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# FEDERAL INSPECTION SERVICES RENOVATION AND EXPANSION

3780 N TERMINAL ROAD,  
HOUSTON , TX 77032

HAS PROJECT No. 0958

DATE: 10/26/2022

## CONSTRUCTION DOCUMENTS

### OCULUS



3780 N TERMINAL ROAD  
HOUSTON, TX 77032

GEORGE BUSH  
INTERCONTINENTAL AIRPORT

CONSTRUCTION DOCUMENTS  
OCULUS

C.I.P. No. A-0958 A.I.P. No.

C.O.H. No. 4600015176 D.O.A. No.

B.S.G. No. H.A.S. No. 0958

TRP T.I.P. No.

### Burns

BURNS ENGINEERING, INC | 215 979-7700  
TWO COMMERCIAL SQUARE  
2001 MARKET ST. SUITE 600  
PHILADELPHIA, PA 19103

DESIGNER PROJECT No.: 2022-109

PROJECT STATUS: 90%CD

#### REVISIONS

No.	DESCRIPTION	DATE	BY

DESIGN BY: C.M.C. & R.W.H.

DRAWN BY: A.A & P.I.

CHECKED BY: C.M.C. & R.W.H.

ISSUE DATE: 10/26/22

APPROVED BY: M.M

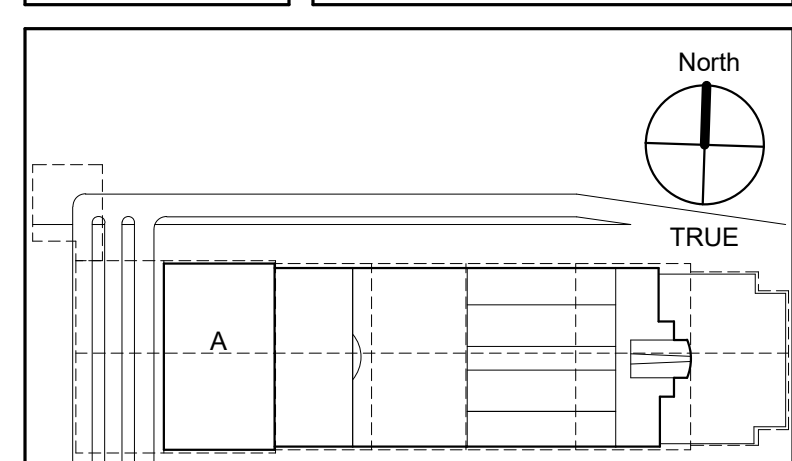
APPROVAL DATE: 10/26/22

DIRECTOR  
of  
HOUSTON AIRPORT SYSTEM

Drawing Status

# CD

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SHEET NAME: COVER SHEET

SHEET No. G1000 SCALE: 1" = 1'-0"

SHEET SIZE: 30"x42" ARCH E1

PLOT DATE: DOA DWG FILE: OLD DOA No. :

FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt

HAS FILE:

PLOT DATE: 10/26/2022 6:39:09 PM

PLOT DATE:  
DOA DWG FILE:  
OLD DOA No.:

PLOT DATE: 10/26/2022 6:39:18 PM HAS FILE: FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt

SHEET INDEX - OCULUS		
SHEET NUMBER	SHEET NAME	90% CD ISSUE
<b>00-GENERAL</b>		
G1000	COVER SHEET	X
G1001	OCULUS SHEET INDEX	X
<b>TE-TECHNOLOGY-ELEC</b>		
TE001	TECHNOLOGY ABBREVIATIONS, LEGENDS AND GENERAL NOTES	X
TE002	ELECTRICAL ABBREVIATIONS, LEGENDS, AND GENERAL NOTES	X
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TE115.00	OVERALL PLAN - L2 DEPARTURES	X
TE122.0A	BASEMENT LEVEL FLOOR PLAN	X
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**REVISIONS**

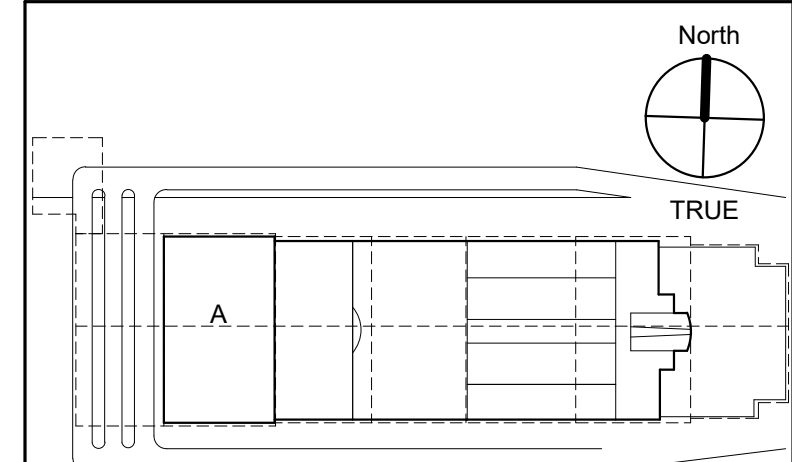
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SHEET NAME:  
OCULUS SHEET INDEX

SHEET No. G1001 SCALE: N.T.S.

SHEET SIZE: 30"x42" ARCH E1



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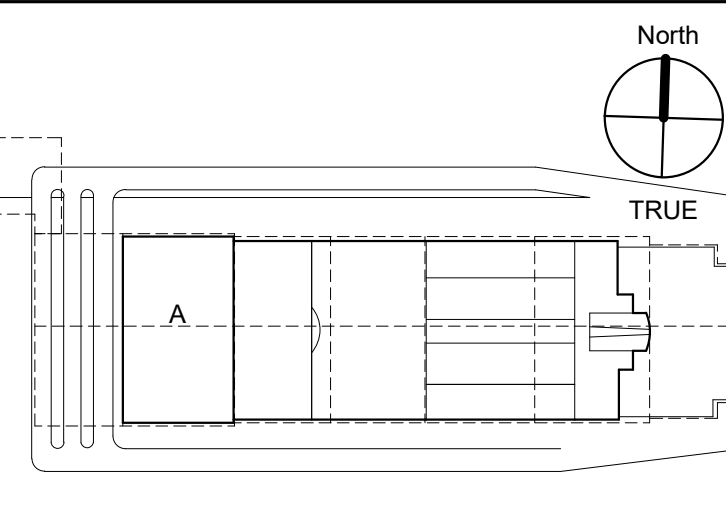
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SHEET NAME:  
ELECTRICAL ABBREVIATIONS, LEGENDS, AND GENERAL NOTES

SHEET No. TE002 SCALE: N.T.S.

SHEET SIZE: 30"x42" ARCH E1

**ABBREVIATIONS**

@	AT	MAX	MAXIMUM
A.C.	ALTERNATING CURRENT	MCM	THOUSAND CIRCULAR MILS
AE	ARCHITECT/ENGINEER (OR ENGINEER WHEN ARCHITECT NOT APPLICABLE)	MCP	MOTOR CIRCUIT PROTECTOR
ADD #	ADDENDUM #	MFG	MANUFACTURER
AFD	ADJUSTABLE FREQUENCY DRIVE	MH	MANHOLE, METAL HAULIDE
AFF	ABOVE FINISHED FLOOR	MIN	MINIMUM
AIC	AMPS INTERRUPTING CAPACITY	MTD	MOUNTED
AMP	AMPERE	N	NEUTRAL
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	N.C.	NORMALLY CLOSED
AWG	AMERICAN WIRE GAUGE	N.O.	NORMALLY OPEN
B.C.	BARE COPPER	NEG	NATIONAL ELECTRIC CODE
BLDG	BUILDING	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
BRKR	BREAKER	NF	NON FUSED
C.	CONDUIT	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
C.B.	CIRCUIT BREAKER	NIC	NOT IN CONTRACT
CL	CENTER LINE	NO.	NUMBER
CLT	CIRCUIT	OL	OVERLOAD
CLG	CEILING	OB	OUTLET BOX
CONN.	CONNECTION	OD	OUTSIDE DIAMETER
CONT.	CONTINUOUS	%	PERCENT
CJ	COPPER	/	PHASE
DISC.	DISCONNECT	P.	POLE
DN.	DOWN	P.T.	POTENTIAL TRANSFORMER
DPST	DOUBLE POLE SINGLE THROW	PB	PULL BOX
DWG	DRAWING	PNL	PANEL
E.C.	ELECTRICAL CONTRACTOR (OR GENERAL CONTRACTOR)	PR	PAIR
EMT	ELECTRIC METALLIC TUBING	PRI	PRIMARY
EP	EMERGENCY POWER	PVC	POLYVINYL CHLORIDE
EQUIP	EQUIPMENT	RECEPT	RECEPTACLE
EST	ESTIMATE	SIN	SOLID NEUTRAL
FLA	FULL LOAD AMPERES	SCA	SHORT CIRCUIT AMPS
FLR	FLOOR	SEC.	SECONDARY
FNC	FLEXIBLE NON-METALLIC CONDUIT	SF	SQUARE FOOT
FT.	FEET	SHT	SHEET
GALV.	GALVANIZED	SW	SWITCH
GFI	GROUND FAULT INTERRUPTING	SWBD	SWITCHBOARD
GND	GROUND	SYS.	SYSTEM
GRS	GALVANIZED RIGID STEEL CONDUIT	TEMP.	TEMPERATURE
HP.	HORSEPOWER	THHN	THWN NYLON JACKETED WIRE
HR	HOUR	TTB	TELEPHONE TERMINAL BOARD
HT	HEIGHT	TTO	TELEPHONE TERMINAL CABINET
HZ	HERTZ (CYCLES)	TV	TELEVISION
IMC	INTERMEDIATE METALLIC CONDUIT	TVEC	TELEVISION EQUIP. CABINET
IN.	INCHES	TVTC	TELEVISION TERMINAL CABINET
J.B.	JUNCTION BOX	TYP	TYPICAL
KVA	KILOVOLT AMPERE	ULL	UNDERWRITERS' LABORATORIES
KW	KILOWATTS	U.O.N.	UNLESS OTHERWISE NOTED
KWH	KILOWATT HOUR	V	VOLT
LFNC-2	LIQUIDTIGHT FLEXIBLE NON-METALLIC CONDUIT	VA	VOLT AMPERES
M.C.B.	MAIN CIRCUIT BREAKER	W	WIRE
M.L.O.	MAIN LUGS ONLY	W.P.	WEATHERPROOF
MAINT.	MAINTENANCE	XFMR	TRANSFORMER
		Y	WYE
		YD.	YARD
		YR.	YEAR

**ELECTRICAL SYMBOL LEGEND**

SYMBOL	DESCRIPTION	DESIGN SELECTION	APPROVED SELECTION	APPROVED SELECTION	REMARKS
	WALL OUTLET BOX AND 20 AMP DUPLEX RECEPTACLE	P&S #P5362	HUBBELL #HBL5352	LEVITON #5362	b
	TWO GANG WALL OUTLET BOX AND TWO 20 AMP DUPLEX RECEPTACLES	(2)-P&S #P5362	(2)-HUBBELL #HBL5352	(2)-LEVITON #5362	b
	WALL OUTLET BOX AND 20 AMP ISOLATED GROUND DUPLEX RECEPTACLE (ORANGE DEVICE). PLATE TO BE STAINLESS STEEL ENGRAVED TO READ "UPS POWER".	P&S #G5362	HUBBELL #G5362	LEVITON #5362-IG	b
	FLUSH WALL JUNCTION BOX AND BLANK PLATE				b
	SURFACE JUNCTION BOX AND BLANK PLATE, WALL MTD. OR MTD. TO CEILING/STRUCTURE AS INDICATED	STEEL CITY	RACO		a,b,d,e
	DISCONNECT SWITCH, SIZE AS NOTED				df
	120/208V BRANCH CIRCUIT PANELBOARD SURFACE MOUNTED				b
	277/480V BRANCH CIRCUIT PANELBOARD SURFACE MOUNTED				f
	TRANSFORMER				f
	HOME RUN WIRING, ONE CIRCUIT PER ARROW HEAD				
	CONDUIT CAPPED OFF				
	CONDUIT CONTINUED				
	CONDUIT RUN UP				
	CONDUIT RUN DOWN				
	CONDUIT SEAL-OFF FITTING	CROUSE HINDS	APPLETON		c
	GROUND WIRE, CONCEALED				
	GROUND OR GROUND ROD AS NOTED				

**REMARK NOTES**

- REMARKS:
- SUPPORT OUTLET BOX FROM STRUCTURE WITH (1) 3/8" ALL THREADS MINIMUM. BOXES LARGER THAN 25 SQUARE INCHES SHALL BE SUPPORTED WITH (2) 3/8" ALL THREADS MINIMUM.
  - JUNCTION/OUTLET BOX SHALL BE SIZED AS REQUIRED FOR CONDUCTOR/DEVICE FILL PER N.E.C.
  - THREADED CONDUIT HUBS SHALL BE SIZED AND CONFIGURED AS REQUIRED FOR APPLICATION.
  - WHEN SURFACE JUNCTION BOX SYMBOL IS COMBINED WITH DEVICE SYMBOL, PROVIDE APPROPRIATE SURFACE PLATE FOR OUTLET APPLICATION AND CAST OUTLET BOX.
  - MAINTAIN WORKING CLEARANCES IN STRICT ACCORDANCE WITH N.E.C. COORDINATE EXACT LOCATION OF EQUIPMENT WITH ALL DISCIPLINES (I.E. STRUCTURAL, HVAC, PLUMBING, FIRE PROTECTION, KITCHEN, MILLWORK, ETC.) PRIOR TO ROUGH-IN TO MAINTAIN CLEARANCES.
  - OUTLET BOX SHALL BE SIZED PER SYSTEM INSTALLER REQUIREMENTS.

**GENERAL NOTES**

- NOTES:
- ALL DEVICES TO BE GREY WITH SMOOTH METAL #302 S.S. PLATES UNLESS OTHERWISE NOTED. PROVIDE MID-SIZE OR JUMBO COVER PLATES FOR CMU WALLS.
  - "R" BY DEVICE DENOTES EXISTING TO BE REMOVED COMPLETELY.
  - "H" BY DEVICE DENOTES DEVICE TO BE MOUNTED HORIZONTALLY.
  - MOUNT SWITCHES AT 48" AFF TO TOP.
  - SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
  - ALL ITEMS NOTED ON THE LEGENDS DO NOT NECESSARILY APPEAR ON PLANS.

**ELECTRICAL GENERAL NOTES**

- THE FOLLOWING GENERAL NOTES AS LISTED BELOW SHALL APPLY TO ALL DISPLAY SYSTEM REQUIREMENTS AS INDICATED IN THE PROCUREMENT PACKAGE.
- DRAWINGS FOR THIS WORK ARE DIAGRAMMATIC AND INTENDED TO CONVEY THE EXTENT, GENERAL ARRANGEMENT AND LOCATIONS OF THE WORK. BECAUSE OF THE SCALE OF THE DRAWINGS, CERTAIN BASIC ITEMS SUCH AS ACCESS PANELS, CONDUITS, CABINET SIZES, PENETRATION SLEEVES, PULL BOXES, BACKBOXES AND JUNCTION BOXES MAY NOT BE SHOWN. CONTRACTOR IS RESPONSIBLE FOR INCLUDING ALL ITEMS WHERE REQUIRED BY CODE, MANUFACTURER AND RELATED SPECIFICATION SECTIONS FOR THE PROPER INSTALLATION OF ALL WORK.
- DUE TO SCALE OF THE DRAWINGS, ALL DEVICE SYMBOLS ARE SHOWN ON DRAWINGS AS CLOSE AS POSSIBLE TO THEIR INTENDED LOCATION. CONTRACTOR SHALL COORDINATE IN THE FIELD THE PROPER INSTALLATION OF ALL EQUIPMENT, DEVICES, CONTROLS AND CABLING. REFER TO RELATED SPECIFICATIONS IN THE PROCUREMENT DOCUMENTS FOR ADDITIONAL REQUIREMENTS.
- COORDINATE WITH ALL TRADES AND SYSTEM INTEGRATORS ANY CONDITIONS RELATED TO THE INSTALLATION OF THE DISPLAY SYSTEM. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE TRADE ALL INSTALLATION REQUIREMENTS IMPACTING THE PLACEMENT OF ALL SYSTEM COMPONENTS TO THE SATISFACTION OF ALL CONCERNED TRADES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING EXACT LOCATION(S) OF ALL DATA OUTLETS WITH ELECTRICAL RECEPTACLES PRIOR TO INSTALLATION.
- REFER TO ALL RELATED PROCUREMENT DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND/OR REQUIREMENTS RELATED TO THE INSTALLATION, PROGRAMMING, TESTING, COMMISSIONING AND CERTIFICATION OF ALL DISPAY SYSTEMS.

**OCULUS ELECTRICAL SPECIFICATIONS**

**GENERAL**

- THE WORK DEFINED IN THESE SPECIFICATIONS INCLUDES ALL MATERIAL, SYSTEMS, COMPONENTS, AND INSTALLATION REQUIREMENTS OF THE DISPLAY SYSTEM INTEGRAL TO THE OCULUS AND ANY RELATED WORK REQUIRED FOR A COMPLETE AND WORKING INSTALLATION IN COMPLIANCE WITH ALL HAS CODES AND REGULATIONS. THE LED DISPLAY SYSTEM PROVIDER IS RESPONSIBLE FOR PROVIDING INFORMATION ON THE SYSTEM TO ASSIST THE GC IN OBTAINING ALL APPROVALS AND PERMITS REQUIRED BY HAS. THE DISPLAY SYSTEM SHALL BE ENGINEERED TO MEET THE DESIGN INTENT OF THE LED DISPLAY SYSTEM CONTRACT DOCUMENTS. ENGINEERING OF THE DISPLAY SYSTEM IS A REQUIREMENT OF THE LED DISPLAY SYSTEM PROVIDER CONTRACT. THE SYSTEM NEEDS SHALL BE ENGINEERED AND FUNCTION TO THE DESIGN INTENT OF THE CONTRACT DOCUMENTS. THE CONTRACT DOCUMENTS INCLUDE HAS'S DESIGN INTENT. THE SHOP DRAWING STAGE WILL ALLOW FOR CONFIRMATION THAT THE DESIGN INTENT WAS MET.
- THE SYSTEM CONSISTS OF ONE (1) KEY ELEMENT:
  - THE OCULUS
- THESE SPECIFICATIONS ARE FOR SPECIAL EQUIPMENT OR MATERIALS REQUIRED FOR THE INSTALLATION OF THE OCULUS ELEMENTS. REFER TO DIVISION 26 SPECIFICATIONS FOR THE STC FOR BASIC ELECTRICAL REQUIREMENTS AND MATERIALS INCLUDING BUT NOT LIMITED TO:
  - CONDUIT
  - BUILDING WIRE
  - JUNCTION BOXES
  - GROUNDING AND BONDING
  - IDENTIFICATION
- NOT USED
- THE SEISMIC SUPPORT AND RESTRAINT SYSTEM FOR ALL MEDIA SYSTEMS SHALL BE DESIGNED AND BUILT BY THE LED DISPLAY SYSTEM PROVIDER. IT SHALL COMPLY WITH CURRENT IBC REQUIREMENTS FOR A SAFETY IMPORTANCE FACTOR OF 2.
- VERIFY PROPER FUNCTIONING OF THE DISPLAY SYSTEM BEFORE FINAL INSPECTION BY THE HAS/DESIGNER/ARCHITECT AND ENGINEER OF RECORD.
- PROVIDE CORE DRILLING AND FIREPROOFING AT ALL PENETRATIONS THROUGH SLABS AND FIRE RATED WALLS. PROVIDE IN ACCORDANCE WITH HAS/ITRP BUILDING CODES.

**EQUIPMENT & MATERIAL:**  
TBD

**GENERAL SCOPE OF WORK**  
TBD

**GENERAL NOTES**  
TBD



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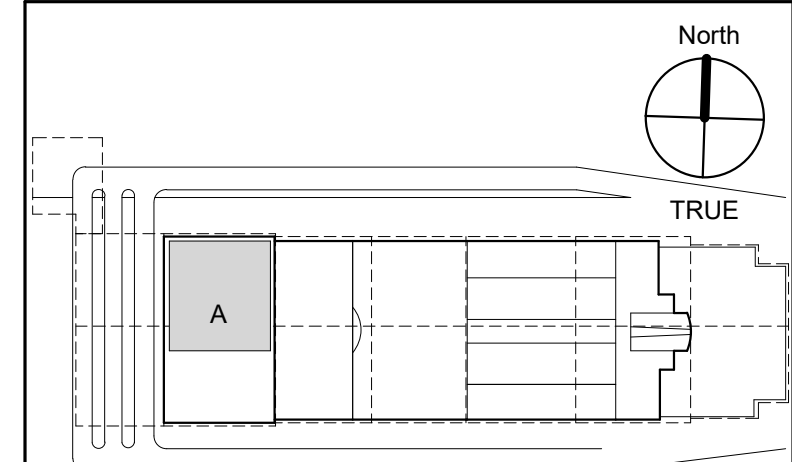
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SHEET NAME:  
OVERALL PLAN - B1 BASEMENT

SHEET No. TE112.00 SCALE: 1" = 20'-0"

SHEET SIZE: 30"x42" ARCH E1

A B C D E

P4 P5 P6 P7 P8 P9 P10 F1

PH  
PG.3  
PG  
PF  
PE.3  
PE  
PD.3  
PD  
PC  
PB  
PA

PH  
PG.3  
PG  
PF  
PE.3  
PE  
PD.3  
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PC  
PB  
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P4 P5 P6 P7 P8 P9 P10

**A1** OVERALL PLAN - B1 BASEMENT  
TE112.00 SCALE: 1" = 20'-0"

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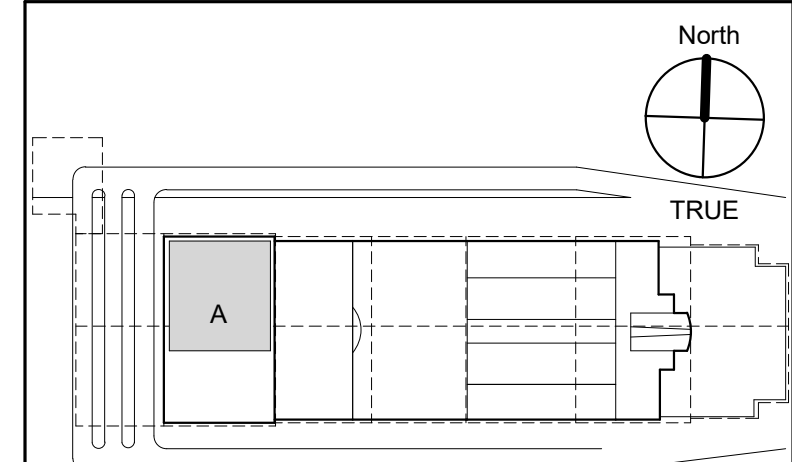
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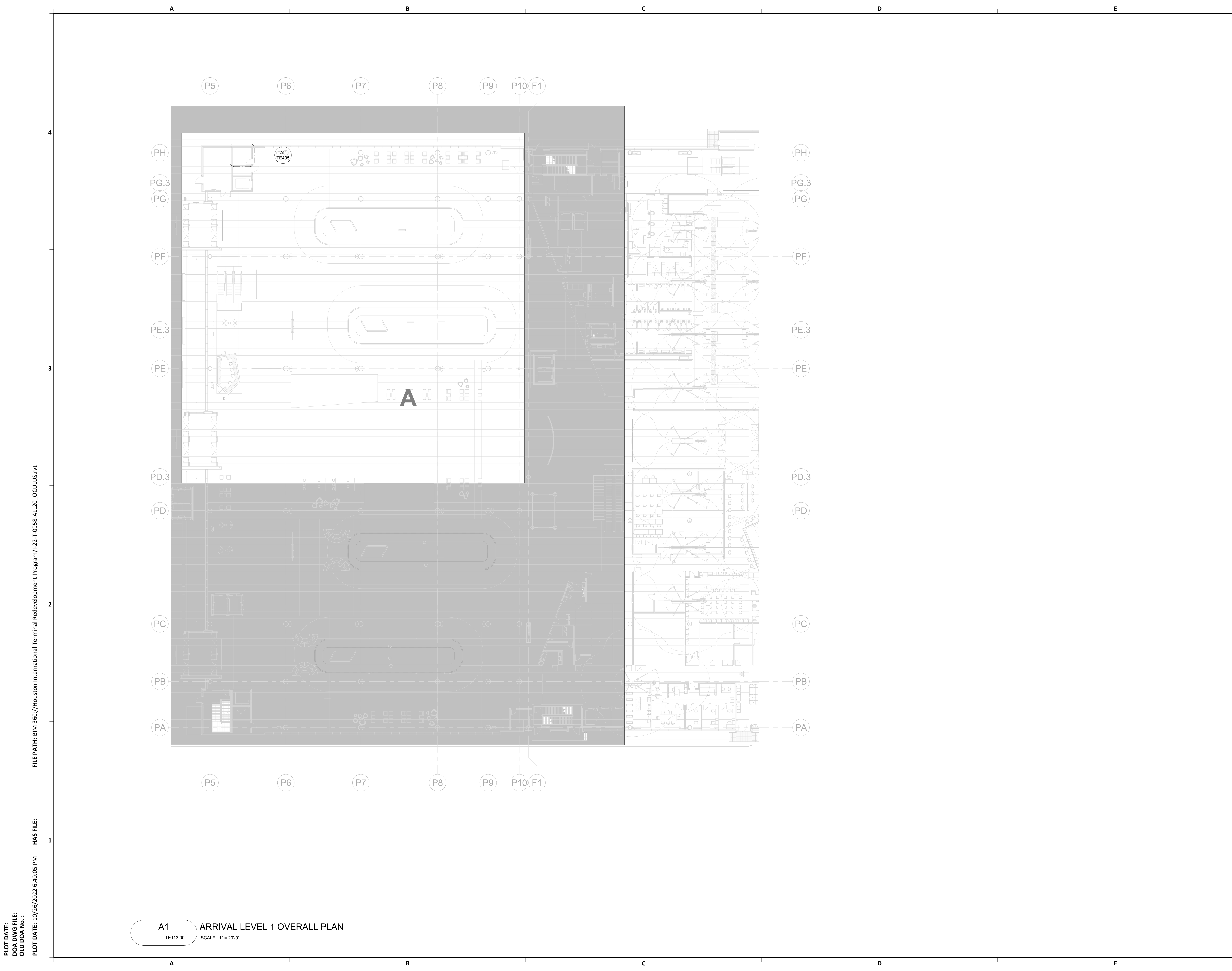
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SHEET NAME:  
OVERALL PLAN - L1 ARRIVALS

SHEET No. TE113.00 SCALE: 1"=20'-0"

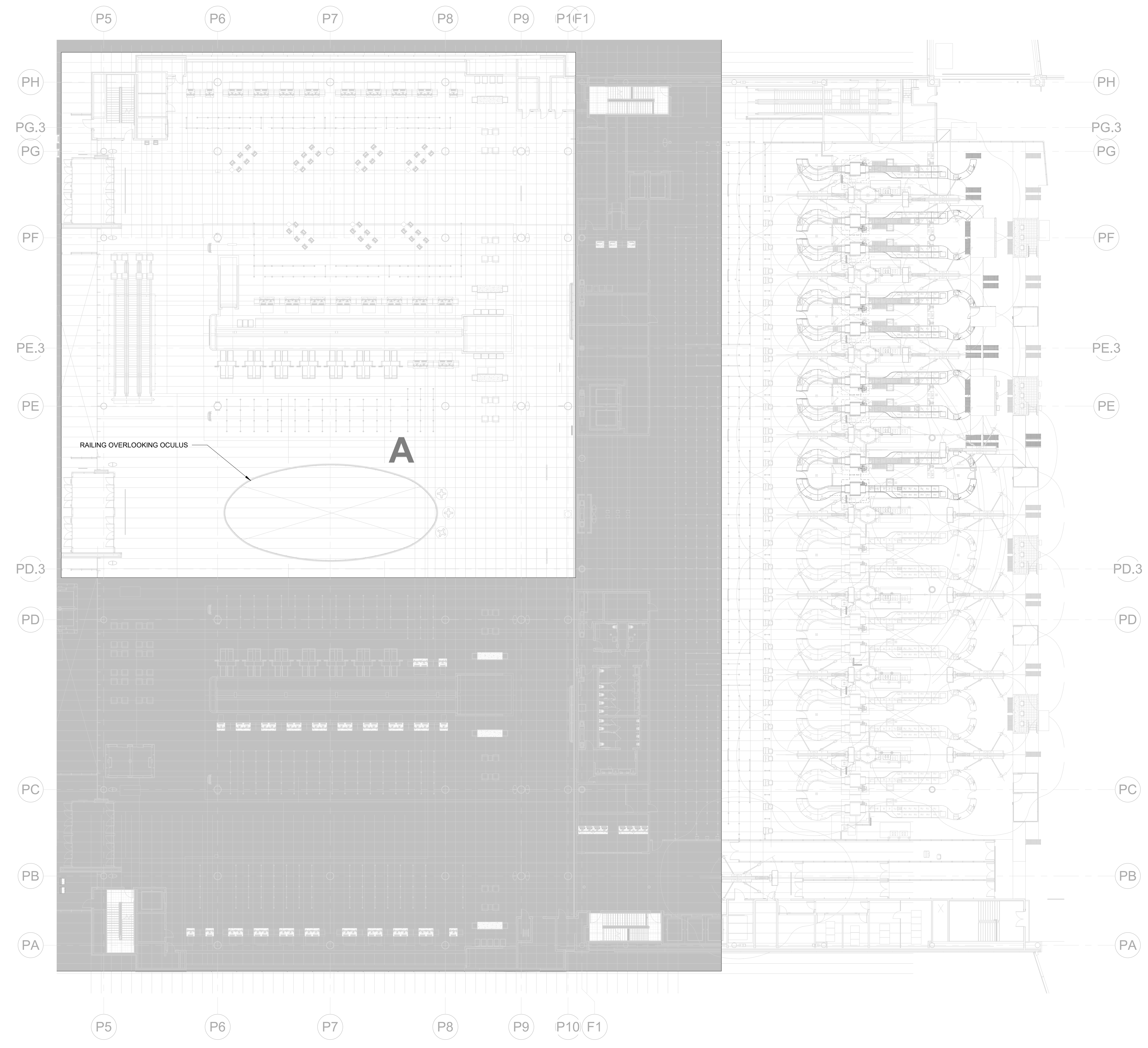
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**A1** ARRIVAL LEVEL 1 OVERALL PLAN  
TE113.00 SCALE: 1" = 20'-0"

PLOT DATE: 10/26/2022 6:40:05 PM  
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 PLOT DATE: 10/26/2022 6:41:40 PM  
 HAS FILE: I-22-T-0958-ALL20\_OCULUS.rvt



**A1** OVERALL PLAN - L2 DEPARTURES  
 TE115 SCALE: 1" = 20'-0"

**GENERAL NOTES:**

- DEPARTURES LEVEL FLOOR PLAN SHOWN FOR REFERENCE ONLY. CURRENTLY NO WORK PLANNED ON THIS LEVEL. ALL OCULUS INFRASTRUCTURE LOCATED IN CEILING OF ARRIVALS LEVEL.

**KEYED NOTES:**

NUMBER

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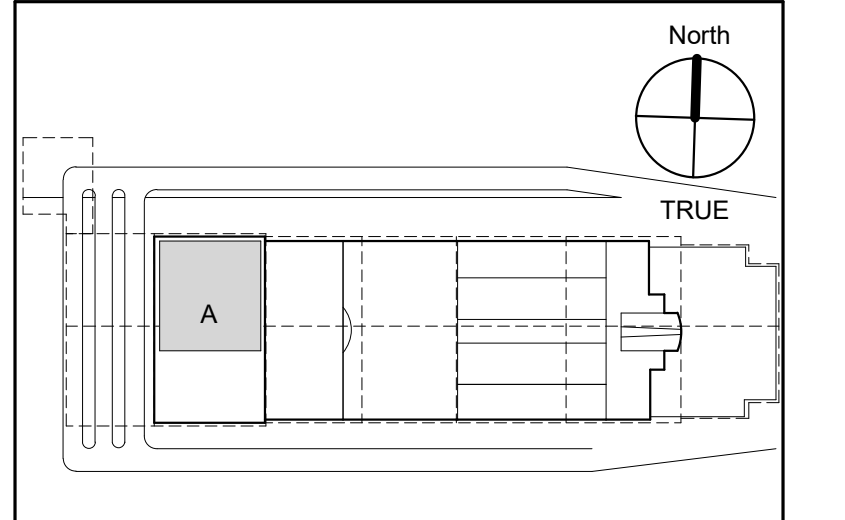
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 OVERALL PLAN - L2 DEPARTURES

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SHEET SIZE: 30"x42" ARCH E1



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**KEYED NOTES:**

NUMBER	DESCRIPTION
①	ONE 4 INCH CONDUIT FROM IDF TO ARRIVALS LEVEL CEILING TO BE PROVIDED BY ITRP CONTRACTOR FOR THE EXCLUSIVE USE OF FEEDING LOW VOLTAGE COMMUNICATION CABLING TO THE OCULUS. LED CONTRACTOR SHALL BE RESPONSIBLE FOR EXTENDING THIS PATHWAY AS NEEDED TO SUPPORT INFRASTRUCTURE NEEDS.

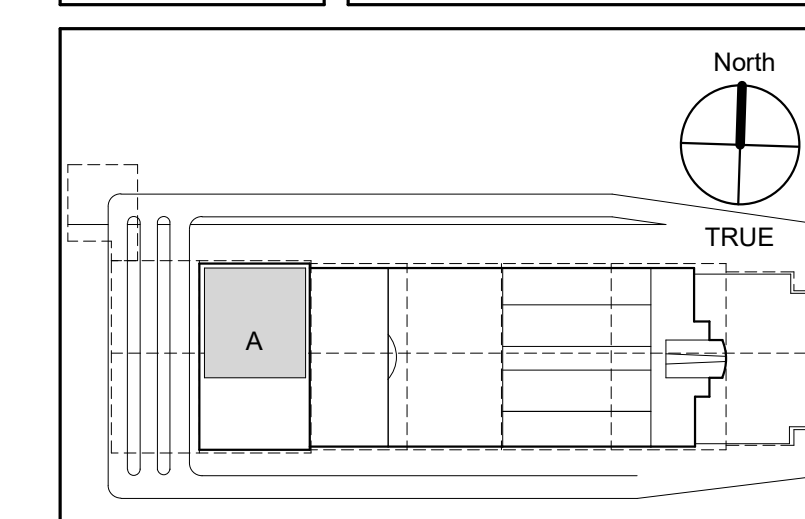
DESIGNER PROJECT No.: **2022-109**  
PROJECT STATUS: **90%CD**

REVISIONS			
NO.	DESCRIPTION	DATE	BY

DESIGN BY: C.M.C. & R.W.H.  
DRAWN BY: A.A & P.I.  
CHECKED BY: C.M.C. & R.W.H.  
ISSUE DATE: 10/26/22  
APPROVED BY: M.M.  
APPROVAL DATE: 10/26/22

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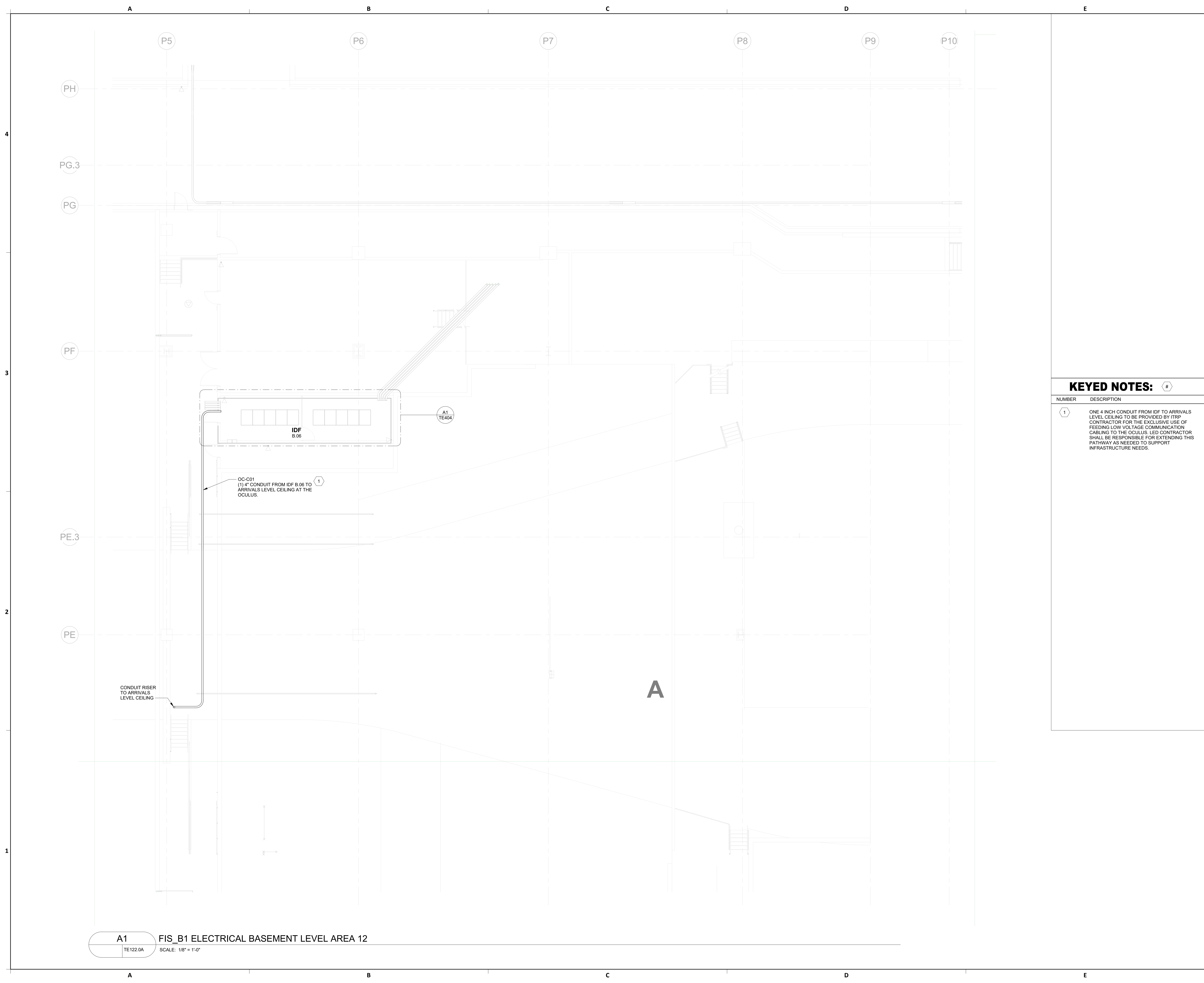
**CD**  
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SHEET NAME:  
BASEMENT LEVEL FLOOR PLAN

SHEET No. **TE122.0A** SCALE: **1/8" = 1'-0"**

SHEET SIZE: 30"x42" ARCH E1



**A1** FIS\_B1 ELECTRICAL BASEMENT LEVEL AREA 12  
TE122.0A SCALE: 1/8" = 1'-0"

PLOT DATE: 10/26/2022 6:41:41 PM HAS FILE: FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt  
 PLOT DATE: 10/26/2022 6:41:41 PM HAS FILE: FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt  
 PLOT DATE: 10/26/2022 6:41:41 PM HAS FILE: FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt





3780 N TERMINAL ROAD  
HOUSTON, TX 77032

**GEORGE BUSH  
INTERCONTINENTAL AIRPORT**  
CONSTRUCTION DOCUMENTS  
OCULUS

C.I.P. No. **A-0958** A.I.P. No.  
C.O.H. No. **4600015176** D.O.A. No.  
B.S.G. No. **BSG** H.A.S. No. **0958**  
ITRP T.I.P. No. **ITRP TIP**

**Burns**

BURNS ENGINEERING, INC | 215 975-2700  
7700 COMMERCE SQUARE  
2001 MARKET ST, SUITE 600  
PHILADELPHIA, PA 19103

DESIGNER PROJECT No.: **2022-109**  
PROJECT STATUS: **90%CD**

**REVISIONS**

No.	DESCRIPTION	DATE	BY

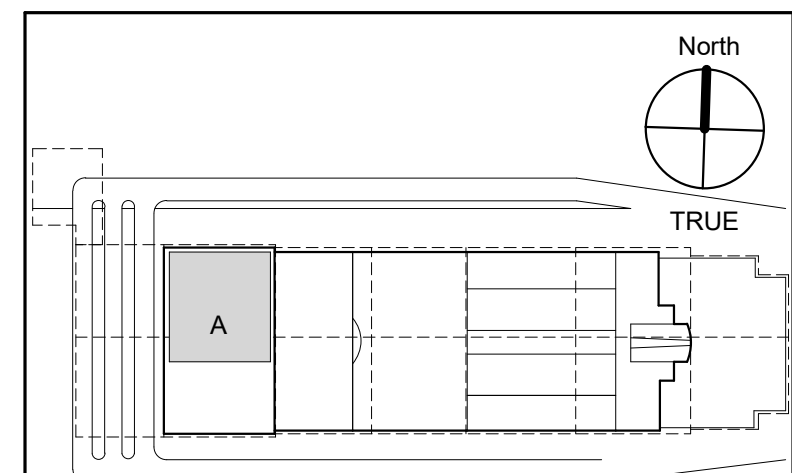
DESIGN BY: C.M.C. & R.W.H.  
DRAWN BY: A.A & P.I.  
CHECKED BY: C.M.C. & R.W.H.  
ISSUE DATE: 10/26/22  
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APPROVAL DATE: 10/26/22

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Drawing Status

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90%CD

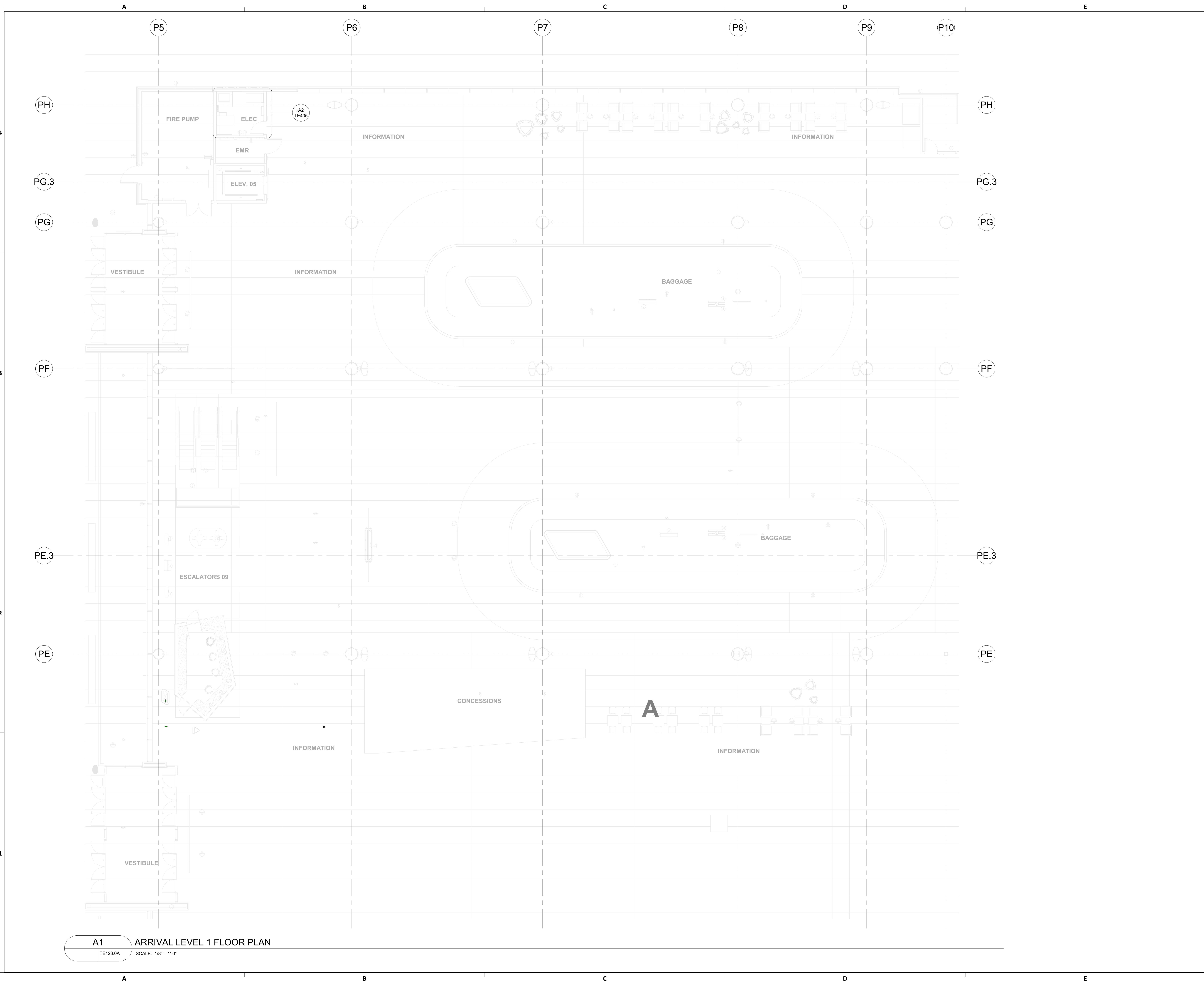
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SHEET NAME:  
ARRIVAL LEVEL 1 FLOOR PLAN

SHEET No. **TE123.0A** SCALE: **1/8" = 1'-0"**

SHEET SIZE: 30"x42" ARCH E1



**A1 ARRIVAL LEVEL 1 FLOOR PLAN**

TE123.0A SCALE: 1/8" = 1'-0"

PLOT DATE: 10/26/2022 6:41:43 PM HAS FILE:  
FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt  
PLOT DATE: 10/26/2022 6:41:43 PM HAS FILE:  
PLOT DATE: 10/26/2022 6:41:43 PM HAS FILE:  
PLOT DATE: 10/26/2022 6:41:43 PM HAS FILE:



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**GEORGE BUSH  
INTERCONTINENTAL AIRPORT**  
CONSTRUCTION DOCUMENTS  
OCULUS

C.I.P. No. **A-0958** A.I.P. No.  
C.O.H. No. **4600015176** D.O.A. No.  
B.S.G. No. **B.S.G.** H.A.S. No. **0958**  
TRP T.I.P. No.

**Burns**

BURNS ENGINEERING, INC | 215 979-2700  
770 COMMERCIAL SQUARE  
201 MARKET ST. SUITE 600  
PHILADELPHIA, PA 19103

DESIGNER PROJECT No.: **2022-109**  
PROJECT STATUS: **90%CD**

**REVISIONS**

No.	DESCRIPTION	DATE	BY

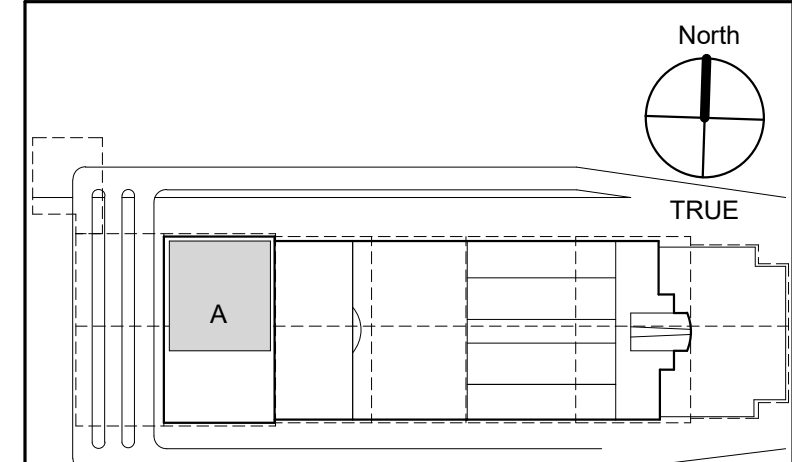
DESIGN BY: C.M.C. & R.W.H.  
DRAWN BY: A.A & P.I.  
CHECKED BY: C.M.C. & R.W.H.  
ISSUE DATE: 10/26/22  
APPROVED BY: M.M  
APPROVAL DATE: 10/26/22

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of  
HOUSTON AIRPORT SYSTEM

Drawing Status

**CD**  
90%CD

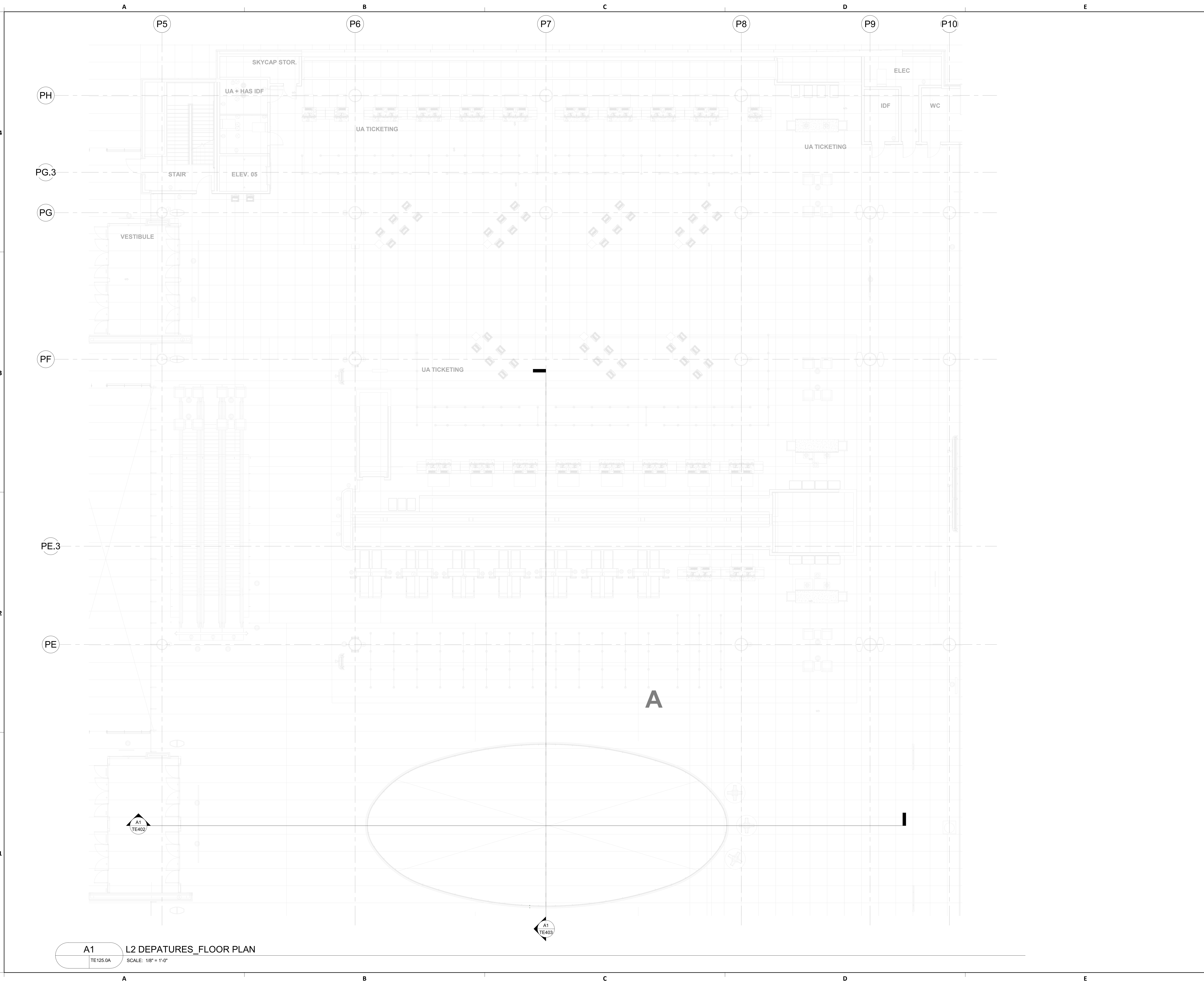
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF MATTHEW JAMES MEIER ON 10/26/2022. IT IS NOT TO BE USED FOR BIDDING.



SHEET NAME:  
DEPARTURE LEVEL 2 FLOOR PLAN

SHEET No. **TE125.0A** SCALE: **1/8" = 1'-0"**

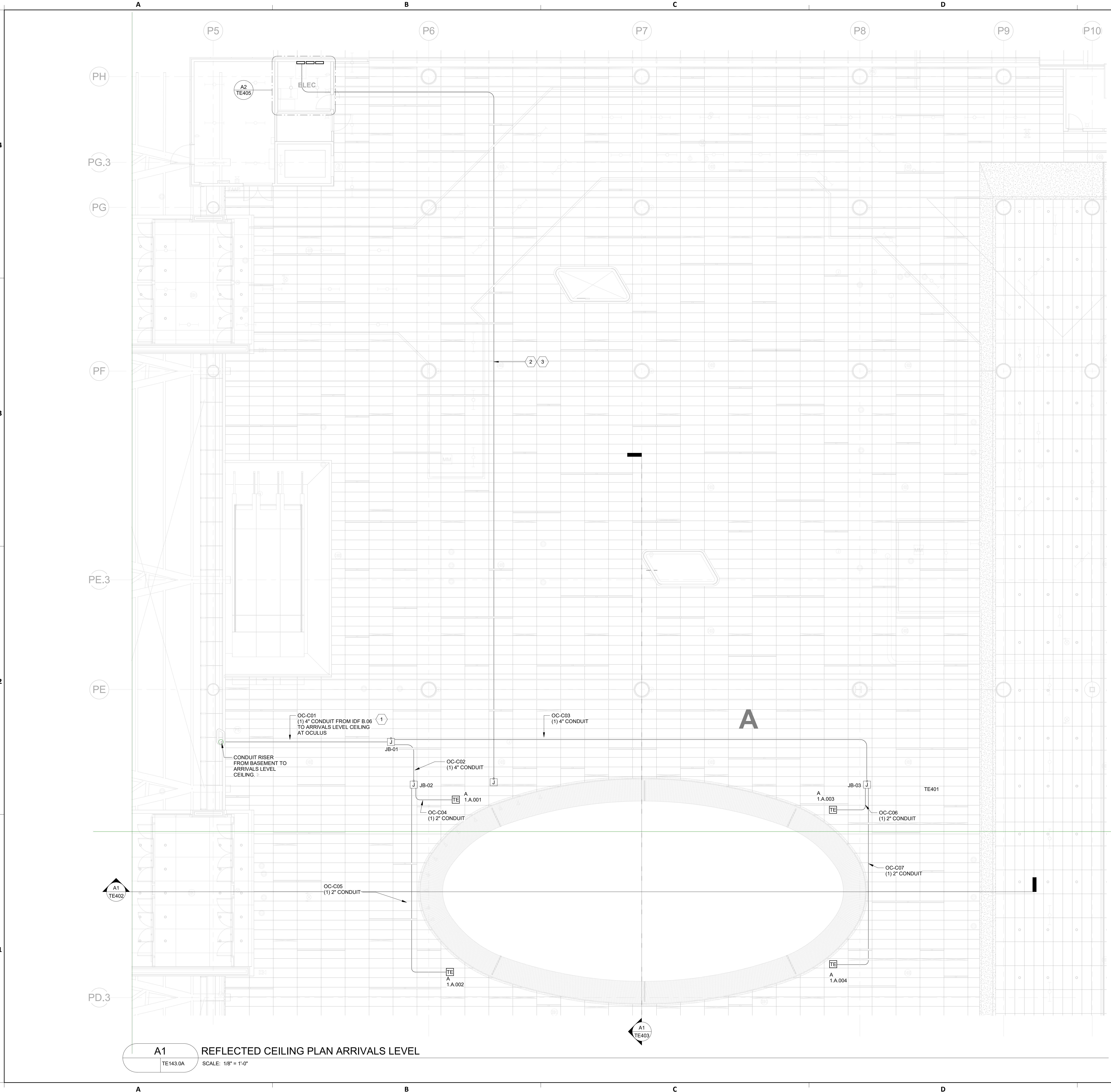
SHEET SIZE: 30"x42" ARCH E1



**A1** L2 DEPARTURES\_FLOOR PLAN  
TE125.0A SCALE: 1/8" = 1'-0"

PLOT DATE: 10/26/2022 6:41:56 PM HAS FILE:  
DOA DWG FILE:  
OLD DOA No. :  
FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt

PLOT DATE: 11/21/2022 11:02:23 AM  
 DOA DWG FILE: I-22-T-0958-ALL20\_OCULUS.rvt  
 OLD DOA No.:  
 HAS FILE:  
 FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt



**A1 REFLECTED CEILING PLAN ARRIVALS LEVEL**  
 TE143.0A SCALE: 1/8" = 1'-0"

**GENERAL NOTES:**

1. CONDUIT ROUTING AND JUNCTION BOX LOCATIONS ARE DIAGRAMMATIC IN NATURE. CONTRACTOR SHALL COORDINATE PATHWAY ROUTING AND ENCLOSURE LOCATION AND ABOVE CEILING MOUNTING WITH OTHER TRADES.

**KEYED NOTES:**

- | NUMBER | DESCRIPTION   |
|--------|---|
| 1      | ONE 4 INCH CONDUIT FROM IDF TO ARRIVALS LEVEL CEILING TO BE PROVIDED BY ITRP CONTRACTOR FOR THE EXCLUSIVE USE OF FEEDING LOW VOLTAGE COMMUNICATION CABLING TO THE OCULUS. LED CONTRACTOR SHALL BE RESPONSIBLE FOR EXTENDING THIS PATHWAY AS NEEDED TO SUPPORT INFRASTRUCTURE NEEDS.   |
| 2      | LED CONTRACTOR TO INSTALL 4" CONDUIT & CABLING FROM THE ELECTRICAL ROOM ON ARRIVALS LEVEL TO ARRIVALS LEVEL CEILING AND ONTO OCULUS FOR THE EXCLUSIVE USE OF PROVIDING POWER TO THE OCULUS. PROVIDE PULL BOXES AS NEEDED BY CODE. ALL CONDUIT AND CABLE SHOULD BE CONCEALED ABOVE CEILING. COORDINATE INSTALL OF CONDUIT WITH ITRP (TEAM/CONTRACTOR) ESPECIALLY FOR AREAS ABOVE BAGGAGE CAROUSEL. |
| 3      | EXACT ROUTING OF CONDUIT FROM PANEL TO OCULUS NEEDS TO BE COORDINATED AND PRESENTED TO ENGINEER PRIOR TO INSTALL. ANTICIPATE THE OVERALL LENGTH OF THE CONDUIT TO BE LONGER THAN SHOWN HERE DUE TO COORDINATION WITH THE OVERHEAD BAGGAGE CAROUSEL EQUIPMENT.   |

**HOUSTON AIRPORTS**  
 3780 N TERMINAL ROAD  
 HOUSTON, TX 77032  
**GEORGE BUSH INTERCONTINENTAL AIRPORT**  
 CONSTRUCTION DOCUMENTS  
 OCULUS  
 C.I.P. No. **A-0958** A.I.P. No.  
 C.O.H. No. **4600015176** D.O.A. No.  
 B.S.G. No. H.A.S. No. **0958**  
 ITRP T.I.P. No.

**Burns**  
 BURNS ENGINEERING, INC | 215 978-2700  
 TWO COMMERCE SQUARE  
 301 MARKET ST. SUITE 600  
 PHILADELPHIA, PA 19103

DESIGNER PROJECT No.: **2022-109**  
 PROJECT STATUS: **90%CD**

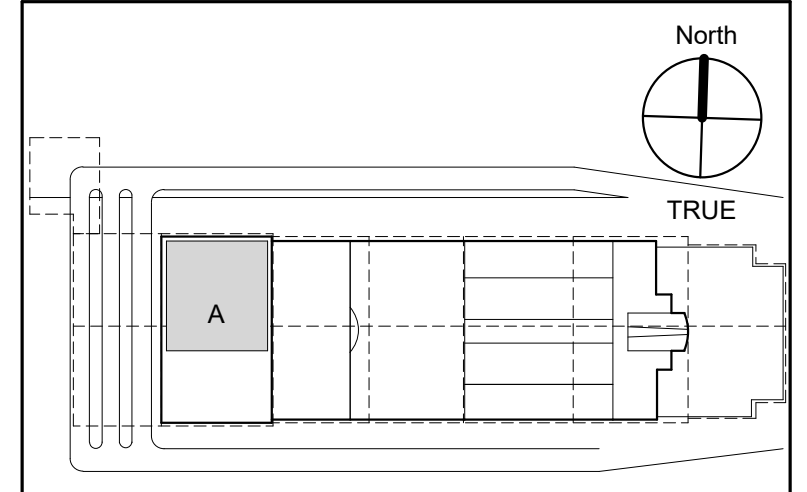
**REVISIONS**

No.	DESCRIPTION	DATE	BY
1	ELECTRICAL UPDATES	11/21/22	C.M.C.

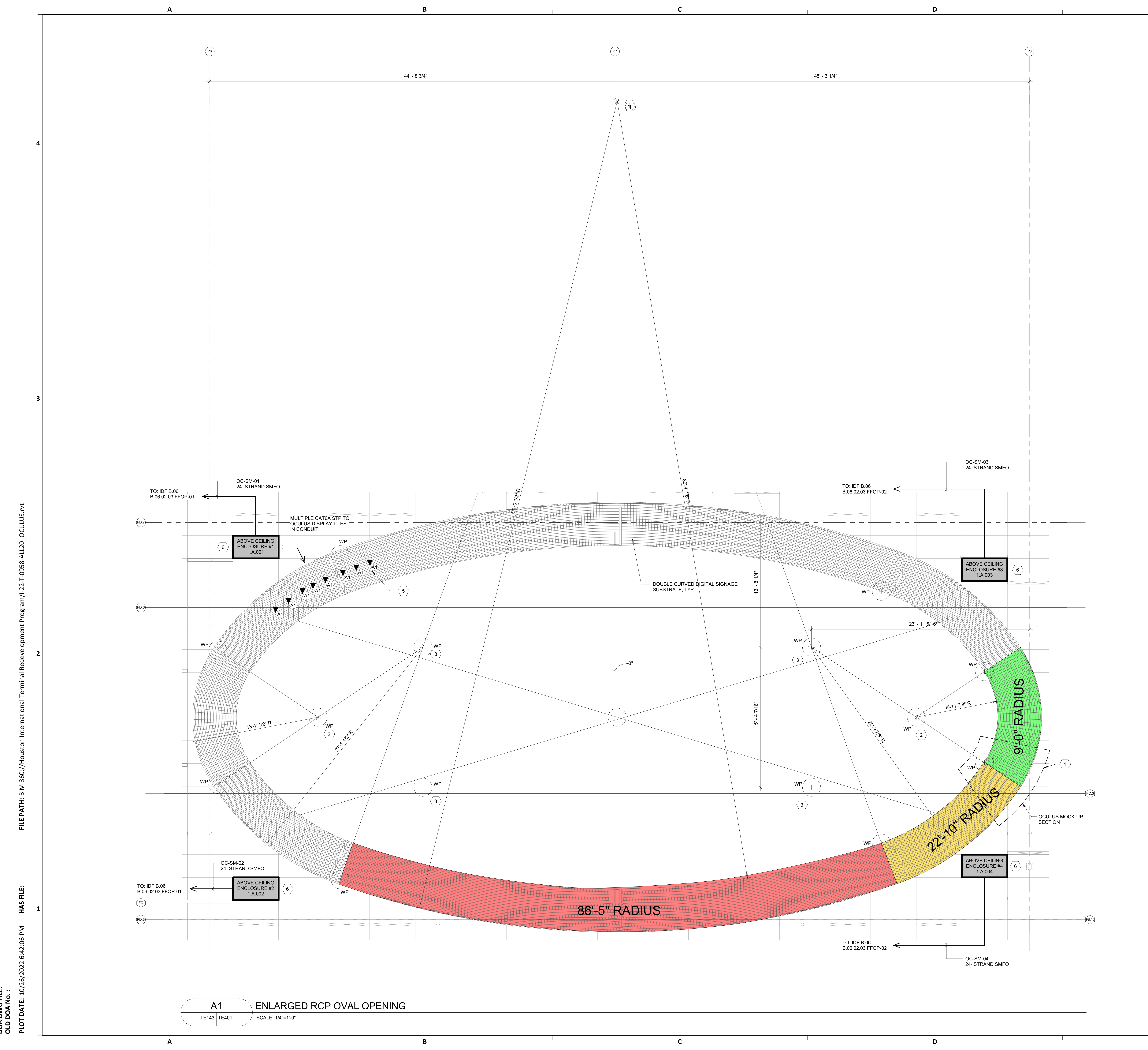
DESIGN BY: C.M.C. & R.W.H.  
 DRAWN BY: A.A. & P.I.  
 CHECKED BY: C.M.C. & R.W.H.  
 ISSUE DATE: 11/21/22  
 APPROVED BY: M.M.  
 APPROVAL DATE: 11/21/22

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 of  
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**CD**  
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SHEET NAME: ARRIVAL LEVEL 1 REFLECTED CEILING PLAN  
 SHEET No. TE143.0A SCALE: 1/8" = 1'-0"  
 SHEET SIZE: 30"x42" ARCH E1



**GENERAL NOTES:**

1 THE OCULUS SHAPE IS NOT A PERFECT ELLIPSE BUT IS CONSTRUCTED OF THREE SEPARATE RADII AS INDICATED IN THIS DRAWING. CONTRACTOR SHALL COORDINATE WITH ITRP ARCHITECT AND CONTRACTOR TO CONFIRM FINAL OCULUS DIMENSIONS AND ADJUST LED LAYOUT ACCORDINGLY.

**KEYED NOTES:**

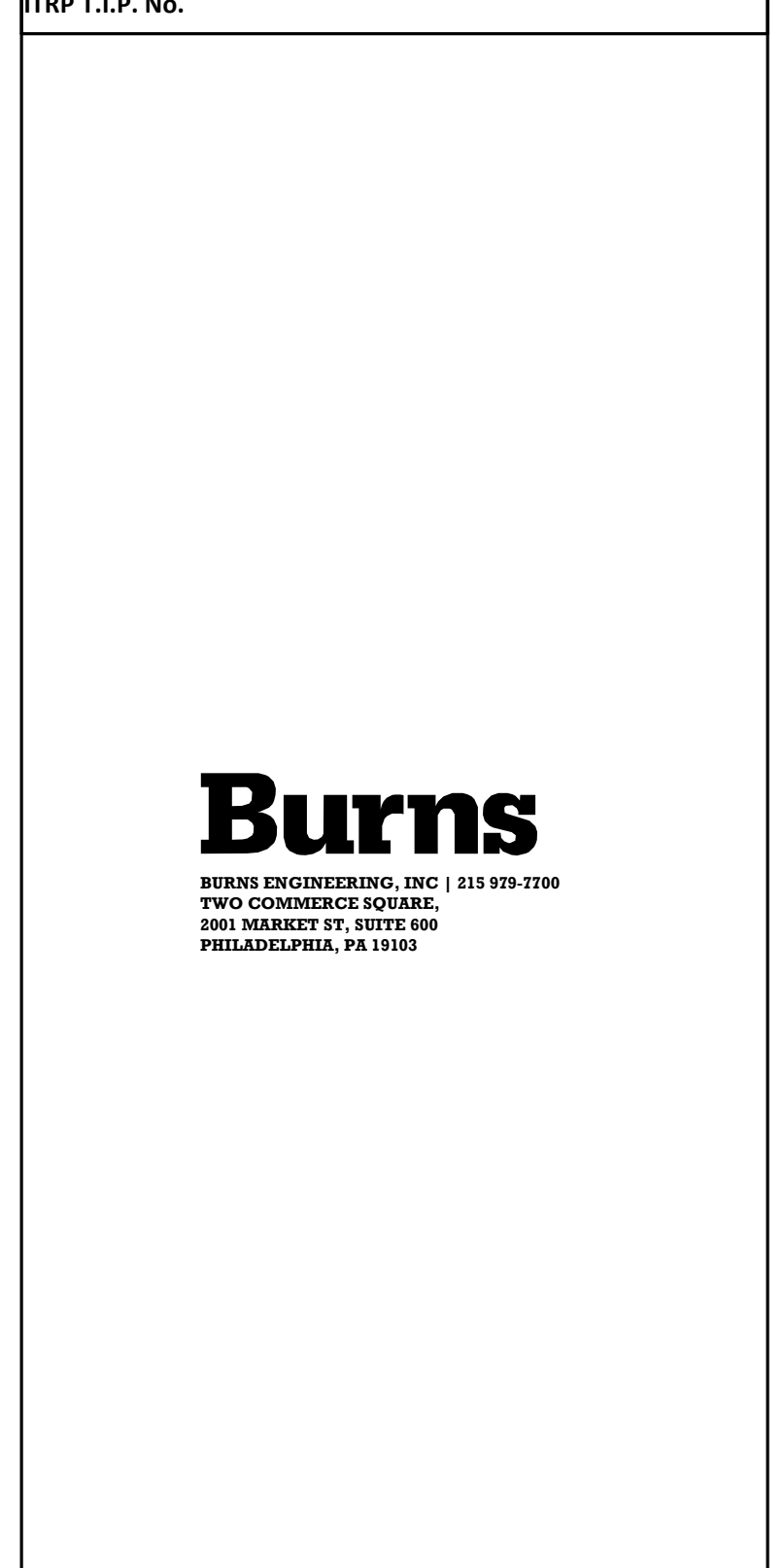
- 1 PROVIDE MOCK-UP OF OCULUS BASED ON TRANSITION POINT BETWEEN 9FT RADIUS AND 29FT 10IN RADIUS. PROVIDE A MINIMUM 5' LINEAR FEET OF TILE TO EACH SIDE OF THE TRANSITION POINT AT THE TOP PORTION OF THE OCULUS. WIDTH OF MOCK-UP AT THE LOWER PORTION SHOULD EXPAND IN LINE WITH PROPOSED LED TILE GEOMETRY.
- 2 CENTER POINT FOR UPPER AND LOWER RADII FOR OCULUS SHORT-END RADIUS.
- 3 CENTER POINT FOR UPPER AND LOWER RADII FOR OCULUS MIDDLE / TRANSITION RADIUS.
- 4 CENTER POINT FOR UPPER AND LOWER RADII FOR OCULUS LONG-SIDE RADIUS.
- 5 DATA OUTLET LOCATION AND QUANTITY ARE DIAGRAMMATIC IN NATURE AND ONLY INTENDED TO CONVEY GENERAL LED WALL INFRASTRUCTURE REQUIREMENTS. PROPOSED SOLUTION MAY DIFFER. REFER TO DETAILS IN TESO0 SERIES DRAWINGS FOR FURTHER INFORMATION.
- 6 EC TO PROVIDE (2) 20A, 120V CKTS FOR (4) TE AT DISPLAY FROM PANEL L1B1-V.



3780 N TERMINAL ROAD  
HOUSTON, TX 77032

**GEORGE BUSH INTERCONTINENTAL AIRPORT  
CONSTRUCTION DOCUMENTS  
OCULUS**

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C.O.H. No. **4600015176** D.O.A. No. \_\_\_\_\_  
B.S.G. No. \_\_\_\_\_ H.A.S. No. **0958**  
ITRP T.I.P. No. \_\_\_\_\_



DESIGNER PROJECT No.: **2022-109**  
PROJECT STATUS: **90%CD**

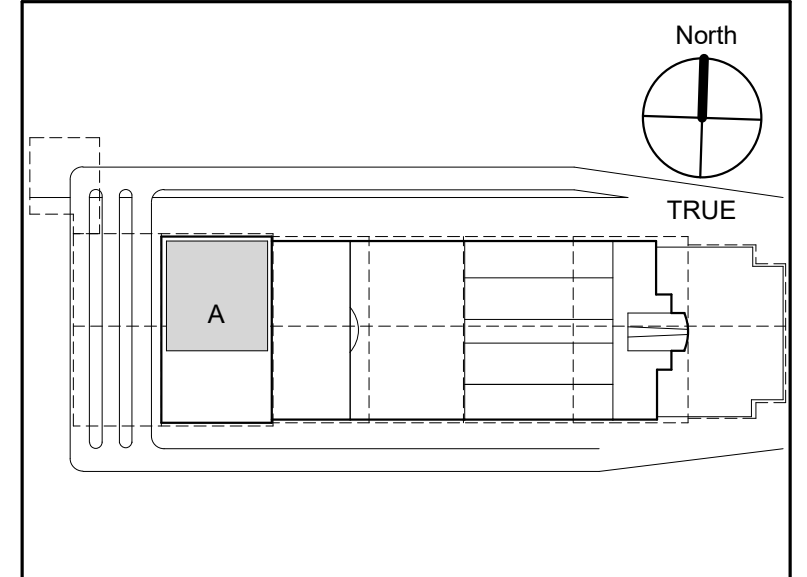
**REVISIONS**

No.	DESCRIPTION	DATE	BY

DESIGN BY: C.M.C. & R.W.H.  
DRAWN BY: A.A. & P.I.  
CHECKED BY: C.M.C. & R.W.H.  
ISSUE DATE: 10/26/22  
APPROVED BY: M.M.  
APPROVAL DATE: 10/26/22

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**CD**  
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SHEET NAME:  
ENLARGED PLAN - OCULUS

SHEET No. **TE401** SCALE: **1/4"=1'-0"**

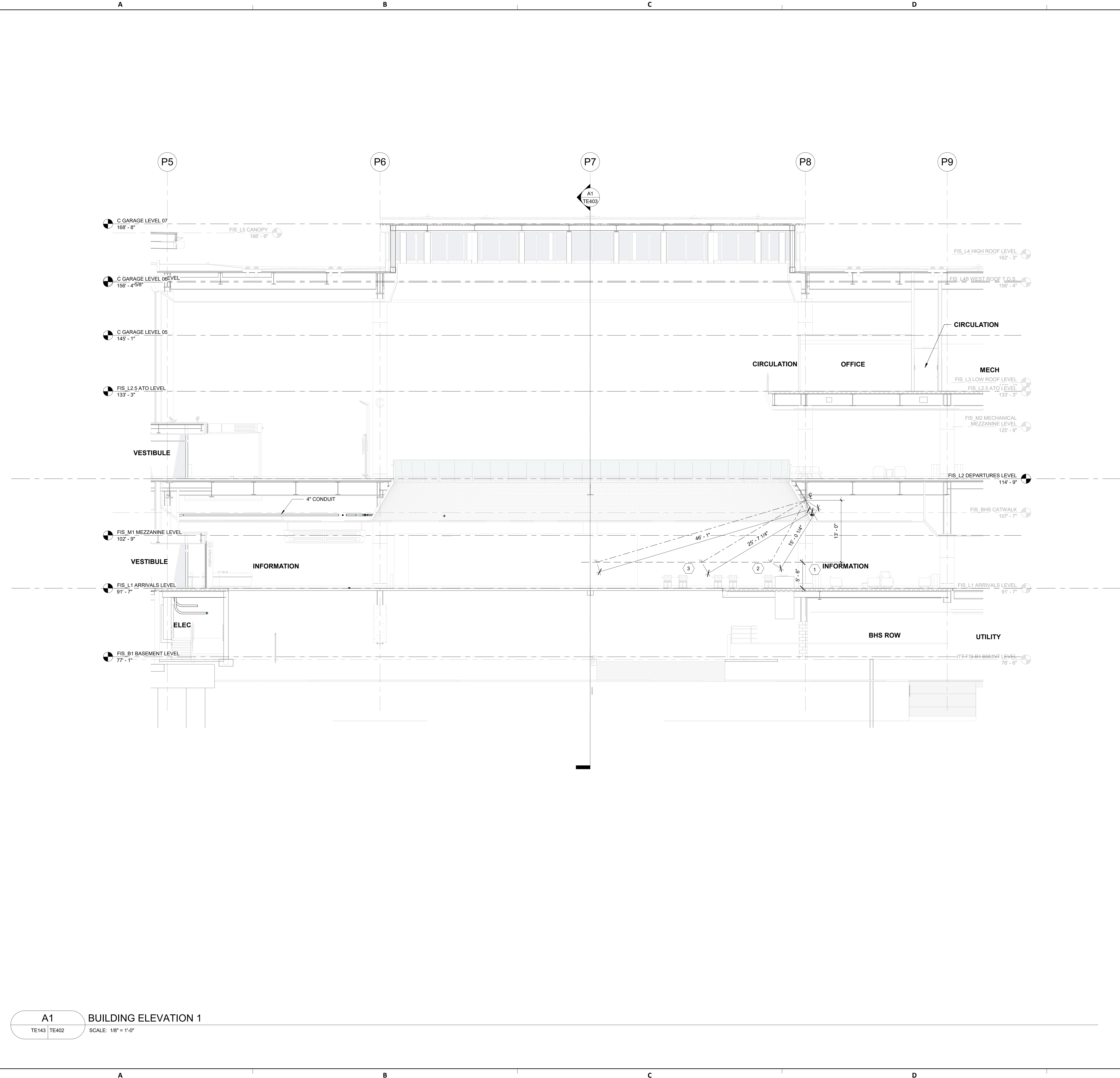
SHEET SIZE: **30"x42" ARCH E1**

FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt  
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 PLOT DATE: 10/26/2022 6:42:06 PM  
 HAS FILE:  
 PLOT DATE: 10/26/2022 6:42:06 PM  
 HAS FILE:

**A1** ENLARGED RCP OVAL OPENING  
TE143 TE401 SCALE: 1/4"=1'-0"

**KEYED NOTES:**

NUMBER	DESCRIPTION
1	TYPICAL VIEWING HEIGHT OF 5FT 6IN.
2	OCULUS DESIGN AND PIXEL PITCH CHOICE SHALL BE BASED ON A MINIMUM VIEWING DISTANCE OF 15FT FROM THE VIEWING HEIGHT TO THE MIDDLE OF THE OCULUS SCREEN.
3	APPROXIMATE VIEWING DISTANCE FROM CENTER OF OCULUS PERPENDICULAR TO THE VIEWING HEIGHT.



**A1 BUILDING ELEVATION 1**  
TE402 TE402 SCALE: 1/8" = 1'-0"

PLOT DATE: 10/26/2022 6:42:17 PM HAS FILE: FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt  
 PLOT DATE: 10/26/2022 6:42:17 PM HAS FILE: FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt  
 PLOT DATE: 10/26/2022 6:42:17 PM HAS FILE: FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt



3780 N TERMINAL ROAD  
HOUSTON, TX 77032

**GEORGE BUSH  
INTERCONTINENTAL AIRPORT**  
CONSTRUCTION DOCUMENTS  
OCULUS

C.I.P. No. **A-0958** A.I.P. No.  
C.O.H. No. **4600015176** D.O.A. No.  
B.S.G. No. H.A.S. No. **0958**  
TRP T.I.P. No.

**Burns**

BURNS ENGINEERING, INC | 215 975-2700  
700 COMMERCIAL SQUARE  
2001 MARKET ST. SUITE 600  
PHILADELPHIA, PA 19103

DESIGNER PROJECT No.: **2022-109**  
PROJECT STATUS: **90%CD**

**REVISIONS**

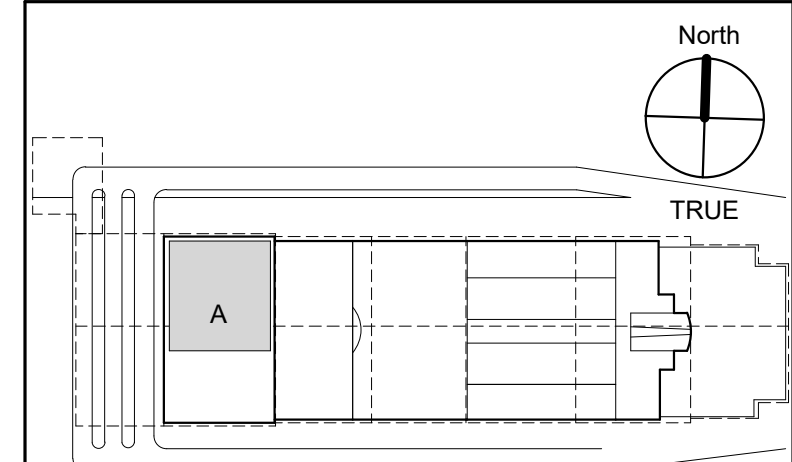
No.	DESCRIPTION	DATE	BY

DESIGN BY: C.M.C. & R.W.H.  
 DRAWN BY: A.A & P.I.  
 CHECKED BY: C.M.C. & R.W.H.  
 ISSUE DATE: 10/26/22  
 APPROVED BY: M.M.  
 APPROVAL DATE: 10/26/22

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HOUSTON AIRPORT SYSTEM

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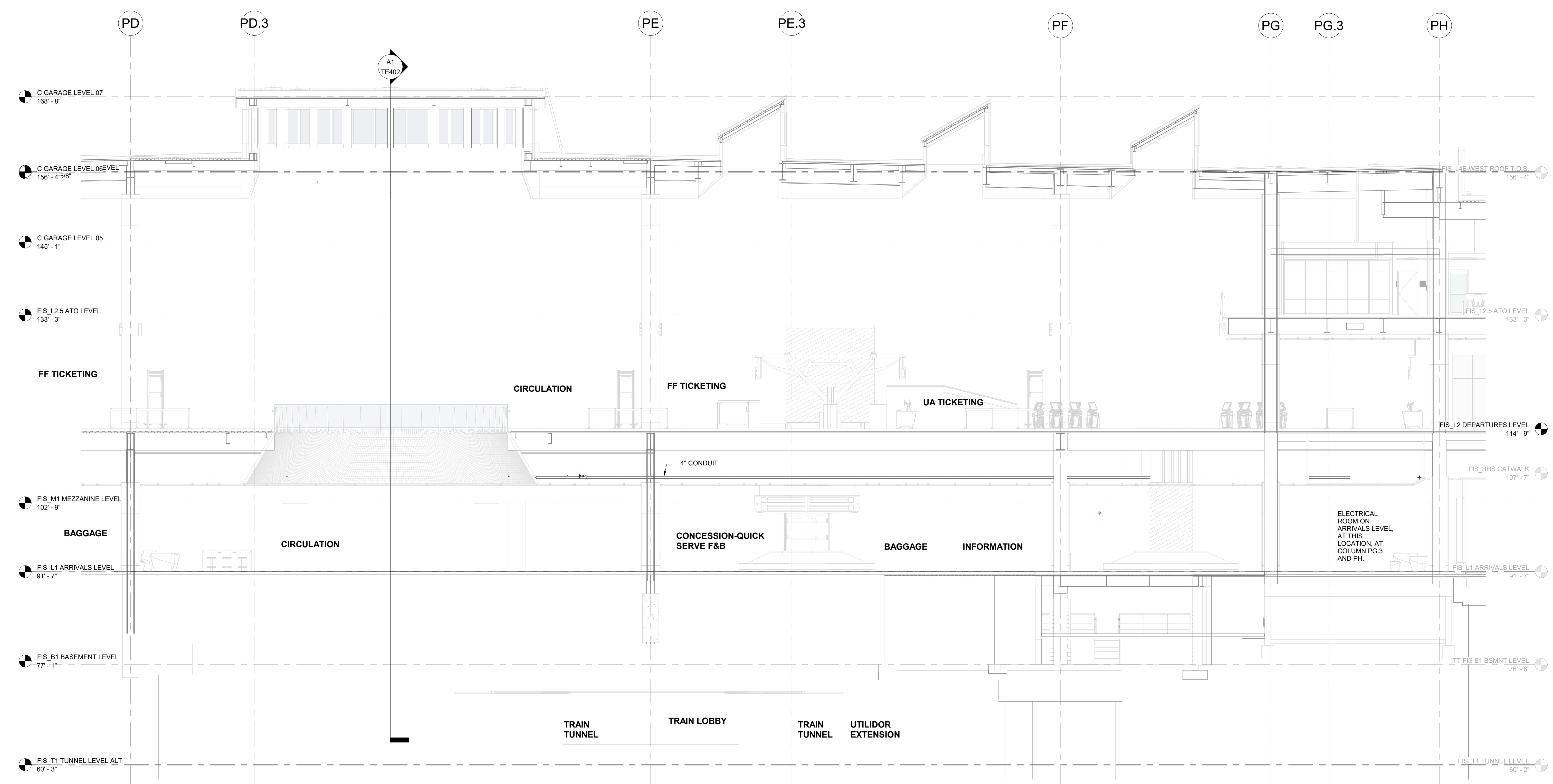
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SHEET NAME:  
ELEVATION VIEW 2

SHEET No. **TE403** SCALE: **1/8" = 1'-0"**

SHEET SIZE: 30"x42" ARCH E1



**A1** BUILDING ELEVATION 2  
TE143.0A TE403 SCALE: 1/8" = 1'-0"

PLOT DATE: 10/26/2022 6:42:24 PM HAS FILE:  
 DOA DWG FILE:  
 OLD DOA No. :  
 FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt

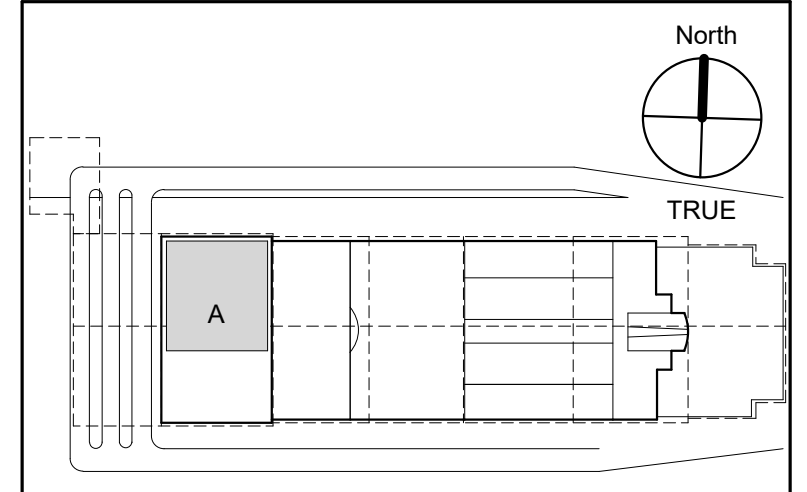
**REVISIONS**

No.	DESCRIPTION	DATE	BY
1	CMS RFP	12/14/22	R.W.H.

DESIGN BY: C.M.C. & R.W.H.  
DRAWN BY: A.A & P.I.  
CHECKED BY: C.M.C. & R.W.H.  
ISSUE DATE: 12/14/22  
APPROVED BY: M.M.  
APPROVAL DATE: 12/14/22

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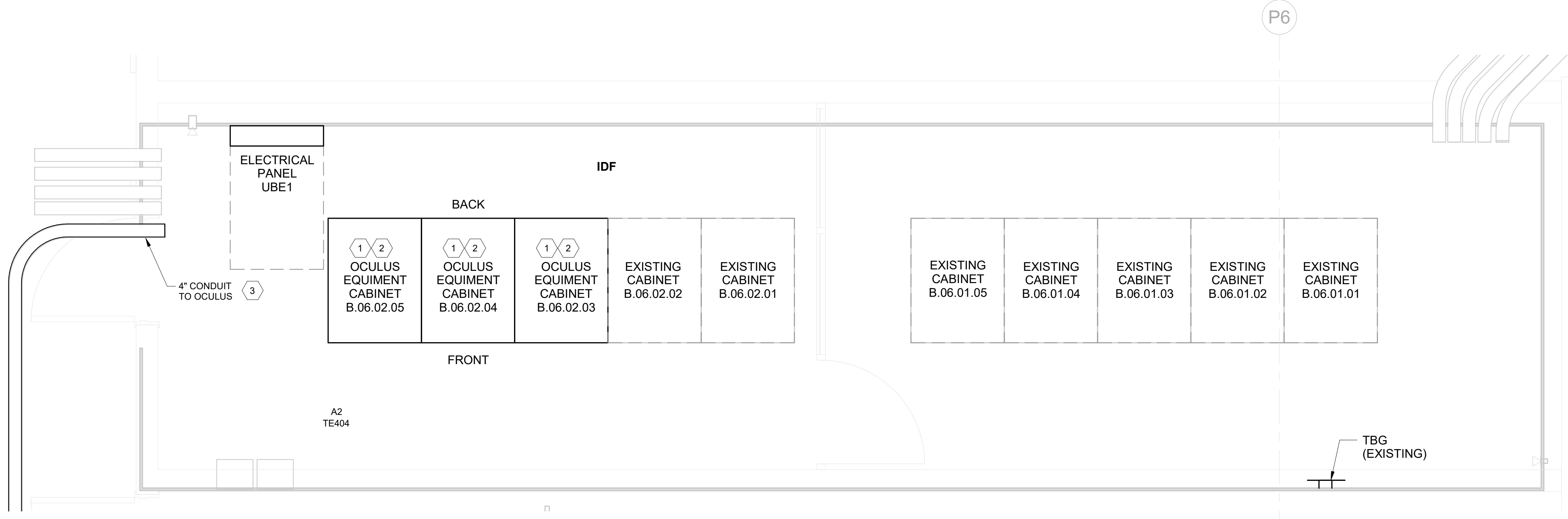
SHEET NAME:  
ENLARGED PLAN - IDF.B.06

SHEET No. **TE404** SCALE: **AS NOTED**

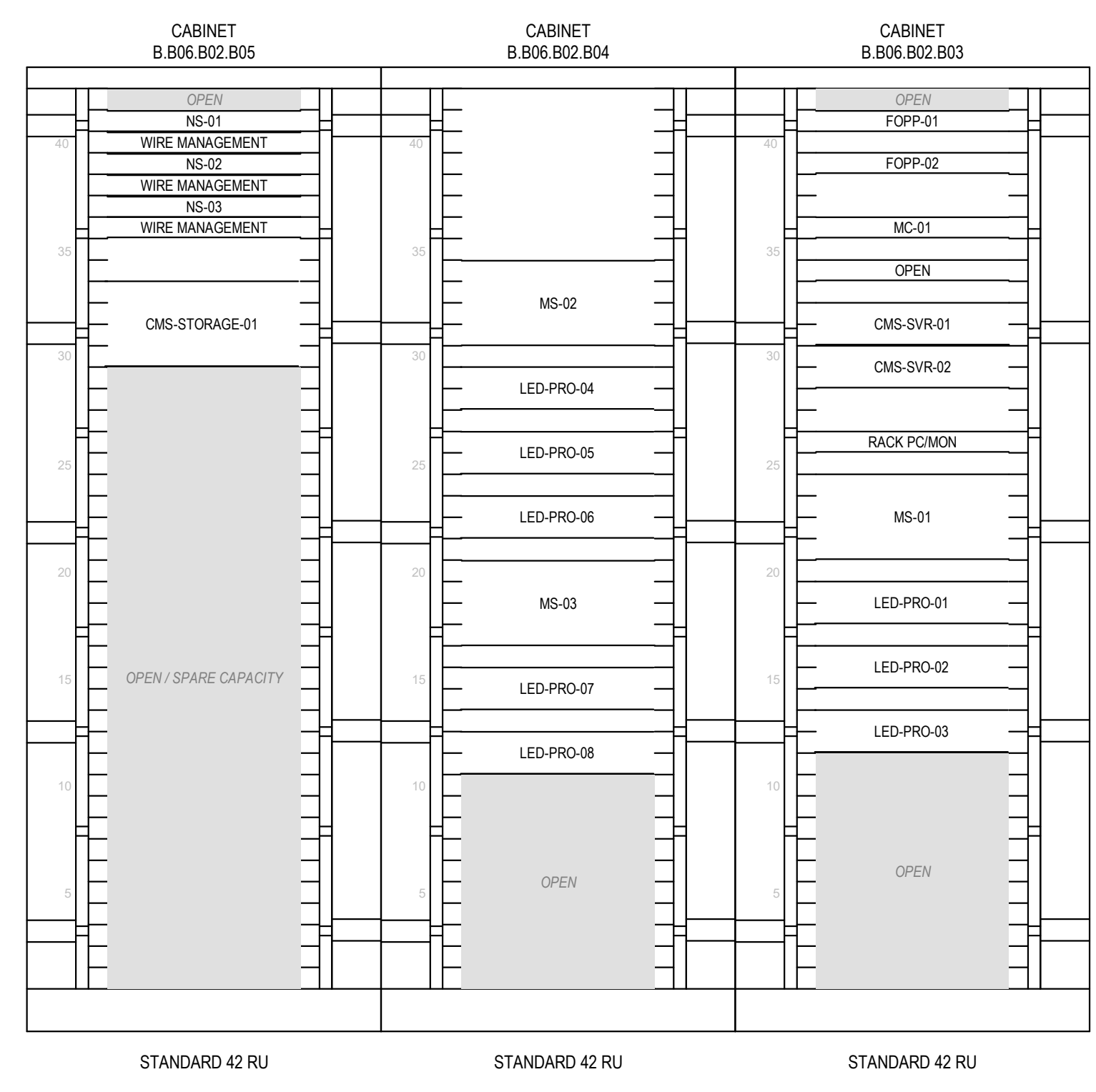
SHEET SIZE: 30"x42" ARCH E1

**KEYED NOTES:**

- | NUMBER | DESCRIPTION   |
|--------|---|
| 1      | OCULUS CABINETS AND POWER TO CABINETS TO BE PROVIDED BY CONTENT MANAGEMENT SYSTEM (CMS) CONTRACTOR. OCULUS CABINETS TO HOUSE LED HEAD END EQUIPMENT AND CONTENT DISTRIBUTION EQUIPMENT.   |
| 2      | POWER TO CABINETS VIA TWO (2) L6-20R, OUTLETS LOCATED AT THE TOP OF THE CABINETS, FED FROM LOCAL UPS ELECTRICAL DISTRIBUTION PANEL. POWER TO CABINETS AND CABINET POWER DISTRIBUTION UNITS PROVIDED BY CMS CONTRACTOR.  |
| 3      | ONE 4 INCH CONDUIT FROM IDF TO ARRIVALS LEVEL CEILING TO BE PROVIDED BY ITRP CONTRACTOR FOR THE EXCLUSIVE USE OF FEEDING LOW VOLTAGE COMMUNICATION CABLING TO THE OCULUS. LED CONTRACTOR SHALL BE RESPONSIBLE FOR EXTENDING THIS PATHWAY AS NEEDED TO SUPPORT INFRASTRUCTURE NEEDS. |

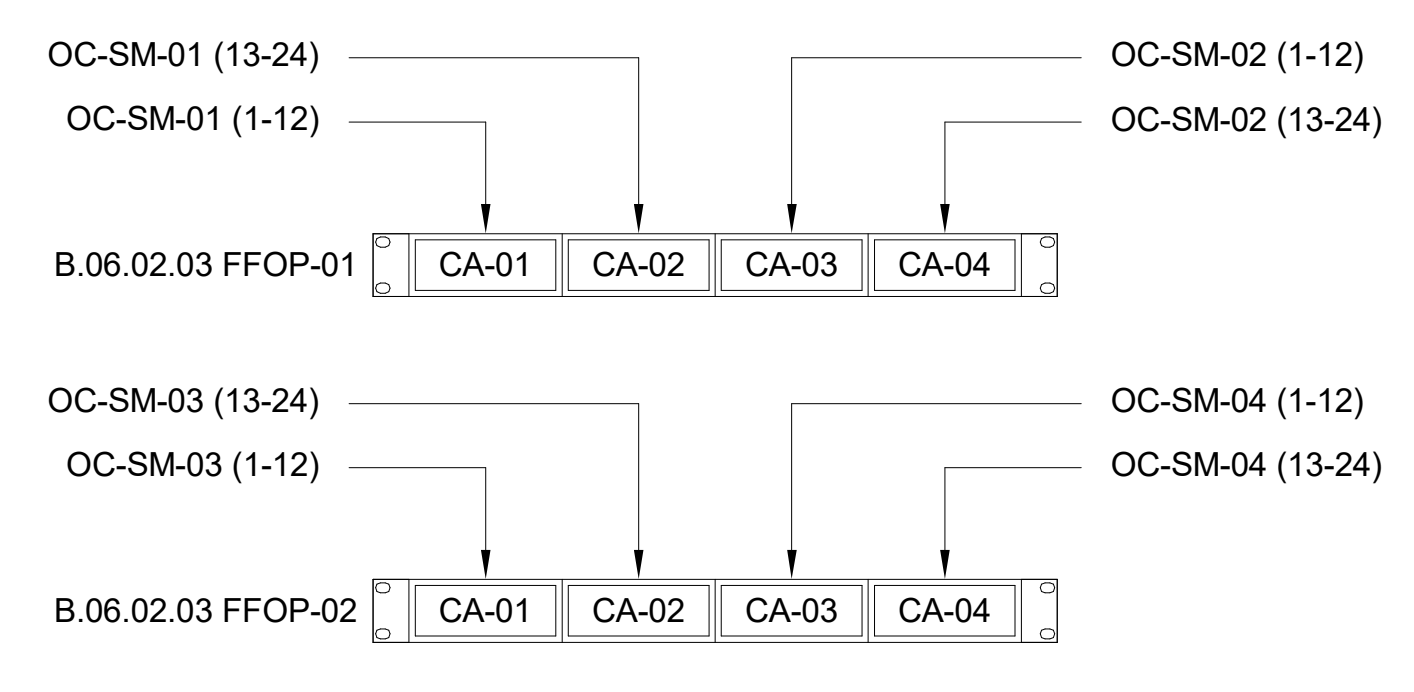


**A1 ENLARGED PLAN IDF.B.06 CABINET LAYOUT**  
TE404 SCALE: 1/2" = 1'-0"



**CABINET ELEVATION LEGEND:**  
CA = FIBER OPTIC CASSETTE  
CMS = CONTENT MANAGEMENT SYSTEM  
FOPP = FIBER OPTIC PATCH PANEL  
LED-PRO = LED PROCESSOR  
MC = MASTER CLOCK  
MS = MEDIA SERVER  
NS = NETWORK SWITCH  
SVR = SERVER

**A2 RACK ELEVATION**  
TE404 SCALE: 12" = 1'-0"



**C1 FIBER OPTIC PATCH PANEL TERMINATIONS**  
TE404 SCALE: 1 1/2" = 1'-0"

PLOT DATE: 12/13/2022 8:53:35 AM HAS FILE: FILE PATH: BIM 360/Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt



3780 N TERMINAL ROAD  
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B.S.G. No. H.A.S. No. **0958**  
ITRP T.I.P. No.



**Burns**  
BURNS ENGINEERING, INC. | 215-979-2700  
TWO COMMERCE SQUARE  
301 MARKET ST. SUITE 600  
PHILADELPHIA, PA 19103

DESIGNER PROJECT No.: **2022-109**  
PROJECT STATUS: **90%CD**

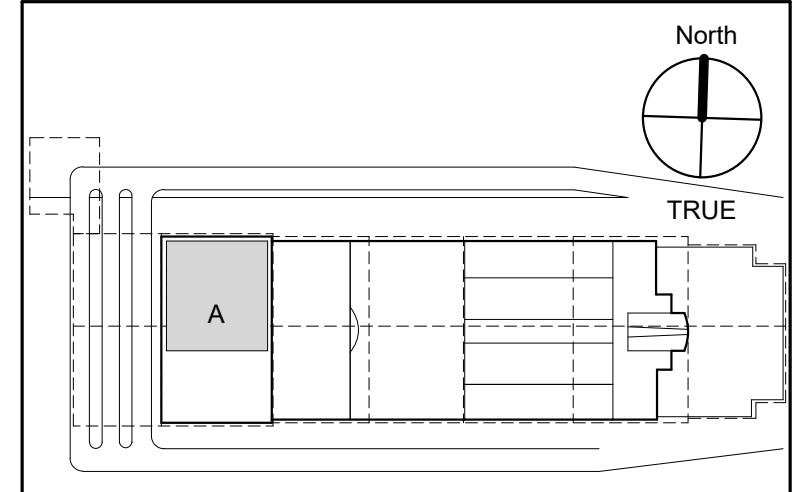
**REVISIONS**

No.	DESCRIPTION	DATE	BY
1	ELECTRICAL UPDATES	11/21/22	C.M.C.

DESIGN BY: C.M.C. & R.W.H.  
DRAWN BY: A.A. & P.I.  
CHECKED BY: C.M.C. & R.W.H.  
ISSUE DATE: 11/21/22  
APPROVED BY: M.M.  
APPROVAL DATE: 11/21/22

DIRECTOR  
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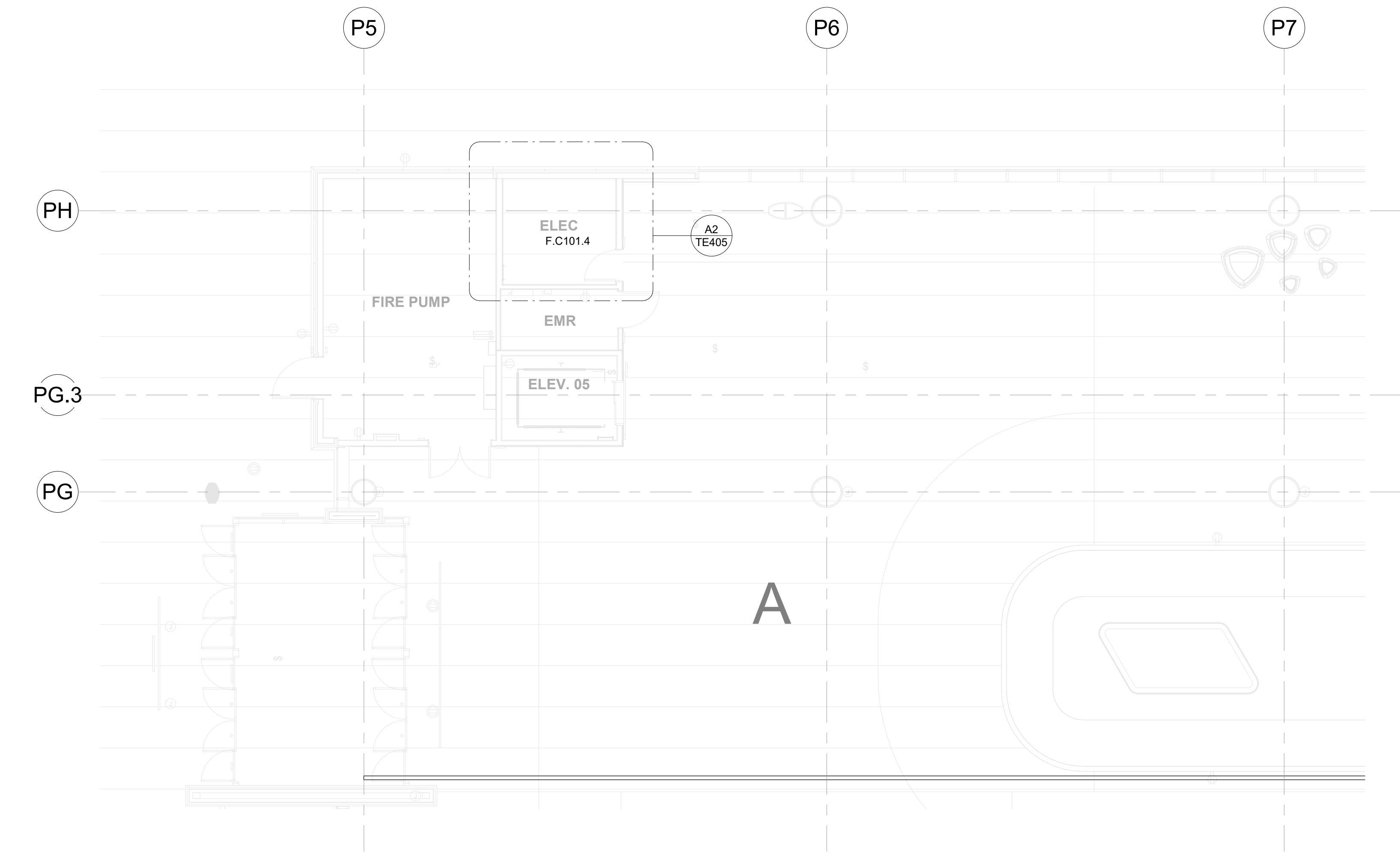
SHEET NAME:  
COMBINED GENERAL PANELBOARD  
LOCATIONS

SHEET No. **TE405** SCALE: As indicated

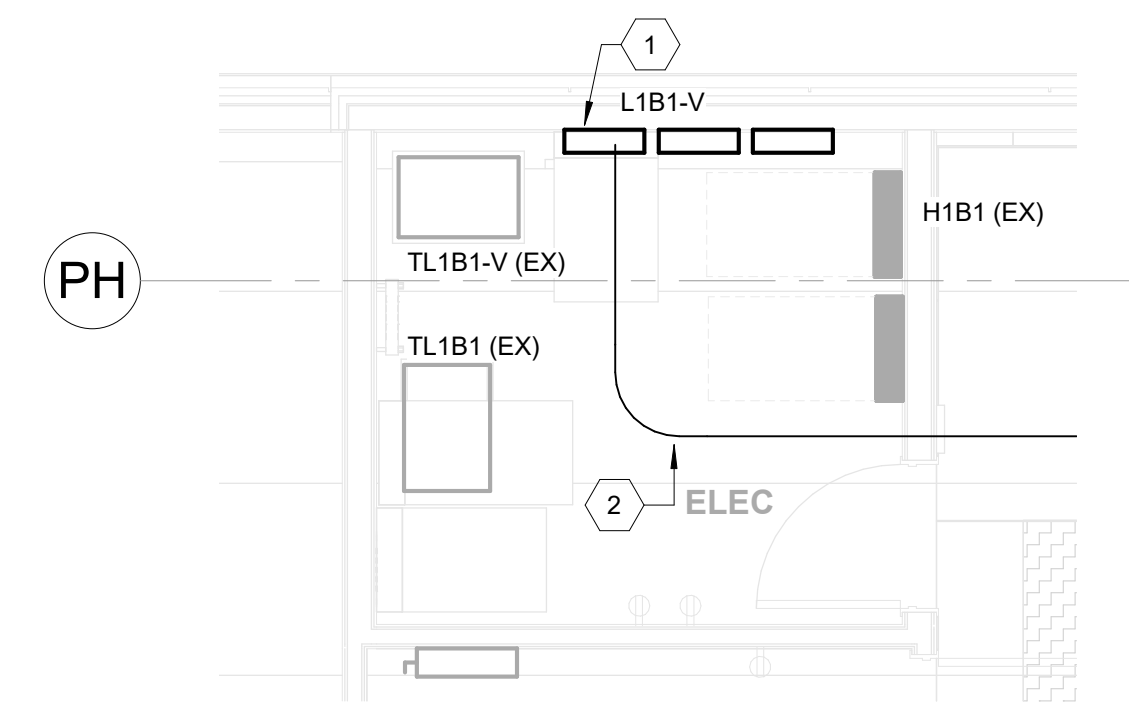
SHEET SIZE: 30"x42" ARCH E1

**KEYED NOTES:**

- | NUMBER | DESCRIPTION  |
|--------|--|
| 1      | TO ACCOMMODATE THE CURRENT DESIGN, THE PANEL L1B1-V, NEEDS TO BE MODIFIED FROM A 225A, ONE SECTION PANEL INTO A 400A, THREE SECTION PANEL HAVING UP TO (126) 1 POLE CIRCUIT SPACES. THIS WILL ALLOW FOR AT LEAST 25% CAPACITY FOR FUTURE AS REQUIRED BY HAS. CURRENT DESIGN ASSUMES THE AVAILABILITY OF 38, DOUBLE POLE, 20A CIRCUIT BREAKERS. LED VENDOR TO VERIFY EXACT QUANTITY OF DOUBLE POLE BREAKERS REQUIRED. PROVIDE WIRE TROUGH ABOVE 3 SECTION PANELS FOR EASE OF PULLING CABLES FROM EACH PANEL INTO 4"C AND OUT TO OCULUS. |
| 2      | LED CONTRACTOR TO INSTALL 4" CONDUIT & CABLING FROM THE ELECTRICAL ROOM ON ARRIVALS LEVEL TO ARRIVALS LEVEL CEILING AND ONTO OCULUS FOR THE EXCLUSIVE USE OF PROVIDING POWER TO THE OCULUS. PROVIDE PULL BOXES AS NEEDED BY CODE. ALL CONDUIT AND CABLE SHOULD BE CONCEALED ABOVE CEILING. COORDINATE INSTALL OF CONDUIT WITH ITRP (TEAM/CONTRACTOR) ESPECIALLY FOR AREAS ABOVE BAGGAGE CAROUSEL.  |



**A1** RFP\_FIS\_L1 ELECT ARRIVALS LEVEL\_OVERALL  
TE405 SCALE: 1/8" = 1'-0"



**A2** ENLARGED ELECTRICAL ROOM ARRIVALS LEVEL  
TE405 SCALE: 1/4" = 1'-0"

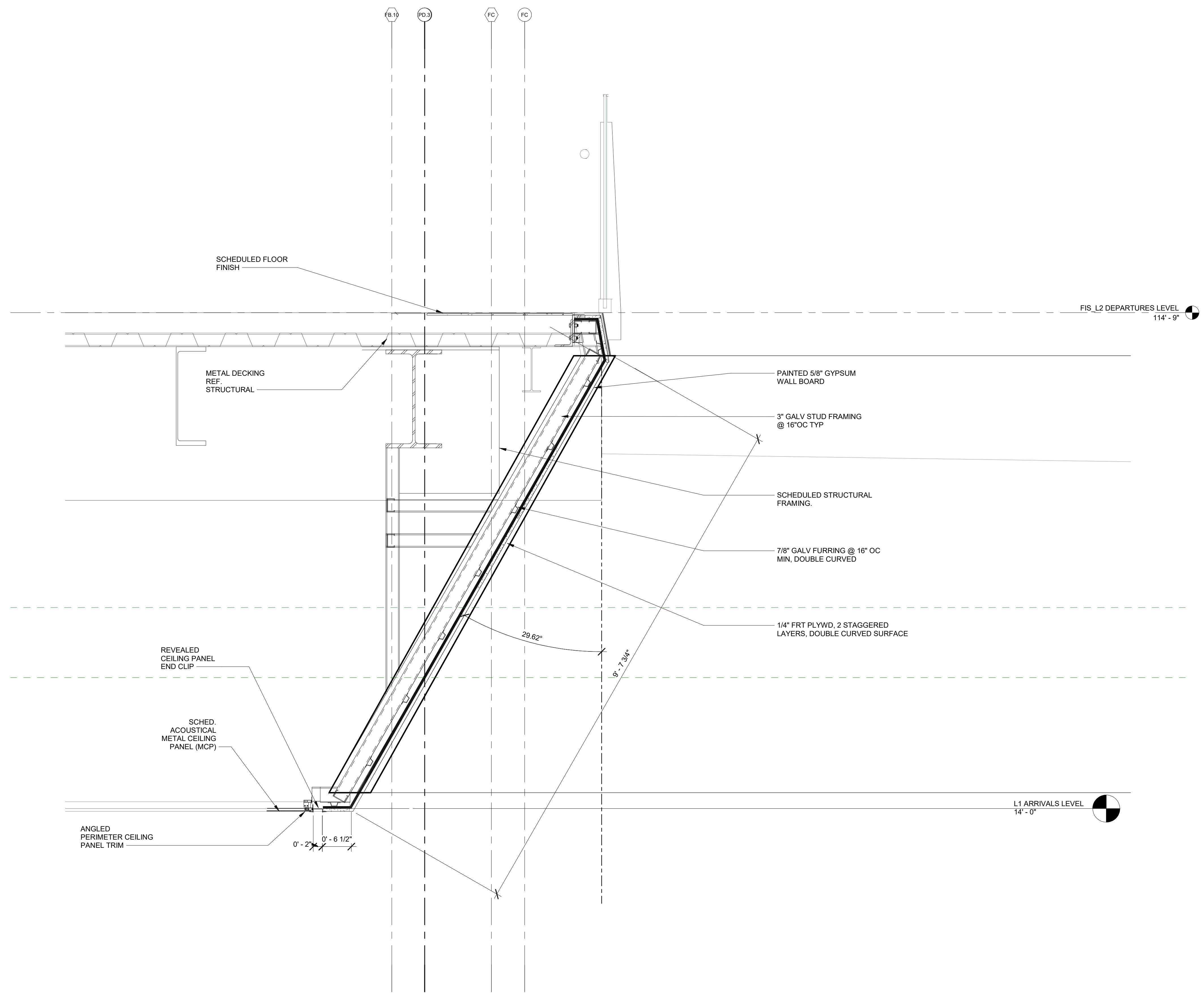
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HAS FILE:  
PLOT DATE: 11/21/2022 11:02:55 AM  
OLD DOA No.:  
DOA DWG FILE:  
PLOT DATE: 11/21/2022 11:02:55 AM




**GENERAL NOTES:**

**NOTES FOR OCULUS LED PANEL MOUNTING:**

- OCULUS LED VENDOR SHALL SUBMIT DIMENSIONED, DETAILED SHOP DRAWINGS FOR EACH PANEL. DRAWINGS SHALL IDENTIFY, AT A MINIMUM:
  - TOTAL WEIGHT OF EACH PANEL
  - DETAILS FOR MOUNTING THE PANELS TO THE BASE BUILDING STUD FRAMING INCLUDING ANY CLIPS.
  - BRACKETS AND ALL ASSOCIATED HARDWARE REQUIRED FOR A COMPLETE INSTALLATION.
  - CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS WHICH DEMONSTRATE THAT SUPPORT BRACKETS AND HARDWARE USED FOR MOUNTING HAVE SUFFICIENT CAPACITY TO SUPPORT THE PANEL WEIGHT WITHOUT DEFLECTION OR DEFORMATION THAT WILL COMPROMISE THE INSTALLATION.
- THE EFFECTS OF CONCOURSE LEVEL FLOOR VIBRATION SHALL BE CONSIDERED IN THE DESIGN AND PERFORMANCE OF THE LED PANELS AS WELL AS THE DESIGN OF THE SUPPORT CONNECTIONS FOR EACH PANEL.



**A1** OCULUS SECTION CUT  
SCALE: 1" = 1'-0"




3780 N TERMINAL ROAD  
HOUSTON, TX 77032

**GEORGE BUSH  
INTERCONTINENTAL AIRPORT**

**CONSTRUCTION DOCUMENTS  
OCULUS**

C.I.P. No.	A-0958	A.I.P. No.	
C.O.H. No.	4600015176	D.O.A. No.	
B.S.G. No.		H.A.S. No.	0958
TRP T.I.P. No.			



BURNS ENGINEERING, INC. | 215 979-2700  
TWO COMMERCE SQUARE  
3001 MARKET ST., SUITE 600  
PHILADELPHIA, PA 19103

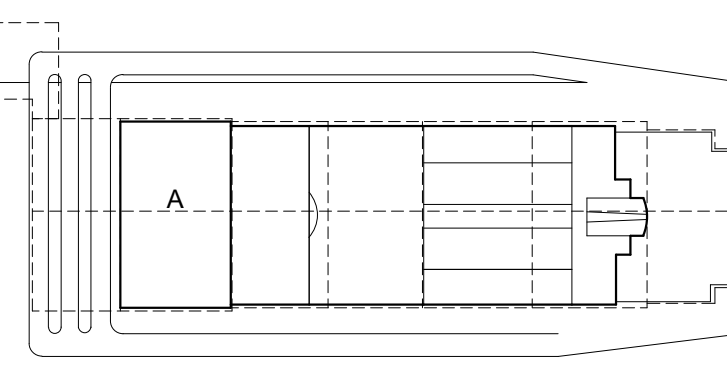
DESIGNER PROJECT No.: 2022-109  
PROJECT STATUS: 90%CD

REVISIONS			
No.	DESCRIPTION	DATE	BY

DESIGN BY:	C.M.C. & R.W.H.
DRAWN BY:	A.A & P.I.
CHECKED BY:	C.M.C. & R.W.H.
ISSUE DATE:	10/26/22
APPROVED BY:	M.M
APPROVAL DATE:	10/26/22

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of  
HOUSTON AIRPORT SYSTEM

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<b>CD</b> <small>90%CD</small>	



SHEET NAME: TECHNOLOGY DETAILS - OCULUS SECTION CUT

SHEET No.	TE501	SCALE:	As indicated
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SHEET SIZE: 30"x42" ARCH E1

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 PLOT DATE: 10/26/2022 6:42:27 PM HAS FILE: FILE PATH: BIM 360://Houston International Terminal Redevelopment Program/I-22-T-0958-ALL20\_OCULUS.rvt

**REVISIONS**

No.	DESCRIPTION	DATE	BY
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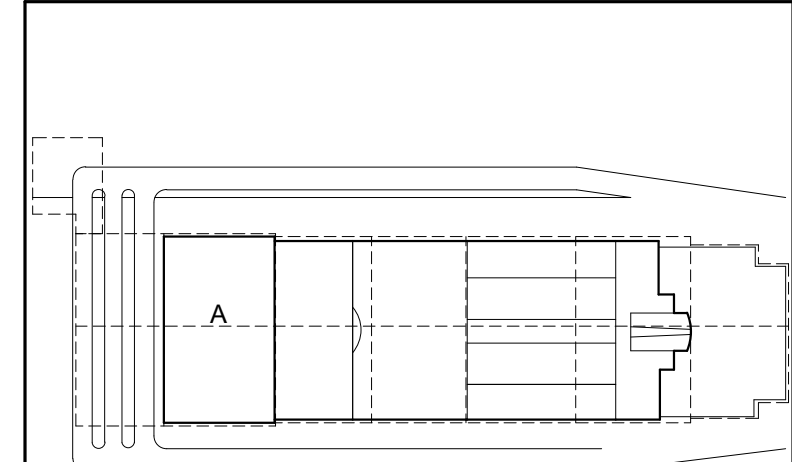
DESIGN BY:	C.M.C. & R.W.H.
DRAWN BY:	A.A & P.I.
CHECKED BY:	C.M.C. & R.W.H.
ISSUE DATE:	10/26/22
APPROVED BY:	M.M
APPROVAL DATE:	10/26/22

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of  
HOUSTON AIRPORT SYSTEM

Drawing Status

**CD**

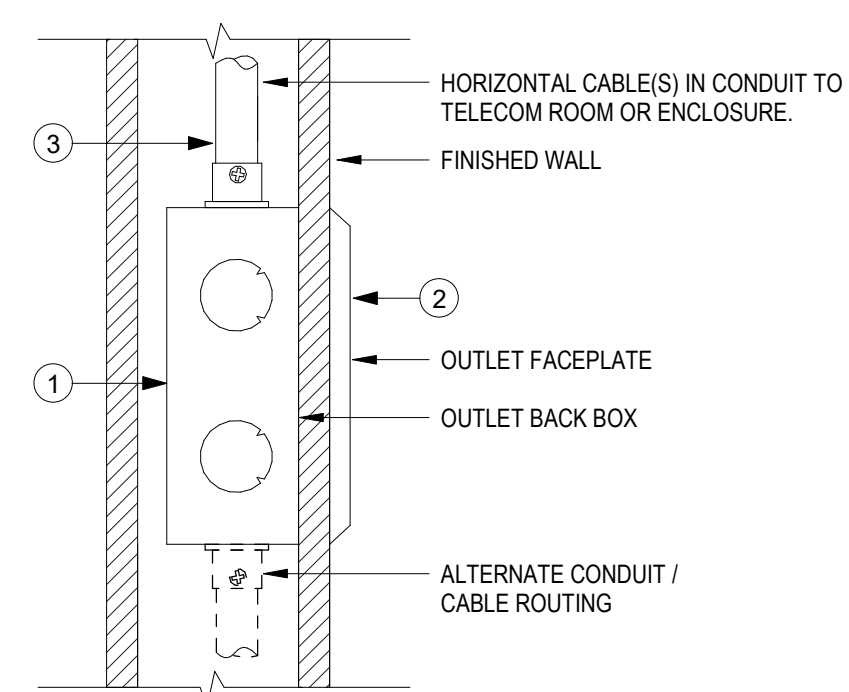
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SHEET NAME:  
TECHNOLOGY DETAILS

SHEET No. **TE502** SCALE: As indicated

SHEET SIZE: 30"x42" ARCH E1



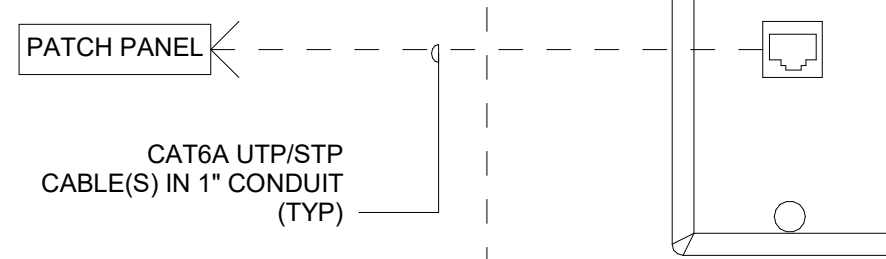
**DETAIL NOTES:**

- TELECOMMUNICATIONS OUTLET MOUNTED FLUSH INTO VERTICAL SURFACE. PROVIDE APPROPRIATELY SIZED DOUBLE-GANG METAL BACK BOX AND MUD RING.
- REFER TO FACEPLATE DETAILS FOR PORT CONFIGURATION AND CABLE QUANTITIES.
- PROVIDE MINIMUM 1 INCH CONDUIT FOR 1-4 CABLES. 1-1/2 INCH CONDUIT FOR GREATER THAN FOUR CABLES.

**A3** TYPE A - FLUSH MOUNT OUTLET DETAIL

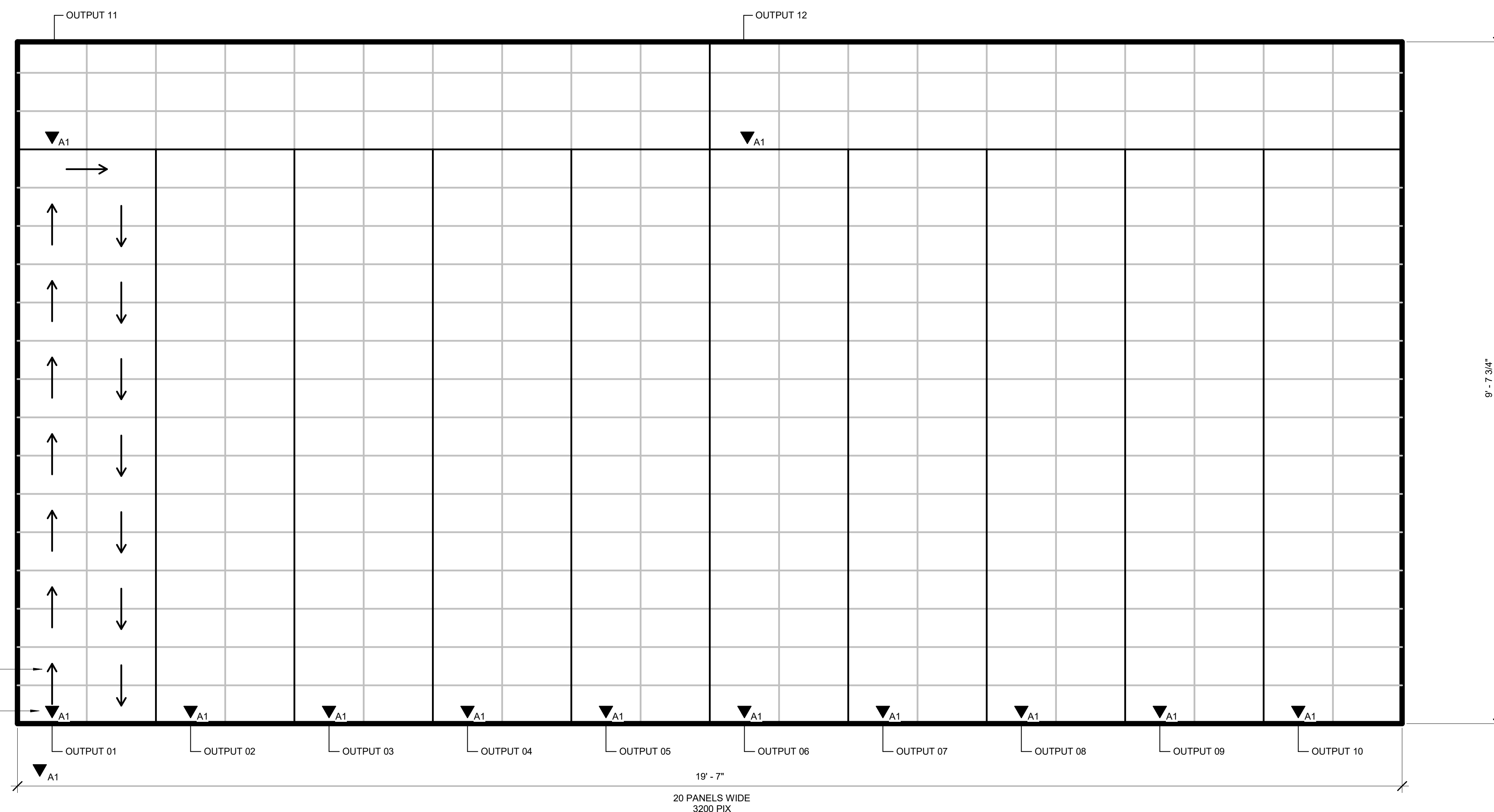
TE502 SCALE: N.T.S

TELECOM ENCLOSURE OUTLET LOCATION



**C3** TYPE A1 OUTLET DETAIL

TE502 SCALE: N.T.S

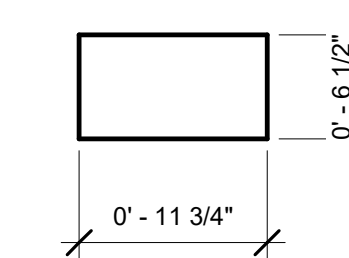


**DETAIL NOTES:**

- LED WALL LAYOUT IS AN EXAMPLE AND PROVIDED FOR REFERENCE ONLY. BASIS OF DESIGN LED TILES PROVIDED FOR REFERENCE ONLY. PROPOSED SOLUTIONS MAY DIFFER. CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING THE DESIGN BASED UPON THE PROPOSED SOLUTION.
- STANDARD RECTANGULAR SHAPED LED TILES ARE SHOWN FOR REFERENCE ONLY IN ORDER TO DEVELOP BASELINE DISPLAY INFRASTRUCTURE REQUIREMENTS. PROPOSED SOLUTIONS MAY DIFFER. CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING THE DESIGN BASED UPON THE PROPOSED SOLUTION AND PROPOSED LED TILE SHAPE NECESSARY TO ACHIEVE THE COMPLEX CURVES INDICATED IN THE PLANS.

**BASIS OF DESIGN:**

- 1.87mm PIXEL PITCH
- 11.81" W x 6.64" H
- 160 x 90 PIXELS



**A1** EXAMPLE LED WALL SECTION

ET502 SCALE: 1" = 1'-0"

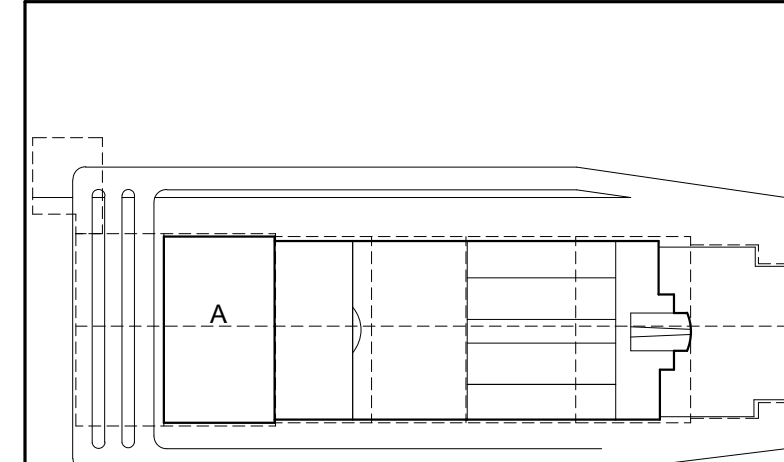
**REVISIONS**

No.	DESCRIPTION	DATE	BY
1	CMS RFP	12/14/22	R.W.H

DESIGN BY:	C.M.C. & R.W.H.
DRAWN BY:	A.A & P.I.
CHECKED BY:	C.M.C. & R.W.H.
ISSUE DATE:	12/14/22
APPROVED BY:	M.M
APPROVAL DATE:	12/14/22

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HOUSTON AIRPORT SYSTEM

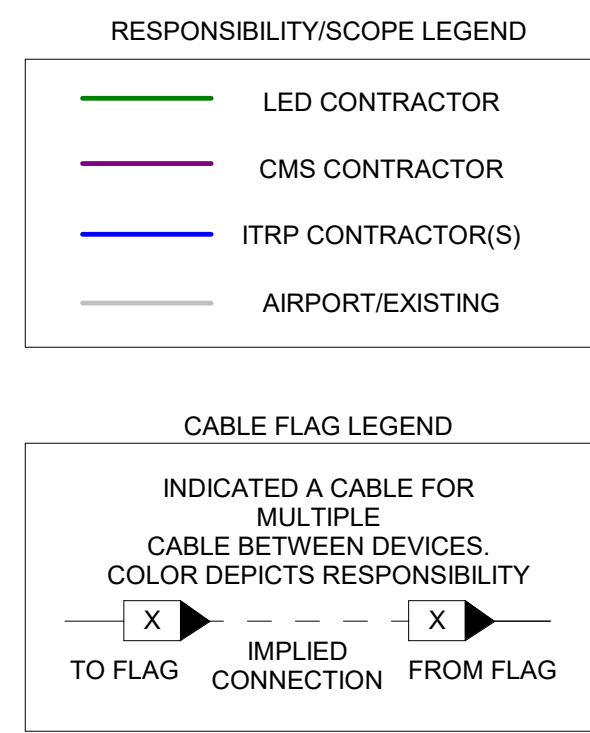
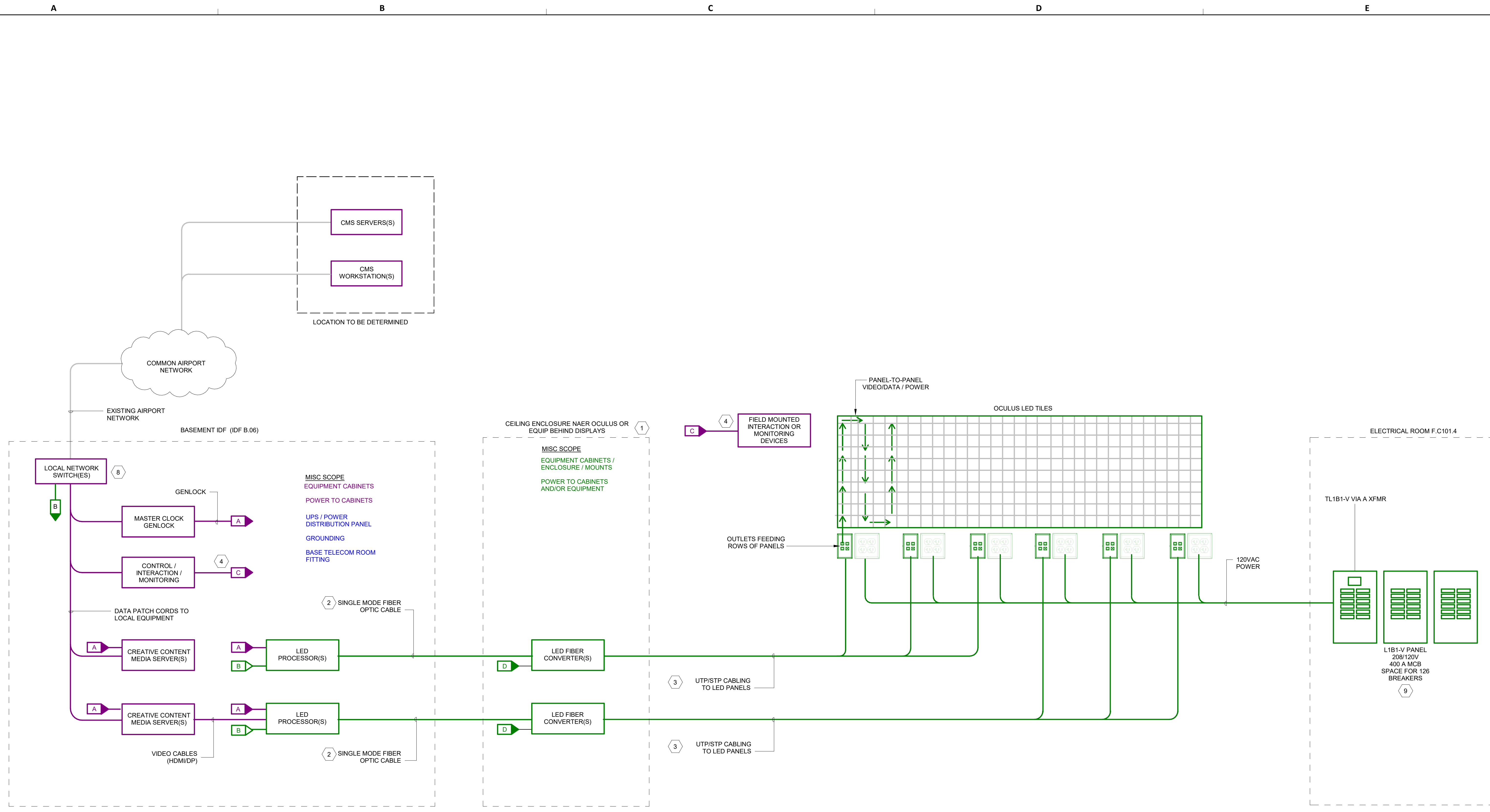
**CD**  
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SHEET NAME:  
BLOCK DIAGRAMS - RESPONSIBILITY  
DIAGRAM

SHEET No. **TE601** SCALE: **N.T.S.**

SHEET SIZE: 30"x42" ARCH E1



- GENERAL NOTES:**
- BLOCK DIAGRAM IS DIAGRAMMATIC IN NATURE AND FOR CLARITY MAY OMIT DEVICES AND CONNECTIONS NECESSARY FOR A FULLY FUNCTIONAL SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A FULLY FUNCTIONING SYSTEM AS DETAILED IN THE RELEVANT PROJECT DOCUMENTS.
  - DEVICE QUANTITIES ARE PRELIMINARY ONLY AND MAY NOT REPRESENT THE ACTUAL QUANTITY OF DEVICES NECESSARY FOR A FULLY FUNCTIONING SYSTEM. THE CONTRACTOR SHALL PROVIDE QUANTITIES NECESSARY TO MEET PROJECT SPECIFICATIONS AND REQUIREMENTS PER THE RELEVANT PROJECT DOCUMENTS.
  - ALTERNATIVE SYSTEM ARCHITECTURES MAY BE ALLOWED. VARIATIONS SHALL MEET THE OVERALL PROJECT SPECIFICATIONS AND REQUIREMENTS AS PER THE RELEVANT PROJECT DOCUMENTS AND ARE SUBJECT TO REVIEW AND APPROVAL BY THE OAR. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PROVIDING ANY ADDITIONAL EQUIPMENT, HARDWARE, AND INFRASTRUCTURE NECESSARY TO SUPPORT THE PROPOSED ALTERNATIVE ARCHITECTURES.
  - UNLESS OTHERWISE NOTES, THE CONTRACTOR SHALL BE RESPONSIBLE GROUNDING ALL EQUIPMENT AND INFRASTRUCTURE UNDER THEIR RESPONSIBILITY.
  - REFER TO HAS TELECOMMUNICATIONS STANDARDS FOR ADDITIONAL INFORMATION ON GENERAL TELECOMMUNICATIONS INFRASTRUCTURE REQUIREMENTS.

- KEYED NOTES:**
- DEPENDING ON PROPOSED ARCHITECTURE, FIELD-MOUNTED ACTIVE VIDEO/CONTROL DISTRIBUTION EQUIPMENT COULD BE DISPERSED BEHIND THE DISPLAYS OR HOUSED IN ONE OR MORE DEDICATED CEILING ENCLOSURES. THE LED CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING ANY AND ALL WORK NECESSARY TO HOUSE AND POWER THIS EQUIPMENT AS WELL AS MAINTAIN SURROUNDING ARCHITECTURAL FINISHES.
  - FIBER INFRASTRUCTURE FROM THE IDF ROOM TO THE OCULUS AREA IS INCLUSIVE OF THE FIBER OPTIC CABLING, PATHWAYS, FIBER TERMINATIONS, FIBER ENCLOSURES, HARDWARE, INSTALLATION, AND TESTING. MEANS AND LOCATION OF FIBER TERMINATIONS MAY VARY DEPENDING ON PROPOSED ARCHITECTURE. AT MINIMUM, FOLLOW ALL HAS TELECOMMUNICATIONS STANDARDS.
  - HORIZONTAL UTP/STP CABLING FROM LED PROCESSORS TO LED PANELS IS INCLUSIVE OF CABLING, PATHWAYS, TERMINATIONS, OUTLETS, PATCH PANELS, HARDWARE, INSTALLATION AND TESTING. MEANS AND LOCATION OF TERMINATIONS MAY VARY DEPENDING ON PROPOSED ARCHITECTURE. FIELD TERMINATION OF HORIZONTAL COPPER CABLING MAY BE ACCEPTABLE GIVEN THE PROPOSED ARCHITECTURE OF THE INFRASTRUCTURE AND LOCATION OF FIBER INFRASTRUCTURE RELATIVE TO THE LED TILES.
  - CONTROL / INTERACTION / MONITORING IS INDICATIVE OF EQUIPMENT THAT MAY BE REQUIRED TO MANAGE VIDEO WALL FUNCTIONS, FIELD MONITORING, CONTENT INTERACTIVITY, AND OTHER THIRD-PARTY INPUTS TO THE OVERALL DISPLAY SYSTEM. CONTROL MAY BE VIA TOPIP OR DIRECT VIA OTHER LOW VOLTAGE CONNECTIONS.
  - CMS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING HAS STANDARD EQUIPMENT CABINETS AND FITTINGS IN THE IDF ROOM. THIS INCLUDES PROVIDING POWER DISTRIBUTION UNITS, WIRE MANAGEMENT, AND GROUNDING AS REQUIRED PER HAS STANDARDS.
  - CMS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE CABINETS IN THE IDF ROOM. POWER WILL COME FROM A PANEL UBE1 WITHIN THE ROOM. REFER TO PROJECT DOCUMENTS FOR FURTHER INFORMATION.

- KEYED NOTES:**
- ITRP CONTRACTOR IS RESPONSIBLE FOR PROVIDING BASE IDF ROOM FITTINGS INCLUDING POWER DISTRIBUTION PANEL, HVAC, OVERHEAD LADDER TRAY CABLE DISTRIBUTION, AND TELECOMMUNICATIONS GROUNDING BUS BAR.
  - UNLESS OTHERWISE NOTED, HAS/IAH NETWORK EQUIPMENT SHALL BE PROVIDED BY THE CMS CONTRACTOR. ALL CONTRACTORS SHALL COORDINATE NEEDS WITH THE CMS CONTRACTOR WHO WILL BE RESPONSIBLE FOR COORDINATING REQUIREMENTS WITH HAS IT.
  - THE LED CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE OCULUS LED TILES, AND TO ACCOMMODATE THE CURRENT DESIGN, THE PANEL L1B1-V, NEEDS TO BE MODIFIED FROM A 220A, ONE SECTION PANEL, INTO A 400A, THREE SECTION PANEL HAVING UP TO (120) 1 POLE CIRCUIT SPACES. CURRENT DESIGN ASSUMES AVAILABILITY OF 38, DOUBLE POLE, 20A CIRCUIT BREAKERS. LED VENDOR TO VERIFY. THE LED CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PANEL BREAKERS, CABLING, CONDUIT, AND ANY OTHER ELECTRICAL COMPONENTS NECESSARY TO POWER THE LEDS AND RELATED EQUIPMENT. EXACT QUANTITIES OF CIRCUITS TO BE DETERMINED WITH LED SELECTION/LOADING.

**A1 RESPONSIBILITY BLOCK DIAGRAM**  
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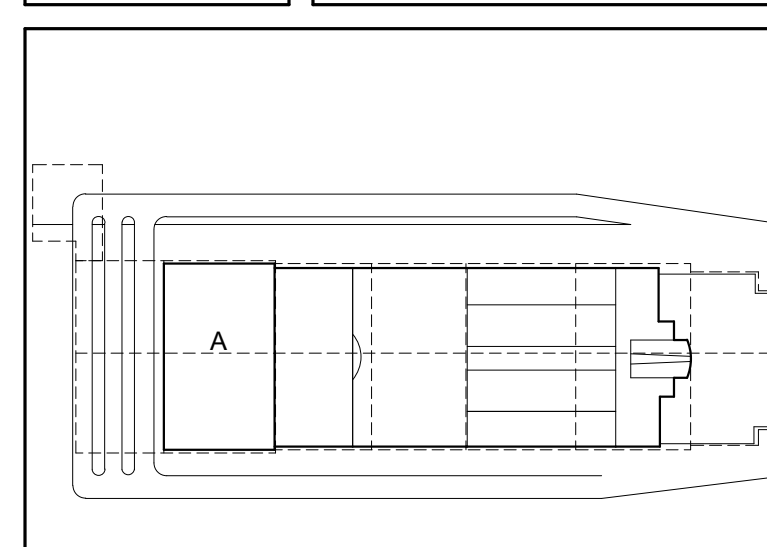
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 DOA DWG FILE:  
 OLD DOA No.:

REVISIONS			
No.	DESCRIPTION	DATE	BY
1	CMS RFP	12/14/22	R.W.H.

DESIGN BY: C.M.C. & R.W.H.  
DRAWN BY: A.A & P.I.  
CHECKED BY: C.M.C. & R.W.H.  
ISSUE DATE: 12/14/22  
APPROVED BY: M.M.  
APPROVAL DATE: 12/14/22

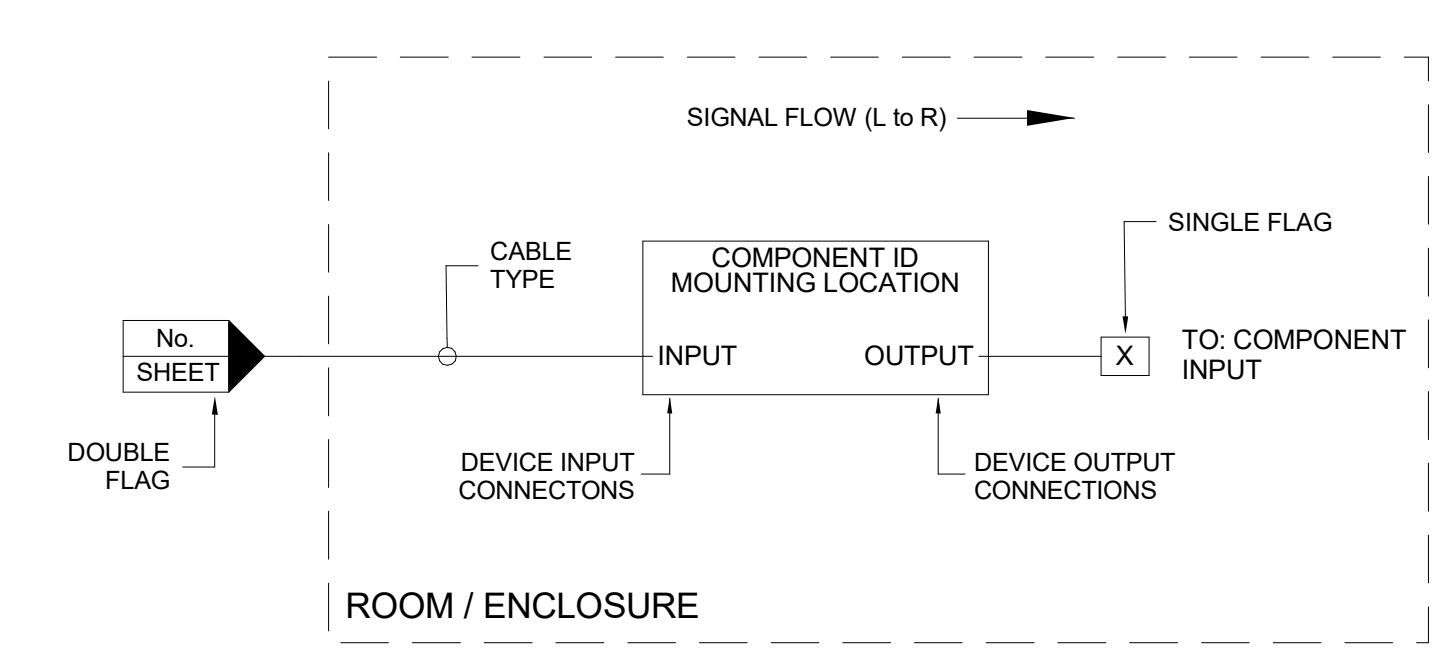
DIRECTOR  
of  
HOUSTON AIRPORT SYSTEM

Drawing Status  
**CD**  
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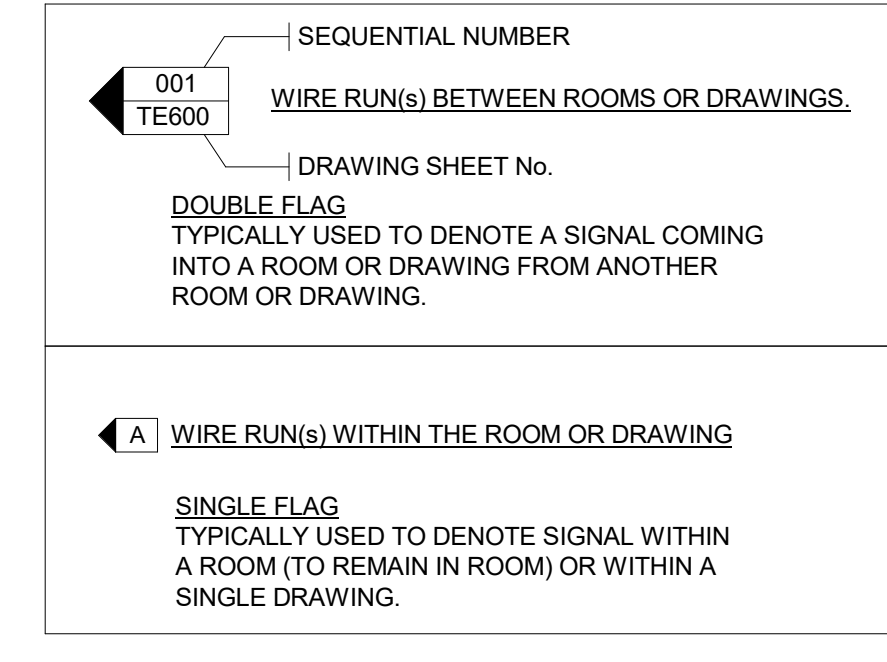


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SHEET No. TE602 SCALE: N.T.S.

**DIAGRAM LEGEND**

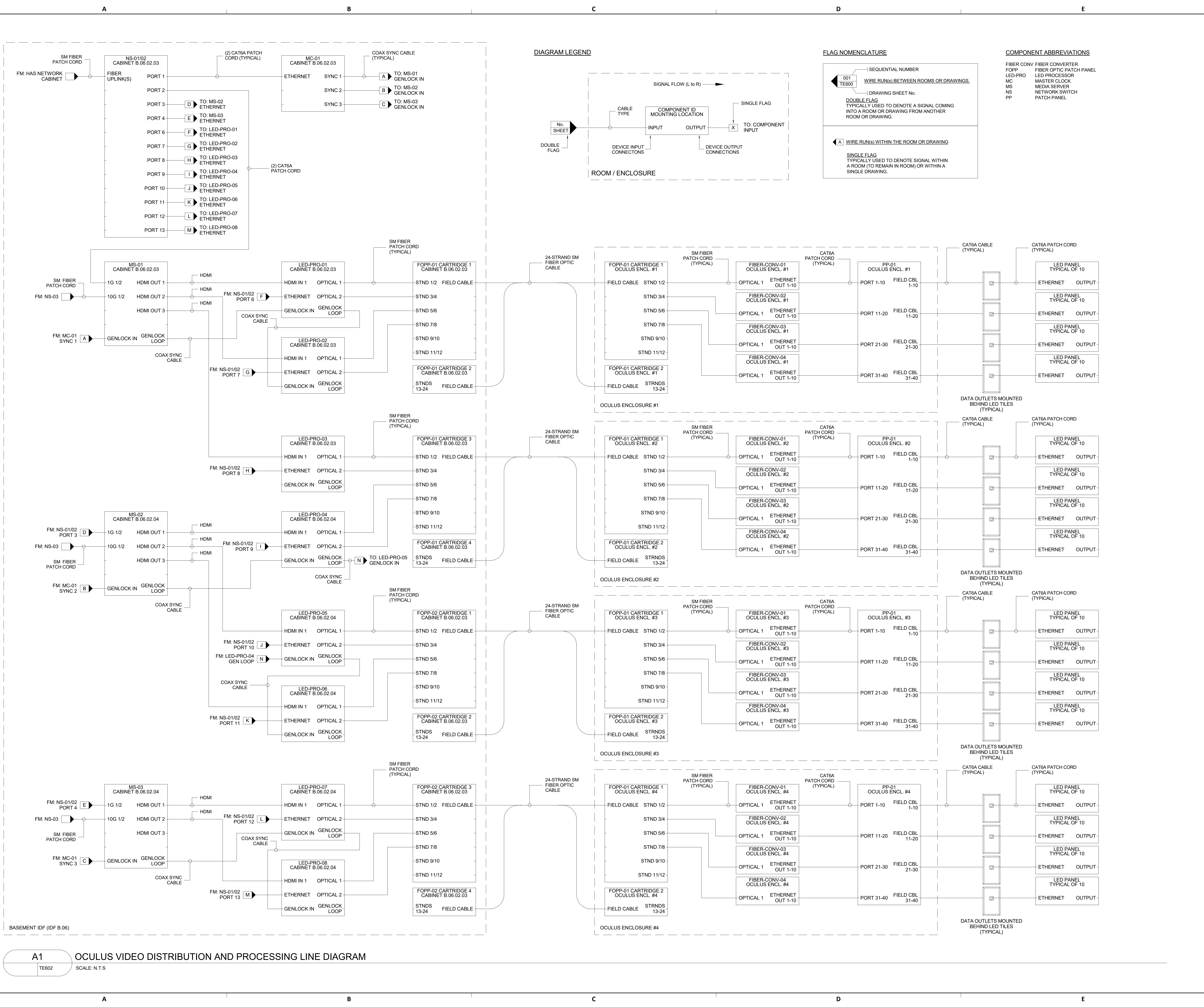


**FLAG NOMENCLATURE**



**COMPONENT ABBREVIATIONS**

- FIBER CONV FIBER CONVERTER
- FOPP FIBER OPTIC PATCH PANEL
- LED-PRO LED PROCESSOR
- MC MASTER CLOCK
- MS MEDIA SERVER
- NS NETWORK SWITCH
- PP PATCH PANEL



**A1** OCULUS VIDEO DISTRIBUTION AND PROCESSING LINE DIAGRAM  
SCALE: N.T.S.

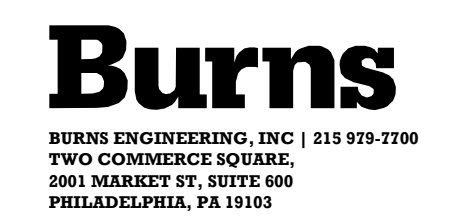
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 OLD DWA No.:  
 OLD DWA No.:



3780 N TERMINAL ROAD  
HOUSTON, TX 77032

**GEORGE BUSH  
INTERCONTINENTAL AIRPORT**  
CONSTRUCTION DOCUMENTS  
OCULUS

C.I.P. No. **A-0958** A.I.P. No.  
C.O.H. No. **4600015176** D.O.A. No.  
B.S.G. No. H.A.S. No. **0958**  
ITRP T.I.P. No.



BURNS ENGINEERING, INC | 215 975-2700  
700 COMMERCIAL SQUARE  
2001 MARKET ST. SUITE 600  
PHILADELPHIA, PA 19103

DESIGNER PROJECT No.: **2022-109**

PROJECT STATUS: **90%CD**

**REVISIONS**

No.	DESCRIPTION	DATE	BY

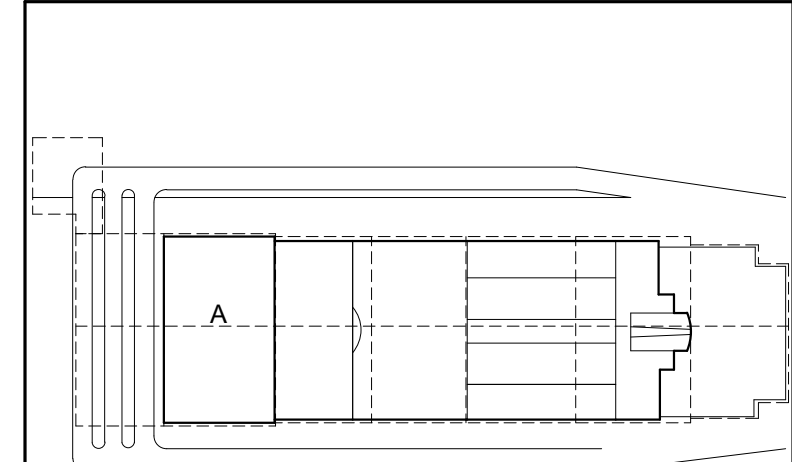
DESIGN BY: C.M.C. & R.W.H.  
DRAWN BY: A.A & P.I.  
CHECKED BY: C.M.C. & R.W.H.  
ISSUE DATE: 10/26/22  
APPROVED BY: M.M  
APPROVAL DATE: 10/26/22

DIRECTOR  
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Drawing Status

**CD**  
90%CD

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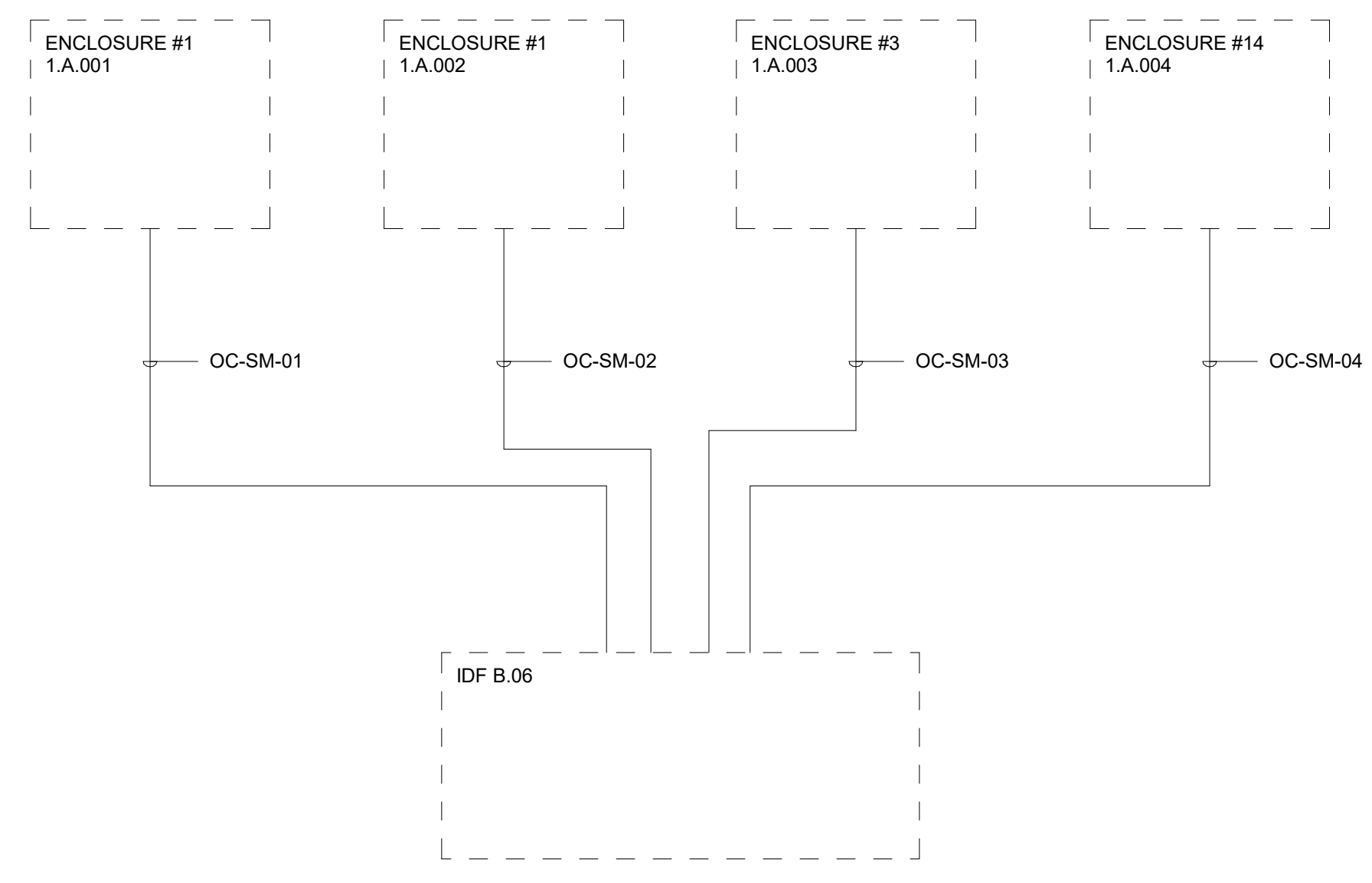
SHEET NAME:  
BLOCK DIAGRAMS - FIBER BACKBONE  
DIAGRAMS

SHEET No. **TE603** SCALE: **N.T.S**

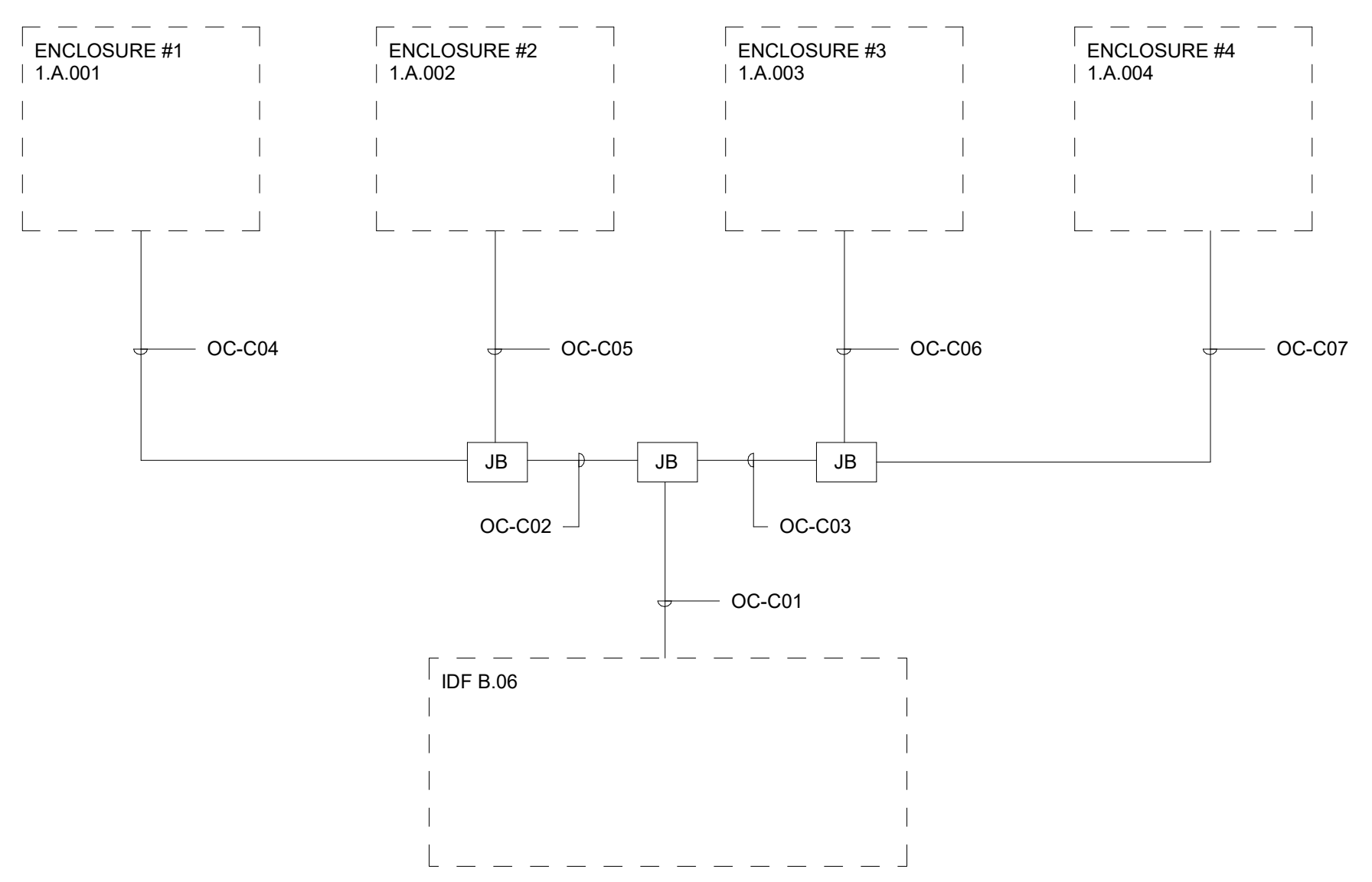
SHEET SIZE: 30"x42" ARCH E1

REVISION	CABLE ID	SCOPE	BACKBONE TYPE	CABLE		FROM ROOM		TO ROOM		PATHWAY ID	NOTES
				STRANDS	TYPE	ROOM NUMBER	DEVICE NUMBER	ROOM NUMBER	DEVICE NUMBER		
				OC-SM-01	PROVIDE	IDF TO TE	24	SFMO	IDF B.06		
OC-SM-02	PROVIDE	IDF TO TE	24	SFMO	IDF B.06	B.06.02.03	TELECOM ENCL.	1.A.001	OC-C01/C02/C05		
OC-SM-03	PROVIDE	IDF TO TE	24	SFMO	IDF B.06	B.06.02.03	TELECOM ENCL.	1.A.001	OC-C01/C03/C06		
OC-SM-04	PROVIDE	IDF TO TE	24	SFMO	IDF B.06	B.06.02.03	TELECOM ENCL.	1.A.001	OC-C01/C03/C07		

REVISION	CABLE ID	SCOPE	FROM ROOM	TO ROOM	PATHWAY TYPE	INNERDUCT	NOTES							
								OC-C001	EXISTING	IDF B.06	JB-01	(1) 4"EMT	(3) 3-CELL RISER FABRICK INNERDUCT	PROVIDED BY ITRP CONTRACTOR
								OC-C002	PROVIDE	JB-01	JB-02	(1) 2"EMT	3-CELL RISER FABRICK INNERDUCT	
OC-C003	PROVIDE	JB-01	JB-03	(1) 2"EMT	3-CELL RISER FABRICK INNERDUCT									
OC-C004	PROVIDE	JB-02	TE 1.A.001	(1) 2"EMT	3-CELL RISER FABRICK INNERDUCT									
OC-C005	PROVIDE	JB-02	TE 1.A.002	(1) 2"EMT	3-CELL RISER FABRICK INNERDUCT									
OC-C006	PROVIDE	JB-03	TE 1.A.003	(1) 2"EMT	3-CELL RISER FABRICK INNERDUCT									
OC-C007	PROVIDE	JB-03	TE 1.A.004	(1) 2"EMT	3-CELL RISER FABRICK INNERDUCT									



**A2** BACKBONE CABLE RISER  
SCALE: N.T.S



**A1** BACKBONE PATHWAYS RISER  
SCALE: N.T.S

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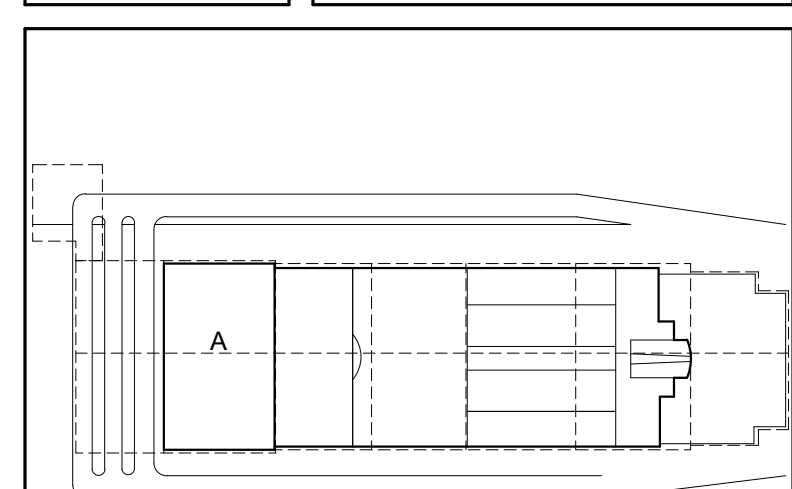
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REVISIONS			
No.	DESCRIPTION	DATE	BY
1	CMS RFP	12/14/22	R.W.H

DESIGN BY: C.M.C. & R.W.H.  
DRAWN BY: A.A & P.I.  
CHECKED BY: C.M.C. & R.W.H.  
ISSUE DATE: 12/14/22  
APPROVED BY: M.M  
APPROVAL DATE: 12/14/22

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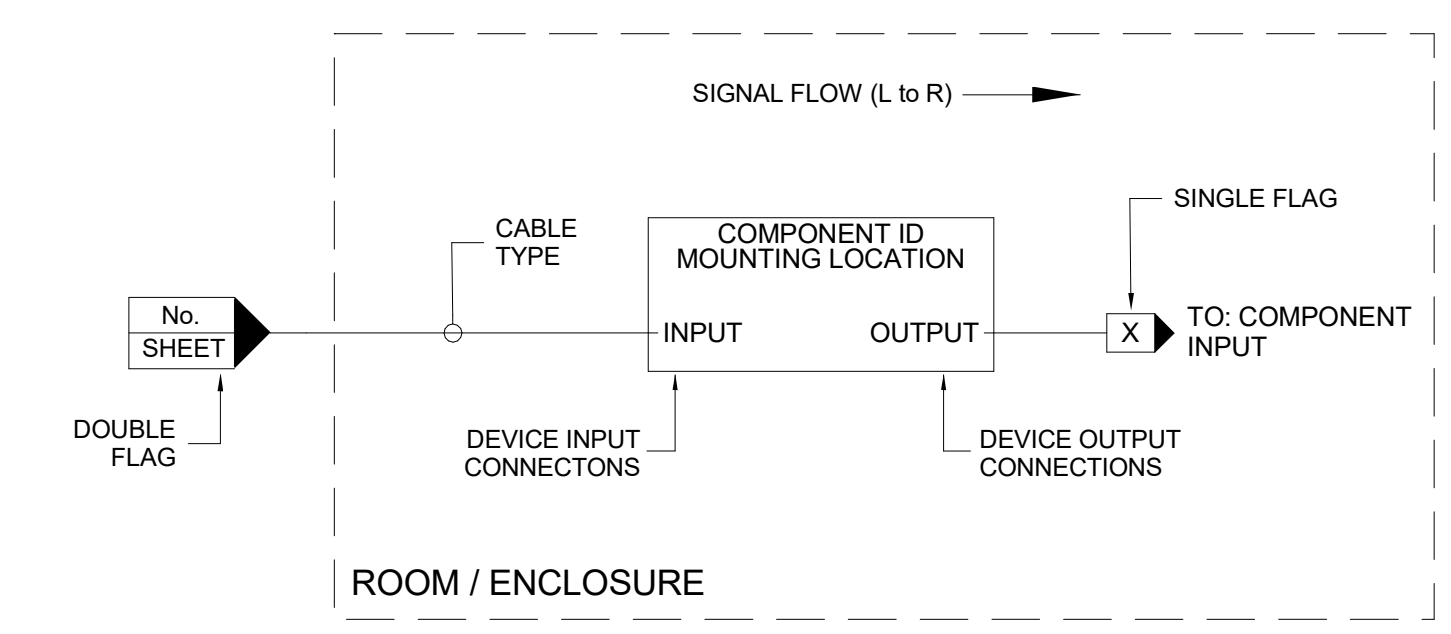
Drawing Status  
**CD**  
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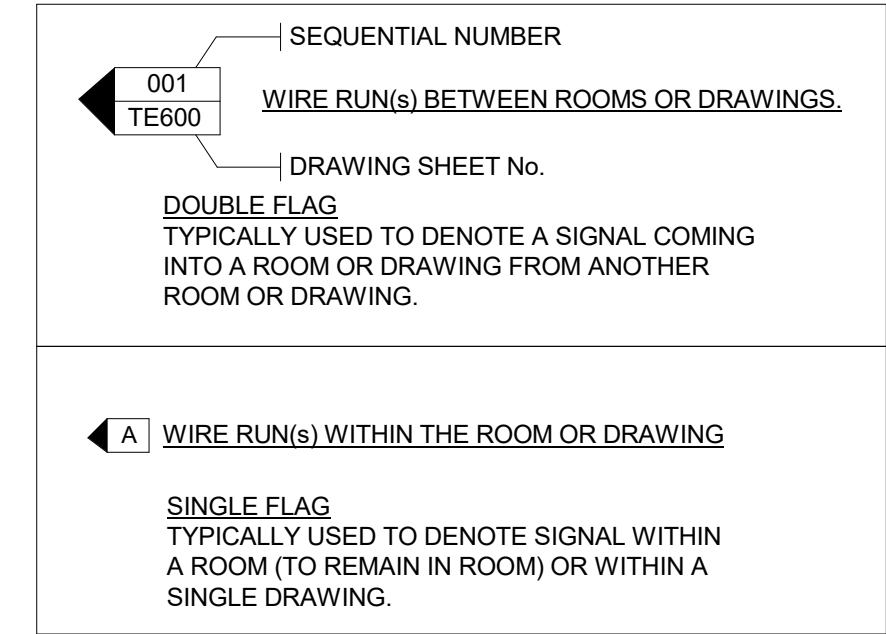
SHEET NAME:  
BLOCK DIAGRAMS - NETWORK DIAGRAMS

SHEET No. **TE604** SCALE: **N.T.S**

**DIAGRAM LEGEND**



**FLAG NOMENCLATURE**

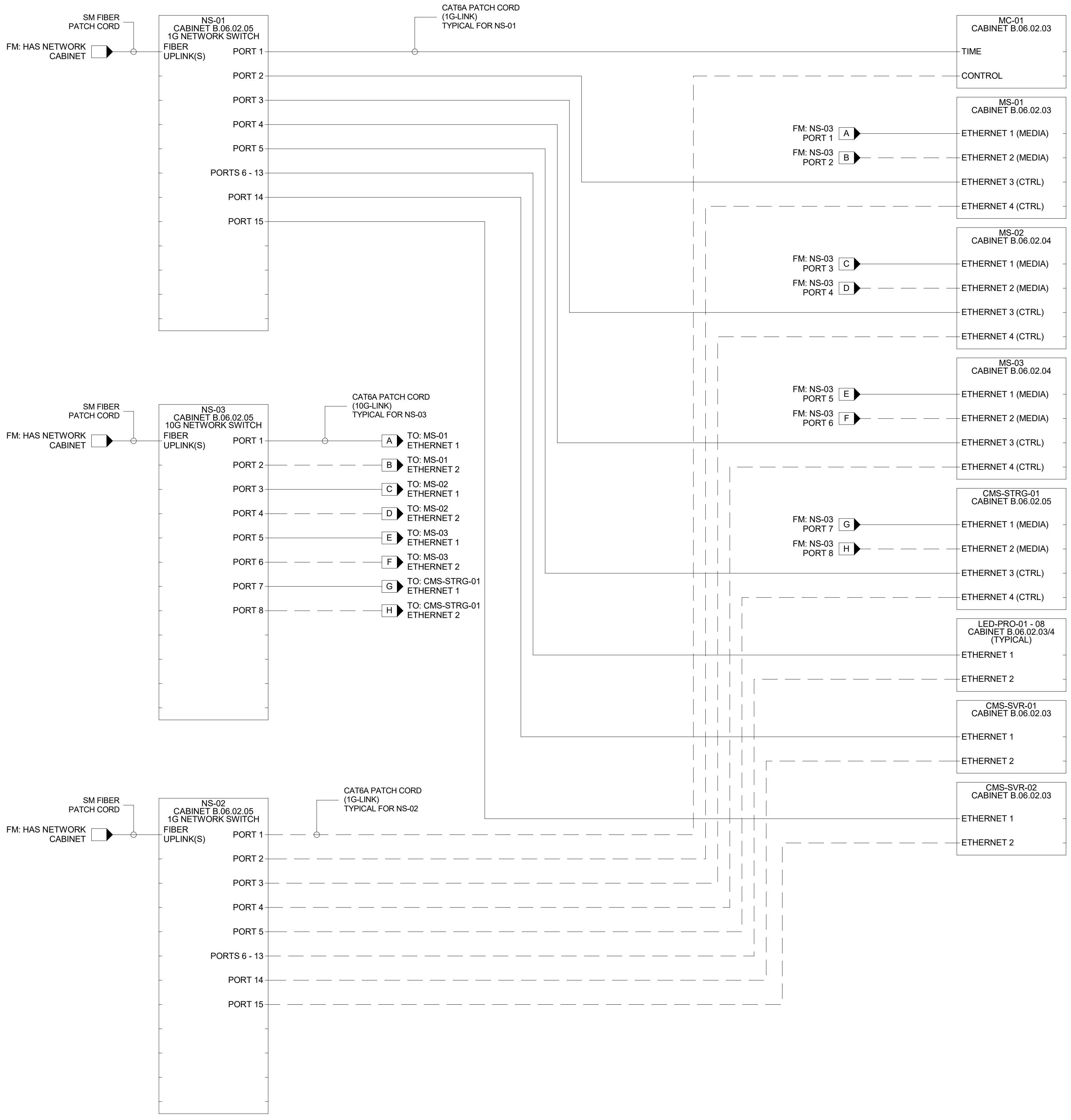


**COMPONENT ABBREVIATIONS**

- CMS-STRG CMS STORAGE SERVER/ARRAY
- CMS-SVR CMS / CONTROL SERVER
- LED-PRO LED PROCESSOR
- MC MASTER CLOCK
- MS MEDIA SERVER
- NS NETWORK SWITCH

**CABLE LEGEND**

- PRIMARY CONNECTION
- - - SECONDARY CONNECTION



**A1** NETWORK DIAGRAM  
SCALE: N.T.S

