill mount includes extra handhole.

7 Must add original order number.

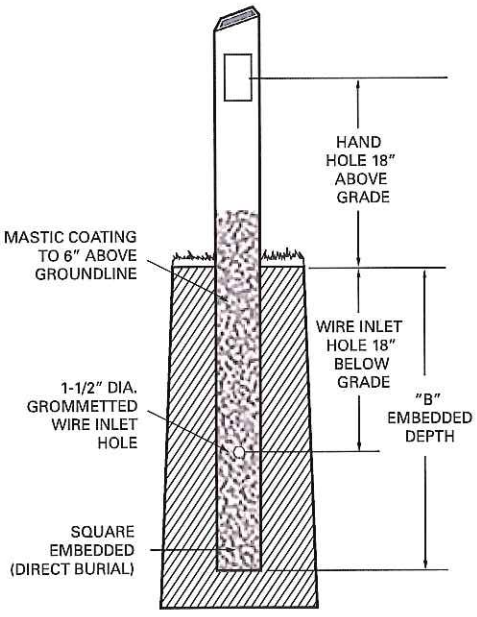
8 Use when mill certifications are required.

9 Additional colors available; see www.lithonia.com/archcolors or Architectural Colors brochure (Form No. 794.3). Powder finish standard.

SSSDB Square Straight Steel Direct Burial Poles

TECHNICAL INFORMATION												
						EPA (ft^2) with 1.3 gust						
Catalog number	Nominal mounting height above grade (ft.)	Pole shaft size (in. x ft.)	Embedment depth (ft.)	Wall thickness (in.)	Gauge	80 mph	Max. fixture weight (lbs.)	90 mph	Max. fixture weight (lbs.)	100 mph	Max. fixture weight (lbs.)	Approx. ship weight (lbs.)
SSSDB 10 4C	10	4 x 13	3	0.125	11	30.6	765	23.8	595	18.9	473	95
SSSDB 12 4C	12	4 x 16	4	0.125	11	24.4	610	18.8	470	14.8	370	110
SSSDB 14 4C	14	4 x 18	4	0.125	11	19.9	498	15.1	378	11.7	293	120
SSSDB 16 4C	16	4 x 20	4	0.125	11	15.9	398	11.8	295	8.9	223	130
SSSDB 18 4C	18	4 x 22	4	0.125	11	12.6	315	9.2	230	6.7	168	140
SSSDB 20 4C	20	4 x 24	4	0.125	11	9.6	240	6.7	167	4.5	150	150
SSSDB 20 4G	20	4 x 24	4	0.188	7	14.0	350	11.0	275	8.0	200	210
SSSDB 20 5C	20	5 x 24	4	0.125	11	17.7	443	12.7	343	9.4	235	195
SSSDB 20 5G	20	5 x 24	4	0.188	7	28.1	703	21.4	535	16.2	405	275
SSSDB 25 4G	25	4 x 30	5	0.188	7	10.8	270	7.7	188	5.4	135	255
SSSDB 25 5C	25	5 x 30	5	0.125	11	9.8	245	6.3	157	3.7	150	235
SSSDB 25 5G	25	5 x 30	5	0.188	7	18.5	463	13.3	333	9.5	238	370
SSSDB 30 5G	30	5 x 35	5	0.188	7	10.7	267	6.7	167	3.9	100	390
SSSDB 30 6G	30	6 x 35	5	0.188	7	19.0	475	13.2	330	9.0	225	530

BASE DETAIL



IMPORTANT INSTALLATION NOTES:

- **Do not** erect poles without having fixtures installed.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Lithonia Lighting is not responsible for the foundation design.

IMPORTANT:

- These specifications are intended for general purposes only. Lithonia reserves the right to change material or design, without prior notice, in a continuing effort to upgrade its products.

LITHONIA LIGHTING®
An AcuityBrands Company

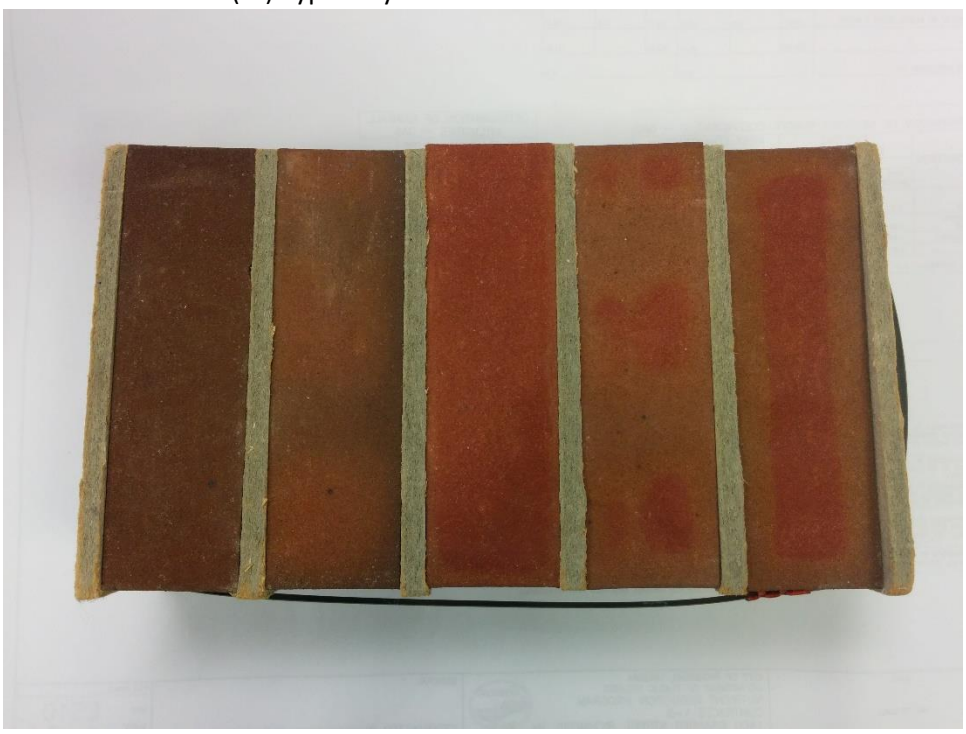
Lithonia Lighting
Outdoor
One Lithonia Way, Conyers, GA 30012
Phone: 770-922-9000 Fax: 770-918-1209
www.lithonia.com

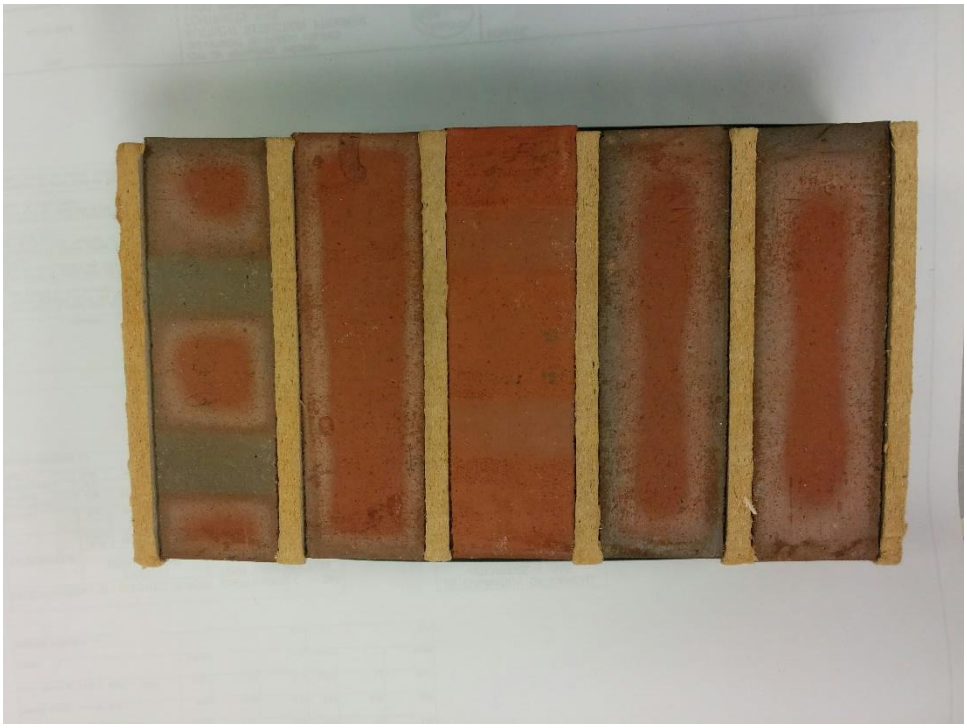
Sheet #: Pole-SSSDB

Item No. 7

Exterior Building Materials		
Item No.	Component	Manufacturer / Material / Finish
7.1	Face Brick	Watsontown Brick / Burtonfield (M) Type 2
7.2	Coping	Limestone
7.3	Window Frame System	Kawneer / Trifab 451 - Anodized Aluminum
7.4	Doors	Ceco Door / Stainless Steel - Satin Finish
7.5	Sky Lights	Kalwall / Gable Style – Mill Finish
7.6	Railings	Tuttle / Tabco 8000 – Anodized Aluminum
7.7	Louvered Screen	Industrial Louvers / 450 XPI – Dark Bronze
7.8	DA29	3D Views

Brick – Burtonfield (M) Type 2 by Watsontown Brick





Trifab® 601, 601T and 601UT Framing Systems

Larger, more versatile span
delivers more thermal options
and more design choices

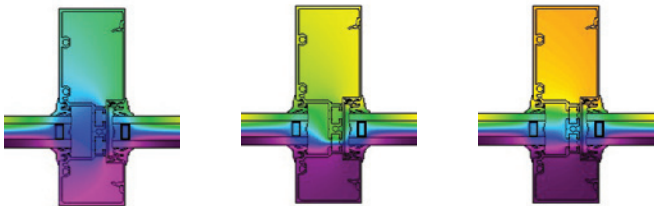
Designed to add increased thermal performance and value, Kawneer's new addition to the company's trusted Trifab® platform gives you more. More flexibility. More thermal options. More design choices. Flexible enough for a wide range of building projects, Trifab® 601 Series Framing Systems have a 6" depth, which accommodates higher spans than conventional 4-1/2" storefront framing systems. The new 3-in-1 series includes the non-thermal Trifab® 601, the single thermal break Trifab® 601T and the dual thermal break Trifab® 601UT. The greater system depth combined with three thermal performance options make this one of the most versatile framing systems available.

Performance

Trifab® 601 Series Framing Systems leverage Kawneer's exclusive dual IsoLock® lanced pour and debridge technology to provide three levels of thermal performance – non-thermal, single thermal break and dual thermal break. By combining the greater 6" depth with superior thermal performance and versatility, Kawneer is able to bridge the gap between traditional framing systems and low-rise curtain walls.

KAWNEER
AN ALCOA COMPANY

Trifab® 601, 601T and 601UT framing systems are perfect for projects where an economical alternative to a low-rise curtain wall is desired. These systems meet the same high standards that are traditionally found in Kawneer products for air and water infiltration and thermal performance. Trifab® 601 Series Framing Systems also have an HP (High Performance) sill design. The sill attaches to the sill flashing by way of a raceway and eliminates the troublesome blind seal method used on many flashing systems. The HP sill also includes a screw-applied end dam, which ensures positive and tight joints between the sill flashing and end dam.

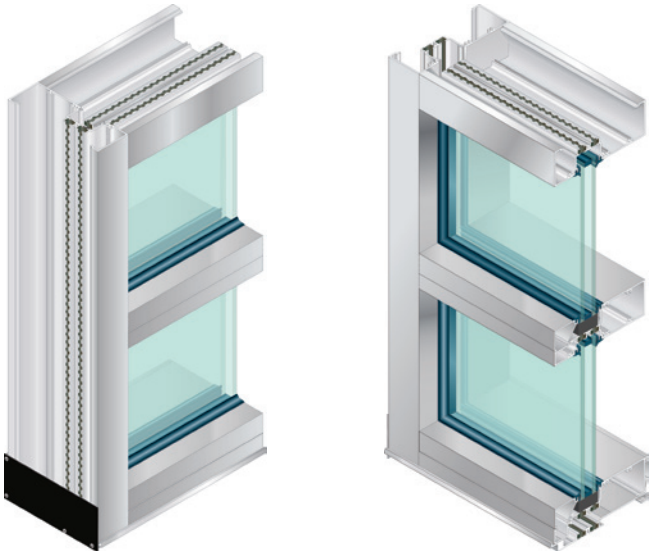


Trifab® 601 | Trifab® 601T | Trifab® 601UT

Thermal simulations showing temperature variations from exterior/ cold side to interior/warm side.

Performance Test Standards

Air Performance	ASTM E 283
Water Performance	ASTM E 331
Uniform Static Structural	ASTM E 330
Sound Transmission Class (STC)	AAMA 1801 and in accordance with ASTM E 1425
Condensation Resistance (CRF)	AAMA 1503 and CAN/CSA-A440
Thermal Transmittance (U-Value)	AAMA 1503.1
U-Value Simulations for Other Glazing Options	AAMA 507, NFRC 100, NFRS 200, NFRC 500 and CAN/CSA-A440.2



Fabrication and Installation

Trifab® 601, 601T and 601UT employ screw spline joinery construction for efficient fabrication and installation. This construction method provides quality joinery and allows for shop-controlled fabrication and assembly, which leads to smaller field crews and less installation time. The framing can be specified for glazing from either the inside or outside. Inside glazing can help reduce field labor costs by eliminating the need for exterior scaffolding or swing stages for installation on floors above the ground level. In addition, the frames have a two-piece receptor option that easily accommodates attachment of air-barrier systems.

Aesthetics and Versatility

Trifab® 601, 601T and 601UT Framing Systems are designed with cost and flexibility in mind. With a 2" x 6" frame profile, the sightline is consistent with current framing systems and the glass pockets are aligned to the 4-1/2"-deep center set Trifab® framing systems. This allows for a shallow horizontal member that not only lowers overall metal costs, but also provides flexibility to accommodate interior finishes, such as blinds, that can span the full uninterrupted elevation height. The flexibility of the 3-in-1 series provides a pre-designed solution for non-thermal as well as thermal entrances. Framing options include non-thermal and thermally broken door framing members to accommodate 1-3/4"-deep and 2-1/4"-deep entrance doors, an expansion mullion and a two-piece head and jamb receptor. The 6" depth accommodates higher spans than conventional 4-1/2" storefront framing systems, and an optional 2-1/4" wide vertical mullion allows for internal steel reinforcement for projects with greater structural performance requirements.

For the Finishing Touch

Permanodic® anodized finishes are available in clear (Class I and Class II) and color (Class I) choices, including champagne, black, light bronze, medium bronze and dark bronze.

Painted finishes, including fluoropolymers that meet or exceed the standards of AAMA 2605, are offered in many standard choices and an unlimited number of specially designed colors.

Solvent-free powder coatings add the "green" element with high performance, durability and scratch resistance that meet the standards of AAMA 2604.

Kawneer Company, Inc.
Technology Park / Atlanta
555 Guthridge Court
Norcross, GA 30092

kawneer.com
kawneergreen.com
770 . 449 . 5555

KAWNEER
AN ALCOA COMPANY

Stainless-Tech

Stainless Steel Doors and Frames

Ceco Door offers a full line of stainless steel doors and frames for a wide range of applications: from highly corrosive or clean room environments such as waste water treatment plants,laboratories, hospitals and food processing plants to aesthetically appealing building lobbies. A variety of sizes and configurations are available.

Door Features

- 14 gauge through 18 gauge face sheets
- 304 & 316 stainless steel with #4, #6 #8 and 2B finishes
- Polystyrene, polyurethane, honeycomb and steel stiffened cores
- Stainless steel internal components
- Visible lock seam and seamless edge designs

NEW Seamless option on 18 gauge doors

Frame Features

- Welded frames
- 14 gauge through 16 gauge frames
- Standard and custom frame profiles available
- Custom frame elevations (side-lights, borrowed lites, transom units)
- 304 & 316 stainless steel with #4, #6 #8 and 2B finishes

Visit www.cecodoor.com or contact an ASSA ABLOY Door Security Solutions representative for more information.

Stainless-Tech Benefits

- Clean finished appearance
- Long term durability
- Design flexibility
- Maximum corrosion resistance
- Ease of facility maintenance

Ceco Door
9159 Telecom Drive
Milan, TN 38358
Tel (888) 232-6366
Fax (888) 232-6462
archhelp@cecodoor.com
www.cecodoor.com

ASSA ABLOY, the global leader in door opening solutions

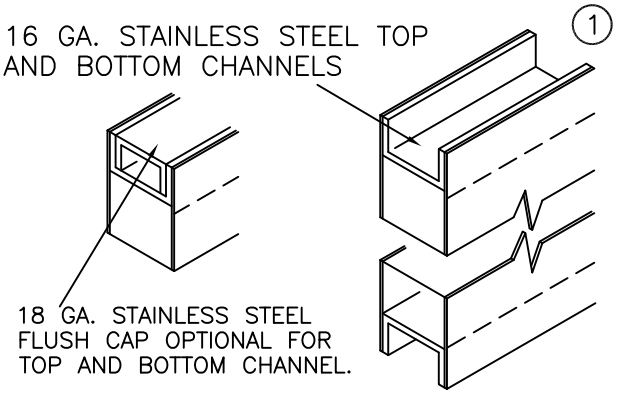
SS 7/16

TECH-DATA

D11-3

1

16 GA. STAINLESS STEEL TOP AND BOTTOM CHANNELS

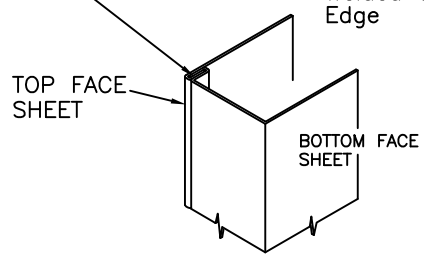


18 GA. STAINLESS STEEL FLUSH CAP OPTIONAL FOR TOP AND BOTTOM CHANNEL.

2

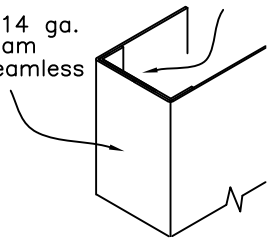
VERTICAL EDGES

LOCKSEAM CONSTRUCTION (18 GAGE & WITH VISIBLE SEAM ONLY)



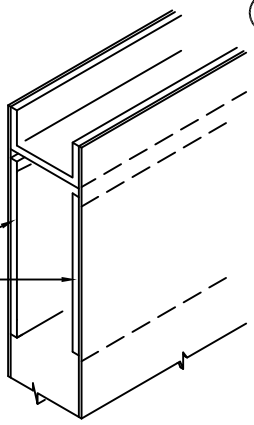
16 Gage Full Height Channel

18,16 & 14 ga. Center Seam Welded Seamless Edge



3

CLOSER REINFORCEMENT



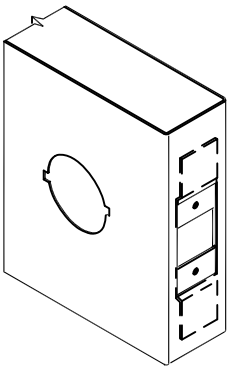
4

LOCK PREPARATION GOV. 160/161 CYLINDRICAL TYPE

BEVELED LOCK EDGE

2-3/4" BACKSET

12 GAGE STAINLESS STEEL LOCK REINFORCEMENT



LOCK EDGE IS BEVELED

5

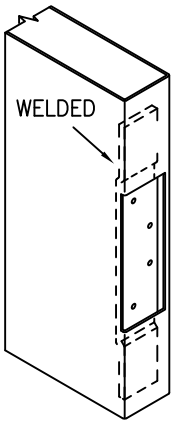
HINGE PREPARATION

4-1/2" OR 5" HIGH STANDARD OR HEAVYWEIGHT FULL MORTISE HINGES

ANSI A.156.7 TEMPLATE

HINGE EDGE IS BEVELED

7 GAGE STAINLESS STEEL HINGE REINFORCEMENT



6

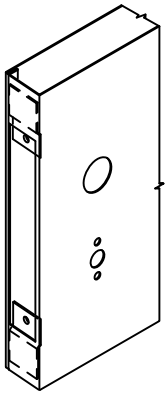
LOCK PREPARATION GOV. 86-4 MORTISE TYPE

BEVELED LOCK EDGE

2-3/4" BACKSET

FACE OF DOOR PREPARED PER LOCK TEMPLATE

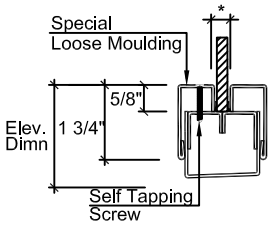
12 GAGE STAINLESS STEEL LOCK REINFORCEMENT



7

STAINLESS STEEL LOW PROFILE GLAZING TRIM

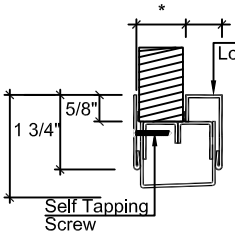
*POCKET SIZE
3/8"
1/2"
5/8"



FINISH OF KIT WILL MATCH MATERIAL OF DOOR.

7

STAINLESS STEEL LOW PROFILE GLAZING TRIM



*POCKET SIZE
7/8"
1"
1-1/8"
1-1/4"
1-3/8"

FINISH OF KIT WILL MATCH MATERIAL OF DOOR.

07/06/15

SPECIAL NOTE: INTERNAL REINFORCEMENTS AND PARTS FOR ALL STAINLESS STEEL DOORS AND FRAMES TO BE PROVIDED AS STAINLESS STEEL, UNLESS OTHER SPECIFIED.

(Conversion: 1" = 25.4 mm, e.g., 1-3/4" = 44.45 mm)

CecoDoor

ASSA ABLOY

Ceco Door – Finish #4 Satin

Since 1955

Kalwall®

High-performance Translucent Building Systems

Standard Unit Skylights

Geo-Roof®

Segmented domes to 24' (7.3m)

Pyramid

4' x 4' to 20' x 20' (1.2m x 1.2m to 6m x 6m)

Flat Curb-Type

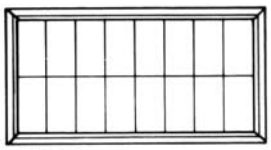
4' x 4' to 5' x 20' (1.2m x 1.2m to 1.5m x 6m)

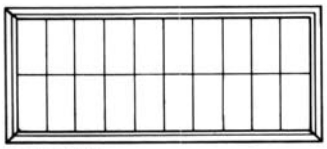
Now available with:

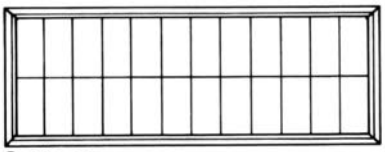
Kalwall + with aerogel

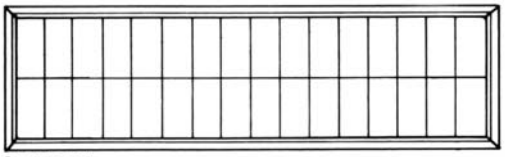
For complete information on Kalwall's comprehensive 8 systems, visit kalwall.com

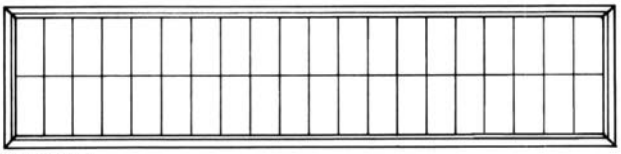
Standard Flat Curb-type S-Line


S-48-3A


S-410-3A


S-412-3A


S-416-3A

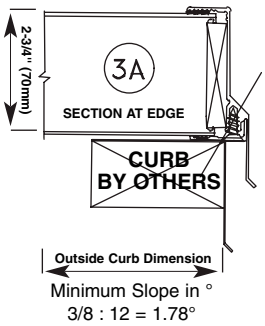

S-420-3A 4' (1220mm) x 20' (6096mm)

STANDARD SIZES: 4 ft. (1220mm) OUTSIDE CURB DIMENSION	STANDARD SIZES: 5 ft. (1524mm) OUTSIDE CURB DIMENSION
4' (1220mm) X 4' (1220mm)	—
4' (1220mm) X 5' (1524mm)	5' (1524mm) X 5' (1524mm)
4' (1220mm) X 6' (1829mm)	5' (1524mm) X 6' (1829mm)
4' (1220mm) X 7' (2134mm)	5' (1524mm) X 7' (2134mm)
4' (1220mm) X 8' (2438mm)	5' (1524mm) X 8' (2438mm)
4' (1220mm) X 9' (2743mm)	5' (1524mm) X 9' (2743mm)
4' (1220mm) X 10' (3048mm)	5' (1524mm) X 10' (3048mm)
4' (1220mm) X 11' (3353mm)	5' (1524mm) X 11' (3353mm)
4' (1220mm) X 12' (3658mm)	5' (1524mm) X 12' (3658mm)
4' (1220mm) X 13' (3962mm)	5' (1524mm) X 13' (3962mm)
4' (1220mm) X 14' (4267mm)	5' (1524mm) X 14' (4267mm)
4' (1220mm) X 15' (4572mm)	5' (1524mm) X 15' (4572mm)
4' (1220mm) X 16' (4877mm)	5' (1524mm) X 16' (4877mm)
4' (1220mm) X 17' (5182mm)	5' (1524mm) X 17' (5182mm)
4' (1220mm) X 18' (5486mm)	5' (1524mm) X 18' (5486mm)
4' (1220mm) X 19' (5791mm)	5' (1524mm) X 19' (5791mm)
4' (1220mm) X 20' (6096mm)	5' (1524mm) X 20' (6096mm)

Standard S-Line Features - *super-fast delivery*

- Thickness 2 ¾" (70mm) or 4" (100mm)
- Grid pattern size 12" x 24" for 4' Series; 12" x 20" for 5' Series
- Insulation "U" = .29 (1.6 W/m²K) standard and .23 (1.3 W/m²K) optional with Thermal Break core
- Curb-type aluminum perimeter pre-sealed at factory installation on curb
- Translucent shatterproof fiber-glass faces for 15%, 20%, or 30% light transmission standards
- Designed for 40 PSF (1915 Pa) snow load
- 50% light transmission optional for north light or solar applications
- Withstand Class A Burning Brand

OSHA Compliant



Minimum Slope in °
3/8 : 12 = 1.78°

General Specifications for Standard Skylights

INSULATION: "U" = .29 standard. Options .53, .22 and .18 or Thermally Broken .23, .14, .10 and .05, for 2 ¾" (70mm); .55, .15 and .08 for 4" (100mm)

PANEL THICKNESS: 2 ¾" (70mm) or 4" (100mm) for S-Line.

LIGHT TRANSMISSION: Any interior/exterior combination of exclusive super weathering translucent faces with erosion barrier resulting in light transmission range of 14% to 60%. Options from 3% to 74% in other colors. For full explanation, visit kalwall.com/spec.htm

GRID PATTERN: Geo-grid standard for Geo-Roof. Shoji pattern Pyramids and custom grids optional.

EXPOSED ALUMINUM FINISH: Standard is mill finish. Optional Kalwall corrosion-resistant finish in a variety of colors.

COLOR INSERTS: Color inserts are optional and available in a wide range of colors.

DESIGN LOAD: All standard Geo-Roofs and Pyramids designed for 40 PSF snow load, except as noted. Higher loads may require a different design.

FACTORY PRE-ASSEMBLY: Units up to 8' nominal pre-assembled into one piece. Geo-Roofs over 8' to 16' overall outside dimensions shipped in halves. Larger roofs shipped in segments. Pyramids shipped knocked down in 4 sections for 9' to 12' and 8 sections for 13' to 20'.

Since 1955 Kalwall®
kalwall.com
daylightmodeling.com
1111 Candia Road, P.O. Box 237, Manchester, NH 03105 USA
+1 603 627 3861 (International)
800 258 9777 (N. America)
Fax +1 603-627-7905

ICC ES ESR-2464 CE FM APPROVED CCRR - 0173 Quality Assurance and IBC Compliance UL

Skylights – Kalwall - Gable Style

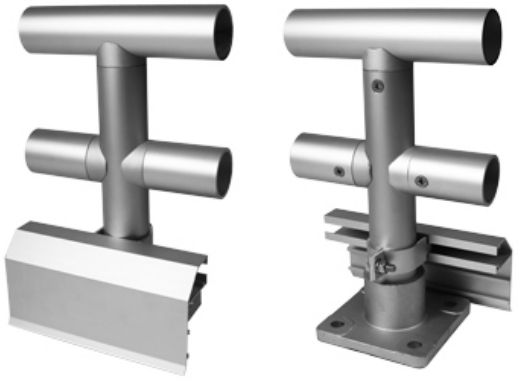
TABCO 8000 INDUSTRIAL RAILING SYSTEMS

MECHANICALLY FASTENED ALUMINUM

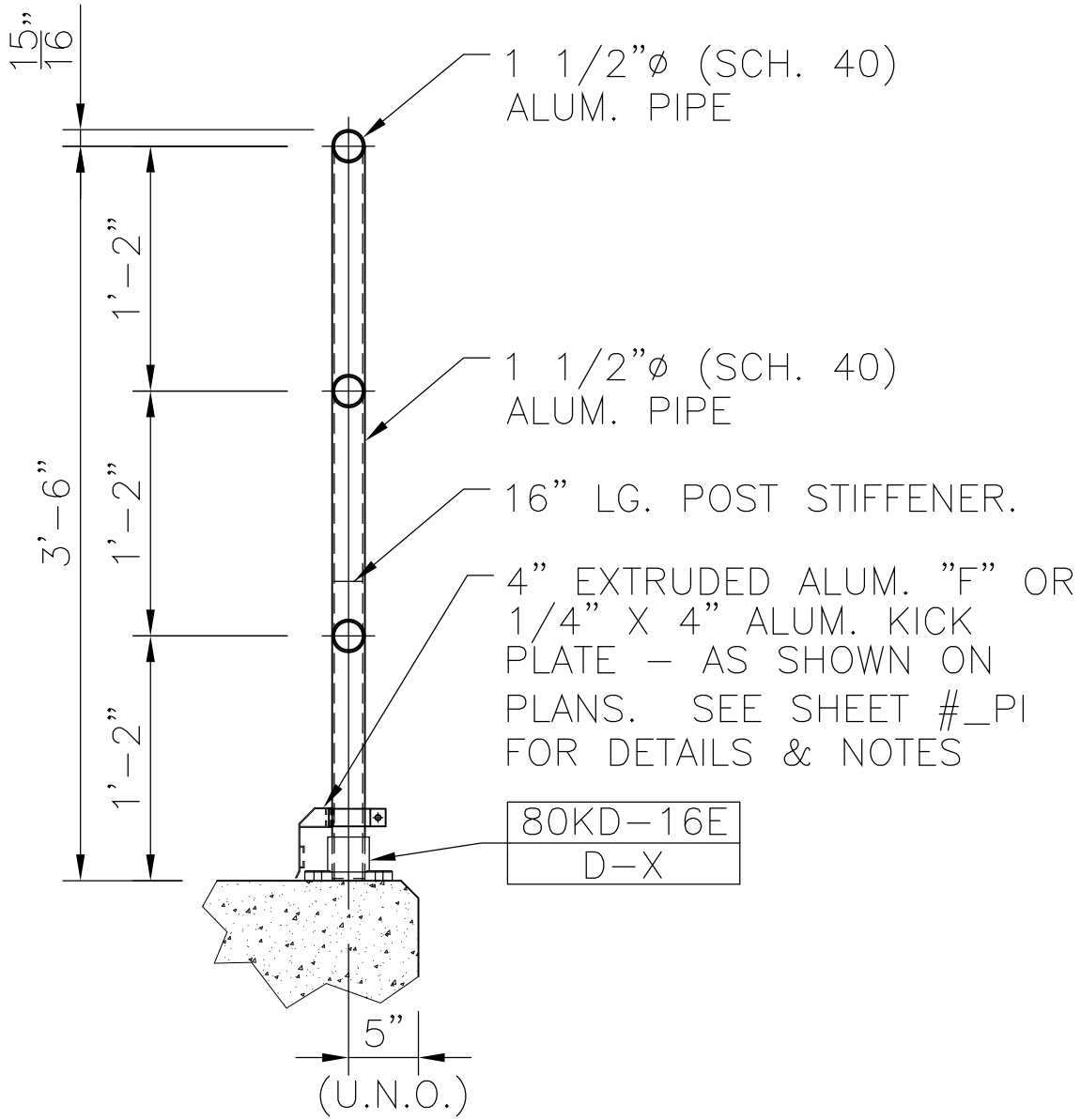
The Tabco 8000 series is a component type railing system design that meets the latest criteria being set forth in today's market.

Manufactured from anodized aluminum with stainless steel fasteners, Tabco 8000 railing provides strength, attractive appearance, with no exposed fasteners, and versatility that make the system ideal for industrial and commercial settings.

The Tabco 8000 is pre-assembled in panels to the greatest extent possible and shipped to the job site for quick easy installation.

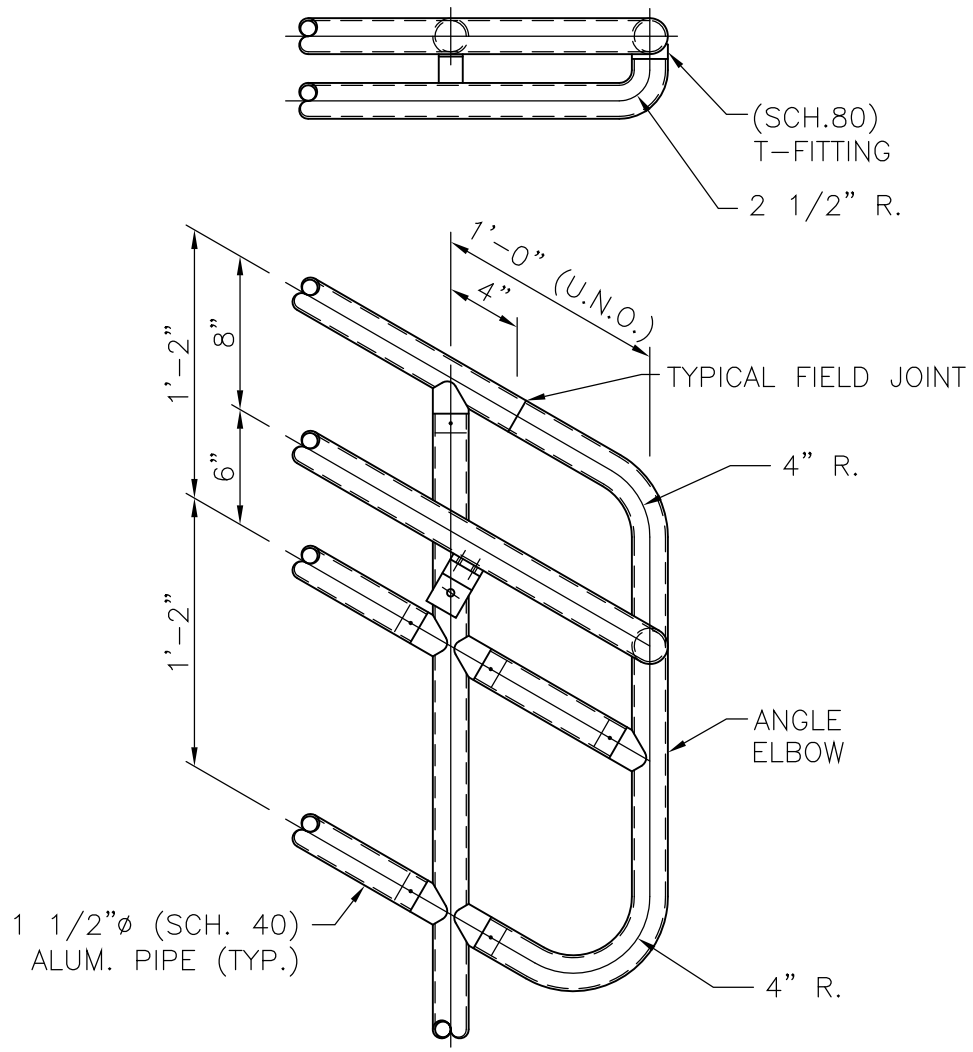


- DETAILS
- MOUNTINGS
- KICKPLATE
- RAIL TERMINATION
- BRACKETS



SECTION X / D–1

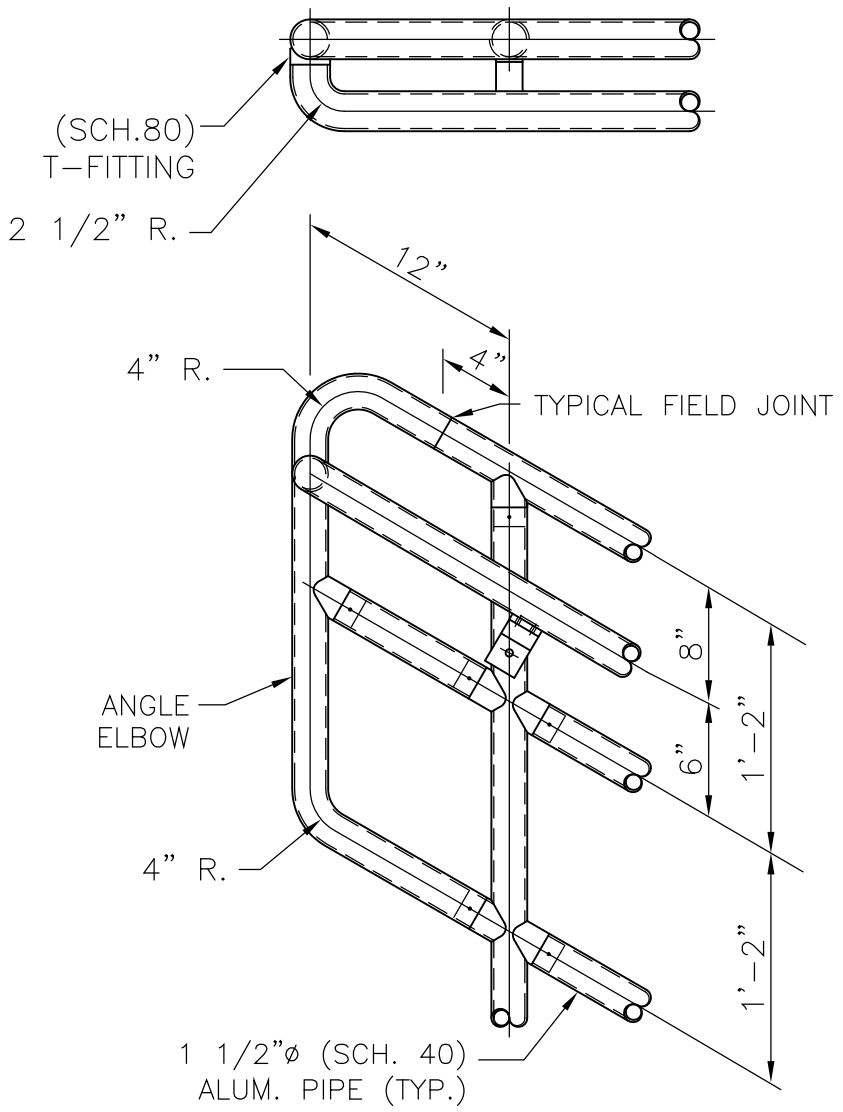
ROCKY MOUNTAIN RAILINGS
11839 E 51st AVE DENVER, CO 80239 PHONE (303) 432–0003 FAX (303) 432–2038



BOTTOM RAKE P–END W/ HANGOFF

25KD–5F

ROCKY MOUNTAIN RAILINGS
11839 E 51st AVE DENVER, CO 80239 PHONE (303) 432–0003 FAX (303) 432–2038

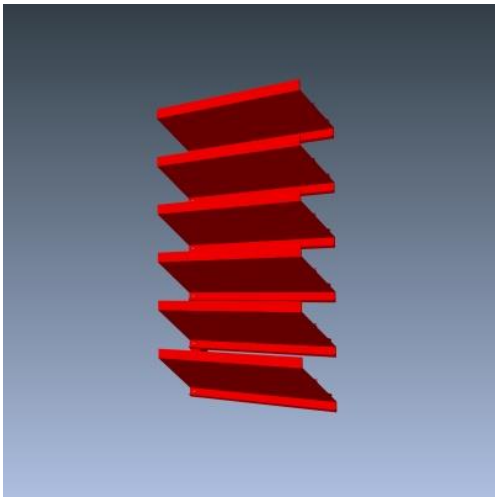


TOP RAKE P–END W/ HANGOFF

25KD–6G

ROCKY MOUNTAIN RAILINGS
11839 E 51st AVE DENVER, CO 80239 PHONE (303) 432–0003 FAX (303) 432–2038

MODEL 450XPI



STANDARD CONSTRUCTION

- Material: Extruded Aluminum 6063-T6
- Vertical Supports: 5” x 2” x .125” Aluminum Support Channels
- Blades 4” (102mm) deep, .081” (2.1mm) nominal wall thickness
- Blade Spacing: 5” (127mm) on center
- Finish: Mill

OPTIONAL ACCESSORIES

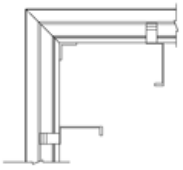
- Cap Flashing
- Hinged Access Panels
- Visible Mullions
- Invisible Mullions for continuous blade appearance

FINISHES

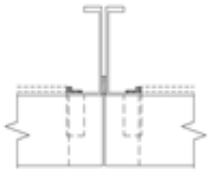
- 2 coat fluropolymer: Kynar® 500 / Hylar® 5000 custom colors available in 70% PVDF (AAMA 2605) or 50% PVDF (AAMA 2604) formulas.
- 3 coat fluropolymer: Kynar 500 / Hylar 5000 custom colors available in 70% PVDF (AAMA 2605) formulas.
- Anodic finishes: Class I and Class II in Clear, Light/Medium/Dark Bronze, Champagne, and Black.
- Prime coat
- Mill

SUGGESTED SPECIFICATIONS

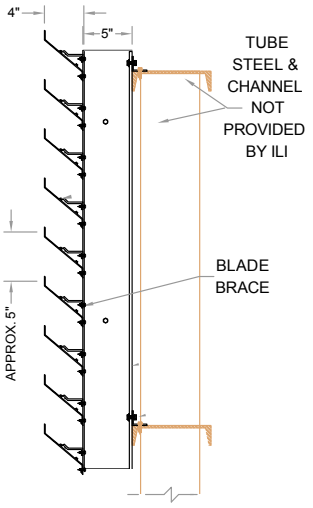
- General: Furnish and install where indicated on drawings 4” (102mm) Extruded Aluminum Inverted Equipment Screen Model 450XPI as manufactured by Industrial Louvers, Inc., Delano, MN.
- Material: Extruded aluminum supports and blades shall be one piece 6063-T6 alloy. Vertical supports shall have a material thickness of .125” (3.2mm). Fixed inverted blades shall have a material thickness of .081” (2.1mm). Supports and blades shall be joined by stainless steel mechanical fastener.
- Support: Structural Steel is designed, engineered and provided by others.



Corner View



Invisible Vertical Mullion



Vertical Section

Qty.	Size: Actual ○ R.O. ● Width	Height	Mullion Type	No. of Sections	Notes
			Invisible		
			Invisible		
			Invisible		
☐	Sill flashing:		Job #:	Project:	
☐	Screen:		Location:		
☐	Finish: Choose from dropdown		Representative:		
	Color:		Approved for fabrication ☐ As is ☐ As noted		
☐	Other:		By:	Date:	

Please sign and return

CATALOG NO. 450XPI Rev: FEB 2015

www.industriallouvers.com
ilinfo@industriallouvers.com
511 South 7th Street, Delano MN 55328
Tel: +1.763.972.2981 • Fax: +1.763.972.2911

Finishes

Quality finishes including Kynar 500® and Hylar 5000®
Coatings and anodized finishes make each product unique and are key to durability and long-term value of projects. ILI offers a comprehensive range of painted and anodized finishes. Our wide selection of standard finishes will compliment nearly any exterior, but we also custom-match colors and offer exotic patterns and high performance and marine finishes.

Kynar 500® and Hylar 5000® Finishes

ILI offers the advantage of in-house painting for Kynar finishes. Finishing product in-house ensures we can enforce the highest possible quality standards and significantly reduces the potential for damage from shipping to an outside finisher. It also reduces lead times and provides us with the flexibility to manage our own finishing schedule. By eliminating potential delays and having the ability to respond to urgent needs, we are better able to get products to the jobsite on time.

Bone White 391A580 (70%) 731A582 (50%)	Stone White 391A454 (70%) 731A539 (50%)	Seawolf 397F199 (70%) 737A359 (50%)	Classic II Champagne Pearl 399C245 (70%) 379A917 (50%)
Oriental Ivory 393A361 (70%) 733A487 (50%)	Seawolf Beige 393F061 (70%) 733A327 (50%)	Classic II Silver 399B697 (70%) 379A892 (50%)	Rawhide 397A538 (70%) 733A477 (50%)
Sandstone 393X321 (70%) 733A321 (50%)	Statuary Bronze 397F262 (70%) 737A610 (50%)	Fashion Grey 392A849 (70%) 732A577 (50%)	Brick Red 394F146 (70%) 734A201 (50%)
Sierra Tan 397A537 (70%) 737A606 (50%)	Dark Brown 397A536 (70%) 737A604 (50%)	Charcoal 392A848 (70%) 732A575 (50%)	Black 398F019 (70%) 738A044 (50%)
Military Blue 396A933 (70%) 736A647 (50%)	Interstate Green 395F081 (70%) 735A355 (50%)	Anodic Clear 399C210 (70%)	Dark Bronze 397A606 (70%) 737A605 (50%)

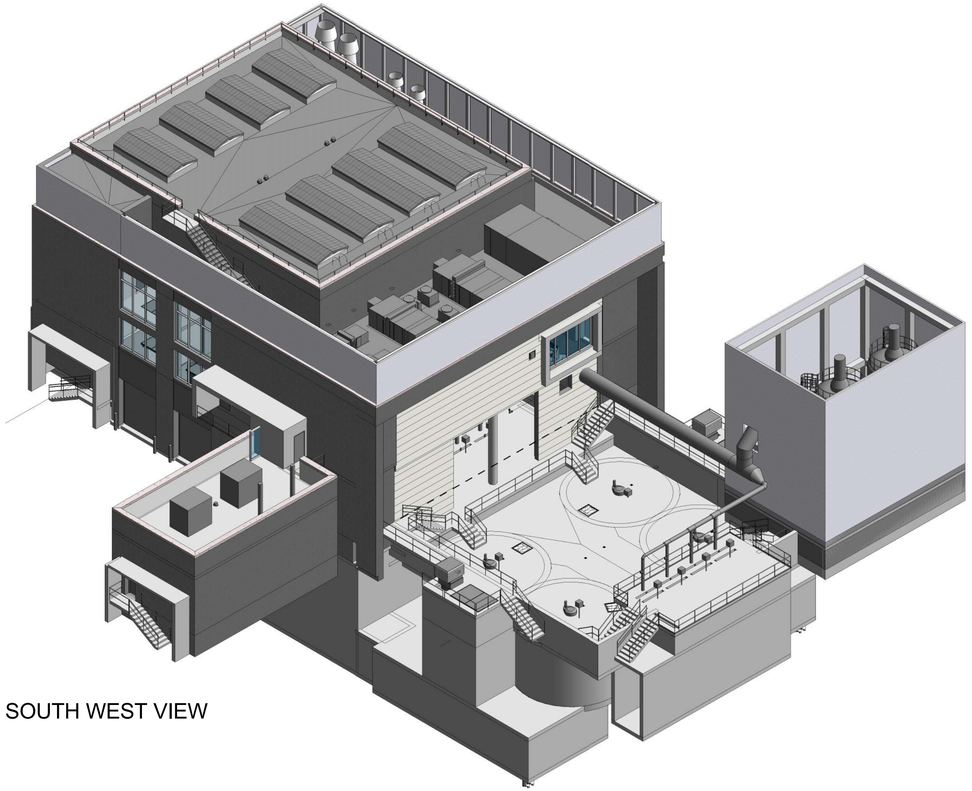
(70%) Fluropon Color Codes | (50%) Acroflur Acrodize Color Codes

Beautiful, durable Kynar coatings are resistant to chalking, abrasion and ultraviolet degradation and keep products looking new for years.
Selecting the right finish for the job is important. We offer 50% and 70% Kynar finish in two, three or four coat finishes. The percentage refers to the percentage of fluoropolymer in the paint and is the driver of durability. We recommend 70% Kynar finish for most applications. It provides maximum protection against air pollution, acid rain and general airborne dirt and will resist fading in sunlight. For interior applications, 50% Kynar is acceptable. Other uses appropriate for 50% Kynar also include exterior applications where products are not exposed to direct sunlight or if products are not visible and appearance is not critical. Our 70% Kynar can carry up to a 20 year warranty. Our 50% Kynar has a maximum seven year warranty.
The number of paint coats does not always affect durability or warranty. Paint coats are generally based on the color. Some colors require a clear coat or multiple layers to create the desired look. Bright colors, metallic colors and whites tend to require more coats, as do special finishes like wood grain patterns. Colors that can be achieved in a two coat process are the most economical choice, but are just as durable as three and four coat process colors.
Download a PDF of our finish guide by clicking here. Note that on-screen colors or colors printed from our downloadable finish guide will not match actual finishes. When making a final color selection, please request a hard copy of our finish guide or samples of color chips.

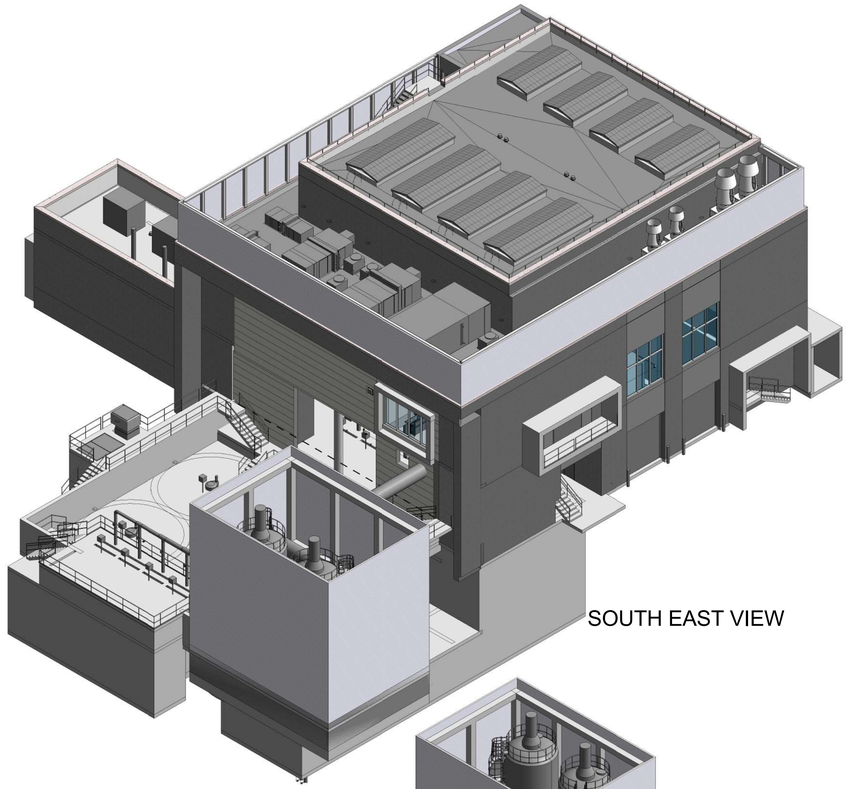
Anodized Finishes

Although not as durable, anodized finishes offer an attractive finish for some applications. We offer Class 2 clear and Class 1 clear and color anodized finishes. Like staining wood instead of painting it, anodizing allows the character of the raw material to show through. It will not cover up variances in the material.
Class 2 clear anodized finish should be used only for interior applications. Minimum coating for Class 2 clear anodized finish is 0.40 mil. Class 1 finishes are finishes are a minimum of 0.70 mil. They are more durable and are available in clear and a range of standard and custom colors. We also offer a limited selection of shades of bronze and black. Our standard warranty for anodized finishes is one year. Longer warranties up to five years are available for an additional charge.

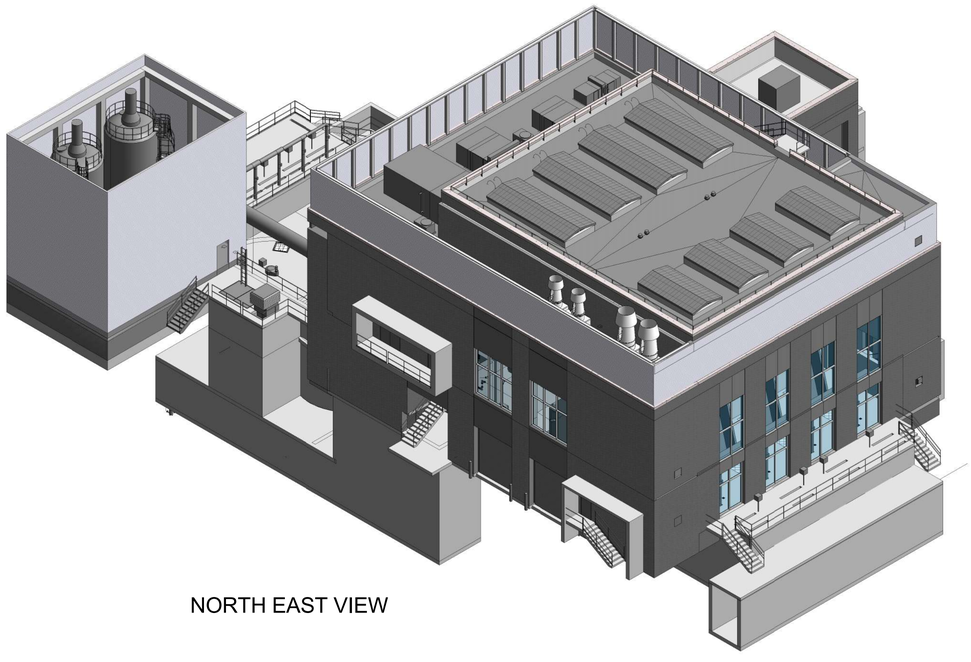
Louvered Screen Example Picture:



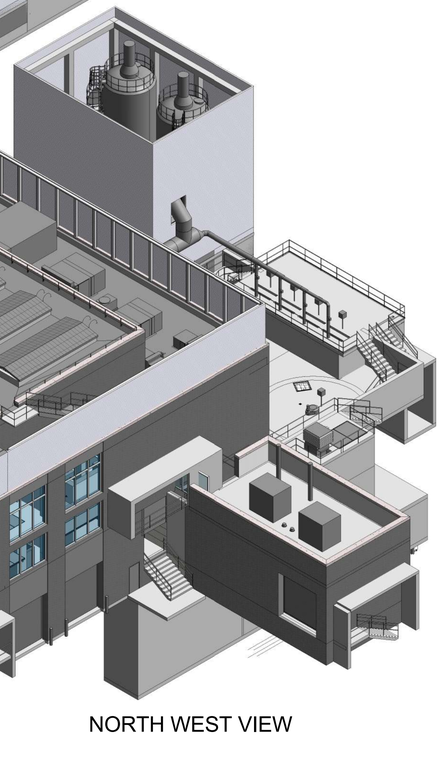
SOUTH WEST VIEW



SOUTH EAST VIEW



NORTH EAST VIEW



NORTH WEST VIEW

GREELEY AND HANSEN 9020 STONY POINT PARKWAY, SUITE 475 RICHMOND, VIRGINIA 23235	DESIGNED SHS DRAWN JJS CHECKED SHS	APPROVED	SCALE VIEWS ARE NOT TO SCALE

NO.	DATE	APPD	DESCRIPTION

CITY OF RICHMOND, VIRGINIA
DEPARTMENT OF PUBLIC UTILITIES
CSO CONTROL PROGRAM SPECIAL
ORDER 15 WWTP SCREENINGS
AND GRIT REMOVAL FACILITIES

SCREENINGS AND GRIT REMOVAL FACILITY
ARCHITECTURAL

3D VIEWS

PROJECT NO.: 0217E.K6
DWG DA29
SHEET -- OF ###
DATE OCTOBER 2015 REV