AIRCRAFT RESCUE AND FIREFIGHTING (ARFF) FACILITY RENOVATIONS

TWEED-NEW HAVEN REGIONAL AIRPORT (HVN)
NEW HAVEN, CONNECTICUT

ISSUED FOR BID/PERMIT

DATE: 5/21/2025



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555 Long Wharf Drive, 9th Floor New Haven, CT 06511

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ARCHITECT

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STRUCTURAL

LERA

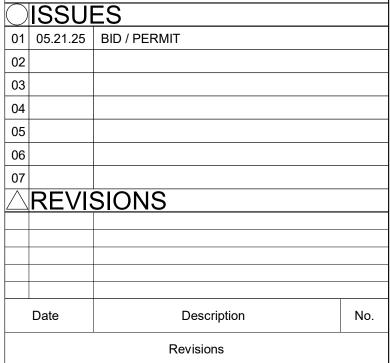
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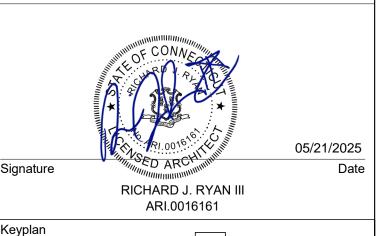
MEP

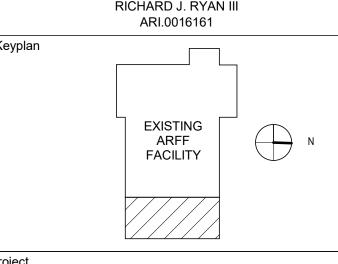
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TWEED-NEW HAVEN AIRPORT ARFF FACILITY EXPANSION

AST HAVEN

COVER SHEET

Project No.	Drawing No.
140318901	
Date	
05/21/2025	
Drawn By	
TR	

Autodesk Docs://252140000 HVN ARFF Building Expansion/HVN-25214-ARCH-F

ER COVER SHEET

25 4:22:53 PM

A.D.					
.F.F. OR AFF	AREA DRAIN ABOVE FINISH FLOOR	FTG. FURR.	FOOTING FURRING	S.	SOUTH
P.	ACCESS PANEL	FUT.	FUTURE	S.C.	SOLID CORE
C. BV.	AIR CONDITIONING ABOVE	G.B.	GRAB BAR	S.H. S.S.	SPRINKLER HEAD STAINLESS STEEL
COUS. CP	ACOUSTICAL ACOUSTICAL CEILING PANEL	G.C. GA.	GENERAL CONTRACTOR GAUGE	SAN. SCHED. OR SCHD.	SANITARY SCHEDULE
Т	ACOUSTICAL CEILING TILE	GALV.	GALVANIZED	SEC.	SECURITY
DD'L. DJ.	ADDITIONAL ADJUSTABLE OR ADJACENT	GFRG GL.	GLASS FIBER REINFORCED GYPSUM GLASS	SECT. SEW.	SECTION SEWER
 ICH.	ALUMINUM ANCHOR	GND. GR.	GROUND GRADE	SGL. SHT.	SINGLE SHEET
PPROX.	APPROXIMATE	GRN	GRANITE	SHWR.	SHOWER
RCH. SPH.	ARCHITECTURAL ASPHALT	GSW GYP. BD.	GYPSUM SHAFT WALL GYPSUM BOARD	SIM. SPEC. OR SPECS.	SIMILAR SPECIFICATION(S)
SS'Y. UTO.	ASSEMBLY AUTOMATIC	H.B	HOSE BIB	SPKR. SQ.	SPEAKER SQUARE
WC	ACOUSTICAL WALL PANELS	H.C.	HOLLOW CORE	SQ. FT. OR S.F.	SQUARE FOOT (FEET)
.L.	BUILDING LINE	H.K. H.M.	HOUSEKEEPING HOLLOW METAL	SQ. YD. OR S.Y. STA.	SQUARE YARD(S) STATION
.O. D.	BOTTOM OF BOARD	HCP.	HANDICAPPED HAND	STD. STL.	STANDARD STEEL
LDG.	BUILDING	HDW. OR HDWR.	HARDWARE	STOR.	STORAGE
LK. M.	BLOCK BEAM	HDWD. HNDRL.	HARDWOOD HANDRAIL	STRUCT. SUSP.	STRUCTURE OR STRUCTURAL SUSPENDED
OT. RK.	BOTTOM BREAK	HORZ.	HORIZONTAL HOUR	SYM.	SYMMETRICAL
RKT.	BRACKET	HT.	HEIGHT	T&G	TONGUE & GROOVE
SMT. TWN.	BASEMENT BETWEEN	HVAC	HEATING, VENTILATION, AIR CONDITIONING	T. T. OR TEMP.	TREAD TEMPERED
		I.D.	INSIDE DIAMETER/DIMENSION	T.O.C.	TOP OF CONCRETE
.B. .G.	CATCH BASIN CORNER GUARD	IN. INCL.	INCH INCLUDE(D)(ING)	T.O.CMU T.O.D.	TOP OF CMU TOP OF DECK
.l. .l.P	CAST IRON CAST IN PLACE	INFO. INSUL.	INFORMATION INSULATION	T.O.O. T.O.P.	TOP OF TOP OF PARAPET
.J.	CONTROL JOINT	INT.	INTERIOR	T.O.S.	TOP OF STEEL
C.O. C.T.	CLEAR OPENING CERAMIC TILE	INV.	INVERT	T.O.S.S. T.V.	TOP OF STRUCTURAL SLAB TELEVISION
AB.	CABINET CATEGORY	JAN CLO. JAN.	JANITOR CLOSET JANITOR	TEL. THK.	TELEPHONE THICK
ER.	CERAMIC	JST.	JOIST	TLT.	TOILET
FMF LG.	COLD FORMED METAL FRAMING CEILING	JT.	JOINT	TYP.	TYPICAL
CLO.	CLOSET	L	LEG	U.N.O	UNLESS NOTED OTHERWISE
CLR CMU	CLEAR CONCRETE MASONRY UNIT	LAB.	LABORATORY LAMINATE	UNF. UR.	UNFINISHED URINAL
OL. ONC.	COLUMN CONCRETE	LAV. LKR.	LAVATORY LOCKER	V.I.F.	VERIFY IN FIELD
ONN.	CONNECTION	LT.	LIGHT	VB.	VAPOR BARRIER
ONST. ONT.	CONSTRUCTION CONTINUOUS	M.	METER	VERT. VEST.	VERTICAL VESTIBULE
ONTR.	CONTRACTOR	M.H.	MANHOLE		
ORR. CPT	CORRIDOR CARPET	M.O. MAS.	MASONRY OPENING MASONRY	W. W.B.	WEST OR WIDTH WEATHER BARRIER
CPTT CTR.	CARPET TILE CENTER	MATL. MAX	MATERIAL MAXIMUM	W.C. W.P.	WATER CLOSET WATERPROOF
TRL.	CONTROL	MBL.	MARBLE	W/	WITH
).F.	DRINKING FOUNTAIN	MECH. MEMB.	MECHANICAL MEMBRANE	W/O WD.	WITHOUT
).O.).P.	DOOR OPENING DAMP PROOFING	MEP. MFG.	MECHANICAL, ELECTRICAL, PLUMBING MANUFACTURER	WDW. WR/GB	WINDOW WATER RESISTANT GYP. BOARD
).S.	DOWNSPOUT	MIN.	MINIMUM	WSCT.	WAINSCOT
BL. EMO.	DOUBLE DEMOLITION	MIR. MISC.	MIRROR MISCELLANEOUS	WT.	WEIGHT
EPT. ET. OR DTL.	DEPARTMENT DETAIL	MTD. MTL.	MOUNTED METAL		
IA. OR DIAM.	DIAMETER	MUL.	MULLION		
ISP.	DIMENSION DISPENSER	N	NORTH		
N. R	DOWN DOOR	N.I.C. N.T.S.	NOT IN CONTRACT NO TO SCALE		
RN	DRAIN	NO.	NUMBER		
WG. WGS.	DRAWING DRAWINGS	NOM.	NOMINAL		
WR.	DRAWER	O.C. O.D.	ON CENTER OUTSIDE DIAMETER/DIMENSION		
	EAST	OFF.	OFFICE		
.J. .S.	EXPANSION JOINT EXPOSED STRUCTURE	OPNG. OPP.	OPENING OPPOSITE		
.W.	EACH WAY	OPP.HD.	OPPOSITE HAND		
.W.C. A.	ELECTRIC WATER COOLER EACH	OVHD. OZ.	OVERHEAD OUNCE		
OR ELEV. LEC. OR ELECT.	ELEVATION ELECTRICAL	P.C.	PRECAST CONCRETE		
MERG. OR EMER.	EMERGENCY	P.LAM.	PLASTIC LAMINATE		
NCL Q	ENCLOSURE EQUAL	PAV. PC.	PAVING PIECE		
QUIP. XIST.	EQUIPMENT EXISTING	PL. PLAS.	PLATE PLASTIC		
XP. OR EXPAN.	EXPANSION	PLBG.	PLUMBING		
XT.	EXTERIOR	PLYWD. PMMP	PLYWOOD PREMANUFACTURED METAL PANEL		
A. D.	FIRE ALARM FLOOR DRAIN	PNT. POL.	PAINT POLISHED		
.E.	FIRE EXTINGUISHER	PR.	PAIR		
E.C. H.C.	FIRE EXTINGUISHER CABINET FIRE HOSE CABINET	PRCST. PREMANUF.	PRECAST PREMANUFACTURED		
H.R.	FIRE HOSE REEL	PT.	POINT		
HT. O.C.	FULL HEIGHT FACE OF CONCRETE	PTD. PTN.	PAINTED PARTITION		
.O.F. .O.S.	FACE OF FINISH FACE OF STUD	R.	RADIUS		
S.	FULL SIZE	R.D.	ROOF DRAIN		
.V.C. DN.	FIRE VALVE CABINET FOUNDATION	R.O. RCP	ROUGH OPENING REFLECTED CEILING PLAN		
N. L. OR FLR.	FINISH	REBAR REF.	REINFORCING BAR		
	FLOOR FLASHING	REFG.	REFERENCE REFRIGERATOR		
LASH					
LASH LUOR.	FLUORESCENT	REINF. REQD.	REINFORCED REQUIRED		
		REINF. REQD. RESIL. REV.	REINFORCED REQUIRED RESILIENT REVISION		

			SHEET S	SYMBOLS			
	NEW PARTITION EXISTING PARTITION	LEVEL	ELEVATION IDENTIFICATION TAG	Wall - N Ceiling Finish Wall - Floor Finish Base Finish	FINISH TYPE IDENTIFICATION TAG	01 A101	WALL SECTION IDENTIFICATION TAG
	DEMOLISHED PARTITION TEMPORARY PARTITION	1' - 0"	CEILING TAG	Wall - S		SIM A101	
	PARTIAL HEIGHT PARTITION	ę — — — —	CENTER LINE	(A3-DA)	PARTITION TYPE IDENTIFICATION TAG		DETAIL REFERENCE TAG
(001) (1t)	KEYNOTE WINDOW TYPE IDENTIFICATION TAG	ይN 90 00' 00" E Distance	PROPERTY LINE	L-1	LOUVER TAG		
101)	DOOR IDENTIFICATION TAG	0' - 1"	MATCHLINE		GRID LINE		FIRE EXTINGUISHER CABINET
Room name 101	ROOM NAME IDENTIFICATION TAG	1/A101	EXTERIOR ELEVATION IDENTIFICATION TAG	(0)	IDENTIFICATION TAG		BREAK LINE
(01)	BATHROOM ACCESSORIES TAG	1/A101	INTERIOR ELEVATION IDENTIFICATION TAG	(1)	REVISION CLOUD AND IDENTIFICATION TAG	01 A101	BUILDING SECTION IDENTIFICATION TAG

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		_
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CS601	SITE DETAILS	
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	ADULT	SECTION
ELECTRICAL DEVICES		
ELECTRICAL, PHONE AND DATA OUTLETS (TO CENTER)	17" MIN-46" MAX	308.2.1
ABOVE COUNTER OUTLETS (TO CENTER)	44" MAX.	308.2.2
LIGHT SWITCHES (HIGHEST OPERABLE PART)	48" MAX.	308
FIRE ALARM PULL (HIGHEST OPERABLE PART)	48" MAX.	308
THERMOSTATS (HIGHEST OPERABLE PART)	48" MAX.	308
FIRE EXTINGUISHER CAB. (T.O.HANDLE/OPER. DEVICE)	48" MAX.	308.3.1

05.21.25 BID / PERMIT REVISIONS Date Description Revisions RICHARD J. RYAN III

LANGAN Langan CT, Inc.

555 Long Wharf Drive, 9th Floor New Haven, CT 06511

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TWEED-NEW HAVEN AIRPORT ARFF FACILITY **EXPANSION**

EAST HAVEN Drawing Title

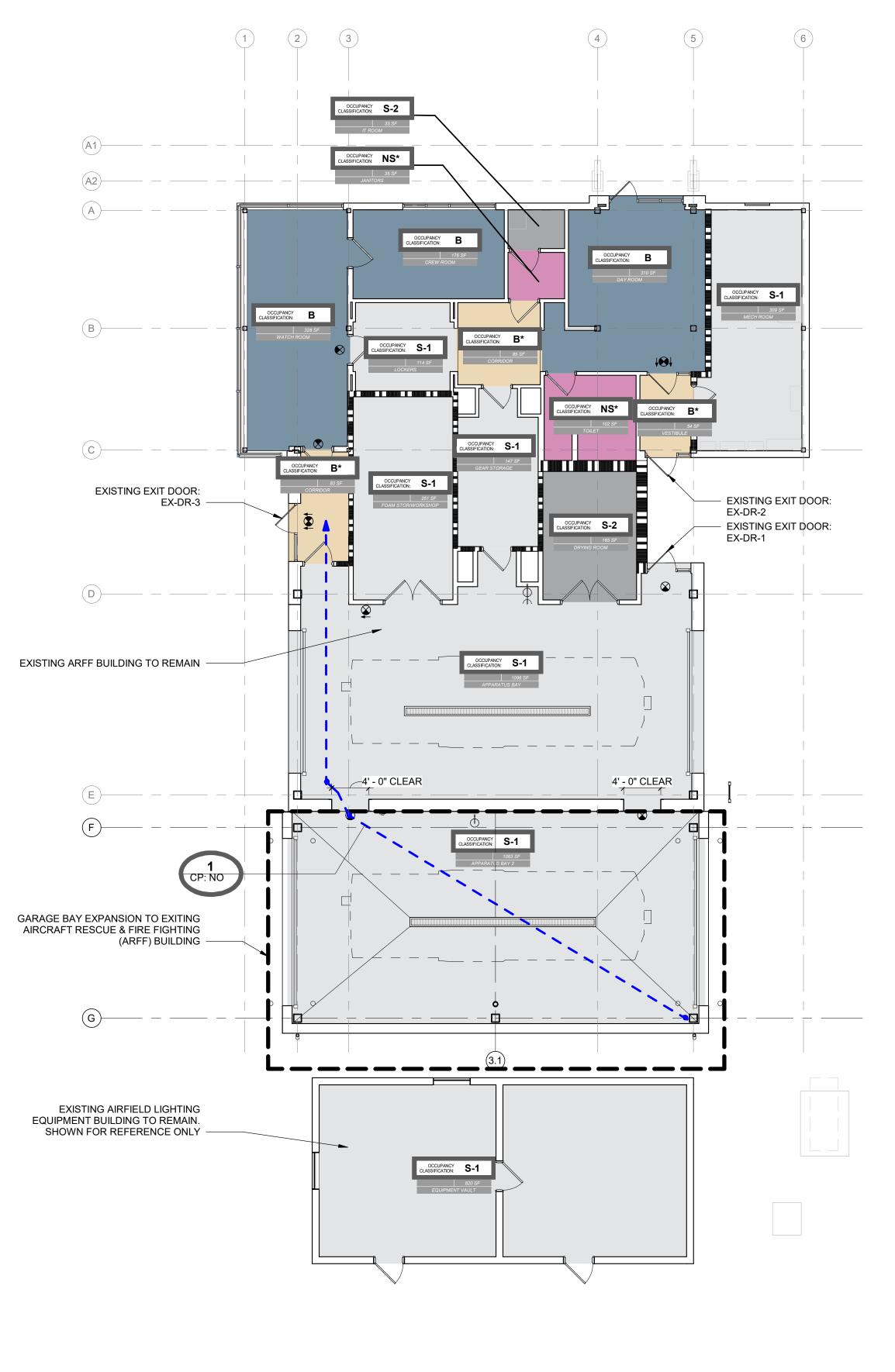
CONNECTICUT

STANDARDS AND SYMBOLS

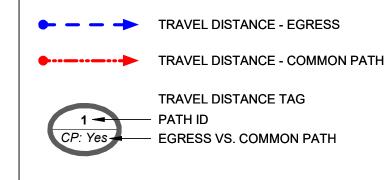
Drawing No. Project No. 140318901 G001 05/21/2025 TR Checked By

PROJI	ECT DATA AND	CODE INF	ORMATIO	N
PROJECT DATA				
PROJECT NAME:	TWEED-NEW HAVEN AIRPOR	T ARFF FACILITY F	XPANSION	
PROJECT ADDRESS:	155 BURR STREET NEW HAVEN, CT 06512	TAINT TAOLETT LA	N 7 INCICIT	
OWNER:	AVPORTS			
APPLICABLE CODES				
BUILDING CODE:	2022 CT STATE BUILDING C	,		
	2022 CT STATE EXISTING BI			VITH CT AMENDMENTS
ACCESSIBILITY CODE:	2010 ADA STANDARDS FOR			ION ACCOCIATION INC
ELECTRICAL CODE: ENERGY CODE:	NATIONAL ELECTRICAL CO	•		ION ASSOCIATION, INC.
FIRE CODE:	2022 CONNECTICUT STATE			
MECHANICAL CODE:	INTERNATIONAL MECHANIC			
PLUMBING CODE:	INTERNATIONAL PLUMBING	CODE 2021		
REGIONAL OR MUNICIPAL CODE:	TOWN OF EAST HAVEN, CT			
LIFE SAFETY INFORMATION				REFERENCE (2022 CTB
USE OR OCCUPANCY CLASSIFICATION	l			-
OCCUPANCY:	NON-SEPARATED MIXED US	SE WITH B AND S-1/	S-2 OCCUPANCIES	311.2
TYPE OF CONSTRUCTION				
CONSTRUCTION TYPE:	II -B			602
FIRE PROTECTION REQUIREMENTS				
BEARING WALLS: INT./EXT.	0 HR			TABLE 601
NONBEARING WALLS: INT./EXT.	0 HR			TABLE 601
ROOF / CEILING:	0 HR			TABLE 601
FLOOR/ CEILING: STRUCTURAL FRAME/COLUMNS:	0 HR 0 HR			TABLE 601
STRUCTURAL FRAME/CULUMNS.	UNK			TABLE 601
RATED SEPARATIONS:	0 HR (NON-SEPARATED	MIXED USE)		508.3
DESIGN LIMITATIONS HEIGHT:	MAX. ALLOWED 55'- UNSPRINKLERED	23' - 0"	OVIDED	TABLE 504.3
neign1.	75' - SPRINKLERED	23 - 0		TABLE 504.3
AREA:	21875 SF	3873 SF		506.2, 506.3
				·
MEANS OF EGRESS	MAX. ALLOWED			
TRAVEL DISTANCE TO EXIT:	200'-0" - UNSPRINKLERED 250'-0" - SPRINKLERED			TABLE 1017.2
COMMON PATH OF EGRESS TRAVEL:	100'-0" - SPRINKLERED			TABLE 1006.2.1
EGRESS WIDTH PER OCCUPANT	MIN. ALLOWED			4005.0.4.4045.5
STAIRS:	0.3" - UNSPRINKLERED OR 36" CLEAR WIDTH, WHICHEVER IS GREATER			1005.3.1, 1010.2
DOORS:	0.2" - UNSPRINKLERED OR 32" MIN. CLEAR WIDTH, WHICHEVER IS GREATER			1005.3.2, 1010.1.1
ENERGY CODE INFORMATION				REFERENCE (2021 IEC
INSULATION ABOVE ROOF DECK:	R-30ci			TABLE C402.1.3
WALLS, ABOVE GRADE:	R-11.4ci			TABLE C402.1.3
WALLS, BELOW GRADE:	R-7.5ci			TABLE C402.1.3
FLOORS:	R-14.6ci			TABLE C402.1.3
ARFF BUILDING EGRESS CAP	PACITY CALCULATION			
EGRESS COMPONENT	COMPONENT TYPE:	DOOR WIDTH:	LOAD FACTOR:	LIMITING CAPACITY:
EX-DR-1		36"		180
	DOOR	36"	0.2	180
EX-DR-2 EX-DR-3	BOOK	36"	-	180

NOTE: CONTRACTOR SHALL PROVIDE AND CONFORM WITH ALL REQUIRED R/ INSULATION VALUES AS NOTED ABOVE. CONTRACTOR SHALL SUBMIT MATERIALS IN ACCORDANCE WITH THE ABOVE REQUIREMENTS AND SPECIFICATIONS.



LIFE SAFETY LEGEND



PATH OF TRAVEL DISTANCES

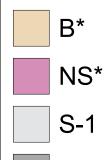
		EGRESS VS. COMMO
PATH ID	DISTANCE	PATH
1	74' - 8"	EGRESS
	74' - 8"	
OCCUE	ANCVE	CHEDIII E DEC
	1	1 74' - 8" 74' - 8"

OCCUPANCY SCHEDULE PER ROOM

		CUPANO	
	CA	LCULATION	JIN
NAME	AREA	OLF	occs
APPARATUS BAY	955 SF	300	4
APPARATUS BAY 2	998 SF	300	4
CORRIDOR	78 SF	100	1
CORRIDOR	64 SF	100	1
CREW ROOM	156 SF	150	2
DAY ROOM	283 SF	150	2
DRYING ROOM	139 SF	300	1
FOAM STOR / WORKSHOP	234 SF	300	1
GEAR STORAGE	134 SF	300	1
IT ROOM	25 SF	300	1
JANITOR'S	30 SF	300	1
LOCKERS	102 SF	50	3
MECH. ROOM	265 SF	300	1
TOILET	89 SF	0	NS
VESTIBULE	45 SF	100	1
WATCH ROOM	276 SF	150	2
TOTAL AREA:	3873 SF		
TOTAL OCCUPANT LOAD:			26

EQUIPMENT VAULT *ARFF AND EQUIPMENT VAULT BUILDINGS ARE 2 BUILDINGS ON THE SAME LOT PER SECTION 503.1.2.

OCCUPANCY CLASSIFICATION LEGEND

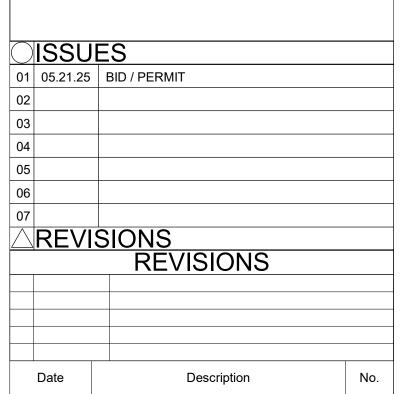


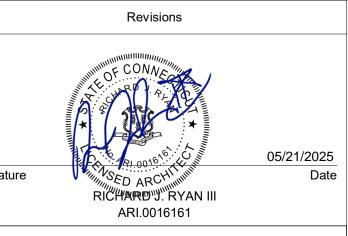
S-2

PARTITION RATING LEGEND

EXISTING 1 HOUR RATED PARTITION ASSEMBLY UNRATED PARTITION ASSEMBLY

KEYPLAN EXISTING FACILITY





LANGAN

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TWEED-NEW HAVEN AIRPORT ARFF FACILITY **EXPANSION**

EAST HAVEN CONNECTICUT Drawing Title

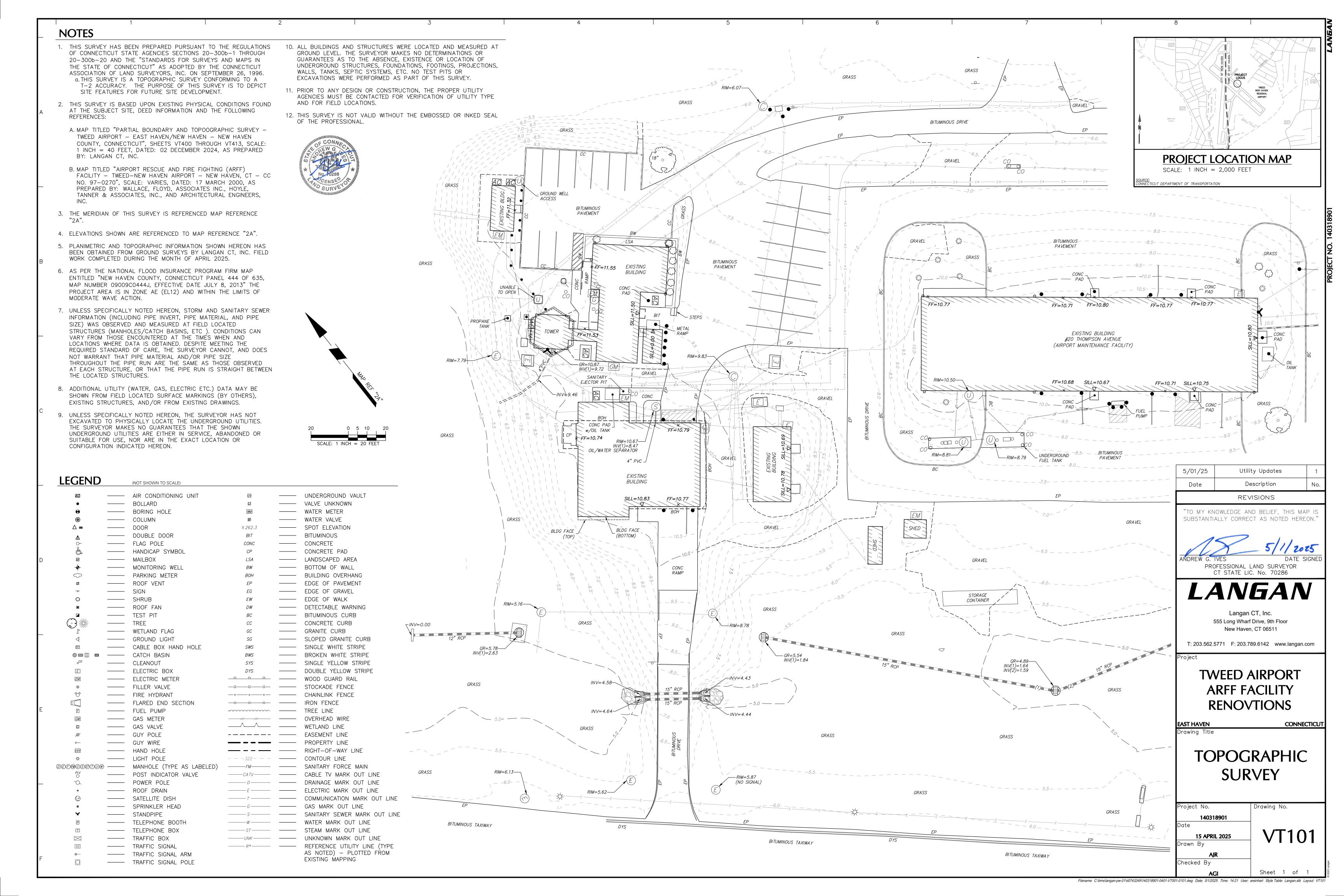
LIFE SAFETY PLAN -LEVEL ONE -**OVERALL**

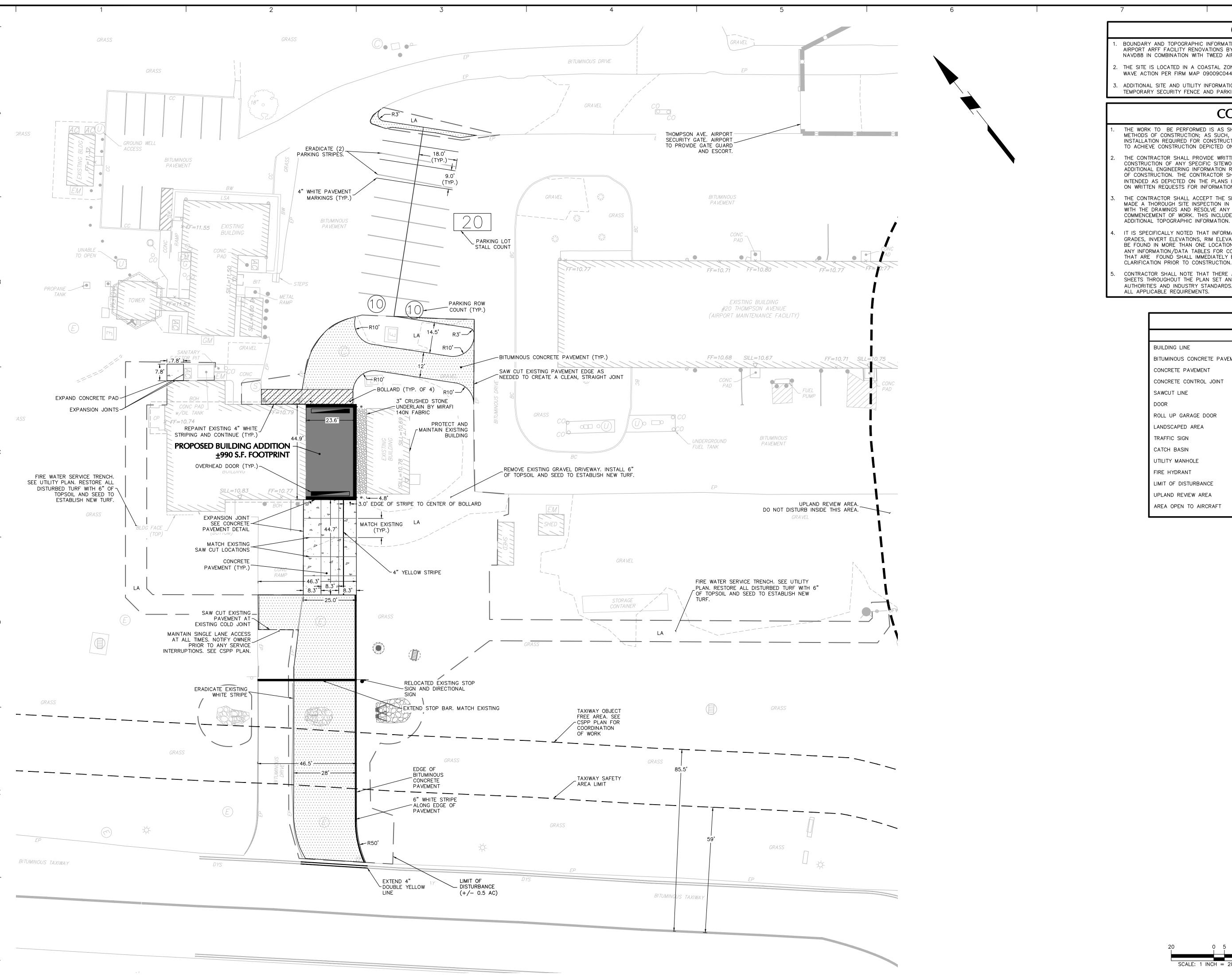
Project No. 140318901 G100 05/21/2025 Drawn By Checked By

Date: 4/28/2025 Time: 13:39 User: bmichaelis Style Table: Langan.stb Layout: CS101 Document Code: 140318901-0501-CS101-0101

1 LIFE SAFETY FLOOR PLAN
1/8" = 1'-0"

EXISTING OCCUPANCY TYPES WITHIN THE EXISTING ARFF BUILDING REMAIN UNCHANGED. EXISTING PLUMBING FIXTURE COUNTS REMAIN UNCHANGED. EXISTING EGRESS CAPACITY REMAINS UNCHANGED.



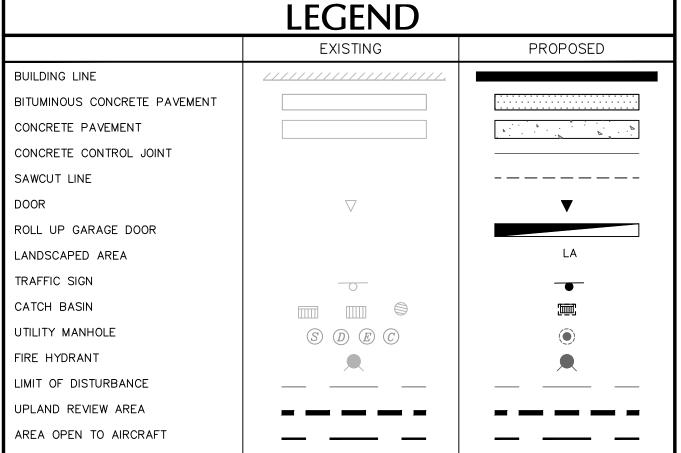


GENERAL NOTES

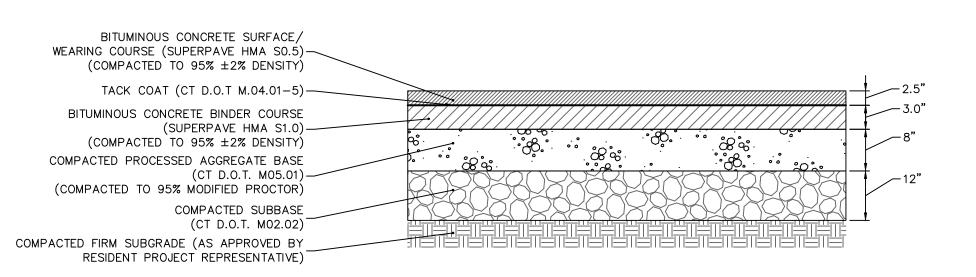
- 1. BOUNDARY AND TOPOGRAPHIC INFORMATION WAS OBTAINED FROM A PLAN TITLED "TOPOGRAPHIC SURVEY" FOR TWEED AIRPORT ARFF FACILITY RENOVATIONS BY LANGAN. DATED APRIL 15, 2025. COORDINATES REFERENCED TO NAD83 AND NAVD88 IN COMBINATION WITH TWEED AIRPORT PRIMARY AIRPORT CONTROLS AND SECONDARY AIRPORT CONTROLS.
- 2. THE SITE IS LOCATED IN A COASTAL ZONE AE (SHADED), AN AREA SUBJECT TO COASTAL FLOODING WITH MODERATE WAVE ACTION PER FIRM MAP 09009C0444J, EFFECTIVE DATE JULY 8, 2013. BASE FLOOD ELEVATION IS 12' NAVD88.
- 3. ADDITIONAL SITE AND UTILITY INFORMATION WAS OBTAINED FROM A PLAN TITLED "SITE PLAN" FOR TWEED AIRPORT TEMPORARY SECURITY FENCE AND PARKING PREPARED BY LANGAN AND DATED 09/13/2024.

CONTRACTOR NOTES

- 1. THE WORK TO BE PERFORMED IS AS SHOWN ON THE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION; AS SUCH, THESE PLANS MAY NOT COMPLETELY REPRESENT ALL SPECIFIC DETAILS OF INSTALLATION REQUIRED FOR CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL IMPROVEMENTS REQUIRED TO ACHIEVE CONSTRUCTION DEPICTED ON THESE PLANS.
- THE CONTRACTOR SHALL PROVIDE WRITTEN REQUESTS FOR INFORMATION TO THE ENGINEER PRIOR TO THE CONSTRUCTION OF ANY SPECIFIC SITEWORK ITEM IF ANY SITEWORK ITEM DEPICTED ON THE PLANS WARRANTS ADDITIONAL ENGINEERING INFORMATION REQUIRED FOR CONSTRUCTION AND IS NOT RELATED TO MEANS AND METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SITEWORK ITEMS INSTALLED DIFFERENTLY THAN INTENDED AS DEPICTED ON THE PLANS IN THE ABSENCE OF SUBMITTING AND RECEIVING REVIEWS AND/OR DIRECTION ON WRITTEN REQUESTS FOR INFORMATION.
- THE CONTRACTOR SHALL ACCEPT THE SITE AS IS. THE CONTRACTOR SHALL MAKE AND SHALL BE DEEMED TO HAVE MADE A THOROUGH SITE INSPECTION IN ORDER TO FIELD CHECK EXISTING SITE CONDITIONS, CORRELATE CONDITIONS WITH THE DRAWINGS AND RESOLVE ANY POSSIBLE CONSTRUCTION CONFLICTS WITH THE ENGINEER PRIOR TO COMMENCEMENT OF WORK. THIS INCLUDES A TOPOGRAPHIC SURVEY OF ANY AREAS THE CONTRACTOR REQUIRES
- IT IS SPECIFICALLY NOTED THAT INFORMATION RELATED TO ELEVATIONS AND PROPOSED UTILITIES (SUCH AS ROADWAY GRADES, INVERT ELEVATIONS, RIM ELEVATIONS, GRATE ELEVATIONS, BUILDING FINISHED FLOOR ELEVATIONS, ETC.) MAY BE FOUND IN MORE THAN ONE LOCATION ON THE DRAWINGS. CONTRACTOR SHALL REVIEW ALL PLANS, PROFILES AND ANY INFORMATION/DATA TABLES FOR CONSISTENCY PRIOR TO CONSTRUCTION. ANY INCONSISTENCIES OR DISCREPANCIES THAT ARE FOUND SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING REQUESTING CLARIFICATION PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL NOTE THAT THERE ARE ADDITIONAL NOTES, SPECIFICATIONS AND REQUIREMENTS CONTAINED ON SHEETS THROUGHOUT THE PLAN SET AND AVAILABLE REFERENCES TO SPECIFICATIONS FROM APPLICABLE GOVERNING AUTHORITIES AND INDUSTRY STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN, REVIEW AND ADHERE T



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NOTES:

1. PROVIDE BITUMINOUS CONCRETE PAVEMENT AS INDICATED ON THE SITE PLAN.

25 SECONDOLLED WITH AT LEAST 4 PASSES. 2. ALL AREAS TO BE PAVED SHALL BE PROOFROLLED WITH AT LEAST 4 PASSES OF EITHER A SMOOTH ROLLER HAVING A MINIMUM STATIC DRUM WEIGHT OF 5-TONS OR A FULLY LOADED TANDEM DUMP TRUCK. ANY SOFT AREAS SHALL BE REMOVED AND REPLACED WITH CLEAN, GRANULAR, FREE-DRAINING SOIL. FILL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 12-INCHES AND SHALL BE COMPACTED TO AT LEAST 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.

3. FILL UTILIZED FOR RAISING GRADE SHALL MEET THE SPECIFICATIONS FOR GRANULAR FILL AS DEFINED IN THE EARTHWORK SPECIFICATION. 4. PAVING BASE COURSE SHALL BE CONSTRUCTED IN LAYERS NOT LESS THAN 2 INCHES AND NOT MORE THAN 5 INCHES THICK PER LIFT. 5. BITUMINOUS CONCRETE SUPERPAVE SHALL CONFORM TO CONNECTICUT D.O.T. STANDARD SPECIFICATIONS, FORM 819, SECTION 4.06, LATEST

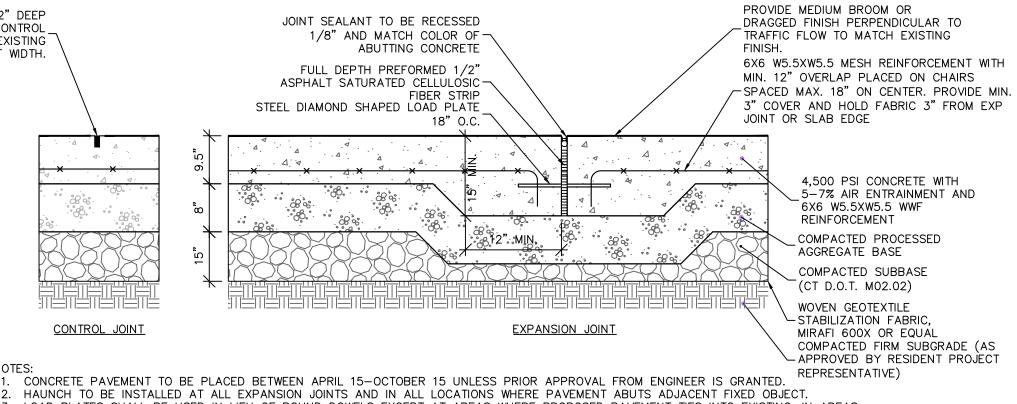
BITUMINOUS CONCRETE PAVEMENT SECTION - SUPERPAVE

6. PROCESSED AGGREGATE BASE SHALL CONFORM TO CONNECTICUT D.O.T. STANDARD SPECIFICATIONS, FORM 819, SECTION 3.04, LATEST

SAWCUT EXISTING BITUMINOUS CONCRETE PAVEMENT. FINISH WITH HOT JOINT SEALER **EXISTING** PAVEMENT-SECTION SEE BITUMINOUS CONCRETE PAVEMENT SECTION COMPACTED (CT D.O.T. M.04.01-5) PAVEMENT BASE SUBGRADE EXISTING PAVEMENT BASE TO BE CUT AT A 1:1 SLOPE

NOTES:
1. CONTRACTOR TO INSTALL TACK COAT ON ALL BUTT EDGES OF EXISTING

SAW CUT PAVEMENT SECTION



HAUNCH TO BE INSTALLED AT ALL EXPANSION JOINTS AND IN ALL LOCATIONS WHERE PAVEMENT ABUTS ADJACENT FIXED OBJECT. . LOAD PLATES SHALL BE USED IN LIEU OF ROUND DOWELS EXCEPT AT AREAS WHERE PROPOSED PAVEMENT TIES INTO EXISTING. IN AREAS WHERE USED, DOWELS TO BE 12" LONG, 1/2" DIAMETER EPOXY COATED STEEL LOCATED 18" ON CENTER, GREASE ONE END.

4. LOAD PLATES, DOWELS, AND EXPANSION JOINTS SHALL BE UTILIZED AT ALL LOCATIONS WHERE CONCRETE IS POURED ABUTTING STATIONARY OBJECTS. 5. EXPANSION AND CONTROL JOINTS SHALL BE INSTALLED PER LAYOUT AND DIMENSIONING PLANS. IF NOT SPECIFICALLY DETAILED MAXIMUM SPACING OF JOINTS

6. PAVEMENT TO BE HARD TROWELED PRIOR TO RECEIVING BROOM OR DRAGGED FINISH WITH 1/2" SAWCUT JOINTS. JOINTING TO BE COMPLETED AFTER SURFACE

7. CONCRETE PADS NEXT TO BUILDING ENTRANCES ARE TO BE PINNED TO FOUNDATION. COORDINATE WITH STRUCTURAL DRAWINGS.

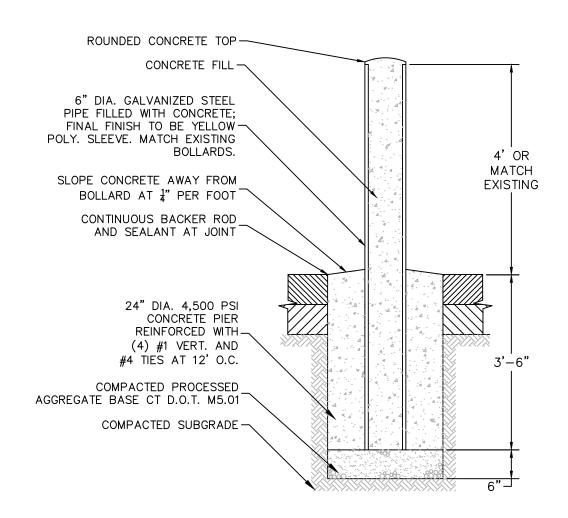
2-1/2" DEEP

JOINT WIDTH.

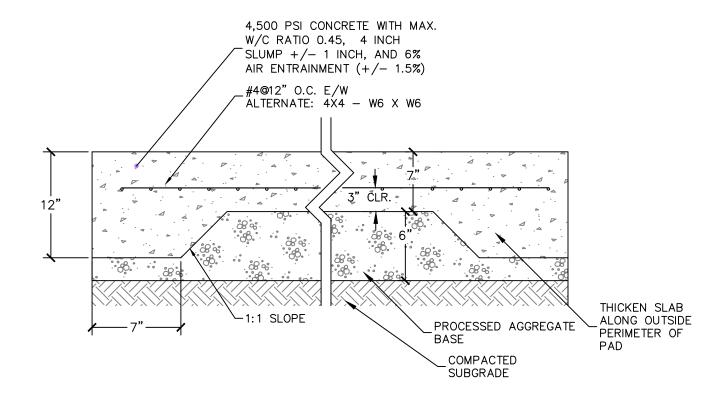
SAWCUT CONTROL

JOINT. MATCH EXISTING

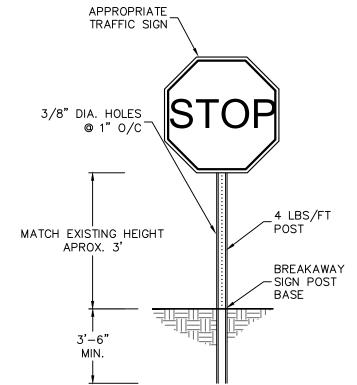
CONCRETE PAVEMENT



BOLLARD



CONCRETE PAD



1. ALL POSTS SHALL BE OF ADEQUATE LENGTH TO MEET THE REQUIREMENTS FOR ERECTION AS STATED IN THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL

DEVICES FOR STREETS AND HIGHWAYS". 2. STEEL FOR DELINEATOR POSTS SHALL BE A.S.T.M. A36 STEEL. STEEL FOR ALL OTHER POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 499 GRADE 80 AND TO THE CHEMICAL REQUIREMENTS OF A.S.T.M. A1 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT (MASS) OF 91 LBS OR GREATER PER LINEAR

3. ALL STEEL POSTS AND BRACKETS SHALL BE CUT, BENT, AND HOLES PUNCHED AND DRILLED BEFORE GALVANIZING. GALVANIZING SHALL BE IN CONFORMANCE WITH CURRENT A.S.T.M. SPECIFICATION

A123-78 (OR LATEST REVISED). 4. ALL POST SHALL BE EMBEDDED MINIMUM 3'-6" BELOW

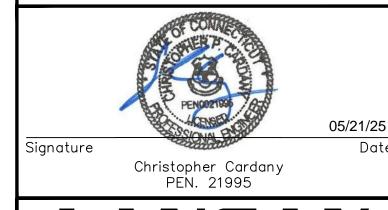
5. THE BOTTOM BASE POST SHALL HAVE A MAXIMUM REVEAL OF 4". ALL SIGN POSTS SHALL HAVE BREAKAWAY FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN THE

CURRENT "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS." SIGN PANEL SIZES SHALL DETERMINE POST TYPE AND

NUMBERS AS SHOWN ON THIS DETAIL AND DIRECTIONAL 8. BOLTS SHALL NOT PROTRUDE MORE THAN 3/4"

BEYOND THE NUT WHEN TIGHT BUT SHALL ENGAGE ALL THREADS IN THE NUT. 9. ALL TRAFFIC AND PEDESTRIAN SIGNAGE AND LOCATION SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" AND ALL CURRENT AMENDMENTS.

ON-SITE TRAFFIC SIGN POST



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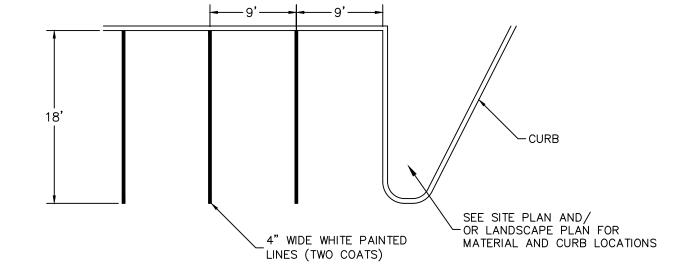
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SITE DETAILS

Drawing No. 140318901 **CS601** 05/21/2025 Drawn By BTM hecked By



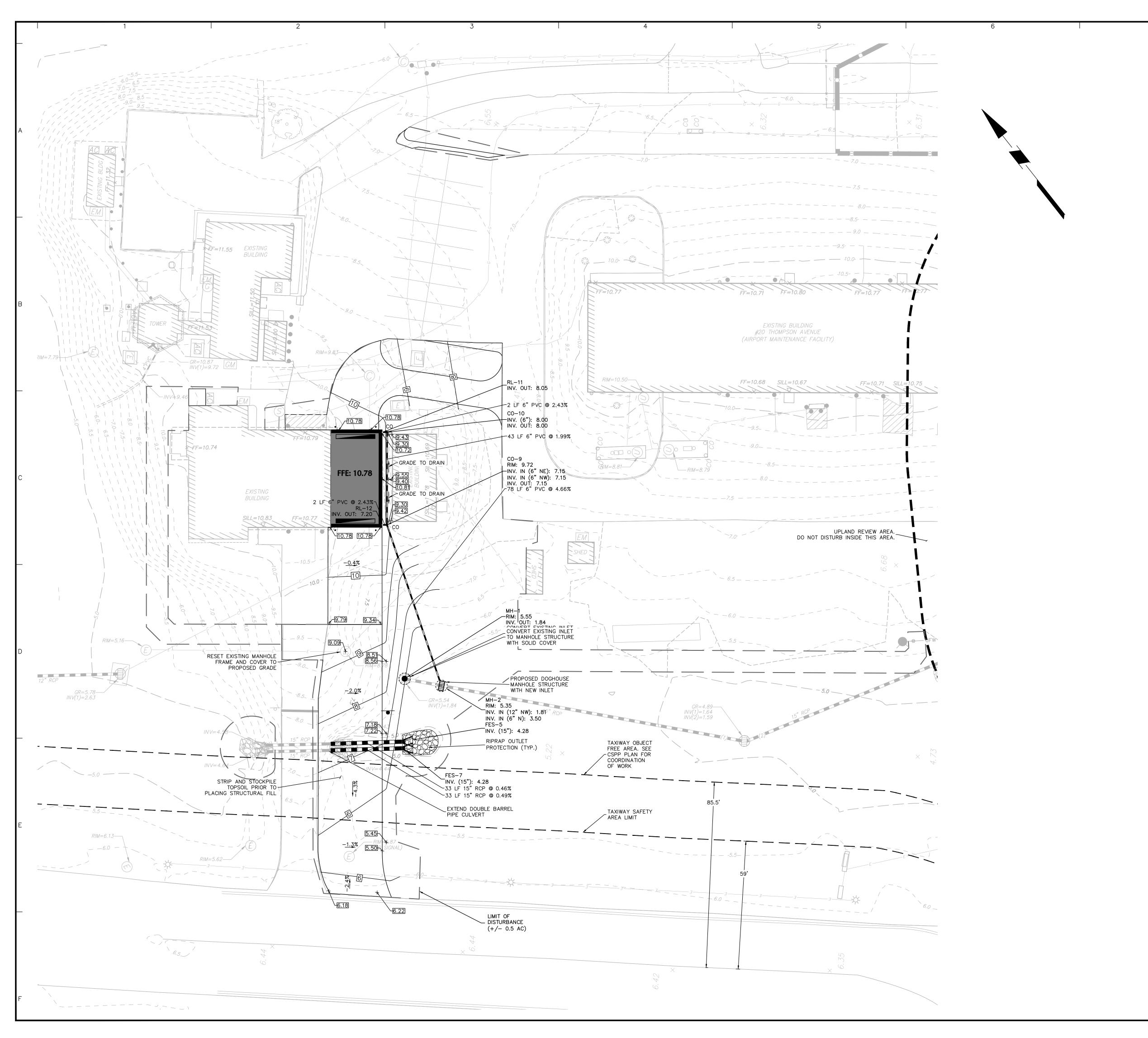
1. ALL PAINT SHALL BE SHERWIN-WILLIAMS "SETFAST" PAINT. #TM2160 - WHITE
2. APPLY 2 COATS OF TRAFFIC TYPE PAINT. APPLY THE FIRST COAT NOT LESS THAN 5 DAYS AFTER THE PLACING OF BITUMINOUS PAVEMENT APPLY SECOND COAT JUST PRIOR TO BUILDING

3. CONFIRM ALL PARKING SPACE DIMENSIONS ON PLANS.

PARKING STALL STRIPING

Langan CT, Inc. 555 Long Wharf Drive, 9th Floor New Haven, CT 06511 T: 203.562.5771 F: 203.789.6142 www.langan.com TWEED-NEW HAVEN AIRPORT ARFF FACILITY **RENOVATIONS**

Date: 5/21/2025 Time: 16:50 User: bmichaelis Style Table: Langan.stb Layout: CS501 Document Code: 140318901-0501-CS501-0101



GENERAL NOTES

- BOUNDARY AND TOPOGRAPHIC INFORMATION WAS OBTAINED FROM A PLAN TITLED "TOPOGRAPHIC SURVEY" FOR TWEED AIRPORT ARFF FACILITY RENOVATIONS BY LANGAN. DATED APRIL 15, 2025. COORDINATES REFERENCED TO NAD83 AND NAVD88 IN COMBINATION WITH TWEED AIRPORT PRIMARY AIRPORT CONTROLS AND SECONDARY AIRPORT CONTROLS.
- THE SITE IS LOCATED IN A COASTAL ZONE AE (SHADED), AN AREA SUBJECT TO COASTAL FLOODING WITH MODERATE WAVE ACTION PER FIRM MAP 09009C0444J, EFFECTIVE DATE JULY 8, 2013. BASE FLOOD ELEVATION IS 12' NAVD88.
- ADDITIONAL SITE AND UTILITY INFORMATION WAS OBTAINED FROM A PLAN TITLED "SITE PLAN" FOR TWEED AIRPORT TEMPORARY SECURITY FENCE AND PARKING PREPARED BY LANGAN AND DATED 09/13/2024.

GRADING & DRAINAGE NOTES

- ALL PROPOSED STORM DRAINAGE PIPING TO UTILIZE SOIL-TIGHT JOINTS.
- . LOCATIONS AND ELEVATIONS OF ROOF LEADERS SHOULD BE COORDINATED WITH ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION. ALL ROOF LEADERS ARE TO TIE INTO PROPOSED UNDERGROUND DRAINAGE NETWORK.
- 3. CLEANOUTS SHALL BE PROVIDED FLUSH TO GRADE AT ALL LOCATIONS OF ROOF DRAIN INTERSECTIONS, BENDS AND
- 4. ALL REQUIRED STORM LATERALS SERVICING THE BUILDING SHALL BE COORDINATED AND CONSTRUCTED TO WITHIN FIVE FEET OF EACH BUILDING LATERAL ENTRANCE LOCATION AT THE INVERTS NOTED. ANY NECESSARY EXTENSIONS, RELOCATIONS, OR CORRECTIONS WITHIN FIVE FEET OF THE BUILDING NECESSARY TO COMPLETE CONNECTION OF LATERALS TO THE BUILDINGS SHALL BE MADE BY THE BUILDING CONTRACTOR.
- 5. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE APPROPRIATE SIZES OF THE DRAINAGE CATCH BASINS AND MANHOLES TO RECEIVE PIPING SHOWN.
- 6. STORM DRAINAGE PIPING INSTALLATION SHALL COMMENCE AT THE FURTHEST DOWNSTREAM POINT AND PROCEED UPSTREAM "IN THE DRY".

7. ABBREVIATIONS: RCP=REINFORCED CONCRETE PIPE

HDPE=HIGH DENSITY POLYETHYLENE PIPE CLCB=CURBLESS CATCH BASIN

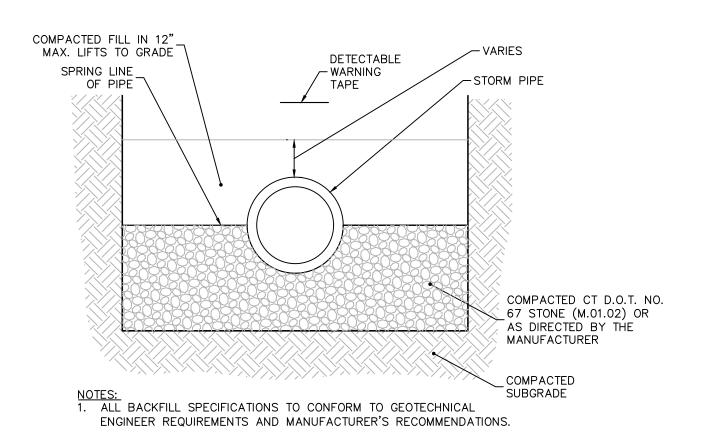
PVC=POLYVINYL CHLORIDE PIPE MH=MANHOLE FES=FLARED END SECTION

CO=CLEANOUT RL=ROOF LEADER

8. EXISTING GRADES SHOWN ARE APPROXIMATE AND SHOULD BE VERIFIED BY THE SITE CONTRACTOR PRIOR TO

	LEGEND	
		5505055
	EXISTING	PROPOSED
BUILDING LINE	///////////////////////////////////////	
EDGE OF PAVEMENT		
DOOR	∇	▼
ROLL UP GARAGE DOOR		
TRAFFIC SIGN		•
MINOR CONTOUR	— — — 149 — — — —	149
MAJOR CONTOUR	— — — 150 — — —	150
SPOT GRADE	× 150.1	×[150.1]
STORM LINE		
CATCH BASIN		
YARD DRAIN		
STORM MANHOLE	D	•
SANITARY MANHOLE	\bigcirc	(a)
CLEANOUT	CO O	coo
LIMIT OF DISTURBANCE		
UPLAND REVIEW AREA LIMIT		
AREAS OPEN TO AIRCRAFT		





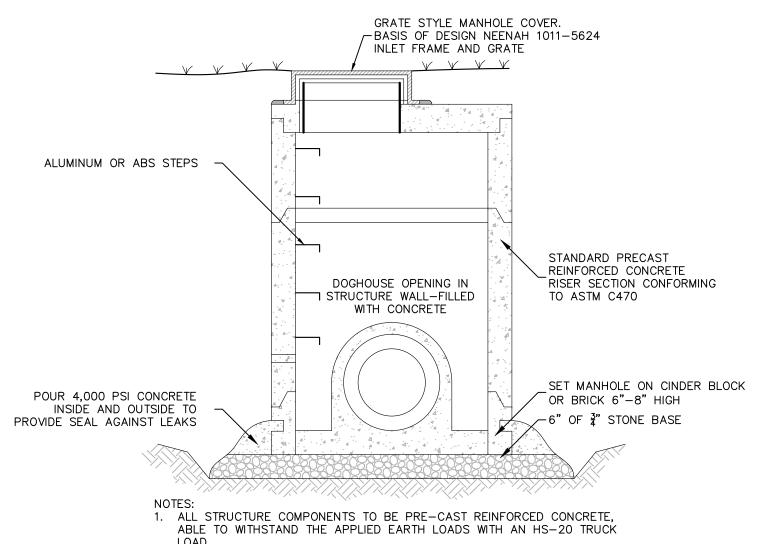
STORM PIPE BEDDING

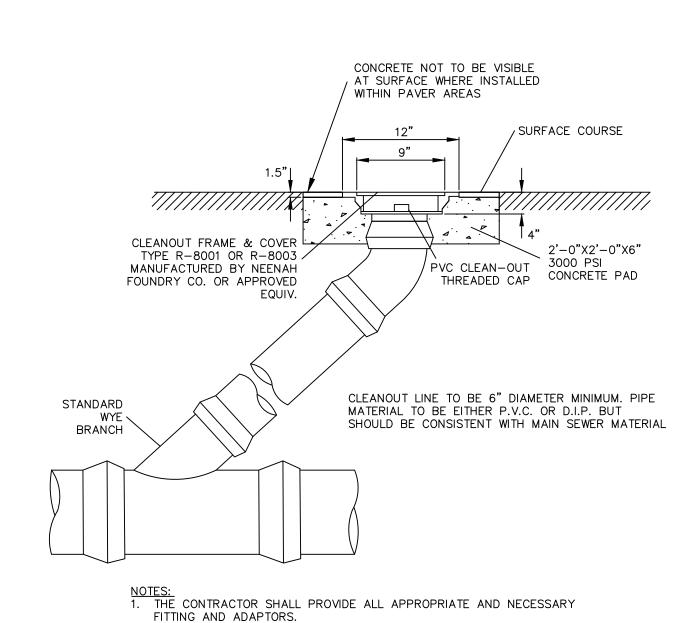
FRAME AND COVER MUST MEET HS-20 TRUCK LOADING -FRAME - SET IN FULL BED OF MORTAR _ADJUST TO GRADE WITH MAX. OF FOUR COURSES OF BRICK 3' OR 4' CONE PRECAST REINFORCED CONCRETE MANHOLE ECCENTRIC CONE ─WELDED WIRE FABRIC (TYP.) PRECAST REINFORCED CONCRETE TONGUE 12" (TYP.) AND GROVE RISERS AS REQUIRED RISER VARIES \ LIFTING HOLES (TYP.) FILL WITH MORTAR WATERTIGHT KNOCKOUTS FOR PIPES GASKET OR SEALER MIN. 4" FROM TOP & _ BASE 4' MIN. BOTTOM OF BASE 4" MIN. -12" DOT NO. 67 COARSE AGGREGATE.

GENERAL NOTES

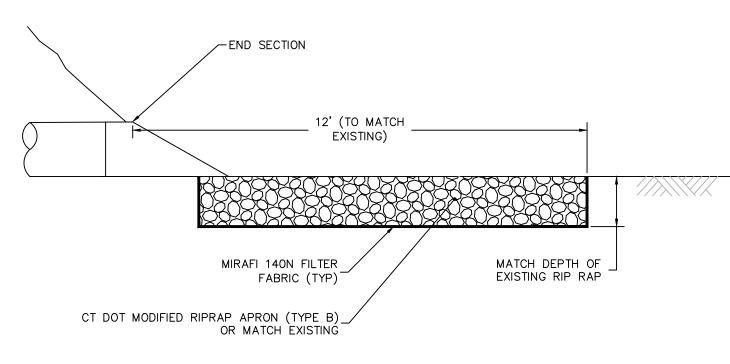
- 1. 5' OR 6' DIA. PRECAST BASES MAY BE USED WHEN REQUIRED DUE TO SIZE OR NUMBER OF PIPES AT THE MANHOLE. PRECAST REDUCERS WILL BE PLACED ABOVE THE 5' OR 6' BASES AS DIRECTED BY THE ENGINEER. WALL THICKNESS TO INCREASE 1" FOR EACH 1' OF INSIDE DIAMETER INCREASE. MINIMUM 6" WALL DIMENSION SHOULD BE PROVIDED BETWEEN ALL PIPES.
- 2. FRAME DIAMETER OF 3'-3" WITH 4" FLANGE MUST BE USED WHEN THE TOP DIA. OF THE PRECAST CONE IS LESS THAN 3'-6". ALL OTHER FRAME DIMENSIONS ARE TO REMAIN THE SAME.
- 3. MINIMUM CONCRETE COMPRESSIVE STRENGTH OF F'C = 5,000 PSI SHALL BE OBTAINED PRIOR TO SHIPPING.

STORM MANHOLE

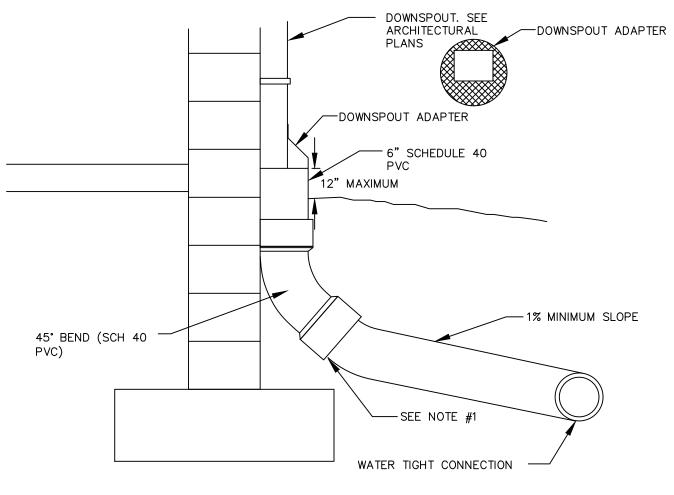




STORM CLEANOUT

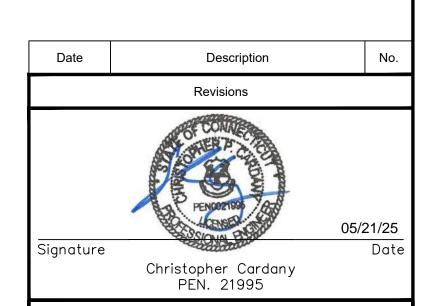


RIPRAP OUTLET PROTECTION



- 1. A WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.
- 2. THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS
- ARE INSTALLED ON THE BUILDING. SITEWORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.

DOWNSPOUT CONNECTION 6



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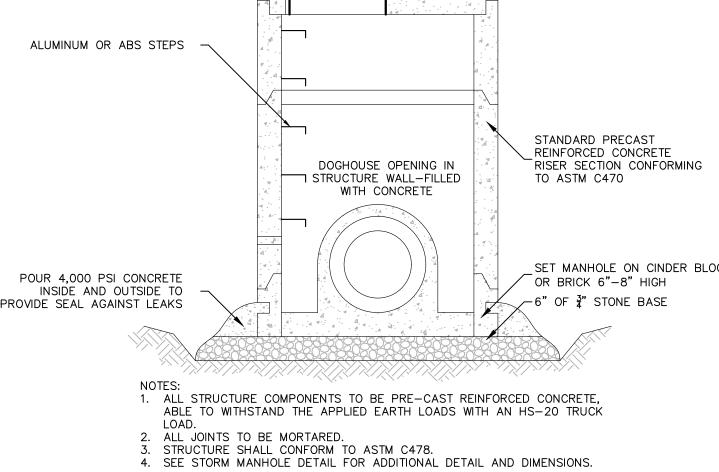
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TWEED-NEW HAVEN AIRPORT ARFF FACILITY RENOVATIONS

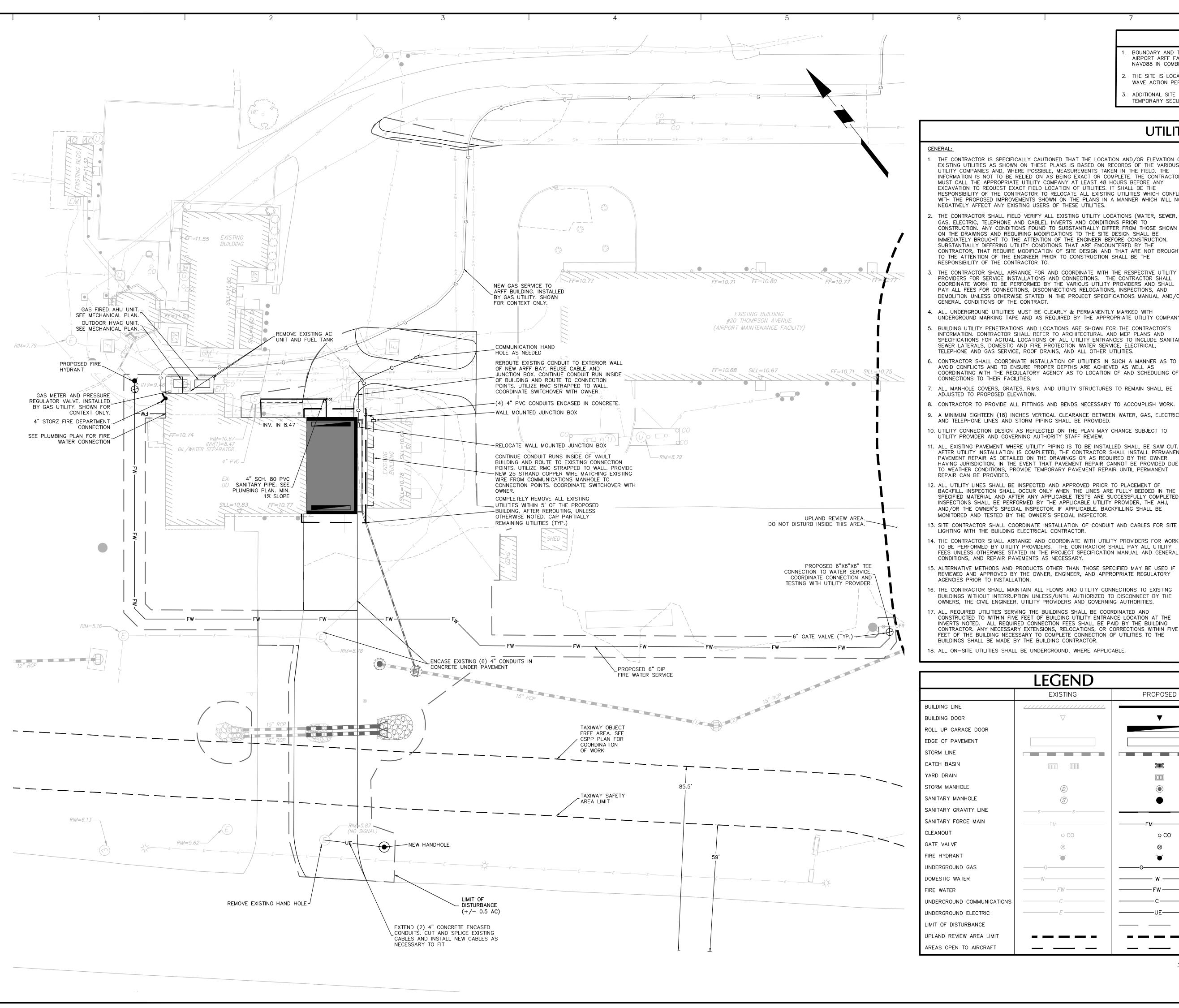
GRADING & DRAINAGE DETAILS

Drawing No. 140318901 CG601 05/21/2025 Drawn By BTM Checked By

Date: 5/21/2025 Time: 16:52 User: bmichaelis Style Table: Langan.stb Layout: CG501 Document Code: 140318901-0501-CG501-0101



DOGHOUSE STRUCTURE



GENERAL NOTES

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- THE SITE IS LOCATED IN A COASTAL ZONE AE (SHADED), AN AREA SUBJECT TO COASTAL FLOODING WITH MODERATE
- ADDITIONAL SITE AND UTILITY INFORMATION WAS OBTAINED FROM A PLAN TITLED "SITE PLAN" FOR TWEED AIRPORT TEMPORARY SECURITY FENCE AND PARKING PREPARED BY LANGAN AND DATED 09/13/2024.

WAVE ACTION PER FIRM MAP 09009C0444J, EFFECTIVE DATE JULY 8, 2013. BASE FLOOD ELEVATION IS 12' NAVD88.

UTILITY NOTES

- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS IN A MANNER WHICH WILL NOT
- . THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS (WATER, SEWER, GAS, ELECTRIC, TELEPHONE AND CABLE), INVERTS AND CONDITIONS PRIOR TO CONSTRUCTION. ANY CONDITIONS FOUND TO SUBSTANTIALLY DIFFER FROM THOSE SHOWN ON THE DRAWINGS AND REQUIRING MODIFICATIONS TO THE SITE DESIGN SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE CONSTRUCTION. SUBSTANTIALLY DIFFERING UTILITY CONDITIONS THAT ARE ENCOUNTERED BY THE CONTRACTOR, THAT REQUIRE MODIFICATION OF SITE DESIGN AND THAT ARE NOT BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION SHALL BE THE
- THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE WITH THE RESPECTIVE UTILITY PROVIDERS FOR SERVICE INSTALLATIONS AND CONNECTIONS. THE CONTRACTOR SHALL COORDINATE WORK TO BE PERFORMED BY THE VARIOUS UTILITY PROVIDERS AND SHALL PAY ALL FEES FOR CONNECTIONS, DISCONNECTIONS RELOCATIONS, INSPECTIONS, AND DEMOLITION UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATIONS MANUAL AND/OR
- 4. ALL UNDERGROUND UTILITIES MUST BE CLEARLY & PERMANENTLY MARKED WITH UNDERGROUND MARKING TAPE AND AS REQUIRED BY THE APPROPRIATE UTILITY COMPANY.
- . BUILDING UTILITY PENETRATIONS AND LOCATIONS ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL REFER TO ARCHITECTURAL AND MEP PLANS AND SPECIFICATIONS FOR ACTUAL LOCATIONS OF ALL UTILITY ENTRANCES TO INCLUDE SANITARY SEWER LATERALS. DOMESTIC AND FIRE PROTECTION WATER SERVICE, ELECTRICAL, TELEPHONE AND GAS SERVICE, ROOF DRAINS, AND ALL OTHER UTILITIES.
- CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO AVOID CONFLICTS AND TO ENSURE PROPER DEPTHS ARE ACHIEVED AS WELL AS COORDINATING WITH THE REGULATORY AGENCY AS TO LOCATION OF AND SCHEDULING OF
- 7. ALL MANHOLE COVERS, GRATES, RIMS, AND UTILITY STRUCTURES TO REMAIN SHALL BE
- 8. CONTRACTOR TO PROVIDE ALL FITTINGS AND BENDS NECESSARY TO ACCOMPLISH WORK.
- 9. A MINIMUM EIGHTEEN (18) INCHES VERTICAL CLEARANCE BETWEEN WATER, GAS, ELECTRICAL, AND TELEPHONE LINES AND STORM PIPING SHALL BE PROVIDED.
- 10. UTILITY CONNECTION DESIGN AS REFLECTED ON THE PLAN MAY CHANGE SUBJECT TO UTILITY PROVIDER AND GOVERNING AUTHORITY STAFF REVIEW.
- AFTER UTILITY INSTALLATION IS COMPLETED, THE CONTRACTOR SHALL INSTALL PERMANENT PAVEMENT REPAIR AS DETAILED ON THE DRAWINGS OR AS REQUIRED BY THE OWNER HAVING JURISDICTION. IN THE EVENT THAT PAVEMENT REPAIR CANNOT BE PROVIDED DUE TO WEATHER CONDITIONS, PROVIDE TEMPORARY PAVEMENT REPAIR UNTIL PERMANENT
- 12. ALL UTILITY LINES SHALL BE INSPECTED AND APPROVED PRIOR TO PLACEMENT OF BACKFILL. INSPECTION SHALL OCCUR ONLY WHEN THE LINES ARE FULLY BEDDED IN THE SPECIFIED MATERIAL AND AFTER ANY APPLICABLE TESTS ARE SUCCESSFULLY COMPLETED. INSPECTIONS SHALL BE PERFORMED BY THE APPLICABLE UTILITY PROVIDER, THE AHJ, AND/OR THE OWNER'S SPECIAL INSPECTOR. IF APPLICABLE, BACKFILLING SHALL BE MONITORED AND TESTED BY THE OWNER'S SPECIAL INSPECTOR.
- 13. SITE CONTRACTOR SHALL COORDINATE INSTALLATION OF CONDUIT AND CABLES FOR SITE LIGHTING WITH THE BUILDING ELECTRICAL CONTRACTOR
- TO BE PERFORMED BY UTILITY PROVIDERS. THE CONTRACTOR SHALL PAY ALL UTILITY FEES UNLESS OTHERWISE STATED IN THE PROJECT SPECIFICATION MANUAL AND GENERAL CONDITIONS. AND REPAIR PAVEMENTS AS NECESSARY.
- 15. ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE OWNER, ENGINEER, AND APPROPRIATE REGULATORY
- 16. THE CONTRACTOR SHALL MAINTAIN ALL FLOWS AND UTILITY CONNECTIONS TO EXISTING BUILDINGS WITHOUT INTERRUPTION UNLESS/UNTIL AUTHORIZED TO DISCONNECT BY THE OWNERS, THE CIVIL ENGINEER, UTILITY PROVIDERS AND GOVERNING AUTHORITIES.
- CONSTRUCTED TO WITHIN FIVE FEET OF BUILDING UTILITY ENTRANCE LOCATION AT THE INVERTS NOTED. ALL REQUIRED CONNECTION FEES SHALL BE PAID BY THE BUILDING CONTRACTOR. ANY NECESSARY EXTENSIONS, RELOCATIONS, OR CORRECTIONS WITHIN FIVE FEET OF THE BUILDING NECESSARY TO COMPLETE CONNECTION OF UTILITIES TO THE BUILDINGS SHALL BE MADE BY THE BUILDING CONTRACTOR.

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18. ALL ON-SITE UTILITIES SHALL BE UNDERGROUND, WHERE APPLICABLE.

19. CONTRACTOR IS REQUIRED TO DIGITALLY PHOTOGRAPH 75% OF THE UTILITIES INSTALLED.

- THE LOCATIONS OF EXISTING GAS MAINS ARE APPROXIMATE. THE CONTRACTOR MUST CONSULT THE LOCAL UTILITY COMPANIES FOR ADDITIONAL INFORMATION. ALL PROPOSED GAS WORK AND OTHER ASSOCIATED APPURTENANCES WILL BE IN CONFORMANCE WITH APPLICABLE LOCAL COUNTY, STATE AND FEDERAL GUIDELINES AND REQUIREMENTS.
- THE LOCATION OF EXISTING ELECTRIC LINES ARE APPROXIMATE. THE CONTRACTOR MUST CONSULT THE LOCAL UTILITY COMPANIES FOR ADDITIONAL INFORMATION. ALL PROPOSED ELECTRICAL WORK, TRANSFORMER PADS, AND ASSOCIATED APPURTENANCES WILL BE IN CONFORMANCE WITH APPLICABLE LOCAL, COUNTY, STATE AND FEDERAL GUIDELINES AND
- CONTRACTOR SHALL MAINTAIN A MINIMUM OF 30 INCHES OF COVER FOR ALL UNDERGROUND GAS UTILITIES OR AS REQUIRED BY THE UTILITY COMPANY, WHICHEVER IS
- 4. ALL DETAILS OF ELECTRIC, GAS, & TELEPHONE UTILITY SERVICE SHALL BE APPROVED BY THE APPLICABLE UTILITY COMPANY AND INSTALLED TO THEIR REQUIREMENTS.
- ELECTRICAL DUCT BANK SHALL RUN BELOW GAS LINES. A MINIMUM SEPARATION OF 3' AND 6" FOAM GLASS INSULATION (4' IN BOTH DIRECTIONS) IS REQUIRED WHERE THE DUCT BANK CROSSES HIGH TEMPERATURE WATER LINES.

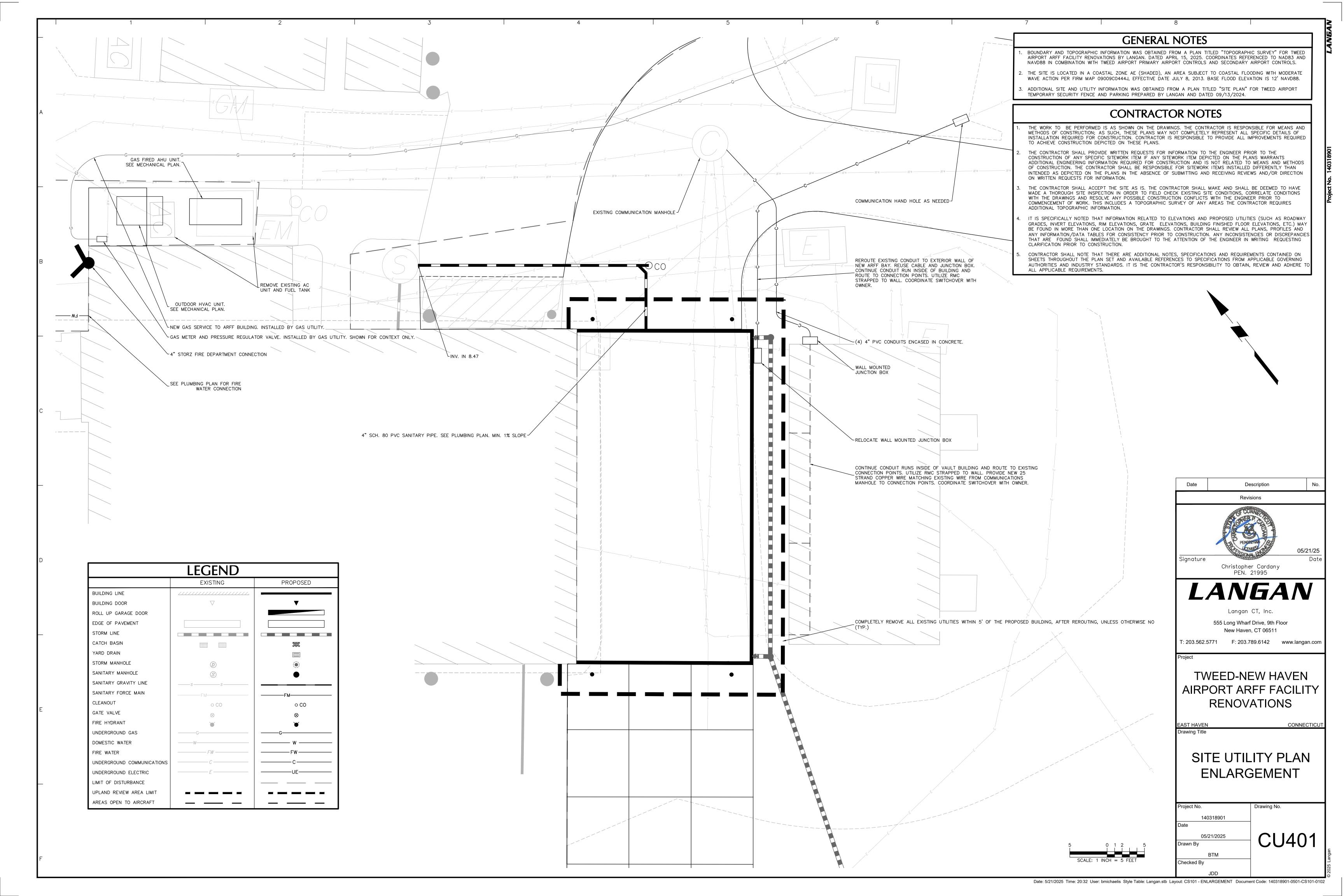
- SEWER AND WATER SERVICES TO THE EXISTING BUILDINGS SHALL REMAIN CONTINUOUS THROUGHOUT CONSTRUCTION. THESE BUILDINGS WILL BE OCCUPIED THROUGHOUT
- THE CONTRACTOR MUST VERIFY THE LOCATION, SIZE, AND SERVICEABILITY OF THE EXISTING WATER AND SANITARY SEWER MAINS PRIOR TO BEGINNING ANY SITE OR BUILDING
- ALL WATER MAIN PIPING SHALL BE CLASS 54 DUCTILE IRON PIPE.
- 4. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 4 FEET OF COVER FOR ALL WATER DISTRIBUTION PIPING.
- THRUST BLOCKS SHALL BE PROVIDED ALONG WATER AND FORCE MAIN LINES 6" IN
- DIAMETER OR LARGER AT ALL TEES, ELBOWS AND PLUGS. 6. ALL NEW WATER LINES SHALL BE PRESSURE TESTED AND LEAKAGE TESTED IN ACCORDANCE
- WITH THE LATEST EDITION OF AWWA STANDARD C600, OR THE REGIONAL WATER AUTHORITY REQUIREMENTS, WHICHEVER IS MORE RESTRICTIVE. 7. ALL NEW WATER MAINS SHALL BE DISINFECTED AND TESTED IN ACCORDANCE WITH AWWA
- STANDARD C651 AND LOCAL PROVIDER REQUIREMENTS. 8. ALL SANITARY SEWER PIPE TO BE SDR 35 PVC PIPE UNLESS OTHERWISE NOTED.
- 9. CONTRACTOR SHALL MAINTAIN 4.5 FEET OF COVER ON ALL SEWER PIPES.
- 10. WATER MAINS CROSSING SEWERS SHALL BE LAID TO PROVIDE A MINIMUM HORIZONTAL DISTANCE OF 10 FEET AND MINIMUM VERTICAL DISTANCE OF 18-INCHES BETWEEN THE OUTSIDE OF WATER MAIN AND THE OUTSIDE OF SEWER. IN CASES WHERE THE VERTICAL SEPARATION IS LESS THAN 18-INCHES OR AS OTHERWISE SPECIFIED ON THIS DRAWING OR THE PROFILE SHEETS, STORM OR SANITARY SEWER PIPE SHALL BE ENCASED WITH K-KRETE 5-FT MINIMUM IN EACH DIRECTION OF PIPE RUN AND 6-INCHES MINIMUM AROUND THE PIPE DIAMETER. AT ALL CROSSING ONE FULL LENGTH OF WATER PIPE SHALL BE LOCATED SO BOTH JOINTS ARE MAXIMUM DISTANCE FROM SEWER.
- . CONTRACTOR TO PROVIDE NECESSARY MATERIALS TO ENSURE CONTINUOUS SERVICE OF THE FORCE MAIN THROUGHOUT CONSTRUCTION. ITEMS NEEDED INCLUDE BUT ARE NOT LIMITED TO TEMPORARY PUMPS, STORAGE TANKS, AND POWER. IF A SHUTDOWN IS NEEDED, PRIOR COORDINATION AND AUTHORIZATION FROM THE AFFECTED PROPERTIES MUST BE OBTAINED BY THE CONTRACTOR.

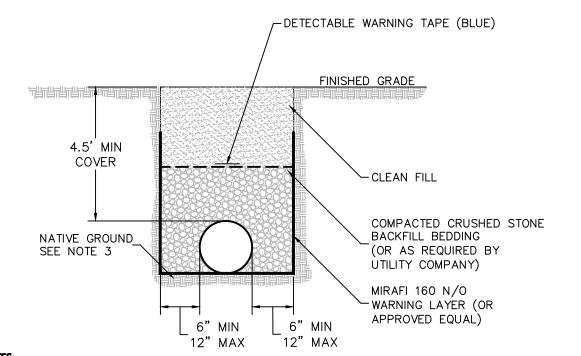
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Revisions

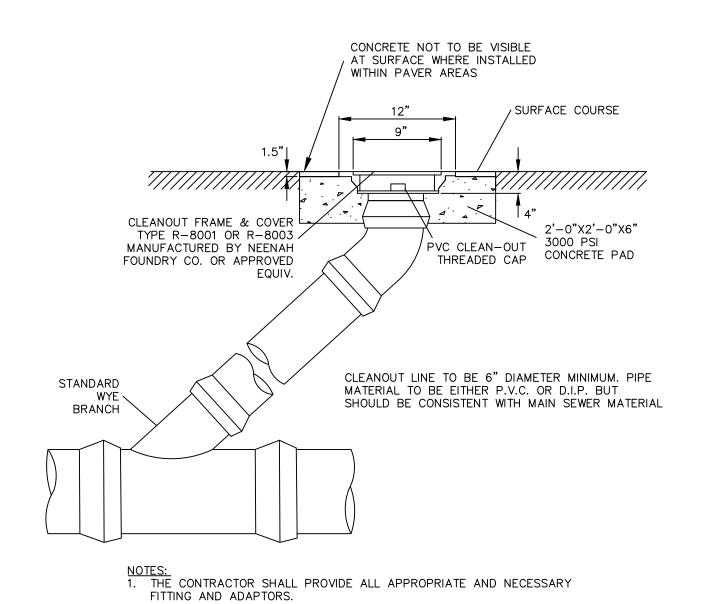




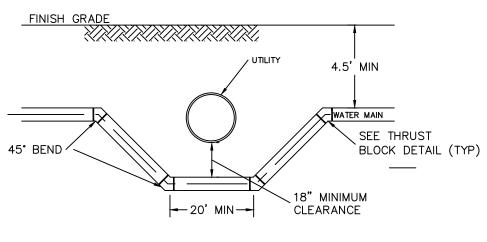
1. TRENCHES IN STABLE SOIL OVER 5 FT DEEP SHALL BE REINFORCED BY APPROVED OSHA METHODS.

- TRENCHES SHALL BE COMPACTED.
- 3. IF NATIVE GROUND IS NOT SUITABLE, THE CONTRACTOR SHALL EXCAVATE TO AN ACCEPTABLE DEPTH AND INSTALL MATERIALS AS APPROVED BY ENGINEERS AND UTILITY COMPANY. 4. ALL JOINTS SHALL BE MECHANICALLY RESTRAINED. COMPLY WITH WATER UTILITY REQUIREMENTS.

FIRE WATER SERVICE TRENCH

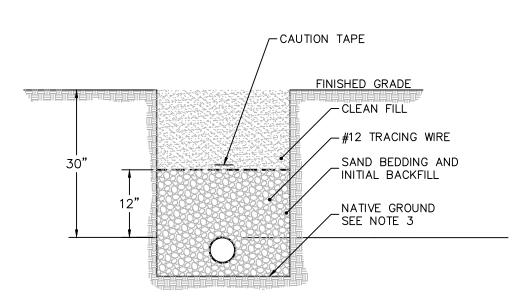


SANITARY CLEANOUT



NOTE:
ONE FULL LENGTH OF WATER MAIN SHOULD BE CENTERED UNDER
THE CROSS PIPE SO THAT BOTH JOINTS WILL BE AS FAR FROM
THE CROSSING AS POSSIBLE.

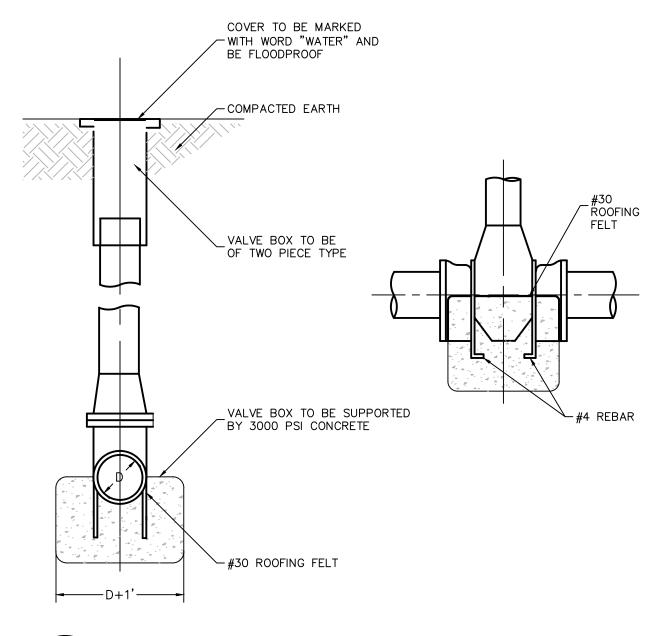
WATER MAIN DROP



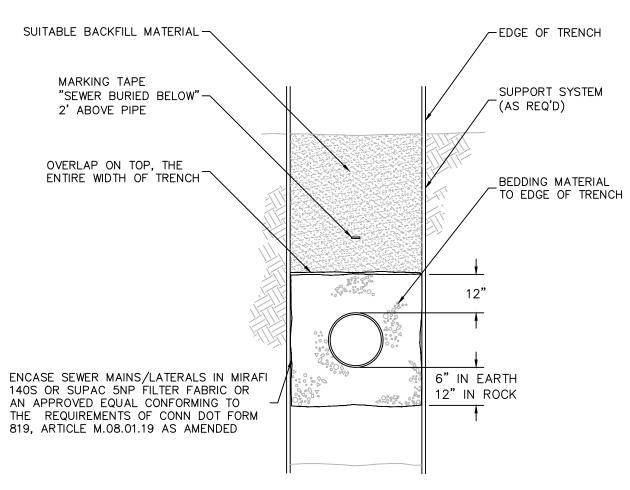
NOTES:

GAS COMPANY TO PROVIDE INSTALLATION OF ALL GAS PIPING AND SERVICES. PIPING LAYOUT AND TRENCH DETAIL SHOWN FOR CONTEXT ONLY.

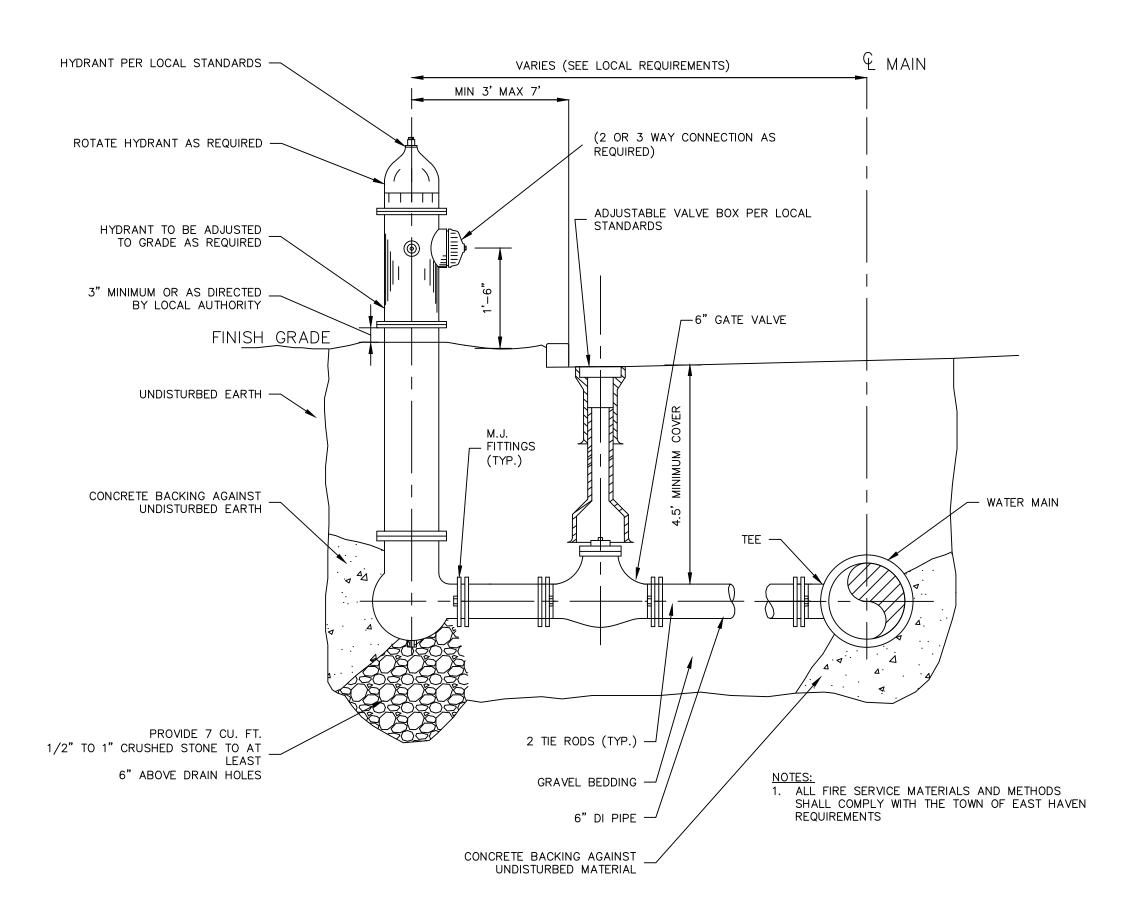
TYPICAL GAS SERVICE TRENCH



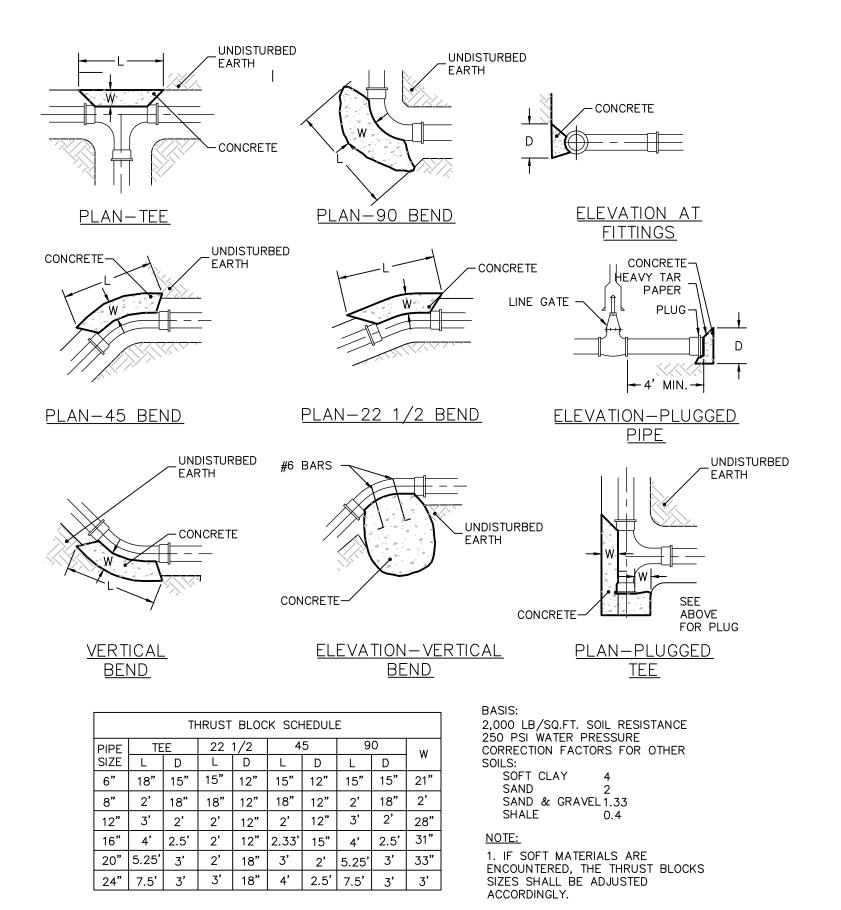
GATE VALVE



SANITARY TRENCH



FIRE HYDRANT AND VALVE



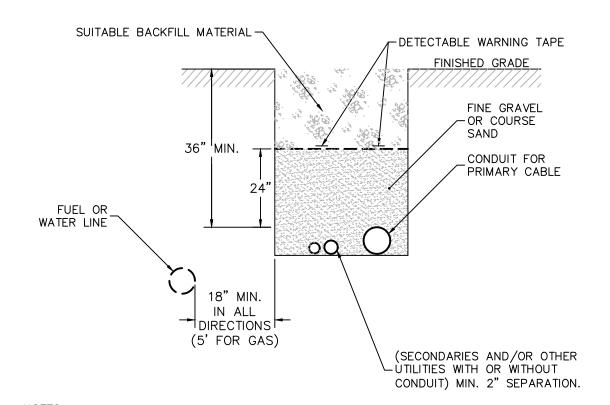
THRUST BLOCKS

8

2. CONCRETE TO BE 3000 PSI.

3. ALL CLAMPS, THRUST RODS, AND EXPOSED METAL THREADS TO BE COATED WITH ASPHALTUM.





NOTES:

1. ALL DIRECT—BURIED CABLES SHALL BE INSTALLED AT A DEPTH OF AT LEAST 30 INCHES IN THE FOLLOWING ORDER:

A. ENSURE THAT THE BOTTOM OF THE TRENCH IS WELL—TAMPED AND FREE OF ROCKS.

B. INSTALL THE CONDUIT, GLUING ALL COUPLINGS.

C. INSTALL SECONDARIES AND OTHER UTILITY CABLES OR CONDUITS LARGER THAN 2 INCHES IN MAXIMUM DIAMETER.

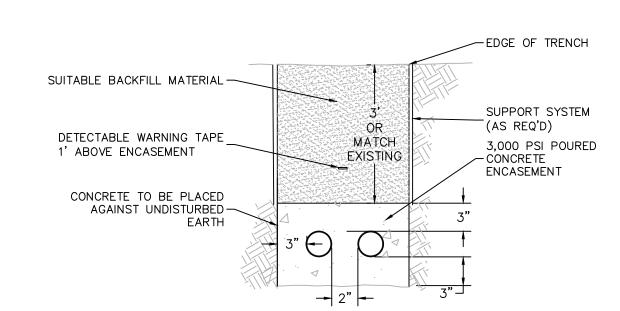
D. BACKFILL WITH 12 INCHES CLEAN FILL NOT TO CONTAIN STONES LARGER THAN 2 INCHES IN MAXIMUM DIAMETER.

E. INSTALL CABLE WARNING TAPE 12 INCHES OVER THE CONDUIT.

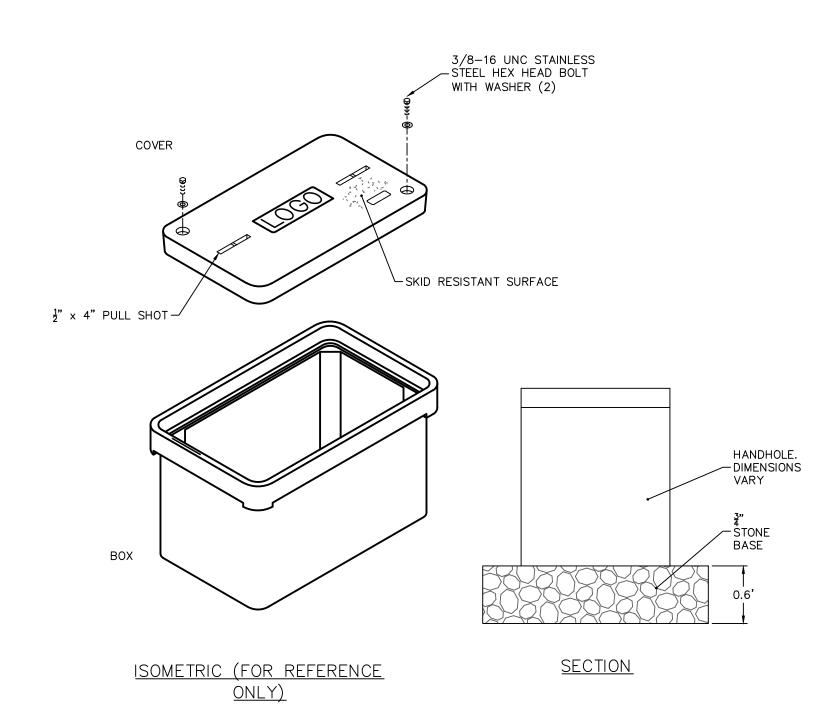
F. FILL IN THE REMAINDER OF THE TRENCH WITH NATIVE BACKFILL.

THE TRENCH SHALL BE BACKFILLED IMMEDIATELY FOLLOWING PLACEMENT OF THE CONDUIT.
 1/4-INCH NYLON ROPE AND PLASTIC CONDUIT PLUG TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.

ELECTRICAL UTILITY TRENCH (UNENCASED)



CONCRETE UTILITY ENCASEMENT



NOTES:

1. HANDHOLE BOX AND COVER DETAILS SHOWN FOR REFERENCE ONLY, DIMENSIONS VARY. SEE ELECTRIC AND TELECOM SERIES FOR DETAILS.

2. ALL HANDHOLDS TO BE HS-20 LOAD RATED.

ELECTRIC/TELECOM HANDHOLD
N.T.S.



TWEED-NEW HAVEN AIRPORT ARFF FACILITY RENOVATIONS

EAST HAVEN CONNECTICU

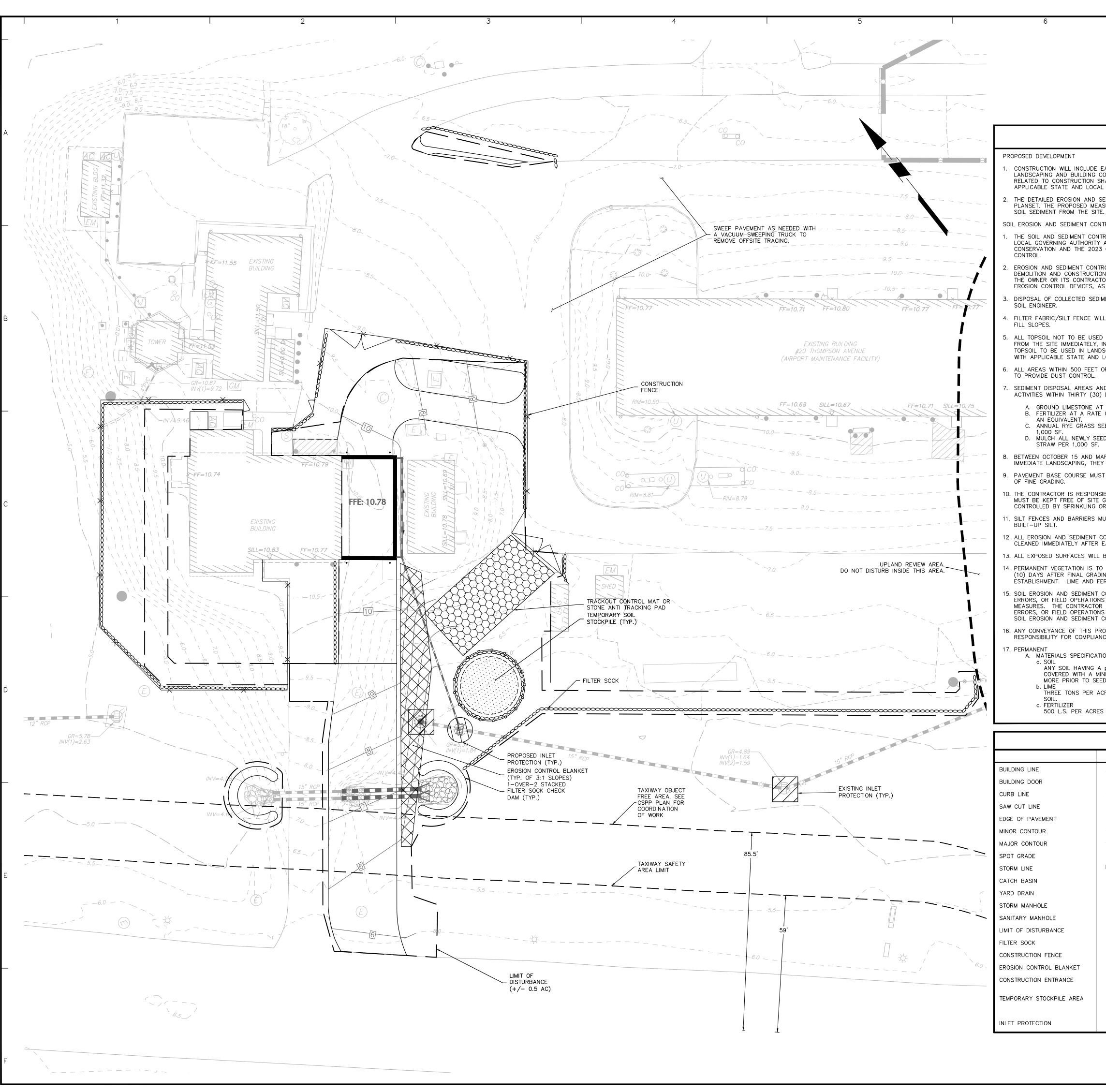
Drawing Title

UTILITY DETAILS II

140318901
Date

05/21/2025
Drawn By
BTM
Checked By

Date: 5/21/2025 Time: 16:56 User: bmichaelis Style Table: Langan.stb Layout: CU502 Document Code: 140318901-0501-CU501-0102



GENERAL NOTES

- BOUNDARY AND TOPOGRAPHIC INFORMATION WAS OBTAINED FROM A PLAN TITLED "TOPOGRAPHIC SURVEY" FOR TWEED AIRPORT ARFF FACILITY RENOVATIONS BY LANGAN. DATED APRIL 15, 2025. COORDINATES REFERENCED TO NAD83 AND NAVD88 IN COMBINATION WITH TWEED AIRPORT PRIMARY AIRPORT CONTROLS AND SECONDARY AIRPORT CONTROLS.
- THE SITE IS LOCATED IN A COASTAL ZONE AE (SHADED), AN AREA SUBJECT TO COASTAL FLOODING WITH MODERATE WAVE ACTION PER FIRM MAP 09009C0444J, EFFECTIVE DATE JULY 8, 2013. BASE FLOOD ELEVATION IS 12' NAVD88.

e. SHADE AREAS

ADDITIONAL SITE AND UTILITY INFORMATION WAS OBTAINED FROM A PLAN TITLED "SITE PLAN" FOR TWEED AIRPORT TEMPORARY SECURITY FENCE AND PARKING PREPARED BY LANGAN AND DATED 09/13/2024.

SOIL EROSION-SEDIMENT CONTROL NOTES

PROPOSED DEVELOPMENT

- CONSTRUCTION WILL INCLUDE EARTHWORK, CURBING, PAVING, UTILITY INSTALLATION, LANDSCAPING AND BUILDING CONSTRUCTION. ALL DEMOLITION DEBRIS AND SOIL REMOVAL RELATED TO CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL LAWS GOVERNING SUCH ACTIVITIES.
- THE DETAILED EROSION AND SEDIMENT CONTROL MEASURES ARE SHOWN WITHIN THIS PLANSET. THE PROPOSED MEASURES HAVE BEEN DESIGNED TO PREVENT THE MIGRATION OF

SOIL EROSION AND SEDIMENT CONTROL NOTES

- THE SOIL AND SEDIMENT CONTROL PRACTICES MUST BE INSTALLED IN ACCORDANCE WITH THE LOCAL GOVERNING AUTHORITY AND THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION AND THE 2023 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT
- EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSTALLED PRIOR TO START OF DEMOLITION AND CONSTRUCTION AND DISTURBANCE OF SITE CONTRIBUTORY DRAINAGE AREAS. THE OWNER OR ITS CONTRACTOR SHALL INSPECT, REPAIR AND REMOVE ALL SEDIMENT AND EROSION CONTROL DEVICES, AS INDICATED HEREIN.
- DISPOSAL OF COLLECTED SEDIMENT SHALL BE MADE TO AREA DESIGNATED BY THE OWNER'S
- 4. FILTER FABRIC/SILT FENCE WILL BE INSTALLED ALONG THE TOE OF ALL CRITICAL CUT AND
- ALL TOPSOIL NOT TO BE USED FOR FINAL GRADING/LANDSCAPED AREAS SHALL BE REMOVED FROM THE SITE IMMEDIATELY, IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL LAW. ALL TOPSOIL TO BE USED IN LANDSCAPED AREAS SHALL BE STORED/STOCKPILED IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL LAW STANDARDS.
- ALL AREAS WITHIN 500 FEET OF AN INHABITED DWELLING SHALL BE WETTED AS NECESSARY TO PROVIDE DUST CONTROL.
- SEDIMENT DISPOSAL AREAS AND TOPSOIL STOCKPILES NOT SCHEDULED FOR CONSTRUCTION ACTIVITIES WITHIN THIRTY (30) DAYS OF DISTURBANCE SHALL BE STABILIZED AS FOLLOWS:
 - A. GROUND LIMESTONE AT A RATE OF 135 LBS. PER 1,000 SF. B. FERTILIZER AT A RATE OF 14 LBS. PER 1,000 SF USING A 10-20-10 ANALYSIS OR
 - C. ANNUAL RYE GRASS SEEDING APPLIED AT A RATE OF NOT LESS THAN 1 LB. PER
 - D. MULCH ALL NEWLY SEEDED AREAS WITHIN 80 LBS. OF SALT HAY OR SMALL GRAIN
- BETWEEN OCTOBER 15 AND MARCH 15, WHEN DISTURBED AREAS ARE SCHEDULED FOR IMMEDIATE LANDSCAPING, THEY MAY BE MULCHED AND SEEDED PER ITEM D ABOVE.
- 9. PAVEMENT BASE COURSE MUST BE PLACED IN ALL NEW ROADWAY AREAS UPON COMPLETION OF FINE GRADING.
- 10. THE CONTRACTOR IS RESPONSIBLE FOR ALL PAVED ROADWAYS, ON AND OFF-SITE, WHICH MUST BE KEPT FREE OF SITE GENERATED SEDIMENT AT ALL TIMES. DUST SHALL BE CONTROLLED BY SPRINKLING OR OTHER APPROVED METHOD.
- 11. SILT FENCES AND BARRIERS MUST BE CLEANED OR REPLACED PERIODICALLY TO REMOVE
- 12. ALL EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSPECTED ON A DAILY BASIS AND CLEANED IMMEDIATELY AFTER EACH STORM.
- 13. ALL EXPOSED SURFACES WILL BE TREATED WITH TOPSOIL PRIOR TO FINAL STABILIZATION.
- 14. PERMANENT VEGETATION IS TO BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN DAYS AFTER FINAL GRADING. MULCH AS NECESSARY FOR SEED PROTECTION AND ESTABLISHMENT. LIME AND FERTILIZE PRIOR TO PERMANENT SEEDING.
- 15. SOIL EROSION AND SEDIMENT CONTROL SHALL INCLUDE, BUT NOT BE LIMITED TO, OMISSIONS, ERRORS, OR FIELD OPERATIONS IMMEDIATELY AND IN ACCORDANCE WITH THE ABOVE MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE TO CORRECT ANY OMISSIONS, ERRORS, OR FIELD OPERATIONS IMMEDIATELY AND IN ACCORDANCE WITH THE GUIDELÍNES FOR SOIL EROSION AND SEDIMENT CONTROL.
- 16. ANY CONVEYANCE OF THIS PROJECT PRIOR TO ITS COMPLETION WILL TRANSFER FULL RESPONSIBILITY FOR COMPLIANCE WITH THE CERTIFIED PLAN TO ANY SUBSEQUENT OWNERS.
- A. MATERIALS SPECIFICATION: LAWN AREAS.
- ANY SOIL HAVING A pH OF 4 OR LESS CONTAINING IRON SULFIDES SHALL BE COVERED WITH A MINIMUM OF TWELVE INCHES OF SOIL HAVING A pH OF FIVE OR MORE PRIOR TO SEED BED PREPARATION.
- THREE TONS PER ACRE GROUND LIMESTONE INCORPORATED FOUR INCHES INTO

LEGEND

EXISTING

×150.1

500 L.S. PER ACRES 10-20-10 INCORPORATED FOUR INCHES INTO SOIL.

PROPOSED

× 150.1

محححححححح

 $\oslash \ \square$

- DATES 4/15-6/15 AND 9/15-10/15. 30 LBS OF KENTUCKY 31 TALL FESCUE, 30
- 15 LBS OF SPREADING FESCUE, 15 LBS OF CHEWINGS RED FESCUE, 30 LBS KENTUCKY BLUEGRASS, AND 10 LBS OF PERENNIAL RYE GRASS PER ACRE. MULCH

LBS OF SPREADING FESCUE, 30 LBS OF KENTUCKY BLUEGRASS PER ACRE.

- SHOULD BE APPLIED AFTER SEEDING FOR ADDED PROTECTION. MULCHING SHALL BE DONE AT THE RATE OF NINETY TO ONE-HUNDRED FOURTY POUNDS (90-140 LBS) PER 1,000 SQUARE FEET WITH UNROTTED SALT HAY.
- LIQUID MULCH BINDERS MUST BE USED TO ANCHOR SALT HAY, HAY OR STRAY a. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH IN
- VALLEYS AND AT CREATED BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE b. USE ONE OF THE FOLLOWING: SYNTHETIC OR ORGANIC BINDERS, BINDERS SUCH AS
- CURASOL DCA-70, PETRO SET, TERRA TACH, HYDRO MULCH AND AEROSPRAY MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER OF ANCHOR MULCH MATERIALS. BINDERS CONTAINING PETROLEUM PRODUCTS SHALL NOT BE USED.
- NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE TO THE EXCLUSION OF OTHER PRODUCTS. D. FILL MATERIAL SHALL BE FREE FROM DEBRIS, PERISHABLE OR COMBUSTIBLE MATERIAL
- AND FROZEN OR WET EARTH OR STONES LARGER THAN THREE INCHES IN MAXIMUM DIMENSION.
- CONSTRUCTION AREAS SHALL BE PERIODICALLY SPRAYED WITH WATER UNTIL THE SURFACE IS WET TO CONTROL THE GENERATION OF DUST.
- ALL REVISIONS AFTER APPROVAL HAS BEEN GRANTED SHALL BE FORWARDED TO THE APPROPRIATE DISTRICT FOR REVIEW.
- G. THE LOCAL GOVERNING AUTHORITY SHALL RECEIVE WRITTEN NOTIFICATION SEVENTY TWO HOURS BEFORE THE START OF ANY CONSTRUCTION.
- H. SEEDED PREPARATION:
- c. TOPSOIL SHOULD BE A MINIMUM OF SIX INCHES DEEP (COMPACTED) BEFORE
- d. HAVE TOPSOIL TESTED FOR pH, ADD LIME AS NECESSARY TO ACHIEVE pH OF 6.5. APPLY FERTILIZER AT A RATE OF 300 POUNDS PER ACRE OR SEVEN POUNDS PER
- 4,000 SQUARE FEET USING 10-20-10 OR EQUIVALENT. IN ADDITION, 300 POUNDS 38-0-0 PER ACRE OF SLOW RELEASE NITROGEN MAY BE USED IN LIEU OF TOP DRESSING. e. WORK LIME AND FERTILIZER INTO SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF FOUR INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT
- THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE ALL CLAY OR SILTY SOIL AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEED BED WHEREVER FEASIBLE. f. REMOVE FROM THE SURFACE ALL STONES ONE INCH OR LARGER IN ANY DIMENSION.
- REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS, OR OTHER UNSUITABLE MATERIAL. g. INSPECT SEED BED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT SOIL COMPACT,

THE GENERAL CONTRACTOR WILL DESIGNATE PERSONNEL FOR 24 HOUR EMERGENCY RESPONSE

THE AREA MUST BE RETILLED AND FIRMED AS ABOVE. CONTINGENCY SOIL EROSION AND SEDIMENT CONTROL NARRATIVE

- IN THE EVENT OF SEVERE WEATHER AND INCREASED POTENTIAL FOR SEVERE EROSION. CONTRACTOR TO PROVIDE NAME AND PHONE NUMBER OF INDIVIDUAL TO THE PLANNING AND ZONING COMMISSION PRIOR TO THE START OF CONSTRUCTION.
- THE GENERAL CONTRACTOR IS REQUIRED TO MAINTAIN ON SITE OR HAVE THE ABILITY TO RETRIEVE WITHIN 12 HOURS THE FOLLOWING MATERIALS IN THE EVENT THAT THERE ARE DEFICIENCIES IN THE SESC MEASURES:
- A. 25% OF THE INSTALLED LENGTH OF SILT FENCE
- B. EQUIVALENT TONNAGE OF STONE FOR STABILIZATION OF 1 STABILIZATION ENTRANCE. STONE COULD BE USED FOR SLOPE REPAIRS, ENERGY DISSIPATER ENHANCEMENTS,
- C. HEAVY EQUIPMENT CAPABLE OF TRENCHING/EXCAVATING LARGE AREAS TO DIVERT
- AND CONTROL RUNOFF IN A CONTROLLED MANNER. HAVE DESIGNATED A HYDRO-SEED CONTRACTOR CAPABLE OF RESPONDING TO THE
- SITE WITHIN 12 HOURS



Description

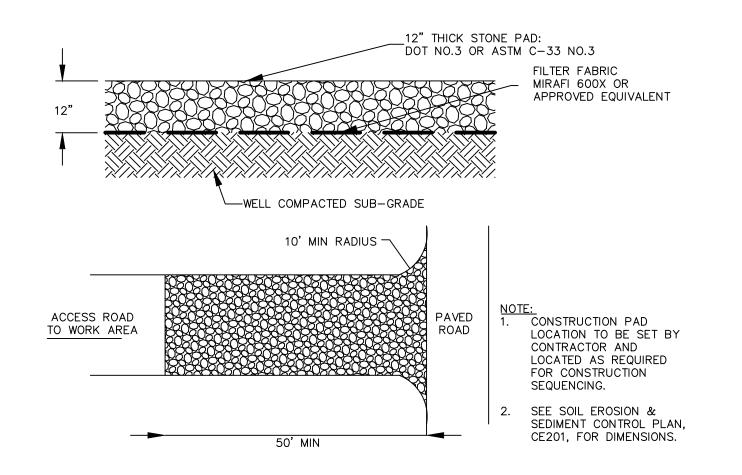
AIRPORT ARFF FACILITY **RENOVATIONS**

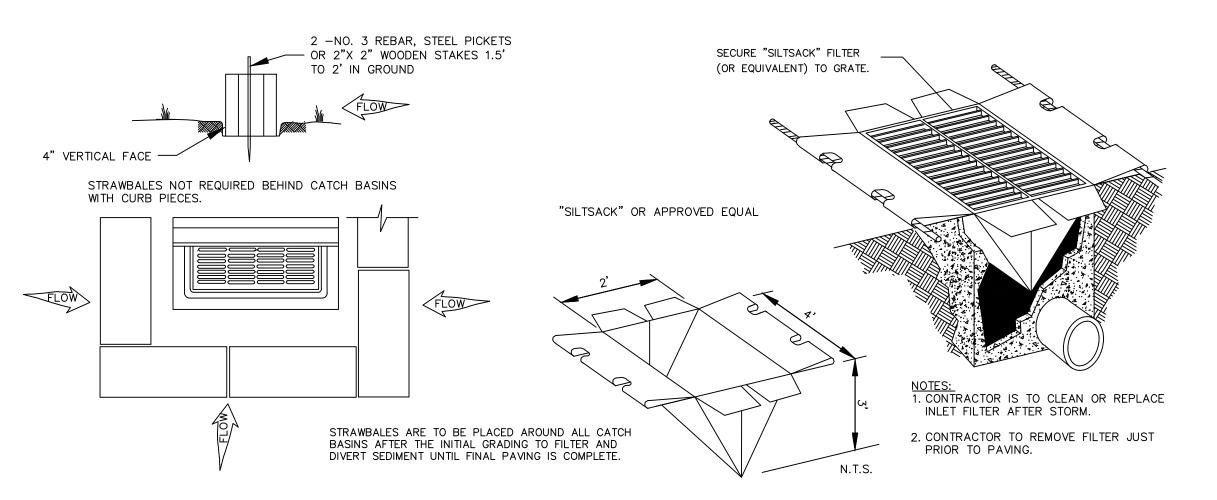
SOIL EROSION &

SEDIMENT **CONTROL PLAN**

Drawing No.

140318901 **CE201** 05/21/2025 rawn By BTM hecked By





INSTALLATION NOTES:

1. EXCAVATE AND SECURE BOTTOM 8" OF SILT FENCE BELOW GRADE AS SHOWN. 2. EXCEPT FOR THE END POST, DRIVE ALL POSTS INTO THE GROUND AT BACK SIDE OF TRENCH SPACED A MAXIMUM OF 8 FT O. C. 3. SECURE FILTER FABRIC WITH DRAWSTRING TO POST WITH METAL FASTENERS AND REINFORCEMENT BETWEEN FASTENER AND FABRIC.

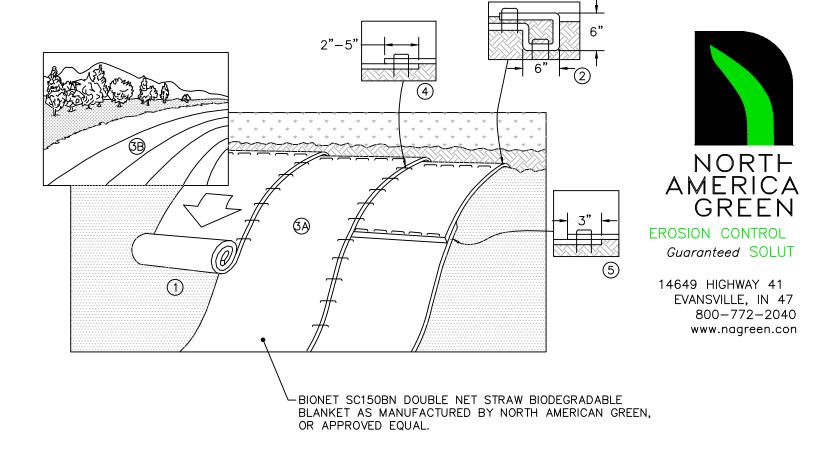
CONSTRUCTION ENTRANCE

INLET PROTECTION - OR APPROVED EQUAL

SILT FENCE

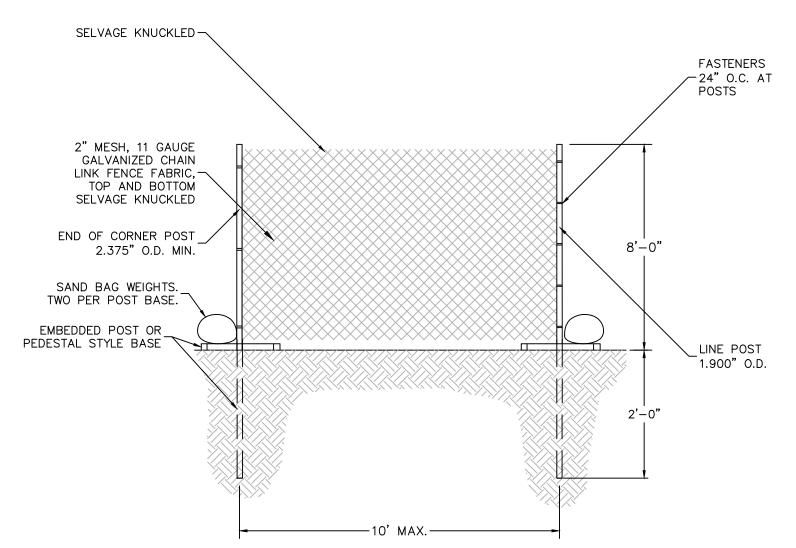
PREPARE SOIL BEFORE INSTALLING ROLLED EROSION COLTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN. 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP WITH A ROW OF STAPLES/STAKES APPROXIAMATELY 12" P APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12"P PORTION OF THE RECP BACK OVER SEED AND COMPACTED SOIL. SECURE RECP OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH

- OF THE RECP. 3. ROLL THE RECP (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP'S WILL UNROLL WITH THE APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN. 4. THE EDGES OF PARALLEL RECPS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON
- 5. CONSECUTIVE RECPS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS
- 6. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE/STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP. 7. CONTRACTOR TO PROVIDE A RECP ON ALL EXPOSED SLOPES 3H:1V OR GREATER.





EROSION CONTROL BLANKET - OR APPROVED EQUAL

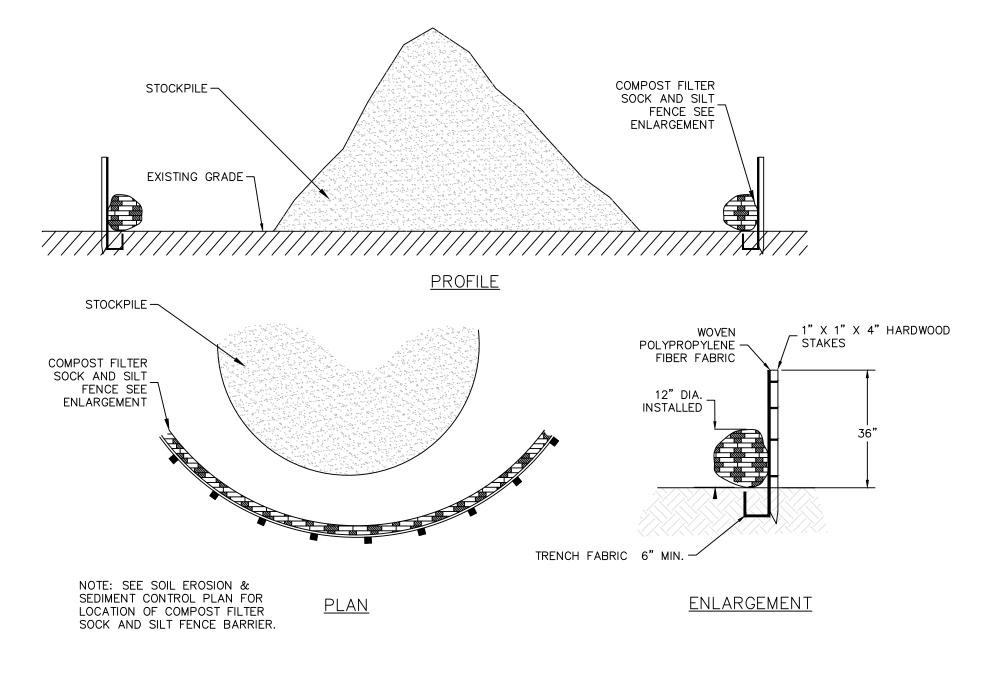


NOTES:

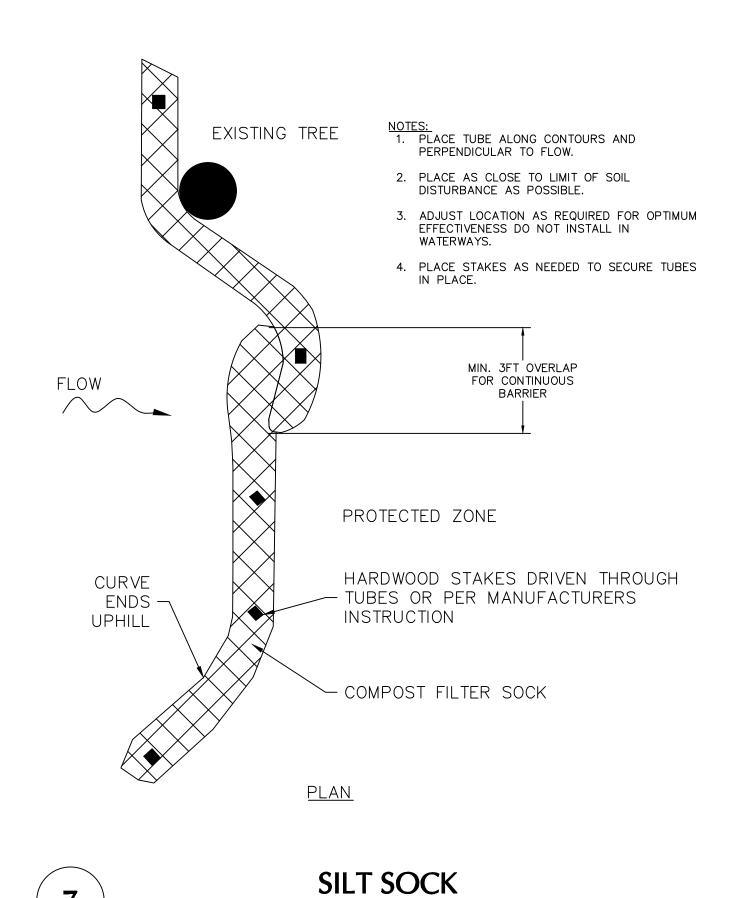
1. PIPE POSTS SHALL BE IMBEDDED INTO THE GROUND. PEDESTAL MOUNTED

1. PIPE POSTS SHALL BE IMBEDDED INTO THE GROUND. HTMLTIES AS FENCING SHOULD BE USED IN AREAS WITH UNDERGROUND UTILITIES AS SHOWN ON THE SURVEY. 2. PROVIDE CONCRETE OR GALVANIZED—STEEL PEDISTAL BASES FOR SUPPORTING POSTS.

TEMPORARY CONSTRUCTION FENCE



TEMPORARY SOIL STOCKPILE



N.T.S.

SOIL EROSION & SEDIMENT CONTROL DETAILS

Drawing No. 140318901 CE601 05/21/2025 Drawn By BTM hecked By

Date: 5/21/2025 Time: 18:43 User: bmichaelis Style Table: Langan.stb Layout: CE501 Document Code: 140318901-0501-CE501-0101

Date

Signature

Description

Christopher Cardany PEN. 21995

LANGAN

Langan CT, Inc.

555 Long Wharf Drive, 9th Floor

New Haven, CT 06511

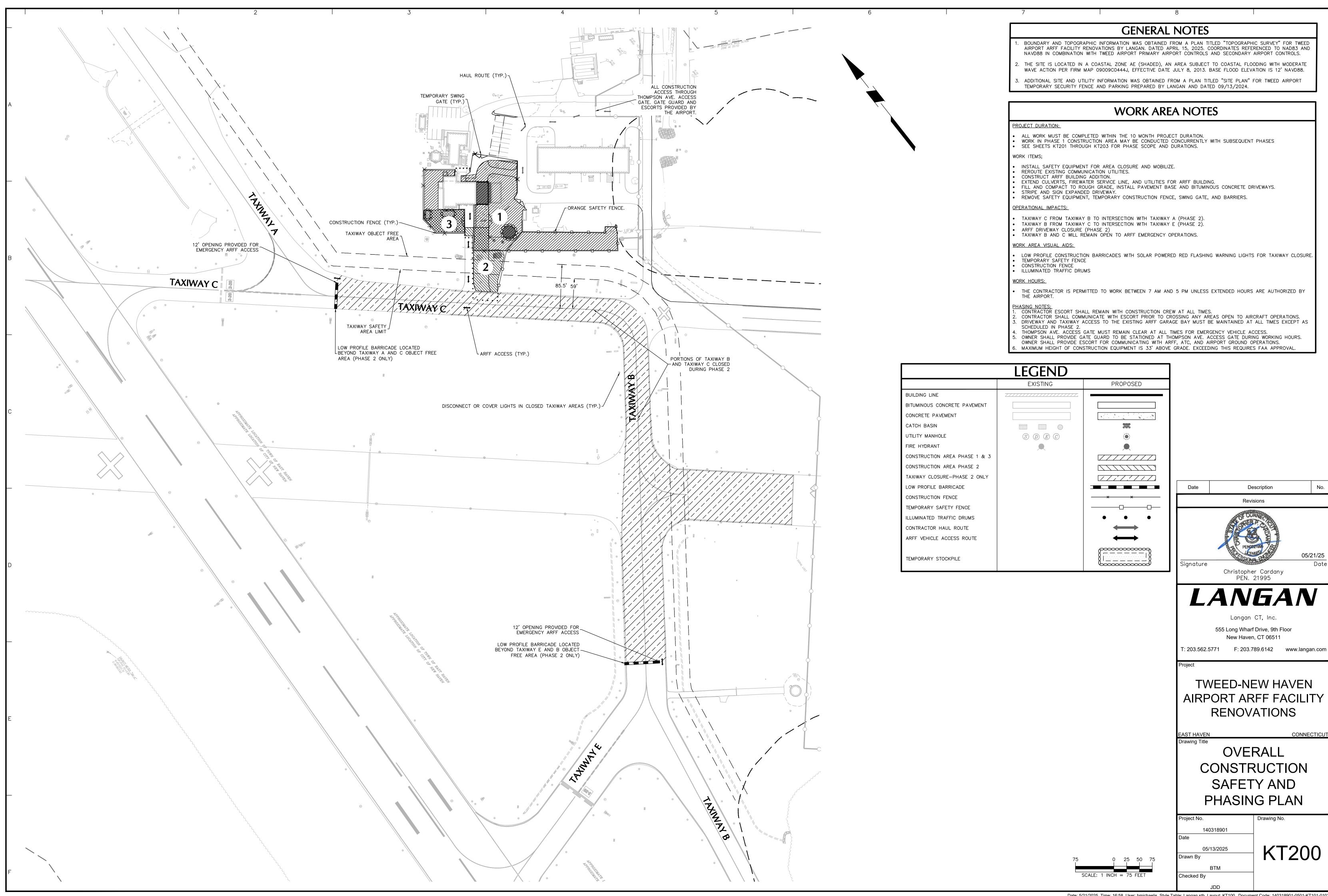
T: 203.562.5771 F: 203.789.6142 www.langan.com

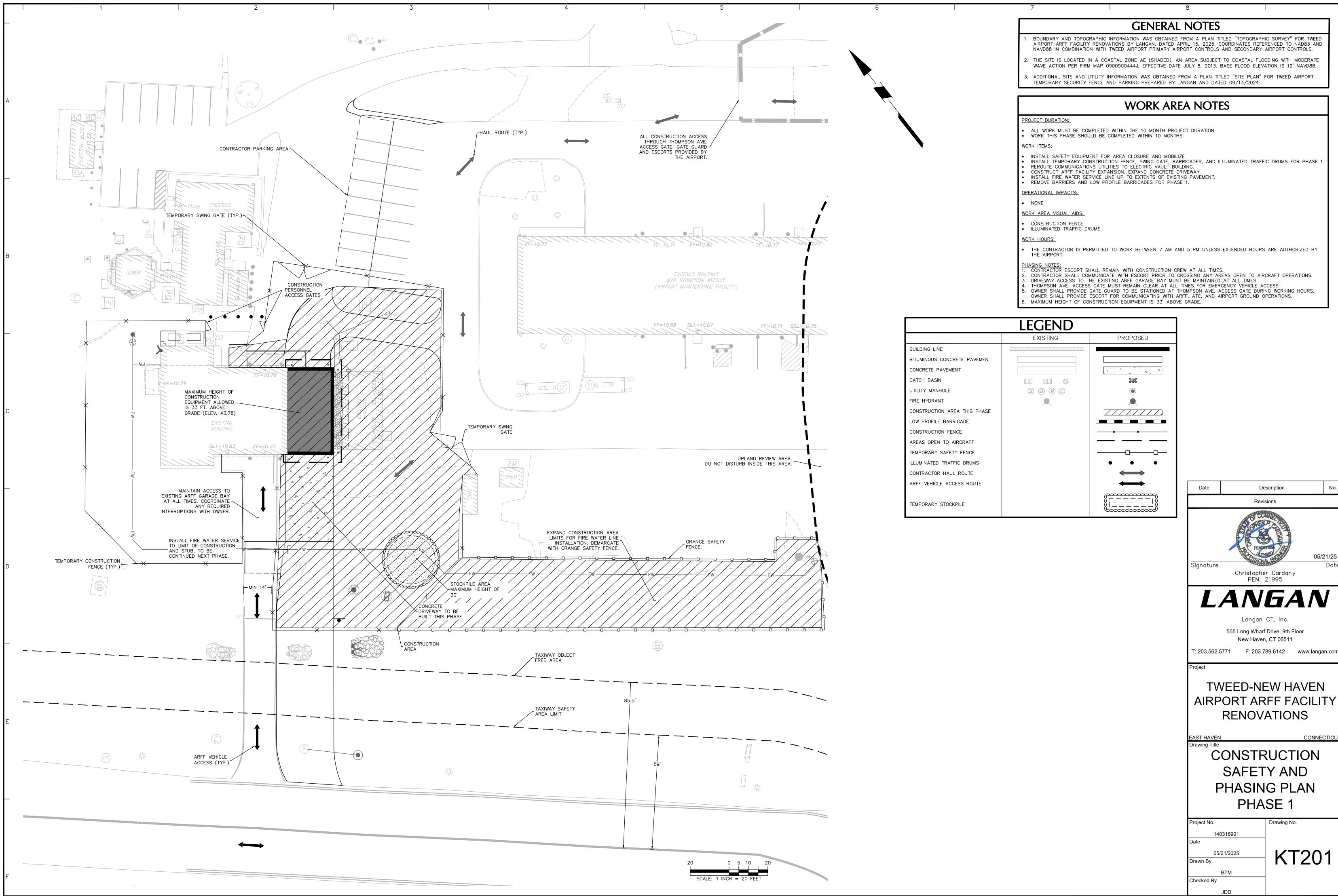
TWEED-NEW HAVEN

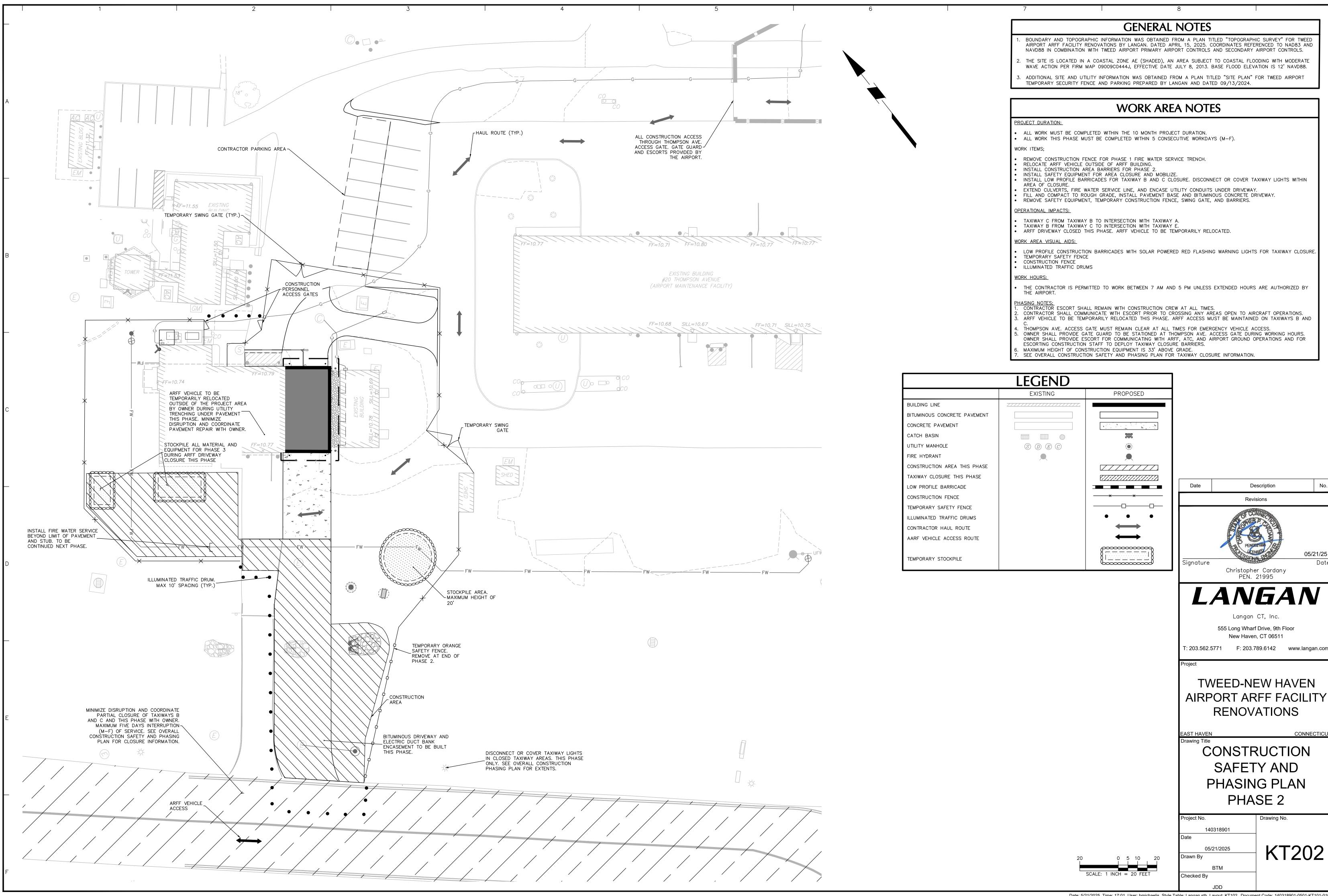
AIRPORT ARFF FACILITY

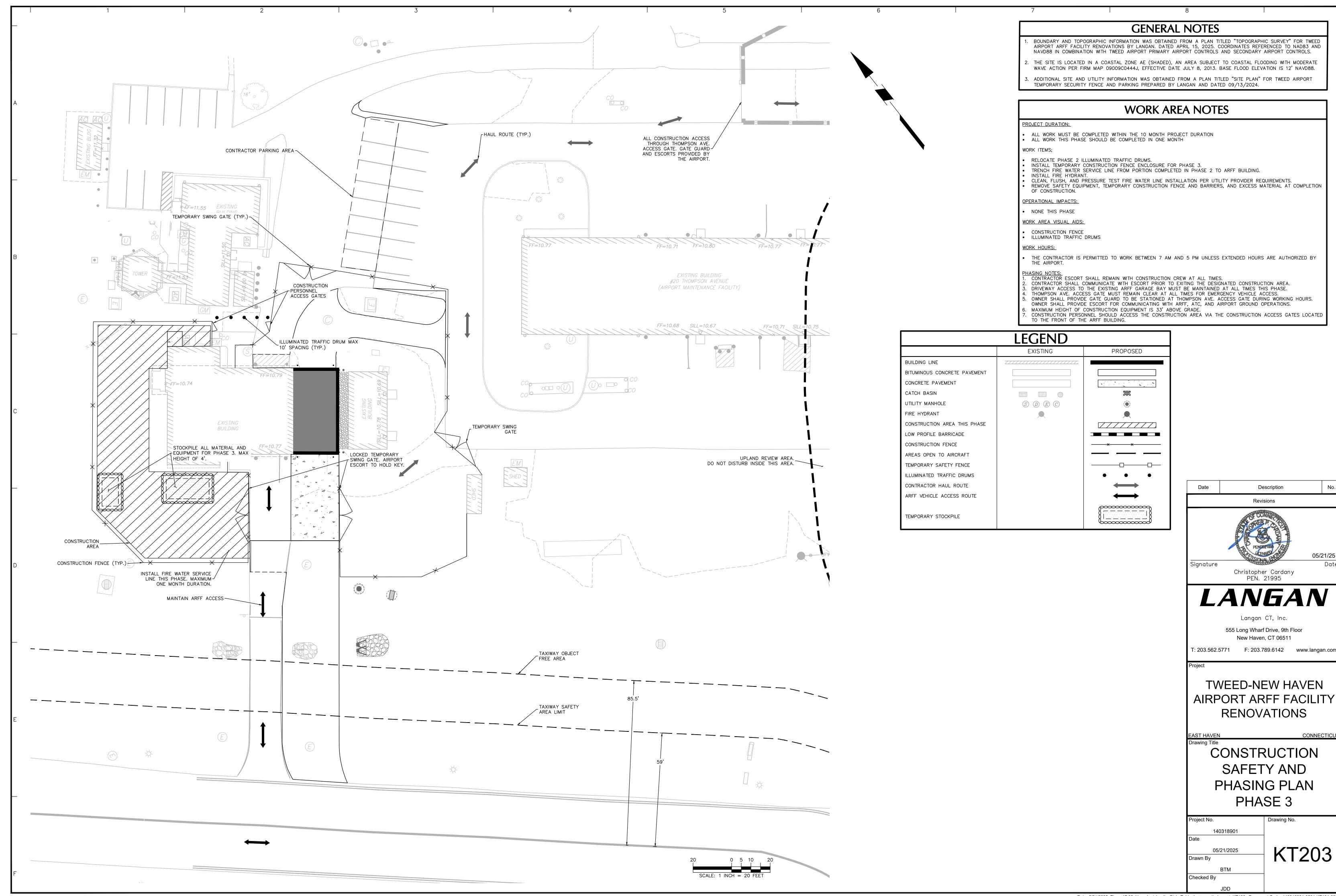
RENOVATIONS

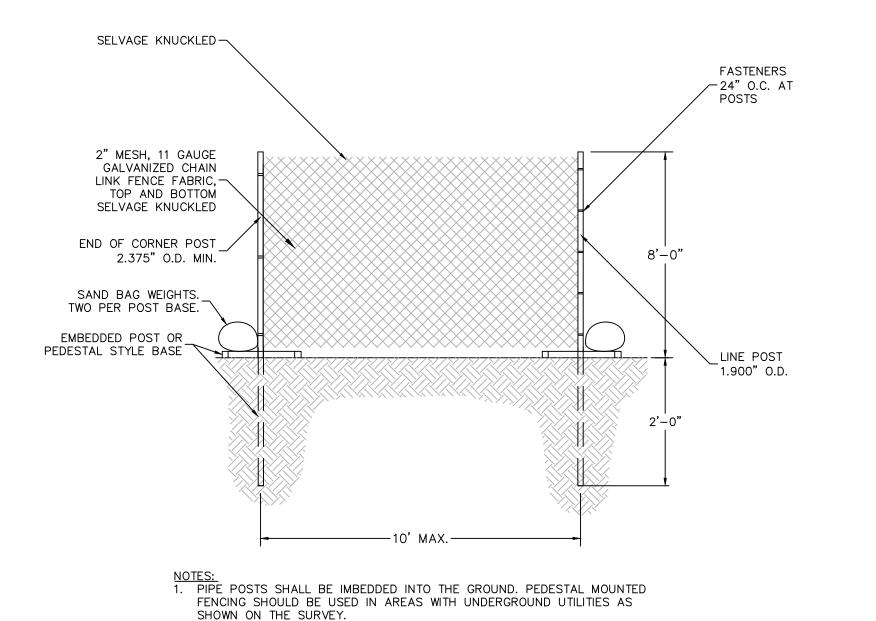
05/21/25











→ 18" MIN. → MOUNTED RED WARNING LIGHT. 35 CANDELA, FLASHING AT 65 (±10) TIMES PER MINUTE. (TYP) 6" (TYP.) 3" MAX. (TYP.) 36" MIN. ORANGE RETROREFLECTIVE STRIPE (TYP) WHITE (SILVER) RETROREFLECTIVE STRIPE (TYP)

1. TRAFFIC DRUM SHALL CONFORM TO THE REQUIREMENTS OF NCHRP REPORT 350 (TL-3) AND

- THE LATEST EDITION OF THE MUTCD. 2. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY DRUM DEEMED UNSUITABLE FOR THE
- 3. THE ENTIRE AREA OF ORANGE AND WHITE STRIPES SHALL BE RETROREFLECTIVE SHEETING AS
- REQUIRED IN THE SPECIFICATIONS. 4. THE SECTIONS OF DRUMS NOT COVERED WITH RETROREFLECTIVE STRIPES SHALL BE ORANGE.
- 5. DRUMS SHALL BE WEIGHTED WITH SAND BAGS IN PAVED AREAS AND STAKED DOWN IN UNPAVED AREAS.

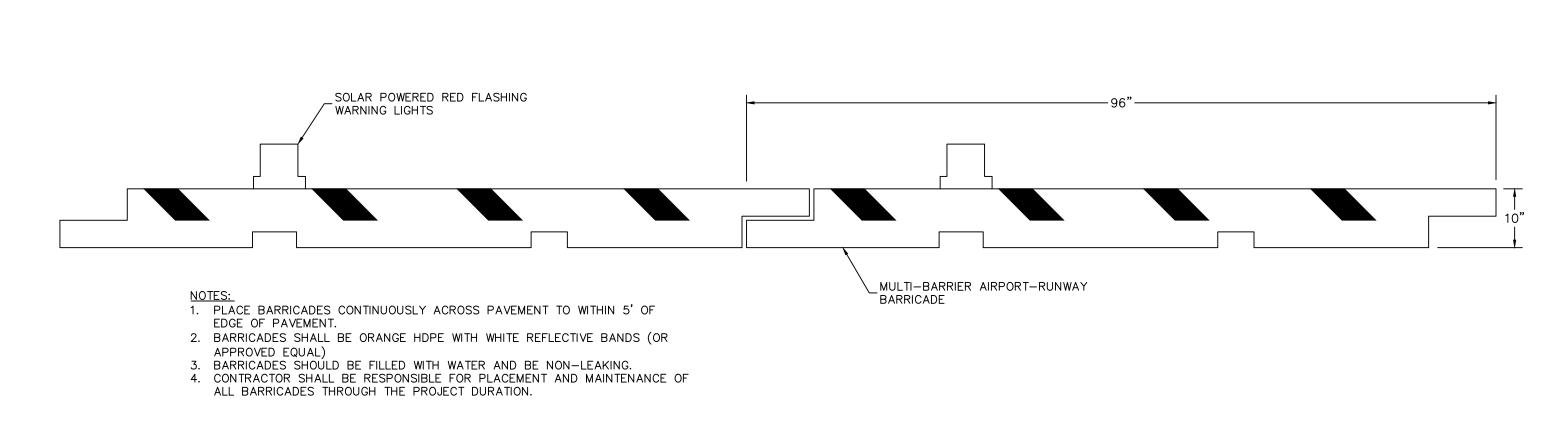
CONSTRUCTION FENCE

2. PROVIDE CONCRETE OR GALVANIZED-STEEL PEDISTAL BASES FOR

SHOWN ON THE SURVEY.

SUPPORTING POSTS.

ILLUMINATED TRAFFIC DRUM



NOTES:

1. FENCE TO BE SECURELY FASTENED TO 6' HARDWOOD STAKES DRIVEN INTO THE GROUND, 8' ON CENTER.

LOW PROFILE CONSTRUCTION BARRICADE

SAFETY FENCE

2. FENCE SHALL BE ORANGE.

Date Description 05/21/25 Signature Christopher Cardany PEN. 21995

LANGAN

Langan CT, Inc.

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TWEED-NEW HAVEN AIRPORT ARFF FACILITY RENOVATIONS

CONSTRUCTION SAFETY AND PHASING DETAILS

Drawing No. 140318901 KT601 05/21/2025 Drawn By BTM Checked By

Date: 5/21/2025 Time: 17:02 User: bmichaelis Style Table: Langan.stb Layout: KT501 Document Code: 140318901-0501-KT501-0101

REV

SB

SCHED

F, also FIN

FF

FIG

FL

FIN FL

FIN GR

FINISH

FIGURE

FAR FACE

FINISH FLOOR

FINISH GRADE

FLOOR, FLOOR LINE

REVISE(D), REVISION

SCHEDULE(D)

ELEVATOR SEPARATOR BEAM

STAIR HEADER CHANNEL

Drawn By

Checked By

140318901

05/21/25

LERA

S001

PERPENDICULAR

SQUARE

ROUND OR DIAMETER

2 ANGLES. LONG LEGS BACK TO BACK

2 ANGLES, SHORT LEGS BACK TO BACK

GENERAL STRUCTURAL NOTES

- 1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF 2022 CONNECTICUT STATE BUILDING CODE, HEREINAFTER REFERRED TO AS BUILDING CODE, WITH THE SPECIFICATIONS, AND WITH THE REGULATIONS OF ALL GOVERNMENTAL AUTHORITIES HAVING JURISDICTION.
- 2. CONTRACTOR SHALL KEEP AT LEAST ONE FULL COPY OF THE FOLLOWING DOCUMENTS IN THE FIELD OFFICE AT ALL TIMES:
 - A. BUILDING CODE.
 - B. FIELD REFERENCE MANUAL: STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE, ACI 301-10, WITH SELECTED ACI AND ASTM REFERENCES, ACI FIELD REFERENCE MANUAL, SP-15 (10).
 - C. AISC MANUAL OF STEEL CONSTRUCTION LOAD & RESISTANCE FACTOR DESIGN, AISC 360-16
- 3. CONTRACT DOCUMENTS
 - A. CONTRACT DOCUMENTS ARE INTENDED TO INDICATE INFORMATION SUFFICIENT TO CONVEY THE DESIGN INTENT. THESE DOCUMENTS REPRESENT THE STRUCTURE IN ITS COMPLETED STATE, AND DO NOT INDICATE THE MEANS-AND-METHODS OF CONSTRUCTION, WHICH IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE AND NOTIFY THE ENGINEER OF INCONSISTENCIES IN THESE DOCUMENTS PRIOR TO COMMENCEMENT OF THE WORK.
 - B. THE SPECIFICATION SECTIONS 00 30 00, 05 10 00, 05 30 00 AND ALL OTHER SECTIONS OF THE SPECIFICATIONS ARE BINDING ON CONTRACTOR AS THOUGH COPIED, WORD-FOR-WORD, DIRECTLY INTO THE DRAWINGS.
 - C. "TYPICAL DETAILS" ARE APPLICABLE THROUGH THE ENTIRE SCOPE OF WORK, ALTHOUGH THEY ARE NOT SPECIFICALLY REFERENCED. CONTRACTOR IS RESPONSIBLE TO REVIEW THESE DETAILS TO UNDERSTAND THE INTENT AND EXTENT OF THEIR APPLICATION. CONTRACTOR SHALL NOTIFY THE ENGINEER IF CONDITIONS EXIST THAT ARE NOT SPECIFICALLY DETAILED, SCHEDULED OR COVERED BY TYPICAL DETAILS.
- 4. STRUCTURAL DESIGN CRITERIA IS FOR GENERAL INFORMATION ONLY AND IS PROVIDED FOR OWNER'S USE.
- 5. REFERENCE DOCUMENTS
 - A. GEOTECHNICAL ENGINEERING REPORT AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF) FACILITY RENOVATIONS PREPARED BY LANGAN, DATED APRIL 22, 2025, AND REVISED MAY 7, 2025
 - B. ORIGINAL DRAWINGS TITLED, AIRPORT RESCUE AND FIREFIGHTING (ARFF) FACILITY, DATED FEBRUARY 17, 2000.
- 6. GENERAL REQUIREMENTS
- A. IT IS INTENDED THAT ALL MEMBERS BE FABRICATED AND ERECTED FREE OF SHOP AND FIELD SPLICES WHICH ARE NOT SPECIFICALLY SHOWN IN THE CONTRACT DRAWINGS. IF FIELD CONDITIONS NECESSITATE FIELD SPLICING OF MEMBERS, SUBMIT SPLICE LOCATIONS FOR STRUCTURAL ENGINEER'S ACCEPTANCE.

 WHERE FIELD SPLICING IS ACCEPTED, SPLICES SHALL BE SHOWN IN THE SHOP DRAWINGS OR IN FIELD WORK DRAWINGS.
- B. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CORRECTNESS OF DIMENSIONS AND QUANTITIES AND FOR THE FITTING TO OTHER WORK; FOR WORK TO BE CONFIRMED AND CORRELATED AT THE SITE; FOR INFORMATION PERTAINING TO THE FABRICATION PROCEDURE OR TO THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION; AND FOR THE COORDINATION OF THE WORK OF THIS SECTION WITH THE WORK OF ALL OTHER TRADES. THE ARCHITECT'S AND STRUCTURAL ENGINEER'S REVIEW OF CONTRACTOR'S SUBMISSIONS DOES NOT RELIEVE CONTRACTOR FROM THESE RESPONSIBILITIES.
- C. FIELD MEASUREMENTS: OBTAIN ALL FIELD MEASUREMENTS REQUIRED FOR PROPER FABRICATION AND INSTALLATION OF WORK. SUBMIT, PRIOR TO INSTALLATION, ALL MEASUREMENTS INDICATING DISCREPANCIES FROM THE DRAWINGS. DESCRIBE IN WRITING AND, WHERE APPLICABLE, BY SKETCHES THE PROPOSED METHODS FOR CORRECTING DISCREPANCIES.
- D. LAY OUT EACH PART OF THE WORK IN STRICT ACCORDANCE WITH THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND ALL OTHER DRAWINGS AND BE RESPONSIBLE FOR CORRECT LOCATION OF SAME.
- E. HOLES SHALL NOT BE CUT OR DRILLED INTO EXISTING OR NEW STRUCTURAL MEMBERS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
- 7. CONSTRUCTION SEQUENCE: DESCRIPTIONS OF LIMITATIONS ON CONSTRUCTION SEQUENCE ARE INTENDED TO ASSIST CONTRACTOR IN COORDINATING THE WORK OF THE PROJECT. DESCRIPTIONS DO NOT DESCRIBE FULLY THE LIMITATIONS GIVEN, DO NOT DESCRIBE ALL LIMITATIONS, NOR DO THEY PRECLUDE CONSTRUCTION SEQUENCES NOT CONTEMPLATED HEREIN. WHETHER OR NOT CONTRACTOR FOLLOWS THE LIMITATIONS ON CONSTRUCTION SEQUENCE DESCRIBED HEREIN AND UNTIL SUCH TIME AS THE STRUCTURAL WORK IS COMPLETED, CONTRACTOR REMAINS FULLY RESPONSIBLE FOR BOTH THE STABILITY AND THE SAFETY OF THE WORK; ADHERENCE TO THE LIMITATIONS DESCRIBED HEREIN DOES NOT RELIEVE CONTRACTOR FROM THAT RESPONSIBILITY.

8. EXISTING STRUCTURES

A. DIMENSIONS AND DETAILS SHOWN IN STRUCTURAL DRAWINGS ARE TAKEN FROM THE ORIGINAL DESIGN DOCUMENTS AND MAY NOT ACCURATELY REPRESENT CURRENT EXISTING CONDITIONS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION PERTAINING TO EXISTING CONDITIONS BY INSPECTION AND MEASUREMENT AT THE SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.

9. SHORING AND DEMOLITION

PROVIDE AND PLACE BRACING AND SHORING AS NEEDED. SUPPORT STRUCTURE TO REMAIN AS NECESSARY TO PREVENT DAMAGE OR UNACCEPTABLE DEFLECTION. KEEP ALL BRACING AND SHORING IN PLACE DURING NEW STRUCTURAL STEEL AND CONCRETE CONSTRUCTION AND UNTIL NEW CONCRETE ACHIEVES 80 PERCENT OF DESIGN STRENGTH.

WHERE EXISTING STRUCTURE NEED BE WELDED TO, SHORE STRUCTURE PRIOR TO WELDING FOR THE FULL LOAD PRESENT AT THE TIME OF WELDING.

BRACING AND SHORING, INCLUDING FOUNDATIONS AND CONNECTIONS TO EXISTING STRUCTURE WITH STIFFENER PLATES AS MAY BE REQUIRED, SHALL BE DESIGNED BY CONTRACTOR'S PROFESSIONAL ENGINEER LICENSED IN THE PROJECT'S JURISDICTION. PROCEDURES, DRAWINGS AND CALCULATIONS SHALL BE SIGNED AND SEALED BY CONTRACTOR'S ENGINEER AND SUBMITTED FOR REVIEW AND APPROVAL.

- B. REMOVE ALL DEMOLISHED MATERIAL PROMPTLY FROM THE SITE.
- ERECT AND MAINTAIN DUSTPROOF BARRIERS TO PREVENT SPREAD OF DUST OR FUMES. PROVIDE MEANS FOR EFFECTIVE DUST CONTROL. REMOVE BARRIERS UPON COMPLETION.
- D. CAST NEW CONCRETE AS REQUIRED TO REPAIR CONCRETE THAT IS DAMAGED OR REMOVED IN THE EXECUTION OF THIS CONTRACT TO THE SATISFACTION OF THE ARCHITECT AND STRUCTURAL ENGINEER.
- E. ALL STEEL BEAM CUTS SHALL BE NEAT, SMOOTH, AND TRUE TO LINE. REPAIR EXCESS GAS BURNING SERRATIONS AND GOUGES BY NECESSARY WELDING AND GRINDING.
- F. EXISTING MECHANICAL/ELECTRICAL WORK MAY NEED TO BE TEMPORARILY REMOVED TO ACCOMMODATE THE REINFORCEMENT OF THE EXISTING STRUCTURE. SEE MECHANICAL/ELECTRICAL DRAWINGS FOR REQUIREMENTS RELATED TO DOCUMENTING, REMOVING, STORING, REINSTALLING AND TESTING SUCH WORK.

10. CONTRACTOR'S ENGINEER

- A. CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT'S JURISDICTION TO OVERSEE CONTRACTOR'S DEMOLITION AND CONSTRUCTION SEQUENCE.
- B. CONTRACTOR'S PROFESSIONAL ENGINEER SHALL DESIGN ALL TEMPORARY BRACING, SHORING AND THE LIKE. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY CONTRACTOR'S PROFESSIONAL ENGINEER FOR TEMPORARY WORK.
- C. CONTRACTOR'S PROFESSIONAL ENGINEER SHALL PROVIDE CONSTRUCTION PHASE OVERSIGHT OF THEIR WORK INCLUDING CONTROLLED INSPECTIONS THAT MAY BE REQUIRED.

REINFORCED CONCRETE

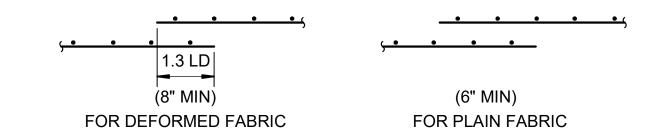
1. CONCRETE STRENGTHS AND UNIT WEIGHTS ARE LISTED BELOW. ALL CONCRETE MIXES SHALL CONFORM TO THE PROVISIONS FOR CONCRETE QUALITY CONTAINED IN CHAPTERS 19 AND 26 OF ACI 318, EXCEPT THAT THE PROVISIONS OF THE SPECIFICATIONS SHALL PREVAIL WHERE MORE STRINGENT.

F'C (PSI)*	COARSE AGGREGATE	LOCATIONS
5000	NORMAL WEIGHT	FOOTINGS, GRADE BEAMS, PIERS
4000	NORMAL WEIGHT	SLAB ON GRADE, CURBS, EQUIPMENT PADS

- * F'C SHALL BE THE COMPRESSIVE STRENGTH AT 28 DAYS FOR TYPE I CEMENT AND AT 7 DAYS FOR TYPE III (HIGH EARLY STRENGTH) CEMENT.
- 2. GROUT UNDER BASE PLATES AND BEDDING PLATES SHALL BE NON-SHRINKING TYPE.
- 3. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 (GRADE 60) UNLESS OTHERWISE NOTED.
- 4. DEFORMED STEEL REINFORCING BAR SIZES, NOMINAL BAR DIAMETERS AND NOMINAL CROSS SECTIONAL AREAS SHALL BE IN ACCORDANCE WITH ACI 318.
- 5. WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A497 (DEFORMED WIRE) FOR SIZES D4.0 AND LARGER, AND TO ASTM A185 (PLAIN WIRE) FOR SIZES LESS THAN W4.0.
- 6. DETAILING OF REINFORCING STEEL SHALL CONFORM TO *ACI DETAILING MANUAL*, BY THE AMERICAN CONCRETE INSTITUTE (ACI PUB. SP-66).
- MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT (SUBJECT TO TOLERANCES PERMITTED BY CODE) IN ACCORDANCE WITH ACI 318, UNLESS OTHERWISE INDICATED.

MINIMUM CONCRETE COVER, IN ACCORDANCE WITH ACI 318, HAS BEEN ASSUMED IN THE MEMBER STRENGTH COMPUTATIONS. CONTRACTOR SHALL NOT INCREASE THE COVER AS A MEANS TO REDUCE TENSION DEVELOPMENT LENGTHS, LD, OF BARS, UNLESS OTHERWISE NOTED.

- 8. SPLICING OF REINFORCEMENT IS PERMITTED ONLY AT LOCATIONS SHOWN IN THE STRUCTURAL DRAWINGS OR AS ACCEPTED.
- 9. UNLESS INDICATED SPECIFICALLY TO THE CONTRARY, ALL REINFORCEMENT SHALL BE SPLICED WITH TENSION LAP SPLICES DEVELOPING THE FULL TENSILE CAPACITY OF THE REINFORCEMENT.
- 10. SPLICING OF WWF SHALL BE IN ACCORDANCE WITH ACI 318. THE MINIMUM OVERLAP SHALL BE AS FOLLOWS:

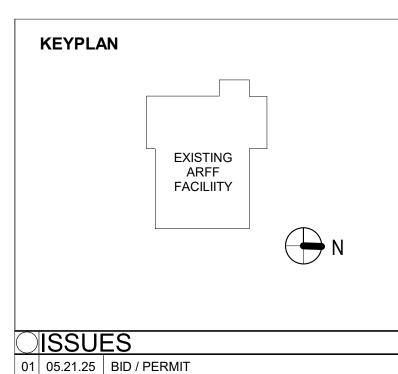


WHERE LD IS THE DEVELOPMENT LENGTH COMPUTED IN ACCORDANCE WITH ACI 318. FOR EITHER DEFORMED FABRIC OR PLAIN FABRIC AS APPLICABLE.

- 11. ALL BEAM AND SLAB CONSTRUCTION, INCLUDING UPSET BEAMS, SHALL BE CAST MONOLITHICALLY WITHOUT HORIZONTAL CONSTRUCTION JOINTS, UNLESS OTHERWISE SHOWN IN THE STRUCTURAL DRAWINGS.
- 12. LOCATION OF ALL CONSTRUCTION JOINTS SHALL MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND ACI 318. DRAWINGS SHOWING LOCATION AND DETAILS OF THE PROPOSED CONSTRUCTION JOINTS SHALL BE SUBMITTED AND ACCEPTED PRIOR TO SUBMITTING REINFORCING STEEL SHOP DRAWINGS.
- 13. SEE ARCHITECTURAL DRAWINGS FOR DETAIL AND LOCATION OF OPENINGS OR RECESSES IN WALLS AND SLABS AND FOR OTHER DIMENSIONS NOT SHOWN IN STRUCTURAL DRAWINGS.

SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR INFORMATION REGARDING SIZE AND LOCATION OF OPENINGS FOR DUCTS, PIPES, CONDUITS AND THE LIKE, FOR MACHINE PADS, ETC.

PROPOSED OPENINGS OR RECESSES IN THE STRUCTURE WHICH ARE NOT SHOWN IN THE STRUCTURAL DRAWINGS, EITHER DIRECTLY OR BY TYPICAL DETAIL. SHALL BE SUBMITTED FOR REVIEW.



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Project

Signature

TWEED-NEW HAVEN AIRPORT ARFF FACILITY EXPANSION

EAST HAVEN CONNECTICUT
Drawing Title

GENERAL STRUCTURAL NOTES

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Date	
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REINFORCED CONCRETE (CONTINUED)

- 15. HORIZONTAL CONDUITS ARE PERMITTED IN SLABS WHERE THE FOLLOWING REQUIREMENTS ARE MET (T = SLAB THICKNESS; FOR SLAB-ON-DECK, T = THICKNESS ABOVE DECK):
- A. $T \ge 4$ " ($T \ge 3$ " AT SLAB-ON-DECK)
- B. CONDUIT SIZE ≤ T/3 (T/6 WHERE TWO CONDUITS CROSS);
- C. CONDUITS ARE RUN IN A SINGLE LAYER AT MID-DEPTH IN THE SLAB THICKNESS;
- D. CONDUIT SPACING ≥ THREE CONDUIT DIAMETERS OR WIDTHS ON CENTER;
 AND
- E. CONDUITS CAN BE ACCOMMODATED WITHOUT DISPLACING REINFORCEMENT FROM LOCATIONS PROVIDED IN THE CONTRACT DOCUMENTS.

ALUMINUM CONDUIT IS PROHIBITED IN CONCRETE. CONFORM TO CONDUIT REQUIREMENTS OF ACI 318.

16. COMPRESSION DEVELOPMENT LENGTHS (FOR GRADE 60 REBAR).

COMPRESSION DEVELOPMENT LENGTHS, LDC (INCHES)			
		F'C (PSI)	
BAR SIZE	3000	4000	5000 OR HIGHER
# 3	8	8	8
# 4	11	9	9
# 5	14	12	11
# 6	16	14	14
# 7	19	17	16
# 8	22	19	18
# 9	25	21	20
# 10	28	24	23
# 11	31	27	25
# 14	37	32	30
# 18	49	43	41

- A. TABULATED VALUES ARE FOR NORMAL WEIGHT OR LIGHTWEIGHT CONCRETE, WITH OR WITHOUT EPOXY COATING.
- 17. TENSION DEVELOPMENT LENGTHS AND SPLICE LENGTHS:

REINFORCING BAR DEVELOPMENT LENGTHS, AS COMPUTED IN ACCORDANCE WITH ACI 318, FORM THE BASIS FOR BAR EMBEDMENT LENGTHS AND BAR SPLICE LENGTHS SHOWN IN THE DRAWINGS. FOR CONVENIENT REFERENCE, TABLES OF DEVELOPMENT LENGTHS IN TENSION, LD, ARE GIVEN HERE.

THE TABLES FOR LD ARE DIVIDED INTO CATEGORIES. CATEGORIES 1 AND 2, WHICH DEPEND ON THE TYPE OF STRUCTURAL ELEMENT, CONCRETE COVER AND THE CENTER- TO-CENTER SPACING OF THE BARS, ARE DEFINED AS:

STRUCTURAL	CONCRETE	CATEGORY, ACCORDING TO CENTER-TO- CENTER BAR SPACING			
ELEMENT	COVER	≤ 2D _B	≥ 2D _B < 3D _B	≥ 3D _B	
BEAMS, COLUMNS	< D _B	2	2	2	
	≥ D _B	2	1	1	
ALL OTHERS	< D _B	2	2	2	
ALL OTHERS	≥ D _B	2	2	1	

WHERE $D_B = NOMINAL DIAMETER OF A BAR$.

THE FOLLOWING NOTES APPLY TO ALL THE TABULATED VALUES OF TENSION DEVELOPMENT AND TENSION LAP SPLICES:

A. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE TO BE CAST IN THE MEMBER BELOW THE BARS. WALL HORIZONTAL BARS SHALL BE CONSIDERED TOP BARS.

B. FOR EPOXY-COATED BARS, INCREASE LD BY THE FOLLOWING FACTORS:

	EPOXY FACTOR		
	TOP BARS	OTHER BARS	
COVER < 3D _B , OR CLEAR SPACING < 6D _B	1.3	1.5	
ALL OTHERS	1.2	1.2	

- C. THE LENGTHS OF TENSION LAP SPLICES SHALL BE 1.3 x LD.
- E. VALUES SHOWN ARE FOR GRADE 60 REBAR.

	TENSION DEVELOPMENT LENGTHS, LD (INCHES) NORMAL WEIGHT CONCRETE							
F'C = 3000 PSI						F'C = 4	000 PSI	
BAR	TOP I	BARS	OTHER	RBARS	TOP I	BARS	OTHER	RBARS
SIZE	CATE	GORY	CATE	GORY	CATE	GORY	CATE	GORY
	1	2	1	2	1	2	1	2
#3	22	32	16	25	21	28	15	21
# 4	29	43	22	33	26	37	19	28
# 5	37	53	27	41	32	46	24	36
# 6	44	64	33	49	38	55	28	43
#7	62	93	48	72	54	81	42	62
# 8	71	107	55	82	62	92	47	71
# 9	80	120	62	93	70	104	54	80
# 10	90	136	70	104	78	117	60	90
# 11	100	151	77	116	87	130	67	100
# 14	121	181	93	139	104	157	80	120
# 18	161	241	124	185	139	209	107	161

STRUCTURAL STEEL

1. UNLESS OTHERWISE NOTED, USE THE FOLLOWING:

SHAPE	ASTM STANDARD	MINIMUN FY (KSI)
WIDE-FLANGES, TEES	A 572, GRADE 50 A 992, GRADE 50	50
CHANNELS, BUILT-UP SECTIONS	A 572, GRADE 50	50
PIPES	A 501	36
ROUND HSS	A 500, GRADE C	46
RECTANGULAR AND SQUARE HSS	A 500, GRADE C	50
ANGLES	A 572	50
CONNECTION PLATE	A 572	50

WHERE NOTED OTHERWISE, PROVIDE THE INDICATED MINIMUM YIELD STRESS (FOR EXAMPLE, "FY 50" MEANS A MINIMUM YIELD STRESS OF 50 KSI).

- 2. ALL FORCES GIVEN IN THE STRUCTURAL DRAWINGS FOR STEEL MEMBERS ARE FACTORED FORCES, UNLESS OTHERWISE NOTED.
- 3. UNLESS SPECIFICALLY NOTED TO THE CONTRARY, ALL BOLTED CONNECTIONS SHALL BE MADE WITH SLIP-CRITICAL, A325 OR A490 BOLTS. THE MINIMUM NUMBER OF ROWS OF BOLTS FOR FRAMED CONNECTIONS SHALL BE BASED ON BEAM DEPTH AS TABULATED BELOW. WHERE NO REACTION IS PROVIDED IN THE DRAWINGS, THE CONNECTION SHALL BE PROPORTIONED TO CARRY THE FORCES TABULATED BELOW:

MINIMUM CONNECTION REQUIREMENTS					
NOMINAL DEPTH	MINIMUM NUMBER OF			MINIMUM AXIAL REACTION, KIPS (FACTORED)*	
OF BEAM OR GIRDER	ROWS OF BOLTS			ALL BEAM END CONNECTIONS	
8	2	14	24	A = R	
10	2	17	24	A = R	
12	2	20	36	A = R	
14, 15, 16	3	36	49	A = R	
18	3	49	76	A = R	
21, 24	4	62	91	A = R	
27, 30	5	74	101	A = R	
33, 36	6	85	123	A = R	

- * NOTE: WHERE MINIMUM TABULATED AXIAL FORCE IS USED, IT NEED NOT BE CONSIDERED TO ACT SIMULTANEOUSLY WITH THE VERTICAL REACTION. WHERE AXIAL FORCES ARE TAKEN FROM THE DRAWINGS THESE SHALL BE CONSIDERED TO ACT SIMULTANEOUSLY WITH VERTICAL REACTIONS (EITHER MINIMUM TABULATED OR THOSE SPECIFICALLY SHOWN IN THE DRAWINGS).
- 4. ALL BEAM VERTICAL, AXIAL, TORSION AND MOMENT REACTIONS ACT SIMULTANEOUSLY, UON. END REACTIONS AND/OR DETAILS ARE SHOWN THUS:

R, A

INDICATES CONNECTION TO BE DESIGNED FOR THE GIVEN REACTIONS. R = VERTICAL REACTION AND A = BEAM AXIAL REACTION IN KIPS. WHERE ONLY ONE VALUE IS GIVEN, A = 0. THE CONNECTION SHALL BE DESIGNED FOR THE MORE SEVERE OF THE FOLLOWING:

R ALONE OR REACTION FROM THE MINIMUM CONNECTION REQUIREMENTS TABLE, WHICHEVER IS GREATER.

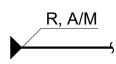
R AND A, VECTORIALLY COMBINED.

R, A M, T INDICATES A MOMENT AND/OR TORSION CONNECTION.

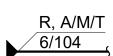
M = MOMENT IN FOOT-KIPS, T = TORSION IN FOOT-KIPS. THE FULL

MOMENT CAPACITY OF THE BEAM SHALL BE DEVELOPED UNLESS

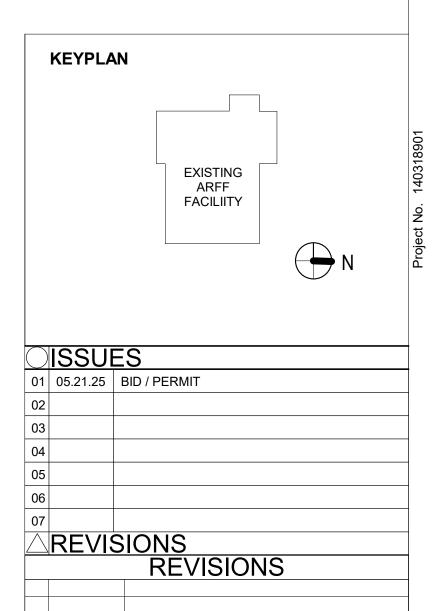
OTHERWISE NOTED.



VERTICAL AND BEAM AXIAL REACTIONS SHALL BE DESIGNED AS DESCRIBED ABOVE (i.e. R+M AND R+A+M).



INDICATES DETAIL 6 ON DRAWING S-104. WHERE REACTIONS ARE INDICATED, THE CONNECTION SHALL BE DESIGNED AS DESCRIBED ABOVE.



	Revisions	
	P No. 21391	
Signature		
	RICHARD ZOTTOLA	
	LIC. 21331	

Description

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Project

Date

TWEED-NEW HAVEN AIRPORT ARFF FACILITY EXPANSION

EAST HAVEN CONNECTICUT
Drawing Title

GENERAL STRUCTURAL NOTES

Project No.	Drawing No.
140318901	
Date	
05/21/25	S003
Drawn By	3003
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STRUCTURAL STEEL (CONTINUED)

- 5. REINFORCING SHALL BE PROVIDED TO BEAMS AT CONNECTIONS WHERE CUTS HAVE REDUCED THE SHEAR OR MOMENT CAPACITY BELOW THAT REQUIRED TO SUSTAIN THE REACTIONS. FLANGES AND WEBS SHALL BE REINFORCED WHERE THE LOCAL CAPACITY TO SUSTAIN CONNECTION LOADS IS INADEQUATE.
- 6. ELECTRODES, FLUX AND SHIELDING GAS SHALL PROVIDE PHYSICAL PROPERTIES AFTER WELDING EQUIVALENT TO OR BETTER THAN E7018 LOW HYDROGEN ELECTRODES.
- 7. PROVIDE 5/16" THICK OR THICKER SHELF ANGLES AT COLUMNS, WALLS AND BEAMS AS REQUIRED TO PROVIDE END AND SIDE DECK SUPPORTS.
- 8. FILLET WELDS ON GUSSET PLATES, SEATED CONNECTIONS AND OTHER PLATE EXTENSIONS SHALL BE RETURNED AROUND THE ENDS OF THE PLATE FOR PLATES EXPOSED TO WEATHER.
- 9. ERECTION AIDS AND DEVICES ARE NOT SHOWN HEREIN. THE DETAILING OF THESE DEVICES IS THE RESPONSIBILITY OF CONTRACTOR.

STEEL DECK

- STEEL DECK UNITS AND ACCESSORIES SHALL BE FABRICATED FROM STEEL SHEET CONFORMING TO ASTM A653 SQ GRADE 50, WITH A MINIMUM YIELD POINT OF 50 KSI. MINIMUM THICKNESS SHALL BE 20 GAUGE.
- 2. DECK EDGE LAPS SHALL BE CONNECTED VIA FUSION WELDS OR MECHANICAL FASTENERS AS FOLLOWS:

FUSION WELDS: 3/4" Ø PUDDLE WELDS. THE SPACING SHALL BE SPECIFIED BY CONTRACTOR'S PROFESSIONAL ENGINEER AND BE SUFFICIENT TO MAINTAIN BUILDING ALIGNMENT AND TO SUSTAIN CONSTRUCTION LOADS WITHOUT DISTORTION OR SEPARATION. MAXIMUM SPACING SHALL BE 3'-0 OC THROUGHOUT EXCEPT THAT CANTILEVER SPANS SHALL RECEIVE NOT LESS THAN ONE WELD AT THE DECK END.

MECHANICAL FASTENERS: SHALL BE STEEL SCREWS. THE SCREW SIZE AND SPACING SHALL BE SPECIFIED BY CONTRACTOR'S PROFESSIONAL ENGINEER SUCH THAT IT HAS EQUIVALENT STRENGTH OF FUSION WELDS. MAXIMUM SPACING SHALL NOT EXCEED 3'-0 OC. FASTENERS SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS.

3. DECK ATTACHMENT TO STRUCTURAL STEEL SHALL BE CONNECTED VIA FUSION WELDS, OR MECHANICAL FASTENERS AS FOLLOWS:

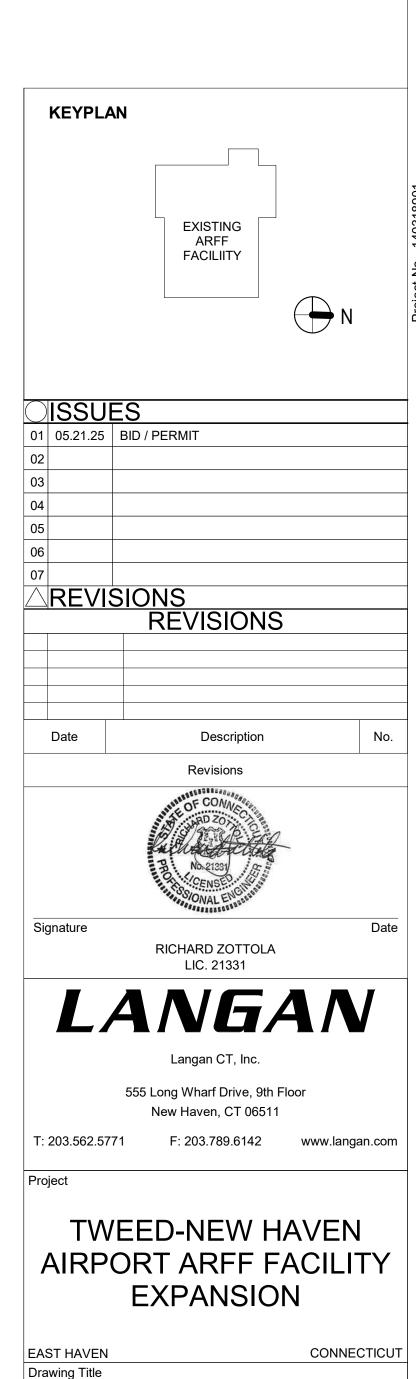
FUSION WELDS: 3/4" \varnothing PUDDLE WELDS. WELDS SHALL BE PROVIDED AT EACH RIB, AT END AND INTERIOR SUPPORTS PERPENDICULAR TO THE DECK SPAN AND AT 12" OC AT EDGE AND INTERIOR SUPPORTS PARALLEL TO THE DECK SPAN.

MECHANICAL FASTENERS: SHALL BE STEEL POWDER ACTUATED FASTENERS. THE FASTENER SIZE AND SPACING SHALL BE NO LESS THAN A 36/4 PATTERN. FASTENERS SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS.

- 6. PROPOSED OPENINGS THROUGH SLAB/DECK OR DECK WHICH ARE NOT SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED THROUGH ARCHITECT TO STRUCTURAL ENGINEER FOR REVIEW.
- 7. POWDER ACTUATED AND SCREW FASTENERS SHALL BE SDI LISTED FOR DIAPHRAGM DESIGN AND WIND UPLIFT. THESE FASTENERS SHALL ALSO CONFORM TO THE LATEST REQUIREMENTS OF ICC-ES AC 43 FOR DIAPHRAGM SHEAR STRENGTH AND STIFFNESS.

POST-INSTALLED ANCHORS

- POST-INSTALLED ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII), AND APPROVED INDEPENDENT TESTING REPORT PER ACI 355.2-07 AND ACI 355.4-11.
- 2. ANCHOR INSTALLER(S) SHALL HAVE EXPERIENCE AND TRAINING WITH INSTALLING THE SPECIFIED POST-INSTALLED ANCHORS. INSTALLATION OF ADHESIVE ANCHORS IN HORIZONTAL, OR UPWARDLY INCLINED ORIENTATIONS, SUPPORTING TENSION LOAD SHALL BE PERFORMED BY INSTALLERS CERTIFIED THROUGH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM, OR APPROVED EQUIVALENT.
- 3. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING AT THE TIME OF INSTALLATION SO AS TO ACHIEVE THE INTENDED CAPACITY, UNLESS OTHERWISE PERMITTED IN WRITING FROM THE ANCHOR MANUFACTURER.
 - A. MINIMUM CONCRETE AGE OF 21 DAYS
- B. MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 0.75 F'C
- C. MINIMUM CONCRETE TEMPERATURE OF 50 DEGREES FAHRENHEIT
- D. HOLES DRILLED WITH CARBIDE-TIPPED DRILL BITS,
- E. USING ROTARY IMPACT HAMMERF. CONCRETE IN "DRY" CONDITION
- G. HOLES THOROUGHLY CLEANED AND PREPARED IN ACCORDANCE WITH THE MPII
- H. ANCHORS FREE OF RUST, OIL, COATINGS, DIRT, MUD OR ANY DELETERIOUS MATERIALS
- 4. ANCHORS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE CONCRETE CAPACITY DESIGN METHODS OF ACI 318, AS MODIFIED BASED ON THE REQUIREMENTS OF THE APPROVED INDEPENDENT TESTING REPORT PER ACI 355. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER PRIOR TO USE. WHERE SUBSTITUTIONS ARE REQUESTED, CONTRACTOR SHALL PROVIDE SIGNED AND SEALED CALCULATIONS FROM CONTRACTOR'S PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE PROJECT'S JURISDICTION, DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE CAPACITY AND PERFORMANCE OF THE ORIGINAL SPECIFIED PRODUCT INCLUDING, BUT NOT LIMITED TO: COMPLIANCE WITH THE BUILDING CODE, SEISMIC USE, LOAD RESISTANCE, INSTALLATION CATEGORY, AND IN-SERVICE CONDITIONS.
- 5. SPECIAL INSPECTION OF POST-INSTALLED ANCHORS SHALL BE IN ACCORDANCE WITH THE BUILDING CODE AND APPROVED INDEPENDENT TESTING REPORT PER ACI 355. AT A MINIMUM, ALL ANCHORS SHALL BE SUBJECT TO PERIODIC SPECIAL INSPECTION. IN ADDITION, ADHESIVE ANCHORS INSTALLED IN HORIZONTAL, OR UPWARDLY INCLINED ORIENTATIONS, SUPPORTING TENSION LOAD SHALL BE SUBJECT TO CONTINUOUS SPECIAL INSPECTION. IN ALL CASES THE SPECIAL INSPECTOR SHALL BE NOTIFIED PRIOR TO COMMENCEMENT OF WORK.
- 6. CARE SHALL BE TAKEN TO NOT CUT OR DAMAGE EXISTING REINFORCEMENT. CONTRACTOR SHALL LOCATE EXISTING REINFORCEMENT, BY NON-DESTRUCTIVE MEANS, PRIOR TO FABRICATION OF ANCHORAGE ELEMENTS AND/OR DRILLING OF POST-INSTALLED ANCHORS TO CONFIRM THERE ARE NO CONFLICTS. CONTRACTOR IS RESPONSIBLE TO NOTIFY THE STRUCTURAL ENGINEER IN WRITING IF A CONFLICT EXISTS, FOR REVIEW PRIOR, TO COMMENCEMENT OF THE WORK
- 7. WHERE STAINLESS STEEL ANCHORS ARE SPECIFIED IN THE CONTRACT DOCUMENTS, GRADE 316 STAINLESS SHALL BE USED, UNLESS OTHERWISE NOTED OR APPROVED BY THE STRUCTURAL ENGINEER IN WRITING.
- 8. PROOF LOAD TESTING (INCLUDING REQUIRED PROOF LOAD, ANCHOR TYPES, LOCATIONS, AND QUANTITIES) BY NON-DESTRUCTIVE MEANS SHALL BE PERFORMED BY AN INDEPENDENT PARTY AT THE DISCRETION OF THE STRUCTURAL ENGINEER. RESULTS OF THIS PROOF LOAD TESTING SHALL BE SUBMITTED IN WRITING FOR REVIEW.



GENERAL

STRUCTURAL NOTES

Drawing No.

S004

Project No.

Drawn By

Checked By

140318901

05/21/25

LERA

STRUCTURAL DESIGN CRITERIA

THIS STRUCTURAL DESIGN CRITERIA OF THE PROJECT IS FOR GENERAL INFORMATION ONLY AND DOES NOT MODIFY, ALTER OR OVERRULE THE SPECIFICATIONS OR THE DRAWINGS.

A. LOCATION

THIS PROJECT IS LOCATED AT 155 BURR STREET, NEW HAVEN, CT, 06512.

B. CODES

THE STRUCTURAL DESIGN, REPRESENTED BY THE CONTENTS OF THE CONTRACT DOCUMENTS, IS IN GENERAL ACCORD WITH THE MINIMUM REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS. IN SOME INSTANCES, LERA HAS CONCLUDED THAT MORE STRINGENT REQUIREMENTS ARE APPROPRIATE FOR THE STRUCTURAL DESIGN OF THE PROJECT; IN THOSE INSTANCES, THE MORE STRINGENT STRUCTURAL REQUIREMENTS HAVE BEEN APPLIED.

- 1. 2022 CONNETICUT STATE BUILDING CODE.
- 2. ASCE 7-16, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, BY AMERICAN SOCIETY OF CIVIL ENGINEERS.
- 3. AISC 360-16, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
- 4. AWS D1.1 2020, STRUCTURAL WELDING CODE STEEL.
- 5. ACI 318-19 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, AMERICAN CONCRETE INSTITUTE.

C. REFERENCE DOCUMENTS

1. SEE THE GENERAL STRUCTURAL NOTES FOR A LIST OF REFERENCE DOCUMENTS.

D. **GRAVITY LOADS**

THE LOADS THAT FOLLOW DO NOT INCLUDE THE WEIGHT OF STRUCTURAL STEEL MEMBERS. FURTHER, EXCEPT AS NOTED, LOADING INFORMATION FOR MECHANICAL EQUIPMENT HAVE NOT BEEN INCLUDED IN THESE CRITERIA. NORMAL WEIGHT CONCRETE IS TAKEN AT A UNIT WEIGHT OF 150 PCF. THE FOLLOWING ARE DEAD. SUPERIMPOSED DEAD AND LIVE LOADS TAKEN FOR EACH OCCUPANCY CATEGORY:

SUPERIMPOSED DEAD LOAD:

1.	ROOF LEVEL	PSF
	JOIST LOADS DECK LOADS MEMBRANE & INSULATION CEILING & MISC	5 5 3 10
	TOTAL DEAD LOAD	20
	ROOF LIVE LOAD	20
2.	FLOOR LEVEL	PSF
	8" THICK SLAB 10" THICK CMU WALL EXTERIOR WALL CLADDING	100 61 9

E. WIND LOADS

WIND LOAD ARE DETERMINED PER 2022 CONNECTICUT STATE BUILDING CODE AND ASCE 7-16, BASED ON THE FOLLOWING PARAMETERS:

1. WIND LOAD PARAMETERS

BASIC WIND SPEED: V = 135 MPH DIRECTIONALITY FACTOR: $K_d = 0.85$ OCCUPANCY CATEGORY: **IMPORTANCE FACTOR:** I = 1.0MEAN ROOF HEIGHT: h = 23 FEET

2. WIND LOADS ON THE MAIN WIND FORCE RESISTING SYSTEM

SURFACE ROUGHNESS CATEGORY: **EXPOSURE CATEGORY:**

TOPOGRAPHIC FACTOR: Kzt = 1.0

GUST EFFECT FACTOR: G or Gf = 0.85**ENCLOSURE CLASSIFICATION:** ENCLOSED BUILDING INTERNAL PRESSURE COEFFICIENT: $GCpi = \pm 0.18$

VELOCITY PRESSURE AT TOP OF BUILDING: $qh = 0.00256*Kh*Kzt*Kd*V^2*I = 36.82PSF$

F. SEISMIC LOADS

SEISMIC LOADS ARE DETERMINED BASED ON THE FOLLOWING PARAMETERS:

PER 2022 CONNETICUT STATE BUILDING CODE/ ASCE 7-16:

OCCUPANCY CATEGORY:

IMPORTANCE FACTOR: 1.5 D - STIFF SOIL PROFILE SITE CLASS

MAPPED MCE SPECTRAL ACCELERATION AT SHORT PERIODS: $S_s = 0.2 g$

MAPPED MCE SPECTRAL ACCELERATION AT 1 SEC PERIOD:

 $S_1 = 0.053 g$

SITE COEFFICIENTS: $F_a = 1.6$ $F_{v} = 2.4$

ADJUSTED MCE SPECTRAL ACCELERATION AT SHORT PERIODS: $S_{MS} = 0.32 g$

ADJUSTED MCE SPECTRAL ACCELERATION AT 1 SEC PERIOD:

DESIGN SPECTRAL ACCELERATION AT SHORT PERIODS:

 $S_{DS} = 0.213 g$

DESIGN SPECTRAL ACCELERATION AT 1 SEC PERIODS: $S_{D1} = 0.0848 g$

SEISMIC DESIGN CATEGORY:

SEISMIC FORCE RESISTING SYSTEMS:

E - W DIRECTION TYPE OF LATERAL SYSTEM: Ψ INDICATE TYPE OF SYSTEM Ψ

RESPONSE MODIFICATION COEFFICIENT: R_{FW} = 3.5 SYSTEM OVERSTRENGTH FACTOR: $\Omega o_{EW} = 3$ DEFLECTION AMPLIFICATION FACTOR: $Cd_{EW} = 3$

N - S DIRECTION TYPE OF LATERAL SYSTEM: Ψ INDICATE TYPE OF SYSTEM Ψ

RESPONSE MODIFICATION COEFFICIENT: $R_{NS} = 3.5$ SYSTEM OVERSTRENGTH FACTOR: $\Omega o_{NS} = 3$ DEFLECTION AMPLIFICATION FACTOR: $Cd_{NS} = 3$

EFFECTIVE SEISMIC WEIGHT: W = 424.2 KIP

EFFECTIVE SEISMIC WEIGHT, W, INCLUDES: CONSTRUCTION DEAD LOAD; SUPERIMPOSED DEAD LOAD INCLUDING Ψ PSF PARTITION ALLOWANCE AND Ψ PSF **CURTAIN WALL ALLOWANCE:**

EQUIVALENT LATERAL FORCE PROCEDURE:

Ψ OTHER

SEISMIC RESPONSE COEFFICIENT (Cs) = 0.071 SEISMIC BASE SHEAR = 30.11 KIPS

G. **SNOW LOADS**

SNOW LOADS ARE DETERMINED PER 2022 CONNECTICUT STATE BUILDING CODE AND ASCE 7-16, BASED ON THE FOLLOWING PARAMETERS:

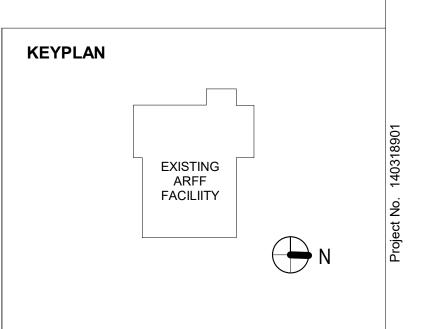
GROUND SNOW LOAD: $P_g = 30 PSF$ I = 1.2**IMPORTANCE FACTOR:** SNOW EXPOSURE FACTOR: $C_{e} = 1.0$ FLAT-ROOF SNOW LOAD: $P_f = 30.24 PSF$ SNOW DENSITY: Y = 17.9 PCF

H. FOUNDATION LOADS

- 1. ALLOWABLE BEARING PRESSURES FOR COLUMN AND WALL FOOTINGS FOUNDED ON NATIVE SOIL = 4000 PSF
 - A. INDIVIDUAL FOOTINGS SHALL BE AT LEAST 3 FEET WIDE PER SIDE.
 - B. CONTINUOUS WALL FOOTINGS SHALL BE AT LEAST 2 FEET WIDE.
- 2. FROST LINE: ALL EXTERIOR FOOTINGS SHOULD BE CONSTRUCTED 42 INCHES OR DEEPER BELOW THE LOWEST ADJACENT GRADE FOR FROST PROTECTION.
- 3. SLAB-ON-GRADE DESIGN: MODULUS OF SUBGRADE REACTION, K = 125 PCI.

DEFLECTIONS

- 1. UNLESS OTHERWISE NOTED, LIVE LOAD DEFLECTIONS OF BEAMS ARE LIMITED TO SPAN/500 OR 3/4 INCH, WHICHEVER IS SMALLER.
- 2. THE TOTAL BUILDING SWAY DEFLECTION IS LIMITED TO THE FOLLOWING:
 - a. FOR WIND LOADING: (TOTAL BUILDING HEIGHT) / 400
 - b. FOR SEISMIC LOADING: (TOTAL BUILDING HEIGHT) / 60



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RICHARD ZOTTOLA

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Project

Signature

TWEED-NEW HAVEN AIRPORT ARFF FACILITY **EXPANSION**

CONNECTICUT EAST HAVEN Drawing Title

STRUCTURAL **DESIGN CRITERIA**

Project No.	Drawing No.
140318901	
Date	
05/21/25	2010
Drawn By	- S010
LERA	
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Date: 4/28/2025 Time: 13:39 User: bmichaelis Style Table: Langan.stb Layout: CS101 Document Code: 140318901-0501-CS101-0101

STRUCTURAL DESIGN CRITERIA (CONTINUED)

J. LOAD COMBINATIONS

1. DEFINITIONS:

D = DEAD LOADE = EARTHQUAKE LOAD

F = LOAD DUE TO FLUIDS WITH WELL-DEFINED PRESSURES AND MAXIMUM

HEIGHTS H = LOAD DUE TO LATERAL EARTH PRESSURE, GROUND WATER PRESSURE, OR

PRESSURE OF BULK MATERIAL

L = LIVE LOAD $L_r = ROOF LIVE LOAD$

R = RAIN LOAD

S = SNOW LOAD T = CUMULATIVE EFFECT TO TEMPERATURE, CREEP, SHRINKAGE, AND

DIFFERENTIAL SETTLEMENT W = WIND LOAD

2. FOUNDATION ELEMENTS: SERVICE LOADS AND FORCES

1. D+F

2. D+H+F+L+T 3. $D + H + F + (L_r \text{ or } S \text{ or } R)$

4. D + H + F + 0.75 (L + T) + 0.75 (L_r or S or R)

5. D + H + F + (W or 0.7 E)

6. D + H + F + 0.75 (W or 0.7 E) + 0.75 L + 0.75 (L_r or S or R)

7. 0.6D + W + H

8. 0.6D + 0.7 E + H

THE MOST UNFAVORABLE EFFECTS FROM BOTH WIND AND EARTHQUAKE LOADS SHALL BE CONSIDERED, WHERE APPROPRIATE, BUT THEY NEED NOT BE ASSUMED TO ACT SIMULTANEOUSLY.

3. STRUCTURAL STEEL AND CONCRETE ELEMENTS: FACTORED LOADS AND **FORCES**

2. $1.2 (D + F' + T) + 1.6 (L + H) + 0.5 (L_r \text{ or S or R})$ 3. $1.2 D + 1.6 (L_r \text{ or S or R}) + (L \text{ or } 0.8W)$

4. $1.2 D + 1.6 W + L + 0.5 (L_r \text{ or S or R})$

5. 1.2 D + 1.0 E + L + 0.2 S

6. 0.9 D + 1.6 W + 1.6 H 7. 0.9 D + 1.0 E + 1.6 H

EXCEPTIONS:

THE LOAD FACTOR ON L IN COMBINATIONS (3), (4), AND (5) IS PERMITTED TO EQUAL 0.5 FOR ALL OCCUPANCIES IN WHICH THE UNIFORMLY DISTRIBUTED LIVE LOAD IS LESS THAN OR EQUAL TO 100 PSF, WITH THE EXCEPTION OF GARAGES OR AREAS OCCUPIED AS PLACES OF PUBLIC ASSEMBLY.

EACH RELEVANT STRENGTH LIMIT STATE SHALL BE INVESTIGATED. EFFECTS OF ONE OR MORE LOADS NOT ACTING SHALL BE INVESTIGATED. THE MOST UNFAVORABLE EFFECTS FROM BOTH WIND AND EARTHQUAKE LOADS SHALL BE INVESTIGATED, WHERE APPROPRIATE, BUT THEY NEED NOT BE CONSIDERED TO ACT SIMULTANEOUSLY.

K. FLOODING

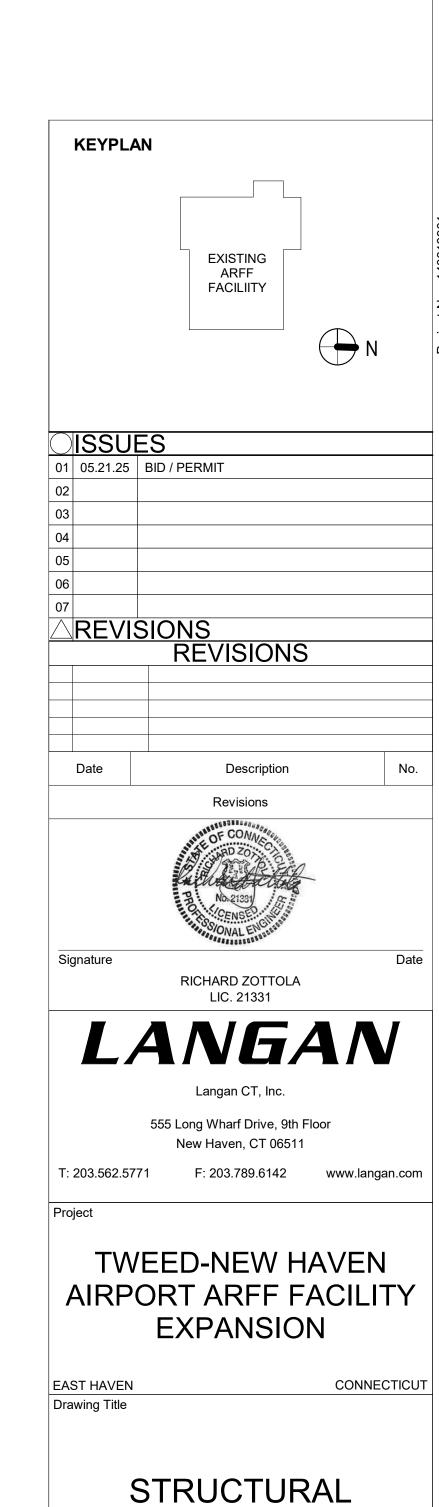
THE DESIGN FLOOD ELEVATION IS 2.2' FEET ABOVE GROUND FLOOR ELEVATION. THE STRUCTURE IS DESIGNED TO FLOOD.

L. ATTACHMENT OF ENCLOSURES AND SECONDARY SYSTEMS

UNLESS OTHERWISE SPECIFICALLY NOTED IN THE DRAWINGS THE BASE BUILDING HAS BEEN DESIGNED ASSUMING THAT THE ATTACHMENT OF ALL SECONDARY SYSTEMS, INCLUDING ENCLOSURES AND FACADES, DO NOT IMPOSE ECCENTRIC LOADS ON THE BASE BUILDING STRUCTURAL ELEMENTS. IT IS ASSUMED THAT ANY ECCENTRIC LOADS CREATED BY THE ANCHORAGE OF SECONDARY SYSTEMS SHALL BE NEUTRALIZED BY THE ADDITION OF BRACING OR OTHER MEANS REQUIRED.

M. JET BLAST LOAD ASSUMPTION

THE STRUCTURE HAS NOT BEEN SPECIFICALLY DESIGNED FOR JET BLAST LOADS. BASED ON THE DIRECTION AND DISTANCE OF THE ADJACENT TAXIWAY, IT IS ASSUMED THAT JET BLAST PRESSURES WILL NOT EXCEED THE WIND DESIGN PRESSURES REQUIRED BY THE APPLICABLE BUILDING CODE.



DESIGN CRITERIA

Drawing No.

S011

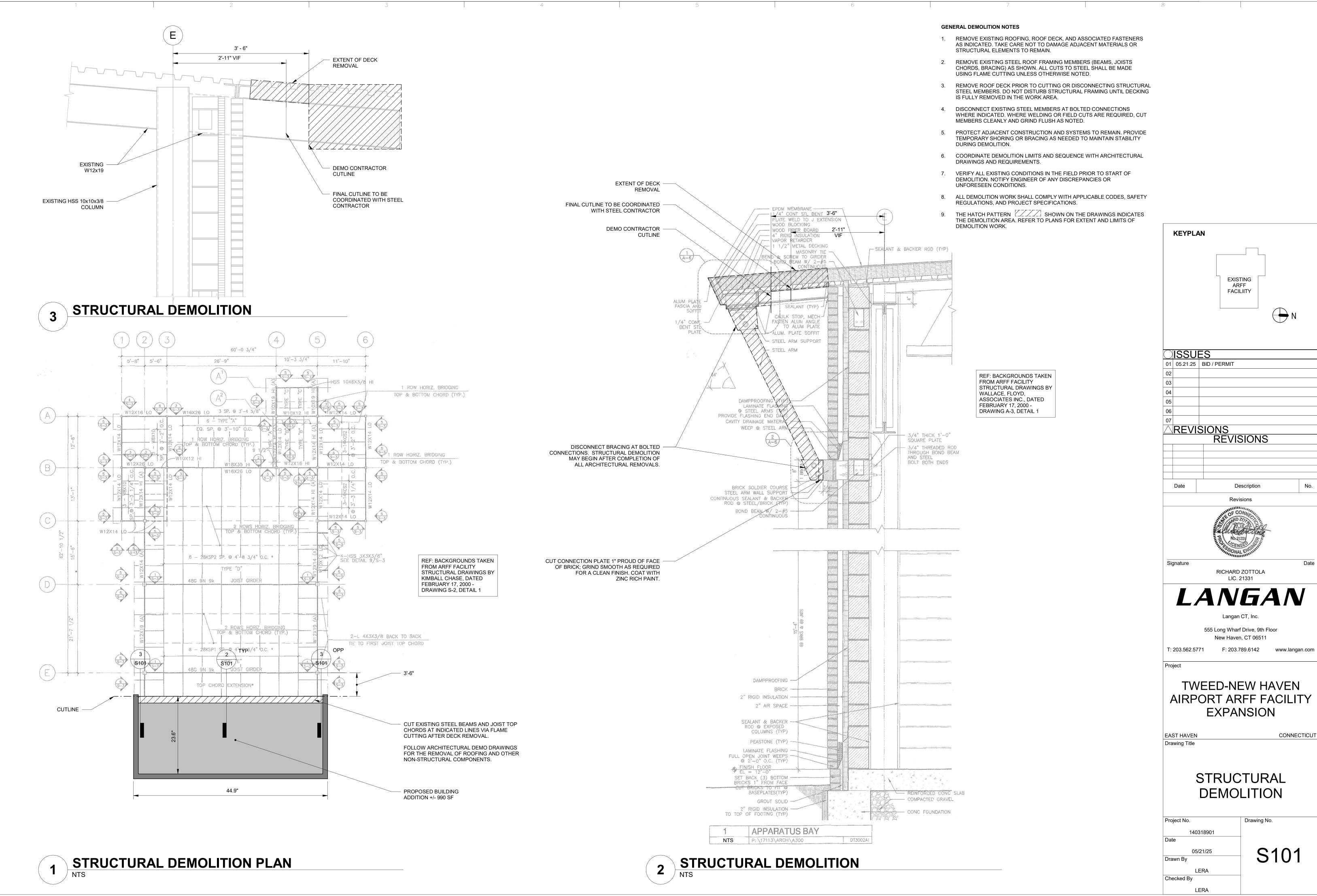
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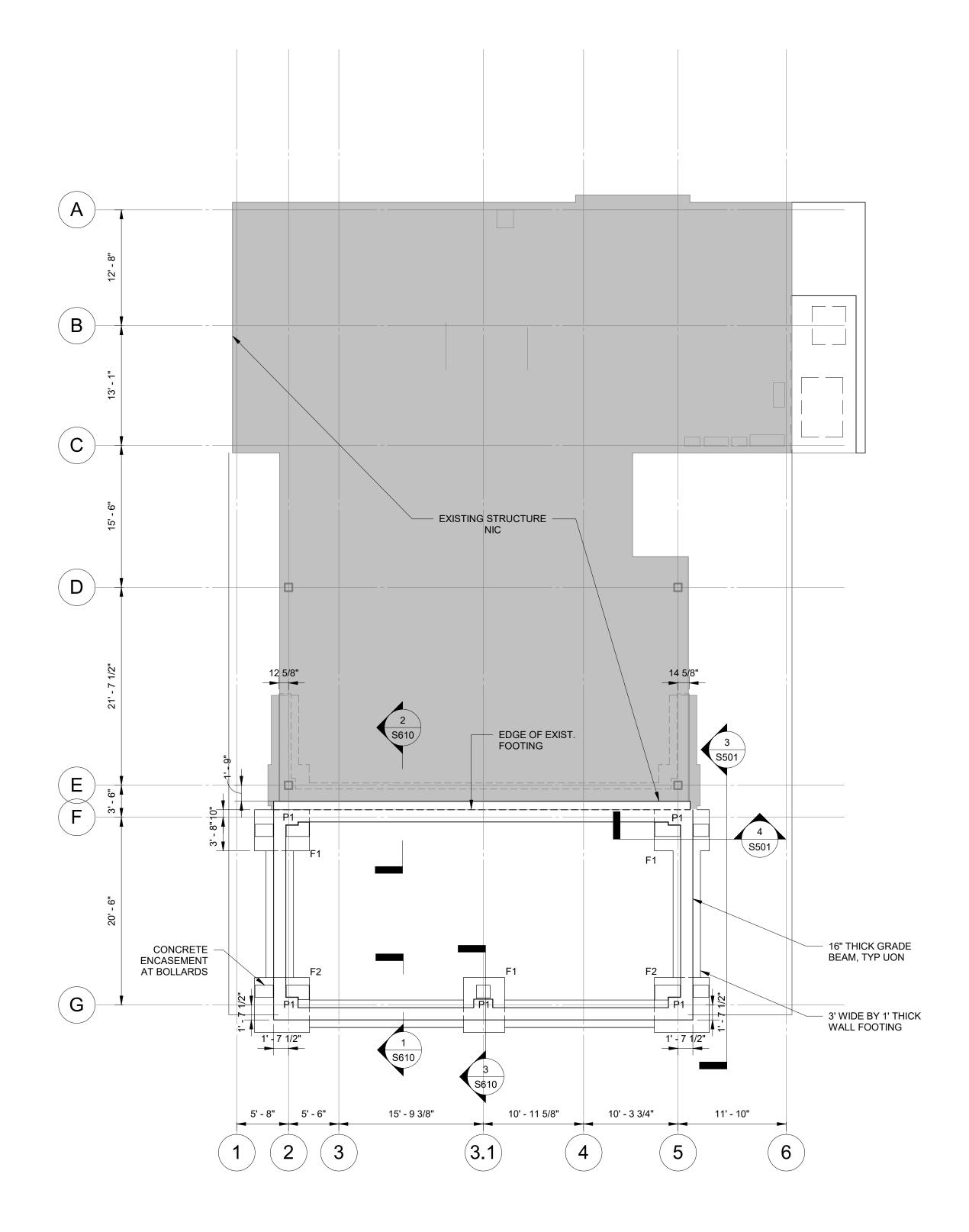
Project No.

140318901

05/21/25

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1 FOUNDATION PLAN 1/8" = 1'-0"

DRAWING NOTES

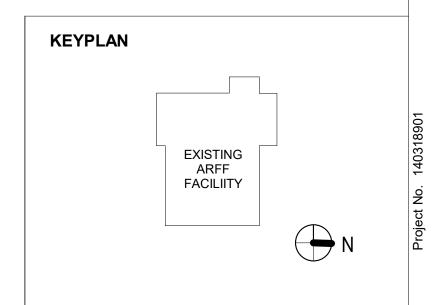
- 1. REFER TO
- S-001 SERIES DRAWINGS FOR STRUCTURAL NOTES, ABBREVIATIONS AND DESIGN CRITERIA S-100 SERIES DRAWINGS FOR DEMOLITION
- S-200 SERIES DRAWINGS FOR DEMOCITION
 S-200 SERIES DRAWINGS FOR CONSTRUCTION PLANS
 S-500 SERIES DRAWINGS FOR ELEVATIONS AND BUILDING SECTIONS
 S-600 SERIES DRAWINGS FOR TYPICAL DETAILS AND SCHEDULES

S-610 SERIES DRAWINGS FOR REFERENCED DETAILS AND SECTIONS

- 2. GROUND LEVEL REFERENCE ELEVATION IS AT 12'-0".
- 3. CONCRETE STRENGTH AND WEIGHT:

FOOTINGS F'C=5000 PSI NW PIERS F'C=5000 PSI NW GRADE BEAMS F'C=5000 PSI NW

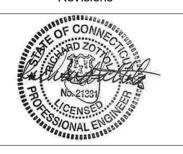
- 4. TOP OF FOOTING IS AT ELEVATION [9'-6"] UNLESS OTHERWISE NOTED.
- 5. TOP OF PIER AND GRADEBEAM IS AT ELEVATION [11'-4"] UNLESS OTHERWISE NOTED.
- 6. SEE S-202 FOR SLAB ON GROUND.
- 7. FOOTING DESIGN ASSUMES A SUBGRADE BEARING CAPACITY=4000 PSF. SEE TYPICAL DETAILS AND GEOTECHNICAL REPORT.
- 8. FOLLOW GEOTECHNICAL ENGINEER'S RECOMMENDATIONS REGARDING FOUNDATIONS.
 EXCAVATION OF THE SITE AND SUBGRADE GROUND IMPROVEMENT REQUIREMENTS.
 FOOTINGS, FINAL BEARING SUBGRADES, AND THEIR PREPARATION SHALL BE OBSERVED AND APPROVED BY GEOTECHNICAL ENGINEER. WHERE DIRECTED BY GEOTECHNICAL ENGINEER, OVER EXCAVATE AS REQUIRED TO ATTAIN SUITABLE BEARING SUBGRADE AND BACKFILL WITH STRUCTURAL FILL PER THE GEOTECHNICAL REPORT OR WITH LEAN CONCRETE.
- 9. REFER TO THE COLUMN SCHEDULE FOR LOADS IMPOSED TO FOUNDATIONS.
- 10. EXISTING STRUCTURE IS SHOWN FADED. NEW STRUCTURE IS SHOWN DARK.
- 11. EXISTING STRUCTURE INFORMATION IS TAKEN FROM ORIGINAL STRUCTURAL DRAWINGS AND MAY NOT ACCURATELY REPRESENT CURRENT EXISTING CONDITIONS. CONTRACTOR SHALL VERIFY ALL INFORMATION PERTAINING TO EXISTING CONDITIONS BY PROBING, INSPECTIONS, AND MEASUREMENTS AT THE SITE AS REQUIRED PRIOR TO COMMENCEMENT OF WORK. WHERE EXISTING CONDITIONS DIFFER FROM THOSE SHOWN HEREIN, NOTIFY ARCHITECT AND STRUCTURAL ENGINEER.
- 12. (Ψ) INDICATES INFORMATION TO BE PROVIDED BY OTHERS.



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Date Description

Revisions



RICHARD ZOTTOLA
LIC. 21331

LANGAN

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Signature

Proj

TWEED-NEW HAVEN
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EXPANSION

EAST HAVEN CONNECTICUT
Drawing Title

FOUNDATION PLAN

Project No.

140318901

Date

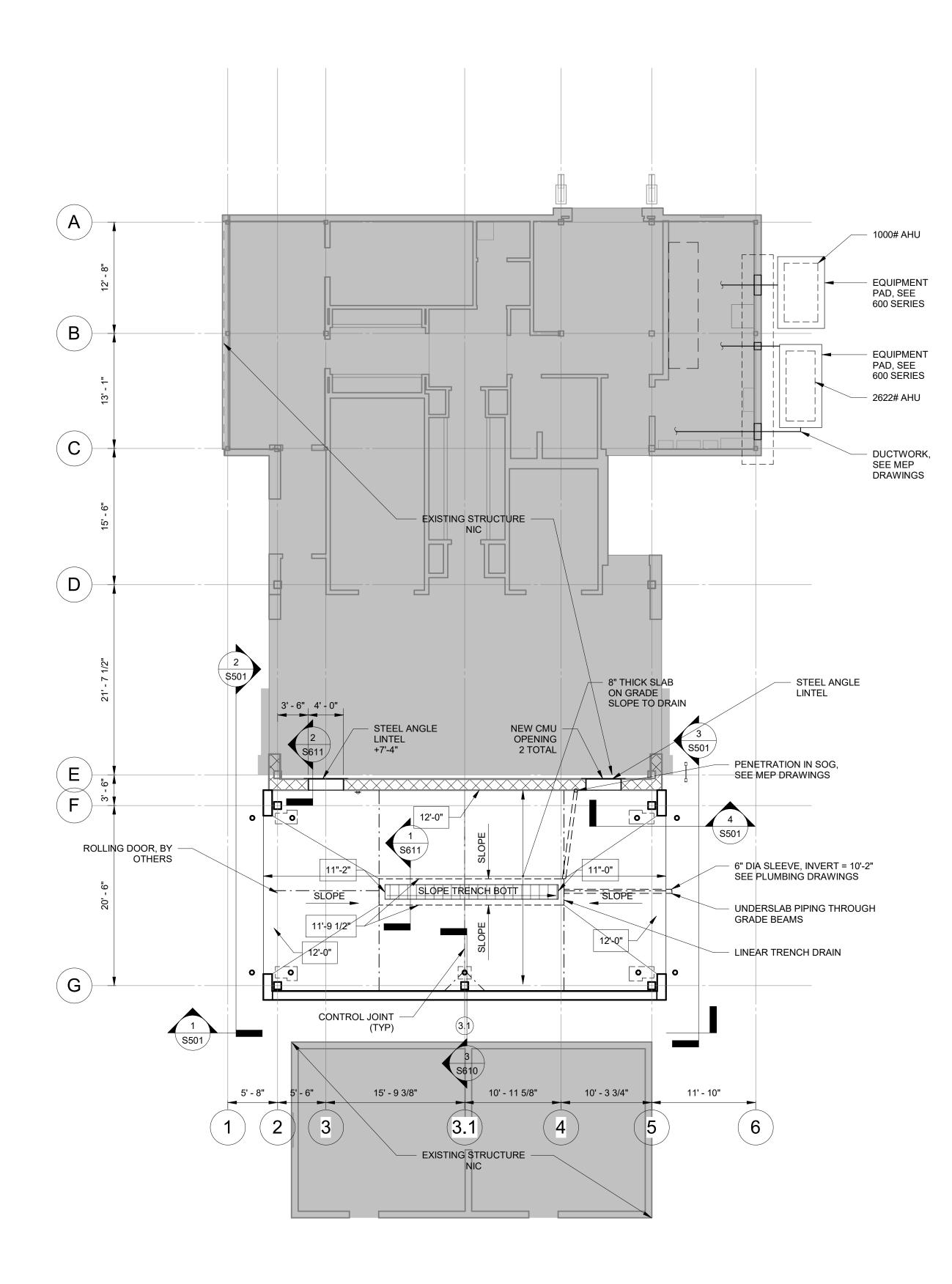
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DRAWING NOTES

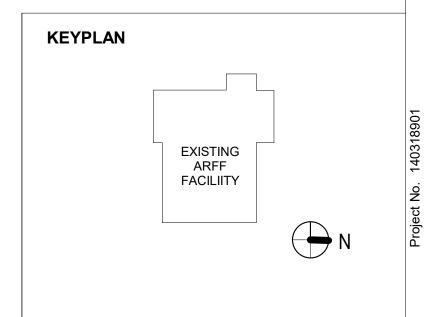
S-001 SERIES DRAWINGS FOR STRUCTURAL NOTES, ABBREVIATIONS AND DESIGN CRITERIA S-100 SERIES DRAWINGS FOR DEMOLITION S-200 SERIES DRAWINGS FOR CONSTRUCTION PLANS

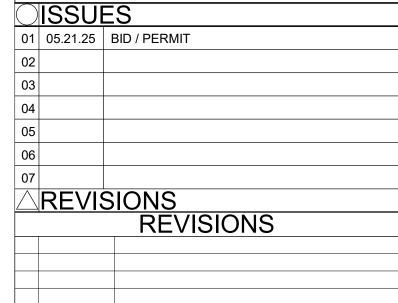
S-500 SERIES DRAWINGS FOR ELEVATIONS AND BUILDING SECTIONS S-600 SERIES DRAWINGS FOR TYPICAL DETAILS AND SCHEDULES S-610 SERIES DRAWINGS FOR REFERENCED DETAILS AND SECTIONS

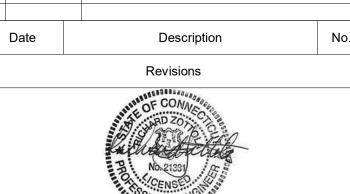
- 2. GROUND LEVEL REFERENCE ELEVATION IS AT12'-0".
- 3. SEE MEP DRAWINGS FOR DUNNAGE AND OTHER MEP SUPPORT REQUIREMENTS. WHERE EQUIPMENT AND OTHER ITEMS SUPPORTED BY STRUCTURE CHANGE, LOCATION OF SUPPORTING STRUCTURE MAY NEED TO BE COORDINATED AND REVISED.
- 4. CONTRACTOR TO COORDINATE BOTTOM OF BASEPLATES ELEVATIONS WITH TOP OF PIER
- 5. CONCRETE STRENGTH AND WEIGHT:

SLABS ON GRADE F'C=4000 PSI NW MECH CURBS AND EQUIPEMENT PADS F'C=4000 PSI NW

- 6. TOP OF SLAB ELEVATION VARIES. SEE PLAN.
- 7. STRUCTURAL STEEL SHAPES SHALL BE FY50 UNLESS OTHERWISE NOTED. CONNECTION PLATES SHALL BE FY50 UON. TUBES SHALL BE FY46.
- 8. EXISTING STRUCTURE IS SHOWN FADED. NEW STRUCTURE IS SHOWN DARK.
- 9. EXISTING STRUCTURE INFORMATION IS TAKEN FROM ORIGINAL STRUCTURAL DRAWINGS AND MAY NOT ACCURATELY REPRESENT CURRENT EXISTING CONDITIONS. CONTRACTOR SHALL VERIFY ALL INFORMATION PERTAINING TO EXISTING CONDITIONS BY PROBING, INSPECTIONS, AND MEASUREMENTS AT THE SITE AS REQUIRED PRIOR TO COMMENCEMENT OF WORK. WHERE EXISTING CONDITIONS DIFFER FROM THOSE SHOWN HEREIN, NOTIFY ARCHITECT AND STRUCTURAL ENGINEER.
- 10. ALL STRUCTURAL STEEL EXPOSED TO AMBIENT TEMPERATURE AND THE WEATHER IS TO BE PAINTED WITH A THREE COAT HIGH PERFORMANCE SYSTEM. HIGH STRENGTH BOLTS SHALL BE MECHANICALLY GALVANIZED. SEE SPECIFICATIONS.
- 11. (Ψ) INDICATES INFORMATION TO BE PROVIDED BY OTHERS.







RICHARD ZOTTOLA LIC. 21331 LANGAN

Langan CT, Inc.

555 Long Wharf Drive, 9th Floor New Haven, CT 06511

Signature

TWEED-NEW HAVEN AIRPORT ARFF FACILITY **EXPANSION**

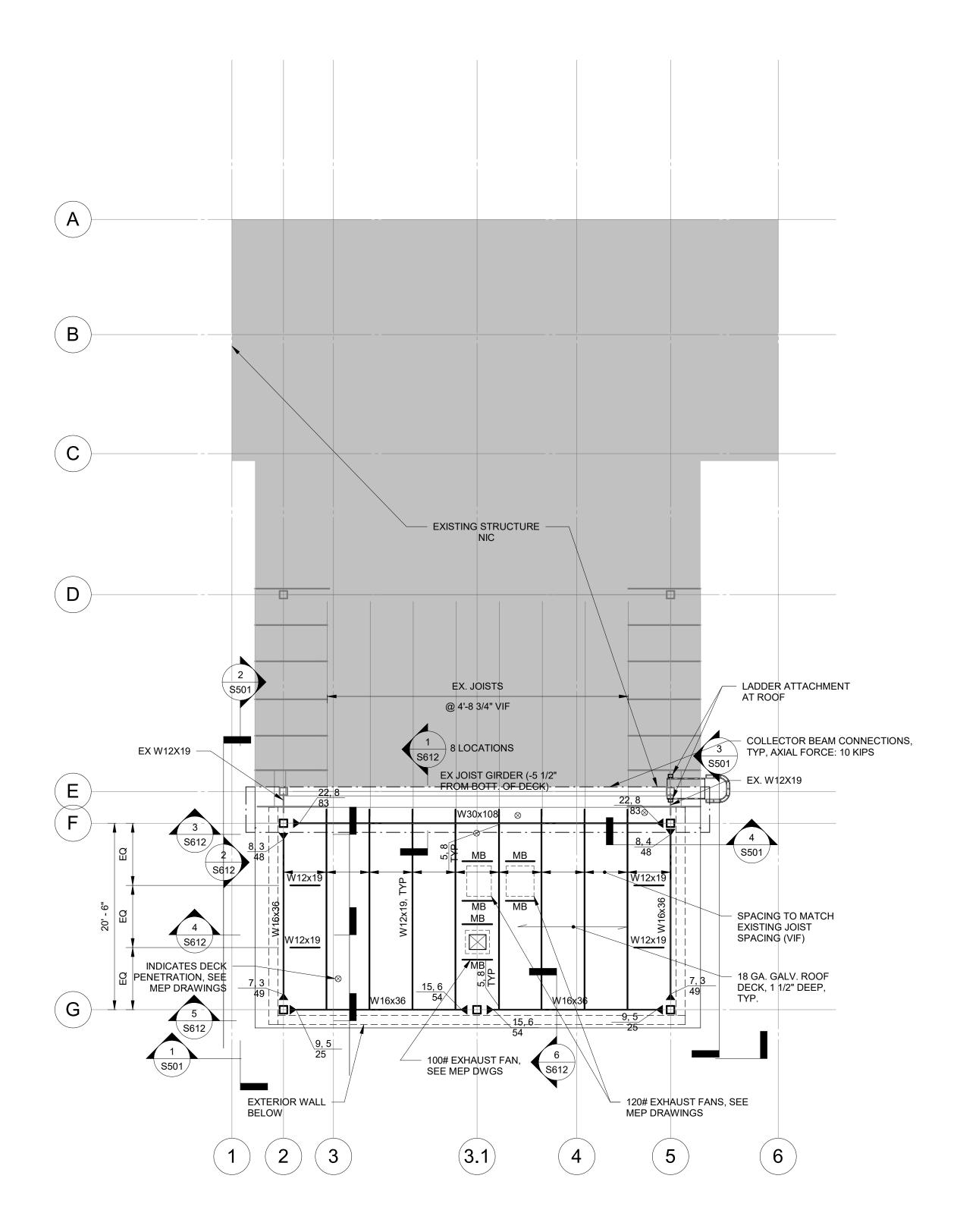
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EAST HAVEN CONNECTICUT Drawing Title

> **GROUND LEVEL** PLAN

Drawing No. Project No. 140318901 S202 05/21/25 LERA Checked By

GROUND LEVEL PLAN



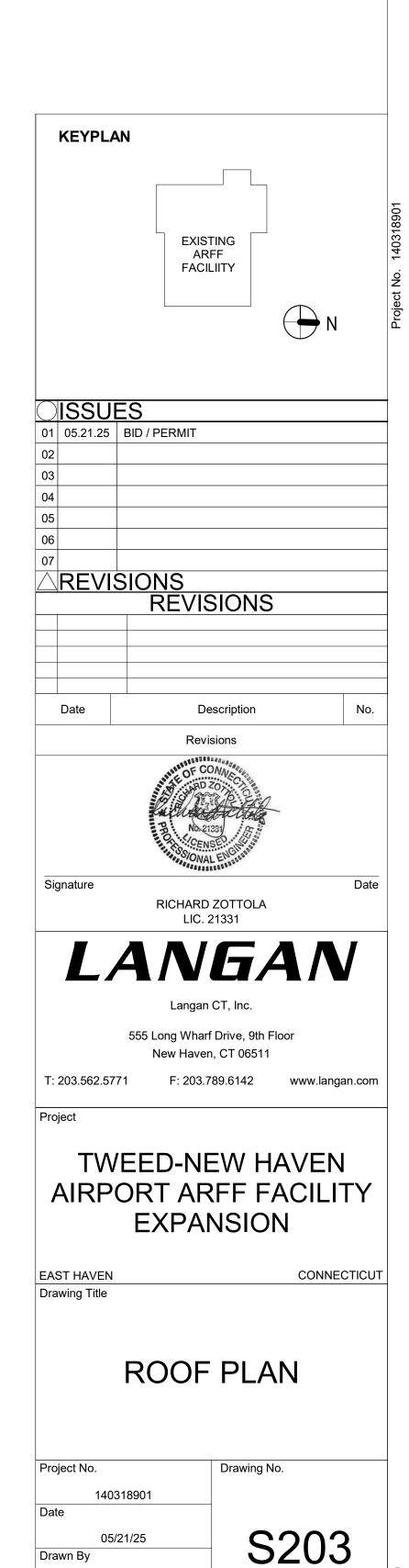
ROOF PLAN

DRAWING NOTES

- S-001 SERIES DRAWINGS FOR STRUCTURAL NOTES, ABBREVIATIONS AND DESIGN CRITERIA S-100 SERIES DRAWINGS FOR DEMOLITION
- S-200 SERIES DRAWINGS FOR CONSTRUCTION PLANS S-500 SERIES DRAWINGS FOR ELEVATIONS AND BUILDING SECTIONS S-600 SERIES DRAWINGS FOR TYPICAL DETAILS AND SCHEDULES

S-610 SERIES DRAWINGS FOR REFERENCED DETAILS AND SECTIONS

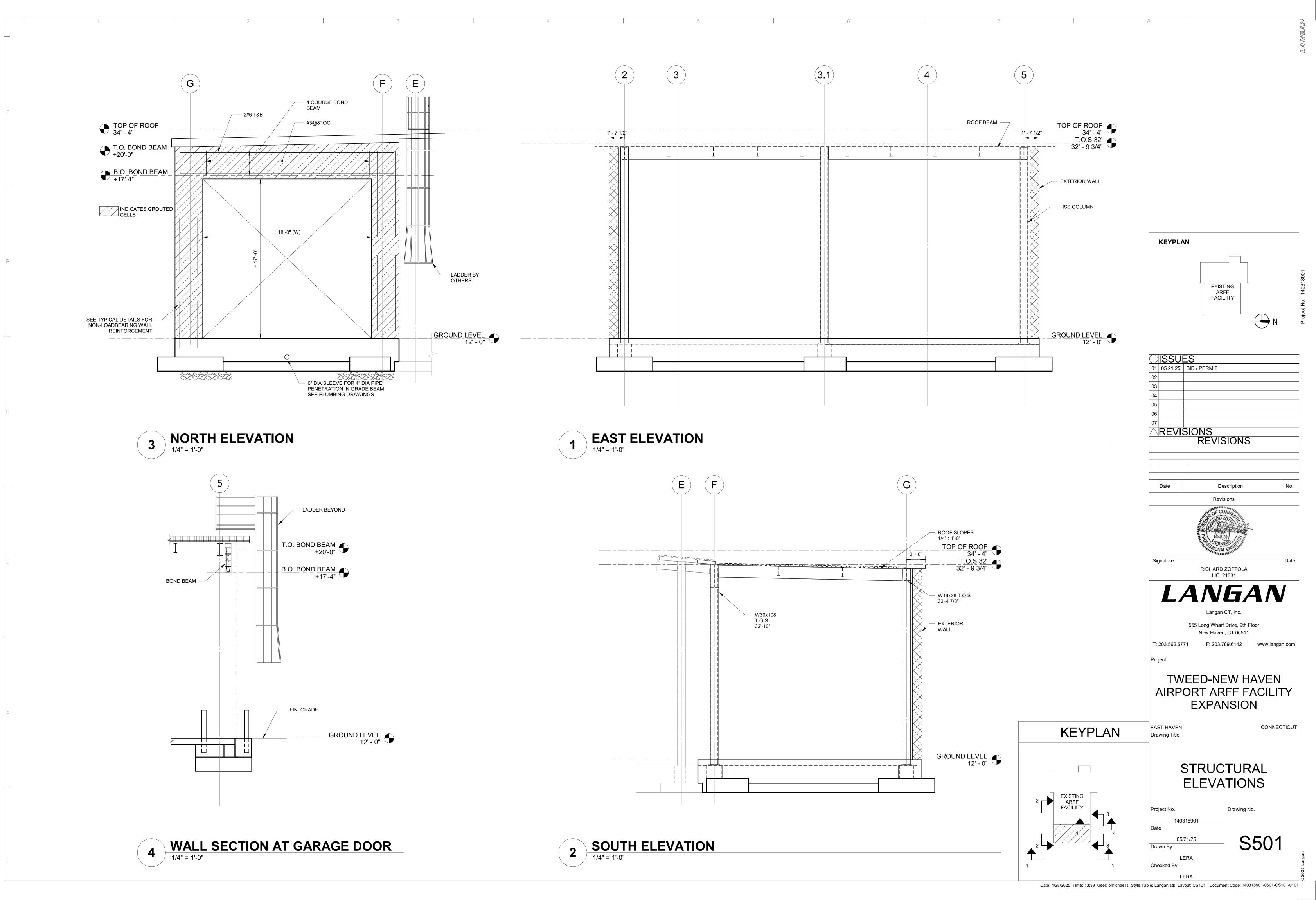
- 2. REFER TO ARCHITECTURAL ROOF DRAWINGS FOR EDGE OF DECK, OPENINGS, AND CURB DIMENSIONS. REFER TO MEP DRAWINGS FOR MECHANICAL UNIT DIMENSIONS.
- 3. ROOF DECK SLOPES AT 1/4" PER FOOT; CONTRACTOR TO COORDINATE TOP ROOF DECK ELEVATIONS WITH PROPOSED STRUCTURAL STEEL ELEVATIONS.
- 4. SEE PLAN FOR TOP OF STEEL ELEVATIONS.
- 5. BEAMS ADJACENT TO OPENINGS ARE LOCATED 6" FROM THE CENTERLINE OF BEAM TO THE EDGE OF SLAB OPENING, UNLESS OTHERWISE NOTED. WHERE OPENINGS ARE ON BOTH SIDES OF A BEAM, LOCATE THE BEAM AT THE CENTERLINE BETWEEN OPENINGS UON.
- 6. STRUCTURAL STEEL SHAPES SHALL BE FY50 UNLESS OTHERWISE NOTED. CONNECTION PLATES SHALL BE FY50 UON. TUBES SHALL BE FY46.
- 7. EXISTING STRUCTURE IS SHOWN FADED. NEW STRUCTURE IS SHOWN DARK.
- 8. ROOF CONSTRUCTION IS 1-1/2" ROOF DECK, UNLESS OTHERWISE NOTED.
- 9. PROVIDE 2 SPAN DECK, 18 GAGE, MINIMUM UNLESS OTHERWISE NOTED. WHERE ADJACENT DECK OPENINGS REQUIRE SINGLE SPAN DECK, PROVIDE 18 GAGE MINIMUM. STEEL DECK SPANS NORTH/SOUTH UON. PROVDE PERMANENT DECK SUPPORT AT COLUMNS AND DIAGONALS.
- 10. INDICATES MOMENT CONNECTION.
- 11. (Ψ) INDICATES INFORMATION TO BE PROVIDED BY OTHERS.
- 12. MB = MIN BEAM (L6x3-1/2x3/8 LLV) ALIGN BELOW CENTER OF CURB



Checked By

05/21/25

LERA



MARK DATA	P1
SIZE	30 x 30
TYPE	Е
VERT	8-#10
NOTES	-

1. THIS SCHEDULE LISTS:

SIZE - PIER CROSS-SECTION, IN INCHES.

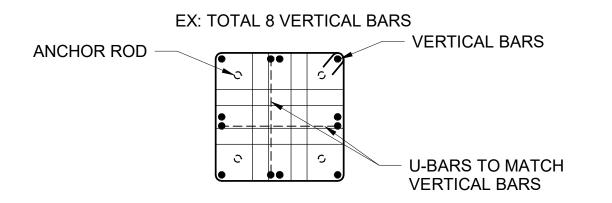
FOR RECTANGULAR PIERS, DIMENSIONS ARE MARKED XxY. THE FIRST DIMENSION X REFERS TO THE SIDE PARALLEL TO EAST-WEST DIRECTION. Y IS THE SIDE PARALLEL TO NORTH-SOUTH DIRECTION. CENTERLINE OF PIER COINCIDES WITH CENTERLINE OF COLUMN.

TYPE - THE TYPICAL DETAILS DESCRIBE REINFORCING DETAILS FOR TIED PIER. THE SCHEDULE GIVES A DESCRIPTION OF BAR ARRANGEMENT:

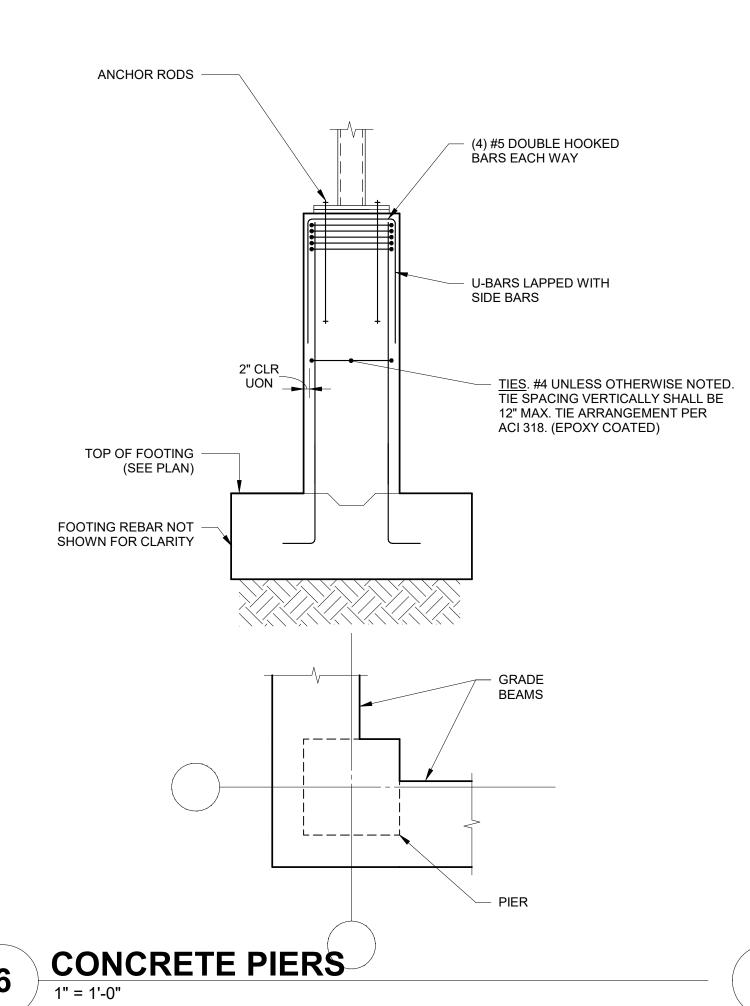
L=LONG FACE OF CROSS-SECTION, S=SHORT FACE AND E=EACH FACE (FOR SQUARE COLUMNS, L=FACE PARALLEL TO DIMENSION-X). EXAMPLE: 2L-3S INDICATES 2 BARS EACH LONG FACE AND 3 BARS EACH SHORT FACE, A TOTAL OF 6 BARS. UNLESS OTHERWISE INDICATED, BARS ARE EQUALLY DISTRIBUTED ON FOUR SIDES.

VERT - NUMBER AND SIZE OF PIER VERTICAL REINFORCING BARS.

NOTES - WHERE A SPECIAL DETAIL OR NOTE APPLIES, REFERENCE IS MADE TO THAT DETAIL OR NOTE HERE.



2. DOWELING IS NOT PERMITTED. EXTEND VERTICAL REINFORCEMENT INTO THE FOOTING DUE TO THE SHORT HEIGHT OF THE PIERS.



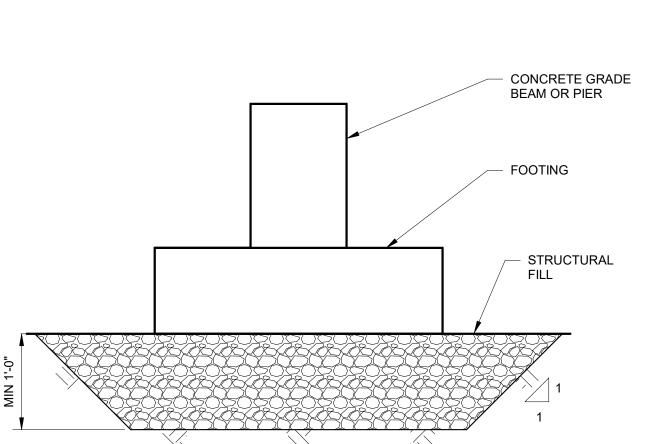
FOR SQUARE FOOTING THE LOWEST LAYER OF REINFORCEMENT SHALL BE PLACED PERPENDICULAR PIER TO THE LONG AXIS OF THE PIER, UON. **FOOTING** CONCRETE PIER LONG REINFORCING -ADD 3" SHORT MINIMUM AT REINFORCING -UNFORMED SURFACES. (SHORT) <u>PLAN</u> **SECTION A-A**

NOTES:

- 1. AT RECTANGULAR PIERS, UON, LAY OUT LONG DIRECTION OF FOOTING ALONG THE LONG AXIS OF THE PIER.
- 2. ELEVATIONS SHOWN IN PLANS OR DETAILS ARE TOP OF FOOTING ELEVATIONS.
- 3. PIER AND FOOTING CENTERLINES SHALL COINCIDE UNLESS OTHERWISE SHOWN.
- 4. REFER TO FOOTING SCHEDULE FOR W, L, AND D.

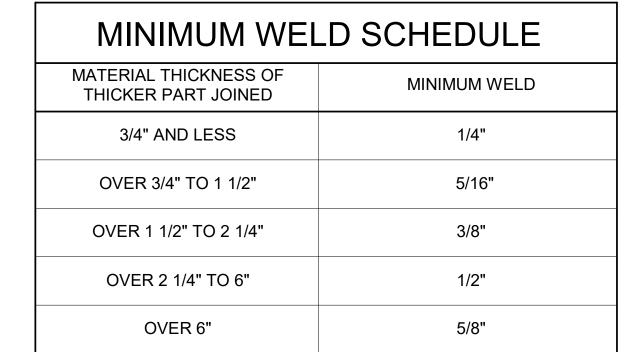
MARK	DIME	ENSIONS		BOTTOM	1 STEEL	DEMARKS
IVIARK	W	L	D	SHORT	LONG	REMARKS
F 1	4'-6"	6'-0"	1'-6"	#6@10	#6@10	
F 2	6'-0"	6'-0"	1-6"	#6@10	#6@10	

4 FOOTING FOR CONCRETE PIERS NTS



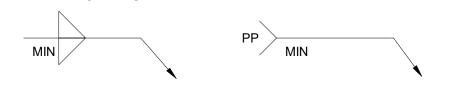
- OVER-EXCAVATE MINIMUM 12 INCHES (1 FOOT) OF FILL BENEATH FOOTING BOTTOM.
- 2. PROOFROLL THE EXPOSED SUBGRADE TO ENSURE ADEQUATE COMPACTION AND STABILITY.
- BACKFILL WITH APPROVED STRUCTURAL FILL TO RESTORE FOOTING ELEVATION.
- 4. TAKE CARE TO AVOID UNDERMINING ADJACENT EXISTING FOUNDATIONS WITHIN THEIR ZONE OF INFLUENCE (1V:1H SLOPE FROM FOOTING EDGE).

TYPICAL FOOTING EXCAVATION AND BACKFILL DETAIL



NOTES:

- UNLESS OTHERWISE NOTED IN THE STRUCTURAL DRAWINGS, WELDS SHALL BE OF THE SIZE NOT LESS THAN GIVEN IN THE SCHEDULE.
- 2. NOTATION IN THE DRAWINGS SHOWS "MIN" ASSOCIATION WITH THE APPROPRIATE FILLET OR PARTIAL PENETRATION WELD SYMBOL. FOR EXAMPLE:



THE MINIMUM WELD SIZE APPLIES TO THE LEG DIMENSION OF FILLET WELDS AND TO THE MINIMUM EFFECTIVE THROAT OF PARTIAL PENETRATION GROOVE WELDS.

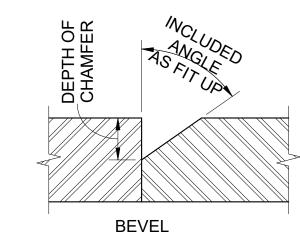
3. THE MINIMUM WELD SIZE NEED NOT EXCEED THE THICKNESS
OF THE THINNER PART JOINED UNLESS A LARGER SIZE IS
REQUIRED BY CALCULATED STRESS.

MINIMUM WELD SCHEDULE

- 1. WHERE SPECIFIED IN THE DRAWINGS AS *

 THE WELD SIZE OF PARTIAL PENETRATION GROOVE WELDS IS THE EFFECTIVE THROAT THICKNESS.
- 2. THE REQUIRED DEPTH OF CHAMFER IN THE PIECES TO BE WELDED IS DEPENDENT ON THE TYPE OF WELDING PROCESS, THE WELDING POSITION AND THE INCLUDED ANGLE AT THE ROOT OF THE GROOVE AS FOLLOWS:

WELDING PROCESS	WELDING POSITION	INCLUDED ANGLE AT ROOT OF GROOVE	DEPTH OF CHAMFER
SHIELDED	ALL	BEVEL 40° TO 55°	EFFECTIVE DEPTH + 1/8"
METAL ARC	ALL	V-GROOVE 55° TO 70°	EFFECTIVE DEPTH
GAS METAL	HORIZONTAL OR FLAT	BEVEL 40° TO 55°	EFFECTIVE DEPTH
ARC OR FLUX CORED	VERTICAL OR OVERHEAD	BEVEL 40° TO 55°	EFFECTIVE DEPTH + 1/8"
ARC	ALL	V-GROOVE 55° TO 70°	EFFECTIVE DEPTH
SUBMERGED	FLAT	BEVEL 40° TO 55°	EFFECTIVE DEPTH
ARC	FLAT	V-GROOVE 55° TO 70°	EFFECTIVE DEPTH

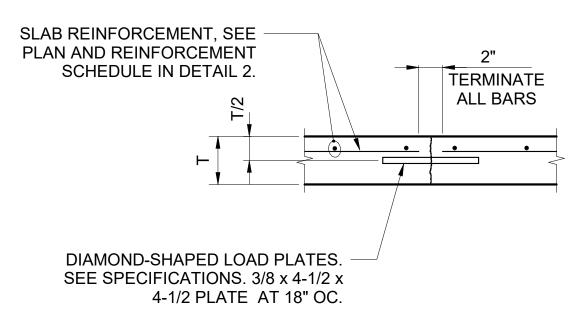


INCLUDED
ANGLE
AS FIT UP

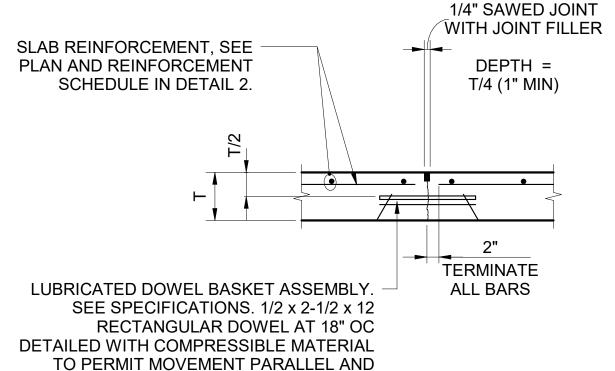
V-GROOVE

PARTIAL PENETRATION GROOVE WELDS

WELDS NTS

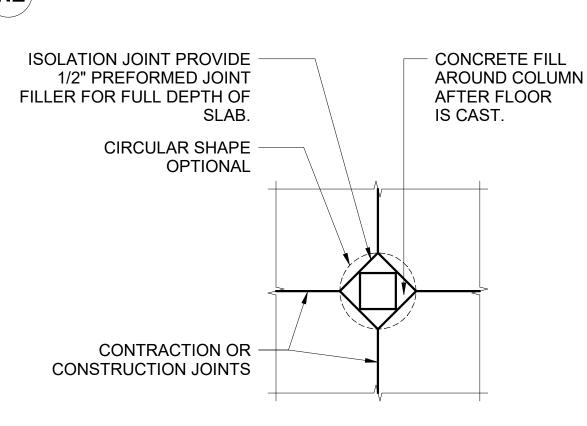


1.1 CONSTRUCTION JOINT



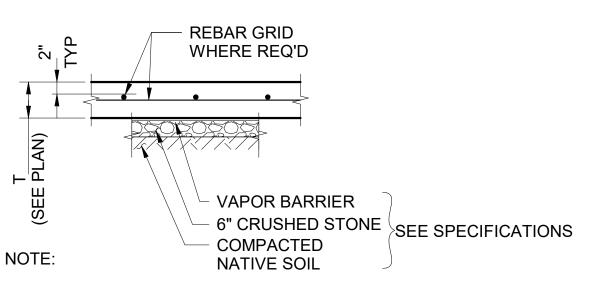
1.2 SAWED CONSTRUCTION JOINT

PERPENDICULAR TO JOINT



1.3 ISOLATION JOINT AT COLUMN

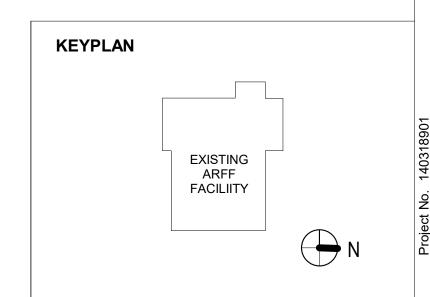


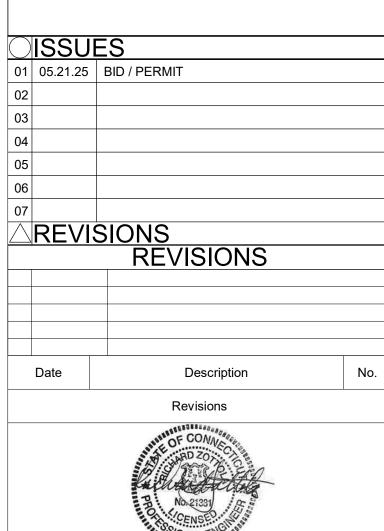


ALL SLABS ON GROUND SHALL BE REINFORCED WITH FIBERS AND REBAR. WELDED WIRE FABRIC IS NOT PERMITTED. FOR FIBER DOSAGES SEE THE PROJECT SPECIFICATION SECTION 03300. MINIMUM REBAR GRID SHALL BE AS FOLLOWS:

SLAB THICKNESS (T)	REBAR GRID
< 6"	#3 @ 16"
OVER 6" TO 8"	#3 @ 12"
OVER 8" TO 10"	#4 @ 16"
OVER 10" TO 12"	#4 @ 12"

TYPICAL SECTIONS AND REINFORCEMENT







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TWEED-NEW HAVEN
AIRPORT ARFF FACILITY
EXPANSION

EAST HAVEN CONNECTICUT
Drawing Title

TYPICAL DETAILS AND SCHEDULES

Project No.

140318901

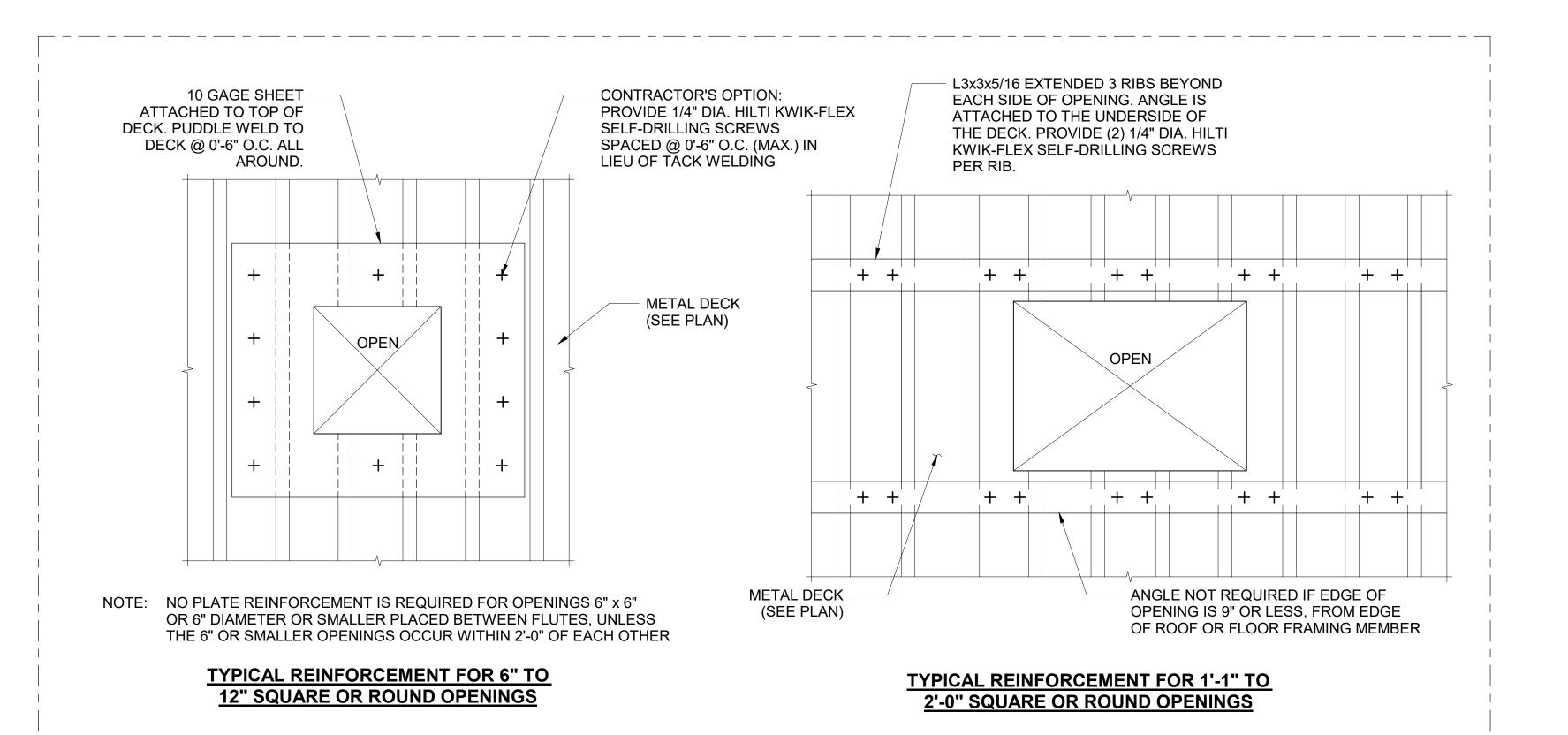
Date

05/21/25

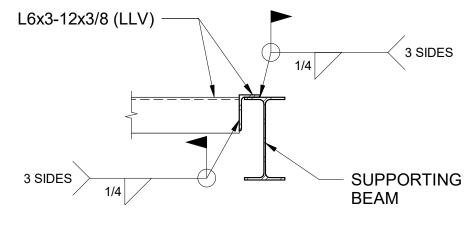
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LERA

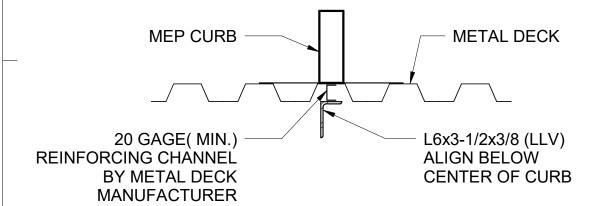
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CONTACTOR TO PROVIDE BEAM FRAMING AROUND ALL NEW PENETRATIONS WHERE SHOWN IN THE PLAN DRAWINGS. WHERE APPLICABLE, CONTRACTOR MAY SEEK APPROVAL FROM EOR TO PROVIDE THESE DECK REINFORCEMENT DETAILS.



SECTION A

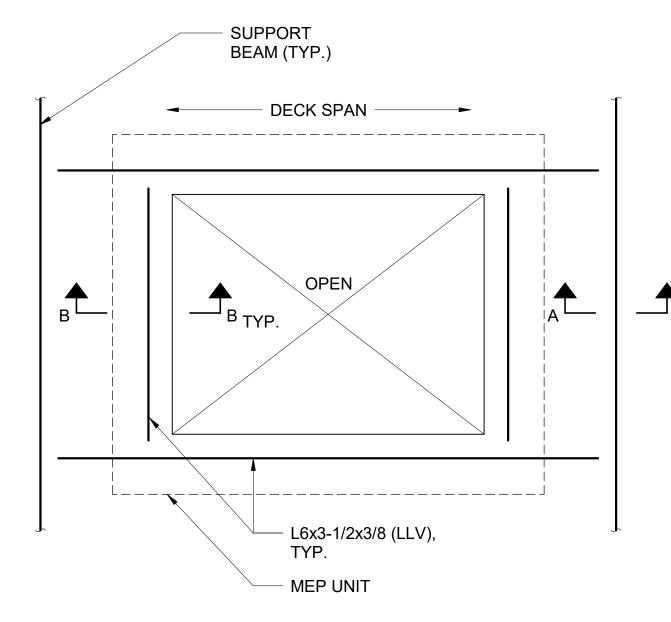


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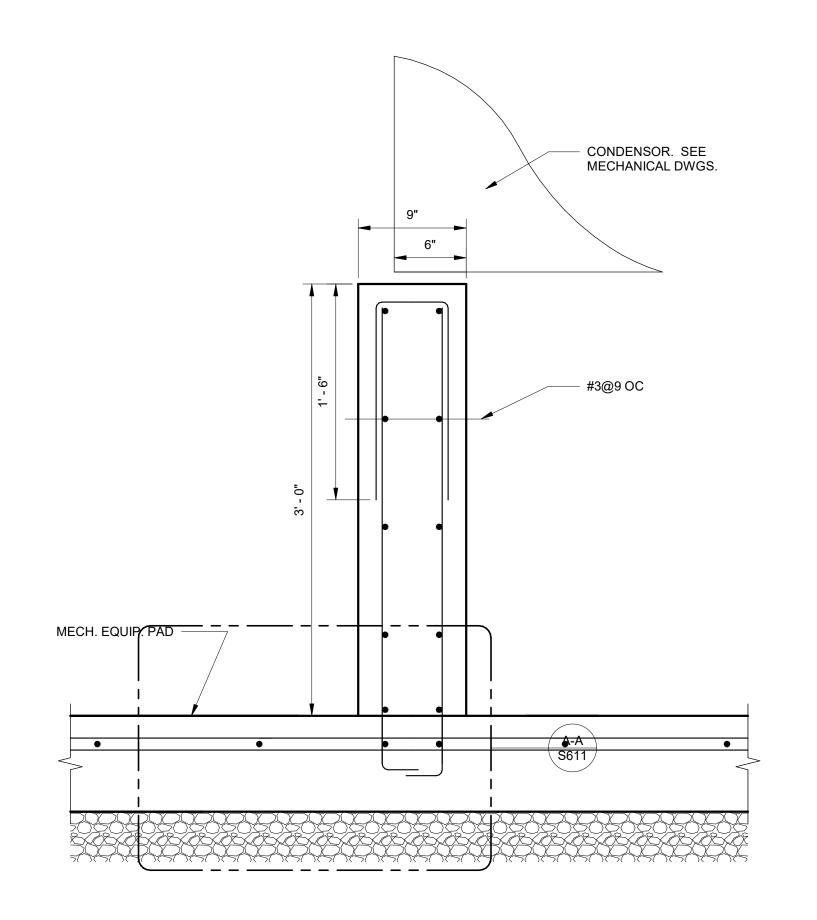
SECTION B

NOTES:

- DECK SUPPORT DETAILS APPLY TO ROOF OPENINGS WHERE SUPPLEMENTAL FRAMING OR REINFORCING ARE NOT SHOWN.
- 2. INSTALL REINFORCING BEFORE CUTTING
- CONTRACTOR SHALL COORDINATE SIZE AND LOCATION OF OPENINGS WITH ALL OTHER DISCIPLINES
- NO REINFORCING REQUIRED IF OPENING IS 4" OR SMALLER PROVIDED ONLY ONE RIB IS INTERRUPTED.
- 5. CLUSTER OPENINGS THAT ARE SPACED LESS THAN 1'-0" SHALL BE TREATED AS ONE LARGE
- 6. PROVIDE DECK CLOSURE PLATE AROUND OPENING AS REQUIRED.
- 7. THESE DETAILS APPLY TO MEP ROOFTOP UNITS WEIGHING LESS THAN 1500 POUNDS. CONSULT ENGINEER FOR HEAVIER UNITS.



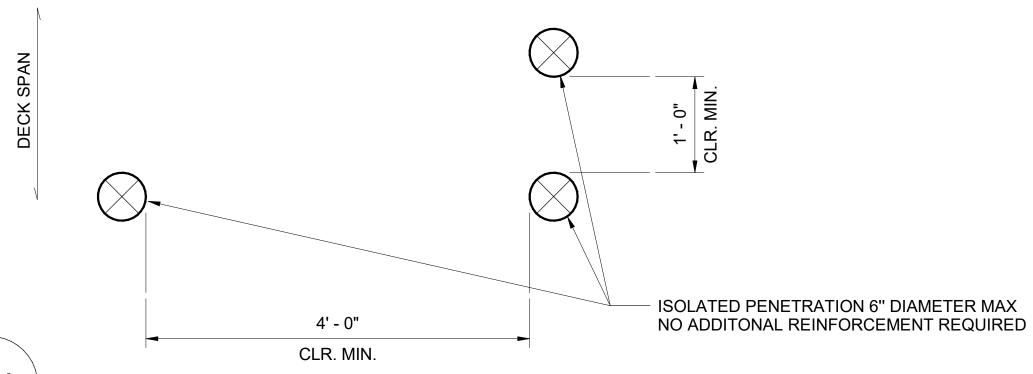
TYPICAL REINFORCEMENT FOR **SQUARE OR ROUND OPENINGS GREATER THAN 2'-0" AND/OR OPENINGS BELOW MEP ROOFTOP UNITS**



CURBS FOR ELEVATED MECHANICAL EQUIPMENT

1 1/2" = 1'-0"





TYPICAL ISOLATED PENETRATION DETAIL IN METAL DECK

AREVISIONS REVISIONS Date Description Revisions Signature RICHARD ZOTTOLA LIC. 21331 LANGAN Langan CT, Inc. 555 Long Wharf Drive, 9th Floor New Haven, CT 06511

KEYPLAN

ISSUES

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F: 203.789.6142

EAST HAVEN CONNECTICUT Drawing Title

> TYPICAL DETAILS AND SCHEDULES

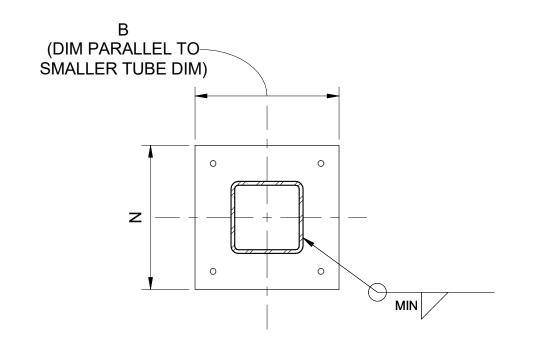
Project No. Drawing No. 140318901 S602 05/21/25 Drawn By LERA Checked By

TYPICAL METAL DECK REINFORCEMENT (WHERE NO CONCRETE)

Date: 4/28/2025 Time: 13:39 User: bmichaelis Style Table: Langan.stb Layout: CS101 Document Code: 140318901-0501-CS101-0101

T: 203.562.5771

Project



TUBE COLUMN

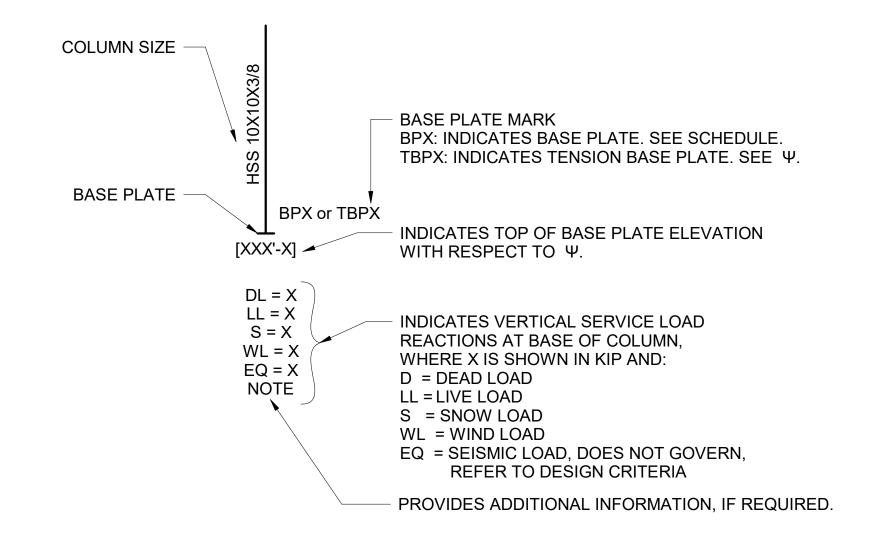
CL COL & BASE PL TOP OF CONCRETE SEE PLAN WELD NUT TO THREADED ANCHOR ROD. NOTES: CL COL & BASE PL BASE PL 1 1/4" DIA ANCHOR ROD, ASTM F1554 GRADE 55. GALVANIZED INCLUDING NUTS AND WASHERS

1. CONTRACTOR TO COORDINATE LOCATION OF ANCHOR RODS TO MEET AISC PROVISIONS FOR MINIMUM EDGE DISTANCES, PLATE WASHER CLEARANCES, AND ENTERING AND TIGHTENING CLEARANCES.

T.O.S 32' T.O.S 32' 32' - 9 3/4" 32' - 9 3/4" GROUND LEVEL **GROUND LEVEL** 12' - 0" 12' - 0" BP1 BP1 BP1 BP1 [11' - 6 1/4"] [11' - 6 1/4"] [11' - 6 1/4"] [11' - 6 1/4"] [11' - 6 1/4"] DL = 7 LL = 4 S = 6 WL = -11 EQ = DNG DL = 11 LL = 7 S = 12 WL = -12 EQ = DNG LL = 7 S = 12 WL = -23 EQ = DNG Column Locations F-2 G-2 G-3.1 G-5 F-5

NOTES:

- 1. FOR BASE PLATE INFORMATION REFER TO BASE PLATE SCHEDULE AND TYPICAL DETAILS.
- PROVIDE CAP PLATE WITH SEAL WELD AT THE TOP OF ALL HSS AND PIPE COLUMNS.

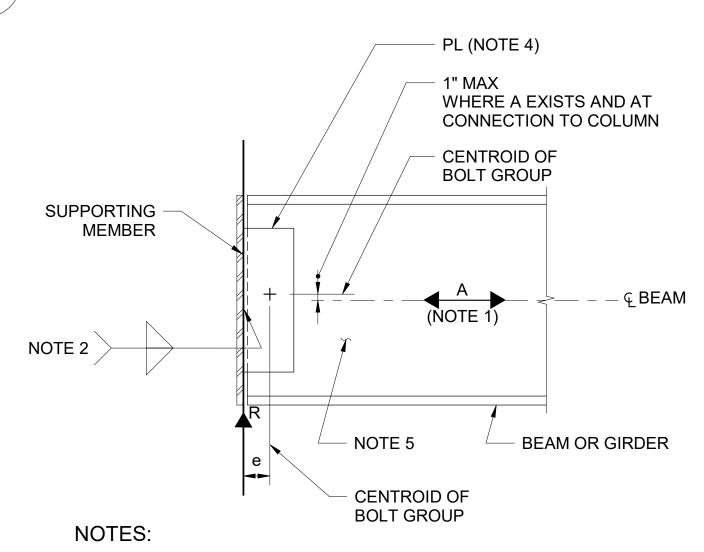


KEY - COLUMN SCHEDULE NOMENCLATURE

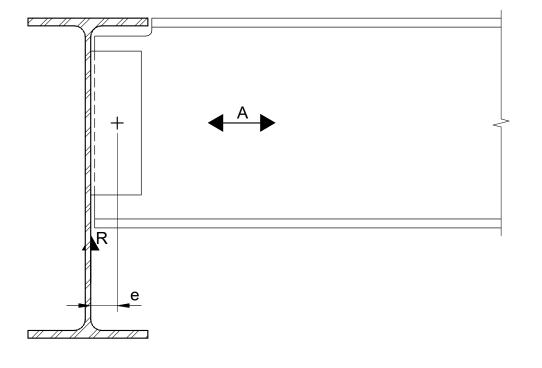
STRUCTURAL COLUMN SCHEDULE

1/8" = 1'-0"

2 ANCHOR RODS



- 1. FORCE A MAY/MAY NOT EXIST. SEE PLANS, ELEVATIONS AND DETAILS.
- PROPORTION WELD FOR VERTICAL REACTION (R) AND FORCE (A), OR PLASTIC BENDING MOMENT CAPACITY OF PLATE, WHICHEVER IS LARGER.
- 3. PROPORTION PLATE AND BOLTS FOR VERTICAL REACTION (R), MOMENT (R x e), AND FORCE (A). PROVIDE MULTIPLE VERTICAL ROWS AS REQUIRED. WHERE ONLY A SINGLE ROW OF BOLTS IS REQUIRED, AND DIMENSIONAL LIMITATIONS OF THE CONVENTIONAL CONFIGURATION ARE MET, ECCENTRICITY (e), MAY BE IGNORED IN ACCORDANCE WITH AISC MANUAL OF STEEL CONSTRUCTION.
- 4. CONTRACTOR'S OPTION TO PROVIDE STANDARD ROUND HOLES IN CONNECTION PL OR HORIZONTAL SHORT-SLOTTED HOLES IN CONNECTION PL.
- 5. REINFORCE BEAM WEB WITH A DOUBLER PLATE, AS REQUIRED, FOR PRESCRIBED FORCES.
- 6. REFER TO BEAM COPE TYPICAL DETAIL REGARDING ALL COPES AND CUTS.



UNLESS INDICATED OTHERWISE



BASE PLATE (BP) SCHEDULE						
MARK	LENGTH, N	WIDTH, B	THICK, T	T GROUT (NOTE 2)	REMARKS	
BP1	1'-8"	2'-3"	1 1/4"	3/4"	1/4" ANCHOR SETTING PLATE	

NOTES:

- 1. IF CONCRETE IS CAST TOO HIGH, TOP OF FOOTING SHALL BE BUSH-HAMMERED DOWN TO MAINTAIN 1" OF NON-SHRINK GROUT BELOW BASE PLATE. TOP OF CONCRETE FOOTING SHALL BE CLEAN, SHALL BE FREE OF DEBRIS, SHALL BE SOUND CONCRETE AND SHALL BE SURFACE SATURATED BUT FREE OF STANDING WATER.
- 2. FOR LOCATION OF BASE PLATES SEE COLUMN SCHEDULE.
- 3. STEEL CONTRACTOR TO PROVIDE METAL TEMPLATE TO FACILITATE THE ALIGNMENT OF ANCHOR BOLTS.

EXISTING ARFF FACILIITY

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ISSUES

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Project

Signature

TWEED-NEW HAVEN AIRPORT ARFF FACILITY EXPANSION

EAST HAVEN CONNECTICUT
Drawing Title

TYPICAL DETAILS AND SCHEDULES

Project No.

140318901

Date

05/21/25

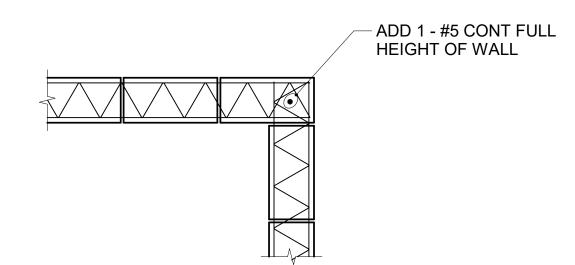
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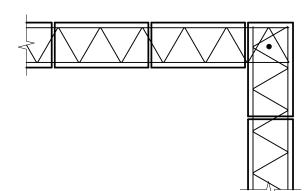
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1 BASE PLATE SCHEDULE

PATTERN 1



PATTERN 2

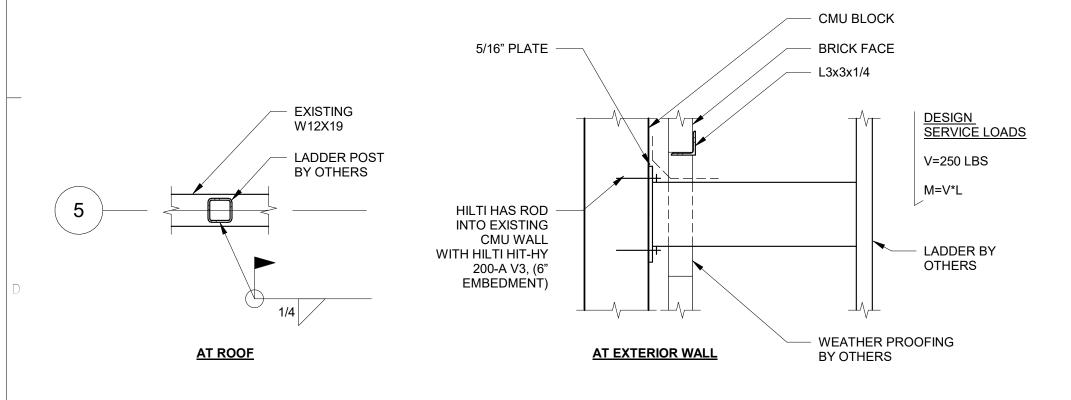


NOTES:

1. ALTERNATE THROUGH PATTERNS 1 AND 2 FOR PLACEMENT OF CMU AT WALL INTERSECTION.

8" CMU WALL CORNER

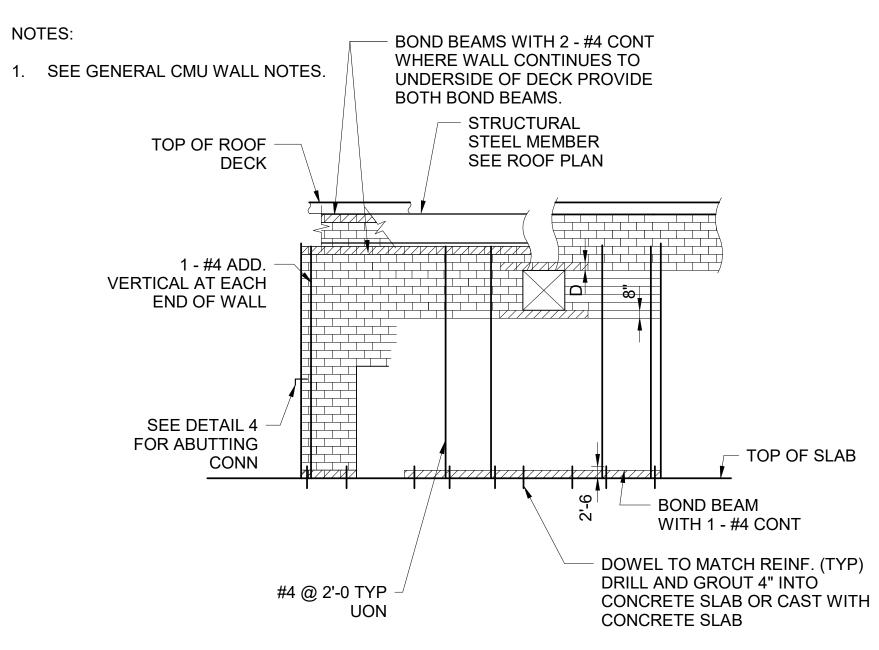
LAYOUT PATTERNS & JOINT DETAILS



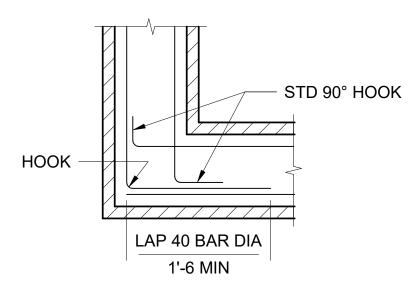
NOTE:

LADDER ATTACHMENT TO BE DESIGNED FOR A 250LB CONCENTRATED LOAD.



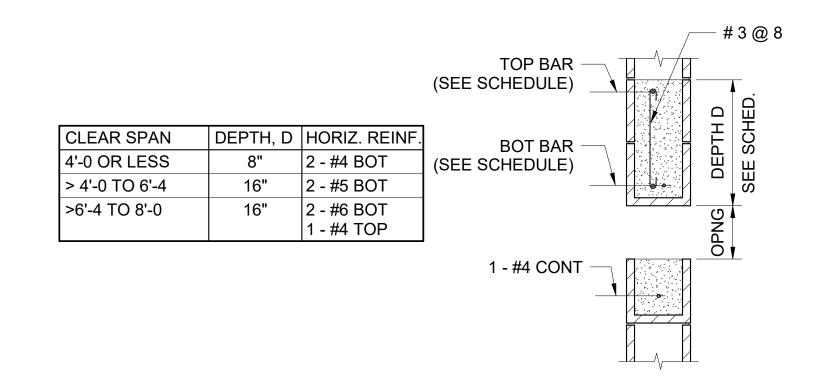


REINFORCED CMU WALL NON-LOAD BEARING WALL



CORNER

HORIZONTAL BOND BEAM TYPICAL DETAILS
NON-LOAD BEARING WALL



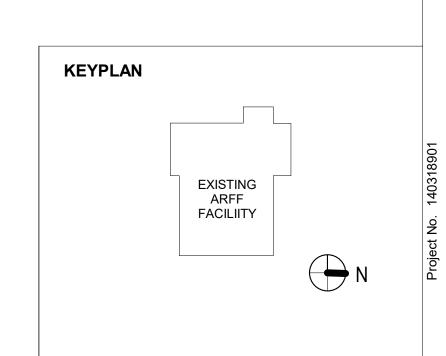
2.3 LINTEL DETAILS

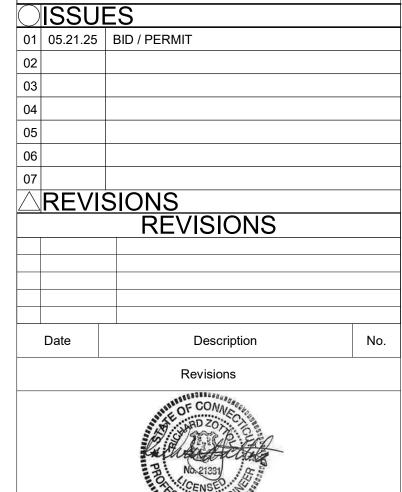
NON-LOAD BEARING WALL

GENERAL CMU WALL NOTES:

- 1. F'm = COMPRESSIVE STRENGTH OF MASONRY SYSTEM, PSI. Fm = COMPRESSIVE STRENGTH OF MORTAR, PSI. F'g = COMPRESSIVE STRENGTH OF GROUT, PSI. Fblock = COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS, PSI.
- 2. ONLY 2-CELL NORMAL WEIGHT BLOCK SHALL BE USED.
- 3. ALL BLOCK SHALL BE LAID IN RUNNING BOND.
- 4. MASONRY SYSTEM: COMPRESSIVE STRENGTH, F'm ≥ 1900 PSI. FOR CMU IN CONTACT WITH SOIL, USE TYPE V SULFATE RESISTING CEMENT.
- 5. MORTAR: X, TYPE S, Fm = 1800 PSI. MORTAR SHALL CONFORM TO ASTM C270. TWO AIR-ENTRAINING MATERIAL SHALL NOT BE COMBINED IN MORTAR.
- 6. BLOCK: Fblock = 2800 PSI. BLOCK SHALL CONFORM TO ASTM C90.
- 7. GROUT; TYPE S, F'g ≥ 2500 PSI. FILL ALL CELLS AND BOND BEAMS CONTAINING REINFORCING STEEL.
- 8. HORIZONTAL JOINT REINFORCEMENT: SHALL BE COMPOSED OF STEEL WIRE CONFORMING TO ASTM A82 AND GALVANIZED IN ACCORDANCE WITH ASTM A641. UNLESS NOTED OTHERWISE, PROVIDE AS A MINIMUM, DUR-O-WALL TRUSS TYPE 9 GA @ 16" OC, UON.







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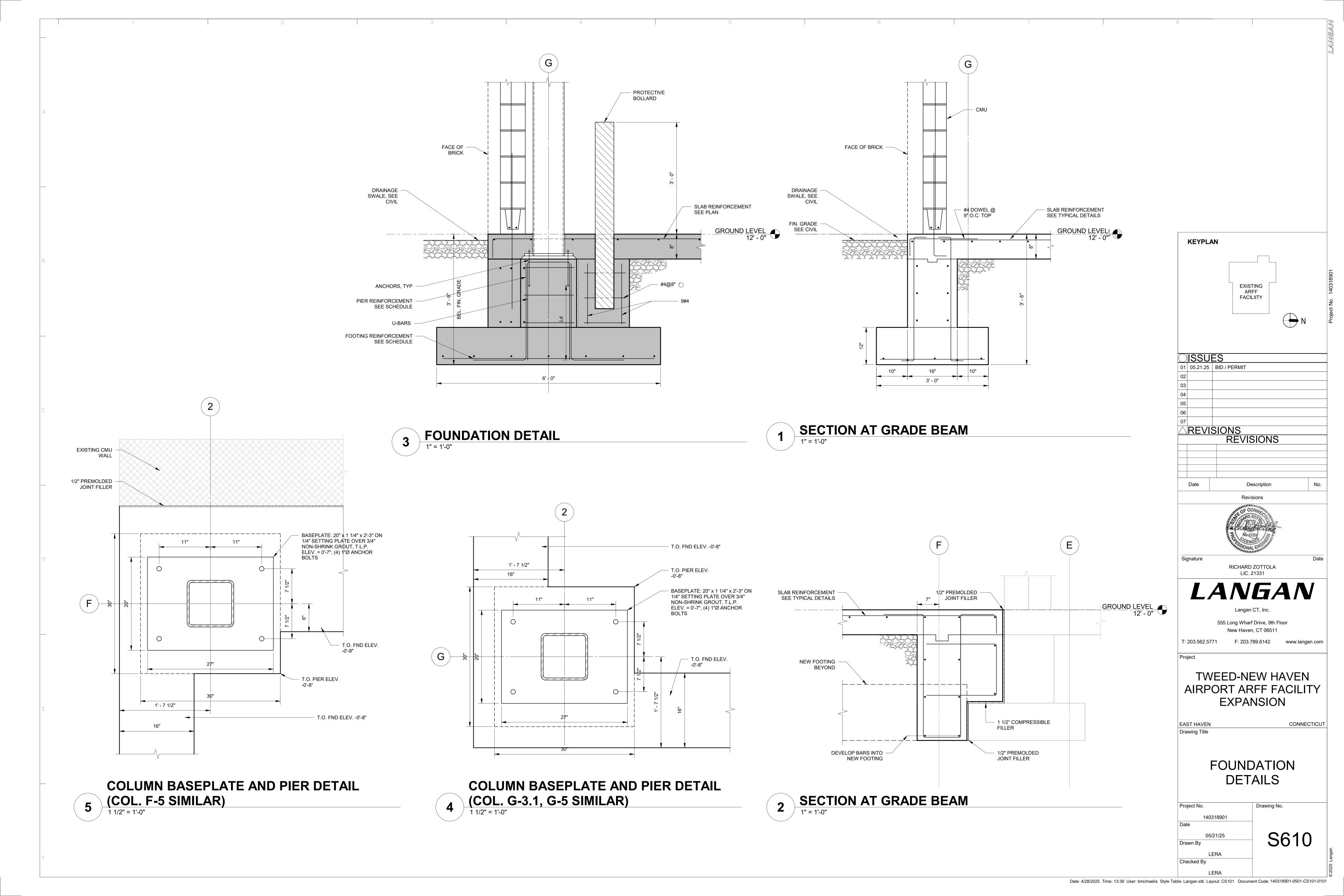
TWEED-NEW HAVEN AIRPORT ARFF FACILITY **EXPANSION**

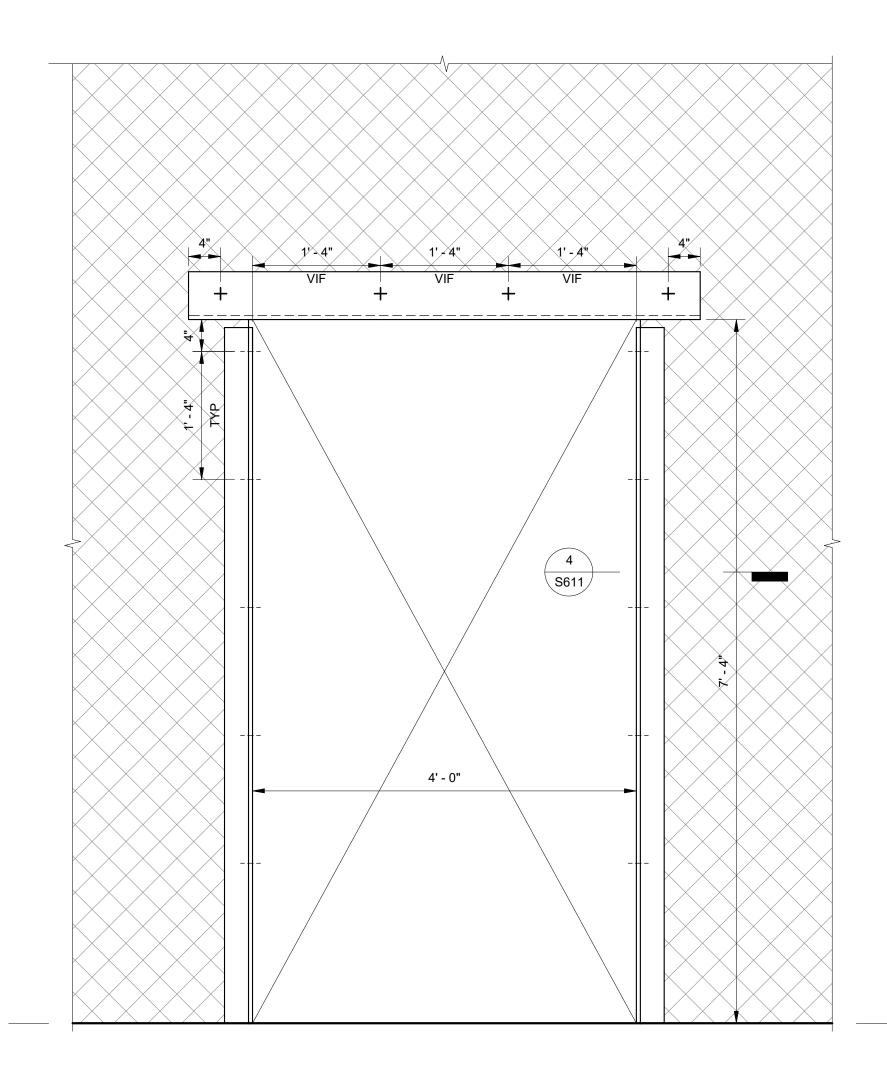
CONNECTICUT EAST HAVEN Drawing Title

> REINFORCED CMU WALL TYPICAL **DETAILS**

140318901 S604 05/21/25 LERA

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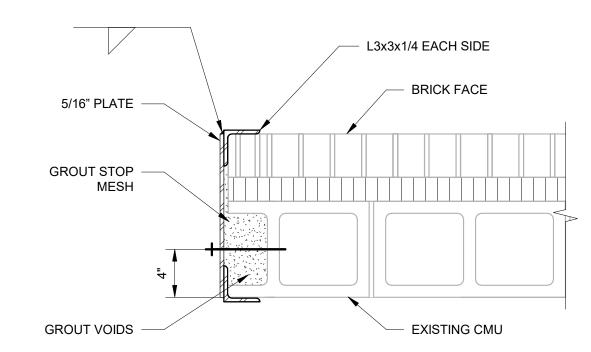




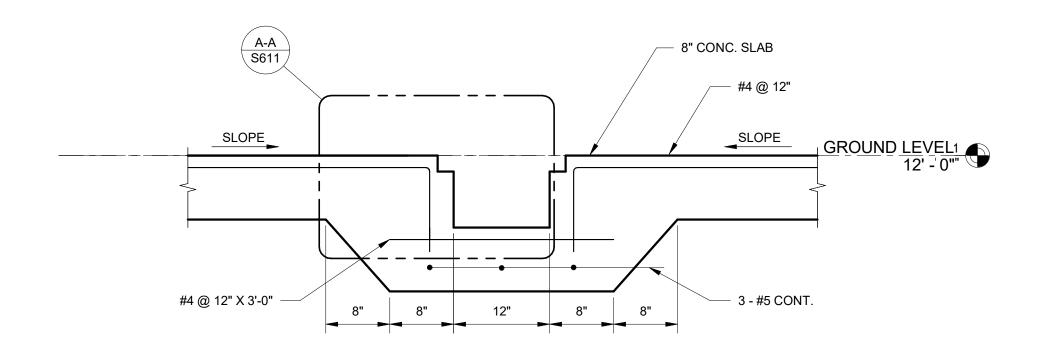
ELEV. 12'-0"

3 NEW CMU LINTEL

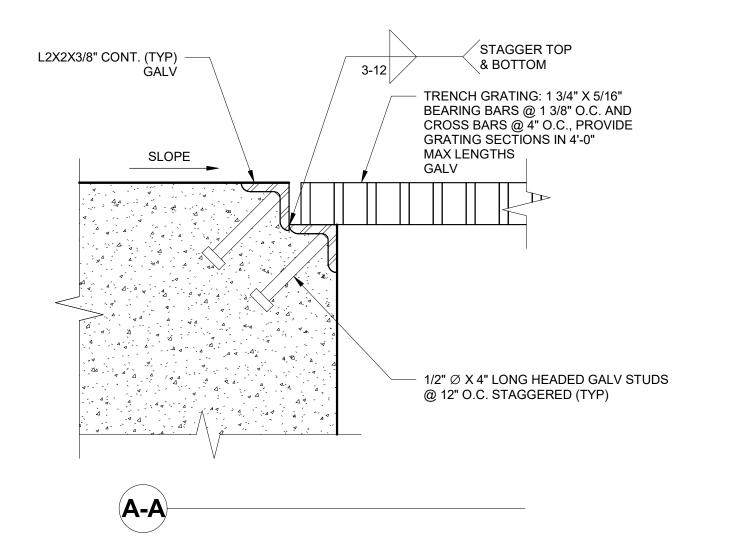
1" = 1'-0"

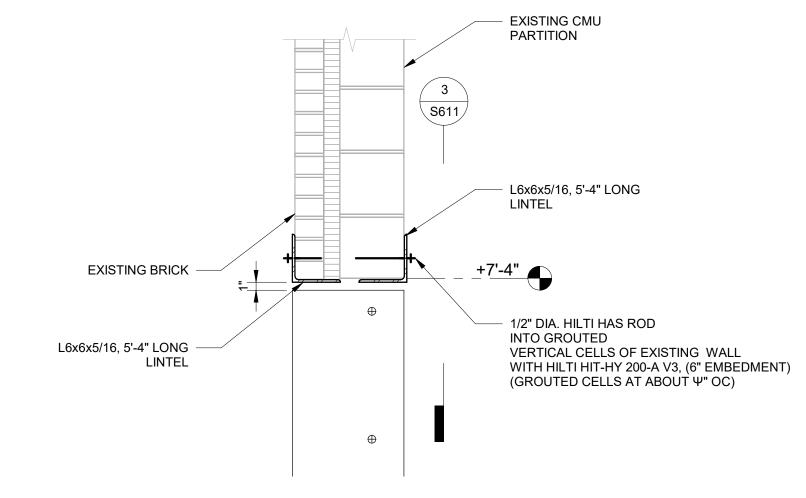


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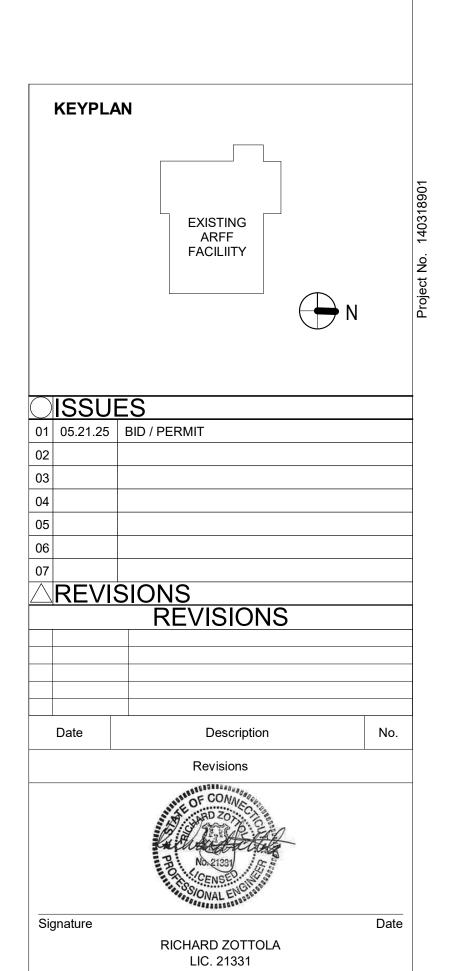
1 SECTION AT TRENCH DRAIN





2 NEW CMU LINTEL

1" = 1'-0"



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EAST HAVEN CONNECTICUT
Drawing Title

GROUND LEVEL DETAILS

Project No.

140318901

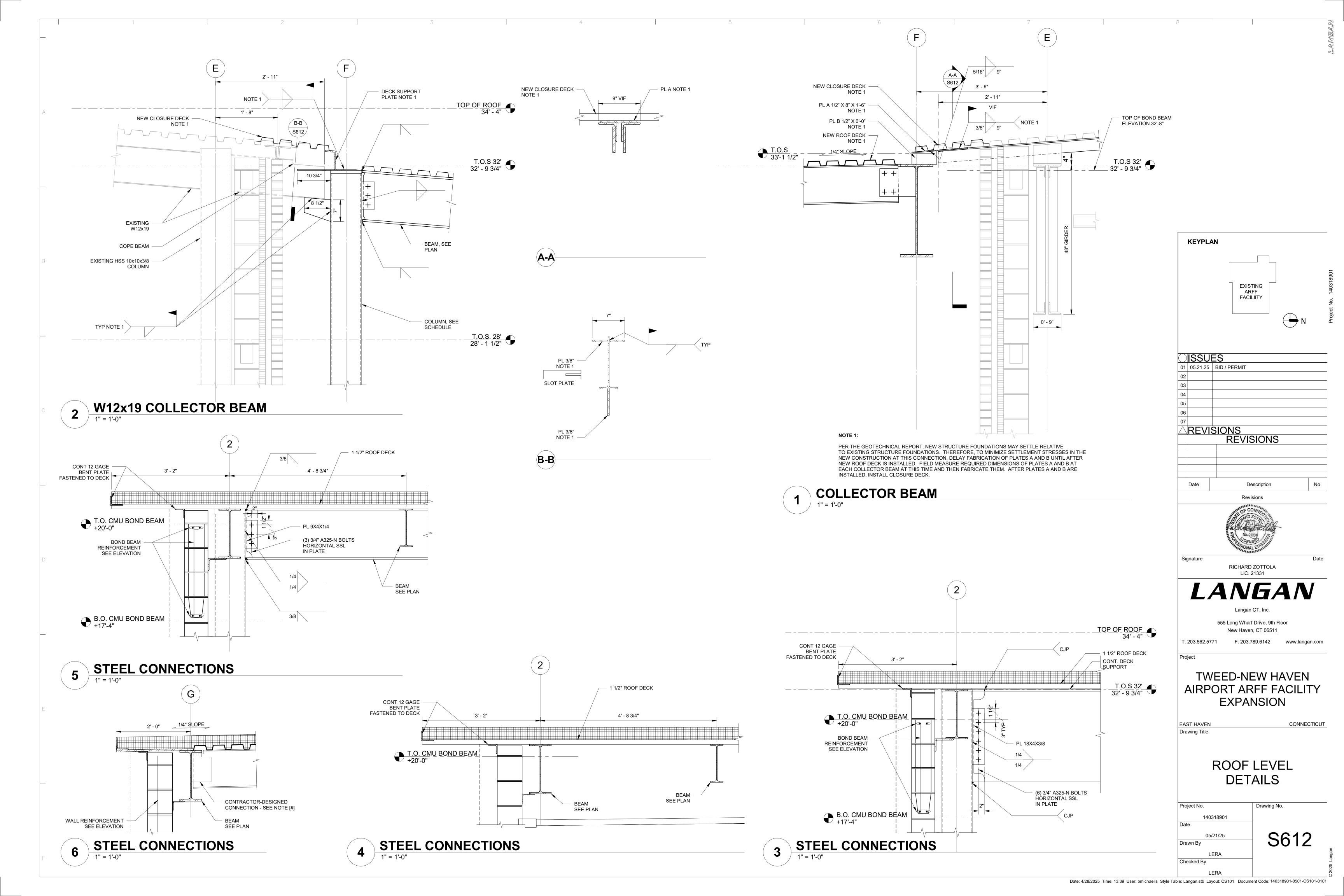
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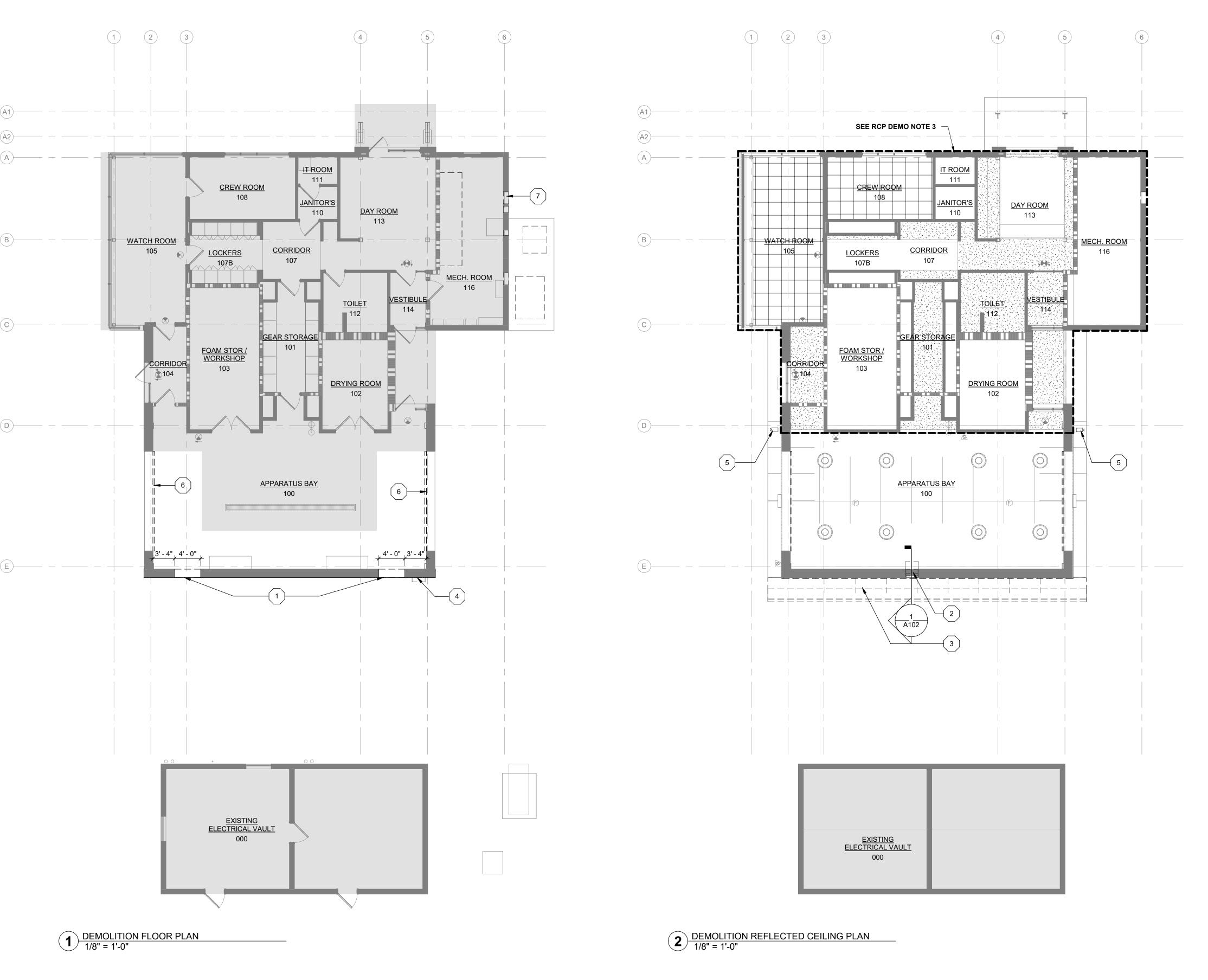
05/21/25

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LERA

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GENERAL DEMOLITION NOTES

- 1. REFER TO CONSULTANT DRAWINGS FOR FURTHER DETAIL REGARDING THE REMOVAL OF THOSE SCOPES AS NOTED.
- SCOPES AS NOTED.

 2. CONTRACTOR TO NOTIFY ARCHITECT OF ANY DISCREPANCIES OR CONFLICTS IN INTENT TO ACCOMPLISHING ALL WORK ON PLAN AND THE COORDINATION OF THIS PLAN WITH ENGINEERING DRAWINGS OR IT WILL BE DEEMED THAT ALL NECESSARY WORK AND COST ARE INCLUDED.
- 3. EXISTING ACT AND GWB CEILINGS TO BE PARTIALLY REMOVED AND REPLACED AS NEEDED TO FACILITATE INSTALLATION OF NEW FIRE PROTECTION, MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS. REFER TO FIRE PROTECTION LAYOUT, MECHANICAL LAYOUT, AND PLUMBING LAYOUT DRAWINGS. CONTRACTOR SHALL VERIFY EXTENT OF ALL REMOVALS REQUIRED TO FACILITATE
- INSTALLATION OF NEW WORK.

 4. CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL ITEMS TO REMAIN THROUGHOUT THE ENTIRE COURSE OF DEMOLITION AND CONSTRUCTION (INCLUDING, BUT NOT LIMITED TO, PARTITIONS, FINISHES, DOORS, FRAMES, HARDWARE, AND ELECTRICAL CIRCUITRY). CONTRACTOR SHALL REPAIR AND/OR REPLACE ANY DAMAGE WHICH MIGHT OCCUR.
- 5. GENERAL CONTRACTOR TO COORDINATE ALL PHASES OF DEMOLITION FOR PROJECT AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR CONFLICTING CONDITIONS, WHICH WOULD INTERFERE WITH THE SATISFACTORY COMPLETION OF THE WORK, PRIOR TO THE START OF DEMOLITION.
- 6. COORDINATE THE REMOVAL OF ALL MECHANICAL GEAR AND ALL RELATED PIPING/ELECTRICAL ITEMS WITH OWNER AND BUILDING MANAGEMENT.
 7. THESE DRAWINGS ARE NOT TO BE CONSIDERED A
- 7. THESE DRAWINGS ARE NOT TO BE CONSIDERED A RECORD DRAWING OF EXISTING CONDITIONS, CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS AND NOTIFY ARCHITECT OF ANY CONFLICT.
- 8. CONTRACTOR TO MAINTAIN REQUIRED FIRE PROTECTION RATING AT ALL EXISTING PARTITIONS, CEILING, FLOOR SLABS, AND PENETRATIONS. AT ALL REQUIRED LOCATIONS, CONTRACTOR TO UPGRADE EXISTING PARTITIONS, CEILINGS, SLABS, AND PENETRATION TO THE REQUIRED FIRE RESISTANCE RATING, AS NECESSARY. FIRESTOP ALL PENETRATIONS, FIREPROOF ALL EXPOSED BUILDING SUPPORT STRUCTURAL STEEL, FIRESTOP ALL SLAB OPENINGS, TYPICAL.

DEMO KEYNOTE LEGEND

- 1 REMOVE PORTION OF CMU WALL TO CREATE 48"W X
 12 COURSE CMU OPENINGS. REFER TO STRUCTURAL
 DWGS FOR OPENING SUPPORT DETAILS.

 2 HVAC LOUVER AND PLENUM BOX TO BE REMOVED,
 INFILL WITH SALVAGED CMU AND FACE BRICK.
 REFER TO HVAC DRAWINGS FOR EXHAUST SYSTEM
- 3 PORTION OF ROOF, SUPPORT BRACKETS TO BE REMOVED. REFER TO STRUCTURAL DRAWINGS.

 4 REMOVE ELECTRICAL PANEL AND RELOCATE TO EXTERIOR FACE OF NEW EXPANSION BAY. REFER TO CIVIL DRAWINGS.
- 5 REMOVE EXISTING WALL MOUNTED SECURITY
 CAMERA AND RELOCATE TO NEW EXPANSION BAY
 MOUNTED AT SAME HEIGHT. REFER TO NEW CEILING
 PLAN.
 6 EXISTING OVERHEAD ROLL-UP DOORS, TRACKS, AND
- SUPPORT FRAMING TO BE REMOVED. EXISTING MOTOR TO BE REMOVED. REFER TO ELECTRICAL FOR ADDITIONAL INFORMATION.
- 7 PROVIDE OPENINGS IN FACADE TO ACCOMMODATE NEW HVAC DUCTWORK. REFER TO HVAC DRAWINGS

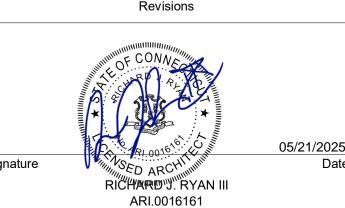
PARTITION RATING LEGEND

EXISTING 1 HOUR RATED PARTITION ASSEMBLY

UNRATED PARTITION ASSEMBLY

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555 Long Wharf Drive, 9th Floor

New Haven, CT 06511

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Date: 4/28/2025 Time: 13:39 User: bmichaelis Style Table: Langan.stb Layout: CS101 Document Code: 140318901-0501-CS101-0101

TWEED-NEW HAVEN AIRPORT ARFF FACILITY EXPANSION

EAST HAVEN CONNECTICUT
Drawing Title

DEMOLITION FLOOR & RCP PLAN - LEVEL

Project No.

Drawing No.

140318901

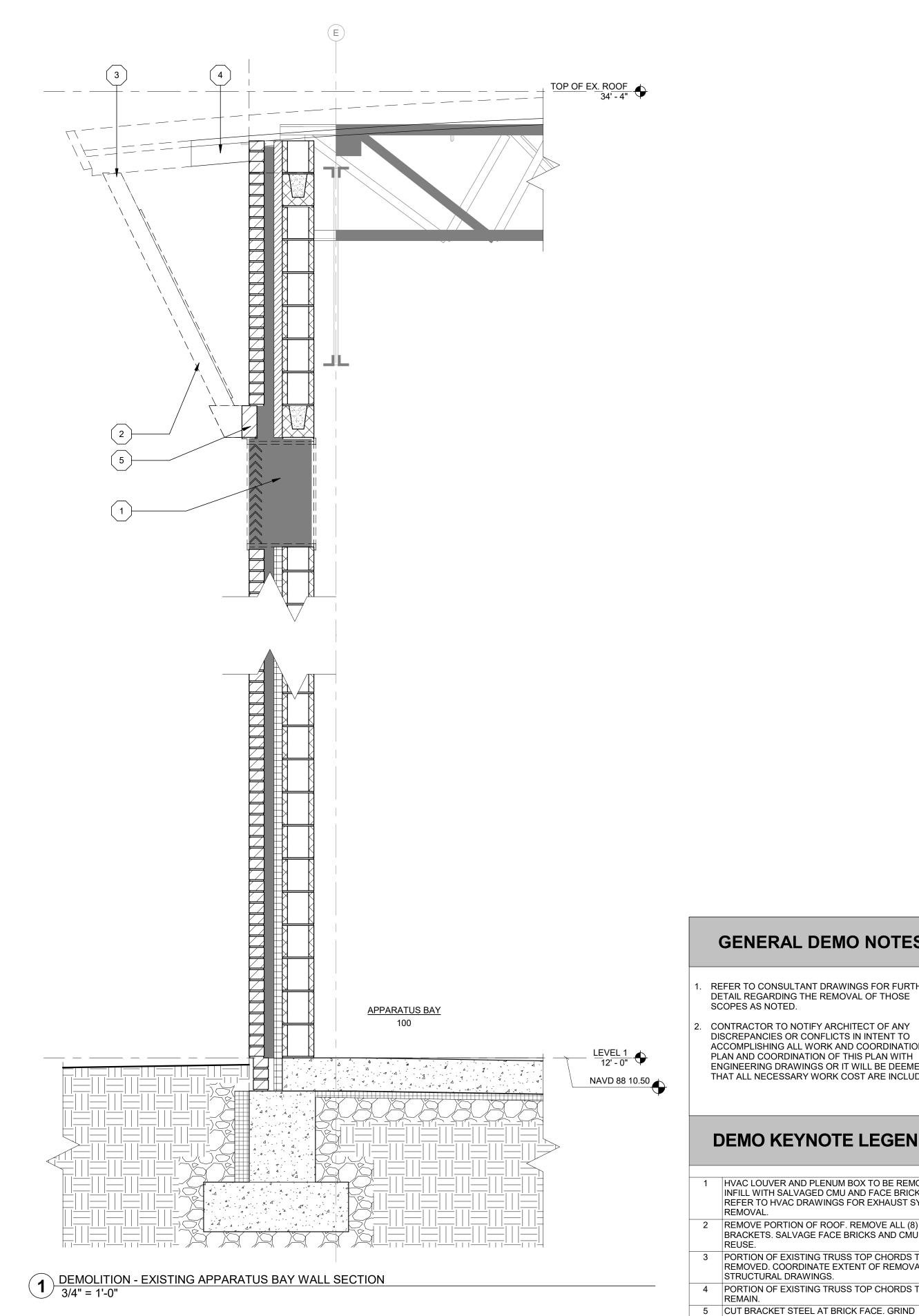
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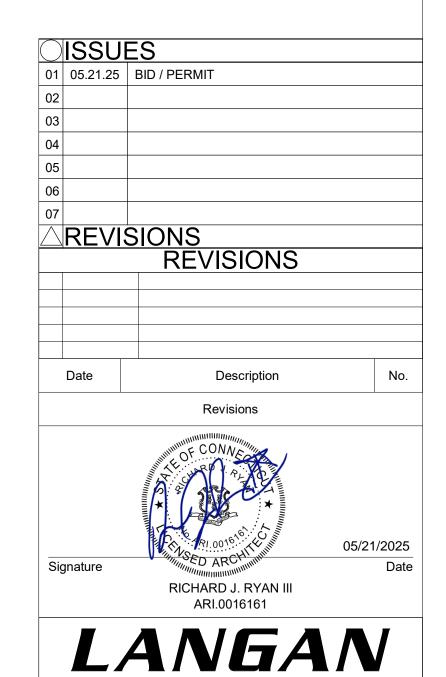
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Drawn By

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Checked By





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TWEED-NEW HAVEN

AIRPORT ARFF FACILITY

EXPANSION

CONNECTICUT

GENERAL DEMO NOTES

- REFER TO CONSULTANT DRAWINGS FOR FURTHER DETAIL REGARDING THE REMOVAL OF THOSE SCOPES AS NOTED.
- 2. CONTRACTOR TO NOTIFY ARCHITECT OF ANY DISCREPANCIES OR CONFLICTS IN INTENT TO ACCOMPLISHING ALL WORK AND COORDINATION ON PLAN AND COORDINATION OF THIS PLAN WITH ENGINEERING DRAWINGS OR IT WILL BE DEEMED THAT ALL NECESSARY WORK COST ARE INCLUDED.

DEMO KEYNOTE LEGEND

HVAC LOUVER AND PLENUM BOX TO BE REMOVED, INFILL WITH SALVAGED CMU AND FACE BRICK. REFER TO HVAC DRAWINGS FOR EXHAUST SYSTEM

2 REMOVE PORTION OF ROOF. REMOVE ALL (8)
BRACKETS. SALVAGE FACE BRICKS AND CMU FOR
REUSE.

SMOOTH.

3 PORTION OF EXISTING TRUSS TOP CHORDS TO BE REMOVED. COORDINATE EXTENT OF REMOVAL WITH STRUCTURAL DRAWINGS. 4 PORTION OF EXISTING TRUSS TOP CHORDS TO

DEMOLITION WALL SECTION

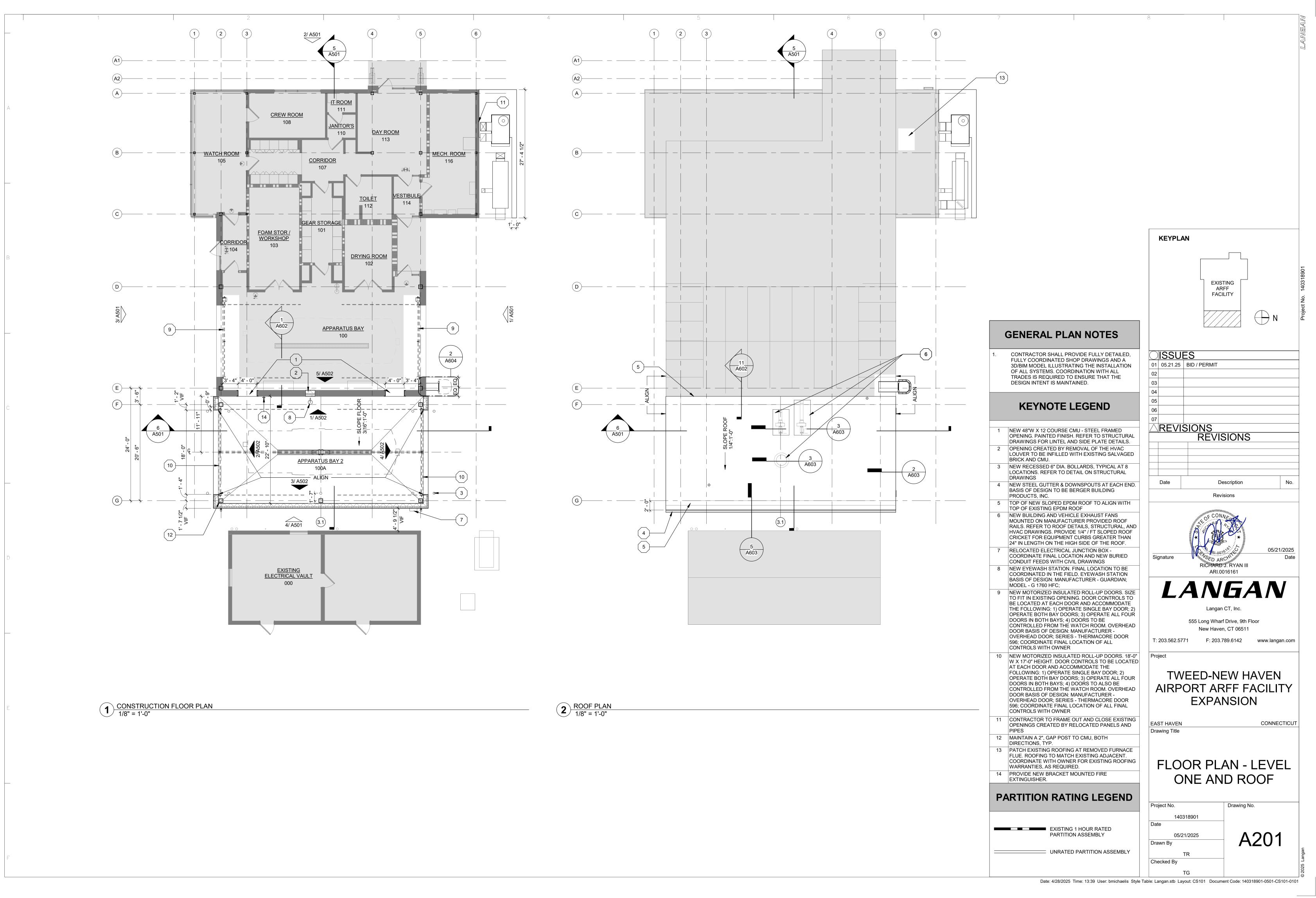
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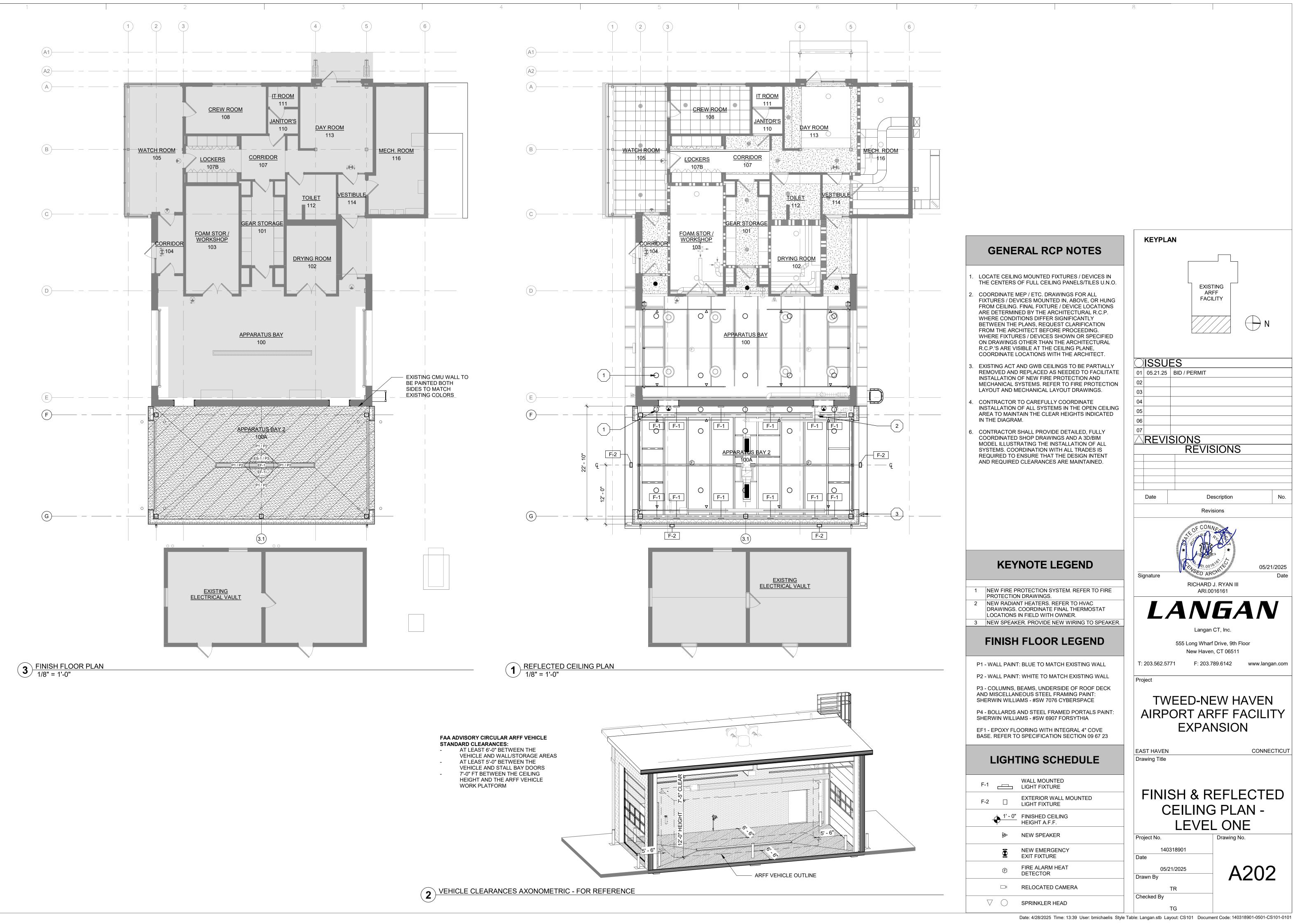
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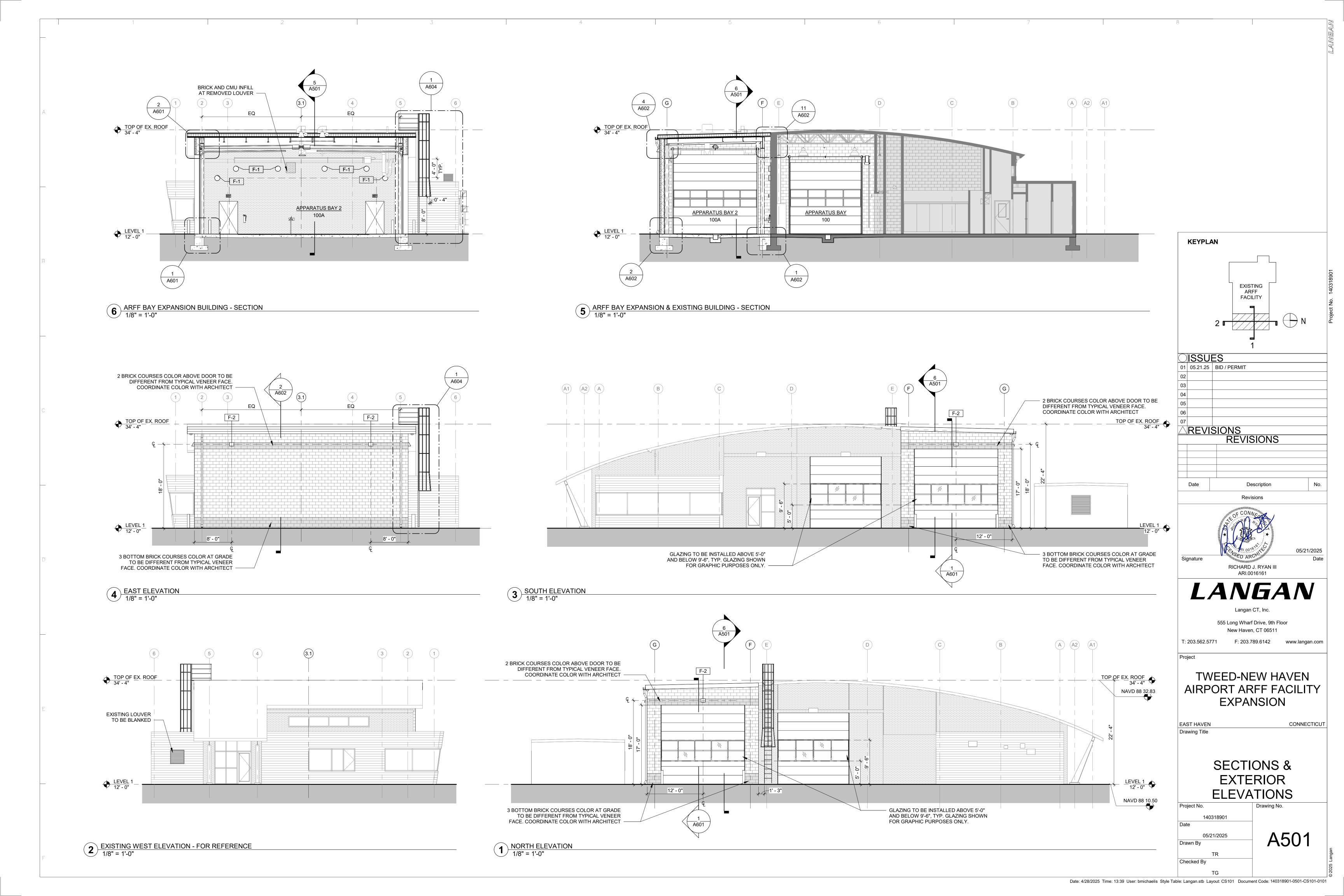
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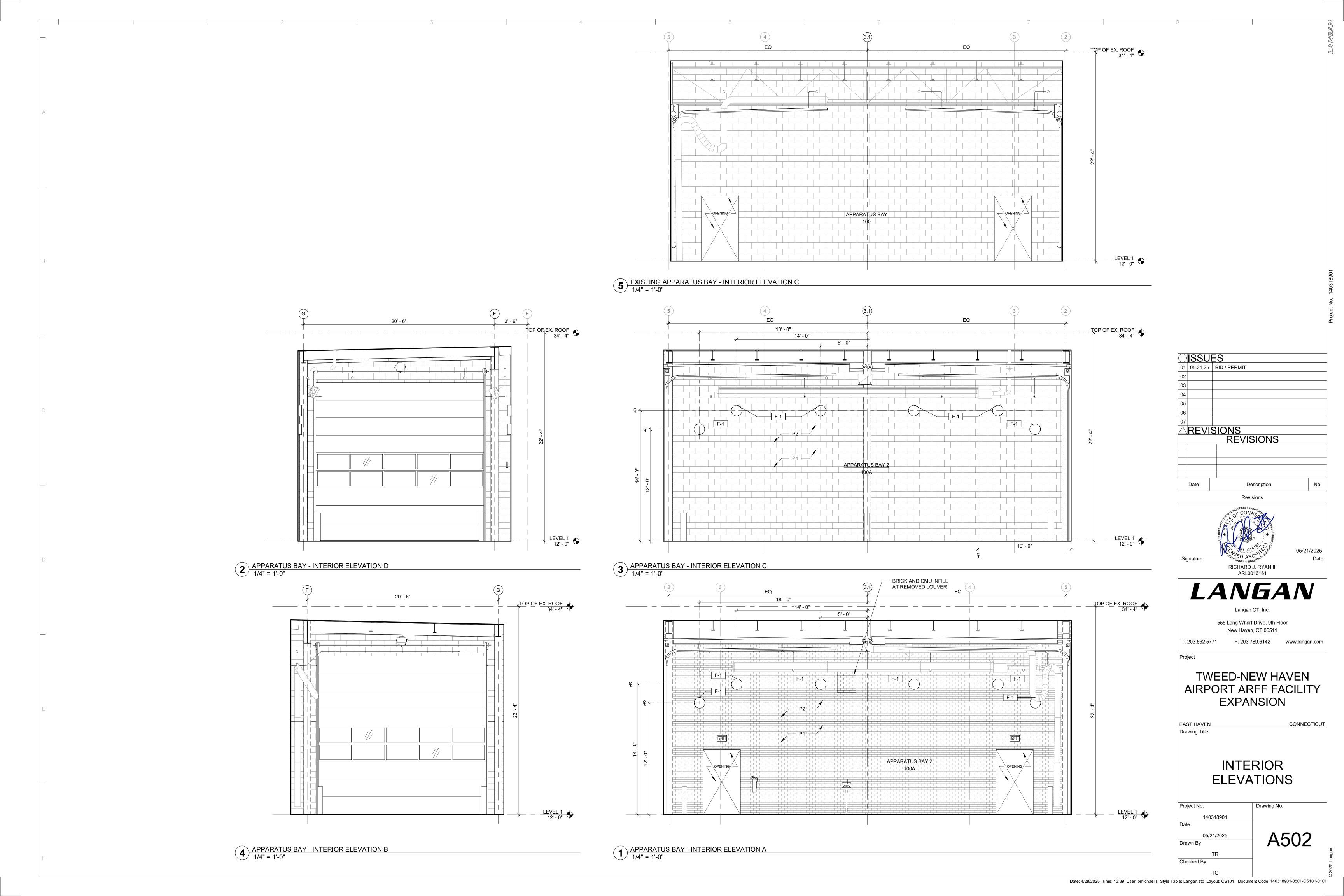
EAST HAVEN

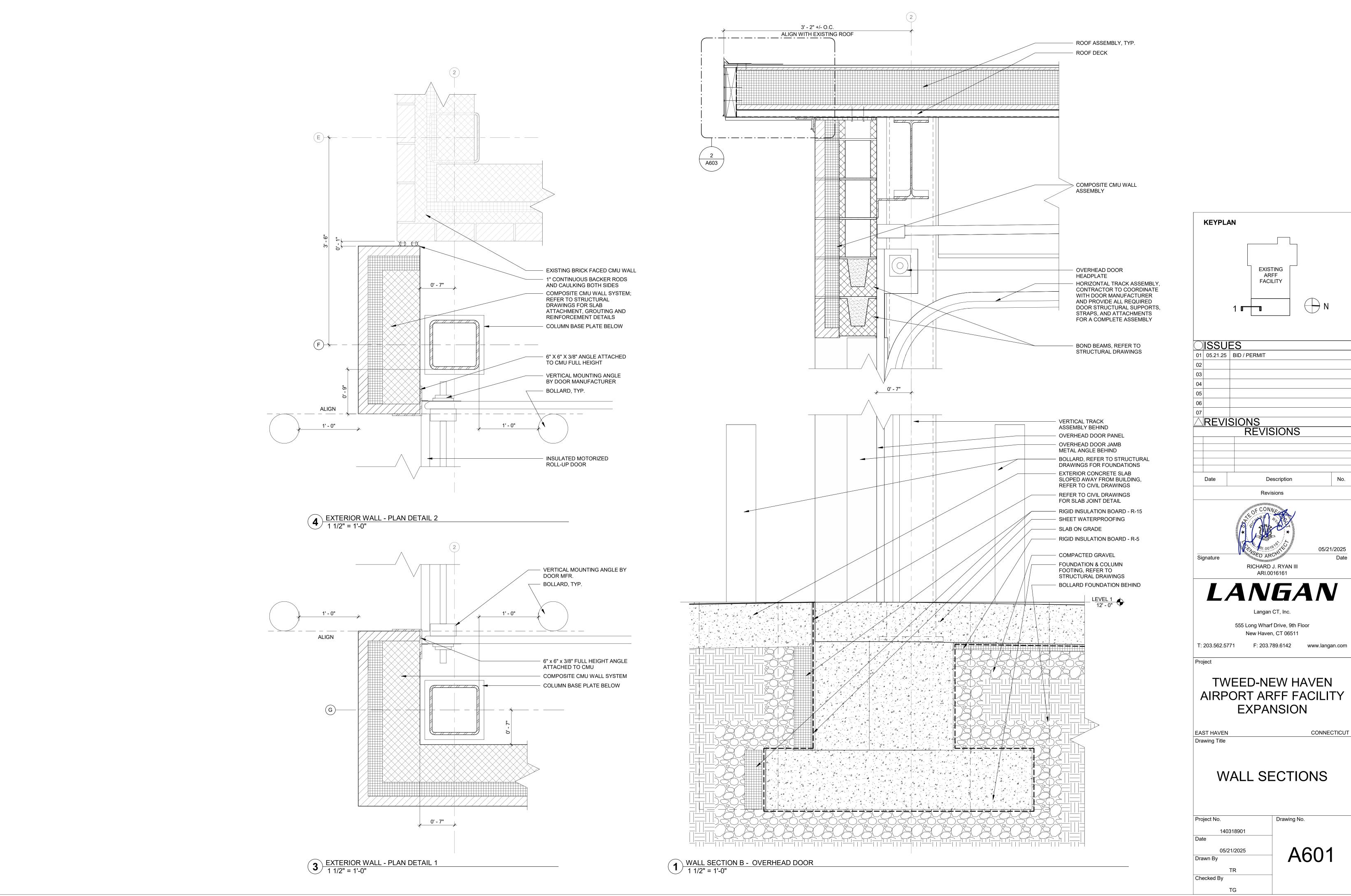
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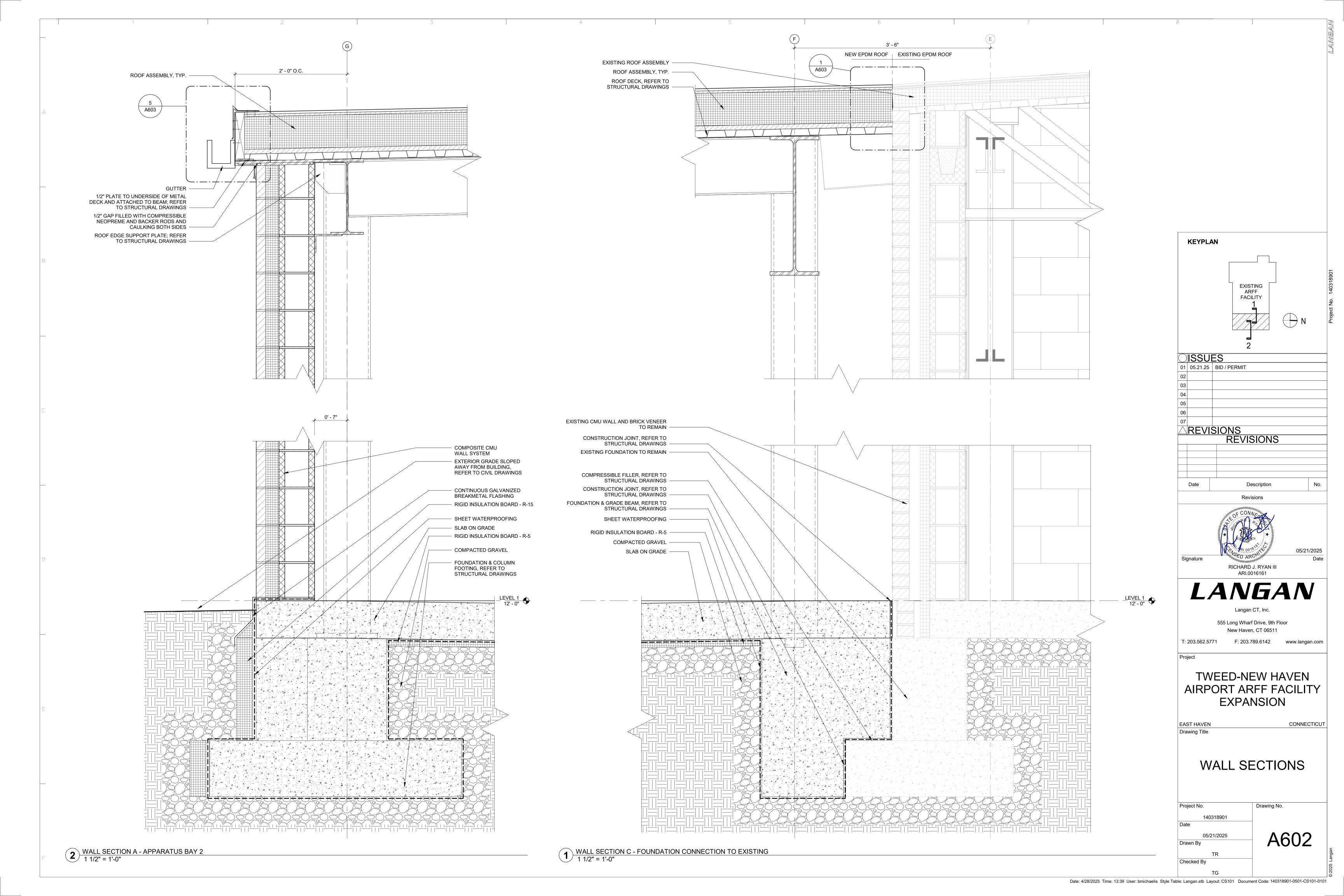


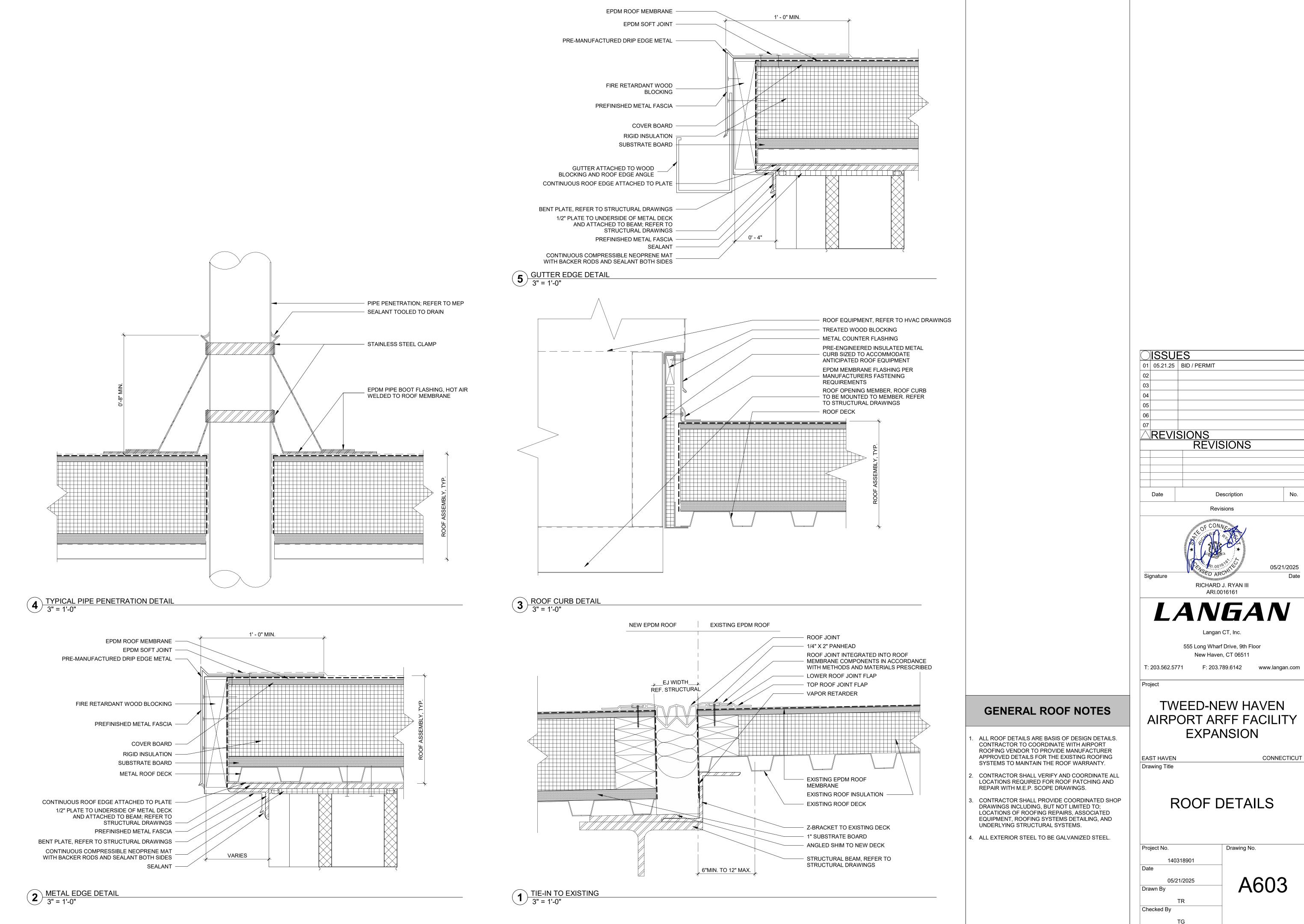


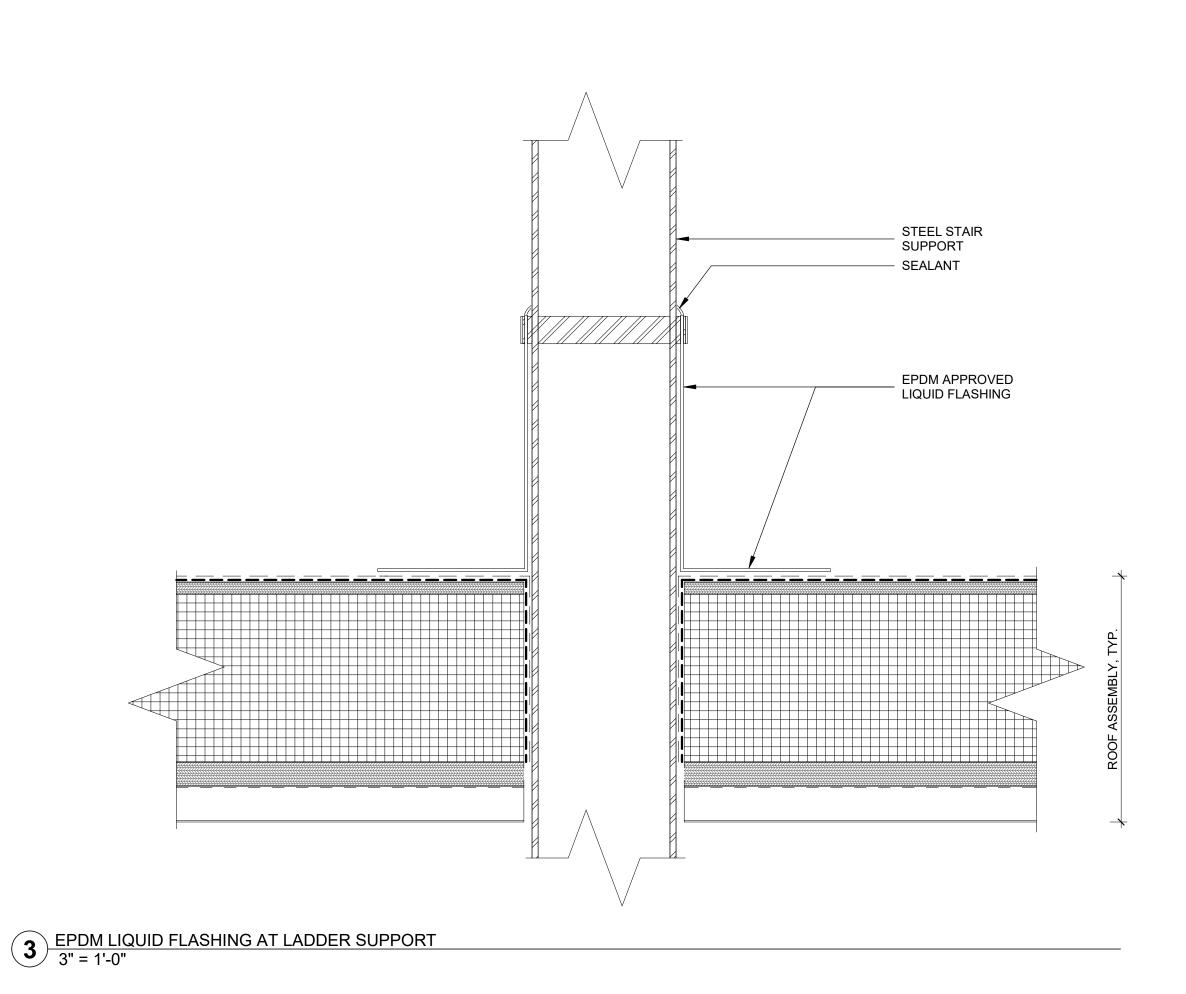


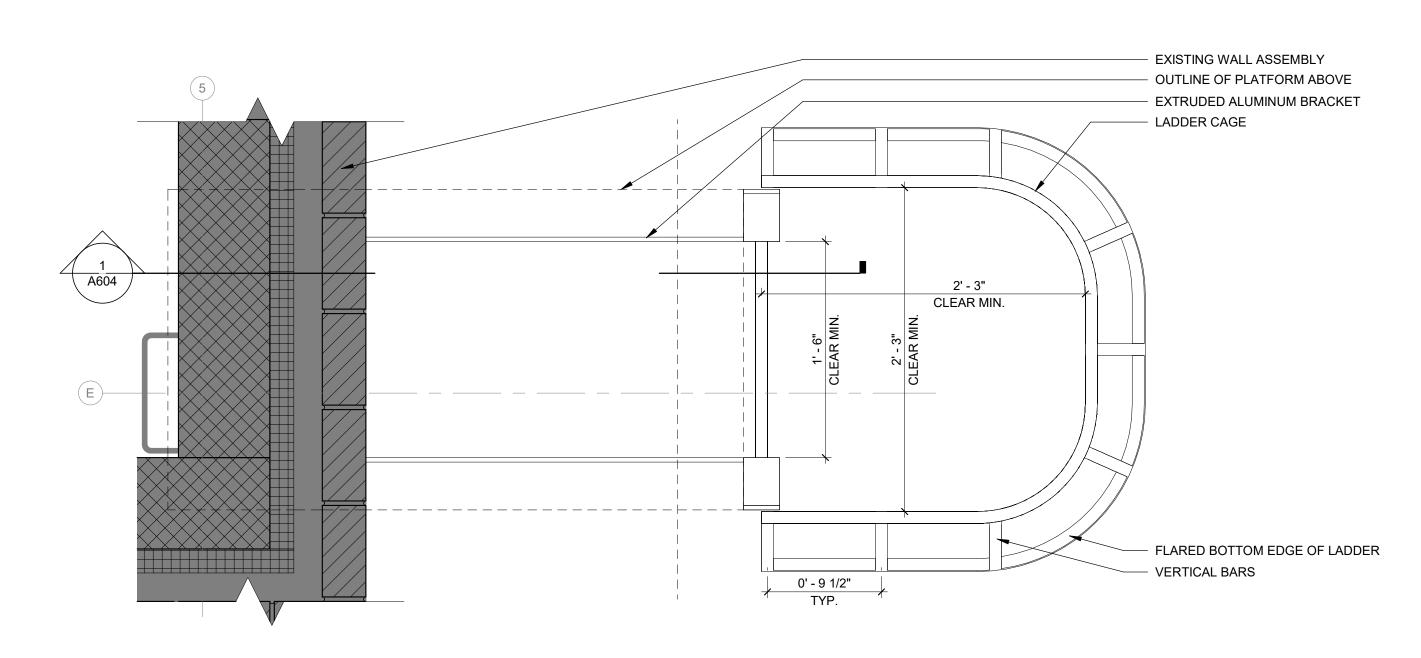




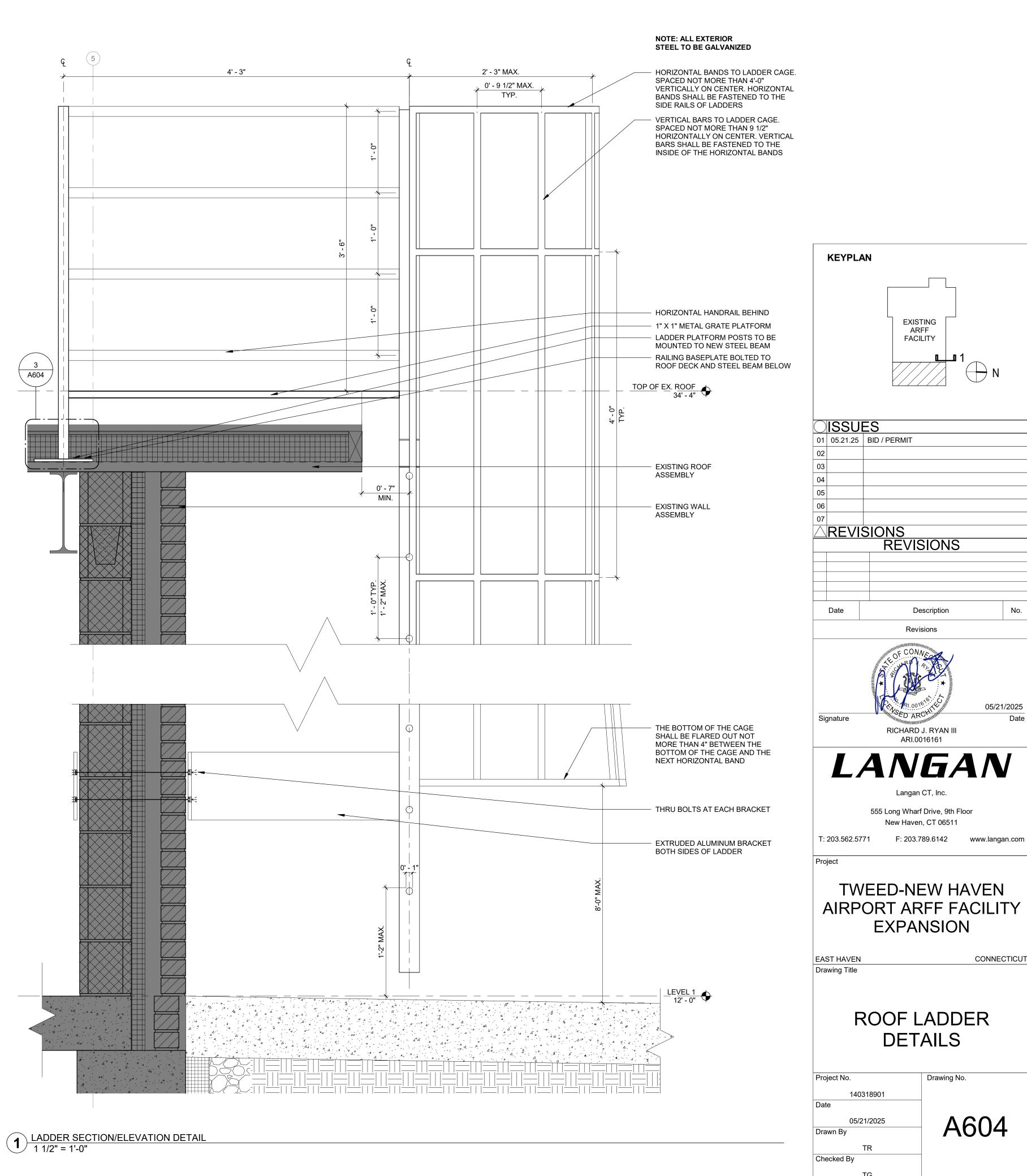








2 LADDER - PLAN 1 1/2" = 1'-0"



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05/21/2025

CONNECTICUT

FIRE PROTECTION LEGEND

WS	WS	WET SPRINKLER PIPE
SD	SD	SPRINKLER DRAIN
——SP——	SP	STAND PIPE
—— FDC——	FDC	FIRE DEPARTMENT CONNECTION
$\langle \# \rangle$		HYDRAULIC REFERENCE POINT
$\overline{\bigcirc}$		UPRIGHT SPRINKLER HEAD
		CONCEALED PENDENT SPRINKLER HEAD
● DRY		CONCEALED PENDENT SPRINKLER HEAD DRY - INDICATES DRY TYPE SPRINKLER HEAD
		UPRIGHT SPRINKLER HEAD
		HORIZONTAL SIDEWALL SPRINKLER HEAD DRY - INDICATES DRY TYPE SPRINKLER HEAD
AB ———	AB	ELECTRIC ALARM BELL
DC	DC	DRESSER COUPLING
<u> </u>	WTS	WATER TIGHT SLEEVE
\otimes		RISER PIPE (THRU FLOOR OR CEILING)
	CAP	CAPPED PIPE
TS	OSY	OS&Y VALVE WITH SUPERVISORY TAMPER SWIT
—	CV	CHECK VALVE
——(FS)——	FS	FLOW SWITCH
	DCVA	DOUBLE CHECK VALVE ASSEMBLY
	WRCV	WET RISER CHECK VALVE
	DACV	DRY ALARM CHECK VALVE
	FDC	FIRE DEPARTMENT CONNECTION
AP	AP	ACCESS PANEL
NS		NO SPRINKLERS
<u> </u>	NTS	NOT TO SCALE
	TYP	TYPICAL
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	GC	GENERAL CONTRACTOR
	FPC	FIRE PROTECTION CONTRACTOR
	C&C	CUT & CAP
	UG	UNDERGROUND
	DS	DRY SPRINKLERS
	ZCV	ZONE CONTROL VALVE

FIRE PROTECTION NOTES

1. FOLLOW THE LATEST REQUIREMENTS OF NFPA, THE CONNECTICUT STATE BUILDING CODE, FM GLOBAL, AND THOSE OF ANY CITY, STATE, OR FEDERAL AGENCY HAVING JURISDICTION OVER THIS PROJECT.

2. PLANS INDICATE GENERAL SCOPE OF WORK. REFER TO CONTRACT DOCUMENTS AND SPECIFICATIONS FOR DETAILS ON ENTIRE SCOPE OF WORK. LOCATION OF ALL PIPES INDICATED ARE DIAGRAMMATIC. ARE NOT MEANT TO SHOW ALL OFFSETS AND PIPING ELEVATION CHANGES. THE CONTRACTOR SHALL VERIFY ALL NEEDED OFFSETS AND PIPE ELEVATIONS TO INSTALL THE PROPOSED SPRINKLER SYSTEM.

3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE WORK WITH THAT OF ALL OTHER TRADES. THE INSTALLING CONTRACTOR SHALL COORDINATE ALL WORK TO THE EXISTING AND/OR NEW FIELD CONDITIONS.

4. ANY INTERFERENCE SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE AND SHALL BE RESOLVED PRIOR TO THE INSTALLATION OF WORK. ANY SIZES OF NEW PIPING SHOWN ON THE PLAN ARE MEANT TO BE A GUIDE FOR ESTIMATING THE WORK.

5. THE CONTRACTOR SHALL PERFORM HYDRAULIC CALCULATIONS TO VERIFY PIPE SIZES ARE ADEQUATE TO PROVIDE THE NECESSARY SYSTEM DEMANDS.

6. PROVIDE A NEW FLOW TEST AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION AND NFPA. USE THE RESULTS OF THE NEW HYDRANT FLOW TEST TO HYDRAULICALLY DESIGN THE SPRINKLER SYSTEMS WITHIN THE BUILDING.

7. THE SPRINKLER CONTRACTOR SHALL PROVIDE AS PART OF THIS CONTRACT ALL SPRINKLERS BELOW FIXED OBSTRUCTIONS 48" AND LARGER AS REQUIRED BY NFPA 13, 8.6.5.3.3. IT IS THE RESPONSIBILITY OF THE SPRINKLER CONTRACTOR TO PROVIDE THE REQUIRED SPRINKLERS AND ALL ASSOCIATED PIPING, FITTINGS, HANGERS, ETC. FOR A COMPLETE INSTALLATION.

8. THE SPRINKLER CONTRACTOR SHALL PROVIDE AS PART OF HIS CONTRACT AN INSPECTOR'S TEST STATION ON EACH SPRINKLER ZONE. THE INSPECTOR'S TEST STATION WILL BE LOCATED AT THE MOST HYDRAULICALLY REMOTE PART OF EACH ZONE AND SHALL BE IDENTIFIED ON THE SPRINKLER SHOP DRAWINGS.

9. REFER TO 2019 NFPA 13 TABLE 9.4.2.5(a) FOR TEMPERATURE RATING OF SPRINKLERS BASED ON DISTANCE FROM HEAT SOURCES SUCH AS HEATING DUCTS, DIFFUSERS AND UNIT HEATERS.

10. PROVIDE AUXILIARY DRAINS AT ALL LOW POINTS PER 2019 NFPA 13, SECTION 16.10.5.

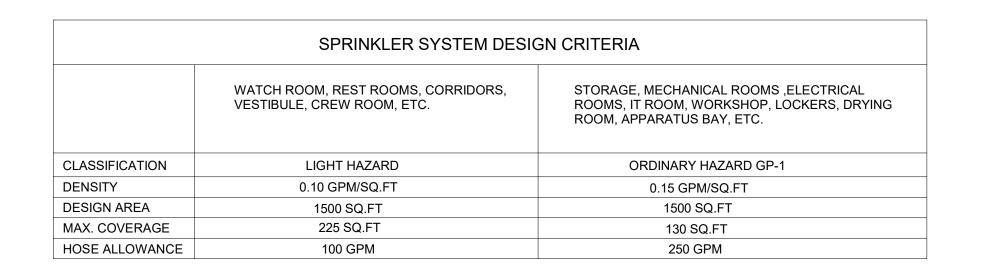
12. DESIGN CRITERIA

A. SPRINKLER SYSTEMS SHALL BE HYDRAULICALLY DESIGNED AND CALCULATED BY THE FIRE PROTECTION CONTRACTOR. THE FIRE PROTECTION CONTRACTOR SHALL SUBMIT ALL REQUIRED HYDRAULIC CALCULATIONS TO PROVE THE HYDRAULICALLY MOST REMOTE AREAS ARE BEING PROTECTED PER SYSTEM AND OCCUPANCY HAZARD. FABRICATION DRAWINGS AND HYDRAULIC CALCULATIONS SHALL BE SUBMITTED TO THE AUTHORITY HAVING JURISDICTION AND INSURANCE UNDERWRITERS (IF REQUIRED) PRIOR TO SUBMITTING TO THE ARCHITECT FOR REVIEW. FABRICATION DRAWINGS AND HYDRAULIC CALCULATIONS SHALL BEAR THE SEAL OF REGISTRATION OF A QUALIFIED REGISTERED PROFESSIONAL FIRE PROTECTION ENGINEER. MAINTAIN A MINIMUM OF 10 PSI CUSHION BETWEEN REQUIRED PRESSURE AND AVAILABLE PRESSURE. COMPLY WITH ALL UNDERWRITERS' AND CODE AUTHORITIES REQUIREMENTS INCLUDING MAXIMUM WATER FLOW VELOCITY IN THE FIRE PROTECTION SYSTEM.

13. COMPLETED AND SIGNED CONTRACTOR'S MATERIAL AND TEST CERTIFICATE(S) AS INDICATED IN 2019 NFPA 13 FIGURE 28.1, INCLUDING HYDROSTATIC TESTING, IN ACCORDANCE WITH 2019 NFPA 13 SECTION 28.2.1 WILL BE REQUIRED PRIOR TO RELEASE OF FINAL AFFIDAVITS.

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KEYPLAN



Project No.

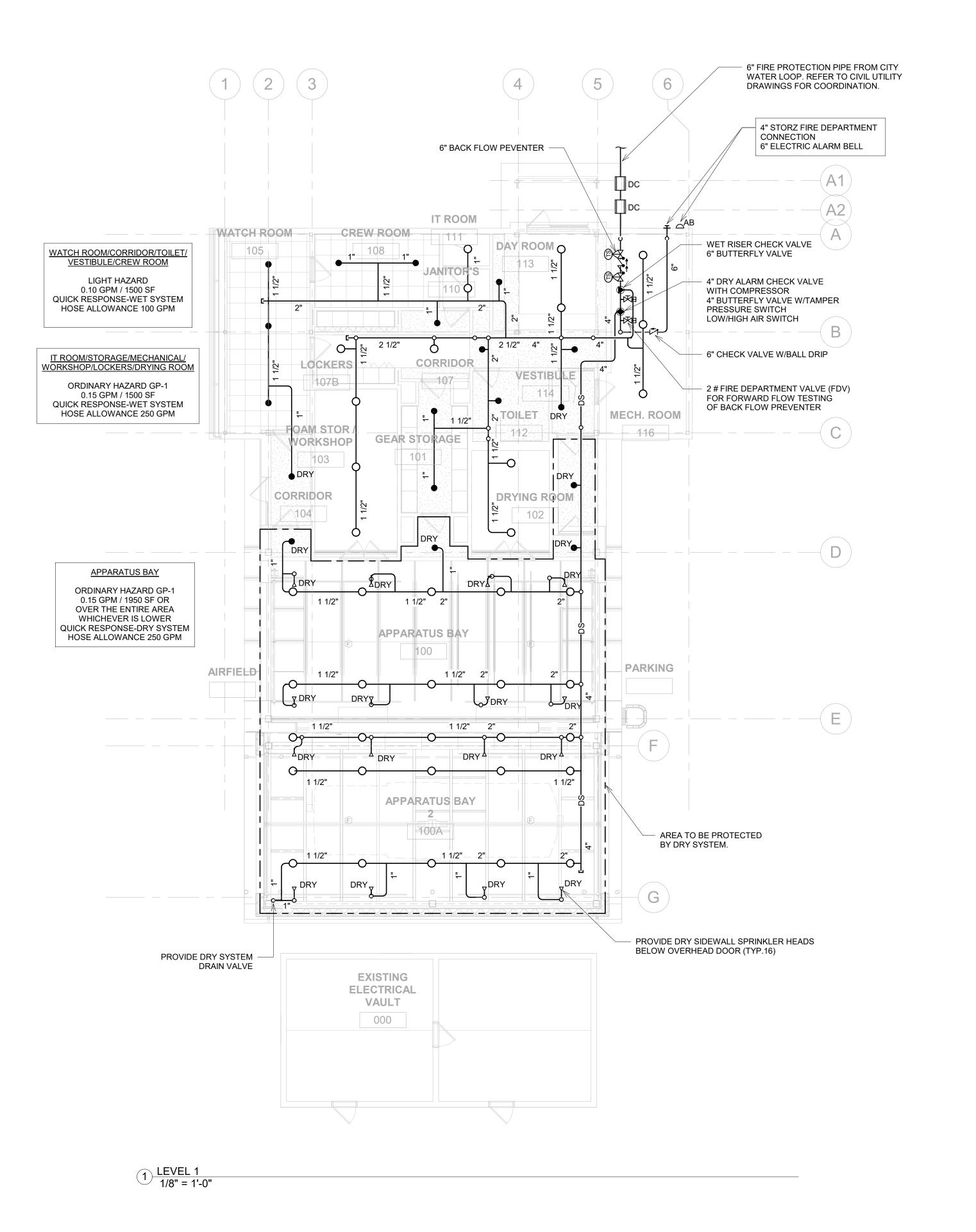
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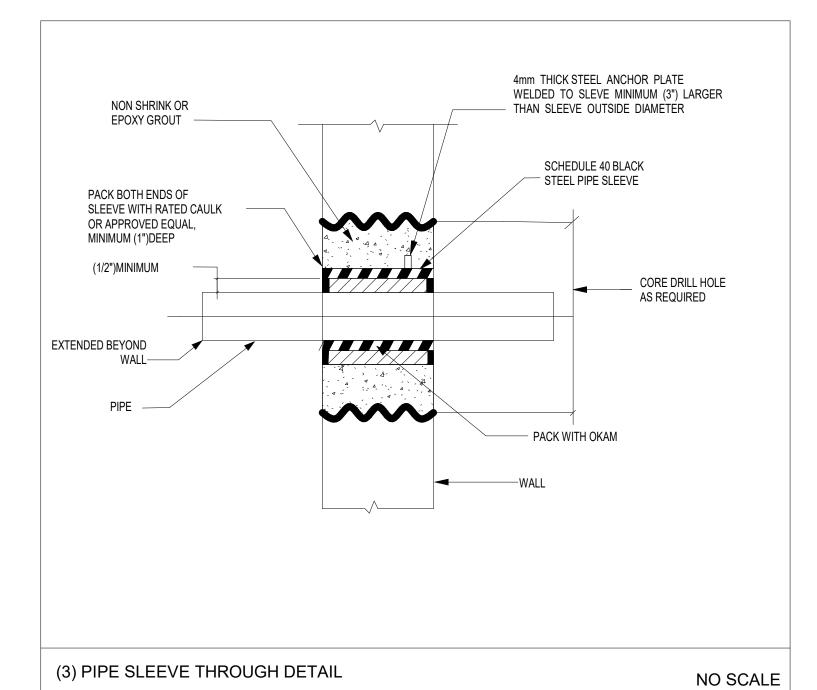
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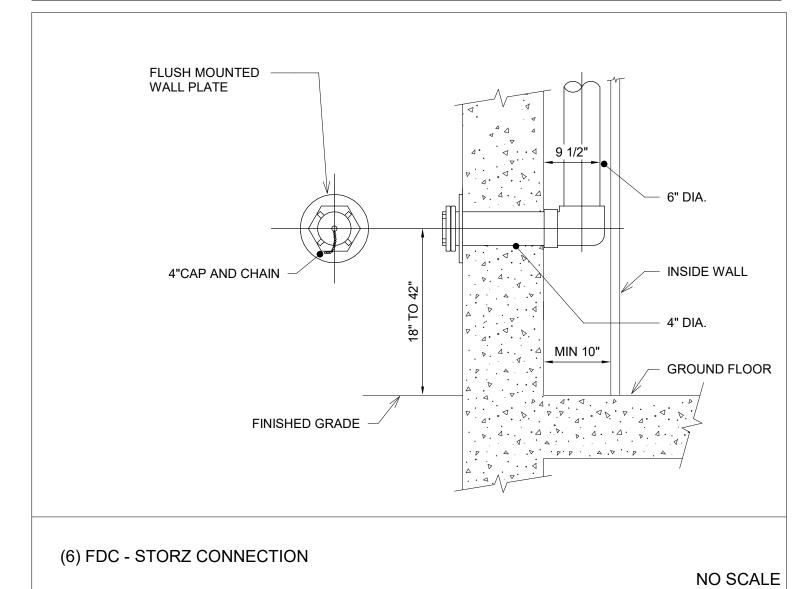
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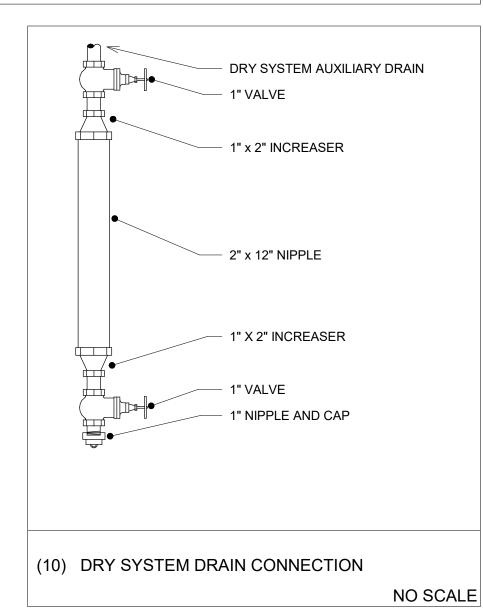
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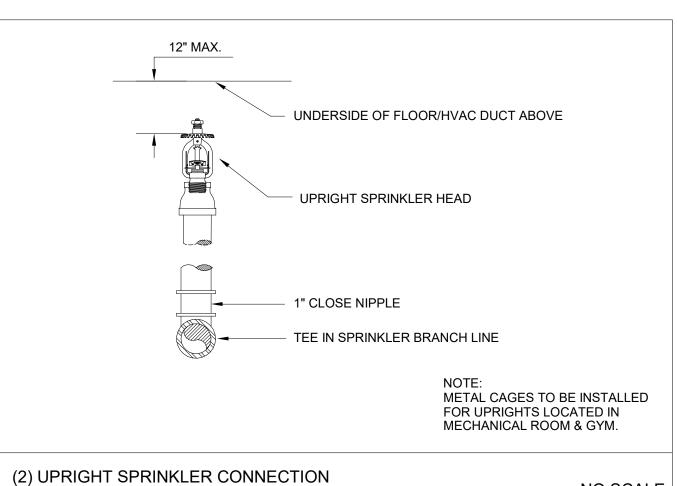


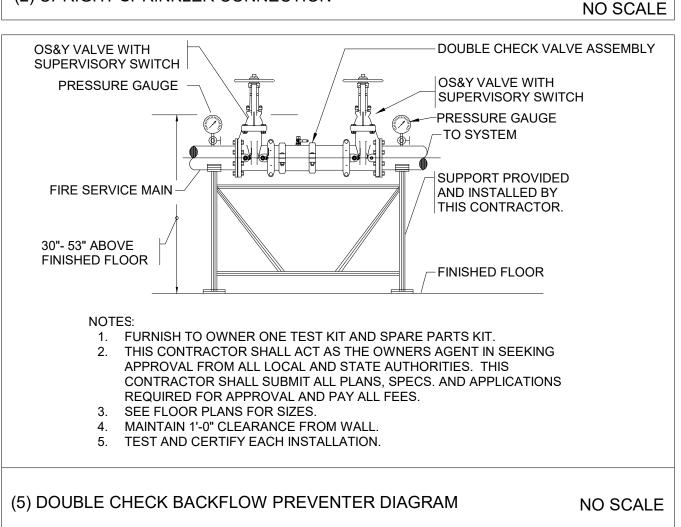


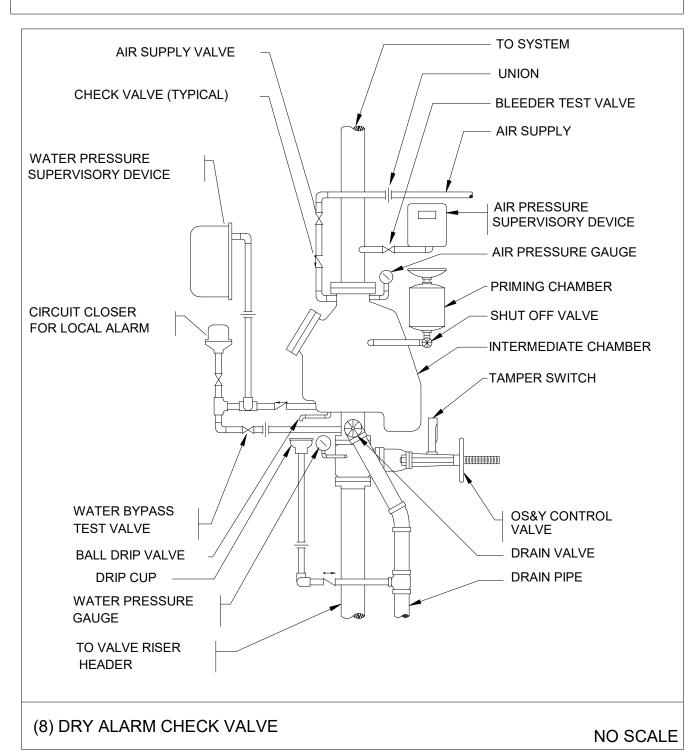


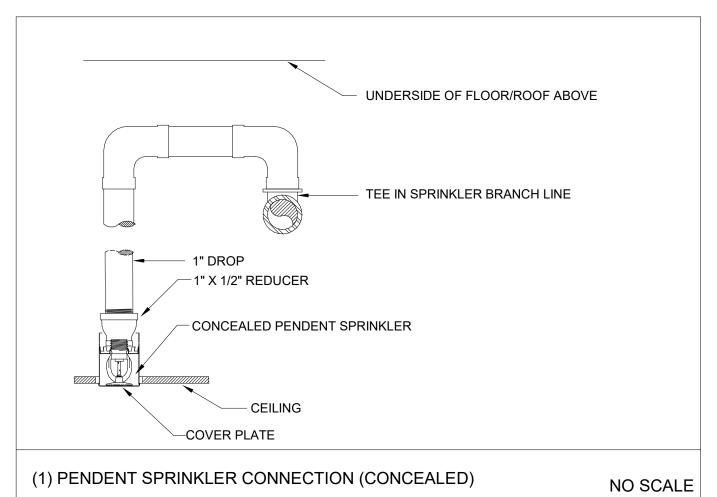


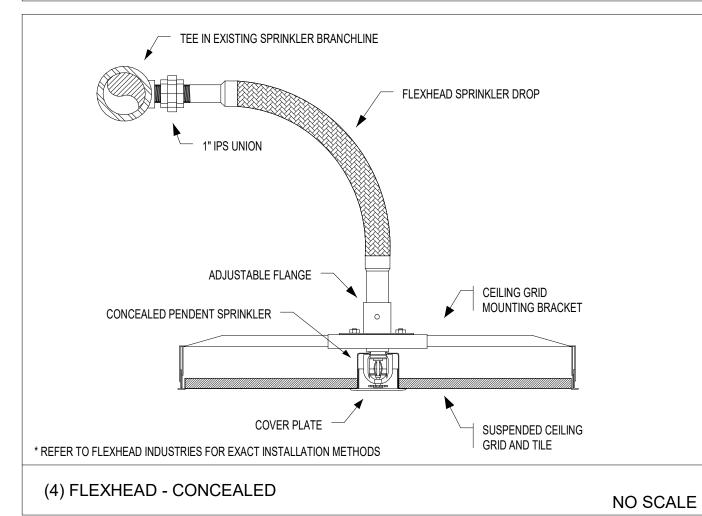


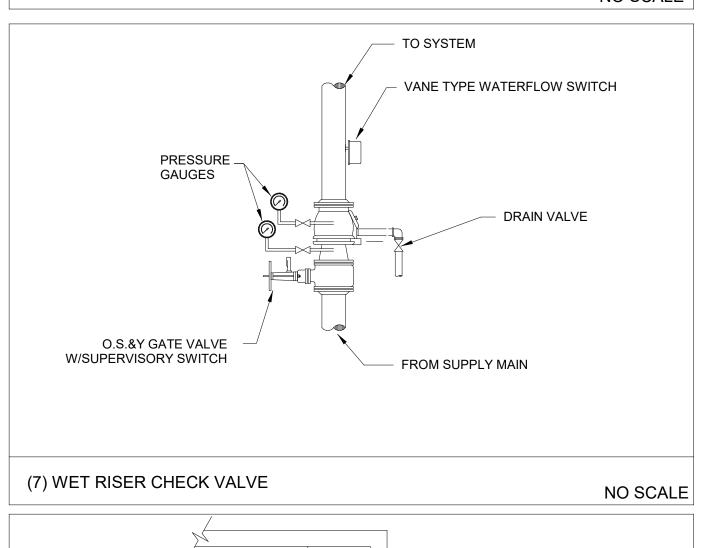


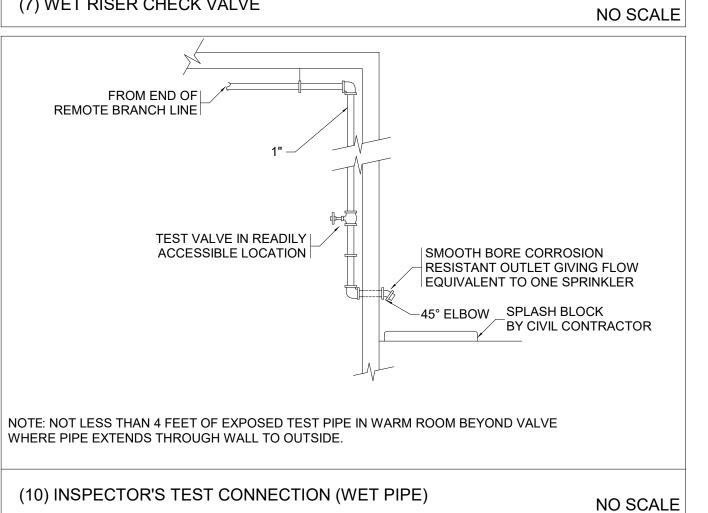


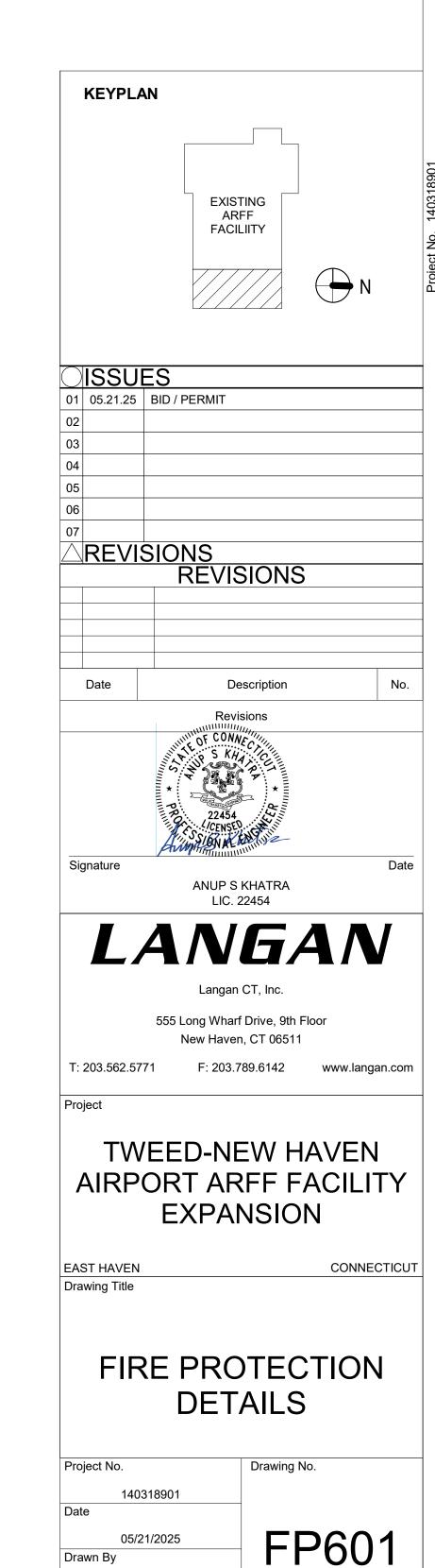




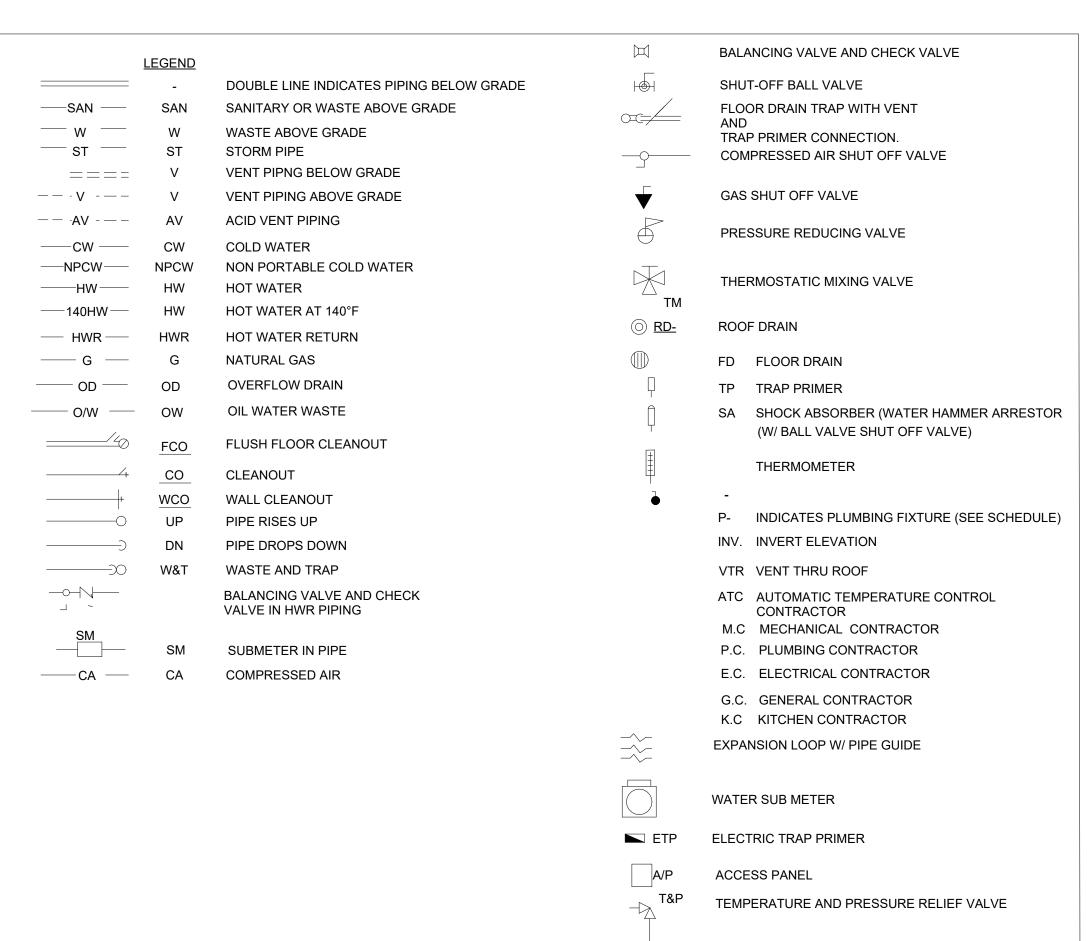






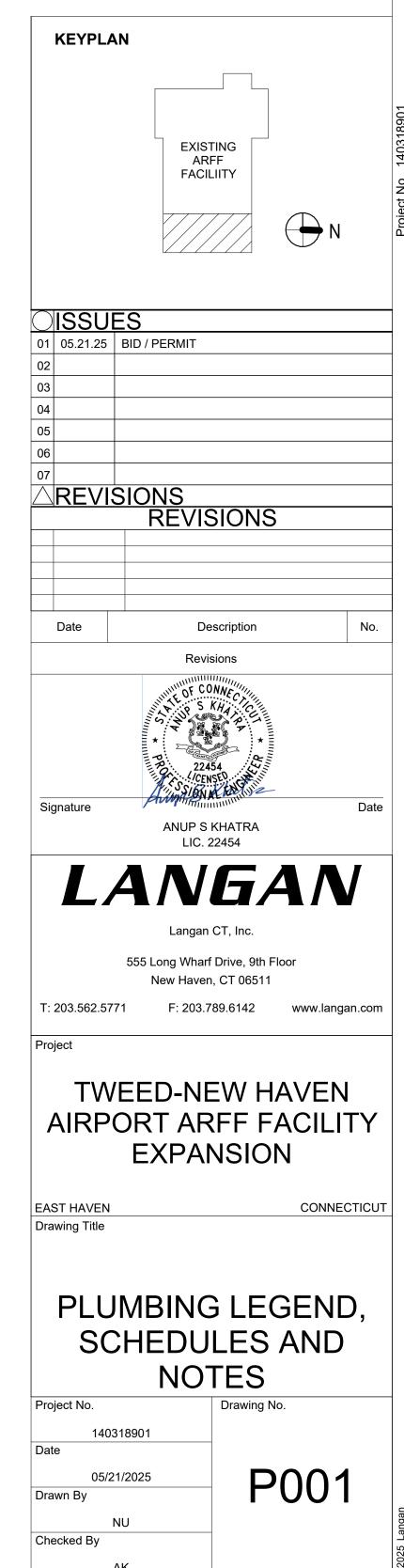


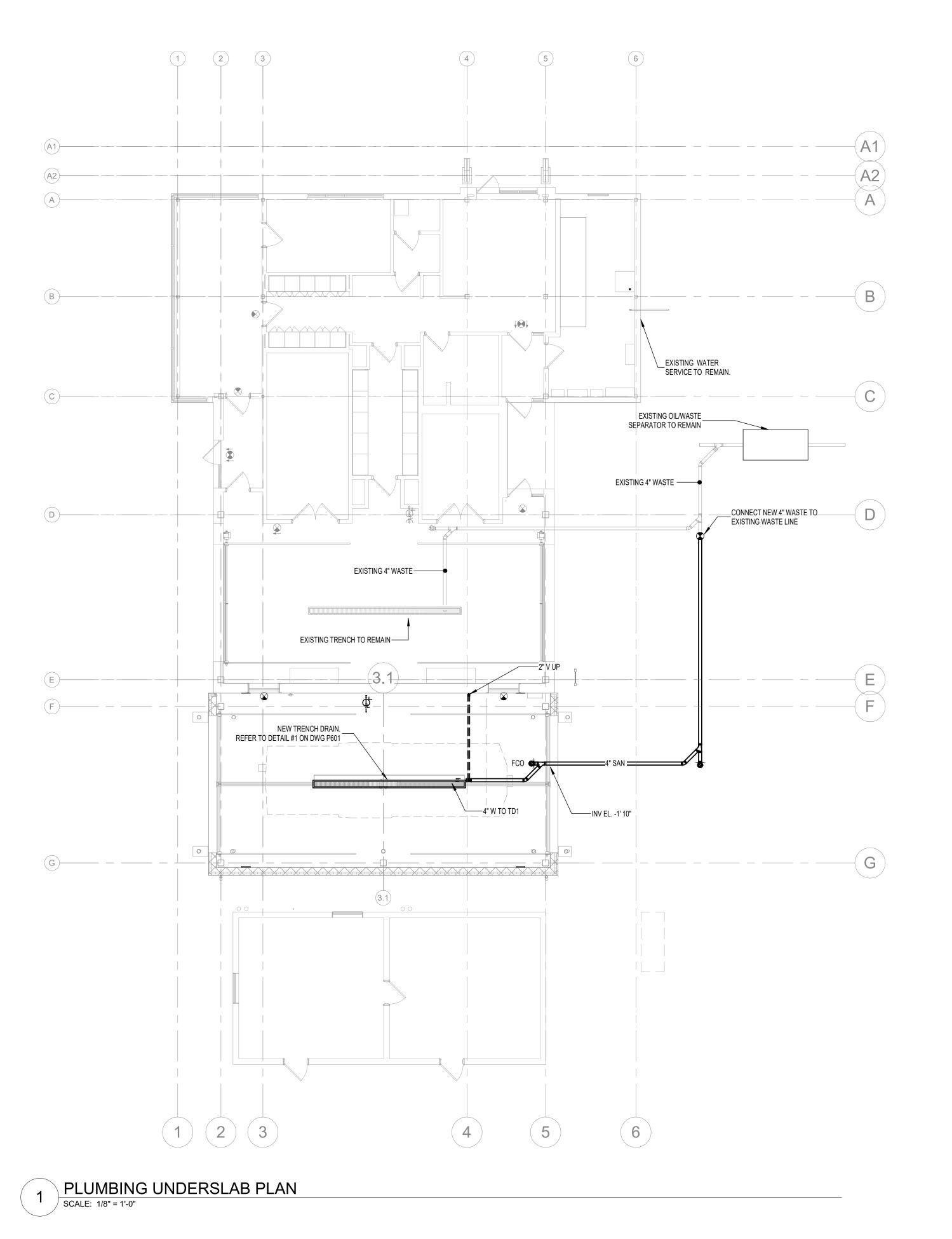
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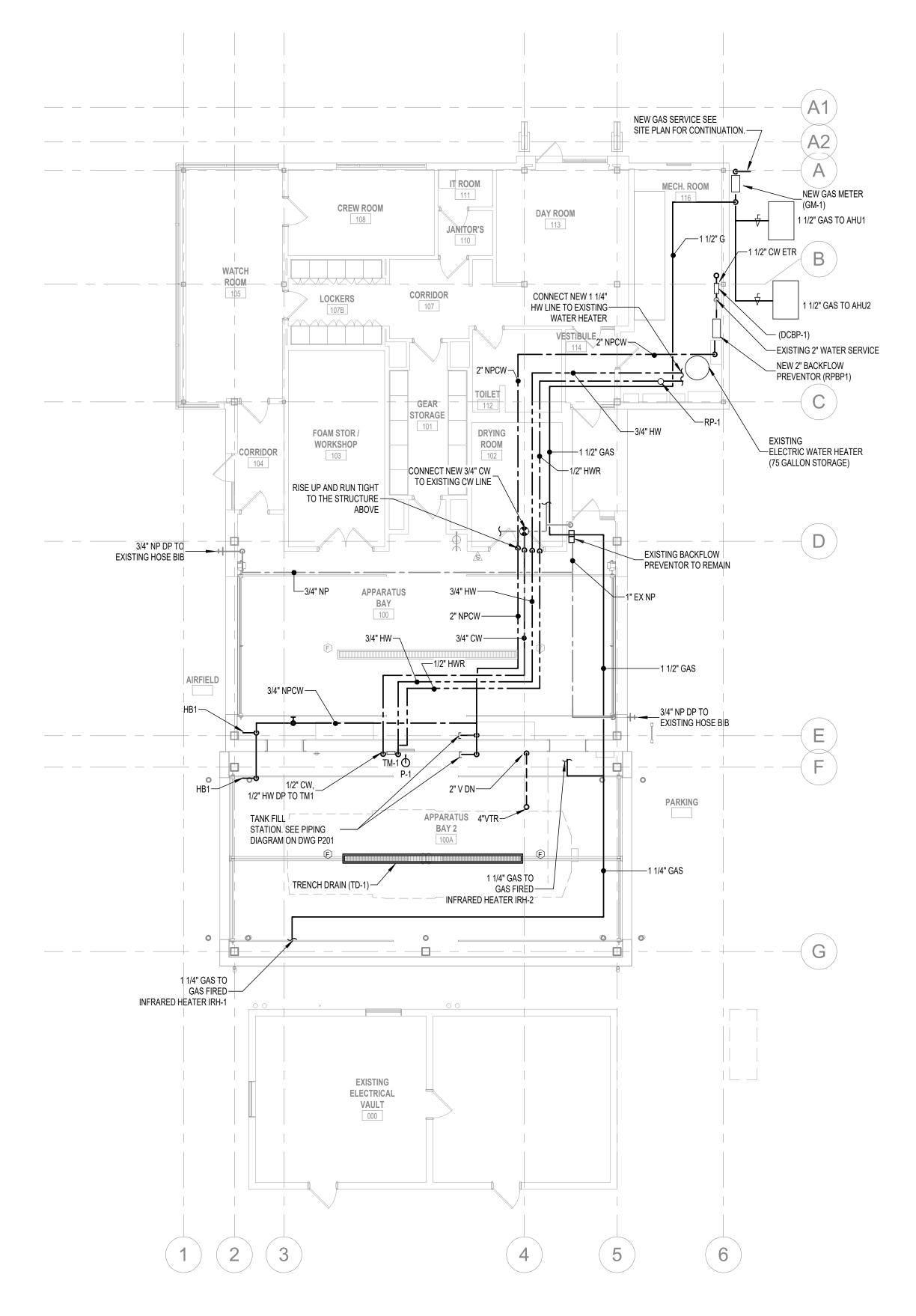


	PLUMBING FIXTURE SCHEDULE						
FIXTURE NUMBER	SYMBOL	DESCRIPTION	WASTE	VENT	COLD	НОТ	REMARKS
P-1		EMERGENCY EYE WASH STATION			1/2"	1/2"	PROVIDE THERMOSTATIC MIXING VALVE(TM1)
TD-1		TRENCH DRAIN	4"	2"			
FPHB	ı+C				3/4"		FROST PROOF HOSE BIBB
НВ					1 ₁₁ /2		HOSE BIBB
A/P							ACCESS PANEL (FURNISH BY P.C AND INSTALLED BY G.C.

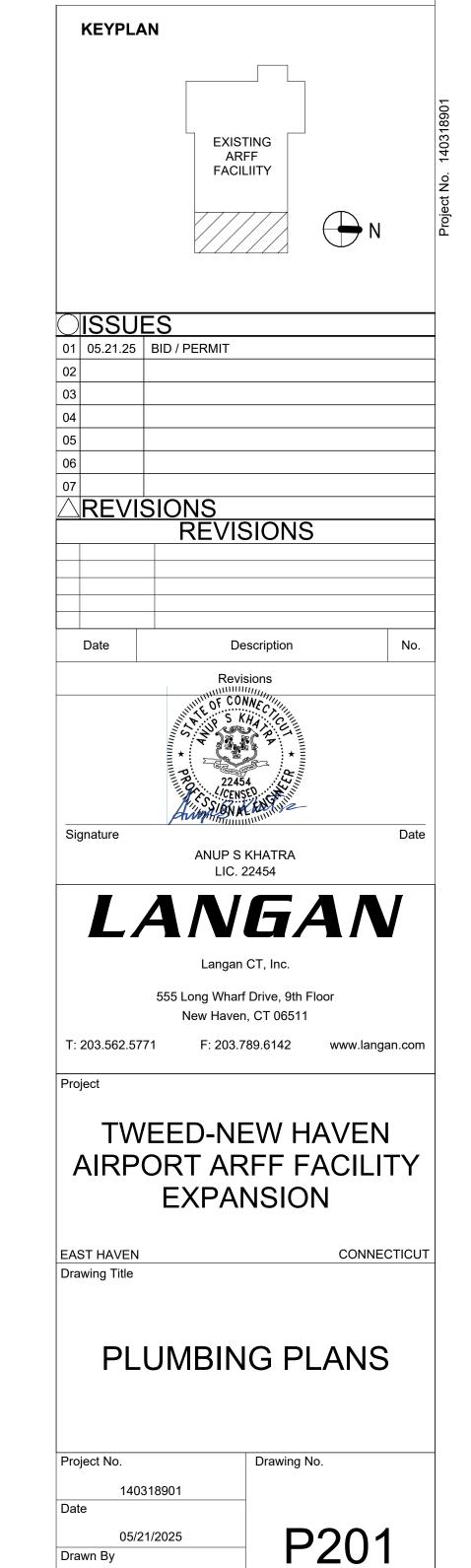
AFF	ABOVE FINISH FLOOR
ATF	AUTOMATIC TRANSMISSION FLUID
A/P	ACCESS PANEL (FURNISH BY P.C
OR AP	AND INSTALLED BY G.C)
AVTR	ACID WASTE VENT THROUGH ROOF
AQ	AQUASTAT
BWV	BACK WATER VALVE
CFH	CUBIC FEET PER HOUR
СО	CLEANOUT
CW	COLD WATER
CA	COMPRESSED AIR
DN	DOWN
DSN	DOWN SPOUT NOZZLE
ETP	ELECTRIC TRAP PRIMER
FD	FLOOR DRAIN
FPHB	FROST PROOF HOSE BIBB
FS	FLOOR SINK
GM	GAS FLOW METER
НВ	HOSE BIBB
HW	HOT WATER
HWH	HOT WATER HEATER
GMB	GAS MASTER BOX FOR VALVE
N.I.C.	NOT IN CONTRACT
OD	OVERFLOW DRAIN
RD	ROOF DRAIN
RBFP	REDUCED PRESSURE BACKFLOW PREVENTOR
SA	SHOCK ABSORBER (WATER HAMMER ARRESTER)
SI	SOLID INTERCEPTOR
SM	WATER SUBMETER
ST	STORM PIPE
SV	GAS PIPE SLEEVE VENT
TP	TRAP PRIMER
WCO	WALL CLEANOUT
WHA	WATER HAMMER ARRESTER
WWF	WINDSHIELD WASHER FLUID
W & T	WASTE AND TRAP
V V(ST)	VENT STORM VENT PIPE
VTR	VENT THRU ROOF
AVTR	ACID WASTE VENT THRU ROOF



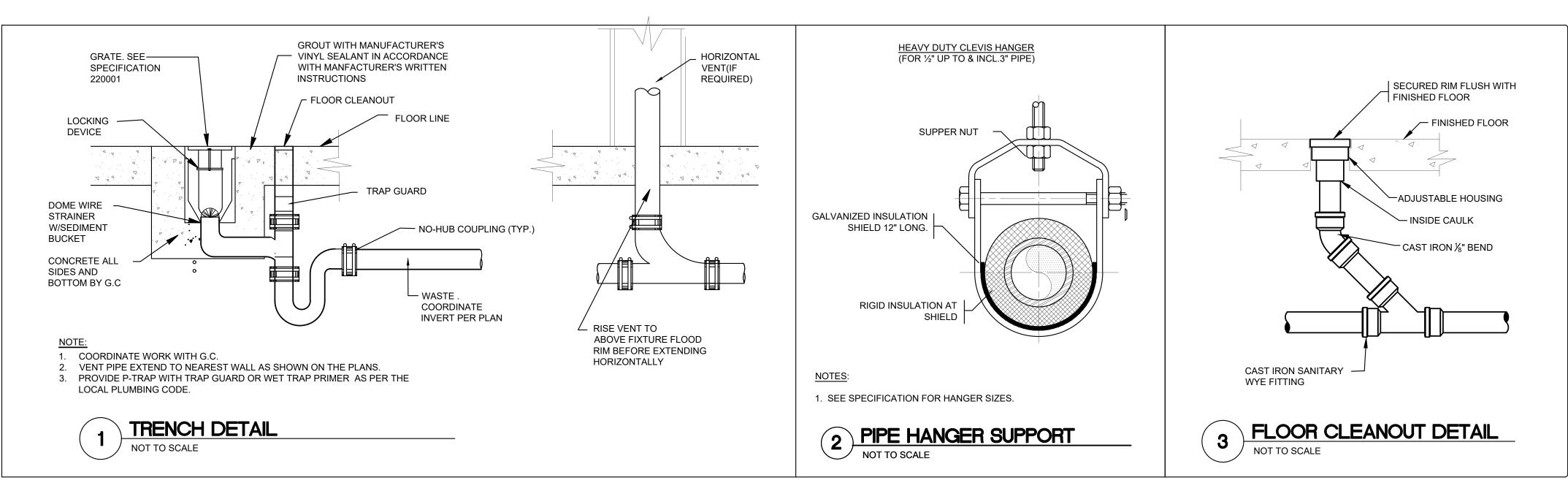


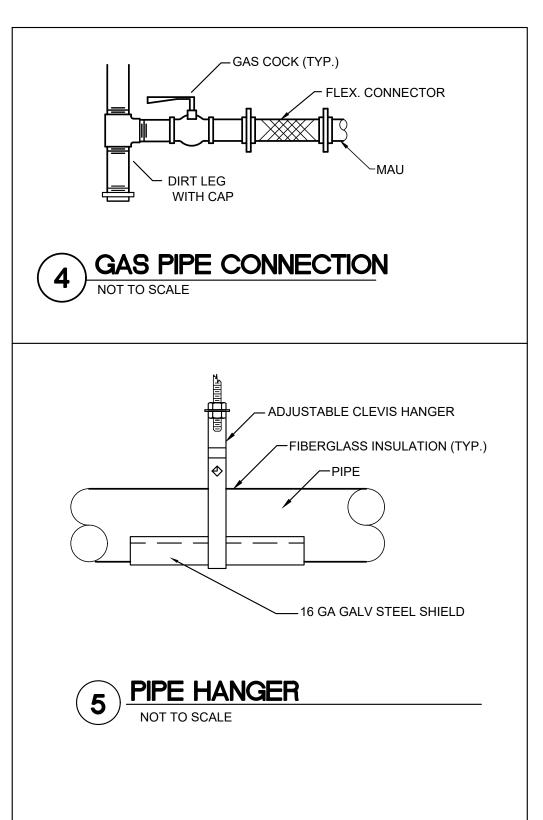


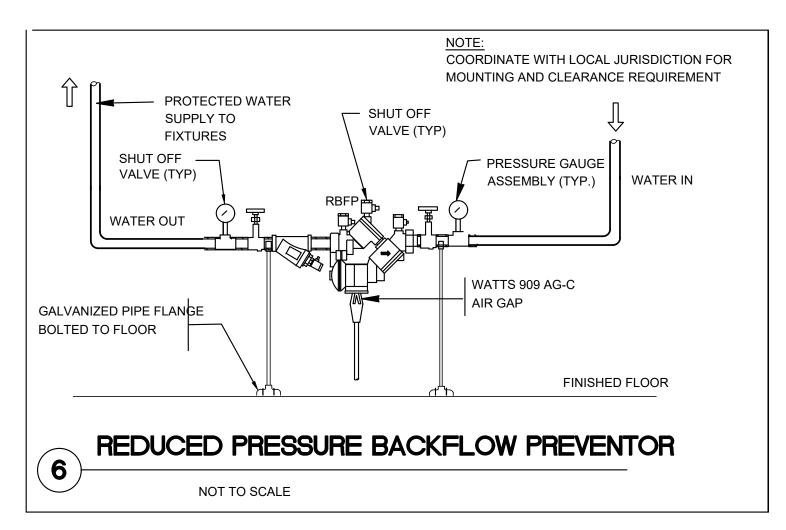
2 PLUMBING LEVEL 01 FLOOR PLAN
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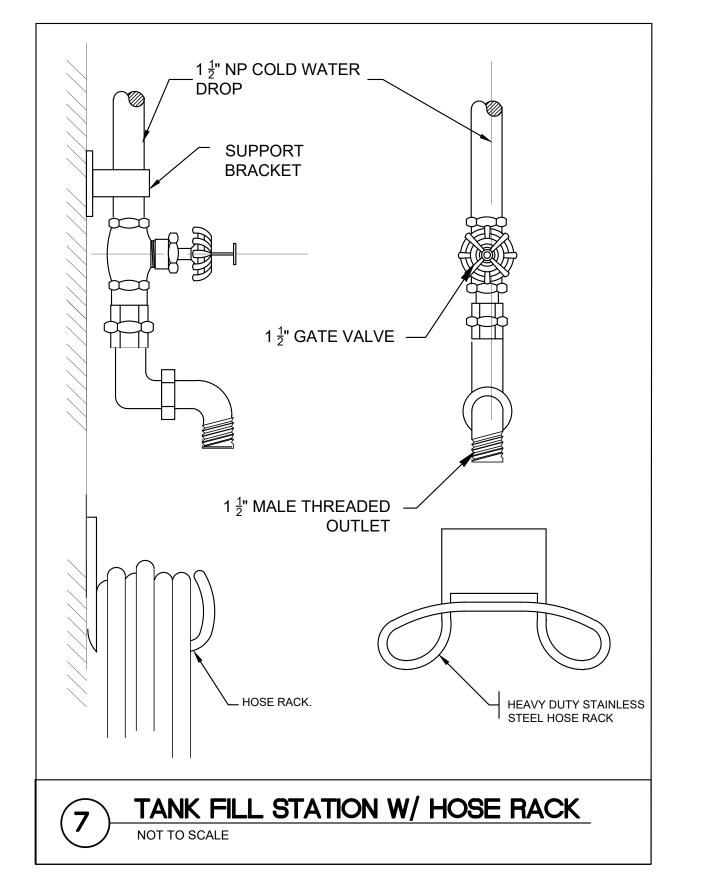


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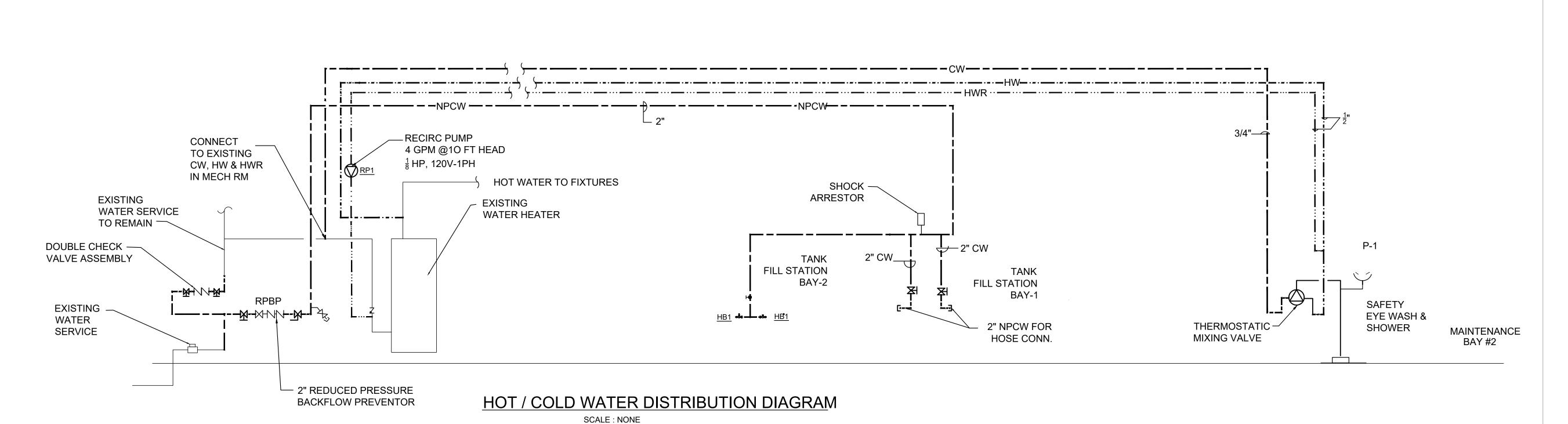


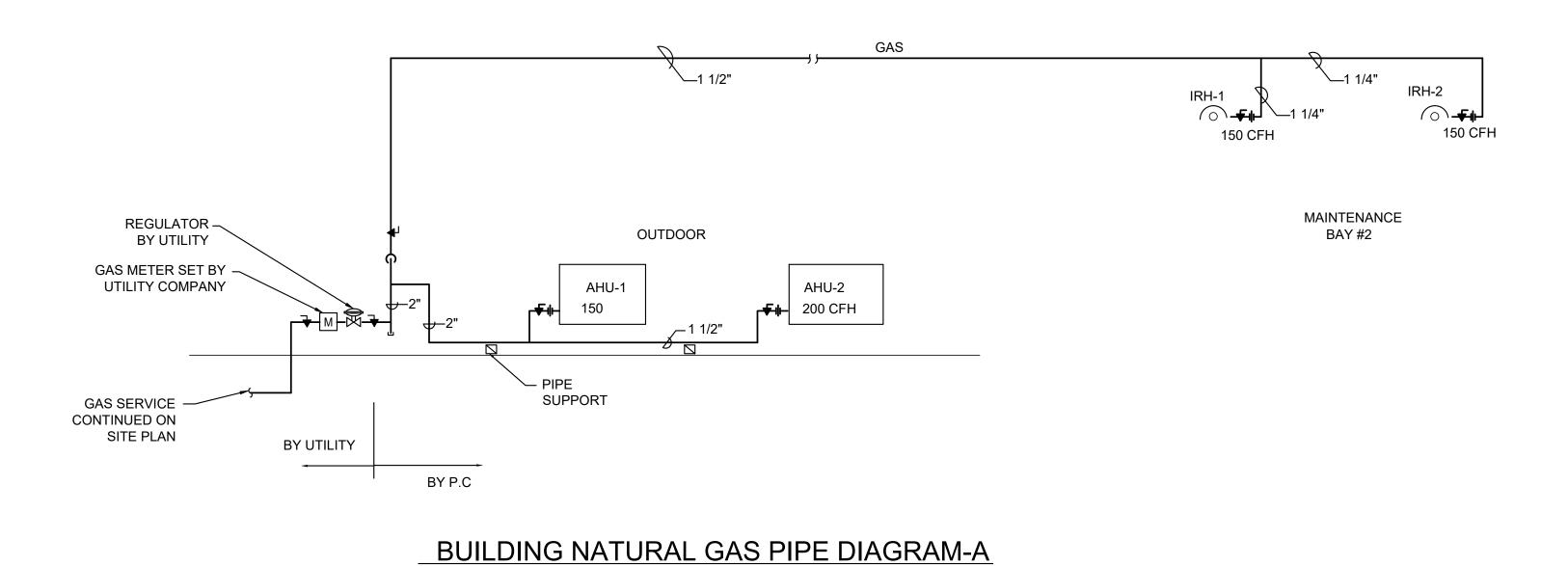




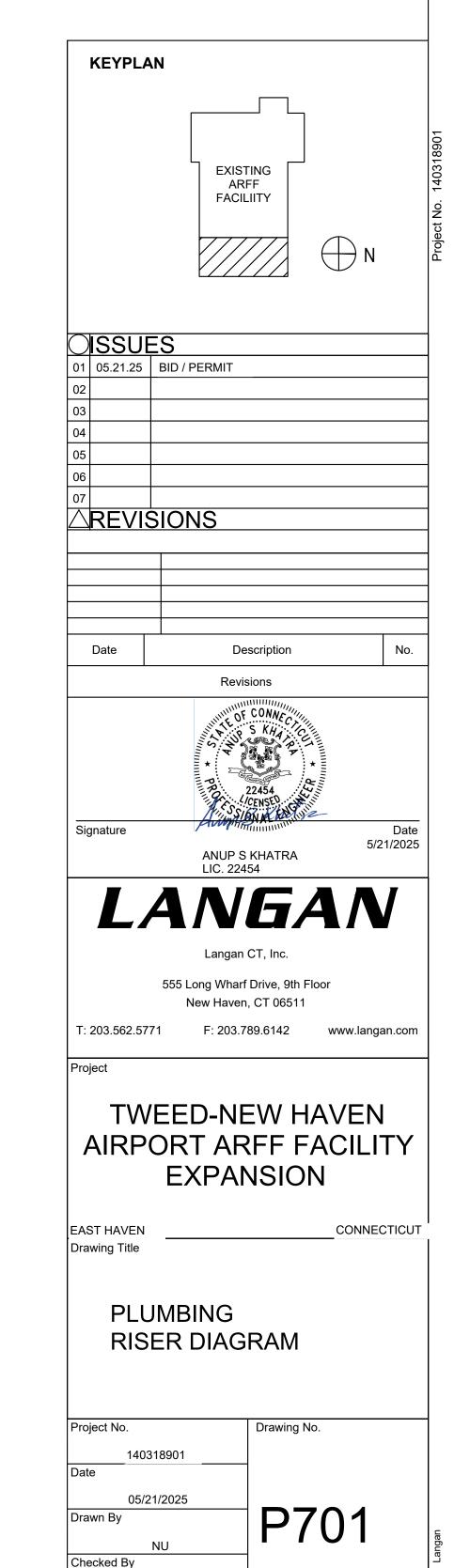








SCALE: NONE



HVAC GENERAL NOTES

- GENERAL NOTES, SYMBOLS AND DETAILS ARE APPLICABLE TO ALL DRAWINGS WITHIN. NOTES BELOW ARE NOT INTENDED TO REPLACE SPECIFICATIONS. SEE SPECIFICATIONS IN ADDITION TO GENERAL NOTES. NOT ALL SYMBOLS SHOWN ARE NECESSARILY APPLICABLE TO THIS PROJECT.
- SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, REQUIRED PERMITS AND INSPECTIONS, ETC. REQUIRED TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS FOR A COMPLETE INSTALLATION. ALL SHALL BE DONE BY LICENSED WORKMEN IN ACCORDANCE WITH NATIONAL, STATE, AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION.
- THE DRAWINGS SHOW THE LAYOUT OF THE MECHANICAL SYSTEMS AND INDICATE THE APPROXIMATE LOCATIONS OF DUCTWORK, PIPING, BRANCHES AND ELBOWS, AND EQUIPMENT. THE DRAWINGS ARE DIAGRAMMATIC AND ARE BASED ON VISIBLE OBSERVABLE CONDITIONS. CAREFULLY REVIEW AND STUDY DRAWINGS. IF ANY DISCREPANCIES EXIST, NOTIFY THE ARCHITECT AND ENGINEER BEFORE ADVANCING TO SUCH A POINT THAT ADDITIONAL COSTS WILL BE INCURRED. THE EXACT LOCATION OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD BY THE ACTUAL BUILDING CONDITIONS. EQUIPMENT, DUCTS, PIPES, AND MECHANICAL COMPONENTS INTERFERING WITH OTHER INSTALLATION OR EXISTING BUILDING CONSTRUCTION, STRUCTURE, OR COMPONENTS, SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
- PRODUCTS REQUIRED BY CONSTRUCTION BUT NOT SPECIFICALLY DESCRIBED HEREIN SHALL BE AS SELECTED BY THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ARCHITECT AND ENGINEER.
- CONTRACTOR SHALL VISIT THE SITE AND BECOME INFORMED AS TO THE NATURE AND SCOPE OF WORK REQUIRED BY CONTRACT DOCUMENTS PRIOR TO BIDDING PROJECT.
- PROVIDE ALL REQUIRED MATERIALS, LABOR, EQUIPMENT, AND SERVICES NECESSARY FOR THE INSTALLATION OF THE WORK AS SHOWN ON THESE DRAWINGS OR SPECIFIED BY THE BASE BUILDING DRAWING AND SPECIFICATIONS.
- REFER TO AND CAREFULLY CHECK ARCHITECTURAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION DRAWINGS AND DETAILS, NOTES, LOCATIONS WHERE WALLS, PARTITIONS, CEILINGS, AND OTHER SURFACES ARE FURRED, LOCATIONS OF SHAFTS, SOFFITS, AND CONFLICTS WITH WORK OF OTHER TRADES, AND ARRANGE WORK ACCORDINGLY. FURNISH ALL OFFSETS, DAMPERS, CONNECTORS, ETC., REQUIRED TO MEET SUCH CONDITIONS.
- CONTRACTOR SHALL CONFIRM DUCTWORK, PIPING, EQUIPMENT, AND MECHANICAL COMPONENT LOCATIONS, ELEVATIONS AND SIZES BEFORE ANY WORK IS STARTED. IF ANY DISCREPANCIES ARE FOUND, NOTIFY ENGINEER BEFORE PROCEEDING WITH WORK.
- BEFORE SELECTING MATERIAL AND EQUIPMENT, AND PROCESSING THE WORK, INSPECT AREAS WHERE MATERIAL AND EQUIPMENT ARE TO BE INSTALLED TO INSURE SUITABILITY AND CHECK NEEDED SPACE FOR PLACEMENT AND CLEARANCES.
- 10. FOLLOW MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS FOR INSTALLATION OF THE PROVIDED EQUIPMENT.
- 11. IF MANUFACTURER OF SELECTED EQUIPMENT REQUIRES LARGER CAPACITY, CIRCUITRY, AND/OR EQUIPMENT THE CONTRACTOR SHALL SUBMIT SUCH CAPACITY AND/OR EQUIPMENT UNDER THIS CONTRACT FOR ITS APPROVAL.
- 12. WHERE THE CONTRACTOR PROPOSES TO USE AN ITEM OF EQUIPMENT OTHER THAN THAT SPECIFIED OR DETAILED ON THE DRAWINGS WHICH REQUIRES ANY REDESIGN OF THE STRUCTURE, PARTITIONS, FOUNDATIONS, PIPING, WIRING OR ANY OTHER PART OF THE MECHANICAL, PLUMBING, ELECTRICAL, OR ARCHITECTURAL LAYOUT, ALL SUCH REDESIGN AND ALL NEW DRAWINGS AND DETAILING REQUIRED THEREFORE, SHALL BE PREPARED AT THE CONTRACTOR'S EXPENSE AND ARE SUBJECT TO THE REVIEW AND APPROVAL OF THE OWNER OR HIS AUTHORIZED REPRESENTATIVE. OWNER RESERVES THE RIGHT TO HAVE THE ARCHITECT OR ENGINEER OF HIS CHOICE PREPARE ANY REDESIGN WORK.
- 13. CONTRACTOR SHALL COORDINATE ELECTRICAL REQUIREMENTS OF MECHANICAL EQUIPMENT WITH ELECTRICAL CONTRACTOR.
- 14. ALL WORK IN INTERIOR FINISHED SPACES EXCEPT INDICATED IS TO BE CONCEALED. PROVIDE ALL NECESSARY CUTTING, PATCHING, REPAINTING AND/OR REPLACEMENT OF FINISHES AS REQUIRED TO PERFORM WORK, COORDINATE WITH OTHER DIVISIONS. ALL EXPOSED COMPONENTS INCLUDING: DUCT, PIPE, EQUIPMENT, AND CONTROLS SHALL BE FULLY COORDINATED WITH ARCHITECTURAL ELEMENTS.
- 15. BEFORE CUTTING AND DRILLING INTO BUILDING ELEMENTS, INSPECT AND LAYOUT WORK TO AVOID DAMAGING STRUCTURAL ELEMENTS AND BUILDING UTILITIES. NOTIFY THE ARCHITECT AND ENGINEER WHERE EXISTING COMPONENTS AND OR BUILDING UTILITIES OBSTRUCT THE PROPOSED WORK.
- 16. SUPPORT ALL EQUIPMENT, PIPING, DUCTWORK, AND OTHER REQUIRED MECHANICAL COMPONENTS FROM BUILDING STRUCTURE TO PROVIDE A VIBRATION FREE INSTALLATION. NOTIFY ARCHITECT AND STRUCTURAL ENGINEER OF ALL WEIGHTS AND METHODS OF SUPPORT.
- 17. ALL PENETRATIONS THRU WALLS, ROOF, AND FLOORS AND ASSOCIATED CUTTING, PATCHING, WATERPROOFING, AND FLASHING SHALL BE COORDINATED WITH THE WORK OF OTHER SECTIONS BEFORE SITE WORK EXECUTION AND WITH THE ARCHITECT AND STRUCTURAL ENGINEER.
- 18. ALL DUCT PASSING THROUGH FIRE, SMOKE RATED OR SMOKE/FIRE RATED BARRIERS (WALLS, FLOOR) SHALL BE PROVIDED WITH FIRE, SMOKE OR SMOKE/FIRE DAMPERS. LOCATIONS OR RATED WALLS SEE ARCHITECTURAL DRAWINGS. CONTRACTOR SHALL VERIFY QUANTITY OF ALL DAMPERS IN ACCORDANCE WITH FINAL CONTRACT DOCUMENTS. ALL REQUIRED SMOKE DETECTORS PROVIDED BY DIV 23 SHALL BE CONNECTED TO FIRE ALARM SYSTEM.
- 19. REFER TO SPECIFICATION SECTION 078413 "THROUGH PENETRATION FIRESTOP SYSTEMS" FOR ALL MATERIALS AND METHODS FOR PENETRATION THROUGH FIRE AND SMOKE RATED ASSEMBLIES.
- 20. COORDINATE DIFFUSERS LOCATIONS AND DUCT WITH LIGHTING FIXTURES AND SPRINKLER HEADS. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND DETAILS OF PARTITIONS, SUSPENDED CEILINGS, AND SOFFITS.
- 21. PROVIDE FLEXIBLE JOINTS ON ALL PIPING AND DUCTWORK WHERE PENETRATING ALL BUILDING EXPANSION JOINTS.
- 22. PROVIDE FLEXIBLE CONNECTIONS BETWEEN MECHANICAL EQUIPMENT AND DUCTWORK AND PIPING.
- 23. PROVIDE VOLUME DAMPERS ON ALL BRANCHES OF DUCTWORK (SUPPLY, RETURN, EXHAUST).
- 24. PROVIDE ACCESS PANELS TO CLEAN COILS, SERVICE DAMPERS, HEATERS, VALVES, AND ALL OTHER MECHANICAL EQUIPMENT. COORDINATE LOCATIONS WITH THE ARCHITECT.
- 25. CONTROL CONTRACTOR TO PROVIDE ALL CONTROL DEVICES, EQUIPMENT, ACCESSORIES, OTHER APPARATUSES, CONTROL VALVES AND DAMPERS, ACTUATORS, SENSORS, ETC. AND ALL CONTROL WIRING AND LOW VOLTAGE POWER WIRING RELATED TO CENTRAL DDC CONTROL SYSTEM. SEE SPECIFICATION.

	GENERAL AE	BBRE	VIATIONS
AC AD AF AP	AIR CONDITIONING UNIT ACCESS DOOR AIR FILTER ACCESS PANEL	N/A NC NO NTS	NOT APPLICABLE NORMALLY CLOSED NORMALLY OPEN NOT TO SCALE
ATC AS AV	AUTOMATIC TEMPERATURE CONTROL AIR SEPARATOR AIR VENT	OA OAT OBD OD	OUTSIDE AIR OUTSIDE AIR TEMPERATURE OPPOSED BLADE DAMPER OUTSIDE DIAMETER
BD BDD BHP BOD BOP BTU BV	BAROMETRIC DAMPER BACKDRAFT DAMPER BRAKE HORSEPOWER BOTTOM OF DUCT BOTTOM OF PIPE BRITISH THERMAL UNITS BALL VALVE	PD Ph R RA REF REQ'D	PRESSURE DROP PHASE RETURN RETURN AIR ROOF EXHAUST FAN REQUIRED
CC CD CFM CP CO	COOLING COIL CEILING SUPPLY DIFFUSER CUBIC FEET PER MINUTE CONTROL PANEL CLEAN OUT CENTER OF PIPE	RG RH RH RPM RR RTU	RETURN GRILLE RELATIVE HUMIDITY REHEAT COIL REVOLUTIONS PER MINUTE RETURN REGISTER ROOF TOP UNIT
CR CTR CUH CU CWS CWR	CEILING RETURN DIFFUSER CONTRACTOR CABINET UNIT HEATER CONDENSING UNIT CHILLED WATER SUPPLY CHILLED WATER RETURN DRY BULB	S SA SAT SqFt SFD SP SQ	SUPPLY SUPPLY AIR SUPPLY AIR TEMPERATURE SQUARE FEET SMOKE/FIRE DAMPER STATIC PRESSURE SQUARE
DB DIA DIFF DN	DIAMETER DIFFUSER DOWN	SR SST STL	SUPPLY REGISTER SATURATED CONDENSING TEMPERATUR STEEL
DX DWG	DIRECT EXPANSION DRAWING	T T.B.D. TYP. TV	THERMOSTAT TO BE DEMOLISHED TYPICAL WIND TURBINE VENTILATOR
E EAT EBB EFF EF ELEC ELV	EXISTING ENTERING AIR TEMPERATURE ELEC BASEBOARD RADIATION EFFICIENCY EXHAUST FAN ELECTRICAL ELEVATION	UC UH V VAV VD VFD	UNDERCUT DOOR 1/2" (MIN) UNIT HEATER VOLLTS VARIABLE AIR VOLUME VOLUME DAMPER VARIABLE FREQUENCY DRIVE
ESP ET EUH EWH	EXTERNAL STATIC PRESSURE EXPANSION TANK ELECTRIC UNIT HEATER ELECTRIC WALL HEATER ENTERING WATER TEMPERATURE	W/ W/O WB WG WH	WITH WITHOUT WET BULB TEMPERATURE WATER GAUGE WATER HEATER

AIR	DISTRIBUTI	ON LEGE	ND
SINGLE LINE	DOUBLE LINE		
SUPPLY DUCT UP		- MD MO	OTORIZED DAMPER
≥ SUPPLY DUCT DOWN		VD MA	ANUAL VOLUME DAMPER
POINT OF CONNECTION			RE DAMPER IN DUCT RE-SMOKE DAMPER IN DUCT
T SPACE THERMOSTAT SPACE TEMPERATURE	Fw-l	CD-A 100 6"Ø	— DIFFUSER ID TAG — CFM — NECK/THROAT SIZE
SENSOR T DUCT THERMOSTAT DUCT TEMPERATURE SENSOR			STANDARD 4-WAY BLOW SUPPLY DIFFUSER
OCCUPANCY SENSOR CO2 SENSOR FOR AIR QUALITY		K L	ROOF EXHAUST FAN SHOWN ON ROOF
H SPACE HUMIDISTATH SPACE HUMIDITY SENSORH DUCT HUMIDISTAT		(\bigcirc)	ROOF EXHAUST FAN SHOWN ON FLOOR PLAN
H DUCT HUMIDITY SENSOR		UC 1/2" ►	UNDERCUT DOOR
DS DOOR POSITION SENSOR/SWITCH	UNIT	LVD CFM	LOUVERED DOOR
\$ MANUAL ON/OFF SWITCH		√ -▶	RETURN OR EXHAUST AIR FLOW
		→	SUPPLY AIR FLOW
DEMOLISHED DUCT			ACCESS PANEL
EXISTING TO REMAIN DU	JCT		
NEW CONSTRUCTION D	UCT		
INTERNALLY LINED DUC	TWORK		

				OUT	DOO	R HVA	C UNI	Г ЅСНЕ	DULE								
TAG	MANUFACTURER /MODEL	NOMINAL TONS	FUEL	TOTAL	SENSIBLE MBH	HEATING INPUT MBH	HEATING OUTPUT MBH	IEER	SUPPLY CFM	OA CFM	EXTERNAL E.S.P.	MOTOR HP	VOLTAGE	MCA	MOCP	WEIGHT LBS	REMARKS
AHU-1	TRANE YHK060A4S	5	NAT. GAS	62.2	45	150	121	19.6	1,900	300	1.0	3.0	208/3/60			1,000	1,2,3
AHU-2	GREENHECK IGX-P112-H12-MF	HEATING	NAT. GAS	-	-	200	160		1,800	1,200.	1.25	1.0	208/3/60	7.1	15	1,100	1,2

PROVIDE NOISE ISOLATION PAD.

ZONE VALVE

ΖV

- PROVIDE BACNET INTERFACE.
- 3. ECM CONDENSER FAN (HEAD PRESSURE CONTROL).

	EXHAUST FAN SCHEDULE								
TAG	SERVICE	CFM	DRIVE	S.P. (IN.WG)	MOTOR HP	V/PH/HZ	MANUFACTURER MODEL	REMARKS	
VEF-1	VEHICLE EXHAUST	1,000	BELT	2.0	3/4	208/3/60	GREENHECK USF-12-B6	1, 2, 3 & 4	
VEF-2	VEHICLE EXHAUST	1,000	BELT	2.0	3/4	208/3/60	GREENHECK USF-12-B6	1, 2, 3 & 4	
EF-1	GENERAL EXHAUST	3,200	DIRECT	0.75	1.5	208/3/60	GREENHECK CUE-160-VG	1, 4, 5, 6, 7	

- 1. COORDINATE WITH ELECTRICAL FOR DISCONNECT SWITCH. 2. PROVIDE 18" HIGH EQUIPMENT CURB TO SUPPORT FAN. 3. BELT DRIVE MOTOR MOUNTED OUT OF THE AIR STREAM.
- 5. PROVIDE 18" INCH ROOF CURB 6. MOTORIZED DAMPER. 7. VARIABLE SPEED DRIVE AND CONTROLLER

4. PROVIDE NEMA 3R DISCONNECT SWITCH

EXH

FPM

FTR

GALV

GC

GPM

GV

HRV

HVAC

HXT

KW

LAT

LWT

MBH

MECH

FT

EXHAUST

FLEXIBLE

FEET

GALLONS

GALVANIZED

GATE VAVLE

HEATING COIL

HORSEPOWER

HEAT PUMP

HOT WATER

HERTZ

INCHES

KILOWATT

LINEAR FEET

MECHANICAL

HEAT EXCHANGER

FIRE DAMPER

FULL LOAD AMPS

FEET PER MINUTE

FIRE SMOKE DAMPER

FINNED TUBE RADIATION

GENERAL CONTRACTOR

HEAT RECOVERY VENTILATOR

HEATING, VENTILATION, & AIR

LEAVING AIR TEMPERATURE

MOTORIZED DAMPER

LEAVING WATER TEMPERATURE

THOUSANDS OF BTU'S PER HOUR

GALLONS PER MINUTE

DEGREES FAHRENHEIT

FLOW MEASURING STATION

	INFRARED GAS FIRED HEATER SCHEDULE							
TAG	SERVICE	INPUT MBH	INLET GAS PR	TUBE LENGTH FT	WEIGHT LBS	V/PH/HZ	MANUFACTURER MODEL	REMARKS
IRH-1	MAINTENANCE BAY	115	14" W.C	30	124 LBS	120/1/60	ROBERTS & GORDON CTH3-115	1,2,3,4
IRH-2	MAINTENANCE BAY	115	14" W.C	30	124 LBS	120/1/60	ROBERTS & GORDON CTH3-115	1,2,3,4

- 1 FULLY MODULATING GAS VALVE
- 2 PROVIDE STANDARD ALUMINUM REFLECTOR
- 3 PROVIDE WITH 120V NEMA 4X MOISTURE RESISTANT ANALOG THERMOSTAT
- 4 HANG REFLECTOR WITH 45° TILT

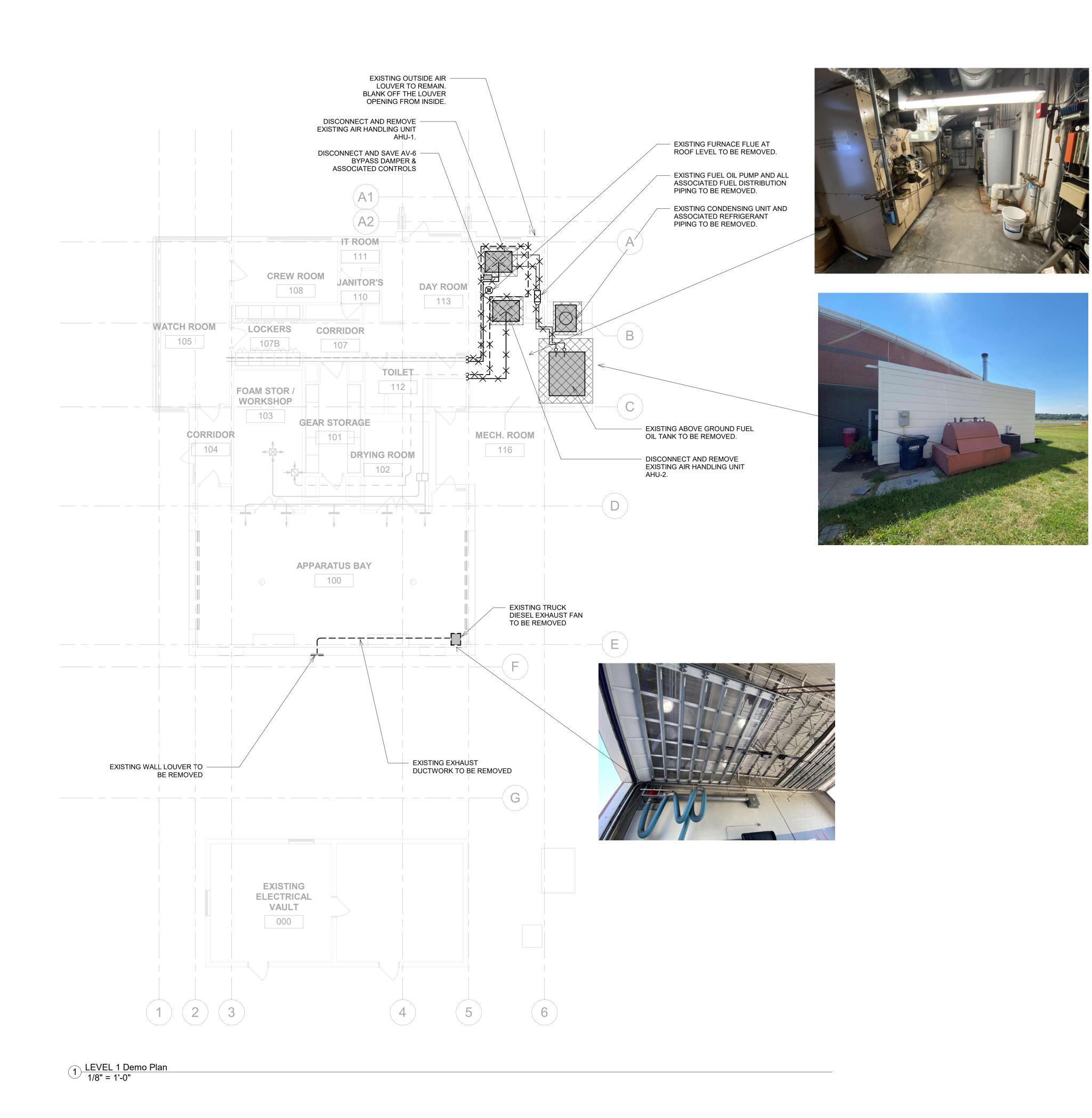
	AIR INLET AND OUTLET SCHEDULE							
PLAN DESIGNATION	CFM	MAX S.P.	MANUFACTURER MODEL NO.	TYPE	NECK SIZE (IN.)	FACE SIZE (IN.)	N.C. LEVEL	NOTES
ER-1		.097	PRICE 635DAL	EXHAUST REGISTER	-	34"x14"	< 30	W/ OPPOSED BLADE DAMPER
	OTES: VERIFY CEILING TYPE BEFORE SUBMITTING SHOP DRAWINGS. PROVIDE REQUIRED BRACKETS, FLANGES, SURFACE PLATES, ETC. TO MOUNT OFFUSERS. REGISTERS AND GRILLES IN CEILINGS.							

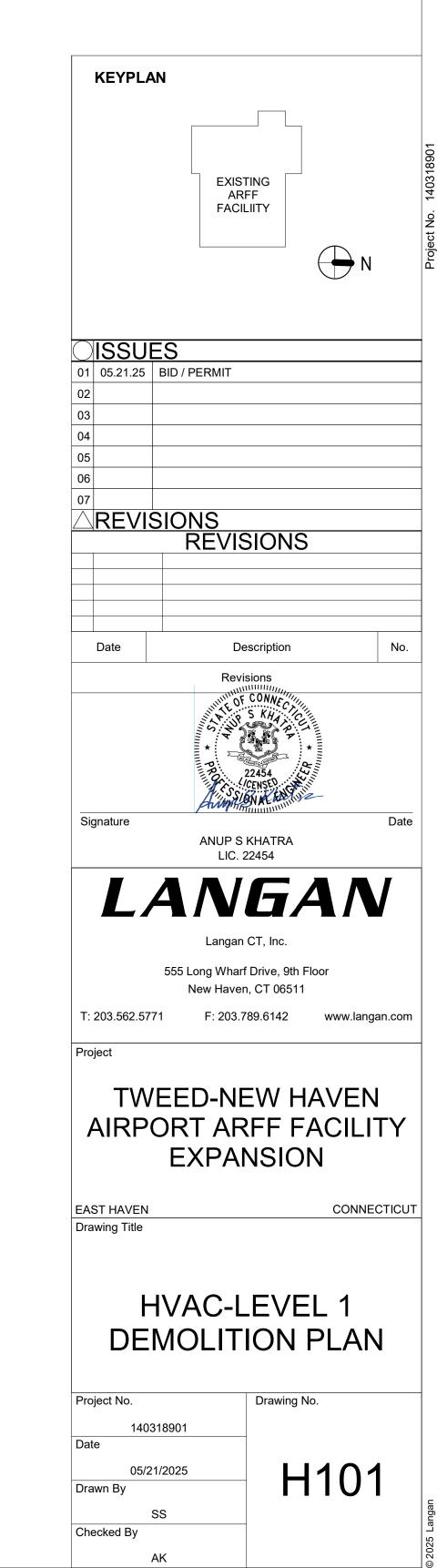
KEYPLAN EXISTING FACILIITY 01 05.21.25 BID / PERMIT **△REVISIONS** Date Description Revisions Signature ANUP S KHATRA LIC. 22454 LANGAN Langan CT, Inc. 555 Long Wharf Drive, 9th Floor New Haven, CT 06511 T: 203.562.5771 F: 203.789.6142 www.langan.com TWEED-NEW HAVEN AIRPORT ARFF FACILITY **EXPANSION** CONNECTICUT EAST HAVEN Drawing Title NOTES, ABBRIVIATIONS LEGENDS AND SCHEDULES Project No. Drawing No. 140318901 05/21/2025 Drawn By H001

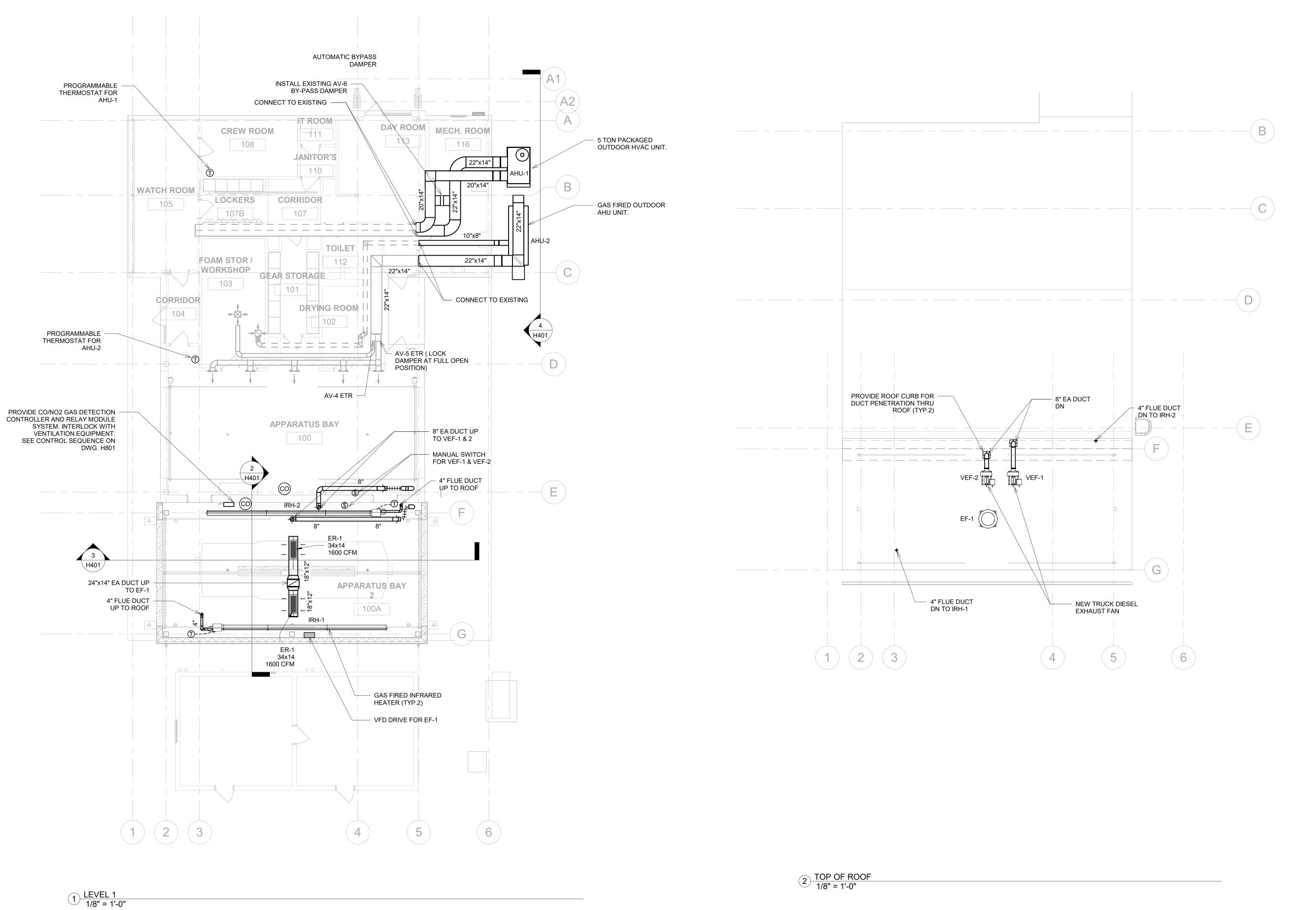
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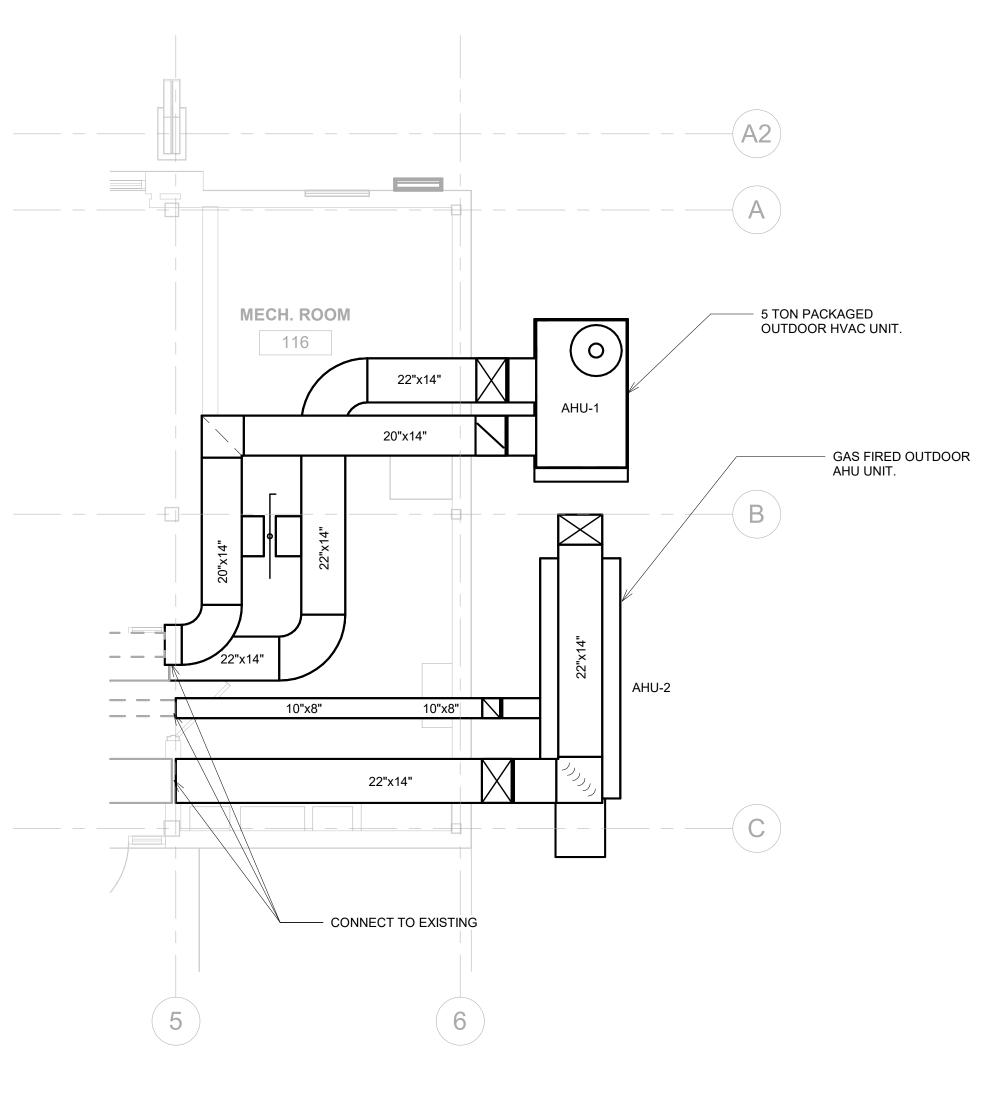
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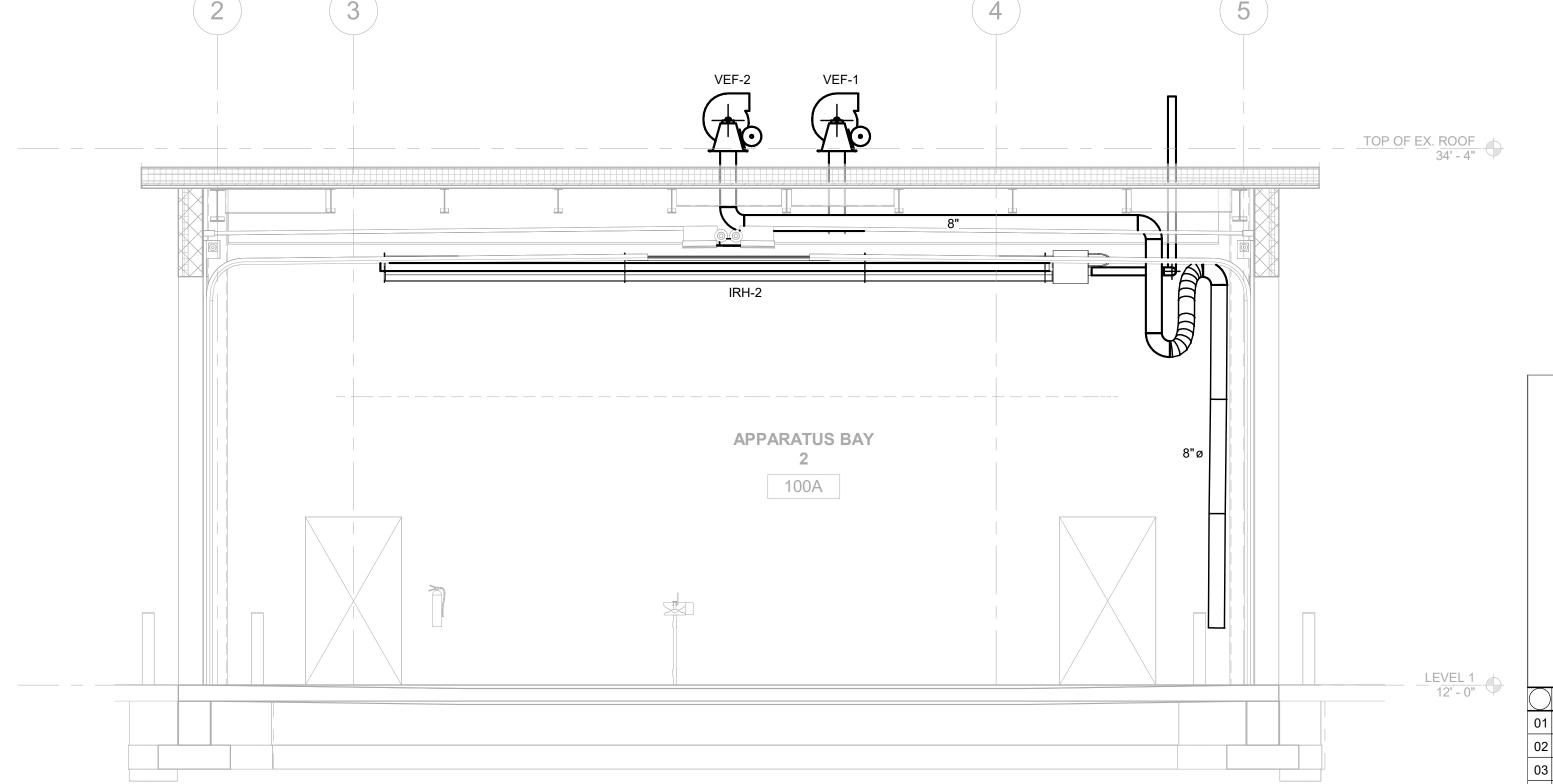
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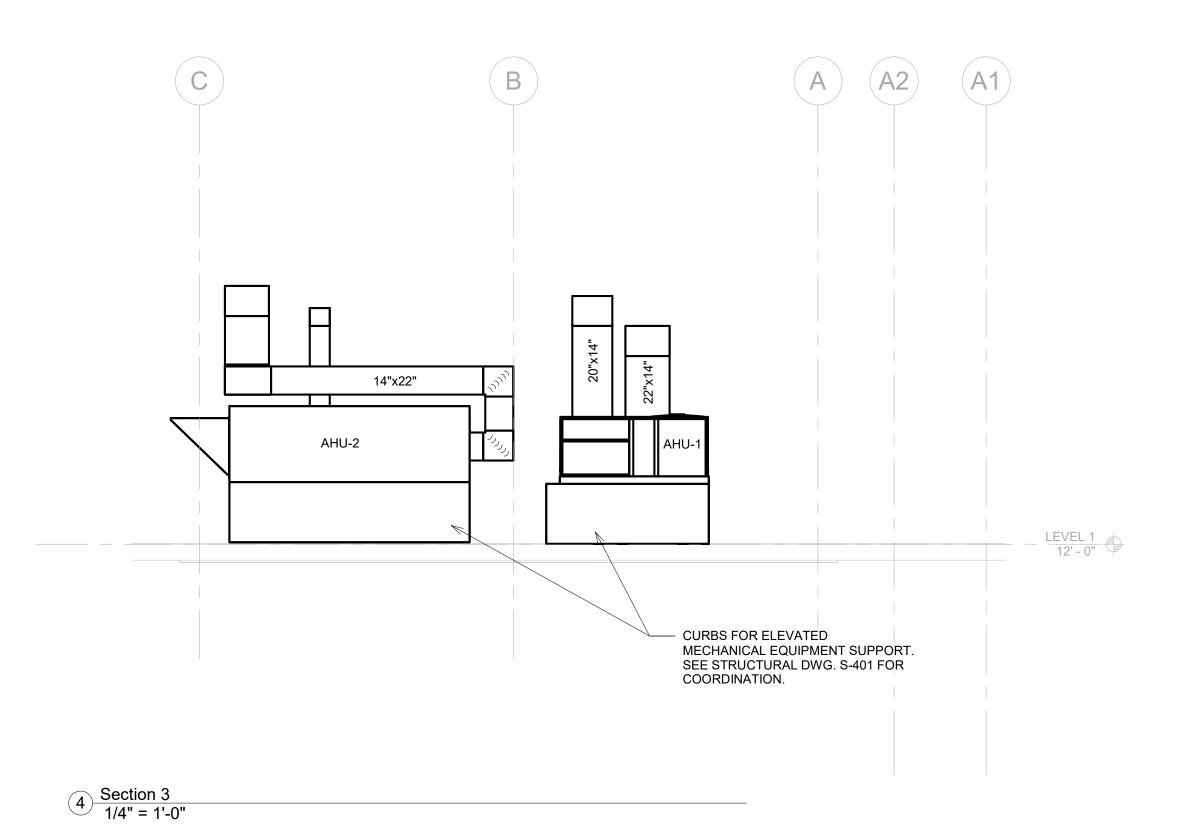
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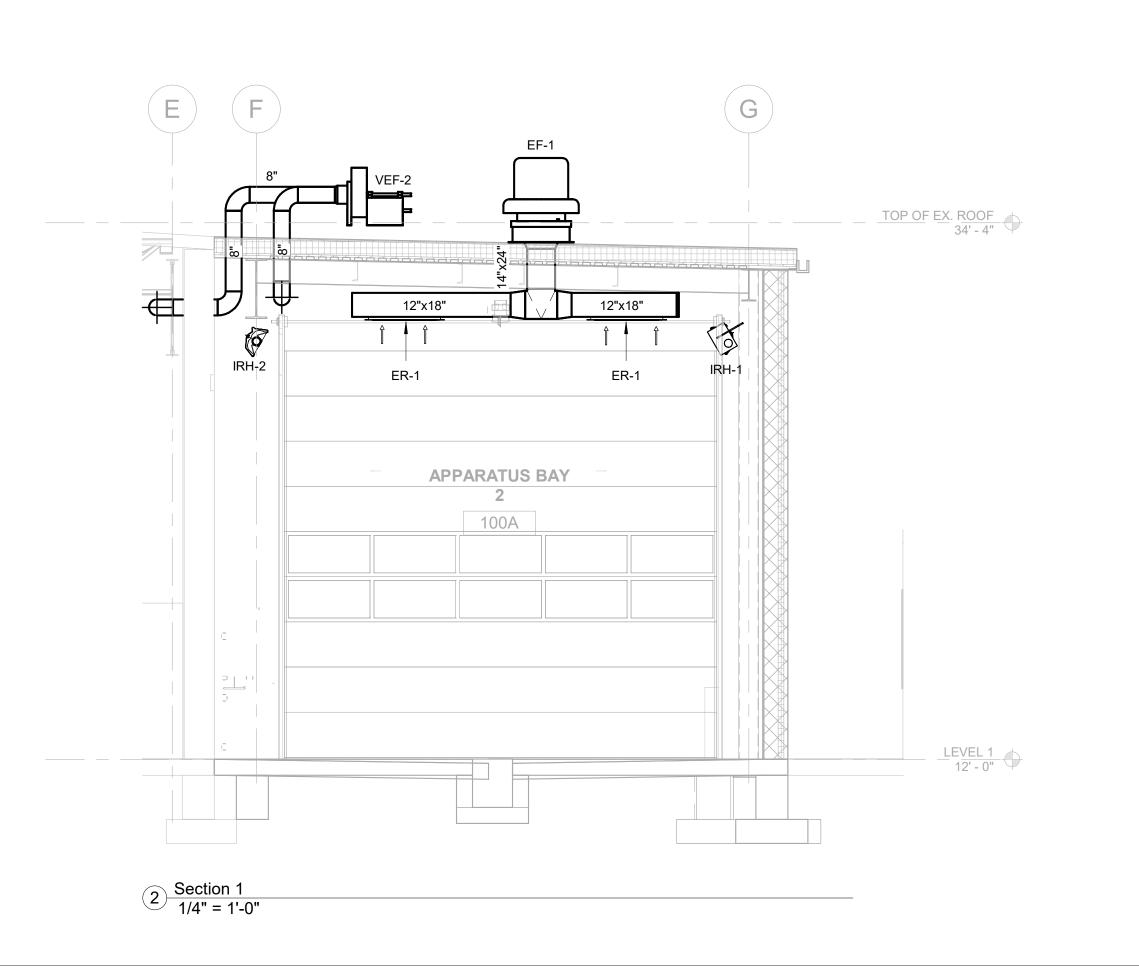




3 Section 2 1/4" = 1'-0"

1 LEVEL 1 Mech Room Enlarged Plan 1/4" = 1'-0"





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Project
TWEED-NEW HAVEN
AIRPORT ARFF FACILITY
EXPANSION
EAST HAVEN CONNECTICUT
Drawing Title
HVAC-MECHANICAL
ROOM ENLARGED
PLAN
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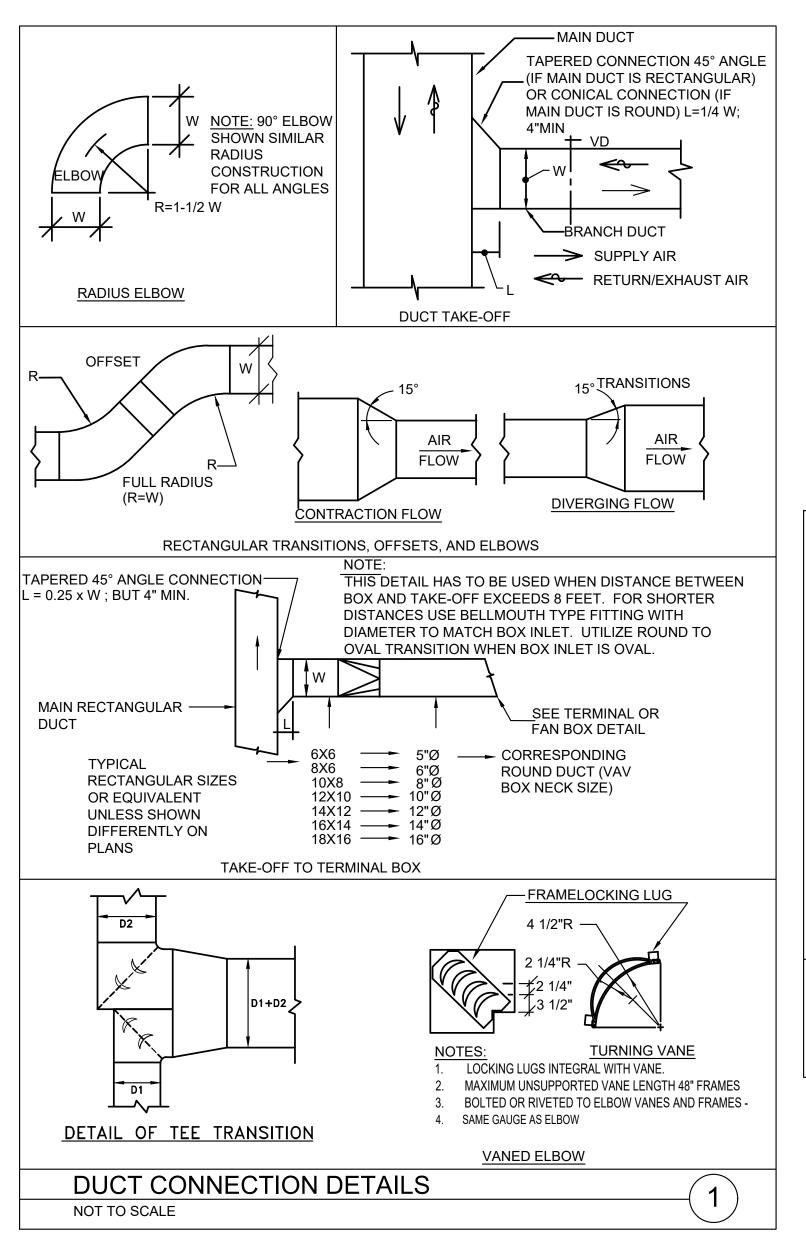
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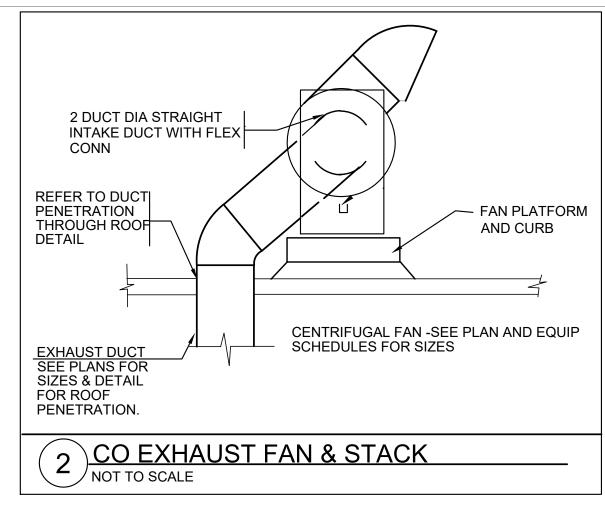
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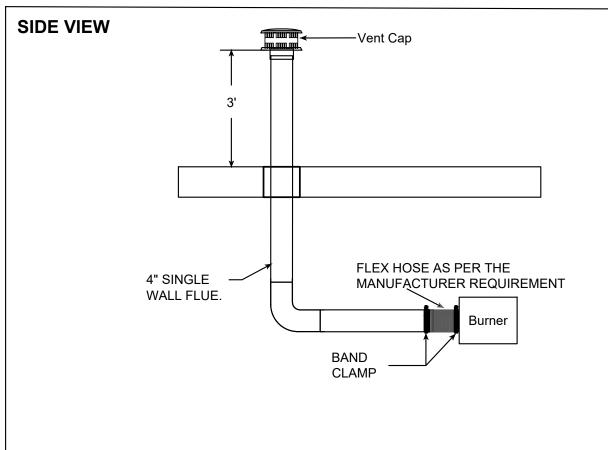
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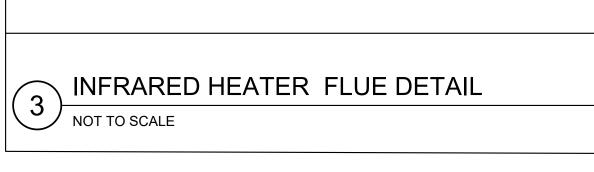
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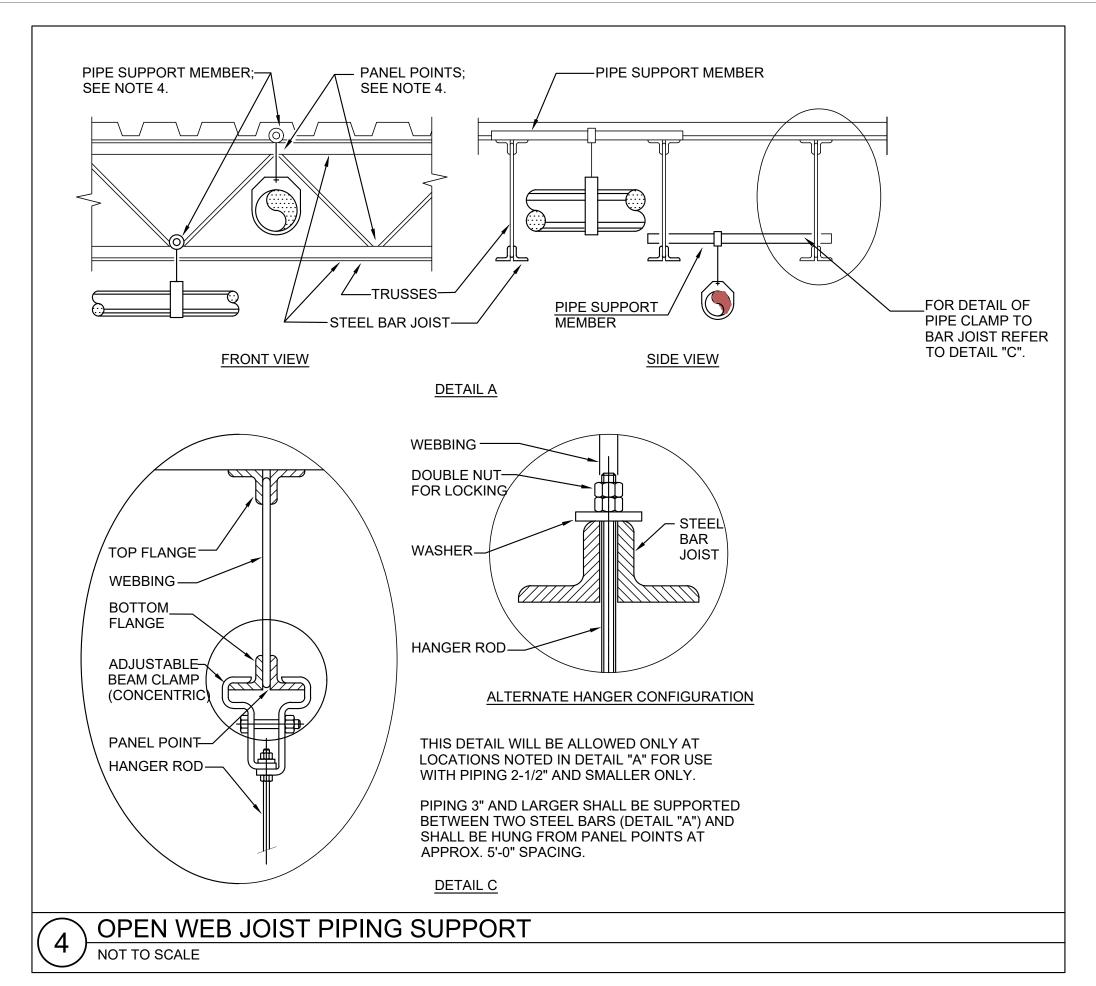
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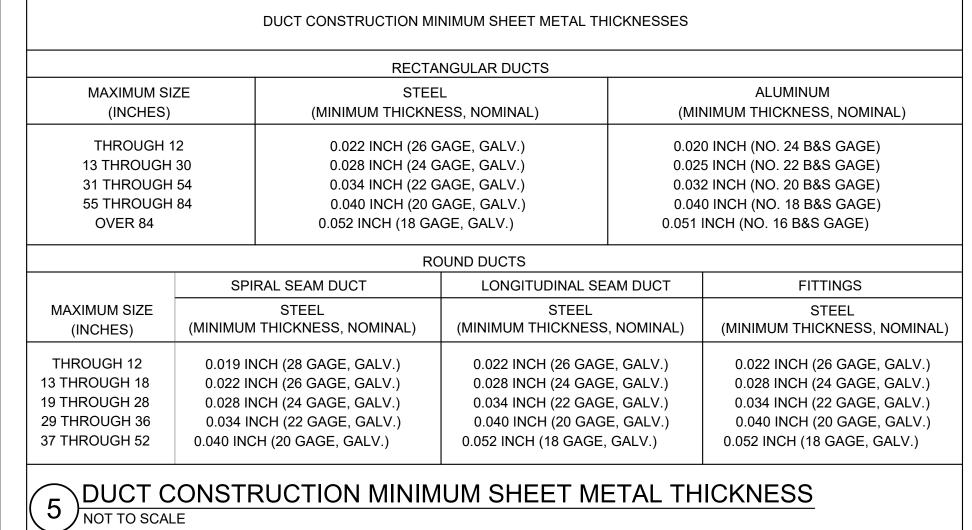


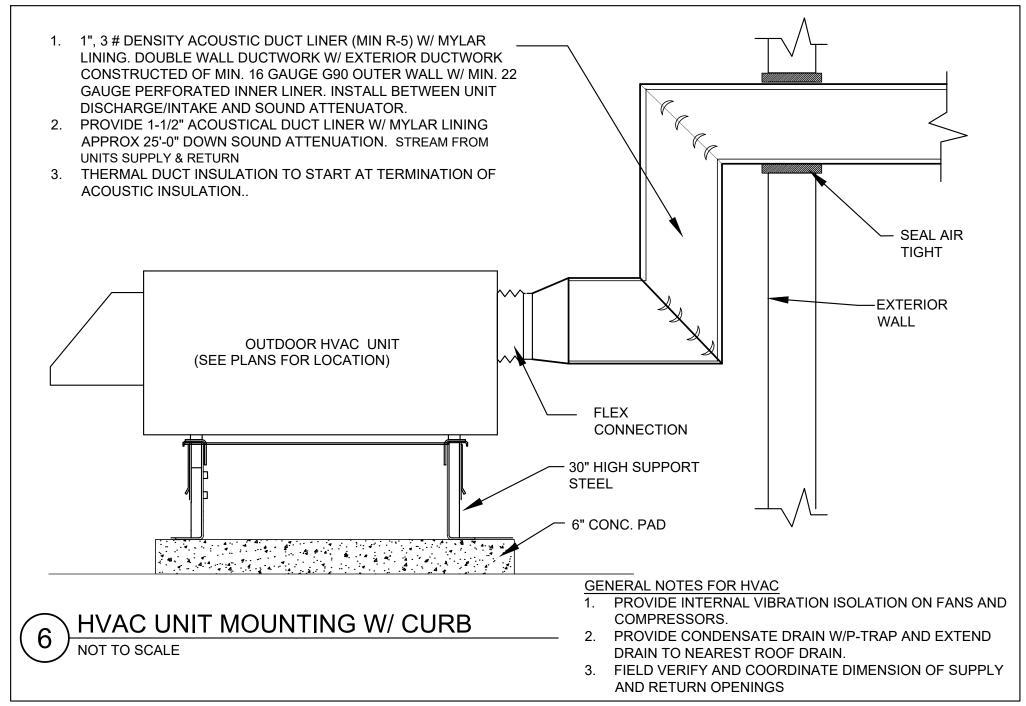




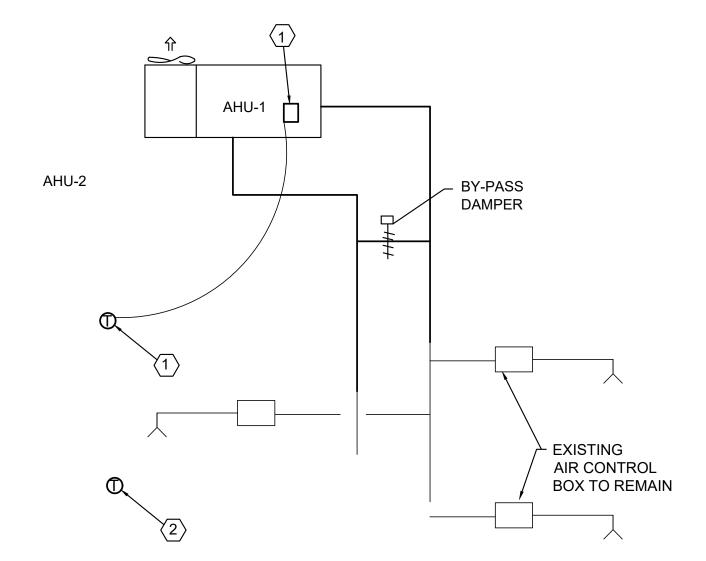












- PROVIDE NEW PROGRAMMABLE CONTROLLER TO SET THE UNIT IN AUTO HEATING / COOLING MODE AND OCCUPIED / UN OCCUPIED MODE
- $\langle 2 \rangle$ EXISTING AIR CONTROL VALVE THERMOSTAT TO REMAIN.

CONTROL SEQUENCE OF OPERATION

PACKAGED ROOFTOP UNIT WITH EXISTING VVT SYSTEM

THE EXISTING HVAC CONTROL SYSTEM IS A VARIABLE VOLUME, VARIABLE TEMPERATURE (VVT) SYSTEM. THE SCOPE OF WORK INCLUDES REPLACING THE EXISTING AIR HANDLING UNIT AND CONDENSING UNIT WITH A NEW PACKAGED HEATING AND COOLING ROOFTOP UNIT. THE EXISTING VVT ZONE BOXES, ASSOCIATED THERMOSTATS, AND CONTROL SYSTEMS SHALL REMAIN IN PLACE AND CONTINUE TO OPERATE AS CURRENTLY CONFIGURED.

OCCUPIED MODE:

DURING OCCUPIED PERIODS, THE PACKAGED ROOFTOP UNIT (RTU) SHALL BE ENABLED BY THE BUILDING SCHEDULE OR BMS COMMAND. THE RTU SHALL OPERATE IN SUPPLY AIR TEMPERATURE RESET MODE, AUTOMATICALLY MODULATING THE COOLING OR HEATING CAPACITY TO MAINTAIN A DISCHARGE AIR TEMPERATURE SETPOINT BASED ON THE DEMANDS OF THE VVT ZONE BOXES. THE SYSTEM SHALL USE A MIXED-AIR SENSOR AND DISCHARGE AIR SENSOR TO MODULATE THE HEATING AND COOLING COMPONENTS OF THE RTU AS NEEDED. THE SUPPLY FAN SHALL OPERATE AT A CONSTANT VOLUME OR MODULATE (IF VFD-EQUIPPED) AS REQUIRED TO MAINTAIN DUCT STATIC PRESSURE OR AIR VOLUME SETPOINT.

EACH VVT ZONE THERMOSTAT SHALL CONTINUE TO CONTROL THE ZONE DAMPER TO MEET THE LOCAL SPACE TEMPERATURE SETPOINT. WHEN A MAJORITY OF THE ZONES CALL FOR COOLING, THE RTU SHALL PRIORITIZE MECHANICAL COOLING. WHEN A MAJORITY OF THE ZONES CALL FOR HEATING, THE UNIT SHALL PRIORITIZE HEATING OPERATION. THE UNIT SHALL SWITCH AUTOMATICALLY BETWEEN HEATING AND COOLING MODES BASED ON SPACE DEMAND AND SUPPLY AIR CONDITIONS

UNOCCUPIED MODE:

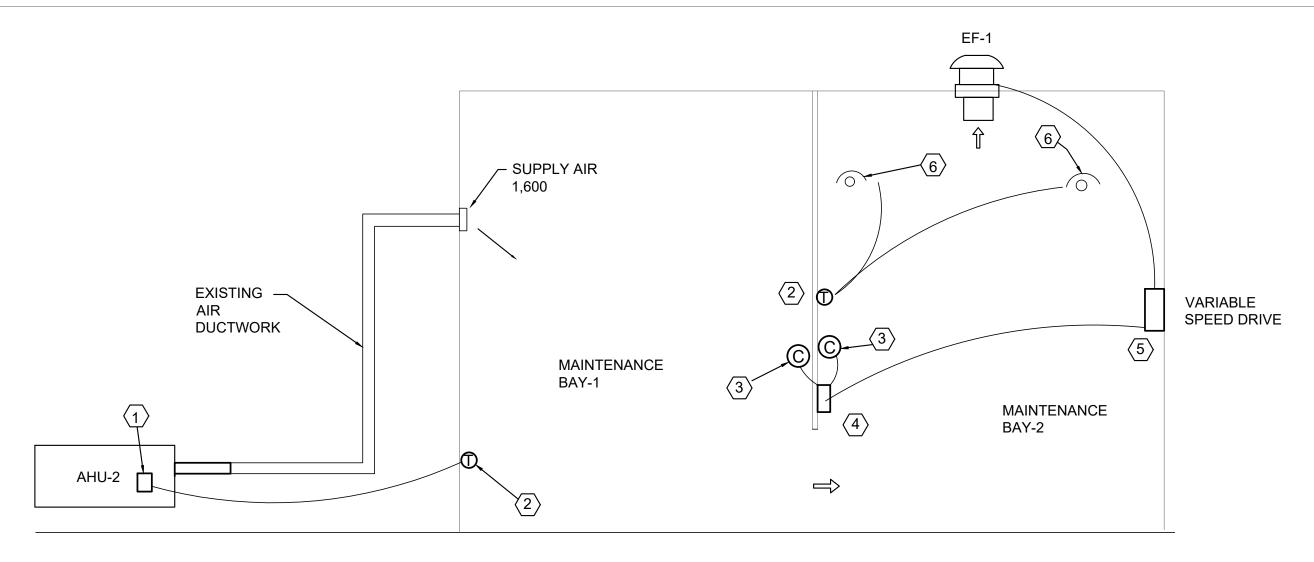
DURING UNOCCUPIED PERIODS, THE RTU SHALL REDUCE OPERATION TO MAINTAIN A SPACE TEMPERATURE SETBACK (E.G., 55°F HEATING / 85°F COOLING). THE UNIT MAY CYCLE ON BASED ON A CALL FOR HEATING OR COOLING FROM THE CENTRAL THERMOSTAT OR SPACE TEMPERATURE SENSOR. THE SUPPLY FAN SHALL OPERATE INTERMITTENTLY OR CONTINUOUSLY AS REQUIRED TO MAINTAIN SETBACK CONDITIONS AND PREVENT DUCT TEMPERATURE EXTREMES. VVT BOXES SHALL REMAIN IN THEIR LAST POSITION OR DEFAULT TO A MINIMUM VENTILATION SETTING IF CONFIGURED.

CONTROL INTEGRATION:

THE EXISTING SPACE THERMOSTAT AND VVT CONTROL SYSTEM SHALL CONTINUE TO CONTROL INDIVIDUAL ZONE TEMPERATURES. THE NEW RTU SHALL BE INTEGRATED INTO THE EXISTING CONTROL SYSTEM FOR OCCUPANCY SIGNAL, DISCHARGE TEMPERATURE MONITORING, AND HEATING/COOLING ENABLE SIGNAL. HEATING AND COOLING OUTPUTS SHALL RESPOND TO THE CURRENT MODE REQUIRED BY THE VVT SYSTEM.

SAFETIES AND ALARMS:

THE RTU SHALL BE EQUIPPED WITH STANDARD SAFETY DEVICES INCLUDING SUPPLY FAN STATUS, HIGH/LOW REFRIGERANT PRESSURE SWITCHES, HEATING HIGH LIMIT, AND FREEZE PROTECTION. ANY FAULT SHALL SHUT DOWN THE CORRESPONDING COMPONENT AND INITIATE A LOCAL ALARM AND SIGNAL TO THE BAS.



- (1) UNIT MICRO PROCESS CONTROLLER
- $\langle 4
 angle$ CO AND NO2 CONTROL PANEL
- 2 PROGRAMMABLE THERMOSTAT CONTROLLER
- $\langle 5 \rangle$ VFD DRIVE
- 3 CO AND NO2 SENSOR

CONTROL SEQUENCE OF OPERATION

MAINTENANCE VENTILATION SYSTEM

- THE EXHAUST FAN EF-1 SHALL BE ACCOMPAINED BY AN H-O-A (HAND/OFF/AUTO) SWITCH ON THE VARIABLE FREQUENCY DRIVE. IN THE "H" POSITION THE SYSTEM SHALL BE ENERGIZED ON HIGH AND RUN AT FULL SPEED.
- 2. WITH THE H-O-A SWITCH IN THE "A" POSITION, THE UNIT SHALL BE ENERGIZED AND MODULATE FAN TO MAINTAIN SPACE AIR QUALITY AS FOLLOWS.
- 3. NORMAL OCCUPIED MODE OPERATION
- THE FAN SHALL OPERATE AT LOW SPEED (INITIALLY SET AT 20% SPEED) AND SHALL RUN CONTINUOUSLY.
- THE AIR QUALITY CONTROLLER SHALL CONTINUOUSLY MONITOR THE AIR QUALITY THROUGH CO AND NO2 SENSORS LOCATED IN BOTH MAINTENANCE BAY.

IF THE SPACE PARTS PER MILLION IS WITHIN ACCEPTABLE AIR QUALITY RANGE THE EXHAUST FAN TO OPERATE AT MINIMUM SPEED.

- 4. AS THE SPACE PARTS PER MILLION INCREASES ABOVE ACCEPTABLE LEVELS THE FANS SHALL INCREASE SPEED UNTIL ACCEPTABLE AIR QUALITY CONDITIONS ARE ACHIEVED. FAN TO INCREASE AND DECREASE SPEED BY 20% INCREMENTS.
- AT EACH INCREASED INCREMENT FANS TO HOLD SPEED FOR 2 MINUTES AND CONTINUE TO MONITOR THE AVERAGE PARTS PER MILLION FOR THAT ZONE.
- FANS ARE TO CONTINUE TO INCREASE SPEED UNTIL THE AVERAGE SPACE PPM DECREASES
- 5. GAS DETECTION SETPOINT AND ALARM SHALL BE AS FOLLOWS:
 - GAS DETECTION SYSTEM TO INITIATE A LOW LEVEL ALARM "A" WHEN THE LEVEL OF GAS REACHES THE FOLLOWING CONCENTRATIONS.
 - Carbon Monoxide- 30 ppm Nitrogen dioxide- .7 ppm

- 6. UPON DETECTION OF A LOW LEVEL ALARM A THE FOLLOWING SEQUENCE SHALL BE INITIATED BY THE GAS DETECTION CONTROL PANEL.
- EXHAUST FANS VARIABLE FREQUENCY DRIVE TO BE ENERGIZE AND FAN TO OPERATE AT HIGH SPEED AS STATED ABOVE
- 7. IF THE GAS CONCENTRATION CONTINUES TO RISE GAS DETECTION SYSTEM TO INITIATE ALARM B.
 - ALARMBTO BE INITIATED WHEN THE LEVEL OF GAS REACHES TO FOLLOWING CONCENTRATIONS
 - Carbon Monoxide- 200 ppm NITROGEN DIOXIDE- 2 PPM
 - UPON DETECTION OF ALARMB CONDITION THE FOLLOWING SEQUENCE SHALL BE INITIATED

- CONTINUE OPERATION AS DESCRIBED UNDER ALARM CONDITION A ENERGIZE ASSOCIATED HORN AND STROBE

SPACE TEMPERATURE CONTROL

MAINTENANCE BAY-2

1. SYSTEM OVERVIEW:

THE LOW-INTENSITY GAS-FIRED INFRARED HEATER SHALL BE CONTROLLED VIA A WALL-MOUNTED SPACE THERMOSTAT WITH MODULATING OUTPUT AND OCCUPIED/UNOCCUPIED TEMPERATURE SETPOINT FUNCTIONALITY. THE HEATER SHALL INCLUDE A MODULATING GAS VALVE AND BURNER CONTROL SYSTEM CAPABLE OF ADJUSTING HEAT OUTPUT IN RESPONSE TO DEMAND.

OCCUPIED MODE:

2. WHEN THE SYSTEM IS IN OCCUPIED MODE, THE SPACE THERMOSTAT SHALL ENABLE THE INFRARED GAS HEATER AND CONTROL IT BASED ON THE OCCUPIED HEATING SETPOINT (TYPICALLY 60–68°F). THE THERMOSTAT SHALL MONITOR THE SPACE TEMPERATURE AND SEND A PROPORTIONAL MODULATING SIGNAL (E.G., 0–10 VDC OR 4–20 MA) TO THE HEATER'S BURNER CONTROL TO ADJUST FLAME INTENSITY AS NEEDED. AS THE SPACE TEMPERATURE APPROACHES THE SETPOINT, THE BURNER SHALL MODULATE DOWN TO MAINTAIN THE DESIRED TEMPERATURE EFFICIENTLY, MINIMIZING CYCLING AND ENSURING THERMAL COMFORT DURING OCCUPIED HOURS.

UNOCCUPIED MODE

IN UNOCCUPIED MODE, THE THERMOSTAT SHALL REDUCE THE SPACE HEATING SETPOINT TO AN ENERGY-SAVING LEVEL (TYPICALLY 45–50°F) TO MAINTAIN FREEZE PROTECTION WHILE MINIMIZING ENERGY USE

4. SAFETY AND INTERLOCK

A LOCAL MANUAL ON/OFF SWITCH SHALL BE PROVIDED TO DISABLE THE HEATER IF REQUIRED.

THE HEATER'S BURNER CONTROL SHALL INCLUDE ALL STANDARD SAFETY INTERLOCKS: FLAME FAILURE, HIGH TEMPERATURE LIMIT, AND AIR PROVING SWITCH.

UPON FAULT CONDITION, THE BURNER SHALL LOCK OUT AND REQUIRE MANUAL RESET PER MANUFACTURER REQUIREMENTS.

MAINTENANCE BAY-1

1. GENERAL DESCRIPTION:

THE DIRECT-FIRED MAKE-UP AIR UNIT SHALL OPERATE TO MAINTAIN SPACE VENTILATION AND TEMPERATURE BY SUPPLYING TEMPERED OUTSIDE AIR THROUGH A MODULATING BURNER SYSTEM. THE UNIT SHALL BE INTERLOCKED WITH EXHAUST SYSTEMS WHERE APPLICABLE AND OPERATE IN EITHER OCCUPIED OR UNOCCUPIED MODES BASED ON BUILDING SCHEDULE OR MANUAL CONTROL.

2. OCCUPIED MODE:

WHEN IN OCCUPIED MODE, THE SUPPLY FAN SHALL START AND RAMP TO FULL DESIGN SPEED (OR MODULATE AS NEEDED IF DEMAND CONTROL IS ENABLED). THE BURNER SHALL BE ENABLED UPON PROOF OF AIRFLOW AND SHALL MODULATE TO MAINTAIN THE OCCUPIED DISCHARGE AIR TEMPERATURE SETPOINT (TYPICALLY 65–75°F). THE BURNER MODULATION SHALL BE BASED ON A DISCHARGE TEMPERATURE SENSOR OR RESET BASED ON OUTDOOR OR SPACE TEMPERATURE. IF CONNECTED TO AN EXHAUST SYSTEM, FAN OPERATION SHALL BE INTERLOCKED TO MAINTAIN BALANCED AIRFLOW. THE VFD SHALL MAINTAIN FULL OR DEMAND-MODULATED AIRFLOW DURING OCCUPIED PERIODS.

3 <u>UNOCCUPIED MODE:</u>

IN UNOCCUPIED MODE, THE SYSTEM SHALL REDUCE FAN SPEED TO A PRE-PROGRAMMED LOW-SPEED SETTING (E.G., 30–50% OF DESIGN AIRFLOW) TO MAINTAIN MINIMUM VENTILATION OR FREEZE PROTECTION AS REQUIRED. THE BURNER SHALL REMAIN ENABLED AND MODULATE TO MAINTAIN A REDUCED DISCHARGE AIR TEMPERATURE SETPOINT (TYPICALLY 45–50°F). IF THE SPACE TEMPERATURE IS SATISFIED AND FREEZE PROTECTION IS NOT REQUIRED, THE SYSTEM MAY CYCLE OFF. UPON SCHEDULED RETURN TO OCCUPIED MODE OR MANUAL OVERRIDE, THE FAN SHALL RAMP UP TO FULL SPEED AND RESUME STANDARD OPERATION.

4. BURNER AND VFD CONTROL:

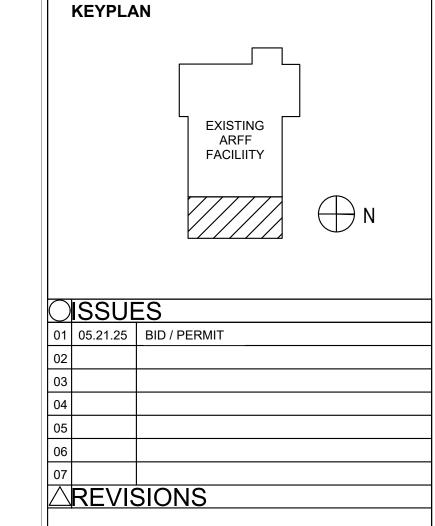
THE BURNER SHALL BE A DIRECT-FIRED, FULLY MODULATING TYPE WITH INTEGRATED COMBUSTION CONTROLS AND A BURNER MANAGEMENT SYSTEM. THE BURNER SHALL NOT BE ALLOWED TO IGNITE UNLESS MINIMUM AIRFLOW IS PROVEN BY THE VFD STATUS OR AIRFLOW SWITCH. THE VFD SHALL BE CONTROLLED BY THE BAS OR ONBOARD CONTROLLER TO SWITCH BETWEEN FULL-SPEED (OCCUPIED) AND REDUCED-SPEED (UNOCCUPIED) SETTINGS. VFD FEEDBACK SHALL BE MONITORED FOR FAULT AND SPEED CONFIRMATION.

5. SAFETY AND INTERLOCKS:

ALL REQUIRED SAFETY DEVICES SHALL BE PROVIDED, INCLUDING AIRFLOW PROVING SWITCH, BURNER HIGH LIMIT, FLAME DETECTION, HIGH/LOW GAS PRESSURE SWITCHES, AND COMBUSTION AIR PROVING. ANY SAFETY FAULT SHALL SHUT DOWN THE BURNER AND INITIATE A LOCKOUT UNTIL MANUALLY RESET. THE SUPPLY FAN SHALL REMAIN ON FOR POST-PURGE WHERE REQUIRED.

6. INTEGRATION AND OVERRIDE:

A LOCAL CONTROL PANEL SHALL INCLUDE AN OFF/AUTO/HAND SELECTOR SWITCH FOR THE FAN AND BURNER. IN HAND MODE, THE FAN SHALL OPERATE CONTINUOUSLY AT A FIXED SPEED WITHOUT BURNER OPERATION. THE SYSTEM SHALL BE INTEGRATED WITH THE BUILDING MANAGEMENT SYSTEM (TO BE INSTALLED IN FUTURE) VIA BACNET OR MODBUS, ALLOWING REMOTE MONITORING AND ADJUSTMENT OF SETPOINTS, MODES, AND ALARMS.



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EXPANSION

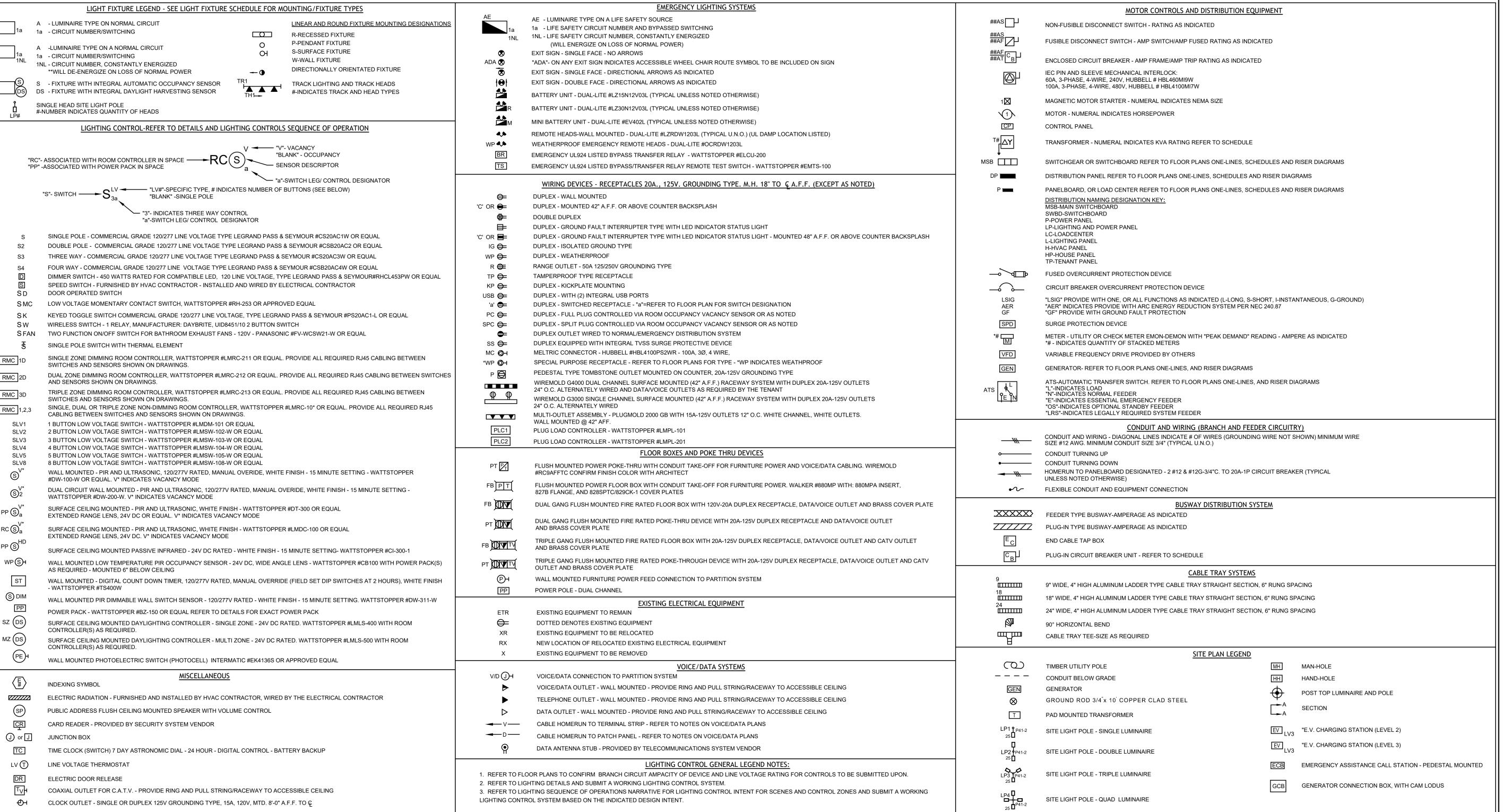
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DIAGRAM AND CONTROLS

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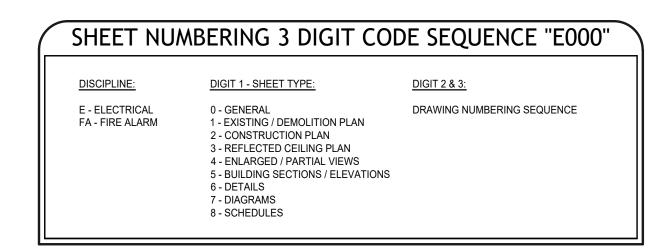
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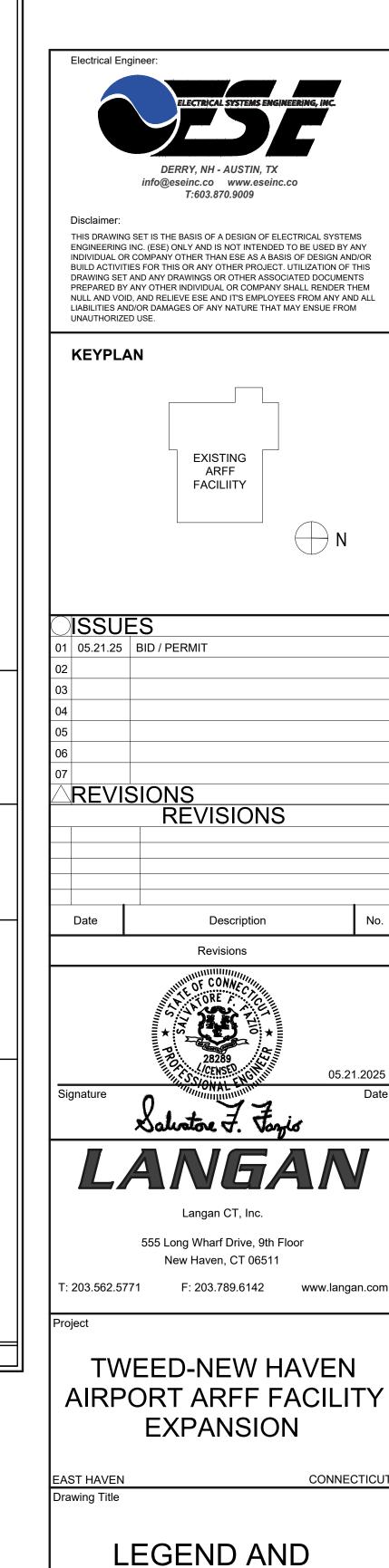
NOTE: THIS SYMBOL LIST IS A MASTER LEGEND. SOME OF THE SYMBOLS LISTED ABOVE MAY NOT BE APPLICABLE TO THE SCOPE OF WORK FOR THIS PROJECT

ELECTRICAL LEGEND

GENERAL ABBREVIATIONS							
Α	AMPERES	DFCI	DUAL FUNCTION AFCI / GFCI	MOCP	MAXIMUM OVERCURRENT PROTECTION DEVICE		
ADA	AMERICANS WITH DISABILITIES ACT	CU	COPPER	NEC	NATIONAL ELECTRIC CODE		
AFF	ABOVE FINISH FLOOR	EC	ELECTRICAL CONTRACTOR	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION		
AFG	ABOVE FINISH GRADE	EGC	EQUIPMENT GROUNDING CONDUCTOR	N.I.C.	NOT IN CONTRACT		
AHJ	AUTHORITY HAVING JURISDICTION	EPO	EMERGENCY POWER OFF	NTS	NOT TO SCALE		
AIC	AMPERE INTERRUPTING CAPACITY	FLA	FULL LOAD AMPERES	Р	POLE		
AFCI	ARC FAULT CIRCUIT INTERRUPT	GC	GENERAL CONTRACTOR	PNL	PANEL		
AL	ALUMINUM	GEC	GROUNDING ELECTRODE CONDUCTOR	РВО	PROVIDED BY OTHERS		
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	GFCI	GROUND FAULT CIRCUIT INTERRUPT	PT	POTENTIAL TRANSFORMER		
ATS	AUTOMATIC TRANSFER SWITCH	GND,G	GROUNDING, GROUND	QTY	QUANTITY		
AWG	AMERICAN WIRE GAUGE	HP	HORSEPOWER	REQ'D	REQUIRED		
BFG	BELOW FINISH GRADE	KVA	KILOVOLT AMPERES	UG	UNDERGROUND OR UNDERGRADE		
С	CONDUIT	KW	KILOWATTS	UL	UNDERWRITERS LABORATORIES		
CAT	CATALOG	LTG	LIGHTING	U.O.N.	UNLESS OTHERWISE NOTED		
СВ	CIRCUIT BREAKER	MCA	MINIMUM CIRCUIT AMPACITY	U.N.O.	UNLESS NOTED OTHERWISE		
CKT	CIRCUIT	MCB	MAIN CIRCUIT BREAKER	UH	UNIT HEATER		
Ģ.	CENTERLINE	MCC	MOTOR CONTROL CENTER	WP	WEATHERPROOF		
СТ	CURRENT TRANSFORMER	MLO	MAIN LUGS ONLY	XFMR	TRANSFORMER		



Sheet List Table					
Sheet Title					
Legend and Notes					
Lighting Plan					
Power Plan					
Lighting Schedule and Notes					
Fire Alarm Plan					



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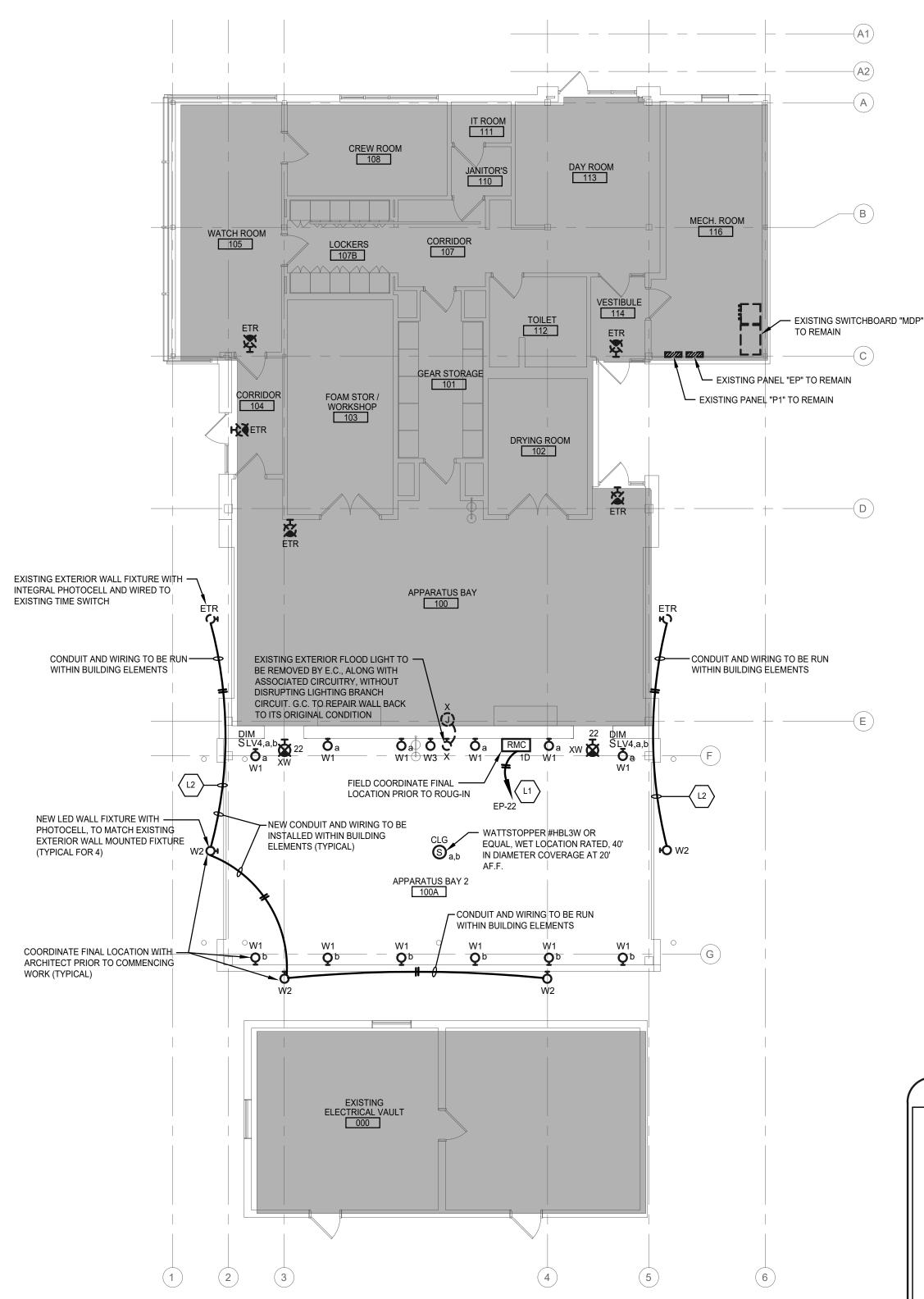
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EXISTING GROUND FLOOR PLAN

ALL EXISTING CIRCUITS FOR THIS AREA TO REMAIN AND

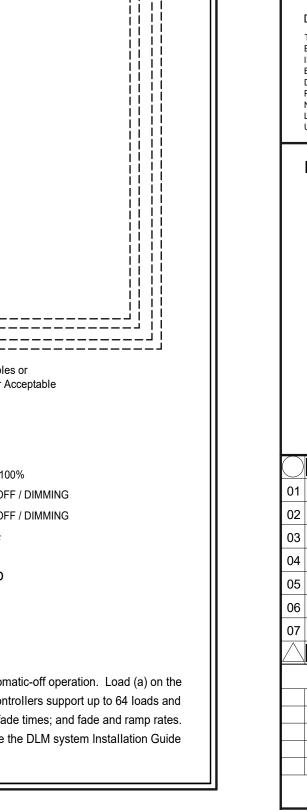
INDICATES AREA NOT IN CONTRACT.

SHALL NOT BE INTERRUPTED.

LIGHTING CONTROL SEQUENCE NARRATIVE C TO PROVIDE A CODE COMPLIANT LIGHTING CONTROL SYSTEM BASED ON THE FOLLOWING:

- E.C. TO PROVIDE A COMPLETE LIGHTING CONTROLS SYSTEM WITH ALL COMPONENTS, WIRING, AND APPURTENANCES NECESSARY FOR SYSTEM OPERATION AS DESCRIBED BELOW AND REQUIRED BY THE LATEST LOCAL ADOPTED INTERNATIONAL ENERGY CODE COUNCIL REQUIREMENTS AND/OR THE LATEST LOCAL ADOPTED ANSI/ASHRAE90.1 REQUIREMENTS.
- NEW APPARATUS BAY #2 SHALL BE CONTROLLED VIA DIMMING ROOM CONTROLLER. LOCAL LOW VOLTAGE SWITCHES SHALL CONTROL SAID LIGHT FIXTURES, ON/OFF AND DIMMING. 2.1. LIGHT FIXTURES SHALL TURN ON TO 100% WHEN 'ALL ON' BUTTON IS PRESSED. 2.2. LIGHT FIXTURES SHALL TURN ON TO 50% WHEN BUTTON 'a' OR 'b' IS PRESSED, AND UP TO 100%
- WHEN SAID BUTTON IS PRESSED AGAIN. 2.3. HOLDING DOWN BUTTON 'a' OR 'b' WILL DIM THE LIGHT FIXTURES UP AND DOWN. 2.4. LIGHT FIXTURES SHALL TURN OFF WHEN 'ALL OFF' BUTTON IS PRESSED.
- 3.1. E.C. SHALL REVIEW AND COMPLY WITH THE PROJECT COMMISSIONING PLAN 3.2. E.C. SHALL PERFORM A LIGHTING CONTROL SYSTEM FUNCTIONAL TEST ON ALL SYSTEM COMPONENTS PER SECTION C408.3.1. EC TO PROVIDE TO PROFESSIONAL ENGINEER OF RECORD EVIDENCE THAT THE SYSTEMS HAVE BEEN TESTED TO ENSURE PROPER OPERATION AS DESIGNED PER CODE PRIOR TO FINAL BUILDING DEPARTMENT/WIRING INSPECTOR/AHJ

LMRC-212 DUAL RELAY 0-10V DIMMING WIRING DIAGRAM LIGHTING VIO I GRY LOAD LIGHTING 0-10VDC Dimming Ballast required. LMRC-212 DUAL RELAY Neutral Wht ON/OFF/0-10V DIMMING ROOM CONTROLLER Hot Blk 120/277 LMDM-104 Digital Dimming Wall Switch Class 2 0-10 Volt Control Wiring LMRJ Series Pre-Terminated Cables or — CAT5e Free Topology, & Splitter Acceptable LMDM-104 Digital Dimming Wall Switch HBL3W CEILING SENSOR ── SUITABLE FOR WET LOCATIONS DEVICES ARE PRESET FOR PLUG n' GO™ OPERATION, ADJUSTMENT IS OPTIONAL. Sequence of Operation: In' this configuration the LMRC-212 defaults to multi-level automatic-on/automatic-off operation. Load (a) on the LMRC-212 turns on automatically, while Load (b) defaults to manual-on control; all relays turn off automatically. Enhanced room controllers support up to 64 loads and 48 devices per DLM local network At system startup, default dimming parameters are established including: levels for presets 1-4; fade times; and fade and ramp rates. Dimming and system parameters may be customized. For full operational details, adjustments and more features of the product, see the DLM system Installation Guide





ALL EXISTING LIGHTING SWITCHING AND ASSOCIATED BRANCH CIRCUITRY, IN THIS ROOM OR AREA, SHALL BE DE-ENERGIZED AND REMOVED UNLESS SPECIFICALLY NOTED OTHERWISE.

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LIGHTING/CONTROL PLAN NOTES

- REFER TO DRAWING E0.0 FOR LEGENDS, SYMBOLS, SPECIFICATION AND GENERAL NOTES.
- CIRCUIT NUMBERS ARE DIAGRAMMATIC. EXACT NUMBERS SHALL BE DETERMINED IN THE FIELD AND REFLECTED ON RECORD DRAWING DOCUMENTATION BY THE ELECTRICAL CONTRACTOR. THE ASSOCIATED CIRCUIT NUMBERS THAT ARE APPLIED TO EACH CONTROL DEVICE AND FIXTURE INFERS INTERCONNECTING BRANCH CIRCUITRY. INTERCONNECTING BRANCH WIRING SHALL BE SIZED EQUAL TO THE HOMERUN INDICATED ON THE FLOOR PLAN UNLESS NOTED OTHERWISE WITH MORE STRINGENT REQUIREMENTS IN DETAILS AND SCHEDULES.
- SEE ARCHITECTURAL PLANS AND ELEVATIONS FOR MOUNTING HEIGHTS AND EXACT LOCATIONS.
- COORDINATE LOCATION AND AIMING OF FIXTURES WITH DRAWINGS AND DETAILS BEFORE INSTALLING.
- EMERGENCY BATTERY UNITS SHALL BE WIRED TO THE AREA 120V NORMAL LOCAL LIGHTING CIRCUIT AHEAD OF ANY LOCAL SWITCHING, RELAYS, OR
- 6. ALL EXIT SIGNS SHALL BE WIRED TO THE AREA 120V EMERGENCY LIGHTING CIRCUIT AHEAD OF ANY LOCAL SWITCHING, RELAYS, OR CONTROLS. ALL NEW EXIT SIGN SHALL BE STANDARD TYPE FOR BUILDING OR AS SPECIFIED IN FIXTURE SCHEDULE.
- ALL MULTI-GANGED LIGHTING CONTROL SHALL BE MOUNTED UNDER A COMMON FACEPLATE UNLESS NOTED OTHERWISE ON DRAWINGS OR IN DETAILS.
- ALL LINE VOLTAGE WALL MOUNTED LIGHTING CONTROL DEVICES (I.E. ELECTRONIC TIMER SWITCHES, LINE VOLTAGE SWITCHES, OCCUPANCY SENSORS, ETC.) SHALL HAVE A NEUTRAL CONDUCTOR INCLUDED WITH THE SWITCH LEGS OR CIRCUIT CONDUCTORS RUN FROM THE WALL BOX TO THE AREA
- EC TO VISIT THE SITE PRIOR TO BID AND REVIEW ALL EXISTING ELECTRICAL CONDITIONS VISIBLE. COORDINATE WITH OWNER AND/OR GC TO HAVE ELECTRIC ROOMS AND OTHER KEY AREAS WITHIN ELECTRICAL SCOPE UNLOCKED AND ACCESSIBLE FOR REVIEW AND RECORDING OF EXISTING CONDITIONS. EC SHALL COORDINATE WALK THRU SO THAT A QUALIFIED REPRESENTATIVE OF THE OWNER OR GC IS PRESENT TO MAINTAIN ALL SAFETY PROTOCOLS OF THE PROJECT AT TIME OF SITE VISIT.
- 10. ALL LUMINAIRES SHALL BE ENERGY STAR OR DLC LISTED. LIGHTING MANUFACTURERS REPRESENTATIVE TO PROVIDE DOCUMENTATION TO SHOW COMPLIANCE WITH EACH LUMINAIRE SUBMITTED.

KEY LIGHTING/CONTROL NOTES

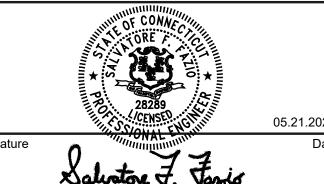
- PROVIDE HOMERUN TO NEW 20A-1P CIRCUIT BREAKER INSTALLED IN AVAILABLE SPACE IN EXISTING PANELBOARD DESIGNATED. NEW CIRCUIT BREAKER SHALL MATCH PANELBOARD FOR MANUFACTURER TYPE, AIC RATING, AND BE LISTED FOR SERIES RATING IF APPLICABLE.
- EXTEND BRANCH CIRCUIT WIRING FROM THE NEW FIXTURE TO THE EXISTING LIGHTING CIRCUIT AS INDICATED ON FLOOR PLAN WITH THE CALCULATED SPARE LOAD CAPACITY TO SUPPLY THE NEW FIXTURE. EC TO EXTEND THE AREA SWITCH CONTROL TO INCLUDE THE NEW FIXTURE. AS REQUIRED.



THIS DRAWING SET IS THE BASIS OF A DESIGN OF ELECTRICAL SYSTEMS ENGINEERING INC. (ESE) ONLY AND IS NOT INTENDED TO BE USED BY ANY INDIVIDUAL OR COMPANY OTHER THAN ESE AS A BASIS OF DESIGN AND/OR BUILD ACTIVITIES FOR THIS OR ANY OTHER PROJECT. UTILIZATION OF THIS DRAWING SET AND ANY DRAWINGS OR OTHER ASSOCIATED DOCUMENTS PREPARED BY ANY OTHER INDIVIDUAL OR COMPANY SHALL RENDER THEM NULL AND VOID, AND RELIEVE ESE AND IT'S EMPLOYEES FROM ANY AND ALL LIABILITIES AND/OR DAMAGES OF ANY NATURE THAT MAY ENSUE FROM UNAUTHORIZED USE.

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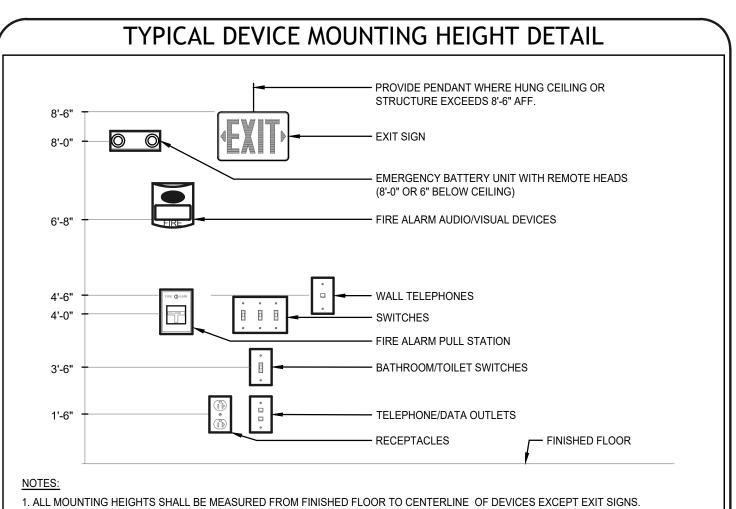
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LIGHTING PLAN

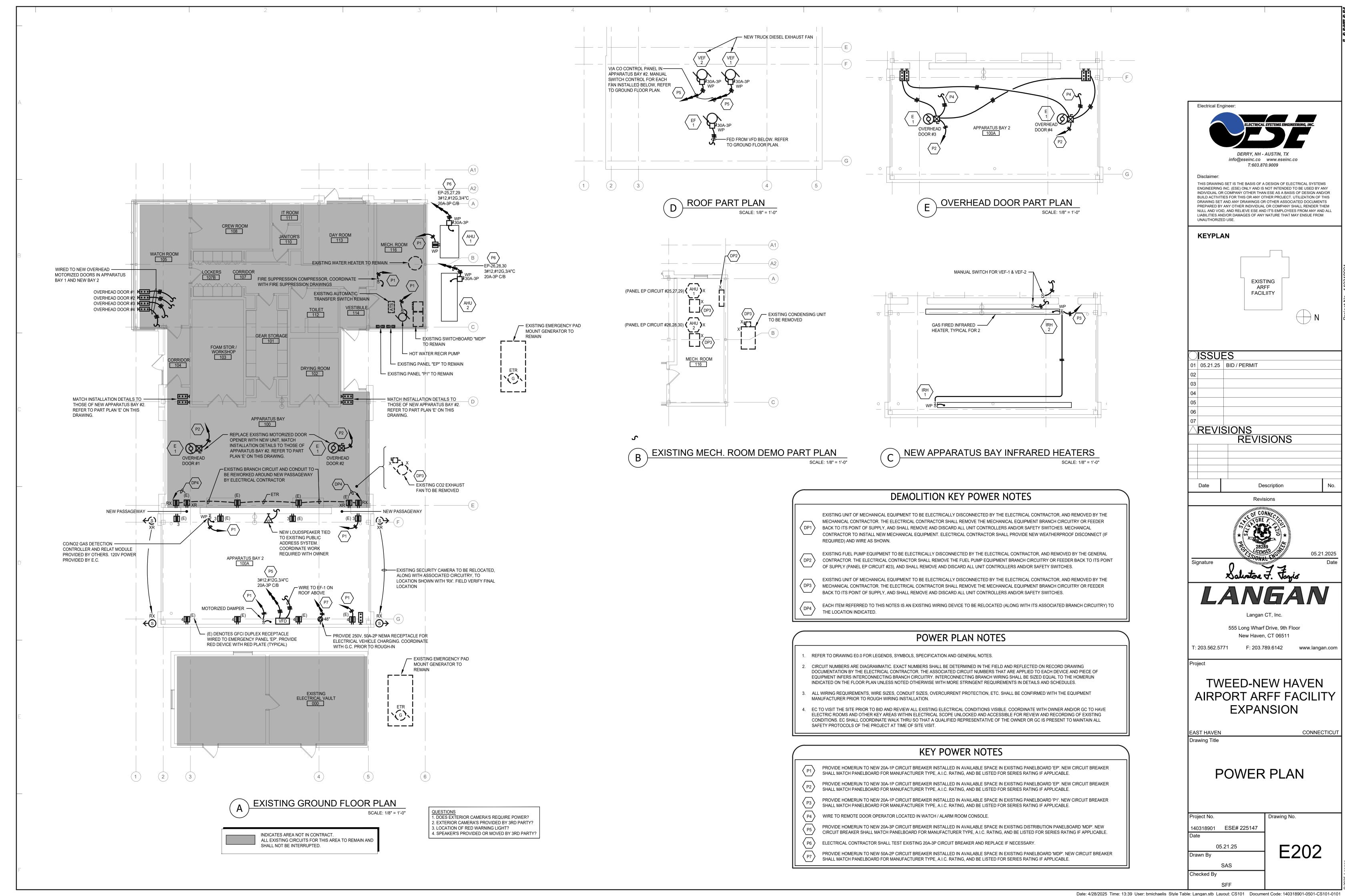
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2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.

3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.



ELECTRICAL SPECIFICATIONS

THE FLECTRICAL CONTRACTOR SHALL COORDINATE WITH GC TO INSPECT THE CONDITIONS AT THE SITE FAILURE TO INSPECT EXISTING CONDITIONS OR TO FULLY UNDERSTAND THE SCOPE OF WORK WHICH IS REQUIRED TO START AND COMPLETE THE PROJECT SHALL NOT EXCUSE THE ELECTRICAL CONTRACTOR FROM IT'S OBLIGATIONS TO FURNISH AND INSTALL THE WORK IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE CONTRACT DRAWINGS AND UNDER ALL SITE CONDITIONS AS THEY EXIST

THE GENERAL CONDITIONS SHALL BE CONSIDERED AS FORMING A PART OF THESE SPECIFICATIONS AND SHALL BE CAREFULLY EXAMINED BEFORE PROPOSALS FOR ANY WORK ARE SUBMITTED.

CONDITIONS OF THE CONTRACT AND GENERAL ARCHITECTURAL REQUIREMENTS APPLY TO WORK OF THIS SECTION. COORDINATE WITH OTHER DRAWINGS AND SPECIFICATIONS IF AVAILABLE FOR REQUIREMENTS THAT AFFECT WORK OF THIS

4. IT SHALL BE UNDERSTOOD THAT THE SPECIFICATIONS AND ASSOCIATED DRAWINGS FOR ELECTRICAL WORK ARE COMPLIMENTARY AND ARE TO BE TAKEN TOGETHER FOR A COMPLETE INTERPRETATION OF THE FLECTRICAL WORK. EXCEPT THAT INDICATIONS ON THE DRAWINGS, WHICH REFER TO AN INDIVIDUAL ELEMENTS OF WORK, TAKE PRECEDENCE OVER THE SPECIFICATIONS. WHERE THEY CONFLICT WITH SAME PROVIDE THE MORE STRINGENT

EXCEPT WHERE MODIFIED BY A SPECIFIC NOTATION TO THE CONTRARY, IT SHALL BE UNDERSTOOD THAT THE INDICATION AND/OR DESCRIPTION OF ANY ELECTRICAL ITEM IN THE DRAWINGS OR SPECIFICATIONS FOR ELECTRICAL WORK CARRIES WITH IT THE INSTRUCTION TO FURNISH, INSTALL AND CONNECT THE ITEM AS PART OF THE ELECTRICAL WORK REGARDLESS OF WHETHER OR NOT IT IS SPECIFICALLY

6. ALL WORK PROVIDED UNDER THIS CONTRACT AND SECTION SHALL BE GUARANTEED FOR ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE WORK AND START NO LATER THAN THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.

7. THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, INSPECTIONS, AND TESTS, AND COMPLY WITH ALL ADOPTED LAWS. ORDINANCES AND CODES PERTAINING TO THIS PORTION OF THE CONTRACT

8. THE SCOPE OF WORK SHALL CONSIST OF ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE ALL WORK INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS. THE WORK SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING:

MAIN ELECTRICAL DISTRIBUTION, DISTRIBUTION PANELS, TRANSFORMERS, PANELBOARDS, AND LOAD CENTERS AND ASSOCIATED PRIMARY, SECONDARY, AND FEEDERS AS INDICATED ON THE DRAWINGS.

GROUNDING AND BONDING OF ELECTRICAL SYSTEMS AND EQUIPMENT. FUNCTIONAL AND COMPLETE LIGHTING SYSTEM INCLUDING ALL FIXTURES, LAMPS, SWITCHING, CONTROLLERS, SENSORS,

DIMMERS, LIGHTING CONTROL PANELS, TIME CLOCKS AND PHOTOCELLS BRANCH CIRCUIT WIRING OF DEVICES (SWITCHES AND RECEPTACLES) COMPLETE WITH ASSOCIATED WALL PLATES.

BRANCH CIRCUIT WIRING TO EQUIPMENT BY OTHER SUCH AS HVAC, PLUMBING, FIRE PROTECTION, PROCESS EQUIPMENT, KITCHEN EQUIPMENT, AND APPLIANCES.

FIRE ALARM SYSTEM COMPLETE WITH NOTIFICATION APPLIANCE DEVICES AND ADDRESSABLE INITIATING DEVICES, NAC CIRCUITS, SLC LOOPS, WITH ASSOCIATED CLASS A SUPPLY AND RETURN WIRING

GENERATOR ESSENTIAL (EMERGENCY/LIFE SAFETY), CRITICAL, LEGALLY REQUIRED, AND OPTIONAL STANDBY EQUIPMENT WITH ASSOCIATED AUTOMATIC TRANSFER SWITCH, MANÚAL TRANSFER SWITCH AND/OR DOCKING STATION.

ALL ELECTRICAL WORK SHALL MEET OR EXCEED THE LATEST ADOPTED REQUIREMENTS OF ALL NATIONAL, STATE, MUNICIPAL AND OTHER AUTHORITIES HAVING JURISDICTION OVER ELECTRICAL CONSTRUCTION WORK AND THE PROJECT

ALL OTHER SYSTEMS HEREINAFTER SPECIFIED OR AS INDICATED ON THE DRAWINGS.

10. ALL MATERIAL AND EQUIPMENT SHALL BE NEW (UNLESS OTHERWISE SPECIFIED), UL LISTED AND LISTED UNDER THE OWNER'S INSURANCE UNDERWRITING REQUIREMENTS WHERE APPLICABLE. ALL MATÉRIAL AND EQUIPMENT SHALL BE UL, NEMA. ANSI, IEEE, ADA AND CBM APPROVED FOR INTENDED SERVICE AND SHALL BE INSTALLED PER THE MANUFACTURER'S INSTALLATION DOCUMENTS AND RECOMMENDATIONS

11. ALL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER, PERPENDICULAR AND/OR PARALLEL TO THE BUILDING STRUCTURE. RACEWAYS SHALL BE RUN CONCEALED UNLESS NOTED OTHERWISE. NECA STANDARDS SHALL DEFINE MINIMUM QUALITY LEVEL FOR INSTALLATION WHERE APPLICABLE.

12. ALL INTERRUPTIONS AND SHUTDOWNS OF EXISTING ELECTRICAL SYSTEMS AND SERVICES SHALL BE COORDINATED WITH GC. OWNER. AND OWNER REPRESENTATIVE A MINIMUM OF 1 WEEK PRIOR TO SHUT DOWN AND AS AGREED UPON WITH GC AT START OF THE PROJECT

13. PROVIDE A TEMPORARY LIGHTING AND POWER SYSTEM THROUGHOUT THE EXTERIOR SITE AND INTERIOR SPACE FOR USE BY ALL TRADES DURING THE CONSTRUCTION PERIOD. PROVIDE TEMPORARY LIGHTING AND POWER PER OSHA STANDARDS AND IN ACCORDANCE WITH THE GENERAL CONDITIONS. COORDINATE TEMP POWER RESPONSIBILITIES AND SCOPE WITH GC PRIOR TO SIGNING CONTRACT. TEMPORARY POWER SHALL BE PROVIDED TO PROJECT TRAILERS EXTERIOR WORK SPACES AND INTERIOR WORK SPACES AS AGREED UPON WITH GC. PROVIDE UTILITY WORK ORDER. IF REQUIRED. AND ALL EQUIPMENT THAT MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO METERING SOCKETS, ELECTRICAL SWITCHGEAR, DISTRIBUTION PANELS, TRANSFORMERS, AND PANELBOARDS, ETC. REMOVE ALL TEMPORARY DISTRIBUTION, WIRING, FIXTURES AND OUTLETS AT THE TERMINATION OF THE CONSTRUCTION PERIOD. THE GENERAL CONTRACTOR SHALL PAY FOR ALL ENERGY CONSUMED DURING THE CONSTRUCTION PERIOD.

14. ALL CONDUCTORS SHALL BE TYPE XHHW OR THHN/THWN, COPPER, RATED 75°C, 600 VOLT INSULATION UNLESS HERWISE NOTED. MINIMUM SIZE CONDUCTOR SHALL BE #12 AWG COPPER. UNLESS OTHERWISE SPECIFIED. CONDUCTORS #10 AWG AND LARGER SHALL BE STRANDED; #12 AWG AND SMALLER SHALL BE SOLID. ALUMINUM MAYBE USED FOR FEEDERS 100 AMPS OR LARGER, PER OWNER/GC APPROVAL AND AS NOTED ON DRAWINGS. REFER TO POWER, LIGHTING AND FIRE ALARM DRAWINGS, ETC FOR ALLOWABLE WIRING METHODS.

15. ALL BRANCH WIRING, AND MAIN FEEDERS RUN IN EXPOSED AREAS SHALL BE RUN IN EMT OR RGS RACEWAYS. COORDINATE ANY EXPOSED WIRING WITH ARCHITECT FOR APPROVAL PRIOR TO ROUGH-IN. BRANCH CIRCUITRY RUN ABOVE SUSPENDED CEILINGS OR RUN WITHIN STUD WALLS SHALL BE METAL CLAD CABLE TYPE MC W/ INSULATED GROUND CONDUCTOR. HOSPITAL GRADE BRANCH CIRCUITS SHALL BE CIRCUITED WITH HOSPITAL GRADE LISTED CABLE OR RUN IN EMT CONDUIT AS APPLICABLE

16. RACEWAYS RUN THROUGH AREAS OF WIDELY DIFFERENT TEMPERATURES SHALL BE SEALED WITH A PLIABLE COMPOUND AT THE VARIANT TEMPERATURE AREA. ALL RACEWAY PENETRATIONS THROUGH FIRE RATED WALL, CEILING, OR FLOOR ASSEMBLIES SHALL BE PROPERLY FIRE SEALED. ELECTRICAL RACEWAYS WHICH TRAVERSE THROUGH CMU WALLS SHALL BE PROPERLY WEATHERSEALED.

17. THE ELECTRICAL CONTRACTOR SHALL PROVIDE OUTLET, JUNCTION AND PULL BOXES AT ALL LOCATIONS WHERE THEY ARE REQUIRED 45.5. TO FACILITATE THE PULLING, SUPPORTING, OR CONNECTING OF WIRES AND CABLES.

18. STANDARD DUPLEX CONVENIENCE RECEPTACLES SHALL BE 20A-125V-3 WIRE, GROUNDING TYPE BACK & SIDE WIRED. NEMA 5-20R, WHITE IN COLOR, STANDARD SWITCHES SHALL BE TOGGLE TYPE, PASS AND SEYMOUR, 20A 125V/277V, COMMERCIAL, SPEC, OR HOSPITAL GRADE (DEPENDING ON THE APPLICATION) WHITE IN COLOR. PROVIDE NYLON FLEXIBLE WHITE PLASTIC WALLPLATES WITH ALL WIRING DEVICES COORDINATE DEVICE AND WALL PLATE COLOR AND TYPE WITH ARCHITECT

19. ALL NEMA 5-15R AND 5-20R RECEPTACLES SHALL BE TAMPER RESISTANT TYPE WHEN INSTALLED IN AREAS SPECIFIED IN ARTICLE 406.12 OF THE NATIONAL ELECTRICAL CODE.

20. ALL EQUIPMENT AND SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH THE ADOPTED 2020 NATIONAL ELECTRICAL CODE, WITH AMENDMENTS REQUIREMENTS

FROM CONDUITS, DUCTWORK, PIPING, ETC. WILL NOT BE PERMITTED 22. ALL LIGHT FIXTURES SHALL BE SUPPORTED IN AN APPROVED MANNER TO THE BUILDING STRUCTURE. SUPPORT FROM

21. ALL WIRING AND CONDUIT SHALL BE SUPPORTED IN AN APPROVED MANNER TO THE BUILDING STRUCTURE. SUPPORT

CONDUITS, DUCTWORK, PIPING, ETC. WILL NOT BE PERMITTED.

23. ALL ELECTRICAL CONDUIT SHALL BE RUN CONCEALED WHEREVER POSSIBLE. RUN EXPOSED CONDUIT PERPENDICULAR OR PARALLEL TO BUILDING WALLS OR COLUMNS.

24. IN SPACES WITHIN SUSPENDED CEILINGS UTILIZED AS RETURN AIR PLENUMS, ALL WIRING SYSTEMS MUST EITHER BE RUN IN METALLIC RACEWAYS OR SHALL BE UL APPROVED FIRE RATED PLENUM CABLE.

25. FURNISH AND INSTALL NAMEPLATES ON ELECTRICAL PANELS, DISCONNECT SWITCHES, TRANSFORMERS.

26. THE INSULATION OF EACH WIRE OR CABLE SHALL BE LABELED, MARKED, AND COLOR CODED, AS PER THE 120/208V 2020 NATIONAL ELECTRIC CODE, WITH AMENDMENTS, REQUIREMENTS.

27. WIRING DEVICE COLORS SHALL AS FOLLOWS, UNLESS NOTED OTHERWISE: NORMAL POWER DEVICES: WHITE WITH

WHITE WALL PLATES. ISOLATED GROUND: ORANGE WITH WHITE WALLPLATES. NORMAL/STANDBY OR EMERGENCY POWER: RED WITH RED FACEPLATES. UPS POWER: GREEN WITH WHITE FACEPLATES. CONFIRM COLOR OF DEVICES AND WALLPLATES WITH ARCHITECT PRIOR TO ORDERING. 28. CONFIRM THE ELECTRICAL CHARACTERISTICS, SUCH AS VOLTAGE AND AMPERAGE AND HORSE POWER, OF ALL

ELECTRICALLY POWERED PROCESS EQUIPMENT, HVAC EQUIPMENT, PLUMBING EQUIPMENT, AND OR FIRE PROTECTION EQUIPMENT WITH THE OWNER, GC, ARCHITECT AND ASSOCIATED CONTRACTORS PRIOR TO COMMENCING WORK AND BEFORE ORDERING ELECTRICAL DISTRIBUTION EQUIPMENT 29. ALL WIRING DEVICES SHALL HAVE THEIR PANELBOARD ORIGIN AND CIRCUIT NUMBERS STAMPED OR LABELED ON THE

FRONT OF THEIR ASSOCIATED WALLPLATE. 30. ALL DISCONNECT SWITCHES SHALL NE LABLED TO INDICATE LOAD SERVED AND SOURCE PANELBOARD ORIGIN AND

31. BACK TO BACK RECEPTACLES, SWITCH, AND/OR VOICE/DATA DEVICES AND OUTLETS WILL NOT BE ALLOWED IN THE SAME STUD SPACE OF ACOUSTICALLY TREATED OR FIRE RATED WALL PARTITIONS

32. PROVIDE ELECTRICAL OUTLET DEVICE PLATE GASKETS IN ALL WIRING DEVICE BOXES INSTALLED IN WALLS SEPARATING CONDITIONED AND UNCONDITIONED SPACES.

33. OUTLETS OR DEVICES MOUNTED ON EXISTING C.M.U. WALLS SHALL BE SURFACE MOUNTED IN APPROPRIATE BOXES. 34. PROVIDE SEISMIC RESTRAINTS FOR ALL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE 2021, WITH AMENDMENTS, RECOMMENDATIONS. SEISMIC SYSTEM DESIGN AND CALCULATIONS SHALL BE PREPARED

AND STAMPED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT.

35. THE CONTRACTOR SHALL BALANCE PANELBOARD LOADS TO WITHIN 10% PHASE TO PHASE. PROVIDE NEW AND OR UPDATED TYPEWRITTEN DIRECTORIES OF BRANCH CIRCUITS IN ALL PANELBOARDS, NEW AND EXISTING, WHICH ARE MODIFIED UNDER THIS CONTRACT. INDICATE CIRCUIT CHANGES IN RECORD DRAWINGS.

36. SAFETY DISCONNECT SWITCHES SHALL BE THREE-POLE GENERAL DUTY TYPE RATED FOR 600 VOLT IN NEMA 1 (INTERIOR DRY APPLICATIONS) AND NEMA 3R (EXTERIOR APPLICATIONS) ENCLOSURES UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL SWITCHES SHALL BE HORSEPOWER RATED AND SUITABLE FOR HEAVY DUTY AND/OR SERVICE ENTRANCE USE AS APPLICABLE PROVIDE WITH SOLID NEUTRAL WHERE FOUR WIRE CIRCUITS ARE INDICATED ON THE DRAWINGS. MANUAL MOTOR STARTERS SHALL HAVE QUICK MAKE. QUICK BREAK TOGGLE MECHANISMS WITH ALLOWANCE FOR UP TO 10% FIELD ADJUSTMENT TO NOMINAL OVERLOAD HEATER VALUES. MANUAL MOTOR STARTERS SHALL BE SINGLE PHASE AND MAY BE USED FOR APPLICATIONS UP TO 1 HP AT 277 VOLT. OVERLOAD HEATERS SHALL BE SET TO 115% OF THE INSTALLED MOTOR

THE HVAC CONTRACTOR SHALL PROVIDE DUCT SMOKES, MOTORIZED DAMPERS, VFD'S, AND MAGNETIC MOTOR STARTERS WHERE INDICATED FOR MECHANICAL EQUIPMENT. PROVIDE AUXILIARY CONTACTS IN MOTOR STARTERS WHERE REQUIRED FOR INTERLOCKING PURPOSES, COORDINATE WITH HVAC CONTRACTOR FOR CONFIRMATION OF FOLIPMENT LISTED FURNISHED AND INSTALLED AND WIRED. TRADE PARTIES RESPONSIBILITIES

38. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, PATCHING OR CORING OF WALL AND FLOOR SURFACES REQUIRED FOR THE INSTALLATION OF ANY ELECTRICAL WORK.

ELECTRICAL CONTRACTOR SHALL REVIEW CONTRACT DOCUMENTS AND COORDINATE WITH GC FOR SPECIFIC MOUNTING LOCATIONS AND FINISH WOODWORKING CONSTRAINTS FOR EQUIPMENT AND DEVICES IF REQUIRED.

40. THE GENERAL CONTRACTOR SHALL X-RAY THE SLAB BEFORE CUTTING OR CORING ANY EXISTING CONCRETE SLABS OR SURFACES.

41. ALL NEW FIRE ALARM DEVICES SHALL BE AS MANUFACTURED BY THE SAME FIRE ALARM MANUFACTURER. 42. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING THE FIRE ALARM SYSTEM AT THE COMPLETION OF THE WORK

IF PROJECT IS A RENOVATION, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DEMOLITION AND REMOVAL OF ALL EXISTING ELECTRICAL WORK IN THE DESIGNATED RENOVATED AREAS UNLESS SPECIFICALLY NOTED OTHERWISE. COORDINATE ALL ITEMS

TO BE DEMOLISHED WITH THE ARCHITECT BEFORE COMMENCING WORK. IF PROJECT IS A RENOVATION, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND RE-INSTALLING ALL

EXISTING CEILING TILES REQUIRED FOR THE ELECTRICAL CONTRACTOR TO PERFORM THE ELECTRICAL SCOPE OF WORK.

TO THE SATISFACTION OF THE NEW HAVEN FIRE DEPARTMENT OR THE LOCAL AUTHORITY HAVING JURISDICTION.

45. SHOP DRAWINGS AND RFI'S WILL BE REVIEWED AND RETURNED WITHIN 14 BUSINESS DAYS. INCOMPLETE SHOP DRAWINGS WILL NOT

REQUEST FOR INFORMATION MUST CLEARLY ASK A QUESTION, BE CLEAR, CONCISE AND REFERENCE SPECIFIC SPECIFICATIONS OR DRAWINGS REQUIRING A RESPONSE. RESPONSES WILL BE PROVIDED WITHIN 14 BUSINESS DAYS, RFI RESPONSES WILL BE IN THE FORM OF NARRATIVE RESPONSES UNLESS THE ENGINEER OF RECORD DEEMS IT NECESSARY TO PROVIDE SKETCHES OR REVISED DRAWINGS.

SHOULD THE ELECTRICAL CONTRACTOR PROCEED WITH THE WORK EFFECTED BY THE RESPONSE FROM THE ENGINEER FOR SHOP DRAWINGS OR RFI'S BEFORE THE RESPONSE IS PROVIDED BY THE ENGINEER WITHIN THE AGREED UPON DURATION OF THE RESPONSE. THEN THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LOSSES, DAMAGES, LIABILITY AND COSTS ASSOCIATED WITH THE ALTERATIONS PRIOR TO THE RESPONSE GIVEN AND INSTALLED.

ALL SHOP DRAWINGS AND RFI'S NEED TO BE LOGGED AS TO WHEN THEY WERE SUBMITTED. WHEN RESPONSES WERE PROVIDED, AND WHEN THEY ARE DUE. LOG SHALL BE MADE AVAILABLE TO THE PROJECT TEAM.

SHOP DRAWINGS INFORMATION REQUIRED: PRIOR TO PURCHASING ANY EQUIPMENT OR MATERIALS, A LIST OF THEIR MANUFACTURERS AND SHOP DRAWINGS OF ALL 45.4.1. FLECTRICAL FOLIPMENT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL

PRIOR TO ASSEMBLING OR INSTALLING THE WORK, AN ELECTRONIC COPY OF SHOP DRAWINGS FOR EACH ITEM OR SYSTEM SHALL BE SUBMITTED FOR APPROVAL DOCUMENTS WILL NOT BE ACCEPTED FOR APPROVAL UNLESS:

45.4.3.1. THEY COMPLY WITH THE REQUIREMENTS OF THE GENERAL CONDITIONS. ONE ELECTRONIC CUT-SHEET OF EACH IS SUBMITTE

THEY INCLUDE COMPLETE INFORMATION PERTAINING TO APPURTENANCES AND ACCESSORIES. 45.4.3.3. THEY ARE SUBMITTED AS A PACKAGE WHERE THEY PERTAIN TO RELATED ITEMS.

THEY ARE PROPERLY MARKED WITH SERVICE OR FUNCTION IDENTIFICATION AS RELATED TO THE PROJECT, WHERE 45.4.3.5. THEY CONSIST OF CATALOG SHEETS DISPLAYING OTHER ITEMS WHICH ARE NOT APPLICABLE.

THEY ARE PROPERLY MARKED WITH EXTERNAL CONNECTION IDENTIFICATION AS RELATED TO THE PROJECT WHERE THEY CONSIST OF STANDARD FACTORY ASSEMBLY OR FIELD INSTALLATION DRAWINGS.

THEY ARE SUBMITTED WITHIN 14 DAYS OF THE SIGNING OF THE ELECTRICAL CONSTRUCTION CONTRACT. ELECTRICAL CHARACTERISTICS AREA CLEARLY IDENTIFIED, SUBMITTAL SHEETS ARE ANNOTATED TO IDENTIFY WHICH OPTIONS AND SPECIFIC CHARACTERISTICS WILL BE PROVIDED.

ELECTRICAL EQUIPMENT SUCH AS SWITCHBOARDS, MODULAR METERING, DISTRIBUTION PANELS, PANELBOARDS, LOAD CENTERS, DISCONNECT SWITCHES AND ENCLOSURES SHALL BE PROVIDED WITH SITE SPECIFIC DIMENSIONAL DRAWINGS

THE TEXT IS LEGIBLE.

SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CONTRACT DOCUMENTS AND ARE NOT CHANGE ORDERS. THE PURPOSE OF THE SHOP DRAWING REVIEW IS TO ESTABLISH A REPORTING PROCEDURE AND IS INTENDED FOR THE CONTRACTOR'S CONVENIENCE IN ORGANIZING HIS/HER WORK. IF DEVIATIONS. DISCREPANCIES OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER THE SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER. THE CONTRACTOR AGREES THAT THE CONTRACT DOCUMENTS SHALL CONTROL AND BE FOLLOWED. SUBMISSION OF THE SHOP DRAWINGS OR COMMENCEMENT OF THE CONSTRUCTION WORK IMPLIES THAT TRADE COORDINATION HAS TAKEN PLACE. THEREAFTER, ANY COSTS FOR MODIFICATIONS TO EQUIPMENT OR SYSTEMS DUE TO INTERFERENCES SHALL BE BORNE BY THE CONTRACTOR.

BEFORE AN APPLICATION FOR FINAL ACCEPTANCE OF THE WORK, ALL TESTS DEEMED NECESSARY PER CONTRACT WITH THE GC AND/OR ARCHITECT TO SHOW PROPER EXECUTION OF THE WORK SHALL HAVE BEEN PERFORMED AND COMPLETED IN THE PRESENCE OF SAID GC, ENGINEER OF RECORD AND/OR ARCHITECT. ANY DEFECTS OR DEFICIENCIES DISCOVERED AND CONFIRMED IN ANY OF THE ELECTRIC WORK SHALL BE CORRECTED.

47. RECORD DRAWINGS:

AS PART OF THE REQUIRED ELECTRIC WORK. A COMPLETE SET OF REPRODUCIBLE "RECORD DRAWINGS" OR RECORD ELECTRICAL DRAWINGS SHALL BE MADE UP AS THE JOB PROGRESSES AND DELIVERED TO THE OWNER AT THE CONCLUSION F THE WORK OR WITHIN 30 DAYS OF OCCUPANCY PERMIT ISSUE THE DRAWINGS SHALL BE PREPARED ON AUTOCAD VERSION 2020 AND SUBMITTED ON THUMB DRIVE IN A .DWG AND .PDF

FORMATS AND ONE SET OF REPRODUCIBLE VELLUMS IF REQUESTED. THE DRAWINGS SHALL SHOW:

ALL ELECTRIC WORK INSTALLED EXACTLY IN ACCORDANCE WITH ORIGINAL DESIGN.

ALL ELECTRIC WORK INSTALLED AS A MODIFICATION OR ADDITION TO THE ORIGINAL DESIGN. THE DIMENSIONAL INFORMATION NECESSARY TO DELINEATE THE EXACT LOCATION OF ALL CIRCUITRY AND WIRING RUNS

SAME) TO THE PANEL OR SWITCHBOARD CIRCUITS FROM WHICH THEY ARE SUPPLIED.

(OTHER THAN LIGHTING AN APPLIANCE BRANCH CIRCUITRY AND SMALL CONTROL, SIGNAL, AND COMMUNICATIONS CIRCUITRY ACCESS ESTABLISHED FOR INSPECTION AND MAINTENANCE

RUNS) WHICH ARE SO BURIED OR CONCEALED AS THE BE UNTRACEABLE BY INSPECTION THROUGH THE REGULAR MEANS OF THE NUMBERING INFORMATION NECESSARY TO CORRELATE ALL ELECTRICAL ENERGY CONSUMING ITEMS (OR OUTLETS FOR

LIGHT FIXTURE SCHEDULE

MOUNTING	INCANDESCENT / HID / LED	EXIT	LANDSCAPE	
RECESSED	R	XR	LR	
CEILING/SURFACE	С	XC	LC	
WALL	W	XW	LW	
PENDANT/SUSPENDED/POLE	Р	XP	LP	
TRACK	Т		LT	

TYPE	DESCRIPTION	DESCRIPTION MANUFACTURER & CATALOG NO.	LAMPS		INPUT		REMARKS	ARCHITECT & CIVIL
1115			NO.	TYPE	VOLTS	WATTS	REMARKS	DESIGNATION
W1	SURFACE WALL MOUNTED LED FIXTURE WITH LENS, WET LOCATION RATED & ADJUSTABLE ANGLE	INSIGHT LIGHTING # PS13-SO-35-80-TR-120*-DIM-TGR-TBD	LED	LED 3500K 80+ CRI	120		PROVIDE ALL NECESSARY PARTS FOR EXTERIOR WALL MOUNTING.	F1
W2	EXTERIOR BUILDING MOUNTED LED WALL PACK WITH INTEGRAL PHOTOCELL	LITHONIA LIGHTING # WDGE2-P3-35K-80CRI-VF-MVOLT-SRM-PE-PIRH	LED	LED 3500K 80+ CRI	UNV	18.0	PROVIDE DIMMING CAPABILITIES TO DIM LED FIXTURE DOWN TO 35% WHEN NO MOTION IS SENSED.	F2
W3	SURFACE WALL MOUNTED LED RED WARNING LIGHT. FINAL LOCATION AND LIGHTING CONTROL COORDINATED IN THE FIELD WITH OWNER.	TO BE DETERMINED BY ARCHITECT	LED	LED	UNV	?		-
XW	SINGLE FACE UNIVERSAL MOUNT ILLUMINATED LED EXIT SIGN WITH INTEGRAL EMERGENCY BATTERY	SURE-LITES # CX SERIES CX-6-1-R	LED	LED	120	2.9	90 MINUTES OR EMERGENCY RUN TIME WITH SELF POWERED BATTERY BACKUP MODEL	-

LIGHT FIXTURE SCHEDULE NOTES

- THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LIGHTING FIXTURES COMPLETE WITH MOUNTING ACCESSORIES TO MEET JOB CONDITIONS
- 2. THE ELECTRICAL CONTRACTOR SHALL VERIFY FIXTURE MOUNTING AND EXACT LOCATIONS AGAINST ARCHITECTS REFLECTED CEILING PLANS, ELEVATIONS AND DETAIL DRAWINGS.
- 3. SERIES FIXTURES SHALL BE LENGTH AS SHOWN ON DRAWINGS.
- 4. FIXTURE LETTERS SHOWN ONCE ON A CONTINUOUS ROW OF FIXTURES SHALL BE TYPICAL FOR THAT ROW UNLESS OTHERWISE NOTED.
- 5. ALL FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE, INDEPENDENT OF HUNG CEILING.
- 6. EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL FIXTURES SHALL BE CONFIRMED WITH THE ARCHITECT PRIOR TO ROUGHING IN.
- INFORMATION LISTED IN THE SECOND COLUMN OF THE FIXTURE SCHEDULE ABOVE SETS THE GENERAL DESCRIPTION OF EACH FIXTURE. INFORMATION LISTED IN THE THIRD COLUMN OF THE FIXTURE SCHEDULE SETS THE STANDARD OF QUALITY. IF DISCREPANCIES ARISE BETWEEN DESCRIPTION OF FIXTURE AND THE CATALOG NUMBER THEN NOTIFY THE ENGINEER BEFORE
- 8. ALL LIGHTING FIXTURES MOUNTED OVER OPEN FOOD DISPLAYS OR CASES SHALL BE EQUIPPED WITH LENSES.
- THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR AIMING OR ADJUSTING ALL DIRECTIONALLY ORIENTED FIXTURES AT THE COMPLETION OF THE PROJECT AS PER THE ENGINEERS'
- 10. ALL LED FIXTURES SHALL BE EQUIPPED WITH DIMMABLE 0-10V DRIVERS UNLESS NOTED OTHERWISE.
- 11. ALL INDIVIDUALLY MOUNTED AND GROUP OR PATTERN MOUNTED SUSPENDED FIXTURES SHALL BE DONE SO WITH AIRCRAFT CABLE SUSPENSION SYSTEMS, (LENGTHS OR MOUNTING HEIGHTS AS INDICATED). PROVIDE ROLIND WHITE 1" DIAMETER CANOPY COVER PLATES FOR CEILING PENETRATIONS OF AIRCRAFT CARLE
- 12. MANUFACTURERS AND CATALOG NUMBERS ARE LISTED IN THE FIXTURE SCHEDULE TO SET A STANDARD OF QUALITY FOR THE LIGHTING FIXTURES, SUBSTITUTION OF LIGHTING FIXTURES WILL BE ALLOWED WHEN THE SUBSTITUTED FIXTURE(S) EQUAL OR EXCEED THE AESTHETIC AND PERFORMANCE CHARACTERISTICS OF THE LIGHTING FIXTURE(S) SPECIFIED, AND ARE APPROVED BY THE ENGINEER.
- 13. ALL POWER CABLE CORD DROPS TO SUSPENSION MOUNTED FIXTURES SHALL BE DONE SO WITH 600V, #12 AWG TYPE SO STRAIGHT CABLE WITH A WHITE COVERED OUTER INSULATING PVC
- 14. FOR ALL FIXTURES EQUIPPED WITH REFLECTORS; PROVIDE ALIGNER CLIPS AT ALL FIXTURE JOINTS.
- 15. ALL RECESSED FIXTURES INSTALLED IN AREAS SEPARATING CONDITIONED AND UNCONDITIONED SPACES SHALL BE ICAT LABELED.
- 16. ALL LED DRIVERS SHALL BE UL LISTED AND COMPLY WITH ALL FCC AND NEMA LIMITS. TOTAL HARMONIC DISTORTION LEVELS SHALL BE LESS THAN 20% AND GREATER THAN 10%. CREST FACTORS SHALL BE LESS THAN 1.6 AND POWER FACTOR SHALL BE GREATER THAN 90%.
- 17. ALL FIXTURES MOUNTED IN COVES SHALL BE FIELD MEASURED AND THE MAXIMUM LENGTH OF UNITS SHALL BE PROVIDED TO CONTINUOUSLY ILLUMINATE COVES.
- 18. ALL RECESSED GRID CEILING MOUNTED LIGHTING FIXTURES SHALL BE EQUIPPED WITH EARTHQUAKE CLIPS THAT ARE IN COMPLIANCE WITH N.E.C. 410.36 MEANS OF SUPPORT.
- 19. ALL FIXTURES EQUIPPED WITH INTEGRAL EMERGENCY BACKUP BATTERIES SHALL ALSO BE EQUIPPED WITH INTEGRAL TEST SWITCHES THAT ARE ACCESSABLE AND VISIBLE FROM THE ILLUMINATED SPACE WITHOUT THE REMOVAL OF SUSPENDED ACOUSTICAL CEILINGS OR PERMENANT CEILINGS.
- 20. ALL LED LUMINAIRES SHALL COMPLY WITH LM79 AND LM80 TESTING STANDARDS.
- 21. ALL EXTERIOR LED POLE MOUNTED, GROUND MOUNTED OR BOLLARD TYPE LIGHTING FIXTURES SHALL BE PROVIDED WITH A LUMINAIRE SURGE PROTECTOR (LSP) DEVICE. THE LSP DEVICES SHALL BE LOCATED AT THE ACCESS HAND HOLE FOR ROUTINE MAINTENANCE. LSP SHALL BE THOMAS RESEARCH PRODUCTS # EOL3-20KA WITH AN LED END-OF-LIFE INDICATOR LIGHT, OR
- 22. ALL EXTERIOR BUILDING MOUNTED LED LIGHTING FIXTURES SHALL BE PROVIDED WITH A LUMINAIRE SURGE PROTECTOR (LSP) DEVICE. THE LSP DEVICES SHALL BE LOCATED AT AN ACCESSIBLE LOCATION, JUNCTION BOX MOUNTED, WITHIN THE BUILDING, FOR ROUTINE MAINTENANCE. LSP SHALL BE THOMAS RESEARCH PRODUCTS # BSP3-277-20KA-TN OR APPROVED
- 23. ALL LUMINAIRES SHALL BE ENERGY STAR OR DLC LISTED. LIGHTING MANUFACTURERS REPRESENTATIVE TO PROVIDE DOCUMENTATION TO SHOW COMPLIANCE WITH EACH LUMINAIRE SUBMITTED.

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TWEED-NEW HAVEN

FAST HAVEN Drawing Title

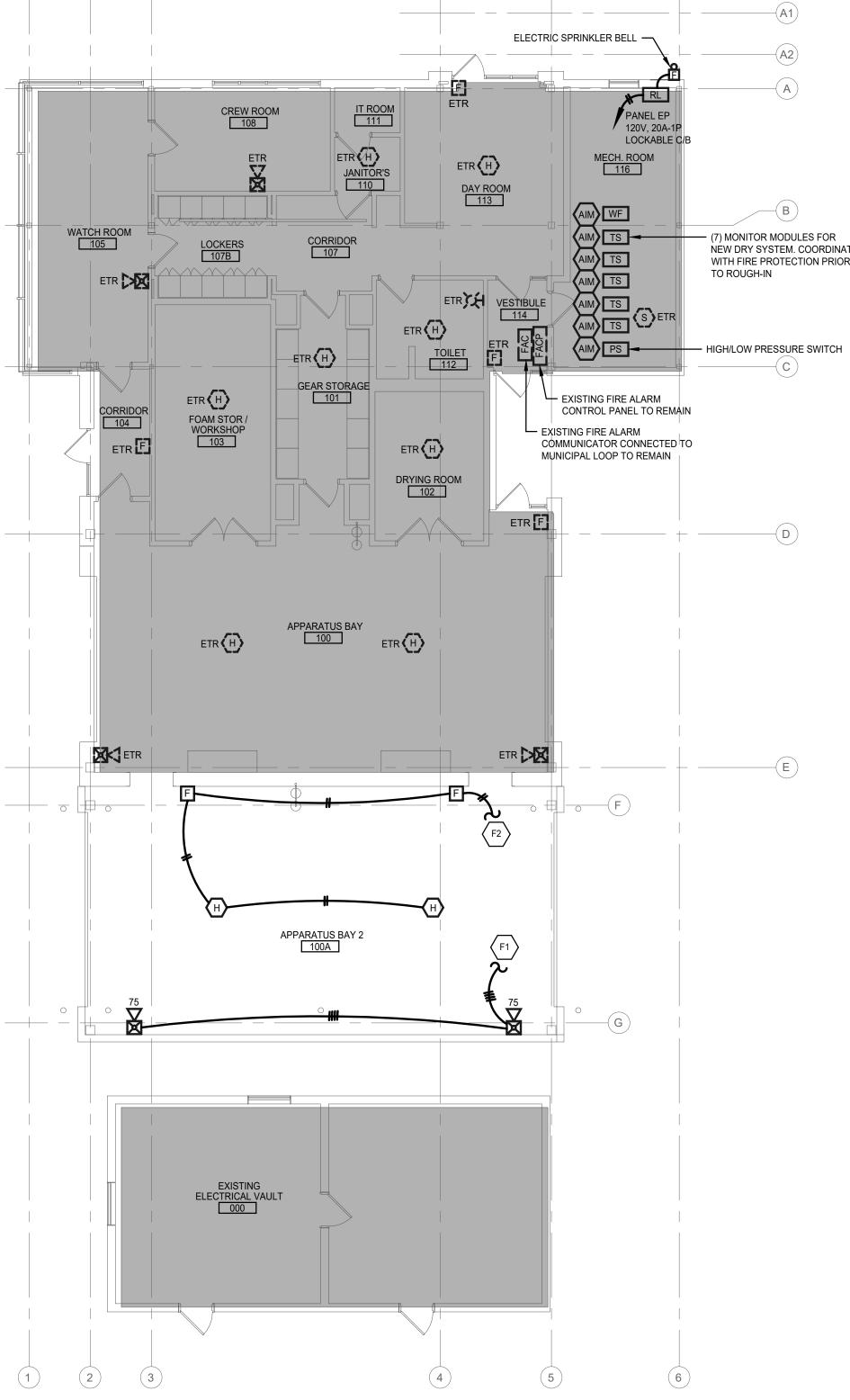
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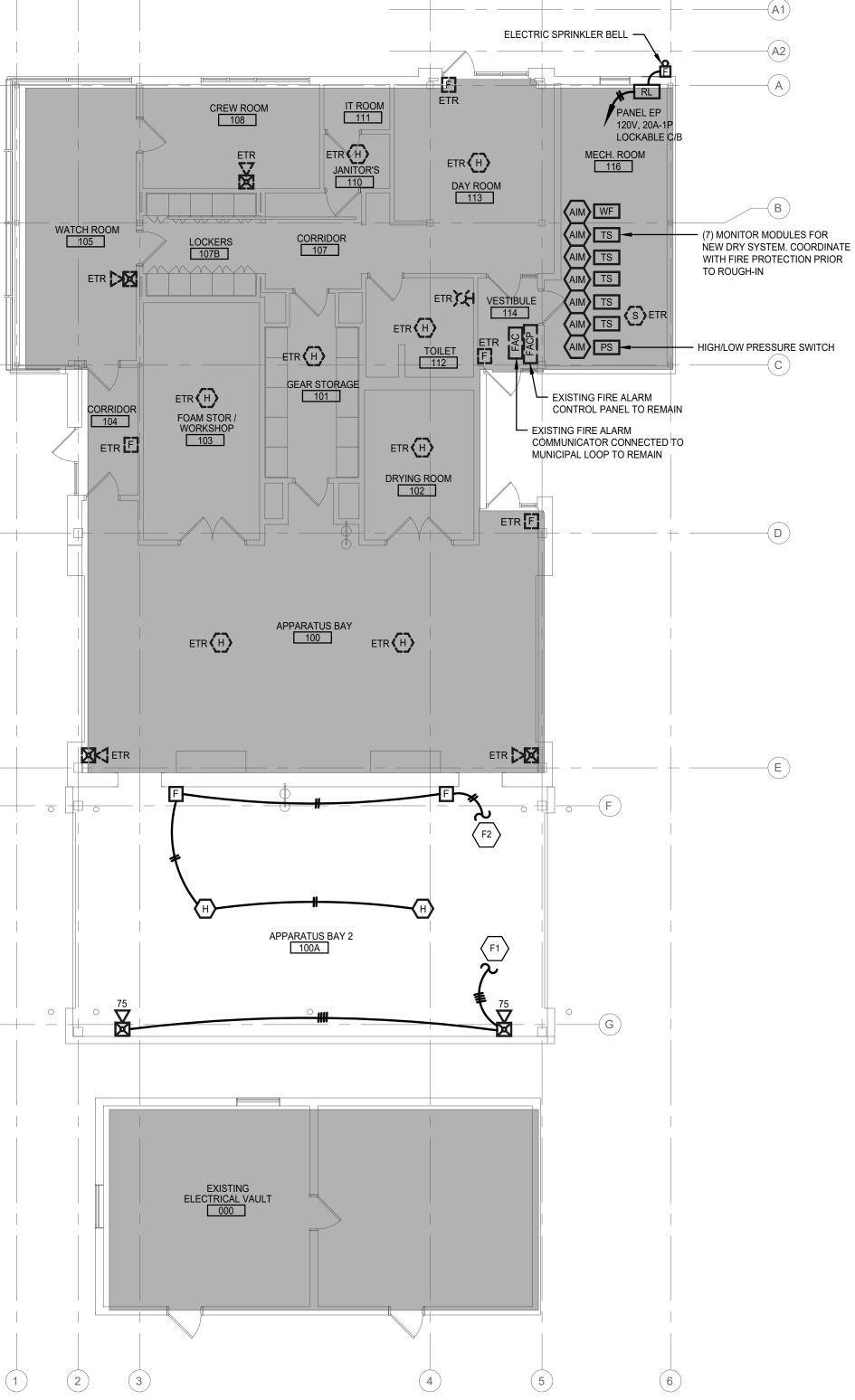


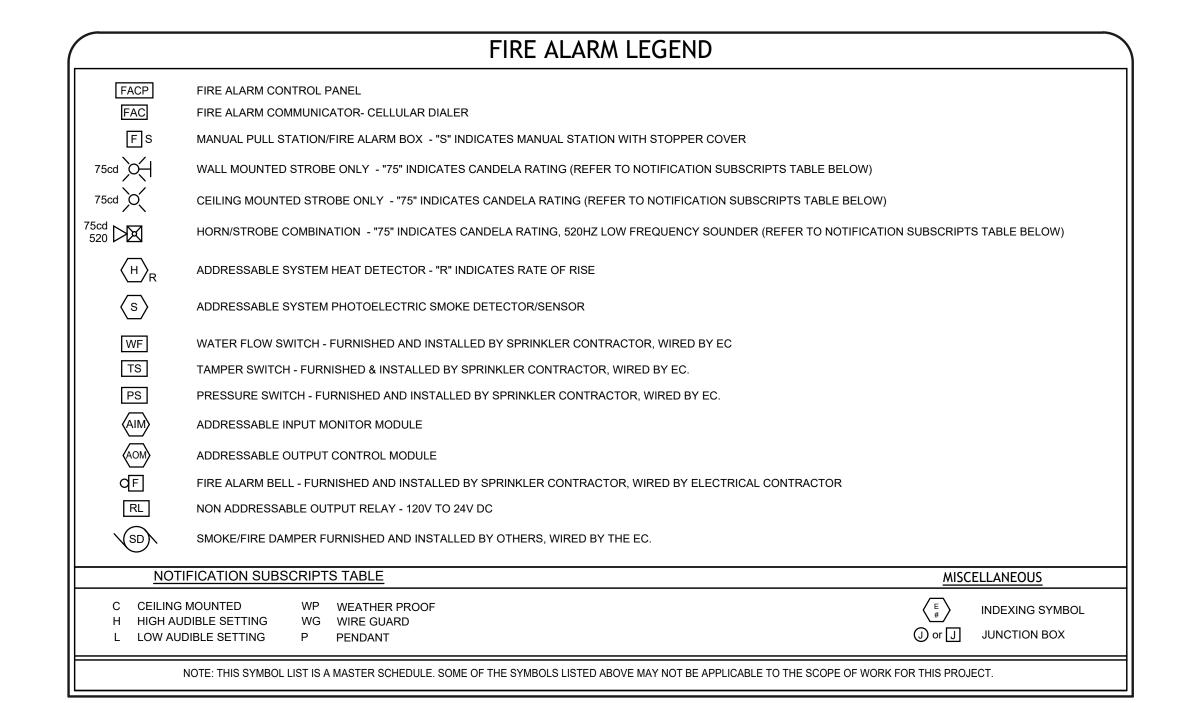
EXISTING GROUND FLOOR PLAN

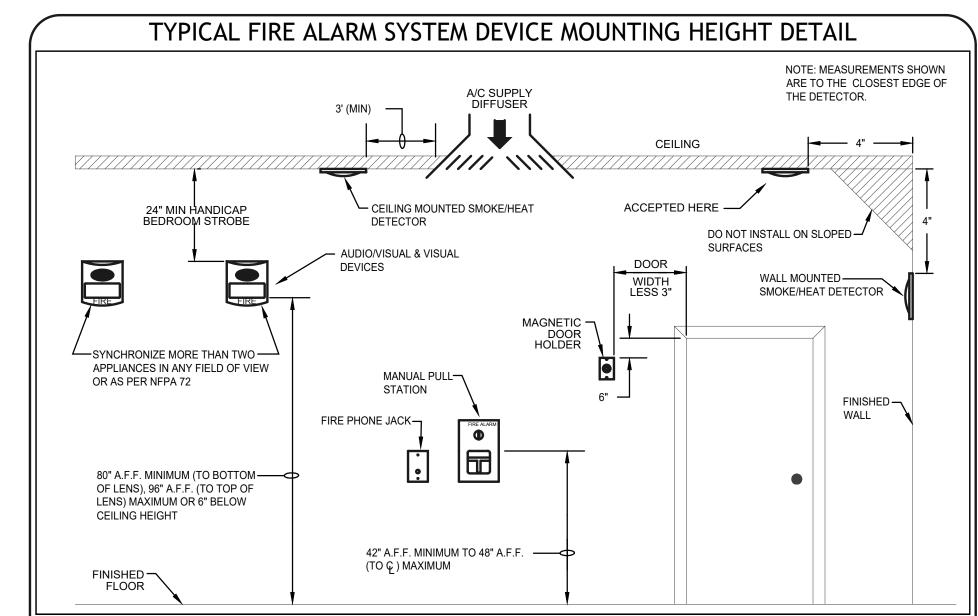
INDICATES AREA NOT IN CONTRACT.

SHALL NOT BE INTERRUPTED.

ALL EXISTING CIRCUITS FOR THIS AREA TO REMAIN AND







FIRE ALARM PLAN NOTES 1. REFER TO DRAWING E0.0 FOR LEGENDS, SYMBOLS, SPECIFICATION AND GENERAL NOTES. 2. REFER TO FIRE ALARM NARRATIVE OR FIRE ALARM MATRIX FOR SEQUENCE OF OPERATIONS OF SYSTEM. 3. REFER TO FIRE PROTECTION PLANS FOR ALL MAIN FLOW, BACKFLOW, FLOW AND TAMPER SWITCH CONTROL ZONES ETC 4. THE ELECTRICAL CONTRACTOR SHALL OBTAIN A FIRE ALARM PERMIT FROM THE NEW HAVEN FIRE DEPARTMENT PRIOR TO COMMENCING WORK. 5. NO PORTION OF THE FIRE ALARM SYSTEM SHALL BE PERMITTED TO REMAIN OUT OF SERVICE OVERNIGHT. 6. ALL NEW DEVICES SHALL BE PER THE SAME MANUFACTURED OR BY THE BASE BUILDING SYSTEMS MANUFACTURER. ONLY AUTHORIZED DEVICES SHALL BE TIED INTO THE BUILDING'S FIRE ALARM SYSTEM THAT ARE LISTED AND COMPATIBLE. ALL NOTIFICATION APPLIANCE DEVICES SHALL BE SYNCHRONIZED TO COMPLY WITH CONNECTICUT BUILDING CODE 2020 AND NFPA 72 2019 ANNEX A 18.4.2.5 REQUIREMENTS. REPLACE EXISTING NON-SYNCHRONIZED MODULES AS REQUIRED OR UTILIZE SYNCHRONIZED HORN/STROBES THROUGHOUT THE RENOVATED SPACE. PROVIDE A/V POWER SUPPLY BOOSTER IN NEMA RED ENCLOSURE IF REQUIRED BY CURRENT DRAW OF 8. IF ANY DEVICES ARE ADDED OR CHANGED IN ANY WAY FROM WHAT IS SPECIFIED ON THE DRAWINGS, THEN THE CHANGES MUST BE REFLECTED AT THE FIRE ALARM CONTROL PANEL VIA LABELLING, PROGRAMMING, ETC. COST OF THE CHANGES ARE TO BE INCLUDED IN THE ELECTRICAL CONTRACTORS BID. 9. THE BUILDING ENGINEER MUST BE NOTIFIED AT LEAST 24 HOURS IN ADVANCE OF ANY WORK TO BE PERFORMED ON THE FIRE ALARM SYSTEM. THE FIRE ALARM SERVICE CONTRACTOR MUST BE PRESENT TO DISABLE AND RESTORE THE SYSTEM AT THE ELECTRICAL CONTRACTORS EXPENSE. 10. FIRE ALARM TESTING MUST COMPLY WITH BUILDING MANAGEMENTS REQUIREMENTS (COORDINATE WITH GC TO ACQUIRE BUILDING STANDARDS IF AVAILABLE). 11. AT THE COMPLETION OF THE PROJECT, THE FIRE ALARM SYSTEM SHALL BE TESTED TO THE SATISFACTION OF THE NEW HAVEN FIRE DEPARTMENT.

12. EC TO VISIT THE SITE PRIOR TO BID AND REVIEW ALL EXISTING FIRE ALARM SYSTEM CONDITIONS VISIBLE. COORDINATE WITH OWNER AND/OR GC TO HAVE FIRE ALARM EQUIPMENT ROOMS AND OTHER KEY AREAS WITHIN FIRE ALARM SYSTEM SCOPE UNLOCKED AND ACCESSIBLE FOR REVIEW

PRESENT TO MAINTAIN ALL SAFETY PROTOCOLS OF THE PROJECT AT TIME OF SITE VISIT.

AND RECORDING OF EXISTING CONDITIONS. EC SHALL COORDINATE WALK THRU SO THAT A QUALIFIED REPRESENTATIVE OF THE OWNER OR GC IS

FIRE ALARM KEY NOTES	
RUN 4#14 FIRE ALARM MC CABLE FROM THE NEW OR RELOCATED DEVICE TO NEAREST EXISTING NOTIFICATION APPLIANCE DEVICE. INTERCEPT EXISTING NAC CIRCUIT TO MAINTAIN A SUPPLY AND RETURN TO THE FACP OR POWER SUPPLY AND TEST THE SYSTEM.	
RUN 2#14 FIRE ALARM MC CABLE FROM THE NEW OR RELOCATED DEVICE TO NEAREST EXISTING NOTIFICATION APPLIANCE DEVICE. INTERCEPT EXISTING NAC CIRCUIT TO MAINTAIN A SUPPLY AND RETURN TO THE FACP OR POWER SUPPLY AND TEST THE SYSTEM.	

