TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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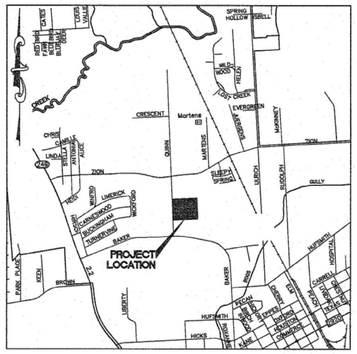
BOARD OF TRUSTEES

ADMINISTRATION



SITE LOCATION MAP

NORTH

2023-11-06

BID SET

PROJECT #:	202311
DATE:	2023-11-06

DATE	ISSUE
2023-11-06	BID SET

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

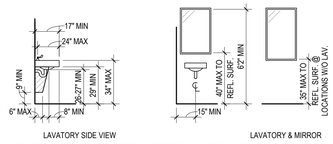
- ACCOUSTICAL TILE
- BATT INSULATION
- BRICK
- CAST-IN-PLACE CONCRETE
- CONCRETE MASONRY UNIT
- EARTH FILL
- FINISHED WOOD
- GYPSUM BOARD
- GYPSUM SHEATHING
- PLASTER
- PLYWOOD
- RIGID INSULATION
- STEEL
- STONE
- WOOD BLOCKING
- WOOD SHIM

18 GEN - DRAWING LEGEND
3/4" = 1'-0"

ACT	ACOUSTIC CEILING TILE	LKR.	LOCKER
AED	AUTOMATED EXTERNAL DEFIBRILLATOR	MEP	MECHANICAL, ELECTRICAL, PLUMBING
A.F.F.	ABOVE FINISH FLOOR	MB	MARKER BOARD
AWP	ACOUSTIC WALL PANEL	M.I.M.	MOBILE INTERACTIVE MONITOR
CC	CHARGING CABINET	MIN	MINIMUM
C.J.	CONTROL JOINT	MTL.	METAL
CL	CENTER LINE	N.I.C.	NOT IN CONTRACT
CORR.	CORRIDOR	O.C.	ON CENTER
CPT	CARPET	OH	OPPOSITE HAND
CT	CERAMIC TILE	ORD	OVERFLOW ROOF DRAIN
C.R.D.	CORROSION RESISTANT DOOR	O.P.C.I.	OWNER PROVIDED CONTRACTOR INSTALLED
CUST.	CUSTODIAL	O.P.O.I.	OWNER PROVIDED OWNER INSTALLED
D	DRYER	P-LAM	PLASTIC LAMINATE
DW	DISHWASHER	POR	PORCELAIN TILE
DWG(S)	DRAWING(S)	PRAC.	PRACTICE
E/S	EMERGENCY EYEWASH & SAFETY SHOWER	RD	ROOF DRAIN
E.J.	EXPANSION JOINT	RE:	REFER TO
ELEV.	ELEVATOR	RFT	RESILIENT TILE FLOORING
EPX	EPOXY FLOORING	REF	REFRIGERATOR
EQ	EQUAL	SCHED.	SCHEDULE(D)
FD	FLOOR DRAIN	SIM.	SIMILAR
FE	FIRE EXTINGUISHER	SK	SINK
FEC	FIRE EXTINGUISHER CABINET	SPECS	SPECIFICATIONS
F.R.P.	FIBERGLASS REINFORCED POLYETHYLENE	S.S.	STAINLESS STEEL
GALV.	GALVANIZE(D)	STOR.	STORAGE
G.F.R.C.	GLASS FIBER REINFORCED CONCRETE	STRUC.	STRUCTURE
GYP. BD.	GYPSUM BOARD	TB	TACK BOARD
HC	HANDICAP	TC	TEACHER CABINET
I.M.	INTERACTIVE MONITOR	TR	TACK RAIL
INFO	INFORMATION	TYP.	TYPICAL
K.S.	KNEE SPACE	U.N.O.	UNLESS NOTED OTHERWISE
L.B.	LOCKDOWN BUTTON	VEST.	VESTIBULE
LVT	LUXURY VINYL TILE	W	WASHER

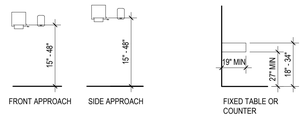
17 GEN - ABREVIATIONS
1/4" = 1'-0"

603. TOILET AND BATHING ROOMS



LAVATORY SIDE VIEW — LAVATORY & MIRROR

HOT WATER AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED, THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.



FRONT APPROACH — SIDE APPROACH — FIXED TABLE OR COUNTER

604. WATER CLOSETS AND TOILET COMPARTMENTS

FIG. 604.3.1 SIZE OF CLEARANCES AT WATER CLOSETS

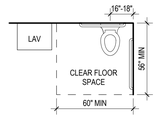
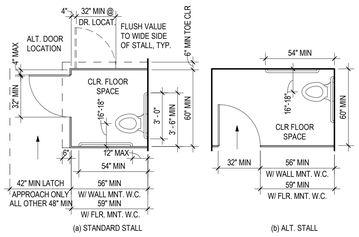
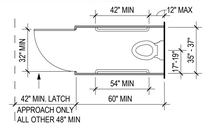


FIG. 604.8.1 WHEELCHAIR ACCESSIBLE TOILET COMPARTMENT DOORS

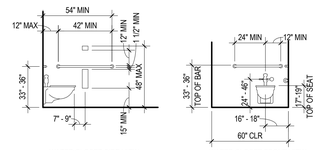


(a) STANDARD STALL — (b) ALT. STALL

FIG. 604.8.2 AMBULATORY ACCESSIBLE TOILET COMPARTMENT



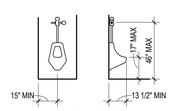
WATER CLOSETS SHALL BE ARRANGED FOR A LEFT-HANDED OR RIGHT-HANDED APPROACH



WATER CLOSET SIDE VIEW — WATER CLOSET FRONT VIEW

GRAB BARS, HANDRAILS AND SHOWER SEATS TO BE CAPABLE OF SUPPORTING A STEADY FORCE OF 250 POUNDS IN ANY DIRECTION

605. URINALS



URINAL ADULT

9 ADA - 603, 604, 605 - TLT CMPRTMNTS
1/4" = 1'-0"

503. PARKING AND PASSENGER LOADING ZONES

TABLE 208.2 PARKING SPACES

TOTAL SPACES	1-25	26-50	51-75	76-100	101-150	151-200	201-300	301-400	401-500	501-1000
REQUIRED ACCESSIBLE SPACES	1	2	3	4	5	6	7	8	9	2% OF TOTAL

1001 AND OVER = 20, + 1 FOR EACH 100, OR FRACTION THEREOF, OVER 1000

FIGURE 810.2.2 DIMENSIONS OF BUS BOARDING AND ALIGHTING AREAS

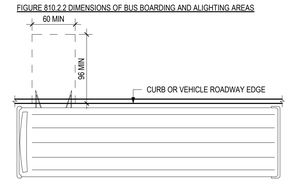
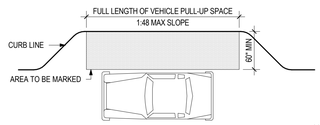
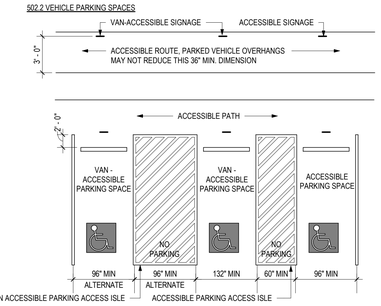


FIGURE 503.3 PASSENGER LOADING ZONE ACCESS AISLE



502.2 VEHICLE PARKING SPACES



16 ADA - 503 PARKING & PASSENGER LOADING ZONES
1/4" = 1'-0"

505. HANDRAILS

FIG. 505.4 HANDRAIL HEIGHT

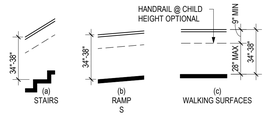


FIG. 505.10.1 TOP AND BOTTOM HANDRAIL EXTENSION AT RAMPS

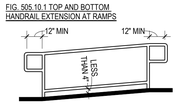


FIG. 505.5 HANDRAIL CLEARANCE

FIG. 505.10.2 TOP HANDRAIL EXTENSION AT STAIRS

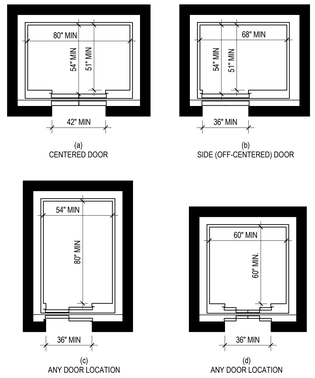
FIG. 505.10.3 BOTTOM HANDRAIL EXTENSION AT STAIRS

NOTE: X = TREAD DEPTH

12 ADA - 505 HANDRAILS
1/4" = 1'-0"

407. ELEVATORS

407.4.1 ELEVATOR CAB DIMENSIONS



(a) CENTERED DOOR — (b) SIDE (OFF-CENTERED) DOOR — (c) ANY DOOR LOCATION — (d) ANY DOOR LOCATION

11 ADA - 407 ELEVATOR CAB
1/4" = 1'-0"

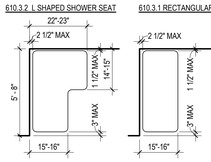
608. SHOWER COMPARTMENTS

FIG. 35(a) 36x36 SHOWER SIZE & CLEARANCES

FIG. 31(b) 30x60 SHOWER SIZE & CLEARANCES

NOTE: FLOOR SURFACE IN STALL SHALL NOT SLOPE IN EXCESS OF 1:50 IN ANY DIRECTION

610.3.2 L SHAPED SHOWER SEAT — 610.3.1 RECTANGULAR SHOWER SEAT



SHOWER STALL

TOP OF SEAT 17"-19"

GRAB BARS 33"-36"

HAND SHOWER HEAD MOUNTED 48" MAX

* GRAB BARS, HANDRAILS AND SHOWER SEATS TO BE CAPABLE OF SUPPORTING A STEADY FORCE OF 250 POUNDS IN ANY DIRECTION.

FIG. 608.5.1 TRANSFER TYPE SHOWER COMPARTMENT CONTROL LOCATION — FIG. 608.5.2 STANDARD ROLL-IN TYPE SHOWER COMPARTMENT CONTROL LOCATION

SIDE WALL — (a) WITHOUT SEAT — (b) WITH SEAT

10 ADA - 608 SHOWER STALLS ADULT
1/4" = 1'-0"

405. Ramps

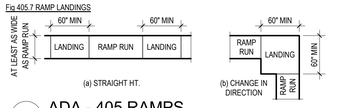
405(a) COMPONENTS OF A SINGLE RAMP RUN AND SAMPLE DIMENSIONS

SLOPE	MAXIMUM RISE	MAX HORIZONTAL PROJECTION
1:12 TO 1:20	30"	30' - 0"
> 1:20	UNLIMITED	UNLIMITED

405(b) EDGE PROTECTION & HANDRAIL EXTENSIONS — Fig. 405.9.2 CURB OR BARRIER EDGE PROTECTION — Fig. 405.9.1 EXTENDED FLOOR OR GROUND SURFACE EDGE PROTECTION

* MUST COMPLY AS 36" MIN IF RAMP IS LESS THAN 30' LONG, 44" MIN IF RAMP IS MORE THAN 30' LONG

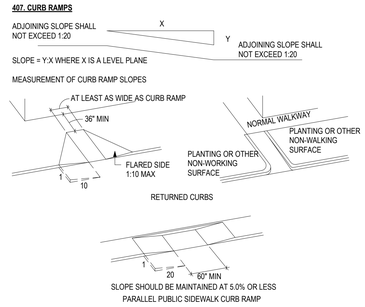
Fig 405.7 RAMP LANDINGS



(a) STRAIGHT HT. — (b) CHANGE IN DIRECTION

7 ADA - 405 RAMPS
1/4" = 1'-0"

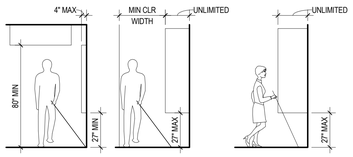
407. CURB RAMPS



8 ADA - 407 CURB RAMPS
1/4" = 1'-0"

307. PROTRUDING OBJECTS

FIG. 307.2 LIMITS OF PROTRUDING OBJECTS — 307(a) WALKING PERPENDICULAR TO A WALL



307.3(b) POST MOUNTED PROTRUDING OBJECTS — 307.4 VERTICAL CLEARANCE

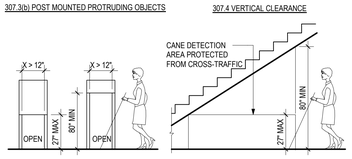
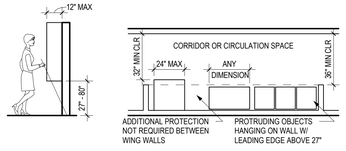


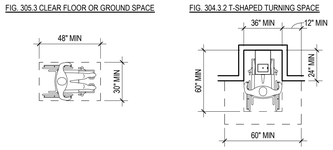
FIG. 307.3(a) POST MOUNTED PROTRUDING OBJECT — 307(b). EXAMPLE OF PROTECTION AROUND WALL MOUNTED OBJECTS AND MEASUREMENTS OF CLEAR WIDTHS



3 ADA - 307 PROTRUDING OBJECTS
1/4" = 1'-0"

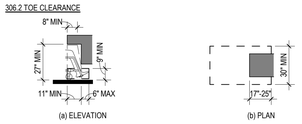
305. CLEAR FLOOR OR GROUND SPACE

FIG. 305.3 CLEAR FLOOR OR GROUND SPACE — FIG. 304.3.2 T-SHAPED TURNING SPACE



306 KNEE AND TOE CLEARANCE

306.2 TOE CLEARANCE



(a) ELEVATION — (b) PLAN

2 ADA - 305 & 306 CLEARANCES
1/4" = 1'-0"

302. FLOOR OR GROUND SURFACES

Fig. 302.2 CARPET PILE THICKNESS

FIG. 302.3 ELONGATED OPENINGS IN FLOOR OR GROUND SURFACES

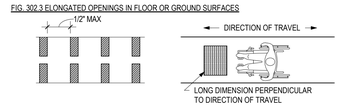


FIG. 303.2 VERTICAL CHANGE IN LEVEL — FIG. 303.3 BEVELED CHANGE IN LEVEL

1 ADA - 302 SURFACE
1/4" = 1'-0"

221. ASSEMBLY AREAS

NUMBER OF SEATS	MIN NUMBER OF REQ'D WHEELCHAIR SPACES
4 - 25	1
26 - 50	2
51 - 150	4
151 - 300	5
301 - 500	6
501 - 5000	6, PLUS 1 FOR EACH 150, OR FRACTION THEREOF, BETWEEN 501 THROUGH 5000
5001 AND OVER	36, PLUS 1 FOR EACH 200, OR FRACTION THEREOF, OVER 5000

TABLE 221.2.1. NUMBER OF WHEELCHAIR SPACES IN ASSEMBLY AREAS

14 ADA - 221 ASSEMBLY AREA
1/4" = 1'-0"

219. ASSISTED LISTENING SYSTEMS

CAPACITY OF SEATING IN ASSEMBLY AREA	MIN NUMBER OF REQ'D. RECEIVERS	MIN NUMBER OF REQ'D. RECEIVERS REQ'D TO BE HEARING-AID COMPATIBLE
50 OR LESS	2	2
51 - 200	2, PLUS 1 PER 25 SEATS OVER 50 SEATS	2
201 - 500	2, PLUS 1 PER 25 SEATS OVER 50 SEATS	1 PER 4 RECEIVERS
501 - 1000	20, PLUS 1 PER 33 SEATS OVER 500 SEATS	1 PER 4 RECEIVERS
1001 - 2000	35, PLUS 1 PER 50 SEATS OVER 1000 SEATS	1 PER 4 RECEIVERS
2001 AND OVER	55 PLUS 1 PER 100 SEATS OVER 2000 SEATS	1 PER 4 RECEIVERS

TABLE 219.3 RECEIVERS FOR ASSISTIVE LISTENING SYSTEMS

13 ADA - 219 ASSISTIVE LISTENING SYSTEMS
1/4" = 1'-0"

	ACCESSIBLE MOUNTING HEIGHTS BY AGE GROUP			
	ADULT	AGE: 9 - 12	AGE: 5 - 8	AGE: 2 - 3
REACH RANGES				
HIGH (MAX)	48"	44"	40"	36"
LOW (MIN)	15"	16"	18"	20"
RAMPS AND STAIRS				
TOP OF HANDRAIL		SECOND SET	SECOND SET	SECOND SET
GRIPPING SURFACE	34" - 38"	28" MAX	28" MAX	28" MAX
ELEVATORS				
EMERGENCY CONTROL BUTTONS	35" TO C.L.			
CONTROL BUTTONS	48" MAX			
DRINKING FOUNTAINS & WATER COOLERS				
HEIGHT TO SPOUT WHEELCHAIR	36"	30" MAX	30" MAX	30" MAX
STANDING	38" - 43"			
WATER CLOSETS				
CENTERLINE - WALL HUNG	16" - 18"	15" - 18"	12" - 15"	12"
TOP OF SEAT	17" - 19"	15" - 17"	12" - 15"	11" - 12"
GRAB BARS	33" - 36"	25" - 29"	20" - 25"	18" - 20"
DISPENSER HEIGHT	15" MIN	17" - 19"	14" - 17"	14"
URINALS				
CENTERLINE - WALL HUNG	15" MIN			
TOP OF RIM	17" MAX			
FLUSH CONTROLS	46" MAX	44" MAX		
LAVATORIES AND SINKS				
RIM OR COUNTER SURFACE	34" MAX	31" MAX	31" MAX	
KNEE CLEARANCE	PER 306.2	24" MIN	24" MIN	
SHOWER STALLS				
TOP OF SEAT	17" - 19"			
GRAB BARS	33" - 36"	25" - 27"	20" - 25"	18" - 20"
HAND SHOWER HEAD MOUNTING	SPRAY UNIT W/ 59" MIN HOSE			
FIXED OR BUILT-IN SEATING & TABLES				
HIGHEST OPERABLE PART	28" - 34"	26" - 30"	26" - 30"	
DRESSING AND FITTING ROOMS				
HANDICAP BENCH MOUNT	17" - 19"			
TOP OF RIM	20" - 24"			
FLUSH CONTROLS	42" MIN			
FOOD SERVICE LINES				
TOP OF TRY SLIDE				
EMERGENCY EYEWASH				
TOP OF COUNTER				
ACTUATOR				

HOT WATER AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED.
THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES

GRAB BARS, HANDRAILS AND SHOWER SEATS TO BE CAPABLE OF SUPPORTING A STEADY FORCE OF 250 POUNDS IN ANY DIRECTION.

6 ADA - ACCESS. MNT. HTS BY AGE
1/4" = 1'-0"

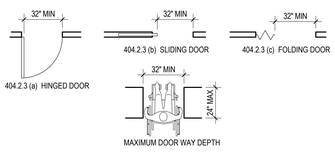
- COLUMN GRID
- WALL & BUILDING SECTIONS
- TYP. DIMENSION
- [FIELD VERIFY] DIMENSION
- ALL DIMENSIONS TO FACE OF WALL @ CMU OR FACE OF STUD U.N.O.
- PLAN OR DETAIL ENLARGED

X' - X" F.F.	FINISH FLOOR
X' - X" T.O.S.	TOP OF STEEL
X' - X" T.O.WD.	TOP OF WOOD
CLASSROOM A101	ROOM NAME ROOM NUMBER
CLASSROOM A101 CPT-1 RB-1 PT-1	ROOM NAME ROOM NUMBER FLOOR FINISH BASE FINISH WALL FINISH
RE: X/A.XX RE: X/A.XX	MATCH LINE

15 GEN - DRAWING CONVENTIONS
1/4" = 1'-0"

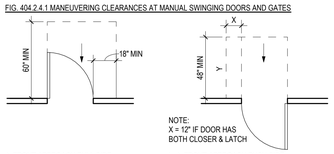
404. DOORS, DOORWAYS, AND GATES

FIG. 404.2.3 CLEAR WIDTH OF DOORWAYS

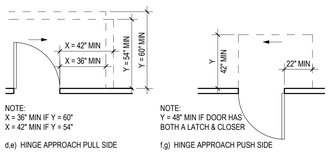


404.2.3 (a) HINGED DOOR — 404.2.3 (b) SLIDING DOOR — 404.2.3 (c) FOLDING DOOR — MAXIMUM DOOR WAY DEPTH

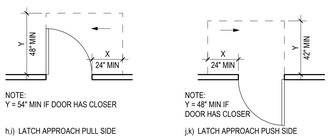
FIG. 404.2.4.1 MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS AND GATES



a) FRONT APPROACH PULL SIDE — b,c) FRONT APPROACH PUSH SIDE



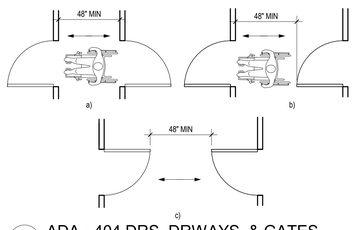
d,e) HINGE APPROACH PULL SIDE — f,g) HINGE APPROACH PUSH SIDE



h,i) LATCH APPROACH PULL SIDE — j,k) LATCH APPROACH PUSH SIDE

NOTE: ALL DOORS IN ALCOVES SHALL COMPLY WITH THE CLEARANCE FOR FRONT APPROACHES

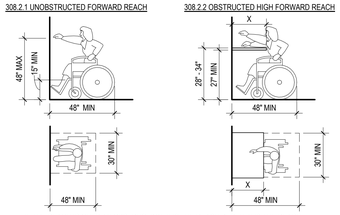
FIG. 404.2.6 DOORS IN SERIES AND GATES IN SERIES



5 ADA - 404 DRS, DRWAYS, & GATES
1/4" = 1'-0"

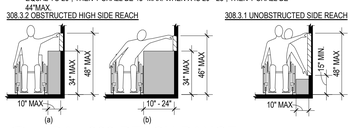
308. REACH RANGE

308.2.1 UNOBSTRUCTED FORWARD REACH — 308.2.2 OBSTRUCTED HIGH FORWARD REACH



IF THE REACH IS OVER AN OBSTRUCTION, X IS THE REACH DEPTH, Y IS THE REACH HEIGHT AND Z IS THE DEPTH OF THE OBSTRUCTION: WHEN X IS LESS THAN OR EQUAL TO 20", THEN Y SHALL BE 48" MAX. WHEN X IS 20"- 25", THEN Y SHALL BE 44"MAX

308.3.2 OBSTRUCTED HIGH SIDE REACH — 308.3.1 UNOBSTRUCTED SIDE REACH



(a) — (b)

4 ADA - 308 REACH RANGE
1/4" = 1'-0"

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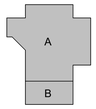

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

REGISTERED ARCHITECT — STATE OF TEXAS

2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

G1.00
GENERAL/CODE INFORMATION

I. GENERAL DESCRIPTION

1. PROJECT NAME: TOMBALL HIGH SCHOOL CTE RENOVATIONS
2. PROJECT LOCATION: 30330 QUINN RD. TOMBALL, TX 77375
3. APPLICABLE CODES:
   INTERNATIONAL BUILDING CODE, 2015 ED.
   INTERNATIONAL MECHANICAL CODE, 2015 ED. WITH ADOPTED AMENDMENTS
   INTERNATIONAL PLUMBING CODE, 2015 ED. WITH ADOPTED AMENDMENTS
   NATIONAL ELECTRICAL CODE, 2017 ED. WITH ADOPTED AMENDMENTS
   INTERNATIONAL FIRE CODE, 2015 ED.
   INTERNATIONAL ENERGY CONSERVATION CODE, 2015 ED.
   ASHRAE 90.1-2007
   THE STANDARDS OF THE STATE BOARD OF INSURANCE
   TEXAS ACCESSIBILITY STANDARDS - (TAS) 2012
   NFPA 101

II. USE AND OCCUPANCY CLASSIFICATION (IBC CH.3, CH.4, AND CH.5)

1. USE AND OCCUPANCY CLASSIFICATION (IBC SECTION 302,303, AND 304)

A. GENERAL BUILDING: TYPE E - EDUCATIONAL

ACCESSORY OCCUPANCIES (IBC SECTION 508.2)
ACCESSORY OCCUPANCIES THAT ARE ANCILLARY TO THE MAIN OCCUPANCY OF THE BUILDING OR PORTION THEREOF. ACCESSORY OCCUPANCIES SHALL COMPLY WITH THE PROVISIONS OF SECTIONS 508.2.1 THROUGH 508.2.4.

GENERAL (IBC SECTION 508.1)
EACH PORTION OF A BUILDING SHALL BE INDIVIDUALLY CLASSIFIED IN ACCORDANCE WITH SECTION 302.1. WHERE A BUILDING CONTAINS MORE THAN ONE OCUPANCY GROUP, THE BUILDING OR PORTION THEREOF SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF SECTION 508.2, 508.3 OR 508.4, OR A COMBINATION OF THESE SECTIONS.

OCCUPANCY CLASSIFICATION (IBC SECTOPM 508.2.1)
ACCESSORY OCCUPANCIES SHALL BE INDIVIDUALLY CLASSIFIED IN ACCORDANCE WITH SECTION 302.1. THE REQUIREMENTS OF THIS CODE SHALL APPLY TO EACH PORTION OF THE BUILDING BASED ON THE OCCUPANCY CLASSIFICATION OF THAT SPACE.

ALLOWABLE BUILDING HEIGHT (IBC SECTION 508.2.2)
THE ALLOWABLE HEIGHT AND NUMBER OF STORIES OF THE BUILDING CONTAINING ACCESSORY OCCUPANCIES SHALL BE IN ACCORDANCE WITH SECTION 504 FOR THE MAIN OCCUPANCY OF THE BUILDING.

ALLOWABLE BUILDING AREA (IBC SECTION 508.2.3)
THE ALLOWABLE AREA OF THE BUILDNG SHALL BE BASED ON THE APPLICABLE PROVISIONS OF SECTION 506 FOR THE MAIN OCCUPANCY OF THE BUILDING. AGGREGATE ACCESSORY OCCUPANCIES SHALL NOT OCCUPY MORE THAN 10 PERCENT OF THE FLOOR AREA OF THE STORY IN WHICH THEY ARE LOCATED AND SHALL NOT EXCEED THE TABULAR VALUES FOR NON-SPRINKLED BUILDINGS IN THE TABLE 506.2 FOR EACH SUCH ACCESSORY OCCUPANCY.

SEPERATION OF OCCUPANCIES (IBC SECTION 508.2.4)
NO SEPERATION IS REQUIRED BETWEEN ACCESSORY OCCUPANCIES AND THE MAIN OCCUPANCY.

REQUIRED SEPERATION OF OCCUPANCIES (IBC TABLE 508.4)
OCCUPANCIES "B" AND "A". NO SEPERATION REQUIRED.

3. INCIDENTAL USES (IBC SECTION 509)

OCCUPANCY CLASSIFICATION (IBC SECTION 509.2)
INCIDENTAL USES SHALL NOT BE INDIVIDUALLY CLASSIFIED IN ACCORDANCE WITH SECTION 302.1. INCIDENTAL USES SHALL BE INCLUDED IN THE BUILDING OCCUPANCIES WITHIN WHICH THEY ARE LOCATED.

INCIDENTAL USES (IBC TABLE 509)
A. FURNACE ROOOM WHERE ANY PIECE OF EQUIPMENT IS OVER 400,000 BTU PER HOUR INPUT: 1 HOUR OR AUTOMATIC SPRINKLER SYSTEM
B. ROOMS WITH BOILERS WHERE THE LARGEST PIECE OF EQUIPMENT IS OVER 15 PSI AND 10 HORSEPOWER: 1 HOUR OR PROVIDE AUTOMATIC SPRINKLER SYSTEM
C. REFRIGERANT MACHINERY ROOM: 1 HOUR OR PROVIDE AUTOMATIC SPRINKLER SYSTEM

III. CONSTRUCTION CLASSIFICATION

1. CONSTRUCTION TYPE (IBC TABLE 506.2)
   TYPE II-B, FULLY SPRINKLED

IV. ALLOWABLE HEIGHT AND BUILDING AREA

1. ALLOWABLE NUMBER OF STORIES (IBC TABLE 404.4)
   BUSINESS GROUP "E": 3 STORIES

2. ALLOWABLE HEIGHT (IBC TABLE 504.3)
   BUSINESS GROUP "E": 75 FEET

3. ALLOWABLE AREA FACTOR (IBC TABLE 506.2)
   EDUCATIONAL GROUP "E": 58,000 S.F. = PER STORY

V. ACTUAL HEIGHT AND BUILDING AREA

1. ACTUAL HEIGHT: 1 STORY

2. ACTUAL GROSS BUILDING AREA:
   TOTAL AIA SQUARE FEET = **34, 670 S.F.**

VI. SEPERATION AND/ OR PROTECTION

1. FIRE RESISTANCE RATING REQUIREMENTS (IBC TABLE 601)
   CONSTRUCTION TYPE II-A

BUILDING ELEMENT	FIRE-RESISTANCE RATING	PROVIDED
PRIMARY STRUC. FRAME	0 HOUR	N/A
BEARING WALLS EXTERIOR INTERIOR	 0 HOUR 0 HOUR	 N/A N/A
NONBEARING WALLS & PARTITIONS (EXTERIOR) NONBEARING WALLS & PARTITIONS (INTERIOR)	0 HOURS 0 HOURS	N/A N/A
FLOOR CONSTRUCTION	0 HOUR	N/A
ROOF CONSTRUCTION	0 HOUR	N/A

2. FIRE BARRIERS (IBC SECTION 707)

FIRE RESISTANCE RATING (IBC SECTION 707.3)
THE FIRE-RESISTANCE RATING OF FIRE BARRIERS SHALL COMPLY WITH THIS SECTION.

SHAFT ENCLOSURES (IBC SECTION 707.3.1)
THE FIRE-RESISTANCE RATING OF THE FIRE BARRIER SEPERATING BUILDING AREAS FROM A SHAFT SHALL COMPLY WITH SECTION 713.4.

FIRE-RESISTANCE RATING (IBC SECTION 713.4)
SHAFT ENLOSURES REQUIRED TO BE 1 HOUR FIRE RATED

3. INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY (IBC TABLE 803.11)

GROUP	SPRINKLERED		
	INTERIOR EXIT STAIRWAYS, INTERIOR EXIT RAMPS & EXIT PASSAGE WAYS	CORRIDORS & ENCLOSURE FOR EXIT ACCESS STAIRWAYS & EXIT ACCESS RAMPS	ROOMS & ENCLOSED SPACES
BUSINESS "B"	B	C	C

4. MACHINE ROOMS (IBC SECTION 3005)

MACHINE ROOMS, CONTROL ROOMS, MACHINERY SPACES, AND CONTROL SPACES. (IBC SECTION 3005.4)
ELEVATOR MACHINE ROOMS, CONTROL ROOMS, CONTROL SPACES AND MACHINERY SPACES OUTSIDE OF BUT ATTACHED TO A HOISTWAY THAT HAVE OPENINGS INTO THE HOISTWAY SHALL BE ENCLOSED WITH FIRE BARRIERS CONSTRUCTED IN ACCORDANCE WITH SECTION 707 OR HORIZONTAL ASSEMBLIES CONSTRUCTED IN ACCORDANCE WITH SECTION 711, OR BOTH. THE FIRE-RESISTANCE RATING SHALL BE NOT LESS THAN THE REQUIRED RATING OF THE HOISTWAY ENCLOSURE SERVED BY THE MACHINERY. OPENINGS IN THE FIRE BARRIERS SHALL BE PROTECTED WITH ASSEMBLIES HAVING A FIRE PROTECTION RATING NOT LESS THAN THAT REQUIRED FOR THE HOISTWAY ENCLOSURE DOORS. (ELEVATOR IS MACHINE ROOM-LESS)

VII. FIRE PROTECTION SYSTEMS

1. AUTOMATIC SPRINKLER SYSTEMS (IBC SECTION 903): PROVIDED

2. PORTABLE FIRE EXTINGUISHERS (IBC SECTION 906)
PORTABLE FIRE EXTIGUISHERS SHALL BE INSTALLED IN ALL OF THE FOLLOWING LOCATIONS:

A. IN GROUP A,B,E,F,H,I,M,R-1,R-2,R-4 AND S OCCUPANCIES.
B. WITHIN 30 FEET (9144 MM) OF COMMERCIAL COOKING EQUIPMENT.
C. ON EACH FLOOR OF STRUCTURES UNDER CONSTRUCTION, EXCEPT GROUP R-3 OCCUPANCIES, IN ACCORDANCE WITH SECTION 3315.1 OF INTERNATIONAL FIRE CODE.
D. WHERE REQUIRED BY THE INTERNATIONAL FIRE CODE SECTIONS INDICATED IN THE TABLE 906.1.
E. SPECIAL-HAZARD AREAS, INCLUDING BUT NOT LIMITED TO LABORATORIES, COMPUTER ROOMS AND GENERATOR ROOMS, WHERE REQUIRED BY THE FIRE CODE OFFICIAL.

MAXIMUM TRAVEL DISTANCE TO EXTIGUISHER (IFC TABLE 906.3): 75 FEET

3. FIRE ALARM SYSTEM (IBC SECTION 907): PROVIDED

VIII. FIRE APARATUS ACCESS ROADS

1. REQUIRED ACCESS (IFC SECTION D102)

ACCESS AND LOADING (IFC SECTION D102.1)
FACILITIES, BUILDINGS OR PORTIONS OF BUILDINGS HEREAFTER CONSTRUCTED SHALL BE ACCESSIBLE TO FIRE DEPARTMENT APPARATUS BY WAY OF AN APPROVED FIRE APPARATUS ACCESS ROAD WITH AN ASPHALT, CONCRETE OR OTHER APPROVED DRIVING SURFACE CAPABLE OF SUPPORTING THE IMPOSED LOAD OF FIRE APPARATUS WEIGHING AT LEAST 75,000 POUNDS.

ACCESS ROAD WIDTH WITH A HYDRANT (IFC SECTION D103.1)
WHERE FIRE HYDRANT IS LOCATED ON A FIRE APARATUS ACCESS ROAD, THE MINIMUM ROAD WIDTH SHALL BE 26 FEET, EXCLUSIVE OF SHOULDERS. PROVIDED

BUILDINGS EXCEEDING THREE STORIES OR 30 FEET IN HEIGHT (IFC SECTION D104.1)
BUILDINGS OR FACILITIES EXCEEDING 30 FEET OR THREE STORIES IN HEIGHT SHALL HAVE ATLEAST TWO MEANS OF FIRE APPARATUS ACCESS ROADS. PROVIDED

BUILDINGS EXCEEDING 62,000 SQUARE FEET IN AREA (IFC SECTION D104.2)
BUILDINGS OR FACILITIES HAVING A GROSS BUILDING AREA OF MORE THAN 62,000 SQUARE FEET SHALL BE PROVIDED WITH TWO SEPERATE AND APPROVED FIRE APPARATUS ACCESS ROADS.

IX. EGRESS REQUIREMENTS

1. MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT (IBC TABLE 1004.1.2)

FUNCTION SPACE	FLOOR AREA (SF PER OCCUPANT)
ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	300 GROSS
ASSEMBLY WITHOUT FIXED SEATS CONCENTRATED (CHAIRS ONLY - NOT FIXED) STANDING SPACE UNCONCENTRATED (TABLES AND CHAIRS)	 7 NET 5 NET 15 NET
BUSINESS AREAS	100 GROSS
EDUCATIONAL CLASSROOM AREA SHOPS AND OTHER VOCATIONAL ROOM AREAS	 20 NET 50 NET
KITCHENS, COMMERCIAL	200 GROSS
LOCKER ROOMS	50 GROSS

2. MEANS OF EGRESS SIZING (IBC SECTION 1005)

OTHER EGRESS COMPONENTS (IBC SECTION 1005.3.2)
OTHER EGRESS COMPONENTS (WITH SPRINKLER SYSTEM)
3'-0" DOOR @ .15" PER OCCUPANT = 240 OCCUPANTS
4'-0" DOOR @ .15" PER OCCUPANT = 320 OCCUPANTS
PAIR 3'-0" DOORS @ .15" PER OCCUPANT = 480 OCCUPANTS

3. ADJACENT STORIES (IBC SECTION 1004.1.1.3)
OTHER THAN FOR THE EGRESS COMPONENTS DESIGNED FOR CONVERGENCE IN ACCORDANCE WITH SECTION 1005.6, THE OCCUPANT LOAD FROM SEPERATE STORIES SHALL NOT BE ADDED.

5. EXIT ACCESS TRAVEL DISTANCE (IBC SECTION 1017)

LIMITATIONS (IBC SECTION 1017.2)
EXIT ACCESS TRAVEL DISTANCE SHALL NOT EXCEED THE VALIUES GIVEN IN TABLE 1017.2.

EXIT ACCESS TRAVEL DISTANCE (IBC TABLE 1017.2)
EDUCATION "E" WITH SPRINKLER SYSTEM: 250 FEET

6. EGRESS FROM STORIES OR OCCUPIED ROOFS (IBC SECTION 1006.3)
THE MEANS OF EGRESS SYSTEM SERVING ANY STORY OR OCCUPIED ROOF SHALL BE PROVIDED WITH THE NUMBER OF EXITS OR ACCESS TO EXITS BASED ON THE AGGREGATE OCCUPANT LOAD SERVED IN ACCORDANCE WITH THIS SECTION. THE PATH OF EGRESS TRAVEL TO AN EXIT SHALL NOT PASS THROUGH MORE THAN ONE ADJACENT STORY.

WHERE THREE OR MORE EXITS OR ACCESS TO EXITS ARE REQUIRED, NOT LESS THAN 50 PERCENT OF THE REQUIRED EXITS SHALL BE INTERIOR OR EXTERIOR EXIT STAIRWAYS.

7. CORRIDORS SECTION 1020

WIDTH AND CAPACITY (IBC SECTION 1020.2)
THE REQUIRED CAPCITY OF CORRIDORS SHALL BE DETERMINED AS SPECIFIED IN SECTION 1005.1, BUT THE MINIMUM WIDTH SHALL BE NOT LESS THAN THAT SPECIFIED IN TABLE 1020.2.
*OCCUPANCY "B" MINIMUM WIDTH 44 INCHES

DEAD ENDS (IBC SECTION 1020.4)
EXCEPTION 2: IN OCCUPANCIES IN GROUPS B,E,F,I-1,M,R-1,R-2,R-4,S,AND U, WHERE THE BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1, THE LENGTH OF THE DEAD-END CORRIDORS SHALL NOT EXCEED 50 FEET.

X. MINIMUM PLUMBING FIXTURE COUNT

NOTE: PLUMBING FIXTURE COUNT IS BASED ON STUDENT CAPACITY AS SET BY THE TEXAS EDUCATION AGENCY

1. MINIMUM NUMBER OF REQUIRES PLUMBING FIXTURES (UPC TABLE 422.1)

USE GROUP	DESCRIPTION	WATER CLOSETS/ URINALS		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN (1:100)	SERVICE SINK (1)
		MALE (1:50)	FEMALE (1:50)	MALE (1:50)	FEMALE (1:50)			
E	325 OCCUPANTS	2/2	4	4	4	0	4	1

FIXTURE CALCULATIONS (IBC SECTION 2902.1.1)
TO DETERMINE THE OCCUPANT LOAD OF EACH SEX, THE TOTAL OCCUPANT LOAD SHALL BE DIVIDED IN HALF. TO DETERMINE THE REQUIRES NUMBER OF FIXTURES, THE FIXTURE RATIO OR RATIOS FOR EACH FIXTURE TYPE SHALL BE APPLIED TO THE OCCUPANT LOAD OF EACH SEX IN ACCORDANCE WITH TABLE 2902.1. FRACTIONAL NUMBERS RESULTING FROM APPLYING THE FIXTURE RATIOS OF TABLE 2902.1 SHALL BE ROUNDED UP TO THE NEXT WHOLE NUMBER. FOR CALCULATIONS INVOLVING MULTIPLE OCCUPANCIES, SUCH FRACTIONAL NUMBERS FOR EACH OCCUPANCY SHALL FIRST BE SUMMED AND THEN ROUNDED TO THE NEXT WHOLE NUMBER.

XI. ACTUAL PLUMBING FIXTURE COUNT

USE GROUP	DESCRIPTION	WATER CLOSETS/URINALS		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN	SERVICE SINK
		MALE	FEMALE	MALE	FEMALE			
E	325 OCCUPANTS	5/2	11	5	7	2	2	1

1 GEN - CODE ANALYSIS
12" = 1'-0"

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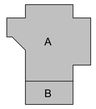

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
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REGISTERED ARCHITECT 18312 STATE OF TEXAS
2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

G1.01
CODE ANALYSIS

ROOM OCCUPANCY LOAD

DENOTES EXIT DIRECTION, MAX EXIT CAPACITY & # OF OCCUPANTS PER FLOOR

CAPACITY: 480
1ST FLR TOTAL: 480

TRAVEL DISTANCE TO EXIT

SMOKE RATED WALL

1HR RATED WALL

2HR RATED WALL

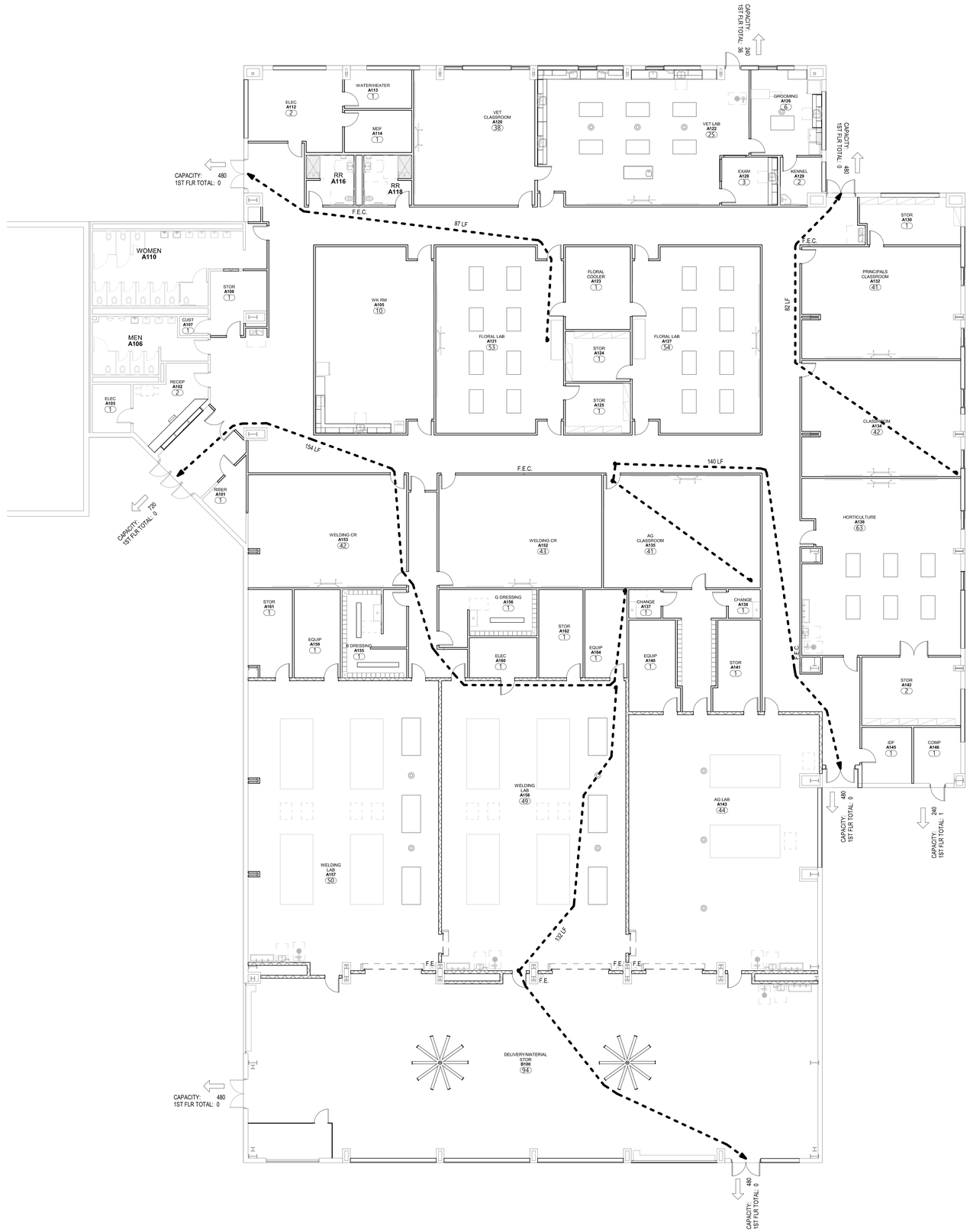
F.E. FIRE EXTINGUISHER

F.E.C. FIRE EXTINGUISHER & CABINET

A.E.D. A.E.D. & CABINET

LEGEND - LIFE SAFETY PLAN

1/4" = 1'-0"



1 LIFE SAFETY PLAN - 1ST FLOOR

1" = 10'-0"

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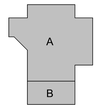

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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REGISTERED ARCHITECT STATE OF TEXAS

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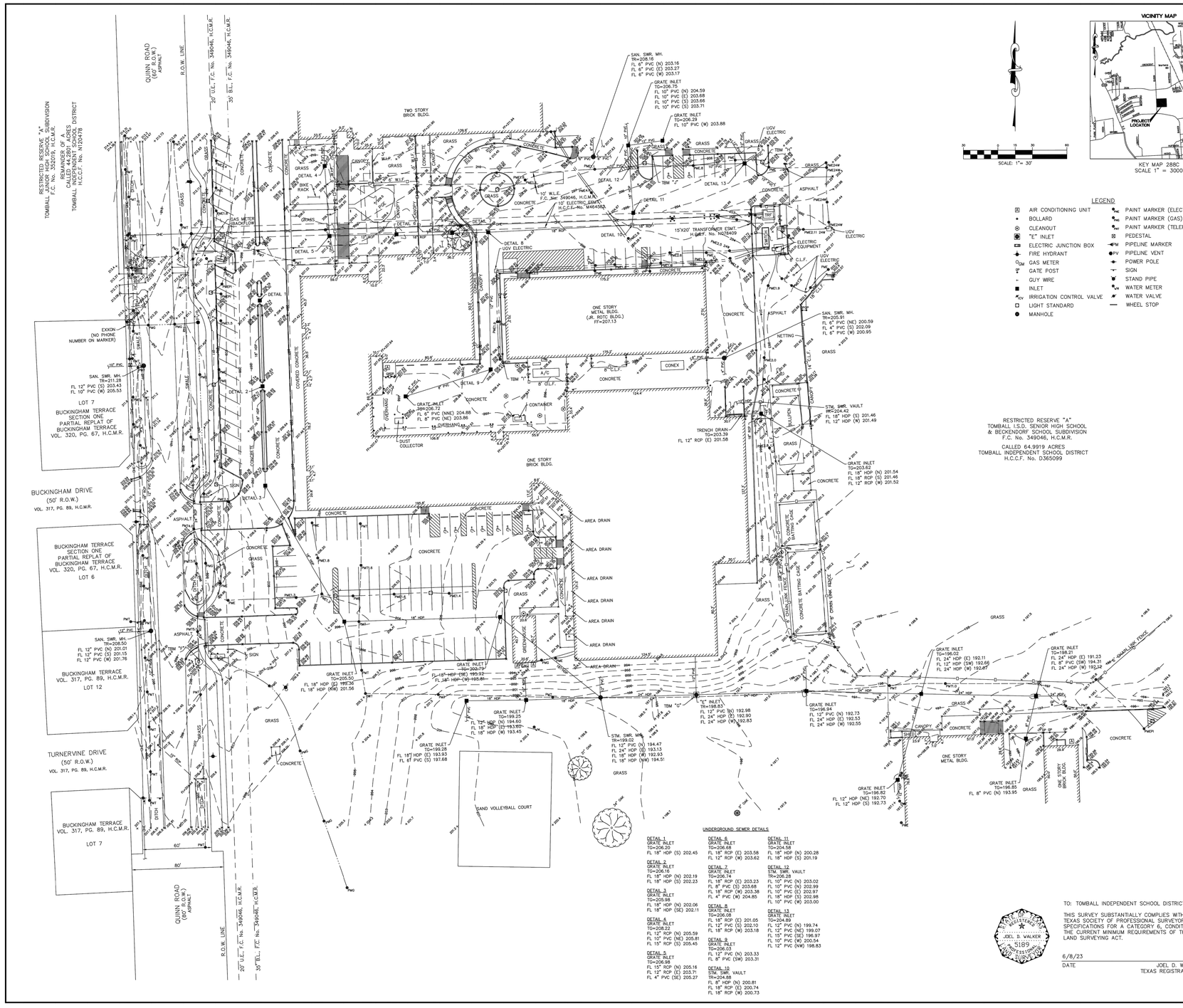
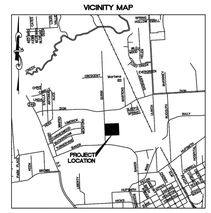
PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

G1.02

1ST FLOOR LIFE SAFETY PLAN





KEY MAP 288C
SCALE 1" = 3000'

LEGEND

AIR CONDITIONING UNIT	PAINT MARKER (ELECTRIC)
BOLLARD	PAINT MARKER (GAS)
CLEANOUT	PAINT MARKER (TELEPHONE)
"E" INLET	PEDESTAL
ELECTRIC JUNCTION BOX	PIPELINE MARKER
FIRE HYDRANT	PIPELINE VENT
GAS METER	POWER POLE
GATE POST	SIGN
GUY WIRE	STAND PIPE
INLET	WATER METER
IRRIGATION CONTROL VALVE	WATER VALVE
LIGHT STANDARD	WHEEL STOP
MANHOLE	

ABBREVIATIONS

B.L.–BUILDING LINE
C.L.F.–CHAIN LINK FENCE
ESMT.–EASEMENT
FC–FILM CODE
FF–FINISH FLOOR
FL–FLOW LINE
H.C.C.F.–HARRIS COUNTY CLERK'S FILE
H.C.M.R.–HARRIS COUNTY MAP RECORDS
HDP–HIGH DENSITY POLYETHYLENE PIPE
MH–MANHOLE
OHE–OVERHEAD ELECTRIC
PGE–PLAYGROUND EQUIPMENT
PVC–POLYVINYL CHLORIDE PIPE
RCP–REINFORCED CONCRETE PIPE
R.O.W.–RIGHT–OF–WAY
SAN.–SANITARY
STM.–STORM
SWR.–SEWER
TRF–PAD MOUNTED TRANSFORMER
TG–TOP OF GRATE
TR–TOP OF RIM
U.E.–UTILITY EASEMENT
UGV–UNDERGROUND VAULT
W.I.F.–WROUGHT IRON FENCE
W.L.E.–WATER LINE EASEMENT

SURVEYOR'S NOTES:

1. THE BEARINGS SHOWN HEREON ARE BASED ON THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD 83.

2. ACCORDING TO F.I.R.M. MAP NO. 48201C0210L, (COMMUNITY–PANEL NO. 4803150210L), MAP REVISED DATE: JUNE 18, 2007. THE SUBJECT PROPERTY LIES WITHIN THE AREA DESIGNATED AS ZONE "X" UNSHADED. DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

THIS STATEMENT IS BASED ON SCALING THE LOCATION OF THE SUBJECT TRACT ON THE ABOVE REFERENCED MAP. THIS INFORMATION IS TO DETERMINE FLOOD INSURANCE RATES ONLY AND IS NOT INTENDED TO IDENTIFY SPECIFIC FLOODING CONDITIONS.

3. ALL UTILITIES SHOWN HEREON ARE LOCATED USING "APPARENT & VISIBLE" EVIDENCE BY ON–SITE OBSERVATION UNLESS OTHERWISE NOTED.

4. THE SUBJECT TRACT IS AFFECTED BY THE CITY OF HOUSTON ORDINANCE No. 85–1878, AMENDED BY ORDINANCE No. 1999–262.

5. –1 INDICATES AN UNDERGROUND SEWER LINE WITH UNKNOWN DIRECTION, SIZE OR LOCATION OR A POSSIBLE STUB–OUT.

6. UNDERGROUND UTILITY LOCATIONS PROVIDED BY LONESTAR LOCATING, LLC. PAINT MARKS WITH NUMERIC VALUES INDICATES COVER (FEET AND INCHES) DETERMINED BY ELECTRONIC TONING.

REFERENCE BENCHMARK:

RM100395 – BRASS DISK STAMPED "RM100395" LOCATED ON THE SOUTHEAST CORNER OF A 5' X 8' CONCRETE BOX CULVERT UNDER RUDOLPH RD. ±0.4 MILE SOUTH OF ZION RD.
ELEVATION = 171.59' (NAVD 88, 2001 ADJ.)

TEMPORARY BENCHMARKS:

TBM "F" – BOX CUT ON 24" RCP LOCATED ON THE EAST SIDE OF QUINN ROAD ON THE SOUTH SIDE OF THE MOST SOUTHERLY DRIVEWAY TO THE AG FACILITY.
ELEVATION = 208.14'

TBM "G" – BOX CUT ON THE SOUTHWEST CORNER OF THE "E" INLET LOCATED ±40' SOUTHWEST OF THE MOST SOUTHERLY SOUTHEAST CORNER OF THE AG BARN.
ELEVATION = 198.84'

TBM "H" – BOX CUT ON CONCRETE BASE OF LIGHT STANDARD LOCATED ±105' NORTHEAST OF THE NORTHEAST CORNER OF THE JUNIOR ROTC BUILDING.
ELEVATION = 207.60'

TBM "I" – BOX CUT ON BACK OF CURB LOCATED AT THE SOUTHWEST CORNER OF THE JUNIOR ROTC BUILDING.
ELEVATION = 206.96'

TBM "J" – BOX CUT ON BACK OF CURB PI LOCATED ±110' NORTHWEST OF THE NORTHEAST CORNER OF THE JUNIOR ROTC BUILDING.
ELEVATION = 206.96'

UNDERGROUND SEWER DETAILS

DETAIL 1
GRATE INLET
TG=206.20
FL 18" HDP (S) 202.45

DETAIL 2
GRATE INLET
TG=206.16
FL 18" HDP (N) 202.19
FL 18" HDP (S) 202.23

DETAIL 3
GRATE INLET
TG=205.98
FL 18" HDP (N) 202.06
FL 18" HDP (SE) 202.11

DETAIL 4
GRATE INLET
TG=208.22
FL 12" RCP (N) 205.59
FL 10" PVC (NE) 205.81
FL 15" RCP (S) 205.45

DETAIL 5
GRATE INLET
TG=206.98
FL 15" RCP (N) 205.16
FL 12" RCP (E) 203.71
FL 4" PVC (SE) 205.27

DETAIL 6
GRATE INLET
TG=206.68
FL 18" RCP (E) 203.58
FL 12" RCP (W) 203.62

DETAIL 7
GRATE INLET
TG=206.74
FL 18" RCP (E) 203.23
FL 8" PVC (S) 203.68
FL 18" RCP (W) 203.38
FL 4" PVC (W) 204.85

DETAIL 8
GRATE INLET
TG=208.08
FL 18" RCP (E) 201.05
FL 12" PVC (S) 202.10
FL 18" RCP (W) 203.18

DETAIL 9
GRATE INLET
TG=206.03
FL 12" PVC (N) 203.33
FL 8" PVC (SW) 203.31

DETAIL 10
STM. SWR. VAULT
TR=204.88
FL 8" HDP (N) 200.81
FL 18" RCP (E) 200.74
FL 18" RCP (W) 200.73

DETAIL 11
GRATE INLET
TG=204.58
FL 18" HDP (N) 200.28
FL 18" HDP (S) 201.19

DETAIL 12
STM. SWR. VAULT
TR=206.28
FL 10" PVC (N) 203.02
FL 10" PVC (N) 202.99
FL 10" PVC (E) 202.97
FL 18" HDP (S) 202.98
FL 10" PVC (W) 203.00

DETAIL 13
GRATE INLET
TG=204.89
FL 12" PVC (N) 199.74
FL 12" PVC (NE) 199.07
FL 15" PVC (SE) 196.97
FL 10" PVC (W) 200.54
FL 12" PVC (NW) 198.83

TO: TOMBALL INDEPENDENT SCHOOL DISTRICT

THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 6, CONDITION II SURVEY AND THE CURRENT MINIMUM REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYING ACT.

STATE OF TEXAS REGISTERED JOEL D. VALKER 5189 PROFESSIONAL SURVEYOR

6/8/23
DATE

JOEL D. WALKER, R.P.L.S.
TEXAS REGISTRATION NO. 5189

TOMBALL INDEPENDENT SCHOOL DISTRICT

TOPOGRAPHIC SURVEY

TOMBALL HIGH SCHOOL AG FACILITY OUT OF THE JOSEPH HOUSE SURVEY ABSTRACT NO. 34 CITY OF TOMBALL HARRIS COUNTY, TEXAS

WEST BELT SURVEYING, INC.
21009 PARK ROW KATY, TX. 77449
PHONE: (281) 599-8288 FAX: (281) 492-0020
CERTIFIED FIRM NO. 100738000

NO.	DATE	REVISIONS	BY

DRAWN BY: MDL	CHECKED BY: KMH
SCALE: 1"=30'	APPROVED BY: JDW
PROJECT NO. 5866–0029C	DATE: JUNE 8, 2023

BENCHMARK AND FLOODPLAIN INFORMATION

PROJECT BENCHMARK:
DESCRIPTION
RM100395 - BRASS DISK STAMPED "RM100395" LOCATED ON THE SOUTHEAST CORNER OF A 5' X 8' CONCRETE BOX CULVERT UNDER RUDOLPH RD. ±0.4 MILE SOUTH OF ZION RD.
ELEVATION = 171.59' (NAVD 88, 2001 ADJ.)

FLOODPLAIN INFORMATION:
DESCRIPTION
ACCORDING TO F.I.R.M. MAP NO. 48201C0210L (COMMUNITY-PANEL NO. 4803150210L), MAP REVISED DATE: JUNE 18, 2007. THE SUBJECT PROPERTY LIES WITHIN THE AREA DESIGNATED AS ZONE "X" UNSHADED. DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

NEAREST 1%(100-YR) FLOOD ELEVATION = 179.10 FT

Texas 811
Know what's below. Call before you dig.

DRAWING SCALE		PROJECT NUMBER
HORIZ:	N/A	0104.0117
VERT:	N/A	

auric ENGINEERS
TEXAS ENGINEERING FIRM 20740
520 POST OAK BLVD. SUITE 895
HOUSTON, TEXAS 77007
AURICENGINEERS.COM

CONSULTANTS

MEP
Salas O'Brien
10930 W. Sam Houston Pkwy N
Suite 900
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Tel: 281.664.1900
Fax: 281.664.1912

CIVIL
Auric Engineers, LLC
520 Post Oak Blvd, Suite 895
Houston, TX 77027
Tel: 713.405.1901

STRUCTURAL
CJG Engineers
3200 Wilcrest Drive, Suite 305
Houston, TX 77042
Tel: 713.780.3345
Fax: 713.780.3712

A
B

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 281.286.6605, fax 713.977.4620

STATE OF TEXAS
DUSTIN A. HANNAH
101103
LICENSED PROFESSIONAL ENGINEER
11/06/2023

PROJECT #:	202311
DATE:	11/06/2023
DRAWN:	DAH
CHECKED:	DAH

DATE	ISSUE	1
11/06/2023	BID SET	

SV0.01

TOPOGRAPHIC SURVEY

22 Oct 2023 3:39PM Dustinhannah
C:\Users\Dustinhannah\OneDrive – Auric Engineers\AE–Projects\0104–Arcadis\0104.0117–TISD HS CTE\PROJECT FILES\01-CIVIL\06-DRAWING\03-SHEETS\C1.02 TOPOGRAPHIC SURVEY.DWG

PLOTTED: 11/6/2023 12:55 PM

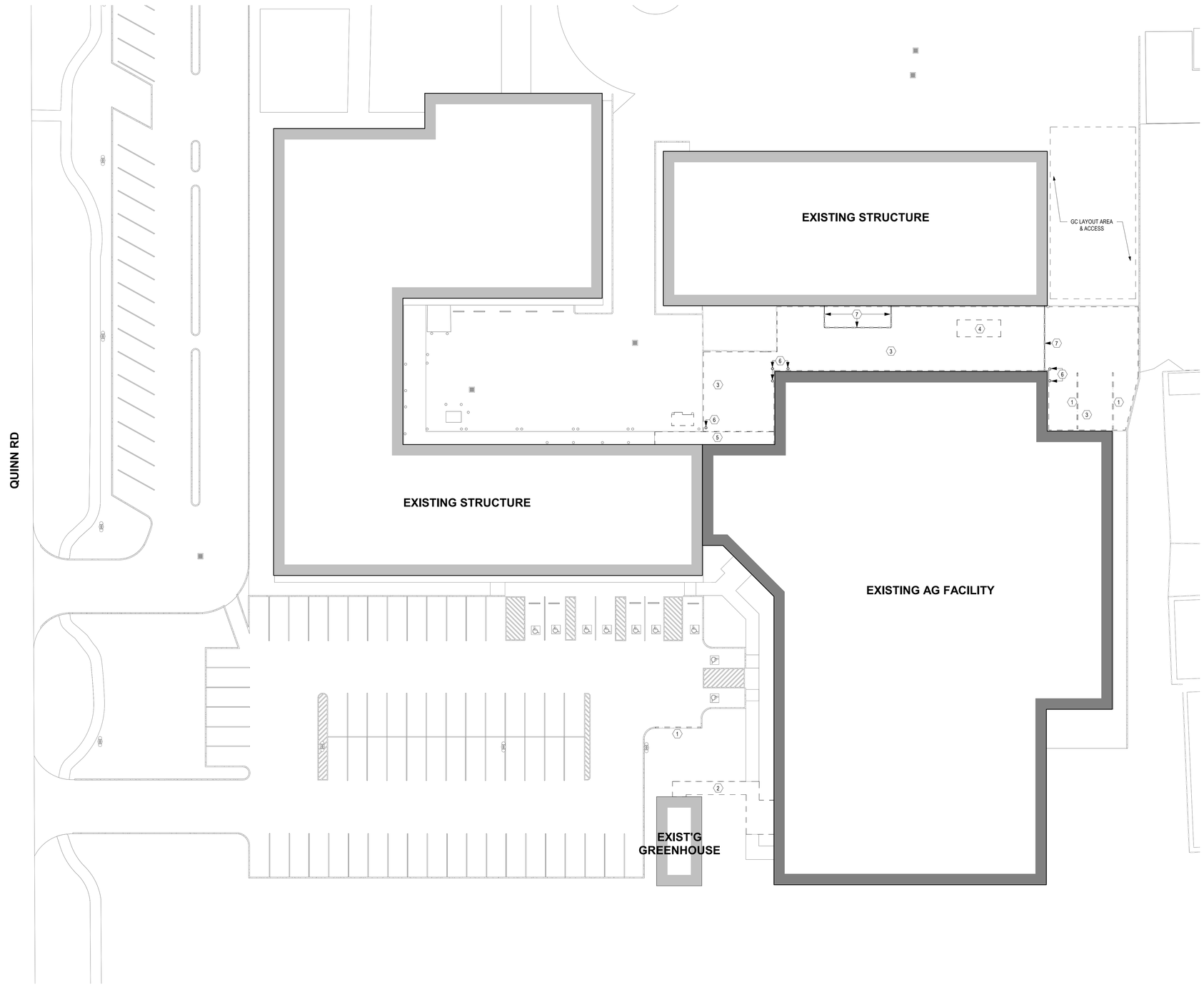
PLOT STYLE: AURICZ-0.STB

FILE PATH: C:\USERS\DUSTINHANNAH\DOCACCDOCS\AURIC ENGINEERS\0104.0117 - TOMBALL ISD HS CTE\PROJECT FILES\01-CIVIL\06-DRAWING\03-SHEETS\C1.02 TOPOGRAPHIC SURVEY.DWG

1. EXISTING CURB TO BE DEMOLISHED AND REMOVED
2. EXISTING WALK TO BE DEMOLISHED AND REMOVED
3. EXISTING PAVING TO BE DEMOLISHED AND REMOVED
4. REMOVE AND RELOCATE EXIST'G EQUIPMENT
5. EXISTING RAMP & RAILING TO BE DEMOLISHED AND REMOVED
6. EXISTING BOLLARDS TO BE DEMOLISHED AND REMOVED
7. EXISTING FENCING TO BE DEMOLISHED AND REMOVED

KEYNOTES - SITE PLAN - DEMO

1/4" = 1'-0"



1. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL EXISTING SITE CONDITIONS, DIMENSIONS, UTILITIES, ETC. WHERE NEW CONSTRUCTION JOINS EXISTING CONDITIONS, THE EXISTING CONDITIONS SHALL CONTROL. ALL DISCREPANCIES SHALL BE SUBMITTED TO THE ARCHITECT FOR CONSIDERATION BEFORE PROCEEDING W/ THE WORK.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING & MODIFYING EXISTING UTILITY LINES ABOVE & BELOW GRADE DURING THE ENTIRE CONSTRUCTION PERIOD INCLUDING ALL NECESSARY TIE-INS & ELEVATION ADJUSTMENTS, RELOCATION OF ALL UTILITY POLES, LINES & OTHER EXISTING SERVICES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED W/ THE WORK INCLUDING VERIFICATION & COORDINATION W/ THE APPROPRIATE AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES IMMEDIATELY TO INSURE NO INTERRUPTION OF SERVICE. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING W/ APPROPRIATE AGENCIES ALL BURIED LINES THAT APPROACH THE CONSTRUCTION AREA.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN & IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN & SHALL ACQUIRE ALL NECESSARY PERMITS FROM THE APPROPRIATE AGENCIES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL VEGETATION, SHRUBS, TREES, ETC. INDICATED TO REMAIN FROM ALL CONSTRUCTION ACTIVITIES. DAMAGED LANDSCAPING SHALL BE REPLACED W/ LIKE MATERIALS & SIZE(S) AT THE DIRECTION OF THE ARCHITECT.
5. THE OWNER HAS NEED TO OCCUPY THE FACILITIES DURING THE ENTIRE CONSTRUCTION PROCESS. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING W/ THE OWNER & TAKE ALL NECESSARY MEANS TO ISOLATE OCCUPANTS FROM CONSTRUCTION AREA. NO DISRUPTIVE WORK WILL BE PERMITTED INSIDE THE FACILITY DURING SCHOOL HOURS. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE CONSTRUCTION AREA CLEAN OF DEBRIS & EXCESSIVE DUST. CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATELY CORRECTING ANY INTERRUPTED USE TO THE FACILITY AT NO COST TO THE OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF ANY DAMAGE TO EXISTING FACILITY MATERIALS AT THE DIRECTION OF THE ARCHITECT & AT NO COST TO THE OWNER.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY & ALL MEANS OF SECURITY FOR THE PORTION OF THE FACILITY UNDER CONSTRUCTION OR BEING RENOVATED.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY & ALL MEANS OF ACCESSING THE CONSTRUCTION AREA REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND RESTORATION OF THE EXISTING AREA(S) UPON COMPLETION OF THE CONSTRUCTION. THE OWNER RESERVES THE RIGHT TO APPROVE ALL CROSSINGS.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL EXISTING UNDERGROUND STORM LINES DURING ALL CONSTRUCTION INCLUDING NEW TIE-INS. CONTRACTOR SHALL REPAIR DAMAGE TO EXISTING SYSTEM (PIPE, GRATES, ETC.) IMMEDIATELY TO INSURE NO INTERRUPTION. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT AGAINST SEDIMENT INFILTRATION AND SHALL JET CLEAN ALL LINES AS NECESSARY & UPON COMPLETION OF CONSTRUCTION.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING EXISTING SWALES AND/ OR CREATING NEW TEMPORARY WALES OR BERMS AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AWAY FROM DRAINAGE ARE(S). NO FLOODING OF ADJACENT AREAS WILL BE ALLOWED.

NOTES - GENERAL SITE PLAN - DEMO

1/4" = 1'-0"

1 SITE DEMO PLAN - AREA '1'

1" = 20'-0"

PLAN NORTH

CONSULTANTS

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Fax: 281.664.1912

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Tel: 713.405.1901

STRUCTURAL
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Houston, TX 77042
Tel: 713.780.3345
Fax: 713.780.3712

A
B

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

REGISTERED ARCHITECT
STATE OF TEXAS

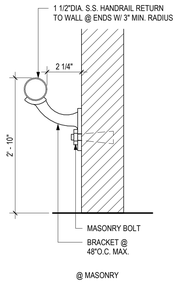
2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

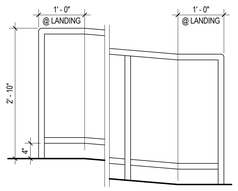
DATE	ISSUE
2023-11-06	BID SET

CA0.01

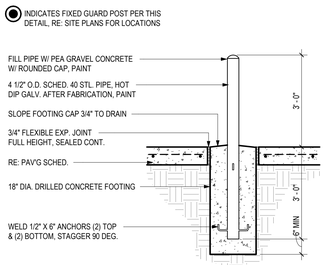
SITE DEMO PLAN



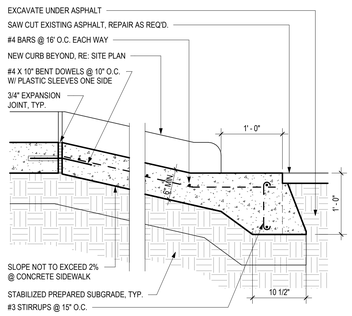
6 RAIL - HANDRAIL @ MAS
3" = 1'-0"



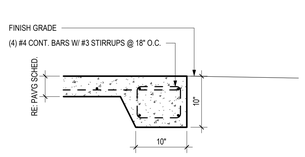
5 RAIL - RAMP ELEV - PIPE
3/4" = 1'-0"



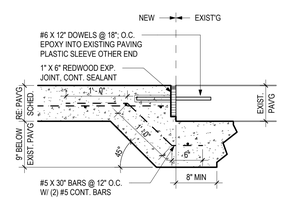
4 MISC - FIXED GUARD POST
1/2" = 1'-0"



3 PAV'G - CONC DRIVE APPROACH
1" = 1'-0"



2 PAV'G - CONC PAV'G @ GRADE
1" = 1'-0"



1 PAV'G - CONC PAV'G TO EXIST
1" = 1'-0"

8 RAMP - SECTION - SITE
1/2" = 1'-0"

7 RAMP - SECTION @ LNDG
1/2" = 1'-0"

CONSULTANTS

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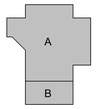


TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

REGISTERED ARCHITECT
18310
STATE OF TEXAS
2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

CA1.01
SITE DETAILS

GATE SCHEDULE

MARK	WIDTH	HEIGHT	GATE S/ PR	MATERIAL	ELEV.	FRAME MAT	COMMENTS
GATE-1	3' - 0"	6' - 0"	S	C.L. MESH	C1	GALV.	EGRESS GATE
GATE-2	6' - 0"	6' - 0"	PR	C.L. MESH	CC1	GALV.	EGRESS GATE
GATE-3	3' - 0"	6' - 0"	S	C.L. MESH	C1	GALV.	EGRESS GATE
GATE-4	6' - 0"	6' - 0"	PR	C.L. MESH	CC1	GALV.	EGRESS GATE

1. SIDEWALK EXPANSION JT., RE: C1.01
2. SIDEWALK CONTROL JT., RE: C1.01
3. 18" WIDE MOW STRIP
4. ACCESSIBLE RAMP, RE: C1.01
5. VAN ACCESSIBLE PARKING SPACES RE: C1.01
6. CAR ACCESSIBLE PARKING SPACES RE: C1.01
7. FIXED BOLLARD, RE: C1.01
8. PEDESTRIAN LIGHT, RE: C1.01
9. ALUM. WALKWAY COVER, RE: ROOF PLAN & SECTIONS FOR ADDITIONAL SCOPE
10. FLAGPOLE, RE: C1.01
11. SITE LIGHT POLE, RE: C1.01
12. PEDESTRIAN LIGHT POLE, RE: C1.01
13. DIRECTIONAL ARROW, RE: C1.01
14. 4" PAINT STRIPING
15. 6'-0" HIGH DECORATIVE FENCE
16. 6'-0" HIGH CHAIN LINK FENCE
17. DUMPSTERS
18. 4" PVC IRRIGATION SLEEVE

KEYNOTES - SITE PLAN

1/4" = 1'-0"

DESCRIPTION	GRAPHIC	MATERIAL	REINFORCING
SIDEWALKS/ FLATWORK		4" THICK CONCRETE	#3 BARS @ 15" O.C. EACH WAY
STANDARD DUTY PARKING AREAS & DRIVES		5" THICK CONCRETE	#4 BARS @ 15" O.C. EACH WAY
MEDIUM DUTY PARKING AREAS & DRIVES		6" THICK CONCRETE	#4 BARS @ 15" O.C. EACH WAY
HEAVY DUTY PARKING AREAS, DRIVES, & SERVICE YARDS		7" THICK CONCRETE	#4 BARS @ 12" O.C. EACH WAY

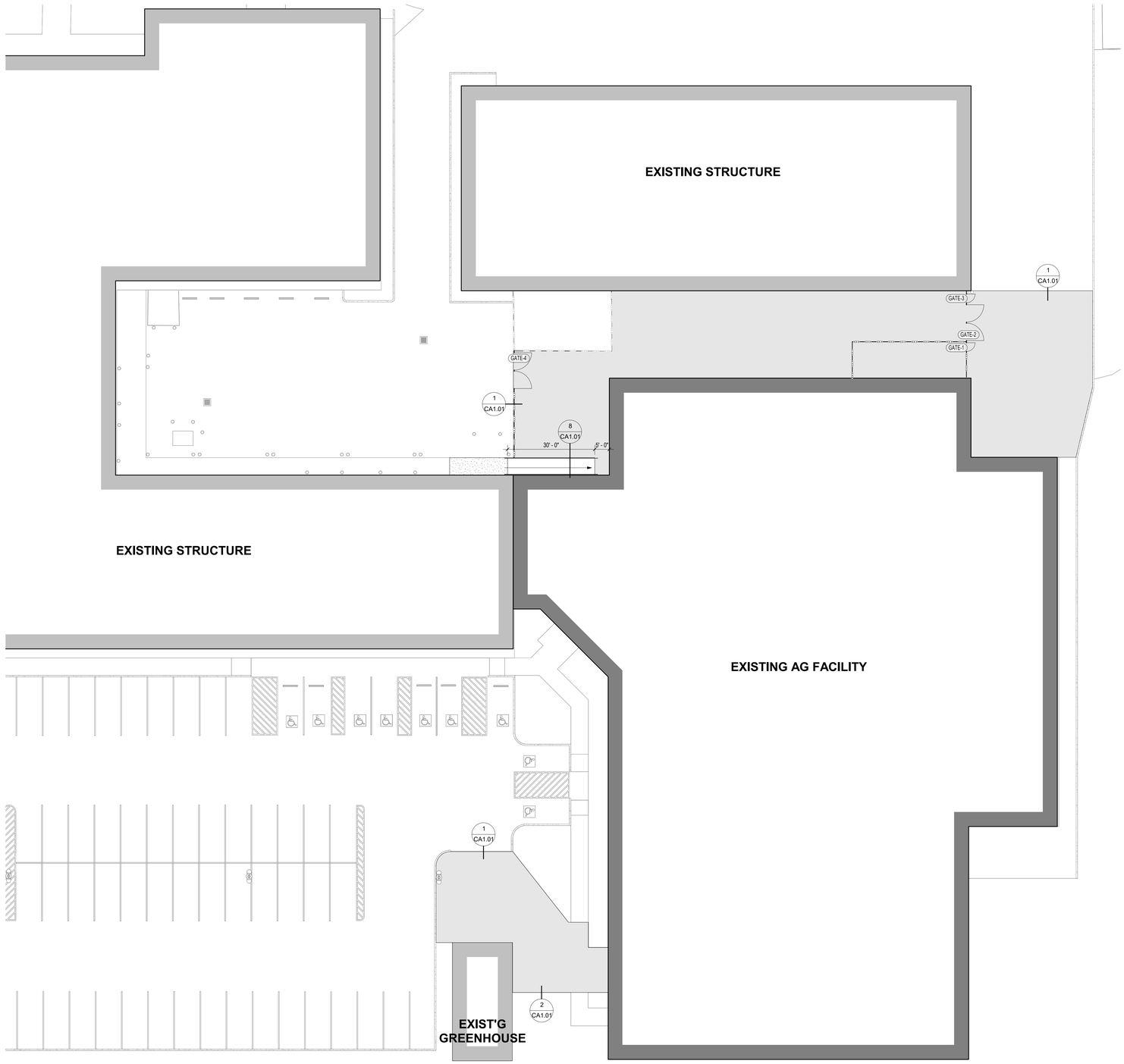
LEGEND - PAVING/ FLATWORK

1" = 1'-0"

1. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL EXISTING SITE CONDITIONS, DIMENSION, UTILITIES, ETC. WHERE NEW CONSTRUCTION JOINS EXISTING CONDITIONS, THE EXISTING CONDITIONS SHALL CONTROL. ALL DISCREPANCIES SHALL BE SUBMITTED TO THE ARCHITECT FOR CONSIDERATION BEFORE PROCEEDING W/ THE WORK.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING & MODIFYING EXISTING UTILITY LINES ABOVE & BELOW GRADE DURING THE ENTIRE CONSTRUCTION PERIOD, INCLUDING ALL NECESSARY TIE-INS & ELEVATION ADJUSTMENTS, RELOCATION OF ALL UTILITY POLES, LINES & OTHER EXISTING SERVICES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED W/ THE WORK INCLUDING VERIFICATION & COORDINATION W/ THE APPROPRIATE AGENCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES IMMEDIATELY TO INSURE NO INTERRUPTION OF SERVICE. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH APPROPRIATE AGENCIES ALL BURIED LINES THAT APPROACH THE CONSTRUCTION AREA.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, ACQUIREMENT OF ALL NECESSARY PERMITS, ETC. & IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN W/ THE APPROPRIATE AGENCIES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL VEGETATION, SHRUBS, TREES, ETC. INDICATED TO REMAIN FROM ALL CONSTRUCTION ACTIVITIES. DAMAGED LANDSCAPING SHALL BE REPLACED W/ LIKE MATERIALS AND SIZE(S) AT THE DIRECTION OF THE ARCHITECT.
5. THE OWNER HAS NEED TO OCCUPY THE FACILITIES DURING THE ENTIRE CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING W/ THE CONSTRUCTION AREA. NO DISRUPTIVE WORK WILL BE PERMITTED INSIDE THE FACILITY DURING SCHOOL HOURS. CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE CONSTRUCTION AREA CLEAN OF DEBRIS & EXCESSIVE DUST. CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATELY CORRECTING ANY INTERRUPTED USE TO THE FACILITY AT NO COST TO THE OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF ANY DAMAGE TO EXISTING FACILITY MATERIALS AT THE DIRECTION OF THE ARCHITECT & AT NO COST TO THE OWNER.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY & ALL MEANS OF SECURITY INSIDE & OUTSIDE REQUIRED & APPROVED BY THE OWNER.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY & ALL MEANS OF ACCESSING THE CONSTRUCTION AREA REQUIRED & APPROVED BY THE OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL & RESTORATION OF THE EXISTING AREA(S) UPON COMPLETION OF THE CONSTRUCTION.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL EXISTING UNDERGROUND STORM LINES DURING ALL CONSTRUCTION, INCLUDING NEW TIES-INS. CONTRACTOR SHALL REPAIR DAMAGE TO EXISTING SYSTEM (PIPE, GRATES, ETC.) IMMEDIATELY TO INSURE NO INTERRUPTION. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT SEDIMENT INFILTRATION & SHALL JET CLEAN ALL LINES AS NECESSARY UPON COMPLETION OF CONSTRUCTION.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR MODIFYING EXISTING SWALES AND/OR CREATING NEW TEMPORARY SWALES OR BERMS AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AWAY FROM CONSTRUCTION AREA(S).
10. CONTRACTOR SHALL E RESPONSIBLE FOR PROVIDING THE FOLLOWING AMERICANS W/ DISABILITIES ACT (A.D.A.) & TEXAS ACCESSIBILITY STANDARDS (T.A.S.) ACCESSIBLE ROUTE REQUIREMENTS:
    *ACCESSIBLE ROUTE (PARKING LOT & WALKS): SLOPE SHALL NOT EXCEED 5% (5/8"/1 FOOT) CROSS-SLOPE SHALL NOT EXCEED 2% (1/4" PER 1')
    *ACCESSIBLE APPROACH TO EXTERIOR DOOR(S) IMMEDIATELY OUTSIDE OF DOOR & FOR A DISTANCE OF 5'-0" MIN. SHALL NOT EXCEED A SLOPE OF 2% (1/4" PER 1') MAXIMUM RISE AT THRESHOLD SHALL NOT EXCEED 1/2".
11. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CONCRETE WALKS AS INDICATED ON THE SITE PLAN & DETAILED ON THE DETAIL SHEET (EXPANSION JOINTS AT 20'-0" MAX. W/ CONTROL JOINTS AT 5'-0" MAX. & EQUAL SPACES). CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING JOINT LAYOUT W/ ARCHITECT IN THE FIELD PRIOR TO FORMING.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING HYDROMULCH AT ALL LANDSCAPE & PLANING AREA, ETC. DISTURBED DURING CONSTRUCTION & AT ALL AREAS NOTED AS FILL & GRADE, UNLESS NOTED OTHERWISE ON PLANS. PROVIDE TEMPORARY BARRICADE ALONG MAIN ACCESS PATHS TO BUILDING UNTIL SUCH TIME THE GRASS HAS STABILIZED THE FINISH GRADE.
13. CONTRACTOR SHALL PROVIDE EXPANSION JOINTS AT THE PROPERTY LINE AT ALL DRIVES.
14. CONTRACTOR SHALL GRADE ALL LANDSCAPE ISLAND TO AVOID WATER PONDING INSIDE OF CURBS.
15. CONTRACTOR SHALL PROVIDE FILL & SOLID SOD AT 5'-0" MIN. FROM ALL CONSTRUCTION AREAS UNLESS NOTED OTHERWISE.
16. CONTRACTOR SHALL REFER TO CIVIL DRAWINGS FOR ALL SITE GRADING & SUB-SURFACE DRAINAGE SYSTEMS, MODIFICATIONS TO EXISTING SYSTEMS AND UTILITIES.
17. CONTRACTOR SHALL REFER TO PAVING SCHEDULE FOR THICKNESS OF SURFACES.
18. ALL DIMENSIONS ARE TO EDGE OF WALK OR PAVING, BACK OF CURB, FACE OF BUILDING OF PROPERTY LINE, UNLESS NOTED OTHERWISE.
19. PARKING LOT PAINTING STANDARDS:
    *TYPICAL PARKING LINE SHALL BE 4" WIDE x 18'-0" LONG PER STALL, UNLESS NOTED OTHERWISE.
    *TYPICAL A.D.A. SYMBOL & LOADING AREA SHALL BE PER DETAIL ON DETAIL SHEET.
    *TYPICAL FIRE LANE CURB SHALL BE OF APPROVED COLOR W/ STENCILED CONTRASTING GRAPHICS AT 50'-0" SPACING THAT READS: "FIRE LANE - NO PARKING - TOW AWAY ZONE"
20. AT ALL FIRE LANE CURBS, PROVIDE FIRE LANE SIGNS, SIMILAR TO ACCESSIBLE SIGN ON C1.00, EXCEPT LOCATION EVERY 50'-0" O.C. ALONG FIRE LANE CURBS. SIGN TO READ: "FIRE LANE", "NO PARKING", "TOW AWAY ZONE". COORDINATE THE LOCATIONS IN THE FIELD W/ ARCHITECT.

NOTES - GENERAL SITE PLAN

1/4" = 1'-0"



1 SITE PLAN

1/16" = 1'-0"

NORTH PLAN NORTH

CONSULTANTS

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Salas O'Brien
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A
B

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

REGISTERED ARCHITECT STATE OF TEXAS 18113
2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

CA1.02

SITE PLAN

CENTERPOINT ENERGY NOTES

CAUTION: UNDERGROUND GAS FACILITIES

THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 1-800-545-6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

- WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 207-5463 OR (713) 945-8037 (7:00 A.M. TO 4:30 P.M.) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.
- WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.
- WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.
- FOR EMERGENCIES REGARDING GAS LINES CALL (713) 659-3552 OR (713) 207-4200.

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

WARNING: OVERHEAD ELECTRICAL LINES

OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:

- ANY ACTIVITY WHERE PERSON OR THINGS MAY COME WITHIN SIX(6) FEET OF LIVE OVERHEAD HIGH VOLTAGE
- LINES; AND
- OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR
- APPARATUS WITHIN 10 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.

PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT (713) 207-2222.

ACTIVITIES ON/OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY

NO APPROVAL TO USE, CROSS, OR OCCUPY NO CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING AND RIGHT OF WAY DIVISION AT (713) 207-6348 OR (713) 207-5769.

AT&T TEXAS / SWBT FACILITIES:

1. THE LOCATIONS OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
2. THE CONTRACTOR SHALL CALL 1-800-344-8377 (TEXAS 811) A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.
3. WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF AT&T TEXAS/SWBT FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.WHEN BORING, THE CONTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWBT FACILITIES.
4. WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.
5. THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.
6. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER ROOSEVELT LEE JR. AT 567-4552 OR EMAIL HIM AT RL7259@ATT.COM, IF THERE ARE QUESTIONS ABOUT BORING EXCAVATING NEAR OUR AT&T TEXAS/SWBT FACILITIES.

WATERLINE CONSTRUCTION NOTES

1. WATER LINES AND RELATED PRODUCTS MUST CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE/NATIONAL SANITATION FOUNDATION (ANSI/NSF) STANDARD 61 AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI.
2. 2" THROUGH 3" WATER LINES SHALL BE ASTM D-2241 SDR 21 PVC PIPE.
3. 4" THROUGH 12" WATER LINES SHALL BE AWWA C-900 PVC DR-18 BLUE PRESSURE RATED WATER MAIN.
4. 2" AND LARGER FITTINGS SHALL BE MECHANICAL JOINT FITTINGS CONFORMING WITH AWWA C-153.
5. WATER LINES AND FITTINGS SMALLER THAN 2" SHALL CONFORM TO ALL REQUIREMENTS OF ASTM D-1784 SCH 40.
6. ALL WATER LINES TO HAVE 4' MINIMUM COVER TO FINISHED GRADE AND MINIMUM 12" CLEARANCE TO OTHER UTILITIES AT CROSSING UNLESS OTHERWISE NOTED ON PLANS. ALL WATER LINE INSTALLED OVER 8' DEEP SHALL UTILIZE RESTRAINED JOINT FITTINGS.
4. ALL TRENCH BACKFILL SHALL BE PLACED IN 8 INCH LIFTS AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 92% OF THE MAXIMUM DRY DENSITY FOR LANDSCAPED AREAS OR 95% OF THE MAXIMUM DRY DENSITY FOR PAVED AREAS AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D-698/AASHTO T99).
5. CONTRACTOR SHALL KEEP WATER PIPE CLEAN AND CAP (OR OTHERWISE EFFECTIVELY COVER) OPEN PIPE ENDS TO EXCLUDE INSECTS, ANIMALS OR OTHER SOURCES OF CONTAMINATION FROM UNFINISHED PIPE LINES AT TIMES WHEN CONSTRUCTION IS NOT IN PROGRESS.
6. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AS NECESSARY TO PREVENT PIPE MOVEMENT.
7. WHERE WATER LINES AND NEW SANITARY SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN 9' THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) OR 30 TAC §290.44(E). THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 12" VERTICAL CLEARANCE AT STORM SEWER AND WATER LINE CROSSINGS AND A MINIMUM OF 24" VERTICAL CLEARANCE AT WATER LINE AND SANITARY SEWER CROSSINGS.
8. ALL WATER VALVES SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA C-509 AND SHALL BE OF THE RESILIENT SEAT TYPE.
9. ALL WATER LINES TO BE DISINFECTED IN CONFORMANCE WITH AWWA C-651 AND THE TEXAS STATE DEPARTMENT OF HEALTH. AT LEAST ONE BACTERIOLOGICAL SAMPLE SHALL BE COLLECTED FOR EVERY 1,000 LINEAR FEET OF WATER LINE AND SHALL BE REPEATED IF CONTAMINATION PERSISTS.
10. ALL WATER PIPE SHALL BE TESTED FOR LEAKAGE 125 PSI FOR A PERIOD OF 8 HOURS. TESTS ARE TO BE PERFORMED ON THE ENTIRE FOOTAGE OF WATER LINE INCLUDED IN THE PROJECT.

SANITARY SEWER CONSTRUCTION NOTES

1. NORMAL BEDDING AND BACKFILL FOR SANITARY SEWER LINES AND STRUCTURES SHALL BE 1.5 SACK PER CUBIC YARD CEMENT STABILIZED SAND TO 12" ABOVE THE PIPE. FOR SANITARY SEWER LINES OR STRUCTURES UNDER OR WITHIN 3' 0F PAVEMENT THE CEMENT STABILIZED SAND SHALL BE EXTENDED TO THE BOTTOM OF THE PAVEMENT.
2. ALL MANHOLES ARE TO BE CONSTRUCTED OF PRECAST CONCRETE AND MUST HAVE WATERTIGHT SIZE ON SIZE RESILIENT CONNECTORS ALLOWING FOR DIFFERENTIAL SETTLEMENT. IF SANITARY SEWER MANHOLES ARE CONSTRUCTED WITHIN THE 100-YEAR FLOODPLAIN, THE COVER MUST HAVE A GASKET AND BE BOLTED TO THE RING. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF THE SANITARY SEWER MANHOLE.
3. ALL SANITARY SEWER LINES ENTERING A MANHOLE AT A FLOW LINE GREATER THAN 36" ABOVE THE MANHOLE INVERT MUST BE PROVIDED WITH AN EXTERNAL DROP CONNECTION AND HAVE THE INVERT FILLETED.
4. SANITARY SEWER MANHOLE RIMS OUTSIDE OF PROPOSED PAVING WILL BE SET 3" - 6" ABOVE THE SURROUNDING LEVEL FINISHED GRADE WITH SLOPED BACKFILL ADDED FOR STORM WATER TO DRAIN AWAY FROM MANHOLE RIM.
5. ALL SANITARY SEWER MANHOLE COVERS SHALL HAVE THE CASTING CURRENTLY USED BY THE AUTHORITY HAVING JURISDICTION AND MUST INCLUDE THE WORDS "SANITARY SEWER". MANHOLES SHALL HAVE STAINLESS STEEL INSERTS (INFLOW PREVENTERS).
6. SANITARY SEWER PIPE SHALL CONFORM WITH ASTM D3034 SDR 26 SEWER PIPE, ASTM D2241 SDR 26 PRESSURE RATED SEWER PIPE OR AWWA C-900 DR-18 GREEN PVC PRESSURE RATED SEWER PIPE BASED ON CONSTRUCTION CONDITION REQUIREMENTS.
7. ALL BENDS IN THE LINES SHALL BE MADE WITH EITHER "WYES" OR DOUBLE 45° BENDS, NO 90° BENDS SHALL BE USED.
8. ALL TRENCH BACKFILL SHALL BE PLACED IN 8 INCH LIFTS AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 92% OF THE MAXIMUM DRY DENSITY FOR LANDSCAPED AREAS OR 95% OF THE MAXIMUM DRY DENSITY FOR PAVED AREAS AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D-698/AASHTO T99).
9. CONTRACTOR SHALL PROVIDE A MINIMUM HORIZONTAL CLEARANCE OF 9' BETWEEN WATER LINES AND SANITARY SEWER MANHOLES AND LINES.
10. WHERE WATER LINES AND NEW SEWER LINES ARE INSTALLED WITH A SEPARATION DISTANCE CLOSER THAN 9' THE INSTALLATION MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) OR 30 TAC §290.44(E).
11. DEFLECTION TESTS MUST BE PERFORMED ON ALL FLEXIBLE AND SEMI-RIDGID SANITARY SEWER PIPES IN ACCORDANCE WITH 30 TAC §217.57(B).
12. ALL SANITARY SEWER MANHOLES MUST BE VACUUM TESTED IN ACCORDANCE WITH 30 TAC §217.58(B)(2).
13. ALL SANITARY SEWER LINES MUST BE LOW PRESSURE AIR TESTED IN ACCORDANCE WITH 30 TAC §217.57(A)(1).
14. ALL SANITARY SEWER MANHOLES MUST BE TESTED TO MEET OR EXCEED THE REQUIREMENTS OF 30 TAC §217.58.

STORM SEWER CONSTRUCTION NOTES

1. NORMAL BEDDING AND BACKFILL FOR STORM SEWER LINES SHALL BE 1.5 SACK PER CUBIC YARD CEMENT STABILIZED SAND TO 12 INCHES ABOVE THE PIPE. FOR STORM SEWER LINES UNDER OR WITHIN 3 FEET 0F PAVEMENT OR STRUCTURES THE CEMENT STABILIZED SAND SHALL BE EXTENDED TO THE BOTTOM OF THE PAVEMENT OR STRUCTURE.
2. ALL STRUCTURES ARE TO BE CONSTRUCTED OF PRECAST CONCRETE. BRICKS ARE NOT AN ACCEPTABLE CONSTRUCTION MATERIAL FOR ANY PORTION OF STORM SEWER STRUCTURES.
3. STORM SEWER SHALL BE HIGH DENSITY POLYETHYLENE CORRUGATED EXTERIOR/SMOOTH INTERIOR PIPE (ASTM F2306) WITH WATER TIGHT JOINTS (ASTM D3212) OR REINFORCED CONCRETE PIPE (C-76, CLASS III) WITH RUBBER GASKET JOINTS (ASTM C443), UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
4. HIGH DENSITY POLYETHYLENE PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION OR THE PLANS/SPECIFICATIONS; WHICHEVER IS MORE RESTRICTIVE
5. ALL TRENCH BACKFILL SHALL BE PLACED IN 8 INCH LIFTS AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 92% OF THE MAXIMUM DRY DENSITY FOR LANDSCAPED AREAS OR 95% OF THE MAXIMUM DRY DENSITY FOR PAVED AREAS AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D-698/AASHTO T99).
6. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES AND INLET LEADS ARE TO BE PLUGGED WITH 8" BRICK WALLS UNLESS OTHERWISE NOTED.
7. MINIMUM HORIZONTAL CLEARANCE BETWEEN ANY STORM PIPE OR STRUCTURE SHALL BE AT LEAST 48 INCHES FROM EXTERIOR OF THE STORM PIPE OR STRUCTURE TO THE EXTERIOR OF THE EXISTING OR PROPOSED UTILITY AND OTHER APPURTENANCES. MINIMUM VERTICAL CLEARANCE BETWEEN ANY STORM PIPE OR STRUCTURE SHALL BE AT LEAST 12 INCHES FROM EXTERIOR OF THE STORM PIPE OR STRUCTURE TO THE EXTERIOR OF THE EXISTING OR PROPOSED UTILITY AND OTHER APPURTENANCES.
8. ALL BUILDING AND CANOPY DOWNSPOUTS SHALL BE CONNECTED TO THE UNDERGROUND STORM SEWER SYSTEM WITH ASTM D3034 SDR 26 SEWER PIPE OR ASTM D-1784 SCH 40 PIPE, AT A MINIMUM GRADE OF 1.00% UNLESS NOTED OTHERWISE. LINES SHALL BE A 6 INCH MINIMUM FOR DOWNSPOUTS. ONCE TWO OR MORE DOWNSPOUTS ARE CONNECTED THE COLLECTOR LINE SHALL BE 12" UNLESS NOTED OTHERWISE. WHERE DOWNSPOUT COLLECTORS ARE LOCATED IN PAVED AREAS, PROVIDE A 24"X24" BLOCKOUT AROUND PIPE. REFER TO DETAILS.
8. ALL BENDS IN THE LINES SHALL BE MADE WITH EITHER "WYES" OR DOUBLE 45° BENDS, NO 90° BENDS SHALL BE USED.
9. THE CONTRACTOR SHALL INSTALL DRIVEWAY CULVERT(S), SET'S, AND JUNCTION BOX(ES) LOCATED IN THE RIGHT-OF-WAY PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
10. ALL DITCHES SHALL BE GRADED TO PROPOSED ELEVATIONS TO INSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE PROPERLY BACKFILLED AND COMPACTED.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING, AND RESTORING ANY DRAINAGE SYSTEM DISTURBED AS A RESULT OF THIS WORK.

EROSION CONTROL CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPMENT, IMPLEMENTATION, INSPECTION, AND MAINTENANCE OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS. ANY EROSION CONTROL SHOWN IN THESE DRAWINGS IS PROVIDED FOR PERMITTING/REFERENCE ONLY.
2. THE CONTRACTOR IS REQUIRED TO SUBMIT A NOTICE OF INTENT (NOI) TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) AND PAY ANY FEES AT LEAST 7 DAYS PRIOR TO THE START OF ANY EARTH DISTURBING ACTIVITIES. THE CONTRACTOR SHALL PROVIDE A COPY OF THE NOI AND A DECLARATION THAT IT HAS BEEN SUBMITTED TO THE ENGINEER.
3. CONTRACTOR SHALL IMPLEMENT INLET PROTECTION DEVICES, REINFORCED FILTER FABRIC BARRIERS, ROCK FILER DAMS, ETC. AS REQUIRED TO KEEP SILT AND/OR EXCAVATED MATERIALS FROM ENTERING INTO THE STORM WATER INLETS AND DITCHES EVENTUALLY POLLUTING THE RECEIVING STORM.
4. DURING THE EXCAVATION PHASE OF THE PROJECT, CONTRACTOR SHALL SCHEDULE THE WORK IN SHORT SEGMENTS SO THAT EXCAVATION MATERIAL CAN BE QUICKLY HAULED AWAY FROM THE SITE AND TO PREVENT IT FROM STAYING UNCOLLECTED ON THE EXISTING PAVEMENT. ANY LOOSE EXCAVATED MATERIAL WHICH FALLS ON PAVEMENTS OR DRIVEWAYS SHALL BE SWEPT BACK INTO THE EXCAVATED AREA.
5. CONTRACTOR SHALL CLEAN UP THE EXISTING STREET INTERSECTIONS AND DRIVEWAYS DAILY, AS NECESSARY, TO REMOVE ANY EXCESS MUD, SILT OR ROCK TRACKED FORM THE EXCAVATED AREA.
6. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING THE CONSTRUCTION OF THE PROJECT, ALWAYS CLEANING UP DIRT AND LOOSE MATERIAL AS CONSTRUCTION PROGRESSES.
7. CONTRACTOR TO INSPECT AND MAINTAIN THE AREAS LISTED BELOW AT LEAST ONCE EVERY FOURTEEN (14) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER.
   - DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
   - AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION.
   - STRUCTURAL CONTROL MEASURES.
   - LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.
9. CONTRACTOR TO BE RESPONSIBLE TO MAINTAIN EXISTING DITCHES AND OR CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES. WHERE SODDING IS DISTURBED BY EXCAVATION ON BACKFILLING OPERATIONS, SUCH AREAS SHALL BE REPLACED BY SEEDING OR SODDING. SLOPES 4:1 OR STEEPER SHALL BE REPLACED BY BLOCK SODDING.
11. UPON COMPLETION OF CONSTRUCTION ACTIVITIES AND FINAL STABILIZATION OF THE SITE, AS DEFINED BY THE TPDES GENERAL PERMIT, THE CONTRACTOR SHALL SUBMIT A NOTICE OF TERMINATION (NOT) TO THE TCEQ. THE CONTRACTOR SHALL PROVIDE A COPY OF THE NOT AND A DECLARATION THAT IT HAS BEEN SUBMITTED TO THE ENGINEER.
12. THE SWPPP, INSPECTION & MAINTENANCE REPORTS, CERTIFICATIONS, RAINFALL RECORDS, MAJOR GRADING DATE RECORDS AND TEMPORARY/PERMANANT STABILIZATION DATE RECORDS SHALL BE KEPT CURRENT BY THE CONTRACTOR.

GRADING CONSTRUCTION NOTES

1. GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES, UTILITY LOCATIONS AND DIMENSIONS BEFORE STARTING CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
2. BEFORE STARTING CONSTRUCTION, CONTRACTOR SHALL VERIFY BENCHMARK ELEVATION AND NOTIFY ENGINEER IF ANY DISCREPANCY AND/OR CONFLICT IS FOUND.
3. THE CONTRACTOR SHALL GRADE THE SITE AS INDICATED BY THE SPOT ELEVATIONS, CONTOUR LINES AND SLOPE ARROWS. ALL GRADING SHALL VARY UNIFORMLY BETWEEN SPOT ELEVATIONS SHOWN. WHEN SPOT ELEVATIONS ARE SHOWN ALONG THE EDGE OF PAVEMENT, CURB, SIDEWALK, ETC., THE GRADING SHALL VARY UNIFORMLY ALONG THAT EDGE. THE CONTRACTOR SHALL ENSURE THERE IS POSITIVE DRAINAGE WITH NO STANDING WATER.
5. DITCH AND SWALE SIDESLOPES SHALL BE 5:1 (HORZ:VERT) FROM FLOWLINE OF DITCH OR SWALE TO THE TOP OF BANK UNLESS NOTED OTHERWISE.
6. SITE TO BE CLEARED OF FENCES, POWER POLES, VEGETATION, DEBRIS, ETC. AS NECESSARY TO COMPLETE PROJECT OR AS DIRECTED BY ENGINEER. STRIPPINGS, IF CLEAN, ARE TO BE STOCKPILED AND USED AS DRESSING FOR GRADING, OTHERWISE THE STRIPPINGS SHALL BE DISPOSED OF BY THE CONTRACTOR.
7. ALL DEBRIS AND/OR WASTE MATERIALS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY. ALL ASSOCIATED COSTS SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
8. BACKFILL TO TOP OF NEW PAVEMENT OR CURBS WITH CLEAN SOIL FREE OF CLODS. ALL DISTURBED AREAS AND AREAS REQUIRING GRADING SHALL BE FINE GRADED. REMOVE ALL TRASH/DEBRIS AND PROVIDE A SMOOTH SURFACE FOR PROPER TURF MANAGEMENT. APPLY HYDROMULCH TO ALL DISTURBED AREAS NOT NOTED TO RECEIVE SOLID SOD OR OTHER STABILIZATION.
9. GRASS ISLANDS SHALL BE BACKFILLED TO TOP OF CURB. PROVIDE MINIMUM 3% GRADE UP TO CENTER OF ISLAND TO PROVIDE ADEQUATE SHEET FLOW OVER TOP OF CURB.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL EXISTING AND PROPOSED STRUCTURES TO FINISH GRADE.

PAVING CONSTRUCTION NOTES

1. FILL AREAS ON PLANS SHALL BE FILLED IN LAYERS NOT EXCEEDING 8" IN DEPTH AND EACH COMPACTED TO NOT LESS THAN 95% STANDARD PROCTOR DENSITY.
2. EXISTING PAVEMENTS, CURBS, DRIVEWAYS, AND SIDEWALKS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO THE STANDARDS OF THE AUTHORITY HAVING JURISDICTION.
3. SIDEWALKS AND WHEEL CHAIR RAMPS SHALL BE INSTALLED IN ACCORDANCE WITH THE MOST RECENT ADDITION TEXAS ACCESSIBILITY STANDARDS (TAS).
4. THE CONTRACTOR SHALL SUBMIT A DRAWING SHOWING THE PROPOSED POURING PLAN AND ANY MODIFICATIONS TO THE PROPOSED JOINT LAYOUT TO THE ENGINEER FOR REVIEW.
5. REFERENCE THE ARCHITECTURAL SITE PLAN FOR SIDEWALK JOINT PATTERN. SIDEWALK JOINTS SHALL ALIGN WITH PAVING JOINTS WHEN SIDEWALK IS ADJACENT TO PAVING.
6. THE PAVEMENT JOINTING PLAN SHALL BE COORDINATED WITH THE LOCATION OF INLETS, MANHOLES LIGHT POLES, ETC. IN PAVED AREAS.
7. SAWED JOINTS ARE TO BE EQUALLY SPACED BETWEEN EXPANSION JOINTS.
8. SAWING OF JOINTS MUST BEGIN AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY TO AVOID EXCESSIVE RAVELING. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
9. EXPANSION JOINT MATERIAL SHALL BE PLACED BETWEEN BUILDING FOUNDATIONS AND PERIMETER CONCRETE PAVING. SEAL JOINT AS REQUIRED FOR PAVING JOINTS.
10. REFER TO STRUCTURAL FOR ANY DOWELS REQUIRED TYING THE BUILDING FOUNDATION AND ADJACENT CONCRETE PAVING TOGETHER.
11. WHERE NEW CONCRETE PAVING MEETS EXISTING CONCRETE PAVING, SAW CUT AND EXPOSE 15" OF EXISTING REINFORCING STEEL. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS (#6 BARS 24" LONG) 24" C-C DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB WITH "PO ROC" OR EQUAL. WHEN PAVING UP TO BUILDING FOUNDATIONS, ALSO INSTALL IMPREGNATED FIBER BOARD EXPANSION MATERIAL WITH TOP PULL STRIP FOR CAULKING.
12. CONCRETE PAVEMENT SHALL BE PLACED DIRECTLY ON COMPACTED STABILIZED SUBGRADE. STABILIZED SUBGRADE SHALL EXTEND A MINIMUM OF 2-FT BEYOND BACK OF CURB AND/OR EDGE OF PAVEMENT, WHERE SIDEWALK IS ADJACENT TO THE PAVEMENT THE SUBGRADE SHALL EXTEND TO THE EDGE OF THE WALK OR A MAXIMUM OF 10-FT. SAND LEVELING OF SIDEWALKS IS NOT ALLOWED.
13. PAVEMENT SUBGRADE SHALL BE STABILIZED BY MIXING LIME OR A LIME-FLY ASH MIXTURE INTO THE SUBGRADE AT THE RATE AND DEPTH DETERMINED BY THE GEOTECHNICAL ENGINEER.

CIVIL GENERAL CONSTRUCTION NOTES

1. ALL CONTRACT ITEMS SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATION AND THE REQUIREMENTS OF ANY LOCAL AUTHORITIES HAVING JURISDICTION.
2. THE CONTRACTOR SHALL NOTIFY ALL AUTHORITIES HAVING JURISDICTION A MINIMUM OF 48-HOURS IN ADVANCE OF COMMENCING CONSTRUCTION FOLLOWED BY A LETTER OF CONFIRMATION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR CONSTRUCTION.
4. THE DRAWINGS SHOW AS MUCH INFORMATION AS CAN BE REASONABLY OBTAINED FROM ON THE GROUND OBSERVATION AND EXISTING CONSTRUCTION DRAWINGS REGARDING THE TOPOGRAPHY, CONTOURS, SUB-SURFACE SOILS, LOCATION AND NATURE OF PIPELINES, STORM SEWERS, WATERLINES, NATURAL GAS LINES, UNDERGROUND CABLES, ETC. HOWEVER, THE ACCURACY OF OR COMPLETENESS OF SUCH INFORMATION IS NOT GUARANTEED.
5. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE BEGINNING CONSTRUCTION. VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WORK.
6. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONTACTING THE SURVEYOR AND VERIFYING THE BENCHMARK AND ON SITE TBM'S IN THE FIELD.
7. IRON RODS OR BENCHMARKS DISTURBED DURING CONSTRUCTION ARE TO BE REPLACED BY A REGISTERED PUBLIC LAND SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.
8. CONSTRUCTION STAKING WILL BE PROVIDED BY THE CONTRACTOR. TWO COPIES OF STAKING NOTES SHALL BE PROVIDED TO THE OWNER PRIOR CONSTRUCTION.
9. THE CONTRACTOR STAGING AREA SHALL BE DETERMINED BY THE CONTRACTOR WITH CONCURRENCE BY THE OWNER PRIOR TO BEGINNING CONSTRUCTION.
10. INGRESS AND EGRESS SHALL BE PROVIDED FOR TRAFFIC DURING CONSTRUCTION.
11. THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS A MINIMUM OF TWO WEEKS PRIOR TO BLOCKING DRIVEWAYS OR ENTERING EASEMENTS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFEGUARDING AND PROTECTING ALL MATERIAL AND EQUIPMENT STORED ON THE JOBSITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STORAGE OF MATERIALS IN A SAFE AND WORKMANLIKE MANNER TO PREVENT INJURIES, DURING AND AFTER WORKING HOURS, UNTIL PROJECT COMPLETION.
13. THE CONTRACTOR SHALL COMPLY WITH O.S.H.A. REGULATIONS AND STATE OF TEXAS LAW CONCERNING EXCAVATION. CONTRACTOR SHALL PROVIDE SHEETING, SHORING AND BRACING AS NECESSARY TO PROTECT WORKMEN AND EXISTING UTILITIES DURING ALL PHASES OF CONSTRUCTION.
14. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE PROJECT SITE REASONABLY AND IN USEABLE CONDITION THROUGHOUT THE PROGRESS OF THE WORK. AT THE COMPLETION OF THE PROJECT ALL EXCESS MATERIALS, TRASH AND DEBRIS, ETC., SHALL BE REMOVED FROM THE JOB BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE OWNER AND THE SITE LEFT IN A CLEAN AND WORKMANLIKE CONDITION BEFORE FINAL ACCEPTANCE.
15. THE CONTRACTOR SHALL KEEP ALL STREETS FREE OF DIRT, MUD, ETC. DURING THE COURSE OF CONSTRUCTION.
16. UPON COMPLETION OF THE WORK THE CONDITION OF THE ROAD, RIGHT-OF-WAY AND/OR DISTURBED AREAS SHALL BE RESTORED TO AS GOOD OR BETTER CONDITION THAN EXISTED PRIOR TO THE START OF CONSTRUCTION.
17. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF SEDIMENT IN ALL DRAINAGE STRUCTURES IMPACTED BY THE WORK.
18. THE CONTRACTOR IS RESPONSIBLE FOR MOWING MAINTENANCE AND CLEAN-UP OF THE PROJECT FOR THE ENTIRE LIMITS OF THE PROJECT AND FOR THE ENTIRE DURATION OF THE PROJECT, REGARDLESS OF THE CONTRACTOR'S SCOPE OF ACTIVITIES WITHIN THE PROJECT LIMITS.
19. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION OF NEW SWALES/DITCHES AND MAINTAINING EXISTING DITCHES AND/OR CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES. ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AUTHORITY.
20. THE REMOVAL OR RELOCATION OF ANY UTILITIES, CULVERTS, FENCES, ETC. REQUIRED TO COMPLETE THE WORK IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE COMPLETED AT NO ADDITIONAL COST TO THE OWNER.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY PROTECTING EXISTING STRUCTURES, UTILITIES, PAVEMENT, PAVEMENT MARKINGS, TREES, SHRUBS, FENCES AND OTHER IMPROVEMENTS TO REMAIN FROM DAMAGE. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE OWNER AT THE CONTRACTOR'S EXPENSE.
22. IT IS THE CONTRACTOR'S RESPONSIBILITY TO STOCKPILE NECESSARY MATERIAL ON-SITE OR SECURED OFF-SITE AT NO ADDITIONAL EXPENSE TO THE OWNER. ALL SPOILS FROM STORM SEWER, ROADWAY AND CHANNEL EXCAVATION, IF SUITABLE, SHALL BE CONSUMED BEFORE FILL IS BROUGHT ON SITE.
23. ALL FILL UNDER AND WITHIN FIVE (5) FEET OF PAVEMENT, SIDEWALKS AND STRUCTURES SHALL BE COMPACTED TO 95% ASTM D698 DRY DENSITY. FILL IN ALL OTHER AREAS SHALL BE COMPACTED TO 92% OF ASTM D968 DRY DENSITY.
24. THE CONTRACTOR SHALL NOT LEAVE ANY TRENCHES OR PITS OPEN OVER NIGHT. ALL OPEN CUTS SHALL BE COVERED WITH STEEL PLATES WHEN WORK IS NOT IN PROGRESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO KEEP THE PUBLIC OUT OF THE WORK AREA.
25. THE CONTRACTOR SHALL MAINTAIN UPDATED REDLINE RECORD DRAWINGS ON SITE FOR INSPECTION BY THE OWNER.
26. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE MOST RECENT EDITION OF "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AT NO ADDITIONAL COST TO THE OWNER.
27. CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN THE AREA PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY TEXAS 811 AT LEAST 48 HOURS PRIOR TO COMMENCING WORK.
28. THE CONTRACTOR SHALL COORDINATE WITH ANY OTHER CONTRACTOR(S) OF ANY TRADE OR DISCIPLINE WORKING ADJACENT TO THE PROJECT PRIOR TO AND THROUGHOUT CONSTRUCTION.
29. WHEELCHAIR RAMPS SHALL BE INSTALLED IN ACCORDANCE WITH CURRENT TXDOT & TAS STANDARDS AT ALL INTERSECTIONS WHERE SIDEWALKS EXIST OR ARE TO BE CONSTRUCTED AS PART OF THIS PROJECT.
30. EXCAVATION, BEDDING AND BACKFILL SHALL BE INCIDENTAL TO THE PAY ITEMS FOR PIPE AND SHALL NOT BE PAID FOR DIRECTLY. REFER TO DETAILS. IF WET SAND CONDITIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL CONTACT THE OWNER IMMEDIATELY.
31. MANHOLES, JUNCTION BOXES, INLETS AND RISERS ARE TO BE PRE-CAST OR CAST-IN-PLACE.
32. PIPE SLEEVES ARE TO BE 6" PVC, SCHEDULE 40 PIPE CAPPED AT EACH END. THE TOP OF THE PIPE SLEEVE SHALL BE 12" TO 18" BELOW THE BOTTOM OF CONCRETE PAVEMENT OR WALK. EACH END SHALL EXTEND A MINIMUM OF TWO (2) FEET BEYOND THE EDGE OF CONCRETE PAVEMENT OR WALK. LOCATION OF EACH END TO BE MARKED IN CURB OR PAVEMENT WITH BRASS BOLTS.
33. MARK LOCATIONS OF ALL CABLE AND TELEPHONE LINES EXTENDING BENEATH PAVING BY SETTING A 60D GALVANIZED NAIL FLUSH WITH TOP OF CURB (OR TOP OF PAVEMENT WHERE THERE IS NO CURB).
34. CONNECTION TO EXISTING MANHOLES / INLETS SHALL BE MADE IN A NEAT AND WORKMANLIKE MANNER. NON-SHRINK GROUT SHALL BE USED TO SEAL THE CONNECTION ON BOTH THE INSIDE AND OUTSIDE OF EXISTING MANHOLES / INLETS. ANY DAMAGE TO EXISTING STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
35. EXISTING UTILITIES SHALL REMAIN IN SERVICE DURING THE CONSTRUCTION PERIOD, UNTIL SUCH TIME THAT NEW UTILITIES CAN BE MADE OPERATIONAL.
36. THE CONTRACTOR SHALL EXPOSE ALL EXISTING UTILITIES WHERE THEY CROSS PROPOSED UTILITIES AND ENSURE THAT THERE ARE NO CONFLICTS PRIOR TO BEGINNING CONSTRUCTION. ADDITIONALLY, CONTRACTOR SHALL PLAN UTILITY LINE INSTALLATIONS IN A MANNER TO AVOID CONFLICTS WITH PROPOSED UTILITIES.
37. WHEN CONNECTING TO EXISTING SANITARY SEWERS OR STORM DRAINAGE SYSTEMS, THE CONTRACTOR SHALL START AT THE DOWNSTREAM END AND PROCEED UPSTREAM. THE CONTRACTOR SHALL VERIFY THE ELEVATIONS OF THE UPSTREAM AND DOWNSTREAM CONNECTIONS PRIOR TO STARTING WORK. IF ELEVATIONS ARE NOT AS SHOWN ON THE DRAWINGS, CONTACT THE ENGINEER. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR START UPSTREAM AND WORK DOWNSTREAM. ANY OTHER WORK SEQUENCE WILL BE AT THE CONTRACTOR'S RISK.
38. THE CONTRACTOR SHALL INSTALL AN 18-INCH WIDE STRIP OF BERMUDA GRASS SOLID SOD ADJACENT TO ALL CURBS, DRIVES, WALKS AND/OR INLETS. COORDINATE W/LANDSCAPE DRAWINGS.
39. MATCH ALL ELEVATIONS WHERE PROPOSED PAVEMENT ADJOINS EXISTING PAVEMENT.

BENCHMARK AND FLOODPLAIN INFORMATION

PROJECT BENCHMARK:

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NEAREST 1%(100-YR) FLOOD ELEVATION = 179.10 FT

SHEET LIST

Sheet Number	Sheet Title
C1.00	GENERAL NOTES
C1.01	PLAT
C1.02	TOPOGRAPHIC SURVEY
C1.03	SITE DEMOLOTION PLAN
C1.04	SITE DIMENSIONAL PLAN
C2.01	CIVIL SITE PLAN
C2.02	SITE EROSION CONTROL PLAN
C2.03	SITE PAVING AND JOINTING PLAN
C2.04	FIRE APPARATUS ACCESS PLAN
C3.00	SITE GRADING PLAN
C4.00	DRAINAGE AND UTILITY PLAN
C7.01	CIVIL DETAILS
C7.02	CIVIL DETAILS
C7.03	CIVIL DETAILS

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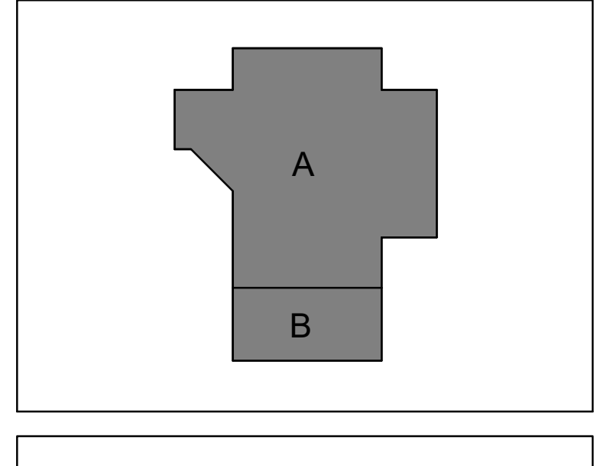

TOMBALL HIGH SCHOOL
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DUSTIN A. HANNAH
101103

11/06/2023

PROJECT #: 202311
DATE: 11/06/2023
DRAWN: DAH
CHECKED: DAH

DATE	ISSUE
11/06/2023	BID SET

C1.00

GENERAL NOTES

PLOTTED: 11/6/2023 12:55 PM

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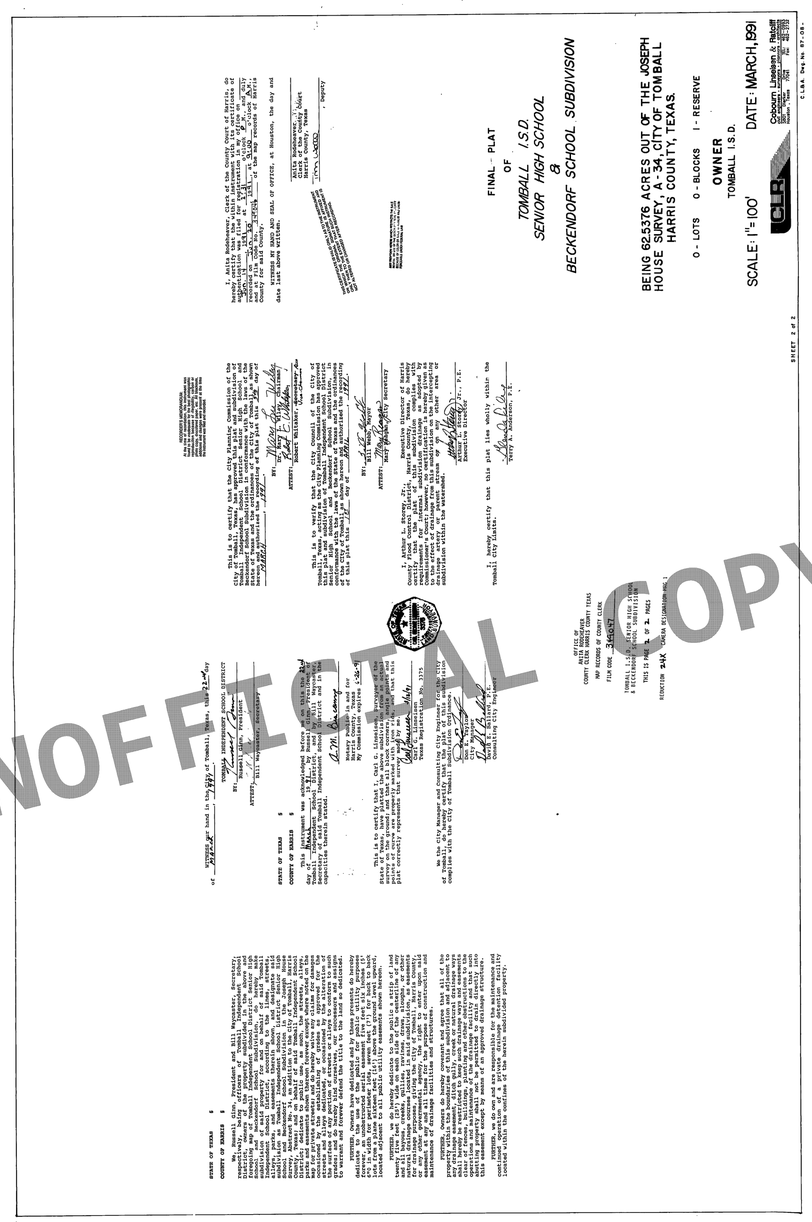

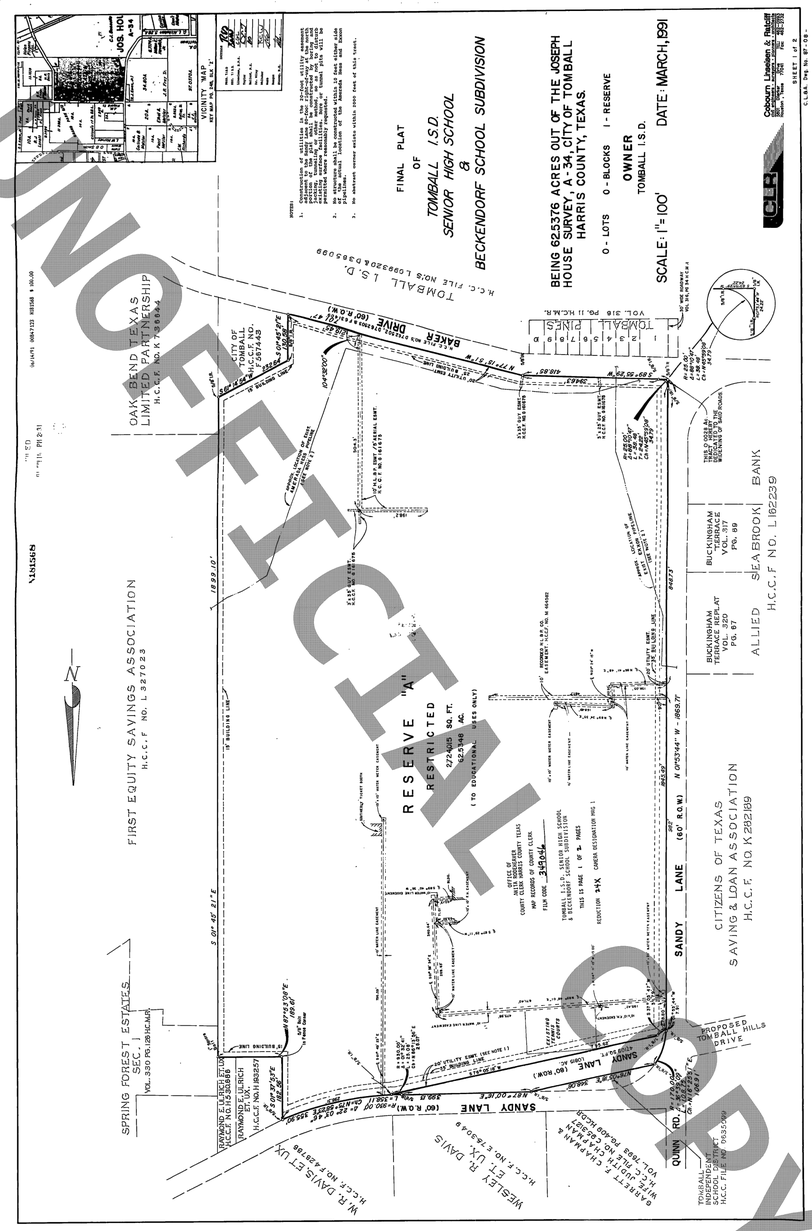

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NEAREST 1%(100-YR) FLOOD ELEVATION = 179.10 FT

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STATE OF TEXAS
DUSTIN A. HANNAH
101103
LICENSED
PROFESSIONAL ENGINEER
11/06/2023

PROJECT #:	202311
DATE:	11/06/2023
DRAWN:	DAH
CHECKED:	DAH

DATE	ISSUE
11/06/2023	BID SET

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C1.01

PLAT

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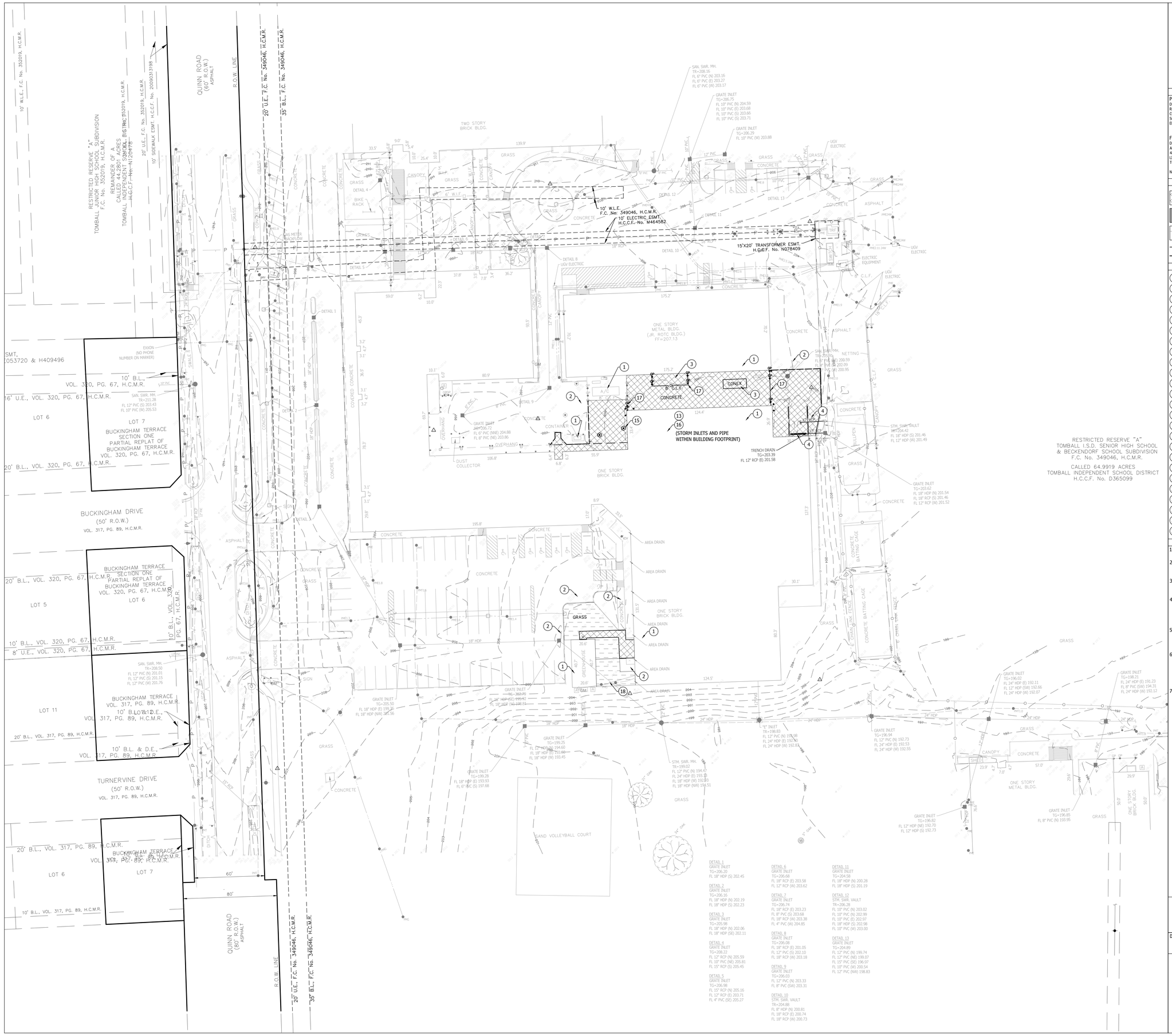

N

0' 15' 30' 60'

SCALE: 1" = 30'

BENCHMARK AND FLOODPLAIN INFORMATION

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NEAREST 1%(100-YR) FLOOD ELEVATION = 179.10 FT

LEGEND

- REMOVE AND DISPOSE OF EXIST. PAVEMENT, CURB, WALK AND PREPARE AREA FOR PROP. WORK
- REMOVE AND DISPOSE OF EXIST. STRUCTURE AND PREPARE AREA FOR PROP. WORK
- CLEAR, GRUB AND PREPARE AREA FOR PROP. WORK
- EXIST. ITEM TO BE REMOVED AND DISPOSED OF
- SAW CUT EXISTING PAVEMENT

KEY NOTES

1. PROTECT EXIST. STRUCTURE
2. PROTECT EXIST. PAVEMENT
3. COORDINATE RELOCATION OF EXISTING STRUCTURE WITH ARCHITECT
4. REMOVE EXIST. UTILITY (REF: MEP)
5. ~~CUT PLUG AND REMOVE EXIST. WATER LINE~~
6. ~~REMOVE AND DISPOSE OF EXIST. VALVE~~
7. ~~REMOVE AND DISPOSE OF EXIST. FIRE HYDRANT~~
8. ~~REMOVE AND DISPOSE OF EXIST. WATER METER~~
9. ~~REMOVE AND DISPOSE OF EXIST. BACKFLOW PREVENTER~~
10. ~~REMOVE AND DISPOSE OF EXIST. SSWR LINE~~
11. ~~REMOVE AND DISPOSE OF EXIST. SSWR MANHOLE~~
12. ~~REMOVE AND DISPOSE OF EXIST. SSWR CLEANOUT~~
13. REMOVE AND DISPOSE OF EXIST. STRM LINE
14. ~~REMOVE AND DISPOSE OF EXIST. STRM MANHOLE~~
15. REMOVE AND DISPOSE OF EXIST. STRM CLEANOUT
16. REMOVE AND DISPOSE OF EXIST. STRM INLET
17. REMOVE, DISPOSE, AND REPLACE OF EXIST. FENCE. RE: ARCHITECTURAL DRAWINGS
18. REMOVE AND DISPOSE OF EXIST. GRASS, REGRADE TO DRAIN. REPLACE WITH SOLID SOD.
19. ~~REMOVE AND DISPOSE OF EXIST. LIGHT~~
20. ~~REMOVE AND DISPOSE OF EXIST. SIGN~~
21. ~~REMOVE AND DISPOSE OF EXIST. BOLLARD~~
22.
23.
24.
25.

NOTES

1. CONTRACTOR SHALL REFERENCE CIVIL CONSTRUCTION NOTES FOR ADDITIONAL REQUIREMENTS.
2. CONTRACTOR SHALL REFERENCE ARCHITECTURAL, STRUCTURAL, LANDSCAPE AND MEP DRAWINGS FOR ADDITIONAL REQUIREMENTS.
3. EXISTING UTILITIES SHALL REMAIN IN SERVICE DURING THE CONSTRUCTION PERIOD, UNTIL SUCH TIME THAT NEW UTILITIES CAN BE MADE OPERATIONAL.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY PROTECTING EXISTING STRUCTURES, UTILITIES, PAVEMENT, PAVEMENT MARKINGS, TREES, SHRUBS, FENCES AND OTHER IMPROVEMENTS TO REMAIN FROM DAMAGE.
5. THE REMOVAL OR RELOCATION OF ANY UTILITIES, CULVERTS, FENCES, ETC. REQUIRED TO COMPLETE THE WORK IS THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE COMPLETED AT NO ADDITIONAL COST TO THE OWNER.
6. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION OF NEW SWALES/DITCHES AND MAINTAINING EXISTING DITCHES AND/OR CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES.
7. WHERE NEW CONCRETE PAVING MEETS EXISTING CONCRETE PAVING, SAW CUT AND EXPOSE 15" OF EXISTING REINFORCING STEEL. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS (#6 BARS 24" LONG) 24" C-C DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB WITH "PO ROC" OR EQUAL.

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DRAWING SCALE		PROJECT NUMBER
HORIZ:	1" = 30'	0104.0117
VERT:	N/A	

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PROFESSIONAL ENGINEER
11/06/2023

PROJECT #:	202311
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SITE DEMOLOTION PLAN

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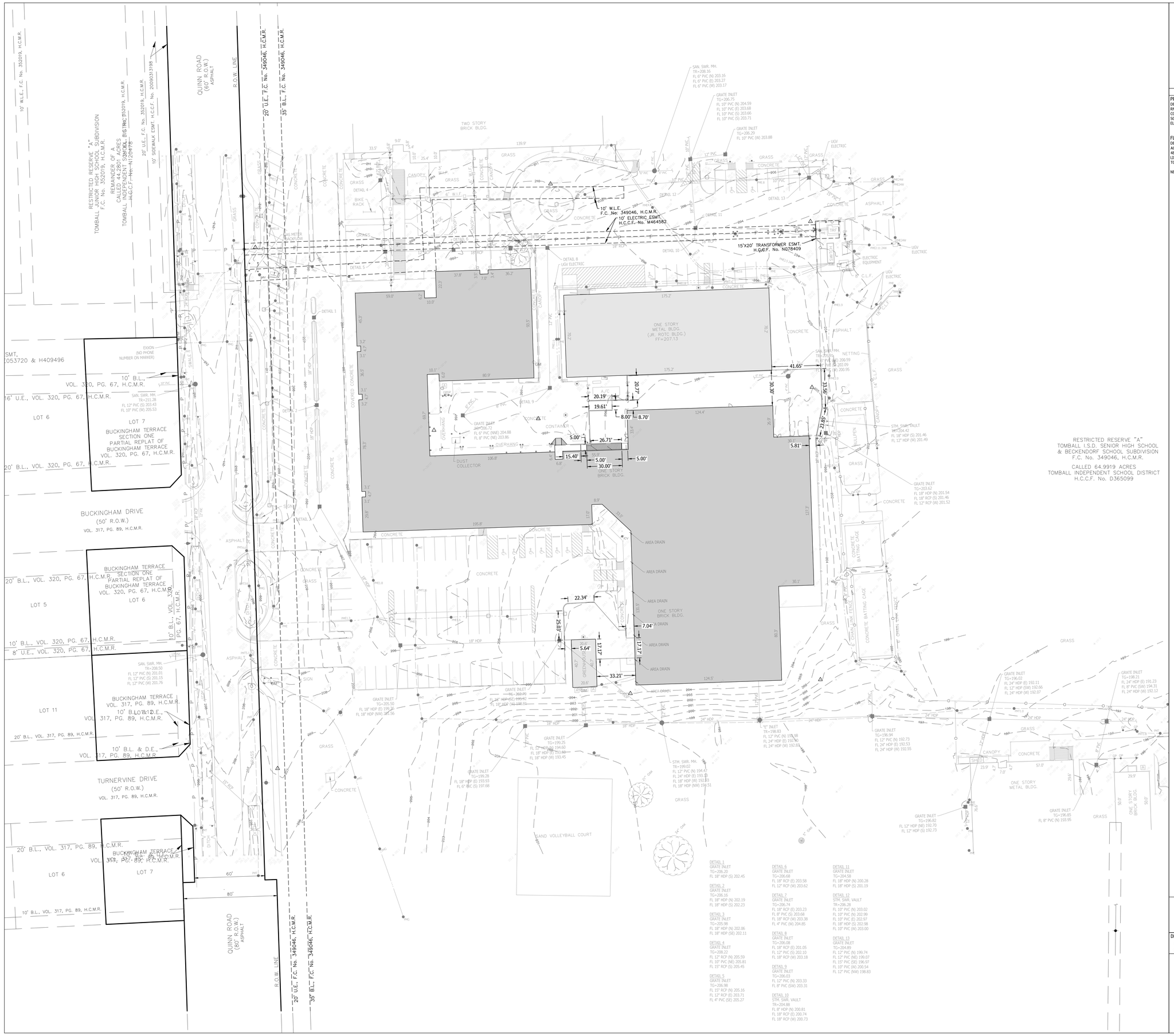

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STATE OF TEXAS
DUSTIN A. HANNAH
101103
LICENSED
PROFESSIONAL ENGINEER
11/06/2023

PROJECT #:	202311
DATE:	11/06/2023
DRAWN:	DAH
CHECKED:	DAH

DATE	ISSUE
11/06/2023	BID SET

Texas 811
Know what's below. Call before you dig.

DRAWING SCALE		PROJECT NUMBER
HORIZ:	1" = 30'	0104.0117
VERT:	N/A	

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HOUSTON, TEXAS 77007
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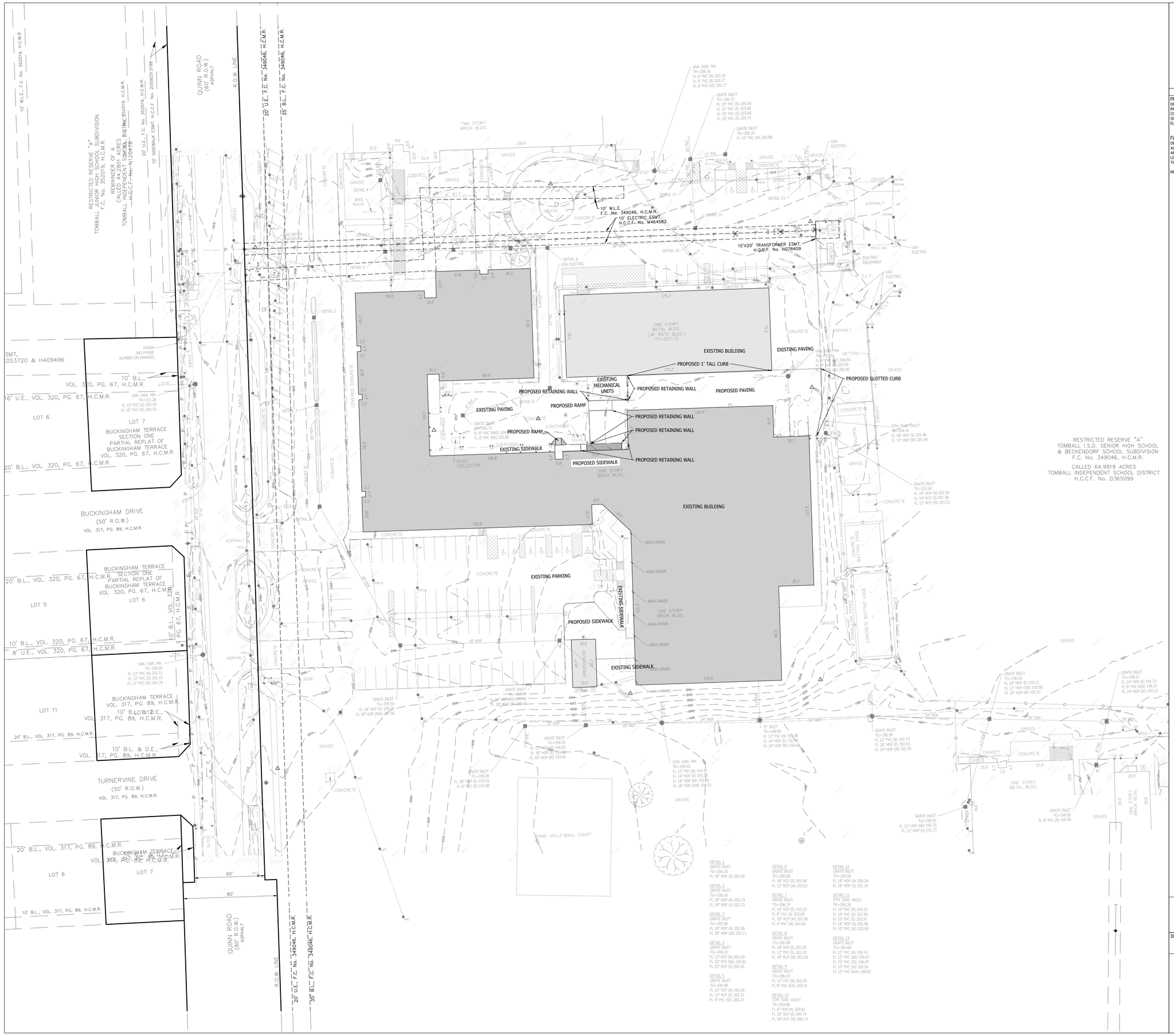
C1.04

SITE DIMENSIONAL PLAN

PLOTTED: 11/6/2023 12:56 PM
PLOT STYLE: AURIC2A.STB
FILE PATH: C:\USERS\DUSTINHANNAH\DACCDOCS\AURIC ENGINEERS\0104.0117 - TOMBALL ISD HS CTE\PROJECT FILES\01-CIVIL\06-DRAWINGS\03-SHEETS\C1.04 SITE DIMENSIONAL PLAN.DWG



N

0' 15' 30' 60'

SCALE: 1" = 30'

BENCHMARK AND FLOODPLAIN INFORMATION

PROJECT BENCHMARK:
DESCRIPTION
RM100395 - BRASS DISK STAMPED "RM100395" LOCATED ON THE SOUTHEAST CORNER OF A 5' X 8' CONCRETE BOX CULVERT UNDER RUDOLPH RD. ±0.4 MILE SOUTH OF ZION RD.
ELEVATION = 171.59' (NAVD 88, 2001 ADJ.)

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NEAREST 1%(100-YR) FLOOD ELEVATION = 179.10 FT

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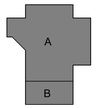

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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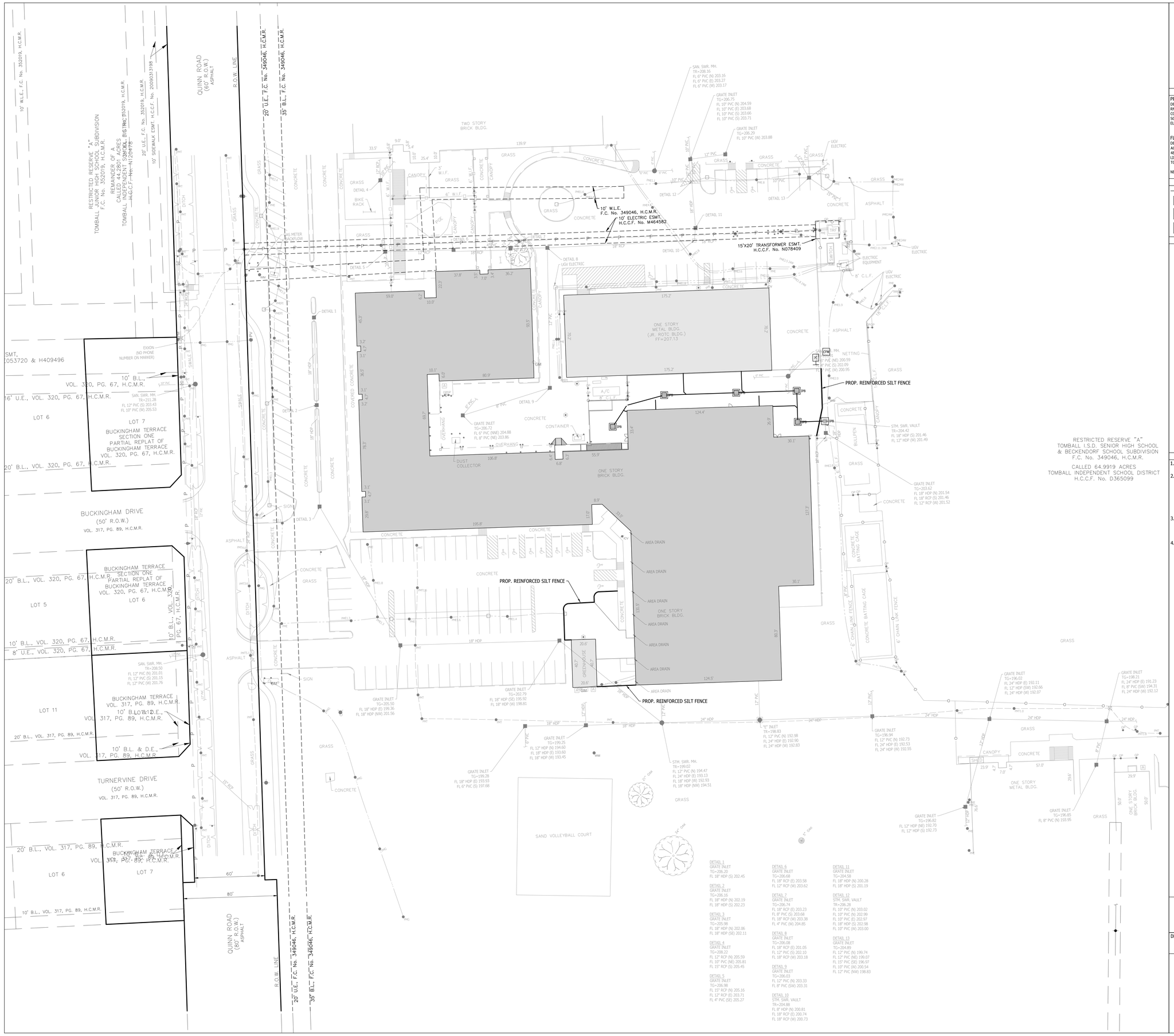
CIVIL SITE PLAN

PLOTTED: 11/6/2023 12:56 PM
PLOT STYLE: AURIC2A.STB
FILE PATH: C:\USERS\DUSTINHANNAH\DACDOCS\AURIC ENGINEERS\0104.0117 - TOMBALL ISD HS CTE\PROJECT FILES\01-CIVIL\06-DRAWINGS\03-SHEETS\C2.01 CIVIL SITE PLAN.DWG



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LEGEND

—RFB—	PROP. REINFORCED SILT FENCE
SC	PROP. STABILIZED CONSTRUCTION ENTRANCE
CTW	PROP. CONCRETE WASHOUT
IPB	PROP. INLET PROTECTION (STAGE I & II AS REQ.)

KEY NOTES

NOTES

1. CONTRACTOR SHALL REFERENCE CONSTRUCTION NOTES FOR ADDITIONAL REQUIREMENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPMENT, IMPLEMENTATION, INSPECTION, AND MAINTENANCE OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS. ANY EROSION CONTROL SHOWN IN THESE DRAWINGS IS PROVIDED FOR PERMITTING/REFERENCE ONLY.
3. CONTRACTOR SHALL CLEAN UP THE EXISTING STREET INTERSECTIONS AND DRIVEWAYS DAILY, AS NECESSARY, TO REMOVE ANY EXCESS MUD, SILT OR ROCK TRACKED FORM THE EXCAVATED AREA.
4. CONTRACTOR TO INSPECT AND MAINTAIN THE AREAS LISTED BELOW AT LEAST ONCE EVERY FOURTEEN (14) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER.
   - DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
   - AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION.
   - STRUCTURAL CONTROL MEASURES.
   - LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.

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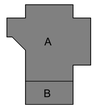

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101103
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PROFESSIONAL ENGINEER
11/06/2023

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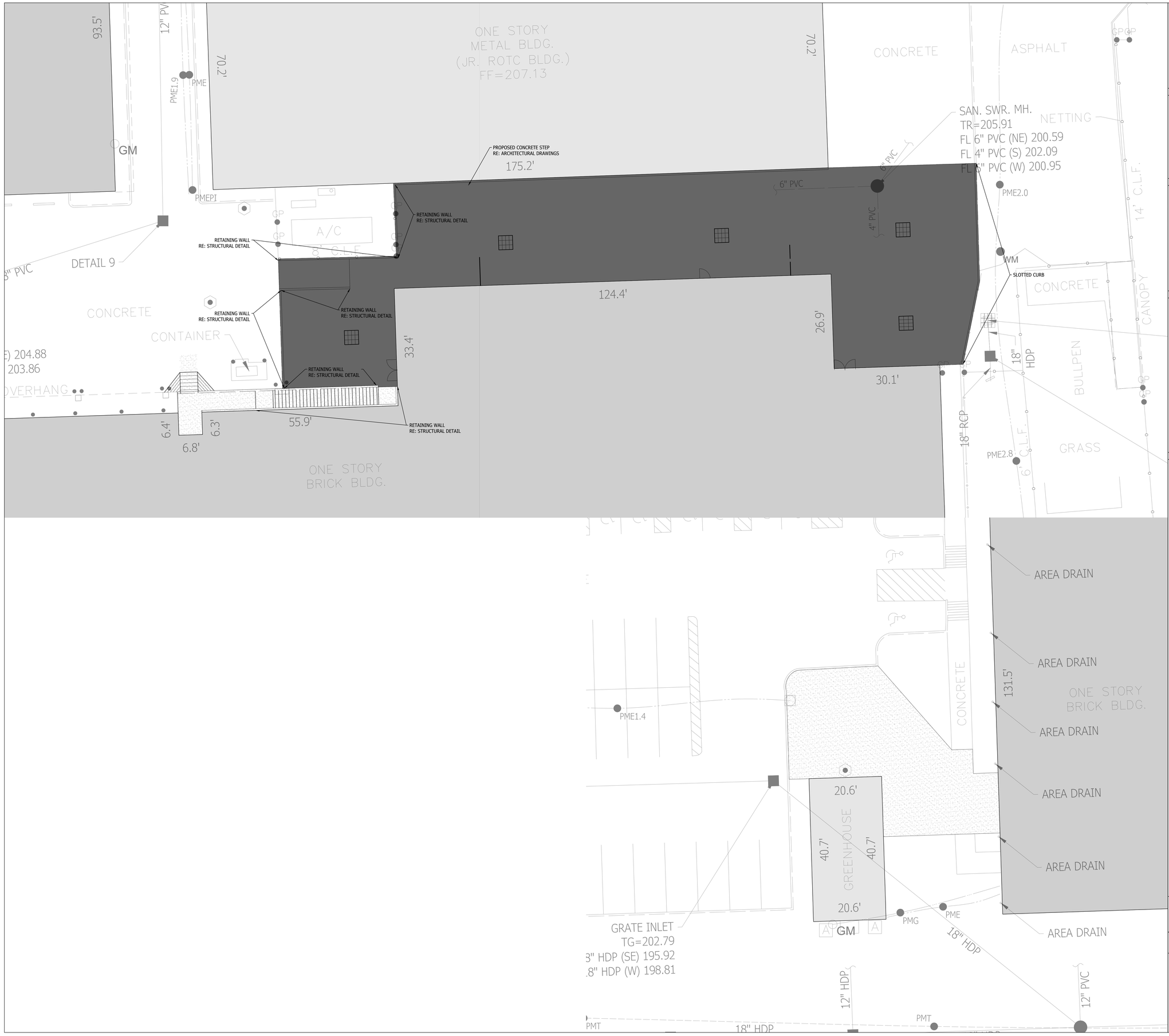
SITE EROSION CONTROL PLAN

PLOTTED: 11/6/2023 12:56 PM

PLOT STYLE: AURIC2.0.STB

FILE PATH: C:\USERS\DUSTINHANNAH\DC\ACCDOCS\AURIC ENGINEERS\0104.0117 - TOMBALL ESD P05 CTE\PROJECT FILES\01-CIVIL\06-DRAWINGS\02-SHEETS\C2.02 SITE EROSION CONTROL PLAN.DWG



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0' 5' 10' 20'

SCALE: 1" = 10'

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LEGEND

- PROP. 7" REINFORCED CONCRETE PAVEMENT WITH 8" STABILIZED SUBGRADE
- PROP. 6" REINFORCED CONCRETE PAVEMENT WITH 6" STABILIZED SUBGRADE
- PROP. 5" REINFORCED CONCRETE PAVEMENT WITH 6" STABILIZED SUBGRADE
- PROP. 2" HMAC PAVEMENT WITH 8" BLACK BASE AND 6" STABILIZED SUBGRADE
- PROP. 4.5" REINFORCED CONCRETE WALK
- PROP. SAWED CONTRACTION JOINT

KEY NOTES

NOTES

1. CONTRACTOR SHALL REFERENCE CIVIL CONSTRUCTION NOTES FOR ADDITIONAL REQUIREMENTS.
2. SUBGRADE SHALL BE STABILIZED BY THE ADDITION OF LIME AND FLY ASH AT THE RATE OF 3% LIME AND 8% FLY ASH.
3. THE CONTRACTOR SHALL SUBMIT A DRAWING SHOWING THE PROPOSED POURING PLAN AND ANY MODIFICATIONS TO THE PROPOSED JOINT LAYOUT TO THE ENGINEER FOR REVIEW.
5. THE PAVEMENT JOINTING PLAN SHALL BE COORDINATED WITH THE LOCATION OF INLETS, MANHOLES LIGHT POLES, ETC. IN PAVED AREAS.
6. SAWED JOINTS ARE TO BE EQUALLY SPACED BETWEEN EXPANSION JOINTS.
7. REFERENCE THE ARCHITECTURAL SITE PLAN FOR SIDEWALK JOINT PATTERN. SIDEWALK JOINTS SHALL ALIGN WITH PAVING JOINTS WHEN SIDEWALK IS ADJACENT TO PAVING.
8. WHERE NEW CONCRETE PAVING MEETS EXISTING CONCRETE PAVING, SAW CUT AND EXPOSE 15" OF EXISTING REINFORCING STEEL. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS (#6 BARS 24" LONG) 24" C-C DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB WITH "PO ROC" OR EQUAL.

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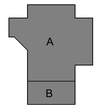

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101103
LICENSED PROFESSIONAL ENGINEER
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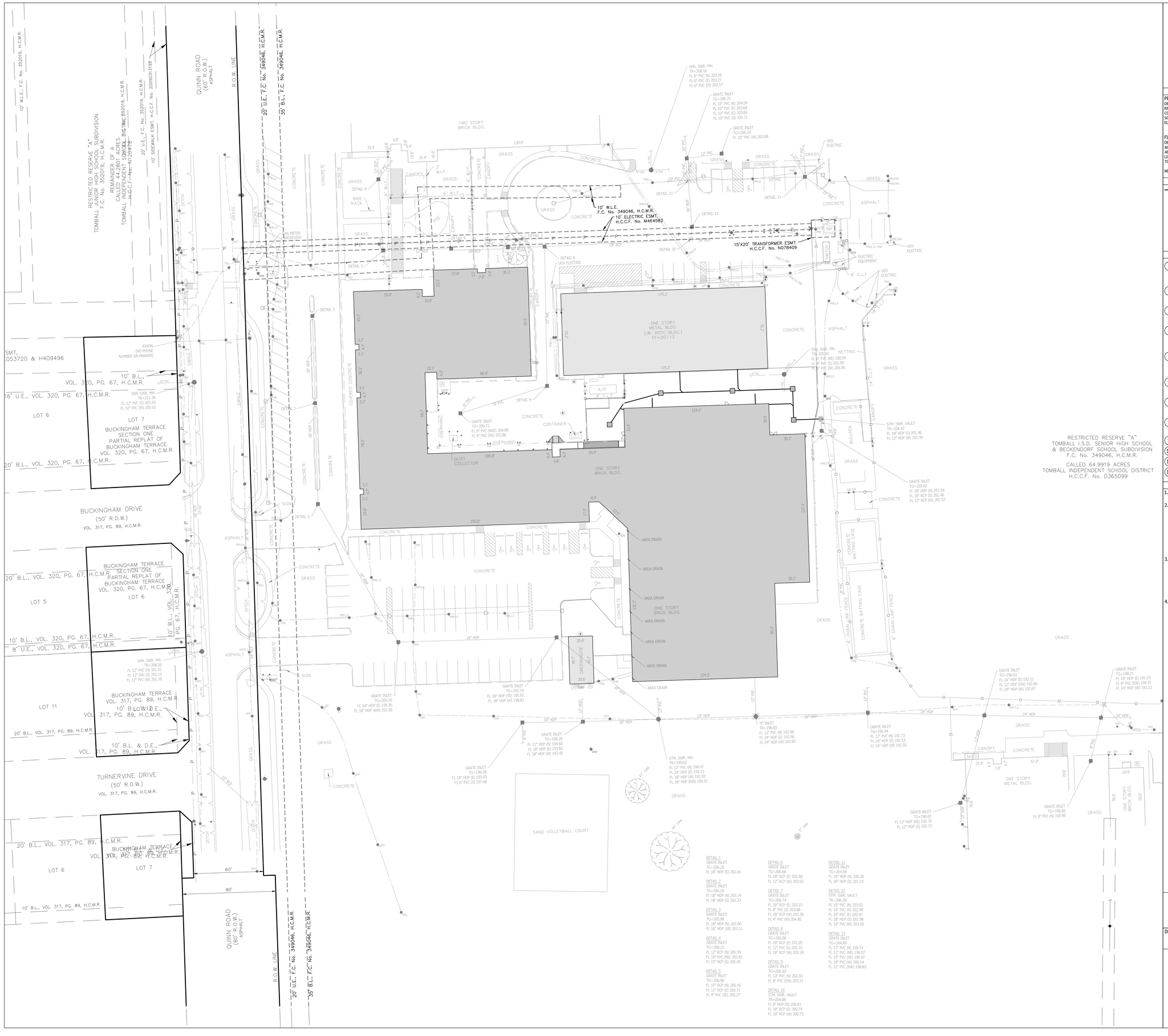
C2.03

SITE PAVING AND JOINTING PLAN

PLOTTED: 11/6/2023 12:57 PM
PLOT STYLE: AURIC2A.STB
FILE PATH: C:\USERS\DUSTINHANNAH\ACCDOCS\AURIC ENGINEERS\0104.0117 - TOMBALL ISD HS CTE\PROJECT FILES\01-CIVIL\06-DRAWINGS\03-SHEETS\C2.03 SITE PAVING AND JOINTING PLAN.DWG



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LEGEND

- PROP. WATER LINE
- PROP. TAPPING SLEEVE AND VALVE
- PROP. WATER METER
- PROP. BACKFLOW PREVENTER
- PROP. FIRE VAULT
- PROP. GATE VALVE
- PROP. FIRE HYDRANT WITH GATE VALVE
- PROP. REDUCER
- PROP. F.D.C.
- PROP. PLUG
- PROP. BLOW-OFF

KEY NOTES

1. CONTRACTOR SHALL LOCATE AND CONNECT TO THE EXISTING WATERLINE. CONNECTION SHALL BE MADE PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
2. X" WATER METER FOR DOMESTIC SERVICE, PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. (REF: DETAILS)
3. X" WATER METER FOR FIRE SERVICE, PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. (REF: DETAILS)
4. X" WATER METER FOR IRRIGATION SERVICE, PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. (REF: LANDSCAPE DRAWINGS FOR ADDITIONAL INFORMATION AND CONTINUATION)
5. REDUCED PRESSURE ZONE BACKFLOW PREVENTER WITH ENCLOSURE, MATCH SIZE OF WATERLINE, PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. (REF: DETAILS)
6. DOUBLE DETECTOR CHECK BACKFLOW PREVENTER, MATCH SIZE OF WATERLINE, PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. (REF: DETAILS)
7. POST INDICATOR VALVE (PIV), PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. (REF: DETAILS)
8. FIRE DEPARTMENT CONNECTION (FDC), PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. (REF: DETAILS)
9. 2" WATER LINE
10. 3" WATER LINE
11. 4" WATER LINE
12. CONNECT TO BUILDING WATER ENTRY. (REF: M.E.P. PLANS FOR LINE SIZE AND CONNECTION LOCATION)

NOTES

1. CONTRACTOR SHALL REFERENCE CIVIL CONSTRUCTION NOTES FOR ADDITIONAL REQUIREMENTS.
2. ANY DESIGN DOCUMENTS RELATED TO THE FIRE SPRINKLER SYSTEM INCLUDING BUT NOT LIMITED TO PRIVATE FIRE SERVICE MAINS AND ASSOCIATED APPURTENANCES ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ALL CODE RESEARCH, OBTAINING ALL FLOW TEST DATA AND DESIGNING A COMPLETE FIRE PROTECTION SYSTEM THAT MEETS THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
3. FIRE APPARATUS ACCESS ROADS AND/OR A WATER SUPPLY FOR FIRE PROTECTION SHALL BE INSTALLED AND OPERABLE PRIOR TO BEGINNING VERTICAL CONSTRUCTION AND MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION EXCEPT WHERE THE FIRE MARSHAL APPROVES ALTERNATIVE METHODS OF PROTECTION PROVIDED BY THE CONTRACTOR.
4. AS REQUIRED BY THE FIRE CODE OFFICIAL, APPROVED SIGNS OR OTHER APPROVED NOTICES OR MARKINGS SHALL BE PROVIDED FOR FIRE APPARATUS ACCESS ROADS TO IDENTIFY SUCH ROADS OR PROHIBIT THE OBSTRUCTION THEREOF.

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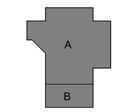

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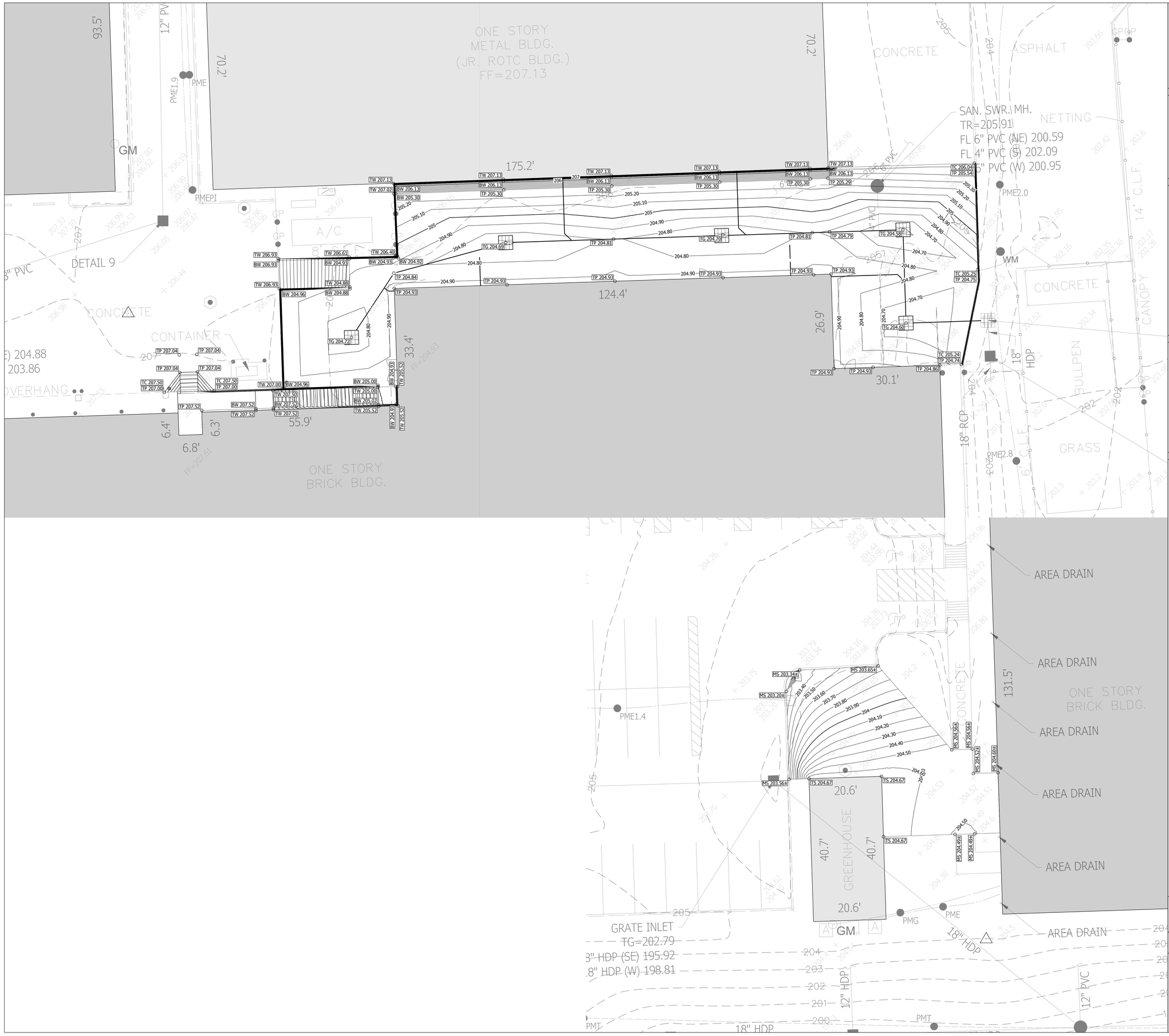
FIRE APPARATUS ACCESS PLAN

PLOTTED: 11/6/2023 12:57 PM

PLOT STYLE: AURICZLS.STB

FILE PATH: C:\USERS\DUSTINHANNAH\DATA\CACHDOCS\AURIC ENGINEERS\0104.0117 - TOMBALL ISD HS CTE\PROJECT FILES\01-CTV\06-DRAWINGS\03-SHEETS\C2.04 FIRE APPARATUS ACCESS PLAN.DWG



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LEGEND

100	PROP. MAJOR CONTOUR LINE
100.00	PROP. MAJOR CONTOUR LINE
FG 100.00	PROP. SPOT ELEVATION
FF	FINISH FLOOR
TP	TOP OF PAVEMENT
TC	TOP OF CURB
TS	TOP OF WALK
FG	FINISH GRADE
FL	FLOWLINE
TG	TOP OF GRATE
TR	TOP OF RIM
TH	INLET THROAT ELEVATION
MP	MATCH TOP OF EXIST. PAVEMENT
MC	MATCH TOP OF EXIST. CURB
MS	MATCH TOP OF EXIST. SIDEWALK
MG	MATCH TOP OF EXIST. GRADE
TW	TOP OF WALL
BW	BOTTOM OF WALL
SB	TOP OF STONE BASE
SS	TOP OF STABILIZED SUBGRADE

KEY NOTES

NOTES

1. CONTRACTOR SHALL REFERENCE CIVIL CONSTRUCTION NOTES FOR ADDITIONAL REQUIREMENTS.
2. BEFORE STARTING CONSTRUCTION, CONTRACTOR SHALL VERIFY BENCHMARK ELEVATION AND NOTIFY ENGINEER IF ANY DISCREPANCY AND/OR CONFLICT IS FOUND.
3. CONTRACTOR SHALL ENSURE THERE IS POSITIVE DRAINAGE FROM ALL STRUCTURES AND NO PONDING IN PAVED AREAS, AND SHALL NOTIFY ENGINEER IF ANY DISCREPANCIES ARE FOUND IN THE EXISTING AND PROPOSED GRADES PRIOR TO PLACEMENT OF PAVEMENT OR UTILITIES.
4. CONTRACTOR SHALL ADJUST ALL MANHOLE COVERS, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, POWER POLES, GUY WIRES, AND TELEPHONE BOXES THAT ARE TO REMAIN IN PLACE TO FINISH GRADE.
5. THE CONTRACTOR SHALL GRADE THE SITE AS INDICATED BY THE SPOT ELEVATIONS, CONTOUR LINES AND SLOPE ARROWS. ALL GRADING SHALL VARY UNIFORMLY BETWEEN SPOT ELEVATIONS SHOWN. WHEN SPOT ELEVATIONS ARE SHOWN ALONG THE EDGE OF PAVEMENT, CURB, SIDEWALK, ETC., THE GRADING SHALL VARY UNIFORMLY ALONG THAT EDGE. THE CONTRACTOR SHALL ENSURE THERE IS POSITIVE DRAINAGE WITH NO STANDING WATER.

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A
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TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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tel 281.286.6605, fax 713.977.4620

STATE OF TEXAS
DUSTIN A. HANNAH
101103
LICENSED PROFESSIONAL ENGINEER
11/06/2023

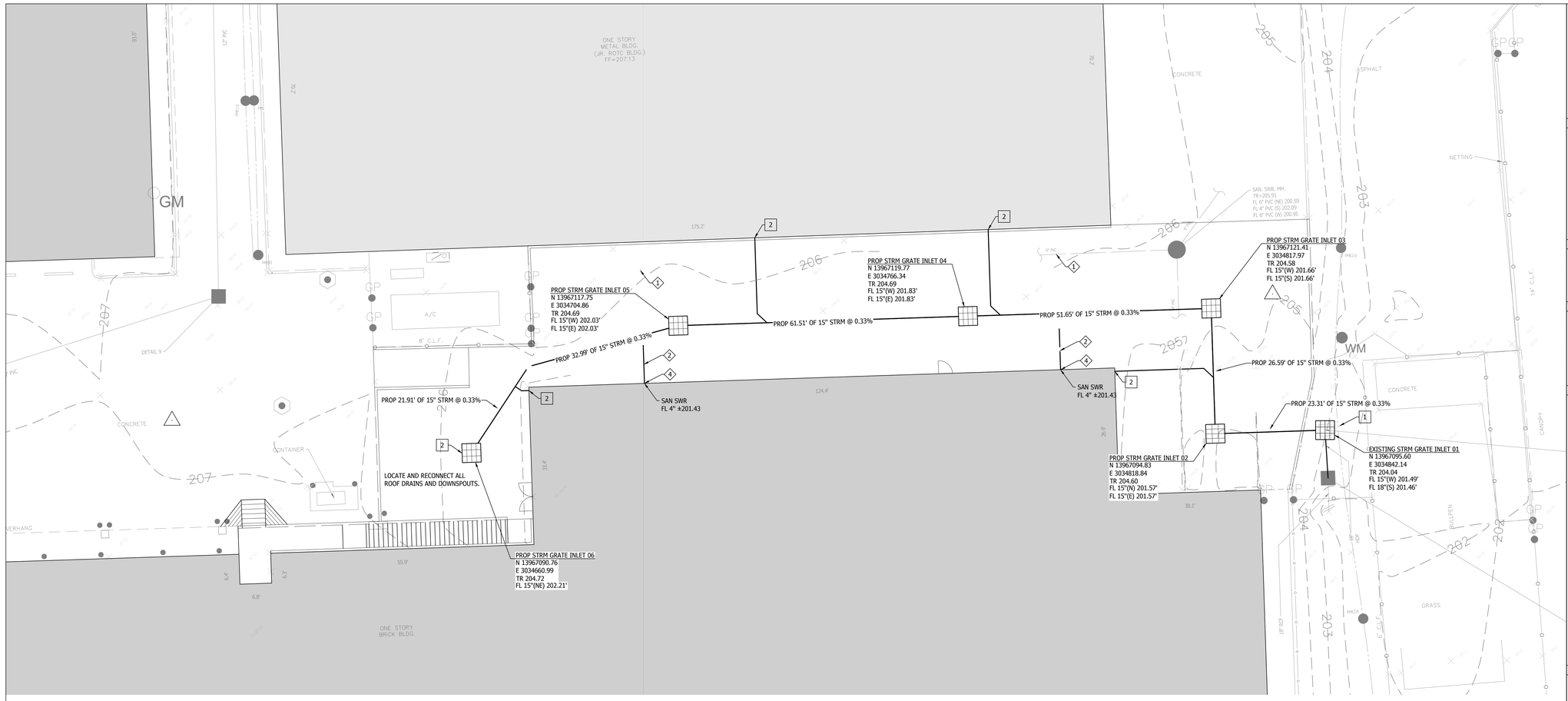
PROJECT #:	202311
DATE:	11/06/2023
DRAWN:	DAH
CHECKED:	DAH

DATE	ISSUE
11/06/2023	BID SET

C3.00

SITE GRADING PLAN

PLOTTED: 11/6/2023 12:57 PM
PLOT STYLE: AURIC2A.STB
FILE PATH: C:\USERS\DUSTINHANNAH\ACCDOCS\AURIC ENGINEERS\0104.0117 - TOMBALL ISD HS CTE\PROJECT FILES\01-CIVIL\06-DRAWINGS\03-SHEETS\C3.00 SITE GRADING PLAN.DWG



LEGEND

- EXISTING EXTREME EVENT FLOW PATH
- PROPOSED EXTREME EVENT FLOW PATH
- FLOW PATH USED FOR CALCULATING TC

N

0' 5' 10' 20'

SCALE: 1" = 10'

BENCHMARK AND FLOODPLAIN INFORMATION

PROJECT BENCHMARK:

DESCRIPTION
RM100395 - BRASS DISK STAMPED "RM100395" LOCATED ON THE SOUTHEAST CORNER OF A 5' X 8' CONCRETE BOX CULVERT UNDER RUDOLPH RD. ±0.4 MILE SOUTH OF ZION RD.
ELEVATION = 171.59' (NAVD 88, 2001 ADJ.)

FLOODPLAIN INFORMATION:

DESCRIPTION
ACCORDING TO F.I.R.M. MAP NO. 48201C0210L (COMMUNITY-PANEL NO. 4803150210L), MAP REVISED DATE: JUNE 18, 2007. THE SUBJECT PROPERTY LIES WITHIN THE AREA DESIGNATED AS ZONE "X" UNSHADED. DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

NEAREST 1%(100-YR) FLOOD ELEVATION = 179.10 FT

LEGEND

- PROP. STORM SEWER LINE
- PROP. PERFORATED STORM SEWER LINE
- PROP. STORM SEWER MANHOLE
- PROP. GRATE INLET

KEY NOTES

1. CONTRACTOR SHALL LOCATE AND CONNECT TO THE EXISTING STORM SEWER SYSTEM. CONNECTION SHALL BE MADE PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. (REF. DETAILS)
2. CONNECT TO BUILDING STORM LINE, DOWNSPOUT OR CANOPY DRAIN. (REF: ARCHITECTURAL AND/OR M.E.P. PLANS FOR LINE SIZE, PIPE TYPE AND CONNECTION LOCATION)

NOTES

1. CONTRACTOR SHALL REFERENCE CIVIL CONSTRUCTION NOTES FOR ADDITIONAL REQUIREMENTS.
2. CONTRACTOR SHALL MATCH THE SIZE AND MATERIAL OF BUILDING PLUMBING TO FIRST STRUCTURE.
3. LOCATION AND SIZES OF EXISTING LINES, CONNECTIONS TO BUILDING STUBS, DOWNSPOUTS AND CANOPY DRAINS ARE PROVIDED FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATION AND SIZE OF ALL CONNECTIONS BEFORE BEGINNING CONSTRUCTION.
4. ALL STRUCTURES TO BE PRECAST CONCRETE.
5. STORM SEWER SHALL BE HIGH DENSITY POLYETHYLENE CORRUGATED EXTERIOR/SMOOTH INTERIOR PIPE (ASTM F2306) WITH WATER TIGHT JOINTS (ASTM D3212) OR REINFORCED CONCRETE PIPE (C-76, CLASS III) WITH RUBBER GASKET JOINTS (ASTM C443), UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
6. ALL BUILDING AND CANOPY DOWNSPOUTS SHALL BE CONNECTED TO THE UNDERGROUND STORM SEWER SYSTEM WITH ASTM D3034 SDR 26 SEWER PIPE OR ASTM D-1784 SCH 40 PIPE, AT A MINIMUM GRADE OF 1.00% UNLESS NOTED OTHERWISE. LINES SHALL BE A 6 INCH MINIMUM FOR DOWNSPOUTS. ONCE TWO OR MORE DOWNSPOUTS ARE CONNECTED THE COLLECTOR LINE SHALL BE 12" UNLESS NOTED OTHERWISE. WHERE DOWNSPOUT COLLECTORS ARE LOCATED IN PAVED AREAS, PROVIDE A 24"X24" BLOCKOUT AROUND PIPE. REFER TO DETAILS.
7. ALL BENDS IN THE LINES SHALL BE MADE WITH EITHER "WYES" OR DOUBLE 45° BENDS, NO 90° BENDS SHALL BE USED.

LEGEND

- PROP. WATER LINE
- PROP. TAPPING SLEEVE AND VALVE
- PROP. WATER METER
- PROP. BACKFLOW PREVENTER
- PROP. FIRE VAULT
- PROP. GATE VALVE
- PROP. FIRE HYDRANT WITH GATE VALVE
- PROP. REDUCER
- PROP. F.D.C.
- PROP. PLUG
- PROP. BLOW-OFF
- PROP. SANITARY SEWER LINE
- PROP. SANITARY SEWER MANHOLE
- PROP. SANITARY SEWER CLEAN-OUT
- PROP. WATER LINE AND SEWER LINE CROSSING

KEY NOTES

1. CONTRACTOR SHALL LOCATE AND CONNECT TO THE EXISTING WATERLINE. CONNECTION SHALL BE MADE PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
2. CONNECT TO BUILDING WATER ENTRY. (REF: M.E.P. PLANS FOR LINE SIZE AND CONNECTION LOCATION)
1. CONTRACTOR SHALL LOCATE AND CONNECT TO THE EXISTING SANITARY SEWER SYSTEM. CONNECTION SHALL BE MADE PER THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. (REF. DETAILS)
2. 4" SSSWR @ 1.00% MIN.
3. 6" SSWR @ 1.00% MIN.
4. CONNECT TO BUILDING SEWER. (REF: M.E.P. PLANS FOR LINE SIZE, PIPE TYPE AND CONNECTION LOCATION)

NOTES

1. CONTRACTOR SHALL REFERENCE CIVIL CONSTRUCTION NOTES FOR ADDITIONAL REQUIREMENTS.
2. LOCATION AND SIZES OF EXISTING LINES AND CONNECTIONS TO BUILDING STUBS ARE PROVIDED FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATION AND SIZE OF ALL CONNECTIONS BEFORE BEGINNING CONSTRUCTION.
3. 2" THROUGH 3" WATER LINES SHALL BE ASTM D-2241 SDR 21 PVC PIPE.
4. 4" THROUGH 12" WATER LINES SHALL BE AWWA C-900 PVC DR-18 BLUE PRESSURE RATED WATER MAIN.
5. 2" AND LARGER WATER LINE FITTINGS SHALL BE MECHANICAL JOINT FITTINGS PER AWWA C-153.
6. WATER LINES AND FITTINGS SMALLER THAN 2" SHALL CONFORM TO ASTM D-1784 SCH 40.
7. WATER LINES TO HAVE 4' MINIMUM COVER TO FINISHED GRADE. WHERE WATER LINES AND SEWER LINES CROSS THEY MUST MEET THE REQUIREMENTS OF 30 TAC §217.53(D) OR 30 TAC §290.44(E).
8. ALL MANHOLES SHALL BE PRECAST CONCRETE.
9. SANITARY SEWER PIPE SHALL CONFORM WITH ASTM D3034 SDR 26, ASTM D2241 SDR 26 OR AWWA C-900 DR-18 BASED ON CONSTRUCTION CONDITION REQUIREMENTS.

Texas 811
Know what's below. Call before you dig.

DRAWING SCALE		PROJECT NUMBER
HORIZ:	1" = 10'	0104.0117
VERT:	N/A	

auric ENGINEERS
TEXAS ENGINEERING FIRM 20740
520 POST OAK BLVD. SUITE 895
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AURICENGINEERS.COM

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A
B

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
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STATE OF TEXAS
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101103
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PROJECT #:	202311
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DATE	ISSUE	1
11/06/2023	BID SET	

C4.00

DRAINAGE AND UTILITY PLAN

PLOTTED: 11/6/2023 12:58 PM
PLOT STYLE: AURIC2A.STB
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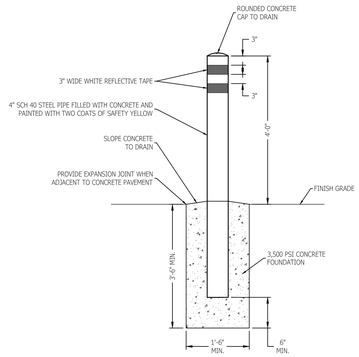
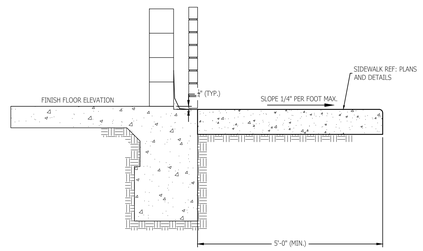
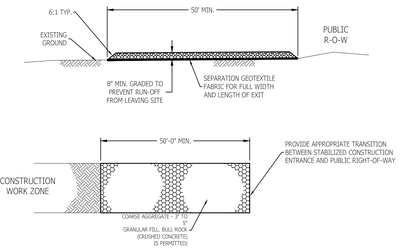


10 PIPE BOLLARD N.T.S.



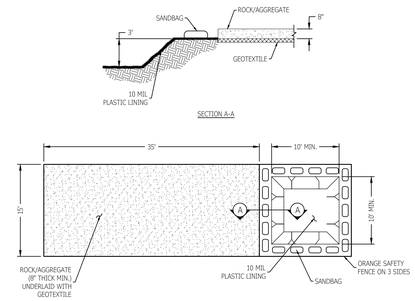
NOTES:
1. REFERENCE STRUCTURAL PLANS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS WHERE SIDEWALK IS ADJACENT TO THE BUILDING.

7 TYPICAL GRADING AT BUILDING N.T.S.



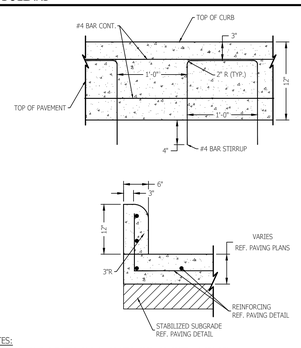
NOTES:
1. MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE.
2. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.
3. UNLESS SHOWN ON THE CONSTRUCTION DRAWINGS, STABILIZATION FOR OTHER AREAS WILL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT.
4. WHEN SHOWN ON THE CONSTRUCTION DRAWINGS, WIDEN OR LENGTHEN STABILIZED AREA TO ACCOMMODATE A TRUCK WASHING AREA. PROVIDE OUTLET SEDIMENT TRAP FOR THE TRUCK WASHING AREA.
5. PROVIDE PERIODIC TOP DRESSING WITH ADDITIONAL COARSE AGGREGATE TO MAINTAIN THE REQUIRED DEPTH OR WHEN SURFACE BECOMES PACKED WITH MUD.
6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN DRIVING SURFACE.
7. MINIMUM 14' WIDTH FOR ONE WAY TRAFFIC AND 20' WIDTH FOR TWO WAY TRAFFIC.

4 STABILIZED CONSTRUCTION ENTRANCE N.T.S.



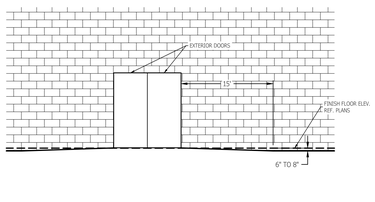
NOTES:
1. POST A SIGN READING "CONCRETE WASHOUT PIT" NEXT TO THE PIT.
2. VERBALLY INSTRUCT THE CONCRETE TRUCK DRIVERS WHERE THE PIT IS AND TO WASHOUT THEIR TRUCKS IN THE PIT AND NOWHERE ELSE.
3. UPON THE CONCRETE SETTING UP (CURING, DRYING OUT), THE CONCRETE WASTE SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF PROPERLY BY THE CONTRACTOR.
4. AFTER REMOVAL OF THE CONCRETE WASTE, THE WASHOUT PIT SHALL BE FILLED WITH CLEAN FILL MATERIAL AND COMPACTED TO IN-SITU CONDITIONS, OR AS DIRECTED BY THE PROJECT SPECIFICATIONS.
5. CONCRETE WASHOUT PITS SHALL NOT BE LOCATED DIRECTLY ADJACENT TO, NOR AT ANY TIME DRAIN INTO THE STORM SEWER SYSTEM OR ANY OTHER SWALE, DITCH, OR WATERWAY.
6. CONSTRUCT ENTRY ROAD AND BOTTOM OF WASHOUT AREA TO SUPPORT EXPECTED LOADINGS FROM TRUCKS EQUIPMENT.

1 CONCRETE TRUCK WASHOUT N.T.S.



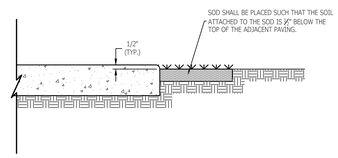
NOTES:
1. FOR NEW PAVEMENT STIRRUPS SHALL BE SET IN FRESH CONCRETE AND SECURED.
2. FOR NEW CURB ON EXISTING PAVEMENT STIRRUPS SHALL BE DRILLED AND EPOXIED INTO THE EXISTING PAVEMENT.
3. MIN COVER ON ALL REINFORCING STEEL SHALL BE 2".
4. PLACE ¾" INCH PREFORMED EXPANSION JOINTS THROUGH CURB AND GUTTERS AT LOCATIONS OF EXPANSION JOINTS IN PAVEMENT, AT END OF RADIUS RETURNS AT STREET INTERSECTIONS AND DRIVEWAYS, AND AT CURB INLETS. MAXIMUM SPACING SHALL BE 60' CENTERS.
5. PLACE ¾" TOOLED JOINTS THROUGH CURB AND GUTTERS AT LOCATIONS OF SAWED JOINTS IN PAVEMENT.

11 1' CONCRETE CURB N.T.S.



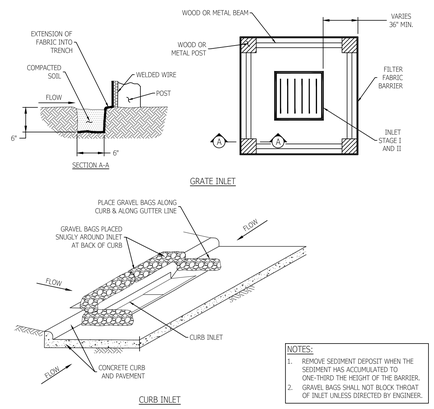
NOTES:
1. WHERE EXTERIOR PAVING ABUTS BUILDING, PAVING ELEVATION SHALL MATCH FINISH FLOOR ELEVATION AT ALL DOORS.
2. PAVING SHALL HAVE A LEVEL LANDING AS CONFORMING TO ADA REQUIREMENTS AT ALL DOORS.
3. PAVING SHALL SLOPE TO BE BELOW WEEP HOLE ELEVATION (6" TO 8" BELOW FINISH FLOOR ELEVATION) 15-FT AWAY FROM DOORS.

8 TYPICAL PAVING AT DOORS N.T.S.



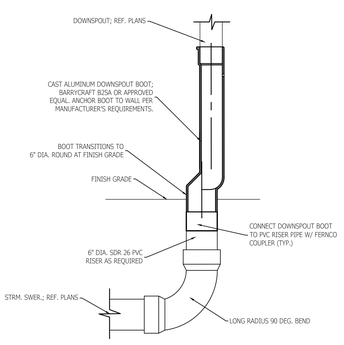
NOTES:
1. PLACE SOD SO AS NOT TO OBSTRUCT DRAINAGE.
2. EXCAVATE THE ADJACENT GRADE AS REQUIRED FOR SOD PLACEMENT.

5 SOD PLACEMENT N.T.S.



NOTES:
1. REMOVE SEDIMENT DEPOSIT WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-THIRD THE HEIGHT OF THE BARRIER.
2. GRAVEL BAGS SHALL NOT BLOCK THROAT OF INLET UNLESS DIRECTED BY ENGINEER.

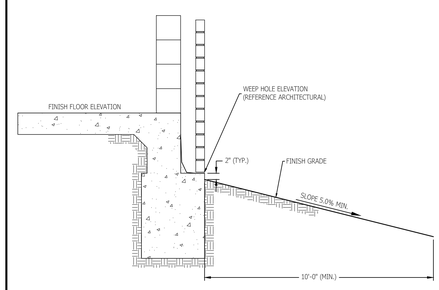
2 INLET PROTECTION BARRIER N.T.S.



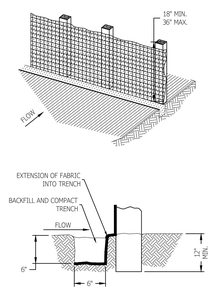
12 DOWNSPOUT CONNECTION TO STORM SEWER N.T.S.

NOTES:
1. ALL FIRE LANES SHALL BE POSTED AND MARKED BY THE BUILDING OWNER OR TENANT. FIRE LANES MAY BE MARKED USING SIGNS, PAVEMENT MARKINGS, CURB MARKINGS OR A COMBINATION THEREOF WITH THE FOLLOWING SPECIFICATIONS.
2. SIGNS SHALL READ "FIRE LANE- NO PARKING" AND SHALL BE AT LEAST 12" WIDE AND 18" HIGH. SIGNS SHALL BE PAINTED ON A WHITE BACKGROUND WITH LETTERS AND BORDERS IN RED, USING NOT LESS THAN 2" LETTERING. SIGNS SHALL BE PERMANENTLY AFFIXED TO A STATIONARY POST, AND INSTALLED 6' 6" ABOVE THE FINISHED GRADE. SIGNS SHOULD BE SPACED NO MORE THAN 50" APART. SIGNS MAY BE INSTALLED ON PERMANENT BUILDINGS OR WALLS. AT THE BEGINNING AND END OF THE FIRE LANE, THE SIGN SHALL HAVE A SINGLE HEADED ARROW POINTING IN THE DIRECTION THE REGULATION IS IN EFFECT. THE INTERMEDIATE SIGNS SHALL HAVE DOUBLE HEADED ARROWS POINTING IN BOTH DIRECTIONS.
3. PAVEMENT MARKINGS. ALL PAVEMENT MARKINGS SHALL BE INSTALLED USING RED AND WHITE TRAFFIC PAINT. THE BOUNDARIES OF THE FIRE LANE SHALL BE IDENTIFIED BY RED STRIPES AT LEAST 6" WIDE. THE WORDS "FIRE LANE- NO PARKING" SHALL APPEAR IN 4" WHITE LETTERS AT NO MORE THAN 25' ALTERNATING INTERVALS ON THE RED BORDER MARKINGS .
4. CURB MARKINGS. CURB MARKINGS SHALL BE PAINTED IN RED TRAFFIC PAINT FROM THE TOP SEAM OF THE CURB TO A POINT EVEN WITH THE DRIVING SURFACE. THE WORDS "FIRE LANE- NO PARKING" SHALL APPEAR IN 4" WHITE LETTERS AT NO MORE TAN 25' INTERVALS ALONG THE CURB.

9 FIRE LANE MARKINGS (MONTGOMERY COUNTY) N.T.S.



6 TYPICAL GRADING AT BUILDING N.T.S.



NOTES:
1. SET POSTS AT 4-FEET MAXIMUM SPACING. IF FACTORY PREASSEMBLED FENCE WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 6 FEET MAXIMUM
2. WHEN TWO SECTIONS OF FILTER FABRIC ADJOIN EACH OTHER, OVERLAP 6 INCHES AT THE POST, FOLD TOGETHER, AND ATTACH TO THE POSTS.
3. REMOVE SEDIMENT DEPOSITS WHEN SILT DEPTH REACHES ONE-THIRD OF THE HEIGHT OF THE FENCE.

3 REINFORCED FILTER FABRIC FENCE N.T.S.

BENCHMARK AND FLOODPLAIN INFORMATION

PROJECT BENCHMARK:
DESCRIPTION
RM100395 - BRASS DISK STAMPED "RM100395" LOCATED ON THE SOUTHEAST CORNER OF A 5' X 8' CONCRETE BOX CULVERT UNDER RUDOLPH RD. ±0.4 MILE SOUTH OF ZION RD.
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NEAREST 1%(100-YR) FLOOD ELEVATION = 179.10 FT

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DRAWING SCALE		PROJECT NUMBER
HORIZ:	N/A	0104.0117
VERT:	N/A	

auric ENGINEERS
TEXAS ENGINEERING FIRM 20740
520 POST OAK BLVD. SUITE 895
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AURICENGINEERS.COM

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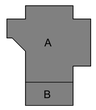

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
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STATE OF TEXAS
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PROFESSIONAL ENGINEER
11/06/2023

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DRAWN:	DAH
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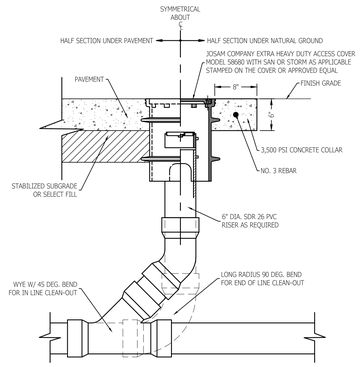
DATE	ISSUE △
11/06/2023	BID SET

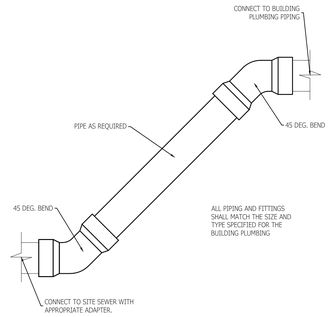
C7.01

CIVIL DETAILS

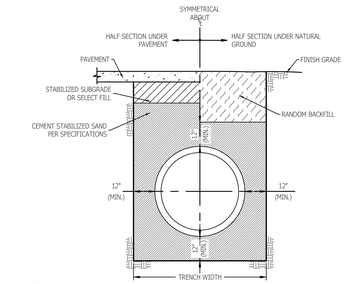


10

7 STORM SEWER CLEANOUT N.T.S.



4 SANITARY SEWER SERVICE DROP N.T.S.

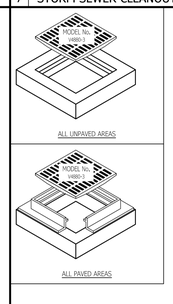


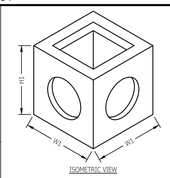
NOTES:

1. THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS. WHERE WET SAND CONDITIONS ARE ENCOUNTERED SEWERS SHALL BE BACKFILLED PER THE REQUIREMENTS OF THE WET CONDITION BEDDING AND BACKFILLING DETAIL.
2. ALL BACKFILL SHALL SHALL BE PLACED IN 8-INCH THICK LOOSE LIFTS AND COMPACTED AT A MOISTURE CONTENT WITHIN +/-3% OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698 TO AN IN-PLACE DENSITY EQUAL TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY UNDER PAVEMENT/WALKS AND 92% OF THE MAXIMUM DRY DENSITY IN ALL OTHER AREAS.
3. MIN. TRENCH WIDTH SHALL BE PIPE O.D. PLUS 24-INCHES FOR PIPES WITH A NOMINAL SIZE OF 30-INCHES OR LESS AND O.D. PLUS 36-INCHES FOR PIPES WITH A NOMINAL SIZE GREATER THAN 30-INCHES.

1 SANITARY SEWER BEDDING AND BACKFILL (DRY TRENCH) N.T.S.

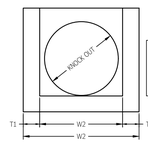
11





ISOMETRIC VIEW

KEYED NOTES		
MARK	QTY	DESCRIPTION
1	1	CAST IN IRON FRAME & GRATE
2	1	LOOSE FRAME & GRATE
3	1	FLOP SECTION
4	1	PRECAST CONCRETE BASIN SECTION
5	1	THIN WALL KNOCKOUT ON ALL 4 SIDES, SEE KO DIMENSION FOR MAXIMUM PIPE O.D.



SECTION VIEW

INLET BOTTOMS SHALL BE FILLED WITH NON-SHRINK GROUT TO ENSURE POSITIVE DRAINAGE WITH NO STANDING WATER.

KO	W1	W2	H1	H2	T1	GRATE SIZE
10"	15"	10"	21"	18"	3"	12"x12"x1"
12"	20"	12"	28"	24"	4"	14"x14"x1"
15"	24"	16"	34"	30"	4"	18"x18"x1"
17"	26"	18"	34"	30"	4"	20"x20"x1"
22"	32"	22"	41"	36"	5"	24"x24"x"
24"	37"	25"	42"	36"	6"	27"x27"x"
30"	42"	30"	42"	36"	6"	32"x32"x"
32"	48"	36"	42"	36"	6"	38"x38"x"
48"	60"	48"	54"	48"	6"	38"x38"x"
60"	72"	60"	66"	60"	6"	38"x38"x"
72"	84"	72"	78"	72"	6"	38"x38"x"
72"	96"	84"	78"	72"	6"	38"x38"x"

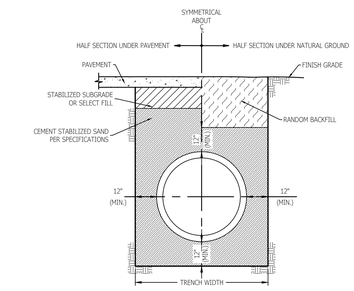
SPECIFICATIONS

CONCRETE : CLASS 1/(1) CONCRETE WITH OF DESIGN STRENGTH OF 4500 PSI AT 28 DAYS.. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH. RATED FOR H-20

REINFORCEMENT: (LOADING) REINFORCED WITH STEEL REBAR TO CONFORM TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

C.I. CASTINGS: CAST IRON FRAMES AND GRATES ARE MANUFACTURED OF GREY CAST IRON CONFORMING TO ASTM A48-76 CLASS 30.

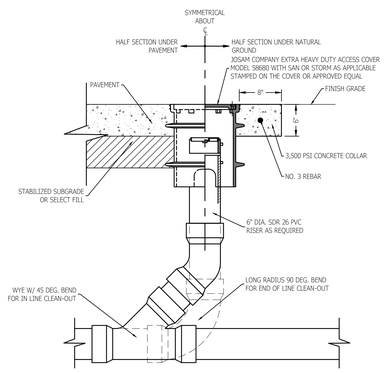
8 GRATE INLET N.T.S.



NOTES:

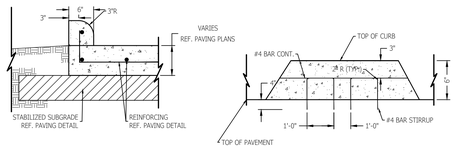
1. THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS. WHERE WET SAND CONDITIONS ARE ENCOUNTERED SEWERS SHALL BE BACKFILLED PER THE REQUIREMENTS OF THE WET CONDITION BEDDING AND BACKFILLING DETAIL.
2. ALL BACKFILL SHALL SHALL BE PLACED IN 8-INCH THICK LOOSE LIFTS AND COMPACTED AT A MOISTURE CONTENT WITHIN +/-3% OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698 TO AN IN-PLACE DENSITY EQUAL TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY UNDER PAVEMENT/WALKS AND 92% OF THE MAXIMUM DRY DENSITY IN ALL OTHER AREAS.
3. FOR R.C.P. STORM SEWERS MIN. TRENCH WIDTH SHALL BE PIPE O.D. PLUS 24-INCHES FOR PIPES WITH A NOMINAL SIZE OF 30-INCHES OR LESS AND O.D. PLUS 36-INCHES FOR PIPES WITH A NOMINAL SIZE GREATER THAN 30-INCHES.
4. FOR H.D.P.E. STORM SEWERS MIN. TRENCH WIDTH SHALL BE PIPE O.D. PLUS 24-INCHES FOR PIPES WITH A NOMINAL SIZE OF 24-INCHES OR LESS AND O.D. PLUS 36-INCHES FOR PIPES WITH A NOMINAL SIZE GREATER THAN 24-INCHES.

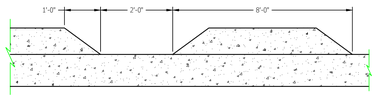
5 STORM SEWER BEDDING AND BACKFILL (DRY TRENCH) N.T.S.



2 SANITARY SEWER CLEANOUT N.T.S.

12

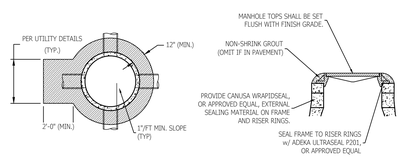


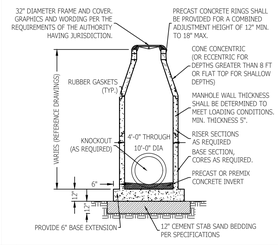


NOTES:

1. FOR NEW PAVEMENT STIRRUPS SHALL BE SET IN FRESH CONCRETE AND SECURED.
2. FOR NEW CURB ON EXISTING PAVEMENT STIRRUPS SHALL BE DRILLED AND EPOXIED INTO THE EXISTING PAVEMENT.
3. MIN COVER ON ALL REINFORCING STEEL SHALL BE 2".
4. PLACE ½" INCH PREFORMED EXPANSION JOINTS THROUGH CURB AND GUTTERS AT LOCATIONS OF EXPANSION JOINTS IN PAVEMENT, AT END OF RADIUS RETURNS AT STREET INTERSECTIONS AND DRIVEWAYS, AND AT CURB INLETS. MAXIMUM SPACING SHALL BE 60' CENTERS.
5. PLACE ¼" TOOLED JOINTS THROUGH CURB AND GUTTERS AT LOCATIONS OF SAWED JOINTS IN PAVEMENT.

9 SAWTOOTH CURB N.T.S.



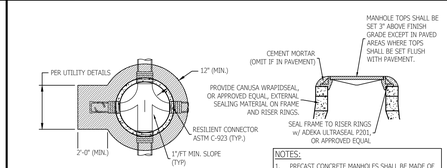


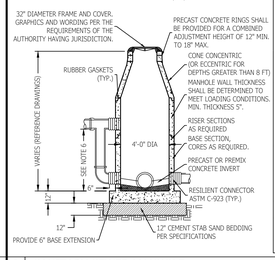
NOTES:

1. PRECAST CONCRETE MANHOLES SHALL BE MADE OF CLASS 1 CONCRETE WITH A DESIGN STRENGTH OF 4,500 PSI AT 28 DAYS AND RATED FOR H-20 LOADING.
2. STRUCTURAL REINFORCEMENT SHALL MEET ASTM C-478.
3. DEPTH OF MANHOLE SHALL DETERMINE THE NUMBER OF RISER SECTIONS AND ADJUSTMENT RINGS REQUIRED. BRICKS SHALL NOT BE USED.
4. GROUT INSIDE AND OUTSIDE OF RISERS, EXTENSION RING(S) AND FRAME, ARE ALL PIPES.
5. ALL PIPES SHALL BE CUT FLUSH WITH THE MANHOLE.
6. WHEN A MANHOLE IS LOCATED IN A PAVED AREA THE COVER SHALL MEET OR EXCEED AASHTO STANDARD M-306.

MANHOLE BOTTOMS SHALL BE FILLED WITH NON-SHRINK GROUT TO ENSURE POSITIVE DRAINAGE WITH NO STANDING WATER.

6 STORM SEWER MANHOLE N.T.S.





NOTES:

1. PRECAST CONCRETE MANHOLES SHALL BE MADE OF CLASS 1 CONCRETE WITH A DESIGN STRENGTH OF 4,500 PSI AT 28 DAYS AND RATED FOR H-20 LOADING.
2. STRUCTURAL REINFORCEMENT SHALL MEET ASTM C-478.
3. DEPTH OF MANHOLE SHALL DETERMINE THE NUMBER OF RISER SECTIONS AND ADJUSTMENT RINGS REQUIRED. BRICKS SHALL NOT BE USED.
4. GROUT INSIDE AND OUTSIDE OF RISERS, EXTENSION RING(S) AND FRAME.
5. REFER TO SPECIFICATIONS FOR INTERIOR LINER MATERIALS. AS A MINIMUM, MANHOLE INTERIOR TO BE COATED WITH RAVEN LINER 405 (80 MIL THICKNESS) OR PRE-APPROVED EQUIVALENT, UNLESS NOTED OTHERWISE.
6. WHEN A PIPE ENTERS THE MANHOLE MORE THAN 24" ABOVE THE INVERT AN EXTERNAL DROP SHALL BE PROVIDED.
7. WHEN A MANHOLE IS LOCATED IN A PAVED AREA THE COVER SHALL MEET OR EXCEED AASHTO STANDARD M-306.
8. ALL MANHOLES SHALL BE PROVIDED WITH A STAINLESS STEEL DISH INSERT.
9. WHEN CONNECTING TO AN EXISTING MANHOLE THE CONNECTION SHALL BE MADE BY CORING.
10. MANHOLES SHALL CONFORM TO ALL TCEQ REQUIREMENTS.

3 SANITARY SEWER MANHOLE N.T.S.

BENCHMARK AND FLOODPLAIN INFORMATION

PROJECT BENCHMARK:
DESCRIPTION
RM100395 - BRASS DISK STAMPED "RM100395" LOCATED ON THE SOUTHEAST CORNER OF A 5' X 8' CONCRETE BOX CULVERT UNDER RUDOLPH RD. ±0.4 MILE SOUTH OF ZION RD.
ELEVATION = 171.59' (NAVD 88, 2001 ADJ.)

FLOODPLAIN INFORMATION:
DESCRIPTION
ACCORDING TO F.I.R.M. MAP NO. 48201C0210L (COMMUNITY-PANEL NO. 4803150210L), MAP REVISED DATE: JUNE 18, 2007. THE SUBJECT PROPERTY LIES WITHIN THE AREA DESIGNATED AS ZONE "X" UNSHADED. DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

NEAREST 1%(100-YR) FLOOD ELEVATION = 179.10 FT

Texas 811
Know what's below. Call before you dig.

DRAWING SCALE		PROJECT NUMBER
HORIZ:	N/A	0104.0117
VERT:	N/A	

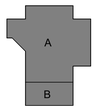
auric ENGINEERS
TEXAS ENGINEERING FIRM 20740
520 POST OAK BLVD. SUITE 895
HOUSTON, TEXAS 77007
AURICENGINEERS.COM

CONSULTANTS

MEP
Salas O'Brien
10930 W. Sam Houston Pkwy N
Suite 900
Houston, TX 77064
Tel: 281.664.1900
Fax: 281.664.1912

CIVIL
Auric Engineers, LLC
520 Post Oak Blvd, Suite 895
Houston, TX 77027
Tel: 713.405.1901

STRUCTURAL
CJG Engineers
3200 Wilcrest Drive, Suite 305
Houston, TX 77042
Tel: 713.780.3345
Fax: 713.780.3712



TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 281.286.6605, fax 713.977.4620

PROJECT #:	202311
DATE:	11/06/2023
DRAWN:	DAH
CHECKED:	DAH

DATE	ISSUE
11/06/2023	BID SET

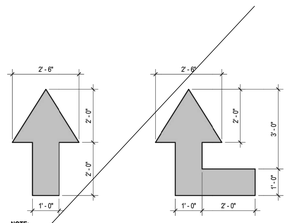
C7.02

CIVIL DETAILS

PLOTTED: 11/6/2023 12:58 PM

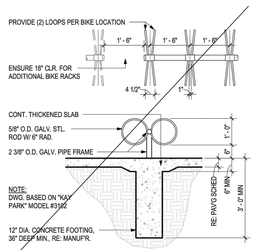
PLOT STYLE: AURIC2USTB

FILE PATH: C:\USERS\DUSTINHANNAH\DAC\ACDOCS\AURIC ENGINEERS\0104.0117 - TOMBALL ISD HS CTE\PROJECT FILES\02-CIVIL\06-DRAWINGS\03-SHEETS\C7.02 CIVIL DETAILS.DWG



NOTE:
1. PAINTED DIRECTION GRAPHICS, VERIFY COLOR W/ ARCH.
2. RE: SITE PLANS FOR LOCATIONS & ORENTATIONS

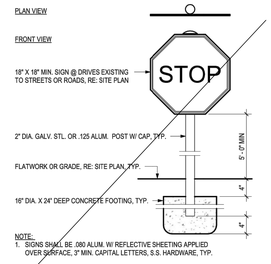
25 STRIPE - DIRECTIONAL ARROW
1/2" = 1'-0"



NOTE:
DWG. BASED ON "KAY PARK" MODEL #3120

12" DIA. CONCRETE FOOTING, 36" DEEP MIN., RE: MANUFR.

24 MISC - BIKE RACK
1/2" = 1'-0"

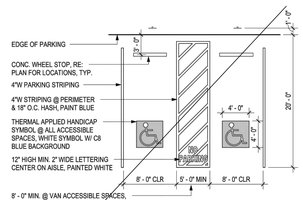


NOTE:
1. SIGNS SHALL BE .080 ALUM. W/ REFLECTIVE SHEETING APPLIED OVER SURFACE, 3" MIN. CAPITAL LETTERS, S.S. HARDWARE, TYP.

23 SIGN - STOP SIGN
1" = 1'-0"

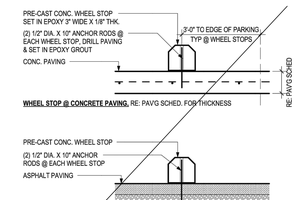
NOTE:
1. ALL SIGNAGE @ ACCESSIBLE PARKING SPACES SHALL BE FABRICATED & INSTALLED IN ACCORDANCE W/ A.D.A. & TEXAS ACCESSIBILITY STANDARDS. VERIFY ALL REQMNTS.
2. SIGNS SHALL BE .080 ALUM. W/ SILKSCREENED GRAPHICS, 1 1/2" MIN. CAPITAL LETTERS, S.S. HARDWARE, TYP.

22 SIGN - ACCESSIBLE SIGN W/ PIPE
1" = 1'-0"

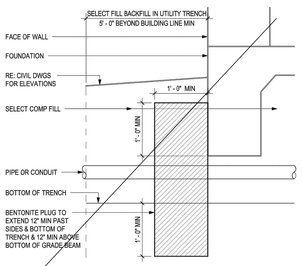


NOTE:
THIS DETAIL ILLUSTRATES GENERIC STRIPING/ SINGNAGE @ ACCESSIBLE PARKING SPACES, RE: SITE PLAN FOR LOCATION & CONFIGURATION

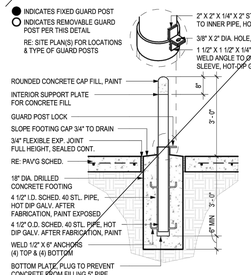
21 STRIPE - ACCESS PARKING STRIPING
1/8" = 1'-0"



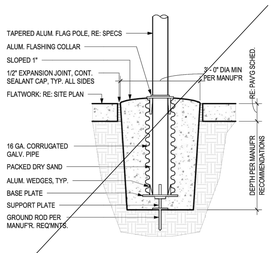
20 MISC - WHEEL STOP
1" = 1'-0"



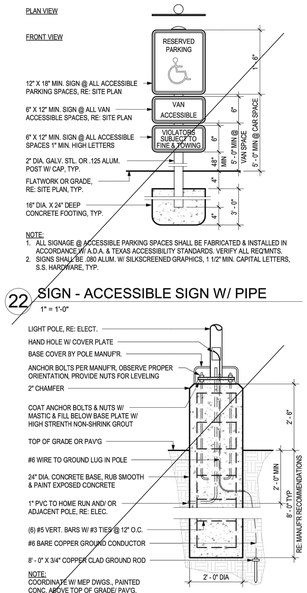
19 MISC - BENTONITE @ PIPE ENTRY
1" = 1'-0"



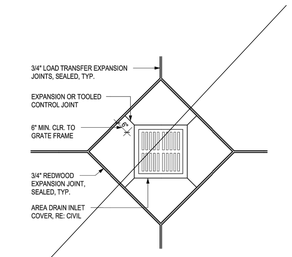
18 MISC - REMOVABLE GUARD POST
1/2" = 1'-0"



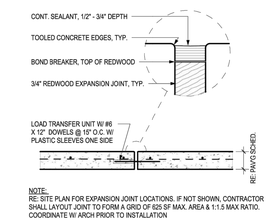
17 MISC - FLAG POLE BASE
1" = 1'-0"



16 MISC - LIGHT POLE BASE
1/2" = 1'-0"

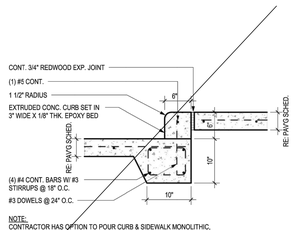


15 MISC - AREA DRAIN PLAN
1/2" = 1'-0"



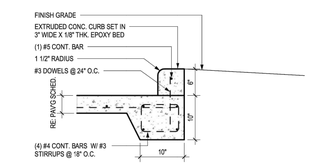
NOTE:
RE: SITE PLAN FOR EXPANSION JOINT LOCATIONS. IF NOT SHOWN, CONTRACTOR SHALL LAYOUT JOINT TO FORM A GRID OF 625 SF MAX. AREA & 1.1.5 MAX RATIO. COORDINATE W/ ARCH PRIOR TO INSTALLATION

14 PAV'G - CONC PAV'G EJ
1" = 1'-0"

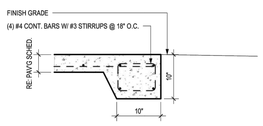


NOTE:
CONTRACTOR HAS OPTION TO POUR CURB & SIDEWALK MONOLITHIC, EXPANSION JOINT SHALL BE REPLACED W/ CONT. SCORED CONTROL JOINT

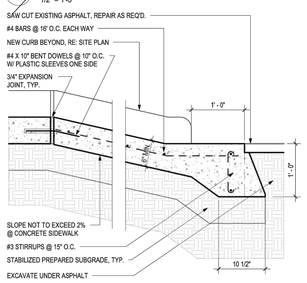
13 PAV'G - CONC PAV'G CURB @ FLTWRK
1" = 1'-0"



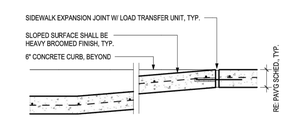
12 PAV'G - CONC PAV'G CURB @ GRADE
1" = 1'-0"



11 PAV'G - CONC PAV'G @ GRADE
1" = 1'-0"

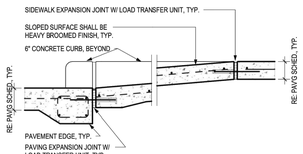


10 PAV'G - CONC DRIVE APPROACH
1" = 1'-0"



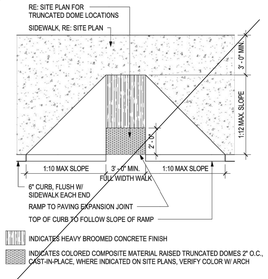
NOTE:
RE: ALL SLOPED SURFACES @ RAMP SHALL BE A CONTRASTING COLOR USING INTEGRALLY COLORED CONCRETE MIX. VERIFY COLOR W/ ARCH PRIOR TO INSTALLATION

9 PAV'G - CONC RAMP @ FLTWRK
1" = 1'-0"

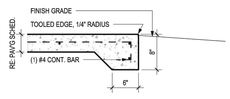


NOTE:
RE: ALL SLOPED SURFACES @ RAMP SHALL BE A CONTRASTING COLOR USING INTEGRALLY COLORED CONCRETE MIX. VERIFY COLOR W/ ARCH PRIOR TO INSTALLATION.

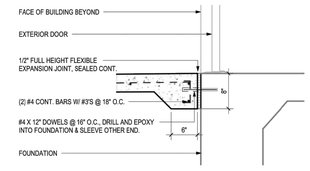
8 PAV'G - CONC RAMP @ PAV'G
1" = 1'-0"



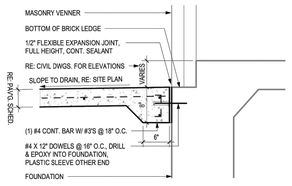
6 PAV'G - CONC RAMP @ TYP ADA
1/4" = 1'-0"



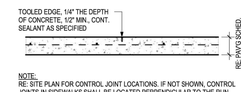
5 PAV'G - CONC FLTWRK @ GRADE
1" = 1'-0"



4 PAV'G - CONC FLTWRK @ DOOR
1" = 1'-0"

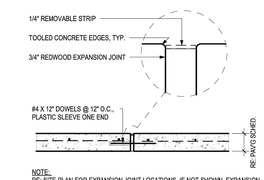


3 PAV'G - CONC FLTWRK @ BLDG
1" = 1'-0"



NOTE:
RE: SITE PLAN FOR CONTROL JOINT LOCATIONS. IF NOT SHOWN, CONTROL JOINTS IN SIDEWALKS SHALL BE LOCATED PERPENDICULAR TO THE RUN OF THE SIDEWALK EVENLY SPACED BETWEEN EXPANSION JOINTS @ 5'-0" O.C. MAX. COORDINATE W/ ARCH PRIOR TO INSTALLATION.

2 PAV'G - CONC WALK CJ
1" = 1'-0"



NOTE:
RE: SITE PLAN FOR EXPANSION JOINT LOCATIONS. IF NOT SHOWN, EXPANSION JOINTS IN SIDEWALKS SHALL BE LOCATED PERPENDICULAR TO THE RUN OF THE SIDEWALK @ 20'-0" O.C. MAX., COORDINATE W/ ARCH PRIOR TO INSTALLATION

1 PAV'G - CONC WALK EJ
1" = 1'-0"

BENCHMARK AND FLOODPLAIN INFORMATION

PROJECT BENCHMARK:
DESCRIPTION
RM100395 - BRASS DISK STAMPED "RM100395" LOCATED ON THE SOUTHEAST CORNER OF A 5' X 8' CONCRETE BOX CULVERT UNDER RUDOLPH RD. ±0.4 MILE SOUTH OF ZION RD.
ELEVATION = 171.59' (NAVD 88, 2001 ADJ.)

FLOODPLAIN INFORMATION:
DESCRIPTION
ACCORDING TO F.I.R.M. MAP NO. 48201C0210L (COMMUNITY-PANEL NO. 4803150210L), MAP REVISED DATE: JUNE 18, 2007. THE SUBJECT PROPERTY LIES WITHIN THE AREA DESIGNATED AS ZONE "X" UNSHADED. DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.

NEAREST 1%(100-YR) FLOOD ELEVATION = 179.10 FT

Texas 811
Know what's below. Call before you dig.

DRAWING SCALE		PROJECT NUMBER
HORIZ:	N/A	0104.0117
VERT:	N/A	

auric ENGINEERS
TEXAS ENGINEERING FIRM 20740
520 POST OAK BLVD. SUITE 895
HOUSTON, TEXAS 77007
AURICENGINEERS.COM

CONSULTANTS

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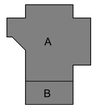

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 281.286.6605, fax 713.977.4620

STATE OF TEXAS
DUSTIN A. HANNAH
101103
LICENSED
PROFESSIONAL ENGINEER
11/06/2023

PROJECT #:	202311
DATE:	11/06/2023
DRAWN:	DAH
CHECKED:	DAH

DATE	ISSUE
11/06/2023	BID SET

C7.03

CIVIL DETAILS

GENERAL NOTES

A. THE NOTES AND SPECIFICATIONS PROVIDED ON THE STRUCTURAL DRAWINGS ARE EXCERPTS FROM THE RELATING PROJECT SPECIFICATIONS. THEY ARE NEITHER COMPLETE NOR DO THEY REPLACE THE CONTRACT SPECIFICATIONS.

B. MEANS AND METHODS: THE STRUCTURAL DRAWINGS DEPICT THE STRUCTURE IN ITS FINAL CONSTRUCTED CONFIGURATION UNLESS SO STATED OR NOTED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DESIGN AND PROVIDE ALL TEMPORARY SUPPORTS REQUIRED FOR THE EXECUTION OF THE CONTRACT INCLUDING BUT NOT LIMITED TO: GUYS, BRACES, SHORES, RE-SHORES, FALSEWORK, ANY TEMPORARY SUPPORTS OR TEMPORARY ANCHORS. NEITHER CONSTRUCTION MEANS AND METHODS NOR CONSTRUCTION SAFETY ARE PART OF THE STRUCTURAL ENGINEER'S EXPERTISE OR SCOPE OF WORK. THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS ARE FULLY RESPONSIBLE FOR THE MEANS AND METHODS USED TO CONSTRUCT THE STRUCTURE AND FOR FULL COMPLIANCE WITH ALL JOB SAFETY RELATED REGULATIONS AND CONDITIONS AT THE SITE. THE CONTRACTOR IS RESPONSIBLE FOR ALL MEANS AND METHODS RELATING TO THE SPECIFIC STRUCTURAL ERECTION ITEMS ADDRESSED IN THE LATEST OSHA REGULATIONS.

C. LIMITED SITE VISITS IF ANY BY THE STRUCTURAL ENGINEER OF RECORD (SER) ARE SOLELY TO OBSERVE COMPLETED PARTS OF THE STRUCTURE. THE STRUCTURAL ENGINEER OF RECORD (SER) IS NEITHER QUALIFIED TO OBSERVE NOR COMMENT ON CONSTRUCTION MEANS AND METHODS AND JOB SITE SAFETY.

D. PRINCIPAL OPENINGS ARE SHOWN ON THE DRAWINGS. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, CURBS, INSERTS, DEPRESSIONS, ETC., NOT SHOWN.

E. TYPICAL DETAILS: GENERAL DETAILS AND NOTES ON THESE SHEETS SHALL APPLY UNLESS SPECIFICALLY SHOWN OR NOTED OTHERWISE. CONSTRUCTION DETAILS NOT FULLY SHOWN OR NOTED SHALL BE SIMILAR TO DETAILS SHOWN FOR SIMILAR CONDITIONS. ALL WORK OR CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE BUILDING CODES, REGULATION AND SAFETY REQUIREMENTS. ALL DETAILS ARE TYPICAL UNLESS NOTED OTHERWISE. DETAILS SHALL APPLY TO ALL SIMILAR AND LIKE CONDITIONS.

F. DISCREPANCIES: THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY DISCREPANCIES OR OMISSIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS. UPON RECEIPT OF SUCH INFORMATION, THE ENGINEER WILL SEND WRITTEN INSTRUCTIONS TO ALL CONCERNED. ANY SUCH DISCREPANCY, OMISSION, OR VARIATION NOT REPORTED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND WORK SHALL BE PERFORMED IN A MANNER AS DIRECTED BY THE ENGINEER AT NO COST TO THE PROJECT.

G. EXCAVATION: THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, AND PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE WITH THE LOCAL BUILDING DEPARTMENT

H. COORDINATION AND OTHER TRADES: IT IS NOT THE INTENT THAT THE STRUCTURAL DRAWINGS BE VIEWED AS STAND ALONE DRAWINGS WITH RESPECT TO PROJECT DIMENSIONS OR ANY OTHER COMPONENT OF THE CONSTRUCTION THAT CAN AND MAY BE IDENTIFIED IN OTHER PARTS OF THE CONTRACT DOCUMENTS. IT REQUIRES THE ENTIRE SET OF CONTRACT DOCUMENTS TO PROPERLY CONSTRUCT THE STRUCTURE AS WELL AS OTHER COMPONENTS OF THE BUILDING. ANCHORS REQUIRED FOR ANCHORING MEP EQUIPMENT AND / OR PIPING ARE NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL DETERMINE AND COORDINATE REQUIREMENTS FROM OTHER DISCIPLINES AND SHALL PROVIDE APPROPRIATE ALLOWANCES INTO THE BID. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSEMBLE AND COORDINATE THE REQUIREMENTS OF ALL COMPONENTS OF THE CONTRACT DOCUMENTS IN ORDER TO PROPERLY IMPLEMENT THE REQUIREMENTS OF THE CONTRACT. SEE ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF PIPES, VENTS, CHASES, DUCTS AND OTHER OPENINGS AND DETAILS NOT SHOWN ON THESE STRUCTURAL DRAWINGS. ALL DIMENSIONS ARE TO BE CHECKED AND VERIFIED WITH THE ARCHITECTURAL DRAWINGS.

I. SEE ARCHITECTURAL DRAWINGS FOR ELEVATIONS NOT SHOWN. THE CONTRACTOR SHALL COMPARE THE STRUCTURAL SECTIONS WITH THE ARCHITECTURAL SECTIONS AND REPORT ANY DISCREPANCY TO THE ARCHITECT PRIOR TO FABRICATING OR INSTALLING STRUCTURAL MEMBERS.

J. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE GRADES WITH THE CIVIL ENGINEER'S GRADING PLAN AND THE LANDSCAPE ARCHITECT'S PLAN.

K. THE DRAWINGS IN THE STRUCTURAL DOCUMENTS ARE NOT TO BE SCALED FOR ANY PURPOSE, INCLUDING THE DETERMINATION OF QUANTITIES AND THE FIT UP OF MATERIALS.

L. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST ADDENDA AND TO PROVIDE SUCH DOCUMENTS TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS, FABRICATION OF ANY STRUCTURAL MEMBERS AND ERECTION IN THE FIELD.

M. PRECONSTRUCTION MEETINGS: THE CONTRACTOR IS RESPONSIBLE FOR ARRANGING PRECONSTRUCTION MEETINGS FOR THE FOUNDATION AND SUPERSTRUCTURE ELEMENTS OF THE PRIMARY FRAME WITH A MINIMUM OF TWO WEEKS OF NOTICE PRIOR TO START OF THE RELEVANT WORK. ATTENDEES SHALL INCLUDE THE CONTRACTORS, APPROPRIATE SUBCONTRACTORS, FABRICATORS, INSPECTORS, ARCHITECT/ENGINEERS. THE MEETING AGENDA SHALL INCLUDE THE FOLLOWING ITEMS: REVIEW OF WORK SCOPE, PROJECT SCHEDULE FOR THE ELEMENTS BEING DISCUSSED, CONTACT INFORMATION OF RESPONSIBLE PARTIES, INSPECTION POINTS FOR BOTH SER AND SPECIAL INSPECTOR, REVIEW OF MATERIALS AND ANY SPECIAL DESIGN ISSUES, CLARIFICATIONS, TESTING AND ACCEPTANCE, AND ANY OTHER TOPIC DEEMED APPROPRIATE BY THE CONTRACTOR, ARCHITECT OR STRUCTURAL ENGINEER.

N. COLD-FORMED WALL STUDS AND CONNECTIONS SHALL BE DESIGNED AND SEALED BY A LICENSED ENGINEER IN THE STATE WHERE THE PROJECT IS LOCATED. THE CALCULATIONS AND DETAILED DRAWINGS SHALL BE SUBMITTED FOR APPROVAL SHOWING ALL CALCULATIONS, INCLUDING DESIGN LOADS, MEMBER SIZES AND CONNECTIONS.

O. SHOP DRAWINGS SHALL BE NEW DRAWINGS PRODUCED BY THE CONTRACTOR. ILLEGIBLE REPRODUCTIONS OF THE DESIGN DRAWINGS WILL BE REJECTED. THE USE OF REPRODUCTIONS OR ELECTRONIC FILES OF THE STRUCTURAL DRAWINGS FOR THE PREPARATION OF SHOP DRAWINGS IS NOT ACCEPTABLE WITHOUT PRIOR WRITTEN AUTHORIZATION OF THE ENGINEER OF RECORD. IF SUCH AUTHORIZATION IS OBTAINED, DO NOT SUBMIT SHOP DRAWINGS WITH THE CONTRACT DOCUMENT TITLE BLOCK AND/OR THE SEAL OF THE REGISTERED ENGINEER OF RECORD AFFIXED. ALTERATION OF A SEALED DOCUMENTS WITHOUT PROPER NOTIFICATION OF THE RESPONSIBLE ENGINEER IS AN OFFENSE OF THE ENGINEERING PRACTICE ACT. THE USE OF REPRODUCTIONS OR ELECTRONIC FILES OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREON AS CORRECT, AND OBLIGATES HIMSELF TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS OR OMISSIONS THAT MAY OCCUR HEREON. DRAWINGS REQUIRING A SPECIALTY STRUCTURAL ENGINEER (SSR) SHALL HAVE CALCULATIONS AND DRAWINGS SEALED BY A LICENSED ENGINEER IN THE STATE OF THE PROJECT.

P. SHOP DRAWINGS ARE AN AID FOR FIELD PLACEMENT, AND ARE SUPERSEDED BY THE STRUCTURAL DRAWINGS. IT IS NOT THE INTENT THAT THE STRUCTURAL DRAWINGS BE VIEWED AS DETAILED SHOP OR ERECTION DRAWINGS. VARIOUS DIMENSIONS REQUIRED FOR PROPER FIT-UP OF THE COMPONENTS OF THE STRUCTURE MUST BE DETERMINED FROM THE INFORMATION THAT IS PROVIDED ELSEWHERE IN THE CONTRACT DOCUMENTS. IT IS THE CONTRACTOR'S AND THEIR DETAILER'S OR SUBCONTRACTOR'S RESPONSIBILITY TO ESTABLISH AND TO CALCULATE AND VERIFY THESE DIMENSIONS AS REQUIRED TO ACHIEVE PROPER FIT-UP OF MATERIALS AND TO ACHIEVE COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO MAKE CERTAIN THAT ALL CONSTRUCTION IS IN FULL AGREEMENT WITH THE LATEST STRUCTURAL DRAWINGS.

Q. OMISSION FROM THE SHOP DRAWINGS OF ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF COMPLYING WITH THE OMITTED REQUIREMENTS, EVEN IF THE SHOP DRAWINGS HAVE BEEN REVIEWED, APPROVED AND RETURNED.

R. SHOP DRAWING REVIEW PROCESS - ALL SHOP DRAWINGS WILL BE REVIEWED AND RETURNED IN THE ORDER RECEIVED UNLESS OTHER SPECIFIC INSTRUCTIONS ARE RECEIVED. FOR PROJECTS WITH MULTIPLE WORK AREAS, THE SHOP DRAWINGS MUST BE DIVIDE INTO THE SAME OR SIMILAR AREAS WITH EACH AREA SUBMITTED INDIVIDUALLY UNDER A SEPARATE TRANSMITTAL. IF THE SHOP DRAWINGS ARE NOT DIVIDED INTO AREAS PER THE CONTRACT DOCUMENTS, THAT SUBMITTAL WILL BE REJECTED. EACH SUBMITTAL WILL BE REVIEWED INDIVIDUALLY AND REQUIRE AN INDIVIDUAL TIME FRAME OF TEN (10) WORKING DAYS PER SUBMITTAL. IF MULTIPLE SUBMITTALS ARE RECEIVED WITHIN THE REVIEW TIME FRAME OF A PRIOR SUBMITTAL, THEY WILL BE REVIEWED CONSECUTIVELY EACH WITH ITS OWN INDIVIDUAL REVIEW TIME FRAME THAT BEGINS ONCE THE PRIOR SUBMITTAL IS RETURNED. THIS GIVES EACH SUBMITTAL A TEN (10) WORKING DAY REVIEW WINDOW.

S. RETURNED SHOP DRAWINGS STAMPED "NOTE MARKINGS" OR "APPROVED AS NOTED" ARE ASSUMED TO BE APPROVED ONCE ALL THE COMMENTS HAVE BEEN INCORPORATED. THE SER WILL ONLY REVIEW SUBMITTALS ONE ADDITIONAL TIME AND ONLY IF THEY ARE MARKED "REVISE AND RESUBMIT" OR "REJECTED". ANY FURTHER REVIEWS OF THE SAME OR SIMILAR SUBMITTALS WILL BE AT THE GENERAL CONTRACTORS EXPENSE WITH PAYMENT FOR SERVICES RENDERED PRIOR TO THE RETURN OF THE APPROVAL DRAWINGS.

T. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DELAYS CAUSED BY REJECTION OF INADEQUATE, INCOMPLETE OR INCORRECT SHOP DRAWINGS.

U. SHOP DRAWINGS THAT ARE NOT SPECIFICALLY REQUIRED BY THE GENERAL NOTES OR SPECIFICATIONS WILL NOT BE REVIEWED OR RETURNED.

V. MINIMUM SHOP DRAWING SUBMITTAL REQUIREMENTS INCLUDE:

- CONCRETE MIX DESIGNS FOR EACH CLASS OF CONCRETE WITH TEST DATA
- CONCRETE ACCESSORIES (VAPOR RETARDER, REINFORCING SUPPORT CHAIRS, VOID FORMS, ETC.)
- CONCRETE REINFORCING SHOP DRAWINGS
- STRUCTURAL STEEL SHOP DRAWINGS
- STEEL STAIR, LADDER AND HANDRAIL SHOP DRAWINGS (SEALED BY A LICENSED ENGINEER)
- CMU GROUT, CMU UNITS MORTAR AND ACCESSORIES SHOP DRAWINGS
- PRE-ENGINEERED METAL BUILDING SHOP DRAWINGS (SEALED BY A LICENSED ENGINEER)
- GLAZED ALUMINUM FRAMING SYSTEMS SHOP DRAWINGS AND CALCULATIONS (SEALED BY LICENSED ENGINEER)
- PRE-FABRICATED CANOPY FRAMING SYSTEMS SHOP DRAWINGS AND CALCULATIONS (SEALED BY A LICENSED ENGINEER)

W. CRANES, CONCRETE TRUCKS AND ALL OTHER HEAVILY LOADED VEHICLES ARE NOT TO BE DRIVEN ACROSS GRADE BEAMS OR BUILDING SLABS.

X. ALL SHORING REQUIRED TO TEMPORARILY SUPPORT CONSTRUCTION LOADS DURING THE CONSTRUCTION OF THE PROJECT SHALL BE DESIGNED AND SEALED BY A LICENSED ENGINEER. ALL EXISTING STRUCTURES AND NEW STRUCTURES SUPPORTING SHORING LOADS SHALL ALSO BE ANALYZED TO DETERMINE IF THEY ARE CAPABLE OF SUPPORTING THE REQUIRED LOADS AND SHALL BE REVIEWED BY A LICENSED ENGINEER. SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.

Y. ERECTION OF STRUCTURAL STEEL MAY NOT BEGIN UNTIL CONCRETE FOUNDATION HAS CURED FOR A MINIMUM OF THREE DAYS. STRUCTURAL STEEL OR OTHER HEAVY LOADS SHALL NOT BE STOCKPILED ON ANY SLAB UNTIL IT HAS CURED FOR A MINIMUM OF THREE DAYS.

Z. NON-CONFORMING WORK, REMEDIAL REPAIRS, AND FIELD MODIFICATIONS — ALL NON-CONFORMING WORK AND ASSOCIATED REMEDIAL REPAIRS OR FIELD MODIFICATIONS, INCLUDING ENGINEERING, QUALITY REVIEW AND DRAFTING OF ANY NEW DETAILS OR DOCUMENT REVISIONS, SUBMITTED AS A REQUEST FOR INFORMATION (RFI) AND DEEMED TO REQUIRE ADDITIONAL ENGINEERING OR DRAFTING SERVICES MAY BE BILLED AS AN ADDITIONAL SERVICE AT THE CONTRACTORS EXPENSE AT THE SOLE DISCRETION OF THE SER. THE SER MAY WITHHOLD FUTURE SERVICES UNTIL PAYMENT IS RECEIVED.

AA. NOTE THAT THE GROUND FLOOR SLAB IS A GROUND SUPPORTED SLAB AT GRADE AS PER THE DESIGN RECOMMENDED IN THE GEOTECHNICAL REPORT. IT IS NOT A STRUCTURAL SLAB AND AS SUCH IT IS NOT DESIGNED FOR ANY EXTERNAL UPWARD OR DOWNWARD LOADS, IT IS INTENDED TO BE ENTIRELY SUPPORTED BY THE PREPARED GROUND UNDER THE SLAB. THE CONTRACTOR SHOULD NOTE THAT THE PERFORMANCE OF THE SLAB AS DESIGNED AND INTENDED BY THE GEOTECHNICAL ENGINEER IS HIGHLY DEPENDENT ON HOW WELL THE CONTRACTOR FOLLOWS THE SITE PREPARATION INSTRUCTIONS IN THE GEOTECHNICAL REPORT. THE ARCHITECT SHALL ADVISE THE OWNER THAT THE PERFORMANCE OF THE SLAB INVOLVES SOME RISK, AND THAT SLAB ON GRADE MAY EXPERIENCE VERTICAL MOVEMENTS OF 1-1/2 INCHES OR MORE DEPENDING ON CLIMATIC FACTORS AND IS DEPENDENT ON ENVIRONMENTAL CONDITIONS OVER WHICH THE OWNER HAS CONTROL OF AFTER OCCUPANCY OF THE BUILDING. FURTHERMORE, A SLAB ON GRADE CAN EXPERIENCE VERTICAL MOVEMENT BASED ON CHANGES IN THE MOISTURE CONTENT OF THE UNDERLYING SOILS AND THAT STRUCTURAL SLABS WOULD LIMIT THIS RISK AT A GREATER UP-FRONT COST TO THE PROJECT. THE ARCHITECT, CONTRACTOR AND THE OWNER SHOULD CONSULT WITH THE GEOTECHNICAL ENGINEER IF THERE ARE ANY QUESTIONS CONCERNING CONSTRUCTION, PERFORMANCE AND RISKS INVOLVED WITH GROUND SUPPORTED SLAB AT GRADE CONSTRUCTION.

DESIGN CRITERIA:

BUILDING CODE: INTERNATIONAL BUILDING CODE, 2018 EDITION, ASCE 7-16

LIVE LOAD:

ROOF:	20 PSF
FLOORS:	
STAIRS AND EXITS	100 PSF + 300 LBS. CONCENTRATED LOAD AT TREAD MIDSPAN ON 2"x2" AREA
HANDRAILS & GUARDRAILS	200 LBS. ANY DIRECTION OR 50 PLF
FIXED LADDERS	300 LBS. CONCENTRATED LOAD ON RUNG EVERY 10'-0" OC
VEHICLE BARRIERS	6000 LBS. AT 18 INCHES ABOVE FLOOR OR RAMP (MIN.) IN ANY DIRECTION ON AN AREA NO MORE THAN ONE SQUARE FOOT NOTE: THIS CRITERIA APPLIES ONLY TO PASSENGER CAR RESTRAINT SYSTEMS AND BOLLARDS SHOWN ON THE STRUCTURAL DRAWINGS
ARCHITECTURAL BARRIER ACT	
GRAB BAR	250 LBS. ANY DIRECTION
TUB OR SHOWER SEAT	250 LBS. ANY DIRECTION
FASTENERS & MOUNTING DEVICES	250 LBS. ANY DIRECTION

WIND LOAD:

VELOCITY (BASIC)	138 MPH THREE SECOND GUST ASCE 7-16
EXPOSURE	C
RISK CATEGORY	III
INTERNAL PRESSURE COEFFICIENT, G_{CPI}	+/- 0.18

MAIN WIND FORCE RESISTING SYSTEM (MWFRS):	
MAXIMUM HORIZONTAL INTERIOR PRESSURE	44 PSF
MAXIMUM HORIZONTAL EXTERIOR PRESSURE	29 PSF
MAXIMUM GROSS UPLIFT INTERIOR ZONE	-52 PSF
MAXIMUM GROSS UPLIFT EXTERIOR ZONE	-37 PSF
CORNER ZONE WIDTH	26 '-6" FROM EACH CORNER

COMPONENTS AND CLADDING — GROSS ROOF UPLIFT IN PSF		
ZONE	EFFECTIVE WIND AREA (SQUARE FEET)	
	10	200
INTERIOR ZONE/ZONE 1 AND 1'	-45 PSF	-39 PSF
EXTERIOR ZONE/ZONE 2	-103 PSF	-74 PSF
CORNERS AND OVERHANGS/ZONE 3	-140 PSF	-83 PSF
RELIABLE DEAD LOAD	2 PSF	
CORNER ZONE WIDTH	13 '-6" FROM EACH CORNER	

COMPONENTS AND CLADDING — WALLS IN PSF		
ZONE	EFFECTIVE WIND AREA (SQUARE FEET)	
	10	200
INTERIOR ZONE/ZONE 4	-49 PSF	-40 PSF
EXTERIOR (CORNER) ZONE/ZONE 5	-60 PSF	-43 PSF
CORNER ZONE WIDTH	13'-6" FROM EACH CORNER	

ALLOWABLE SOIL BEARING CAPACITY:
(AT 12'—0" BELOW EXISTING GRADE)

TOTAL LOAD	1000 PSF
DEAD LOAD	1000 PSF

NOTE: THESE ARE PRESUMED VALUES AND BEARING CONDITIONS AND SUBJECT TO REVISION BASED ON THE GEOTECHNICAL REPORT

EXISTING DIMENSIONS AND CONDITIONS:

THIS PROJECT CONSISTS OF AN ADDITION AND MODIFICATIONS TO AN EXISTING BUILDING. INFORMATION ON EXISTING CONDITIONS HAS BEEN TAKEN FROM THE ORIGINAL DESIGN DRAWINGS AND SHOWN ON THESE DRAWINGS. THESE DRAWINGS WERE ASSUMED TO BE "AS-BUILT" DRAWINGS. SINCE EXISTING CONDITIONS WERE NOT ACCESSIBLE OR SINCE FIELD OBSERVATION OF EXISTING CONDITIONS IS BEYOND THE ENGINEER'S SCOPE OF WORK DURING THE DESIGN PHASE OF THIS PROJECT, THE ACCURACY OF THIS INFORMATION HAS NOT BEEN VERIFIED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING DIMENSIONS SHOWN ON THESE DRAWINGS AND TO VERIFY THE LOCATION OF ALL FRAMING MEMBERS AND OTHER OBSTRUCTIONS WHICH WILL AFFECT HIS WORK. AS A PART OF HIS WORK THE CONTRACTOR SHALL PREPARE AN ACCURATE FIELD SURVEY OF THE LOCATION OF ALL STRUCTURAL MEMBERS AND OTHER OBSTRUCTIONS IN THE WORK AREA PRIOR TO BEGINNING SHOP DRAWINGS AND CONSTRUCTION. THIS SURVEY SHALL BE SUBMITTED TO THE ARCHITECT WITH ANY VARIANCES NOTED. CLAIMS FOR ADDITIONAL TIME OR EXTRA COST DUE TO OBSTRUCTIONS AND VARIANCES IN THE LOCATION OF THE STRUCTURAL MEMBERS WILL NOT BE HONORED AFTER WORK HAS BEGUN ON THE PROJECT.

EARTHWORK

1. SITE PREPARATION FOR THE BUILDING PAD SHALL CONSIST OF THE REMOVAL OF EXISTING PAVEMENT, VEGETATION, ORGANIC MATTER AND ANY ADDITIONAL MATERIAL AS NECESSARY TO PROVIDE THE REQUIRED AMOUNT OF FILL UNDER THE BUILDING.
2. THE SUBGRADE SHALL BE PROOFROLLED WITH A HEAVY, RUBBER-TIRED VEHICLE (STATIC WEIGHT OF AT LEAST 20 TONS AND WITH TIRE PRESSURES OF AT LEAST 90 PSI). THE CONTRACTOR SHALL MAKE AT LEAST TWO COMPLETE PASSES OVER THE AREA WITH THE SECOND PASS PERPENDICULAR TO THE FIRST PASS. AREAS OF THE SUBGRADE THAT ARE OBSERVED TO BE SOFT OR WEAK SHALL BE OVEREXCAVATED AND REPLACED WITH PROPERLY COMPACTED SELECT FILL.
3. SUBGRADE SHALL THEN BE SCARIFIED AND MOISTURE CONDITIONED TO MATCH THE BUILDING PAD PERIMETER TO A [SIX (6)] INCH DEPTH AND THEN RECOMPACTED TO BETWEEN 95 AND 100 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR DENSITY TEST (ASTM D698). THE MOISTURE CONTENT SHALL BE BETWEEN OPTIMUM AND +3 PERCENT OF THE OPTIMUM MOISTURE CONTENT. PROVIDE A MINIMUM OF FOUR (4) FIELD DENSITY TESTS ON THE SUBGRADE OR ONE (1) FOR EVERY 2,500 SQUARE FEET WHICHEVER IS GREATER.
4. SELECT FILL MATERIAL FOR THE BUILDING PAD SHALL BE AN INORGANIC SANDY CLAY WITH A LIQUID LIMIT BETWEEN [26 AND 40] AND PLASTICITY INDEX BETWEEN 10 AND 20. STRUCTURAL SELECT FILL PAD MATERIAL SHALL BE TESTED FOR ACCEPTABILITY AND A MOISTURE DENSITY CURVE SHALL BE ESTABLISHED.
5. SELECT FILL SHALL BE PLACED IN EIGHT INCH LOOSE LIFTS AND COMPACTED TO BETWEEN [95 AND 100] PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR DENSITY TEST (ASTM D698). THE MOISTURE CONTENT SHALL BE BETWEEN OPTIMUM AND +3 PERCENT OF THE OPTIMUM MOISTURE CONTENT FOR SELECT FILL. SELECT FILL MATERIAL SHALL EXTEND TO 5'-0" BEYOND THE BUILDING PERIMETER. PROVIDE A MINIMUM OF FOUR (4) FIELD DENSITY TESTS ON EACH LIFT OF SELECT FILL OR ONE (1) FOR EVERY 2,500 SQUARE FEET WHICHEVER IS GREATER.
6. SELECT FILL MATERIAL SHALL BE TESTED DURING PLACEMENT OF EACH LIFT FOR THE ATTERBERG LIMITS IN ACCORDANCE WITH ASTM D4318-98 METHOD B "STANDARD TEST METHOD FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS" TO VERIFY THAT THE SELECT FILL MATERIAL IS IN ACCORDANCE WITH THE ORIGINALLY APPROVED SELECT FILL MATERIAL. PROVIDE A MINIMUM OF ONE (1) TEST PER LIFT OR ONE (1) FOR EVERY 2,500 SQUARE FEET WHICHEVER IS GREATER WITH A MAXIMUM OF TEN (10) PER LIFT.
7. CONTRACTOR SHALL MAINTAIN A CLEAN EXCAVATION THAT IS FREE OF WATER 100% OF THE TIME. CONTRACTOR SHALL PROVIDE PUMPS AS REQUIRED TO REMOVE ANY WATER AT ALL TIMES.
8. THE SITE SHALL BE GRADED TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING PAD DURING BUILDING PAD INSTALLATION AND WHEN THE BUILDING PAD AND BUILDING ARE COMPLETED.
9. PLUMBING AND UTILITY TRENCHES WITHIN THE BUILDING PAD SHALL HAVE PIPING BEDDED ON 6" MINIMUM OF CEMENT STABILIZED SAND WITH 4" MINIMUM ALL AROUND. BACKFILL IN UTILITY TRENCHES SHALL CONSIST OF COMPACTED SELECT FILL. PROVIDE A 1'-0" WIDE BENTONITE CLAY PLUG OR FAT CLAY (PI>50) FOR THE FULL DEPTH AND WIDTH OF THE UTILITY TRENCH TO A MINIMUM OF 1'-0" ABOVE THE BOTTOM OF THE FOUNDATION AT THE EXTERIOR FACE OF BUILDING FOUNDATIONS WHERE UTILITY TRENCHES ENTER THE BUILDING.
10. PROVIDE A MINIMUM [TWELVE (12)] INCH FAT CLAY CAP (PI>50) FOR A MINIMUM OF 5'-0" AROUND THE PERIMETER OF THE BUILDING. THE CAP SHALL EXTEND AS REQUIRED TO COVER THE LIMITS OF THE BUILDING PAD EXCAVATION AND SELECT FILL BUILDING PAD MATERIALS.

SITE DRAINAGE

1. GRADE THE SITE TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS AND SLABS. WATER SHALL NOT BE ALLOWED TO POND ADJACENT TO THE BUILDING FOUNDATIONS OR SLABS.
2. AS A MINIMUM REQUIREMENT, ALL DOWNSPOUTS FROM ROOF DRAINS AND GUTTERS SHALL BE COLLECTED AND PIPED AWAY FROM THE BUILDING. WHEN WATER IS NOT PIPED AWAY FROM THE BUILDING, DOWNSPOUTS SHALL DUMP ONTO A CAST IN PLACE 4" THICK X 3'-0" WIDE CONCRETE SWALE REINFORCED WITH #4 AT 12" ON CENTER EACH WAY AND EXTENDING 10'-0" OUT FROM THE BUILDING. REFER TO ARCHITECTURAL AND CIVIL FOR PAVING AND DRAINGAGE.
3. TREES AND VEGETATION SHALL NOT BE ALLOWED WITHIN A DISTANCE EQUAL TO THREE QUARTERS THEIR ULTIMATE HEIGHT AWAY FROM THE BUILDING.
4. IRRIGATE VEGETATION AND SOILS ADJACENT TO BUILDING (NO MORE THAN 15 MINUTES THREE TIMES A WEEK) ON AN AS NEEDED BASIS TO MAINTAIN UNIFORM SOIL MOISTURE CONDITIONS AROUND THE PERIMETER OF THE BUILDING FOLLOWING CONSTRUCTION.

FOUNDATIONS

1. PREPARED GRADE AREA UNDER ALL BUILDING SLABS AND GRADE BEAMS SHALL BE COVERED WITH A 15 MIL WATER VAPOR RETARDER MEETING THE REQUIREMENTS OF ASTM E 1745 (LATEST EDITION), CLASS A OR BETTER WITH MAXIMUM WATER PERMEANCE OF 0.01 PERMS WHEN TESTED IN ACCORDANCE WITH ASTM E96. THE WATER VAPOR RETARDER SHALL BE INSTALLED, LAPPED AND TAPED WITH MANUFACTURER'S APPROVED PRODUCT IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM E 1643 (LATEST EDITION). PENETRATIONS SHALL SEALED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.
2. FOUNDATION DETAILING SHOWN ON THE DRAWINGS IS BASED ON A FOUNDATION DESIGN SPECIFIED IN THE SOIL REPORT BY ______________________________, REPORT NO. ____________, DATED ________________. THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT SHALL NOT SUPERSEDE THE REQUIREMENTS SHOWN ON THE DESIGN DRAWINGS OR IN THE SPECIFICATIONS WHEN THE REQUIREMENTS SHOWN ON THE DRAWINGS ARE GREATER THAN THOSE SHOWN IN THE GEOTECHNICAL REPORT. THE CONTRACTOR IS REQUIRED TO SECURE A COPY OF THE GEOTECHNICAL REPORT FROM THE OWNER AND TO HAVE A COPY ON THE JOB SITE AT ALL TIMES FOR HIS USE AND REFERENCE.
3. A GEOTECHNICAL REPORT WAS NOT AVAILABLE NOR PRODUCED BY THE OWNER FOR OUR USE ON THIS PROJECT. AS A RESULT, FOR THE FOUNDATION PORTIONS OF THIS PROJECT, WE PERFORMED OUR ANALYSIS UTILIZING THE PRESUMPTIVE LOAD-BEARING VALUES OF SOILS SECTION OF THE IBC FOR DETERMINATION OF THE ALLOWABLE VERTICAL AND LATERAL LOADING. SEE IBC 2018 SECTION 1806 AND ASSOCIATED TABLE 1806.2 CLASS 5 SOILS HAVE BEEN ASSUMED FOR USE IN DESIGN ON THE PROJECT.
4. FOUNDATION DETAILING SHOWN ON THE DRAWINGS IS BASED ON A MINIMUM OF THREE FEET OF SELECT FILL MATERIAL BENEATH THE FLOOR SLAB AND SHALL EXTEND TO THE BUILDING PERIMETER OR WITHIN THE AREA OF WORK.
5. ALL BACKFILL FOR BURIED PIPES AND CONDUIT WITHIN THE BUILDING PAD AND EXTENDING OUT MINIMUM 5'-0" BEYOND THE BUILDING SHALL BE BACKFILLED WITH SELECT FILL BACKFILL. DO NOT USE SAND BACKFILL. A 2'-0" WIDE BENTONITE PLUG SHALL BE PROVIDED IN ALL UTILITY TRENCHES AT THE FACE OF THE BUILDING FOUNDATION. SEE TYPICAL DETAIL PIPE BUILDING ENTRY.
6. CONDUITS SHALL NOT BE PLACED IN THE CONCRETE SLAB. CONDUITS SHALL BE PLACED IN THE SELECT FILL MATERIAL BENEATH THE VAPOR RETARDER. ALL PENETRATIONS OF THE VAPOR RETARDER SHALL BE SEALED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS. CONDUIT TRENCHES WITHIN THE BUILDING PAD SHALL BE LIMITED TO A MAXIMUM WIDTH OF TWO FEET AND BE SPACED NO CLOSER THAN FOUR FEET CENTER TO CENTER. CONDUITS STACKED WITHIN A SINGLE TRENCH SHALL BE SEPARATED VERTICALLY BY TWO TIMES THE DIAMETER OF THE LARGEST CONDUIT OR 12 INCHES MINIMUM. COMPACTED SELECT FILL OR OTHER APPROPRIATE COMPACTED FILL MATERIAL SHALL BE USED BETWEEN STACKED CONDUITS.
7. THE FLOOR SLAB SUBGRADE SHALL BE PROPERLY COMPACTED, PROOF ROLLED AND SHALL BE FREE OF STANDING WATER, MUD AND FROZEN SOILS.
8. SLABS ON GROUND SHALL HAVE CONSTRUCTION JOINTS OR CRACK CONTROL JOINTS (REFER TO TYPICAL DETAILS) AT EACH COLUMN LINE AND IN EACH DIRECTION. ADDITIONAL CRACK CONTROL JOINTS SHALL BE PROVIDED SUCH THAT NO AREA BOUNDED BY CONSTRUCTION AND/OR CRACK CONTROL JOINTS CONTAINS MORE THAN 250 SQUARE FEET AND THE RESULTING ASPECT RATIO OF LONG SIDE TO SHORT SIDE DIMENSIONS OF THE BOUNDED SLAB AREA DOES NOT EXCEED 1.5 TO 1. CRACK CONTROL JOINTS SHALL BE MADE USING A "SOFT-CUT" CONCRETE SAW AS SOON AS THE SLAB WILL SUPPORT THE WEIGHT OF THE SAW AND OPERATOR WITHOUT DISTURBING THE FINAL FINISH. THIS SHOULD BE WITHIN THE FIRST SIX HOURS AFTER PLACEMENT. THE CRACK CONTROL JOINTS SHALL BE CUT A MAXIMUM WIDTH OF 1/8 INCH AND A MINIMUM DEPTH OF 1/3 THE SLAB THICKNESS. REFER TO THE TYPICAL DETAILS AND DRAWINGS FOR INFORMATION ON CONTROL JOINTS, CONSTRUCTION JOINTS, REINFORCING DETAILS, JOINT SEALANT, AND TYPICAL JOINT LAYOUT.
9. WHERE SLABS ARE TO RECEIVE SENSITIVE ARCHITECTURAL FLOOR FINISHES, ALL JOINTS IN THE SLAB CONSTRUCTION SHALL BE PLACED TO ALIGN WITH JOINTS IN THE FLOOR FINISHES.
10. DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SHORING OF WALLS WHICH ARE ULTIMATELY SUPPORTED TOP AND BOTTOM. SUCH SHORING SHALL NOT BE REMOVED UNTIL ALL SUPPORTING ELEMENTS ARE IN PLACE, THE COMPACTION OF ALL BACKFILL AGAINST THE WALL HAS BEEN COMPLETED, AND THE CONCRETE IN THE WALLS AND SUPPORTING ELEMENTS HAS ATTAINED THE SPECIFIED 28 DAY COMPRESSIVE STRENGTH (Fc'),
11. EXCAVATIONS FOR SPREAD FOOTING, COMBINED FOOTING, CONTINUOUS FOOTINGS AND/OR MAT FOUNDATIONS SHALL BE CLEANED AND HAND TAMPED TO A UNIFORM SURFACE. FOOTING EXCAVATIONS SHALL HAVE THE SIDE AND BOTTOM TEMPORARILY LINED WITH 6 MIL VAPOR BARRIER IF CONCRETE PLACEMENT DOES NOT OCCUR WITHIN 24 HOURS OF FOOTING EXCAVATION. SEAL SLABS MAY BE REQUIRED BASED ON GROUND WATER CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS, AND COST ASSOCIATED WITH ALL SEAL SLABS. REFER TO THE GEOTECHNICAL REPORT FOR GROUND WATER OR POTENTIAL PERCHED WATER CONDITIONS.
12. REINFORCEMENT PLACEMENT SEQUENCE FOR FOOTINGS AND MATS IS NOTED FOR MAJOR REINFORCEMENT BAR LAYERS ONLY. IN SPREAD FOOTINGS OR MATS, THE CONTRACTOR SHALL COORDINATE AND SEQUENCE ALL OTHER BAR PLACEMENTS AS REQUIRED TO CONFORM TO THE CONTRACT DOCUMENTS.
13. FOUNDATION CONDITIONS THAT DIFFER FROM THOSE NOTED IN THE CONTRACT DOCUMENTS OR AS DESCRIBED IN THE GEOTECHNICAL REPORT SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT, GEOTECHNICAL ENGINEER AND SER BEFORE FURTHER CONSTRUCTION IS ATTEMPTED.
14. CONTRACTOR SHALL NOTIFY THE ARCHITECT AND SER AT LEAST 48 HOURS PRIOR TO PLACEMENT OF CONCRETE IN FOOTINGS.
15. THE BUILDING SITE MAY HAVE SOME BURIED EXISTING FOUNDATIONS AND UTILITIES. IF THESE FOUNDATIONS OR UTILITIES ARE ENCOUNTERED DURING DRILLING OPERATIONS, THE SINGLE DRILLED FOOTING SHALL BE REPLACED WITH TWO SYMMETRICALLY PLACED FOOTINGS AND A STRAP BEAM AS SHOWN IN TYPICAL DETAILS. THE CONTRACTOR SHALL PROVIDE A UNIT COST FOR EACH OCCURRENCE. SEAL ANY UTILITY LINES DISCOVERED WITH CONCRETE.
16. ALL FOOTINGS SHALL BE CONSOLIDATED WITH A CONCRETE VIBRATOR AS PER THE REQUIREMENTS OF ACI 318 AND ACI 308R, LATEST EDITION.
17. DRILLED FOOTINGS SHALL BE POURED IMMEDIATELY UPON COMPLETION OF EXCAVATION AND CLEANING OF FOOTING BEARING SURFACE. UNDER NO CIRCUMSTANCES SHOULD DRILLED FOOTINGS/PIERS SHOULD NOT REMAIN OPEN OVER NIGHT. ALL SPOILS FROM THE DRILLED FOOTING EXCAVATIONS SHALL BE REMOVED FROM THE BUILDING PAD.
18. IF DRILLED AND UNDERREAMED FOOTINGS CANNOT BE FORMED DUE TO CAVING SOILS, THE ARCHITECT, GEOTECHNICAL ENGINEER AND SER SHALL BE NOTIFIED IMMEDIATELY BEFORE FURTHER CONSTRUCTION IS ATTEMPTED.
19. WHERE A DRILLED FOOTING IS SHOWN ON THE PLAN CLOSER THAN 6'-0 FROM ANOTHER FOOTING, DRILL ONE FOOTING, FILL WITH CONCRETE AND LET CURE 24 HOURS PRIOR TO DRILLING THE ADJACENT FOOTING. (6'-0" DIMENSION IS MEASURED BETWEEN EDGE OF BELL NOT CENTER TO CENTER.)
20. TOPS OF DRILLED FOOTINGS SHALL NOT HAVE "MUSHROOMED" OR FLARED TOPS. CONTRACTOR SHALL USE SONUTUBE, SURETOP OR APPROVED EQUAL TO FORM TOP OF PIERS TERMINATED AT GRADE LEVEL. CONCRETE OF FLARED TOP FOOTINGS SHALL BE REMOVED PRIOR TO FORMING AND PLACING OF THE CONCRETE IN PIER CAPS OR GRADE BEAMS. TOPS OF ALL PIERS SHALL BE CLEANED PRIOR TO THE PLACEMENT OF CONCRETE.
21. PROVIDE A TREMIE TO PLACE CONCRETE IN DRILLED FOOTINGS SO THAT CONCRETE DOES NOT FREE FALL OVER 10'-0".
22. PROVIDE PIER SLEDS TO MAINTAIN 3" MINIMUM CLEAR COVER ON FOOTING SHAFT REINFORCING, PIERS SLEDS SHALL BE STAGGERED ALONG THE VERTICAL REINFORCING. DO NOT PLACE SLEDS AT THE SAME LOCATION.

CONCRETE

1. ALL CONCRETE REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60, EXCEPT WHERE NOTED. NO. 10 THROUGH NO. 18 BARS SHALL CONFORM TO ASTM A615, GRADE 75. DEFORMED BAR ANCHORS SHALL CONFORM TO ASTM A496, GR 70. ALL BARS SHALL BE NEW OR RECYCLED DOMESTIC BILLET STEEL OF A DOMESTIC MANUFACTURER.
2. CONCRETE IN THE FOLLOWING AREAS SHALL HAVE SAND AND CRUSHED CARBONATE AGGREGATE CONFORMING TO ASTM C33 FOR NORMAL WEIGHT CONCRETE AND LIGHT WEIGHT AGGREGATES CONFORMING TO ASTM C330, TYPE I PORTLAND CEMENT CONFORMING TO ASTM C150, AND THE FOLLOWING DESIGNATED COMPRESSIVE STRENGTH (f'c) IN 28 DAYS:

CONCRETE USE OR CLASS	MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c)	MAXIMUM WATER CEMENT RATIO	SLUMP (INCHES)
FOOTINGS	3000 PSI	0.50	5 TO 8
SLABS ON GROUND	3000 PSI	0.45	3 TO 5
ALL OTHER CONCRETE	3000 PSI	0.50	3 TO 5
SLUMP SHALL BE MEASURED FROM SAMPLES TAKEN AT THE POINT OF DISCHARGE UNLESS AGREED TO IN WRITING PRIOR TO CONCRETE PLACEMENT			

NOTE: CONCRETE SUPPLIER SHALL BE AWARE OF CEMENTS THAT CAN CAUSE LATE ETTRINGITE FORMATION IN THE CEMENT PASTE AND BE PREPARED TO SHOW THAT THE CEMENTS USED WILL NOT CAUSE THIS PROBLEM.

3. FLY ASH MAY BE USED AS A POZZOLAN TO REPLACE A PORTION OF THE PORTLAND CEMENT IN A CONCRETE MIXTURE, SUBJECT TO THE APPROVAL OF THE ARCHITECT AND SER. FLY ASH, WHEN USED, SHALL CONFORM TO ASTM C618 TYPE 'C'. CONCRETE MIXTURES CONTAINING FLY ASH SHALL BE PROPORTIONED TO ACCOUNT FOR THE PROPERTIES OF THE SPECIFIC FLY ASH AND TO ACCOUNT FOR THE SPECIFIC PROPERTIES OF THE FLY ASH CONCRETE THUS RESULTING, INCLUDING BUT NOT LIMITED TO WATER CEMENT RATION AND MINIMUM 28 DAY COMPRESSIVE STRENGTH. THE RATIO OF THE AMOUNT BY VOLUME OF FLY ASH TO THE TOTAL AMOUNT BY VOLUME OF CEMENTITIOUS MATERIAL (INCLUDING THE FLY ASH) SHALL NOT EXCEED 25 PERCENT.
4. FLY ASH IS NOT PERMITTED IN SLABS WITHOUT PRIOR WRITTEN APPROVAL FROM THE ARCHITECT AND SER.
5. AIR ENTRAINMENT IS REQUIRED ONLY IN HARD ROCK CONCRETE PERMANENTLY EXPOSED TO WEATHER CONDITIONS. WHERE LIGHTWEIGHT CONCRETE IS SPECIFIED, AIR ENTRAINMENT IS REQUIRED FOR ALL EXPOSURE CONDITIONS. PERCENT AIR ENTRAINMENT LISTED IS PLUS/MINUS 1.5%. DO NOT AIR-ENTRAIN INTERIOR FLOOR SLABS THAT RECEIVE HARD TROWEL FINISH.
6. ALL WELDED WIRE FABRIC SHALL BE SMOOTH ROUND WIRE IN FLAT SHEETS AND SHALL CONFORM TO ASTM A185.
7. CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE AS FOLLOWS; SEE SEC. 7.7 ACI 318, LATEST EDITION FOR CONDITIONS NOT NOTED. PROVIDE CHAIR SUPPORTS (AZTEC CASTLE CHAIR, WHC SERIES 'E' OR EQUAL) TO ADEQUATELY SUPPORT BARS FOR PROPER CLEARANCE AS RECOMMENDED BY THE AMERICAN CONCRETE INSTITUTE AND THE CONCRETE REINFORCING STEEL INSTITUTE. SLAB ON GRADE REINFORCEMENT SHALL BE SUPPORTED AT 45-INCH MAXIMUM INTERVALS OR EVERY THIRD BAR. UTILITY OR CONCRETE BRICKS ARE NOT ALLOWED AS REINFORCING SUPPORTS.

MINIMUM CONCRETE COVER REQUIREMENTS	
LOCATION	MINIMUM COVER
FOOTINGS	3 INCHES
GRADE BEAMS	3 INCHES BOTTOM 2 INCHES SIDES — FORMED SURFACE 3 INCHES SIDES — EARTH FORMED 1 — 1/2 INCHES TOP
SLAB ON GROUND	1 INCH TOP

8. NO HORIZONTAL JOINTS WILL BE PERMITTED IN CONCRETE EXCEPT WHERE THEY NORMALLY OCCUR OR WHERE NOTED. NO JOINTS BETWEEN PILASTERS AND GRADE BEAM THAT ARE MEANT TO BE MONOLITHIC. VERTICAL JOINTS SHALL OCCUR AT CENTER SPANS OR AT LOCATIONS APPROVED BY THE STRUCTURAL ENGINEER.
9. CONSTRUCTION JOINTS BETWEEN PIERS AND PIER CAPS OR GRADE BEAMS, FOOTINGS AND WALLS OR COLUMNS, OR WALLS, COLUMNS, BEAMS AND THE FLOOR SYSTEM THEY SHALL SUPPORT SHALL BE PREPARED BY ROUGHENING THE SURFACE CONTACT SURFACE TO A FULL AMPLITUDE ON 1/4" LEAVING THE CONTACT SURFACE CLEAN AND FREE OF ALL LAITANCE.
10. DETAILING OF CONCRETE REINFORCEMENT AND ACCESSORIES SHALL BE IN ACCORDANCE WITH ACI PUBLICATION 315, LATEST EDITION "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" AND ACI SP -66 "DETAILING MANUAL". PLACING OF REINFORCING BARS SHALL CONFORM TO THE RECOMMENDATIONS OF ACI 315R "MANUAL OF ENGINEERING AND PLACING DRAWINGS FOR REINFORCED CONCRETE STRUCTURES" AND CRSI "MANUAL OF STANDARD PRACTICE". ALL HOOKED BARS SHOWN IN THE DETAILS SHALL HAVE STANDARD HOOKS UNLESS NOTED OTHERWISE.
11. REINFORCING BARS SHALL NOT BE WELDED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. REINFORCING STEEL THAT REQUIRES WELDING SHALL CONFORM TO ASTM A706, WITH GRADES AS SHOWN ABOVE.
12. UNLESS BARS ARE SPECIFICALLY SHOWN IN THE BAR BENDING DIAGRAMS ON THE SCHEDULES, PROVIDE BARS AS FOLLOWS:
    - A) PROVIDE STANDARD 90 DEGREE HOOK ON TOP BARS AT CANTILEVER ENDS.
    - B) SPLICE BOTTOM BARS DIRECTLY OVER MEMBER SUPPORTS, UNLESS NOTED OTHERWISE.
    - C) SPLICE TOP AND INTERMEDIATE BARS AT THE CENTER LINE BETWEEN MEMBER SUPPORTS, UNLESS NOTED OTHERWISE.
    - D) SPLICE VERTICAL BARS IN WALLS ONLY AT FLOOR LINES, UNLESS NOTED OTHERWISE. HORIZONTAL BARS SHALL BE SPLICED AS SPECIFIED FOR TOP, BOTTOM, AND INTERMEDIATE BARS OF BEAMS.
    - E) CENTER BARS NOTED AS "AT SUPT'S." OVER MEMBER SUPPORTS, AND CENTER BARS NOTES AS "BTWN. SUPT'S," BETWEEN SUPPORTS.
    - F) PLACE BARS NOTED AS "2ND LAYER" BELOW THE PRIMARY TOP BARS (OR ABOVE THE PRIMARY BOTTOM BARS) AND PROVIDE #11 SPACER BARS PLACED AT INTERVALS OF 4'-0" BETWEEN THE TWO LAYERS OF BARS.
    - G) SPLICE VERTICAL BARS IN COLUMNS ONLY AT FLOOR LINES, UNLESS NOTED OTHERWISE. COLUMN BAR SPLICES SHALL BE AS SHOWN IN THE COLUMN SCHEDULE.
    - H) PROVIDE CORNER BARS FOR EACH HORIZONTAL BAR AT THE INSIDE AND OUTSIDE FACES OF INTERSECTING BEAMS OR WALLS. REFER TO CORNER BAR DETAILS IN THE TYPICAL DETAILS.
    - I) REFER TO THE COLUMN REINFORCING DIAGRAMS FOR ADDITIONAL TIES ABOVE AND BELOW THE FLOOR FRAMING MEMBERS.
13. BARS SHOWN IN THE SCHEDULE TO HOOK AT DISCONTINUOUS ENDS SHALL HAVE THE HOOK PLACED HORIZONTALLY AT EXTERIOR CORNERS.
14. PROVIDE NO, 3 DOWELS X 2'-0" AT 1'-6" ON CENTER, WITH A 90 DEGREE HOOK AT ALL EDGES OF CONCRETE SLABS, UNLESS DETAILED OTHERWISE.
15. PROVIDE FOUNDATION DOWELS TO MATCH MASONRY WALL REINFORCEMENT. DOWELS SHALL EXTEND INTO THE CONCRETE AND CMU PER THE LAP SCHEDULES.
16. ALL CONTINUOUS REINFORCEMENT SHALL LAP 40 BAR DIAMETERS AT SPLICES. PROVIDE (1) NO. 6 x 6'-0" TOP AND BOTTOM (TWO 36" LEGS WITH 90 DEGREE BEND) AT EACH FACE OF GRADE BEAMS AT CORNERS AND INTERSECTIONS, AND AT 18" ON CENTER VERTICALLY AT WALLS.
17. PROVIDE (1) NO. 4 BAR x 4'-0" FOR ELEVATED SLABS AND (2) NO. 5 BARS x 4'-0" FOR SLAB ON GROUND AT ALL RE-ENTRANT CORNERS. PROVIDE (1) NO. 4 BAR x 4'-0" AROUND ALL RECTANGULAR OPENINGS OR COLUMN BLOCK OUTS UNLESS NOTED OTHERWISE. FOR ELEVATED SLABS, PLACE THE DIAGONAL BARS WITH 1 INCH OF CLEARANCE FROM TOP AND THE SIDES OF THE SLAB AT THE CORNERS. FOR SLAB ON GRADE, PLACE THE BARS AT MID DEPTH OR BELOW THE REINFORCING MAT AND 3 INCHES CLEAR FROM THE CORNER.
18. CONDUITS ARE NOT ALLOWED IN SLABS, BEAMS, WALLS OR COLUMNS. ALL CONDUITS SHALL BE SUSPENDED FROM OR ATTACHED TO THE CONCRETE STRUCTURE.
19. PROVIDE SLEEVES, MECHANICAL OPENINGS, CONDUITS, PIPES, RECESSES, DEPRESSIONS, CURBS AND ALL EMBEDDED ITEMS AS SHOWN ON THE ARCHITECTURAL AND MECHANICAL DRAWINGS OR AS REQUIRED BY EQUIPMENT MANUFACTURERS. MINIMUM CONCRETE BETWEEN SLEEVES SHALL BE 6". SHOP DRAWINGS SHALL CLEARLY INDICATE THE INSTALLATION OF THESE ITEMS. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED TO 3/4"x3/4" MINIMUM UNLESS NOTED OTHERWISE. DO NOT PROVIDE CHAMFERS AT INSIDE FACE OF OVERHEAD DOORS OR AT STOREFRONT OPENINGS.
20. BESIDES FOLLOWING ARTICLE 6.3 OF ACI 318 FOR EMBEDDED ITEMS FOLLOWING REQUIREMENTS SHALL BE MET:
    - A) THE MINIMUM CLEAR DISTANCE BETWEEN CONDUITS AND PIPES SHALL BE 6".
    - B) NONE PERMITTED IN COLUMNS WITHOUT PRIOR APPROVAL
21. ALL CONSTRUCTION JOINTS IN BEAMS AND WALLS SHALL BE PROVIDED WITH SHEAR KEYS AS SHOWN IN THE DETAILS.
22. SLEEVES PASSING HORIZONTALLY THROUGH GRADE BEAMS:
    - A) LOCATE AT MIDDLE THIRD OF BEAM SPAN - MINIMUM 6" AWAY FROM AN INTERIOR MEMBER.
    - B) LOCATE AT MIDDLE THIRD OF BEAM DEPTH.
    - C) MAXIMUM DIAMETER OF SLEEVE TO BE ONE THIRD OF BEAM DEPTH OR 8" (WHICHEVER IS LESS).
    - D) SPACING TO BE AT LEAST THREE SLEEVE DIAMETERS OR 6" (WHICHEVER IS GREATER).
    - E) ADD ONE ADDITIONAL SCHEDULED STIRRUP ON EITHER SIDE OF THE SLEEVE. ADD (2) #5 x 5'-0" TOP AND BOTTOM CENTERED AT SLEEVE.
    - F) NO SLEEVES LONGITUDINALLY IN BEAMS. PASS SLEEVES ONLY AT RIGHT ANGLES TO BEAMS.
23. ALL MIXING, TRANSPORTING, PLACING AND CURING OF CONCRETE SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE AMERICAN CONCRETE INSTITUTE, ACI 301, LATEST EDITION.
24. ALL CONCRETE SHALL BE CONSOLIDATED WITH A CONCRETE VIBRATOR AS PER THE REQUIREMENTS OF ACI 318 AND ACI 308R, LATEST EDITION.
25. HOT WEATHER CONCRETING SHALL CONFORM TO ACI305 AND COLD WEATHER CONCRETING SHALL CONFORM TO ACI 306.
26. ALL BASE PLATES AND ANCHOR RODS SHALL BE PROTECTED WITH 3" (MIN.) OF CONCRETE. ANCHOR RODS SHALL BE FABRICATED FROM FULL BODIED STEEL RODS CONFORMING TO ASTM F1554 [SPECIFY GRADE IF GREATER THAN GR 36 IS REQUIRED], WASHERS CONFORMING TO ASTM F884 AND NUTS CONFORMING TO ASTM A194 OR A563 AND HAVING THE SAME DIAMETER AS THE BOLT DIAMETER. BOLTS SHALL BE SET USING RIGID TEMPLATES.
27. HIGH DENSITY STYROFOAM SHALL BE PANELIZED POLYSTYRENE RIGID FORM INSULATION WITH MINIMUM COMPRESSIVE STRENGTH OF 40 PSI (EPS19) PER ASTM D6817. THICKNESS SHALL BE AS INDICATED IN DETAILS AND DRAWINGS. AVAILABLE MANUFACTURERS INCLUDE: U.C. INDUSTRIES, INC, DOW CHEMICAL COMPANY, AND AMOCO PRODUCTS COMPANY.

POST INSTALLED ANCHORS

ANCHOR MATERIALS

1. MECHANICAL ANCHORS SHALL BE TESTED AND ASSESSED IN ACCORDANCE WITH THE MOST RECENT EDITION OF ACI 355.2 QUALIFICATION OF POST-INSTALLED MECHANICAL ANCHORS IN CONCRETE AND COMMENTARY. ACCEPTABLE MECHANICAL ANCHORS ARE AS FOLLOWS:

EXPANSION ANCHORS SHALL BE HILTI KWIK BOLT TZ

ANCHOR DIAMETER	MINIMUM EMBEDMENT
1/2 INCH	3-1/4"
5/8 INCH	4"
3/4 INCH	4-3/4"

2. ADHESIVE ANCHOR SYSTEMS SHALL BE TESTED AND ASSESSED IN ACCORDANCE WITH THE MOST RECENT EDITION OF ACI 355.4 QUALIFICATION OF POST-INSTALLED ADHESIVE ANCHORS IN CONCRETE (355.4) AND COMMENTARY. ACCEPTABLE ADHESIVE ANCHORS ARE AS FOLLOWS:

CHEMICAL ADHESIVE ANCHORS FOR CONCRETE SHALL BE HILTI HIT-HY 100 SYSTEM

ANCHOR DIAMETER OR BAR SIZE	MINIMUM EMBEDMENT
NO. 3 BAR	4"
1/2 INCH OR NO. 4 BAR	4-1/2"
5/8 INCH OR NO. 5 BAR	6"
3/4 INCH OR NO. 6 BAR	7"
7/8 INCH OR NO. 7 BAR	8"

CHEMICAL ADHESIVE ANCHORS FOR MASONRY SHALL BE HILTI HIT-HY 100 SYSTEM

ANCHOR DIAMETER OR BAR SIZE	MINIMUM EMBEDMENT
NO. 3 BAR	4"
1/2 INCH OR NO. 4 BAR	4-1/2"
5/8 INCH OR NO. 5 BAR	5-3/4"
3/4 INCH OR NO. 6 BAR	6-3/4"

3. AN APPROVED EQUAL TESTED AND ASSESSED IN ACCORDANCE WITH ACI 355.4 AND PROVIDING THE MINIMUM BOND STRESS VALUES BELOW FOR THE SPECIFIED CONDITIONS. BULK-MIXED (E.G., BUCKET-MIXED) ADHESIVES ARE NOT PERMITTED.
4. ADHESIVE ANCHORS SELECTED FROM PARAGRAPH ABOVE SHALL BE SUPPLIED AS AN ENTIRE SYSTEM. THE SYSTEM SHALL INCLUDE, BUT IS NOT LIMITED TO, MANUFACTURERS PRINTED INSTALLATION INSTRUCTIONS (MPII) AS SUPPLIED WITH THE ADHESIVE, ADHESIVE CARTRIDGE, MIXING NOZZLE, EXTENSION TUBE, DISPENSER, AND ALL REQUIRED EQUIPMENT FOR PROPERLY CLEANING THE DRILLED HOLE.
5. ANCHOR DESIGN SHALL BE IN ACCORDANCE WITH CHAPTER 17 OF ACI 318 MOST RECENT EDITION. FOR ADHESIVE ANCHORS, THE FOLLOWING MINIMUM DESIGN VALUES FOR BOND STRESS WERE ASSUMED FOR THE DESIGN USING THE ABOVE ADHESIVE ANCHOR ASSEMBLIES FOR IMPACT- OR ROCK-DRILLED HOLES:
6. ALL-THREADED ROD (EYEBOLTS, THREADED STUDS, INTERNAL THREADED PARTS) TO BE USED IN ADHESIVE ANCHOR ASSEMBLIES SHALL CONFORM TO ASTM A36, A193 (GRADE B7), A307, B348 (BD), F1554 OR OTHER APPROVED ANCHOR ASSEMBLY TYPES. (STAINLESS STEEL ANCHOR RODS SHALL BE AISI TYPE 304 OR TYPE 316.) THREADS SHALL BE UNC COARSE THREADS, UNLESS NOTED OTHER-WISE.
7. COMPATIBLE NUTS AND WASHERS SHALL BE FURNISHED WITH THE ALL-THREAD ROD AND CONSIDERED PART OF THE ASSEMBLY. THE COST OF THE HARDWARE SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLED ADHESIVE ANCHOR ASSEMBLY.
8. NUTS, WASHERS, AND OTHER HARDWARE USED WITH AN ALL-THREADED BAR ADHESIVE ANCHOR SYSTEM OR WITH A MECHANICAL EXPANSION ANCHOR SHALL HAVE A MATERIAL OR AN ALLOY DESIGNATION THAT IS COMPATIBLE WITH THE ANCHOR ROD/ALLOY. GALVANIZED ASSEMBLIES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. ELECTROPLATE GALVANIZING IS NOT ACCEPTABLE. DISSIMILAR METAL ASSEMBLIES SHALL BE SEPARATED BY NYLON, EPDM, OR OTHER APPROVED NON-METALLIC WASHERS.
9. REINFORCING BARS TO BE USED IN ADHESIVE ANCHOR ASSEMBLIES (E.G., AS ANCHOR REINFORCEMENT) OR AS POST-INSTALLED REINFORCING SHALL CONFORM TO ASTM A615, A706, A995, OR A1035.

GENERAL INSTALLATION GUIDELINES

1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 2,500 PSI AT THE TIME OF ADHESIVE ANCHOR INSTALLATION.
2. CONCRETE AT TIME OF ADHESIVE ANCHOR INSTALLATION SHALL HAVE A MINIMUM AGE OF 21 DAYS. FOR INSTALLATION OF ADHESIVE ANCHORS IN CONCRETE HAVING AN AGE LESS THAN 21 DAYS, TESTS SHALL BE CONDUCTED TO VERIFY THE PERFORMANCE OF THE PRODUCT IN ACCORDANCE WITH ACI 355.4.
3. THE CONCRETE TEMPERATURE AT THE TIME OF ADHESIVE ANCHOR INSTALLATION SHALL BE AT LEAST 50°F UNLESS TESTING HAS BEEN CONDUCTED IN ACCORDANCE WITH RECOGNIZED CRITERIA TO VERIFY PERFORMANCE IN CONCRETE AT LOWER TEMPERATURES.
4. EMBEDMENT DEPTH AND MINIMUM ANCHOR PROJECTION OF THE ANCHOR ELEMENT FROM THE CONCRETE SURFACE SHALL BE AS SHOWN ON THE DRAWING OR DETAIL FOR THE PARTICULAR ANCHOR OR GROUP OF ANCHORS BEING INSTALLED.
5. ADHESIVE CARTRIDGES SHALL BE STORED UNDER CONDITIONS IN COMPLIANCE WITH MANUFACTURER RECOMMENDATIONS REGARDING TEMPERATURE, EXPOSURE TO SUNLIGHT, ETC. AND EVIDENCE OF COMPLIANCE SHALL BE MADE AVAILABLE UPON REQUEST. THE USE OF EXPIRED ADHESIVE, AS INDICATED BY THE EXPIRATION DATE ON THE CARTRIDGE, IS PROHIBITED.

INSTALLATION

1. ADHESIVE ANCHORS SHALL BE INSTALLED BY QUALIFIED PERSONNEL TRAINED TO INSTALL ADHESIVE ANCHORS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. BOTH POST-INSTALLED EXPANSION AND ADHESIVE ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII). ADHESIVE ANCHORS WITH DIAMETER GREATER THAN 3/8-INCH INSTALLED IN ORIENTATIONS FROM HORIZONTAL TO VERTICAL SHALL EMPLOY A PISTON PLUG FOR THE ADHESIVE INJECTION.
2. INSTALLATION OF ADHESIVE ANCHORS IN ORIENTATIONS FROM HORIZONTAL TO VERTICAL TO SUPPORT SUSTAINED TENSION LOADS SHALL BE PERFORMED BY PERSONNEL CERTIFIED BY THE ACI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM OR EQUIVALENT. THESE ANCHORS ARE DESIGNATED WITH A (CERT) AFTER THE ANCHOR CALLOUT. NOTE: SOME DOWN-HOLE INSTALLATIONS SHOWN ON DRAWINGS SUPPORT SUSTAINED TENSION LOADS AND ARE SO DESIGNATED WITH A (CERT) AFTER THE ANCHOR CALLOUT.
3. THE INSTALLER'S QUALIFICATIONS SHALL BE SUBMITTED AND APPROVED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
4. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT REQUIRED TO INSTALL THE EXPANSION AND/OR ADHESIVE ANCHOR INCLUDING, BUT NOT LIMITED TO, DRILLS, SETTING TOOLS, CLEAN OUT BRUSHES, BLOWOUT BULBS, OIL FREE COMPRESSED AIR, VACUUMS, WRENCHES, ETC.
5. UNLESS OTHERWISE SPECIFIED, ANCHORS SHALL BE INSTALLED IN HOLES DRILLED WITH A ROTARY IMPACT HAMMER DRILL OR, WHERE NOT OTHERWISE PRESCRIBED, A ROCK DRILL. WHERE SPECIFIED AND WHERE PERMITTED BY THE MPII, HOLES MAY BE DRILLED WITH A DIAMOND CORE DRILL. IN ALL CASES, THE BIT DIAMETER SHALL BE IN ACCORDANCE WITH THE MPII.
6. ANCHOR HOLES SHALL BE THOROUGHLY CLEANED IN ACCORDANCE WITH THE PROCEDURES SPECIFIED IN THE MPII PRIOR TO ADHESIVE INJECTION.
7. DRILLED AND CLEANED ANCHOR HOLES SHALL BE PROTECTED FROM CONTAMINATION AND WATER (E.G. RAIN) UNTIL THE ADHESIVE IS INSTALLED.
8. A DRILLED ANCHOR HOLE SHALL BE RE-CLEANED JUST PRIOR TO ADHESIVE INJECTION IF, IN THE OPINION OF THE ENGINEER, INSPECTOR, OR ARCHITECT'S REPRESENTATIVE, THE HOLE HAS BECOME CONTAMINATED AFTER INITIAL CLEANING.
9. ADHESIVE SHALL BE INJECTED IN ACCORDANCE WITH THE MPII USING EQUIPMENT AND PROCEDURES AS SPECIFIED THEREIN FOR THE SPECIFIC CONDITIONS ASSOCIATED WITH THE INJECTION. THIS SHOULD BE CLEARLY SPECIFIED IN THE MPII, IF NOT, ANOTHER PRODUCT SHOULD BE SPECIFIED.
10. ANCHOR ELEMENTS TO BE INSTALLED IN THE ADHESIVE SHALL BE CLEAN, OIL FREE, AND FREE OF LOOSE RUST, PAINT, OR OTHER COATINGS. THREADS ON THE PROJECTING PORTION OF THE ANCHOR ELEMENT SHALL BE PROTECTED FROM ADHESIVE CONTAMINATION.
11. INSTALLED ADHESIVE ANCHORS SHALL BE SECURELY FIXED IN-PLACE TO PREVENT DISPLACEMENT WHILE THE ADHESIVE CURES. UNLESS SHOWN OTHERWISE ON THE DRAWINGS, ANCHORS SHALL BE INSTALLED PERPENDICULAR TO THE CONCRETE SURFACE. ANCHORS DISPLACED BEFORE FULL ADHESIVE CURE SHALL BE CONSIDERED DAMAGED AND REPLACED AT THE CONTRACTOR'S EXPENSE.
12. POST-INSTALLED REINFORCING BARS OR ALL-THREADED BARS SHALL NOT BE BENT AFTER BEING INSTALLED UNLESS PERMITTED BY THE SER

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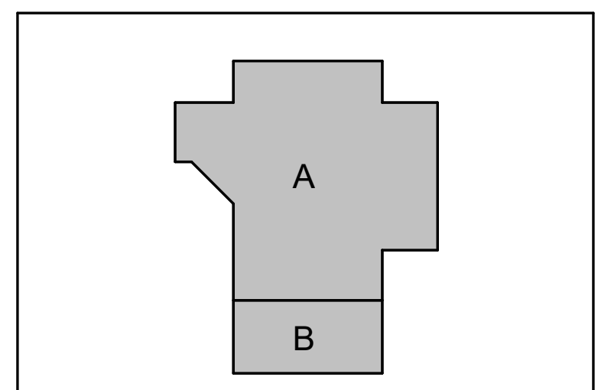

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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06 November 2023

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	JG
CHECKED:	HK

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2023-11-06	BID SET

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GENERAL NOTES

STRUCTURAL STEEL

I. ALL GROUT USED UNDER STEEL COLUMN BASE PLATES SHALL BE OF NON-SHRINKABLE TYPE CONFORMING TO ASTM C1090 AND THE CORPS OF ENGINEERS SPECIFICATION CRD-C-621 AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 6000 PSI. IOO PERCENT OF VOID UNDER ALL BASE PLATES IS TO BE GROUTED. ALL BASE PLATES WITH A DIMENSION GREATER THAN 24" SHALL HAVE TWO 1" DIAMETER GROUT HOLES. IF THE SPACE UNDER A COLUMN BASE PLATE IS LESS THAN I/4", A PRESSURE INJECTION SYSTEM SHALL BE USED. PRE-GROUTING OF THE BASE PLATES IS NOT PERMITTED

2. ALL STRUCTURAL STEEL DESIGN, DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO LOAD AND RESISTANCE FACTOR DESIGN (LRFD) ACCORDING TO THE 2005 AISC SPECIFICATION.

3. ALL WELDING SHALL CONFORM TO THE STANDARDS OF THE THIRTEENTH EDITION OF THE MANUAL STEEL CONSTRUCTION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, AND THE AMERICAN WELDING SOCIETY ANSI/AWS DI.I STRUCTURAL WELDING CODE-STEEL. WELDING OF REINFORCING BARS SHALL COMPLY TO THE AMERICAN WELDING SOCIETY AWS DI.4. SHORT CIRCUIT TRANSFER FOR THE GAS METAL ARC WELDING PROCESS IS NOT PERMITTED.

4. ELECTRODES FOR ALL FIELD AND SHOP WELDING SHALL BE CLASS E7OXX LOW HYDROGEN. ELECTRODES FOR MOMENT CONNECTIONS SHALL BE CLASS E7OI8 WITH A CHARPY TOUGHNESS OF AT LEAST 20 FT-LBS AT —20 DEGREES FAHRENHEIT.

5. ALL STRUCTURAL STEEL ROLLED SHAPES SHALL CONFORM TO ASTM A992, AND ALL ANGLES, BARS, CHANNELS AND PLATES SHALL CONFORM TO ASTM A36. ALL SQUARE AND RECTANGULAR TUBES (Fy 50 KSI) SHALL CONFORM TO ASTM A500 GRADE C AND ROUND PIPES (Fy 50 KSI) SHALL CONFORM TO ASTM A500 GR C. ALL COLD-FORMED GIRTS AND PURLINS SHALL CONFORM TO ASTM A570M GR. 55.

6. ALL STRUCTURAL STEEL DETAILS AND CONNECTIONS SHALL CONFORM TO STANDARDS OF THE AISC. DOUBLE CONNECTIONS THROUGH COLUMN WEBS, BEAMS THAT FRAME OVER THE TOP OF COLUMNS, AND BEAM TO BEAM CONNECTIONS SHALL HAVE A BEAM ERECTION SEAT OR A STAGGERED CONNECTION WITH AT LEAST ONE INSTALLED BOLT REMAINING IN PLACE TO SUPPORT THE FIRST BEAM WHILE THE SECOND BEAM IS BEING ERECTED.

7. CONNECTIONS NOT DETAILED ON THE DRAWINGS SHALL BE SELECTED FROM THE TABLES IN PART IO OF THE THIRTEENTH EDITION OF THE MANUAL OF STEEL CONSTRUCTION OF THE AISC. TABLE IO-1 MAY BE USED FOR AL-BOLTED DOUBLE ANGLE CONNECTIONS. TABLE IO-2 MAY BE USED FOR WELDED/BOLTED DOUBLE ANGLE CONNECTIONS. TABLE IO-3 MAY BE USED FOR ALL-WELDED DOUBLE ANGLE CONNECTIONS. BEAM REACTIONS USED SHALL BE ONE-HALF THE TOTAL ALLOWABLE UNIFORM LOAD GIVEN IN TABLE 3-6 THROUGH 3-9 IN PART 3 OF THE MANUAL OF STEEL CONSTRUCTION OF THE AISC. CONNECTIONS FOR COMPOSITE BEAMS SHALL HAVE THE STANDARD AISC CAPACITY INCREASED BY 35 PERCENT.

8. ALL MISCELLANEOUS WELDS (FIELD OR SHOP) SHALL BE MINIMUM SIZE FILLET ALL AROUND IN ACCORDANCE WITH AISC. IT IS ASSUMED TO BE THE PLATE THICKNESS OF THE THINNEST PIECE MINUS I/16". WELDING OF CONTINUOUS MEMBERS SHALL BE A MINIMUM OF 2 INCHES OF 3/16 INCH FILLET STITCH WELDS AT I2 INCHES O.C., STAGGERED EACH SIDE, UNLESS OTHERWISE NOTED. COLUMN BASE PLATES, CAP PLATES AND STIFFENER PLATES SHALL BE WELDED ALL AROUND.

9. PROVIDE COLUMN CAP PLATES AS FOLLOWS UNLESS NOTED OR DETAILED OTHERWISE:

   A) FOR DECK BEARING — I/4 INCH THICK FOR ALL HSS SECTIONS AND WIDE FLANGE SECTIONS WHERE BEAMS DO NOT FRAME INTO BOTH SIDES OF THE WEB

   B) FOR BEAM BEARING — SEE TYPICAL DETAILS OF 3/4 INCH MINIMUM UNLESS NOTED OTHERWISE

   C) FOR MOMENT CONNECTS — REFER TO TYPICAL MOMENT CONNECTION DETAILS

   D) ALWAYS PROVIDE CAP PLATES FOR SQUARE, RECTANGULAR, AND ROUND HSS COLUMNS

IO. WEB STIFFENERS SHALL BE PROVIDED IN WIDE FLANGE SHAPES AS FOLLOWS:

   A) COLUMN WEBS AT FULLY DEVELOPED MOMENT CONNECTIONS — STIFFENERS SHALL BE COMPLETE PENETRATION GROOVE WELDED WITH SAME THICKNESS AND GRADE AS THE BEAM FLANGES. WHERE MOMENT CONNECTIONS OCCUR ON COLUMN FLANGES AND COLUMN WEBS, STIFFENER THICKNESS SHALL BE EQUAL THE VECTOR SUMMATION OF THE RESPECTIVE BEAM FLANGE THICKNESSES.

   B) BEAM WEBS WHERE BEAMS BEAR ON A COLUMN — SAME THICKNESS AND STRENGTH AS COLUMN FLANGES.

   C) BEAM WEBS WHERE COLUMN BEARS ON A BEAM (POST UP OR STUB COLUMN) — SAME THICKNESS AND STRENGTH AS COLUMN FLANGES.

II. PROVIDE ALL NECESSARY HOLES IN MISCELLANEOUS STRUCTURAL STEEL MEMBERS FOR ATTACHMENT OF NON-STRUCTURAL ITEMS (IE: HOLES FOR WINDOW HEAD ANCHORS). SEE ARCHITECTURAL DRAWINGS FOR REQUIREMENTS.

I2. SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED IS PROHIBITED WITHOUT PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.

I3. ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS): WHERE NOTED ON PLANS OR BY THE ARCHITECT SHALL CONFORM TO AISC 303 SECTION IO

I4. ALL CONNECTION BOLTS FOR STRUCTURAL STEEL MEMBERS SHALL CONFORM TO ASTM A325 EXCEPT WHERE NOTED OTHERWISE. MINIMUM SIZE SHALL BE 3/4 INCH DIAMETER UNLESS NOTED OTHERWISE. BOLTS SHALL BE DIRECT TENSION INDICATING BOLTS CONFORMING TO ASTM F1852 WITH HARDENED WASHERS UNDER THE NUT AND SACRIFICIAL SPLINES. HEX NUTS SHALL CONFORM TO ASTM A563 AND WASHERS SHALL CONFORM TO ASTM F436.

I5. SHOP BOLTED CONNECTIONS ARE PERMISSIBLE IF SUFFICIENT BOLT CLEARANCE IS AVAILABLE FOR TIGHTENING OF HIGH STRENGTH BOLTS. CLEARANCES SHALL BE IN ACCORDANCE WITH TABLE 7-I6 AND 7-I7 OF THE THIRTEENTH EDITION OF THE MANUAL OF STEEL CONSTRUCTION OF THE AISC. ALL STEEL MEMBERS AND ASSEMBLIES SHALL BE SHOP FABRICATED TO THE GREATEST EXTENT POSSIBLE. TRUSSES SHALL BE FULLY SHOP ASSEMBLED. FIELD SPLICES FOR SHIPPING SHALL ONLY BE AS APPROVED BY THE ENGINEER OF RECORD. THE STEEL FABRICATOR AND THE STEEL ERECTOR SHALL COORDINATE THE SHOP FABRICATION, SHIPPING AND ERECTION OF ALL STRUCTURAL MEMBERS AND ASSEMBLIES.

I6. STEEL DECK SHALL ALWAYS BE INSTALLED WITH DIRECTION OF FLUTES PERPENDICULAR TO STEEL FRAMING MEMBERS. DECK SHALL BE CUT TO INSURE A MINIMUM OF THREE SPANS PER DECK WIDTH.

I7. HEADED ANCHORS SHALL BE MANUFACTURED FROM COLD DRAWN WIRE CONFORMING TO ASTM AI08, GR.50 WITH FLUXED ENDS. STUDS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE STUD WELDING EQUIPMENT IN ACCORDANCE WITH AWS DI.I. STUDS FOR EMBEDDED PLATES AND OTHER ANCHORS SHALL BE SHOP WELDED. STUDS FOR COMPOSITE BEAMS SHALL BE FIELD WELDED.

I8. ALL STRUCTURAL STEEL WHICH IS OUTSIDE THE BUILDING ENVELOPE SHALL BE HOT DIPPED GALVANIZED. ZINC COATING SHALL MEET THE REQUIREMENTS OF ASTM I23-73, WITH A MINIMUM COATING CLASS OF GRIOO AND SHALL BE APPLIED AFTER FABRICATION. ALL FIELD WELDS SHALL BE GROUND SMOOTH AND TOUCHED UP WITH A ZINC RICH PAINT.

I9. STEEL COLUMNS SHALL BE SPLICED A MINIMUM OF 4'-0" ABOVE THE FINISH FLOOR IN STORIES WHERE SPLICES OCCUR. COLUMNS SHALL BE SPLICED EVERY TWO LEVELS. COLUMNS SHALL HAVE HOLES FOR 3/4" DIAMETER SAFETY CABLES OR PLATES WITH A HOLE WELDED TO THE COLUMN. PROVIDE AN L3x3xI/4 DECK SUPPORT ANGLE ON ALL SIDES OF THE COLUMN.

20. THE GENERAL CONTRACTOR AND HIS SUBCONTRACTOR'S SHALL COMPLY TO OSHA 29 CFR I926 SUBPART R, SAFETY STANDARDS FOR STEEL ERECTION.

2I. AS SCOPE AND PERFORMANCE DOCUMENTS, THE DRAWINGS AND SPECIFICATIONS DO NOT INDICATE OR DESCRIBE ALL OF THE WORK REQUIRED FOR THE PERFORMANCE AND COMPLETION OF THIS WORK. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE FABRICATION AND INSTALLATION OF ALL MISCELLANEOUS METAL ITEMS INDICATED, DESCRIBED, OR IMPLIED ON THE STRUCTURAL AND/OR THE ARCHITECTURAL DRAWINGS. MISCELLANEOUS STEEL ITEMS, WITHIN AN ASSEMBLY AND NOT ATTACHED TO THE STRUCTURE, ARE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS WHETHER THEY ARE SHOWN OR NOT SHOWN ON THE ARCHITECTURAL OR STRUCTURAL DRAWINGS. SUCH ASSEMBLIES INCLUDE BUT ARE NOT LIMITED TO, EXTERIOR AND INTERIOR WALL ASSEMBLIES, CEILING ASSEMBLIES, PARTITION ASSEMBLIES, SHELF AND CABINET ASSEMBLIES AND ALL OTHER SIMILAR ASSEMBLIES. ANY MISCELLANEOUS METAL ITEMS INDICATED ON THE ARCHITECTURAL DRAWINGS AND NOT SHOWN ON STRUCTURAL DRAWINGS SHALL BE A MINIMUM OF L4x4xI/2", C7x9.8, 3/8" PLATE OR HSS4x4x3/8" UNLESS OTHERWISE APPROVED BY THE STRUCTURAL ENGINEER.

MECHANICAL UNIT, DUCTWORK, ELECTRICAL CONDUIT AND PIPE SUPPORT FROM STEEL JOISTS AND BEAMS

I. THE FOLLOWING CRITERIA SHALL APPLY TO HANGING NEW MECHANICAL UNITS, DUCTWORK, ELECTRICAL CONDUITS AND ALL PIPING (MECHANICAL AND PLUMBING) ON STEEL JOIST IN NEW AND EXISTING CONSTRUCTION

   A) ALL SUPPORTS FOR MECHANICAL UNITS AND DUCTWORK SHALL BE PROVIDED SUCH THAT INDIVIDUAL LOADS ARE LIMITED TO 250 LBS. WITH A MAXIMUM OF TWO HANGERS PER JOIST

   B) SUPPORTS FOR MULTIPLE RUNS OF PIPING 4 INCH TO 6 INCH DIAMETER SHALL BE STAGGERED SUCH THAT ONE JOIST SUPPORTS NO MORE THAN TWO PIPES. SPACING OF THE SHALL BE IN ACCORDANCE WITH INDUSTRY STANDARDS, THE MECHANICAL OR PLUMBING CONTRACT DOCUMENTS OR 8 FEET ON CENTER MAXIMUM.

   C) SUPPORTS FOR MULTIPLE RUNS OF PIPING 8 INCH TO IO INCH DIAMETER SHALL BE STAGGERED SUCH THAT ONE JOIST SUPPORTS NO MORE THAN TWO PIPES. SPACING OF THE SHALL BE IN ACCORDANCE WITH INDUSTRY STANDARDS, THE MECHANICAL OR PLUMBING CONTRACT DOCUMENTS OR 6 FEET ON CENTER MAXIMUM.

   D) FOR PIPING I2 INCHES DIAMETER AND LARGER OR FOR CASES WHERE THE CRITERIA ABOVE CANNOT BE MAINTAINED, SUPPLEMENTARY SHALL BE PROVIDED TO SUPPORT THE PIPES ON NEW OR EXISTING STEEL GIRDERS (WIDE FLANGES BEAMS) AND BEARING WALLS.

2. MECHANICAL UNIT AND PIPING SUPPORTS SHALL NOT OCCUR ON THE SAME JOISTS.

3. IN NO CASE SHALL THE TOTAL WEIGHT SUPPORTED BY A SINGLE JOIST EXCEED 500 LBS. UNLESS THE JOIST IS SPECIFICALLY DESIGNED FOR HIGHER LOADS OR NOTED AS PROVIDING MECHANICAL OR PIPE SUPPORT ON THE PLANS.

4. ALL MECHANICAL PIPING AND LARGE CONDUITS HANGING OF THE STRUCTURE SHALL BE SUPPORTED BY 5/8" DIAMETER ASTM A36 ALL THREAD ROD UNLESS NOTED OTHERWISE IN THE DRAWINGS.

5. ALL PIPES AND CONDUITS SHALL BE HUNG FROM BEAM CLAMPS ON BEAMS OR FROM THE TOP CHORD OF THE JOIST AT A PANEL POINT LOCATIONS. HANGING FROM JOIST BOTTOM CHORD IS NOT ALLOWED ON JOISTS. PIPING AND CONDUITS SHALL BE HUNG FROM JOIST TOP CHORD WITH ALL THREAD ROD WITH NUT AND WASHER TOP AND BOTTOM OF THE JOIST TOP CHORD AT PANEL POINT LOCATIONS OR PROVIDE TRAPEZE (UNISTRUT PI000 OR EQUAL) BETWEEN TWO JOISTS MINIMUM AT JOIST PANEL POINT LOCATIONS.

6. ALL SUPPORT POINTS SHALL BE LOCALLY REINFORCED ACCORDING TO THE TYPICAL DETAILS.

7. DO NOT USE BEAM CLAMPS TO SUPPORT DUCTWORK, CONDUIT OR PIPING FROM STEEL JOISTS.

8. ALL THREAD HANGERS SHALL BE PLACED AT OR WITHIN 3 INCHES OF PANEL POINT AND BETWEEN THE JOIST TOP CHORDS. USE PROPER WASHERS OR PLATES TO SUPPORT THE WEIGHT

9. HANGERS LOCATED AT JOIST TOP CHORD LOCATIONS OTHER THAN THE PANEL POINTS SHALL BE LOCALLY REINFORCED ACCORDING TO THE TYPICAL DETAILS.

IO. DO NOT SUPPORT PIPING FROM JOIST BRIDGING.

II. PIPE HANGER REQUIREMENTS:

SIZE	WEIGHT	MAX. SPACING OF HANGERS
4" DIA.	I6 PLF	IO'
6" DIA.	32 PLF	IO'
8" DIA.	50 PLF	IO'
IO" DIA.	75 PLF	5'
I2" DIA.	I00 PLF	5'

PLF = POUNDS PER LINEAR FOOT

PIPES OF (2) TWO OR MORE IN NUMBER AND LARGER THAN 4" INCH DIAMETER SHALL BE HUNG AT 5'-0" ON CENTER MAXIMUM

MASONRY WALL NOTES

I. THE STRUCTURAL PLANS ONLY SHOW THE LOAD BEARING "STRUCTURAL" MASONRY.

2. MASONRY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH PART 3 OF ACI 53I "BUILDING CODE REQUIREMENTS FOR CONCRETE MASONRY CONSTRUCTION".

3. ALL CONCRETE MASONRY UNITS SHALL BE HOLLOW LOAD BEARING UNITS CONFORMING TO THE REQUIREMENTS OF ASTM C90, TYPE I AND THE QUALITY CONTROL STANDARDS OF THE CONCRETE MASONRY ASSOCIATION.

4. NORMAL WEIGHT CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C90, TYPE II, WITH A MINIMUM DESIGN COMPRESSIVE STRENGTH OF 3,750 PSI. CONCRETE MASONRY UNITS USED BELOW GRADE SHALL BE COMPOSED OF NORMAL WEIGHT AGGREGATE. LIGHT WEIGHT CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C53I WITH A MINIMUM DESIGN COMPRESSIVE STRENGTH OF 3,750 PSI. CONCRETE MASONRY UNITS USED ABOVE GRADE SHALL BE COMPOSED OF LIGHTWEIGHT AGGREGATE.

5. ALL MASONRY UNITS SHALL HAVE A MINIMUM NET COMPRESSIVE STRENGTH OF 3,750 PSI AND A MINIMUM NET TENSILE STRENGTH OF NOT LESS THAN I25 PSI, WHEN TESTED IN ACCORDANCE WITH THE METHODS SET FORTH IN THE QUALITY CONTROL STANDARDS OF THE CONCRETE MASONRY ASSOCIATION.

6. MASONRY UNITS SHALL HAVE CURED FOR NOT LESS THAN 28 DAYS WHEN PLACED IN THE STRUCTURE.

7. ALL MASONRY UNITS SHALL HAVE A MAXIMUM LINEAR SHRINKAGE OF .065 OF I% FROM THE SATURATED TO THE OVEN DRY CONDITION, WHEN TESTED IN ACCORDANCE WITH THE METHODS SET FORTH IN THE QUALITY CONTROL STANDARDS OF THE CONCRETE MASONRY ASSOCIATION.

8. MASONRY MORTAR SHALL BE FRESHLY PREPARED, UNIFORMLY MIXED AND SHALL CONFORM TO ASTM C270, TYPE 'S' WITH A MINIMUM COMPRESSIVE STRENGTH OF I,800 PSI AT 28 DAYS. MASONRY CEMENT AND MORTAR CEMENT SHALL NOT BE USED. USE ASTM C270 TYPE 'M' MORTAR WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS IS REQUIRED IN BELOW GRADE APPLICATIONS. FOR MULTI WYTHE WALLS USE THE SAME TYPE OF MORTAR FOR EACH WYTHE.

9. BRICK MORTAR SHALL BE FRESHLY PREPARED, UNIFORMLY MIXED, AND SHALL CONFORM TO ASTM C270, TYPE 'N' WITH A MINIMUM COMPRESSIVE STRENGTH OF I,800 PSI AT 28 DAYS.

IO. GROUT MIXTURES SHALL CONFORM TO ASTM C476 WITH A 28 DAY COMPRESSIVE STRENGTH OF 2500 PSI AND A MAXIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.

II. CONCRETE MASONRY CONSTRUCTION SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF THE MASONRY (f'm) SHALL BE 2500 PSI ON THE NET CROSS SECTIONAL AREA AT 28 DAYS.

I2. ALL CELLS WITH REINFORCING BARS SHALL BE GROUTED SOLID AND CONCRETE MASONRY UNITS LOCATED BELOW GRADE SHALL HAVE ALL CELLS FULLY GROUTED. REINFORCING STEEL SHALL CONSIST OF DEFORMED GRADE 60 BARS CONFORMING TO ASTM A615. BARS SHALL BE NEW BILLET STEEL OF A DOMESTIC MANUFACTURE. ALL CELLS TO BE GROUTED SHALL BE CLEAN AND FREE OF EXCESS MORTAR AND FOREIGN MATERIALS.

I3. ALL CELLS SHOWN TO HAVE DRILLED EXPANSION ANCHORS, EMBEDDED HEADED STUDS OR OTHER EMBEDDED ANCHORS SHALL BE GROUTED SOLID.

I4. HORIZONTAL JOINT REINFORCEMENT SPACED AT I6 INCHES ON CENTER MAX. VERTICALLY SHALL CONFORM TO ASTM A95I WITH A MINIMUM YIELD STRENGTH OF 70,000 PSI AND A MINIMUM SIZE OF 9 GAGE FOR SIDE RODS AND 9 GAGE FOR TRUSS RODS.

I5. BOND BEAM BLOCKS SHALL BE OPEN BOTTOM UNITS AND ARE TO BE USED AT THE TOPS OF WALLS AND AT THE MID-HEIGHT OF WALL OR AT 8'-0" ON CENTER VERTICALLY MAXIMUM UNLESS NOTED OTHERWISE ON THE DRAWINGS. PROVIDE (2) NO. 4 BARS IN A SOLID GROUTED BOND BEAM UNLESS NOTED OTHERWISE. LINTEL BLOCKS SHALL NOT BE USED IN PLACE OF BOND BEAM BLOCKS. BOND BEAMS TO STOP AND START AT EVERY THIRD VERTICAL CONTROL JOINT. BOND BEAM TO BE CUT AT EVERY VERTICAL CONTROL JOINT BUT REINFORCING TO REMAIN CONTINUOUS.

I6. OPENINGS IN MASONRY WALLS SHALL HAVE EITHER MASONRY OR STEEL LINTELS AS DETAILED ON THE DRAWINGS. WHEN NO LINTEL IS DETAILED A MINIMUM OF (2) NO. 4 BARS IN A SOLID GROUTED LINTEL BLOCK SHALL BE INSTALLED. THE BARS SHALL EXTEND A MINIMUM OF EIGHT INCHES BEYOND THE EDGE OF THE OPENING AND THE JAMB AT EACH SIDE OF THE OPENING SHALL BE GROUTED SOLID FOR A DISTANCE OF EIGHT INCHES WITH A NO. 5 VERTICAL MINIMUM AT EACH JAMB. LAP BARS 2'-0" MIN. OR 40 BAR DIAMETERS AT SPLICES, INTERSECTIONS AND CORNERS.

I7. LINTEL BLOCKS SHALL BE "U" SHAPED UNITS WITH SOLID BOTTOMS AND ARE TO BE USED OVER WINDOW AND DOOR OPENINGS. BOND BEAM BLOCKS SHALL BE OPEN BOTTOM UNITS AND ARE TO BE USED AT THE TOPS OF WALLS AND AT THE MID-HEIGHT OF WALL OR AT 8'-0" ON CENTER VERTICALLY MAXIMUM UNLESS NOTED OTHERWISE ON THE DRAWINGS. PROVIDE (2) NO. 4 BARS IN A SOLID GROUTED BOND BEAM UNLESS NOTED OTHERWISE. LINTEL BLOCKS SHALL NOT BE USED IN PLACE OF BOND BEAM BLOCKS. VERTICAL REINFORCING SHALL EXTEND THROUGH ALL BOND BEAMS. BOND BEAMS TO STOP AND START AT EVERY THIRD VERTICAL CONTROL JOINT. BOND BEAM TO BE CUT AT EVERY VERTICAL CONTROL JOINT BUT REINFORCING TO REMAIN CONTINUOUS THRU THE CONTROL JOINT.

I8. STEEL LINTELS SHALL BEAR 8 INCHES MINIMUM AT EACH END ON FLASHING ABOVE AND BELOW THE ANGLE. VERTICAL CONTROL JOINTS SHALL EXTEND UP FROM THE END OF THE STEEL LINTEL, UNLESS I5# FELT OR FLASHING IS PROVIDED TOP AND BOTTOM OF LINTEL ANGLE WHERE ANGLE BEARS ON BRICK.

I9. MASONRY WALLS SHALL HAVE VERTICAL CONTROL JOINTS AT APPROXIMATELY SIXTEEN (I6) FEET TO TWENTY-FOUR (24) FEET ON CENTER AND FOUR (4) FEET MAXIMUM FROM CORNERS OR AT A MAXIMUM HEIGHT/LENGTH RATIO OF I.5 FOR UNREINFORCED WALLS AND H/L OF 2 FOR REINFORCED WALLS. COORDINATE THE LOCATION OF JOINTS WITH THE ARCHITECT. PROVIDE HECKMANN NO. 35I CONTROL JOINT ANCHORS AT I6 INCHES ON CENTER VERTICALLY AT BRICK MASONRY AND HECKMANN NO. 350 CONTROL JOINT ANCHORS AT I6 INCHES ON CENTER VERTICALLY AT CONCRETE MASONRY UNITS.

20. AT FREE VERTICAL EDGES, CORNERS AND INTERSECTIONS OF WALLS PROVIDE AT LEAST (I) NO. 5 VERTICAL IN GROUT FILLED END CORE, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

2I. PROVIDE A MINIMUM OF NO. 4 AT 48 INCHES ON CENTER VERTICAL WALL REINFORCING AND DOWELS IN FULLY GROUTED CELLS AT ALL EXTERIOR AND INTERIOR WALLS UNLESS A GREATER REINFORCING IS SHOWN ON THE PLANS OR IN THE DETAILS. PROVIDE I/2 INCH DIAMETER DEFORMED BAR ANCHORS AT 48 INCHES ON CENTER WELDED TO STEEL MEMBERS SUPPORTING MASONRY ABOVE UNLESS NOTED OTHERWISE ON THE DRAWINGS.

22. PROVIDE HOHMAN AND BARNARD RB-8 REBAR POSITIONERS OR EQUAL AT EVERY THIRD COURSE AND AT SPLICE LOCATIONS.

23. ALL MASONRY TIES TO BACKUP STRUCTURE SHALL BE HOT DIP GALVANIZED. PROVIDE A HECKMANN NO. 3I5 ANCHOR WITH NO. 3I6 TRIANGULAR TIE-ON COLUMNS AT I6 INCHES (I5 INCHES AT KING SIZE BRICK) ON CENTER VERTICALLY AND A HECKMANN NO. I9I OR I92 ANCHORS ON EACH SIDE OF ALL BEAMS AT I6 INCHES ON CENTER HORIZONTALLY UNLESS NOTED OTHERWISE ON THE DRAWINGS. MASONRY TIES TO WALL STUDS SHALL BE A HECKMANN NO. 3I6 TRIANGULAR TIE WITH A HECKMANN NO. 3I5-C SCREW ON ANCHOR STRAP OR HECKMANN #77 WING NUT POS-I-TIE ANCHOR SPACED I6 INCHES (I5 INCHES AT KING SIZE BRICK) ON CENTER HORIZONTALLY AND I6 INCHES ON CENTER VERTICALLY. AT TOP OF WALLS AND AT WALL CORNERS AND INTERSECTIONS PROVIDE TWO VERTICAL ROWS OF ANCHORS SPACED I6 INCHES APART AND I6 INCHES ON CENTER VERTICALLY. TRIANGULAR TIES SHALL EXTEND 3/4 INCH FROM FACE OF MASONRY. ANCHOR STRAPS SHALL BE ATTACHED TO METAL STUDS WITH TWO (2) #IO-I6x I-I/2 INCHES CADMIUM PLATED HEX HEAD SHEET METAL SCREWS WITH NEOPRENE WASHER.

24. ANCHOR WOOD SILLS (PRESSURE TREATED) TO CMU WITH I/2 INCH DIA. x 9 INCHES LONG HOT-DIP GALVANIZED, HOOKED ANCHOR BOLTS WITH 9/I6-INCH-WIDE TYPE 'B' HOT-DIP GALVANIZED WASHERS EMBEDDED 7 INCH MINIMUM AT 24 INCHES MAX. ON CENTER. AT CORNERS AND DOOR OPENINGS PROVIDE ONE ANCHOR BOLT AT 8 INCHES IN EACH DIRECTION FROM CORNER. PROVIDE TWO BOLTS MINIMUM PER PIECE OF SILL PLATE.

25. ALL MASONRY DESIGN IS BASED CHAPTER 2I OF INTERNATIONAL BUILDING CODE, LATEST EDITION AND ACI 530/TMS 402, LATEST EDITION.

26. TOPS OF ALL NON-LOAD BEARING INTERIOR WALLS SHALL BE BRACED ACCORDING TO THE SPECIFIC SECTION INDICATED ON PLAN OR THE TYPICAL DETAILS.

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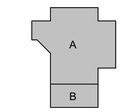

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
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06 November 2023

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	JG
CHECKED:	HK

DATE	ISSUE
2023-11-06	BID SET

S0.01

GENERAL NOTES

STRUCTURAL TESTING AND INSPECTIONS

EARTHWORK TESTING

1. DURING EARTHWORK OPERATIONS KEEP A COMPETENT TRAINED TECHNICIAN ASSIGNED TO THE PROJECT. SERVICES PROVIDED SHALL INCLUDE:
   - A) OBSERVE STRIPPING OPERATIONS AND EVALUATE THE REQUIRED STRIPPING DEPTH DURING THESE OPERATIONS.
   - B) OBSERVE PROOFROLLING OPERATIONS AFTER SITE STRIPPING. DETERMINE IF ANY SOFT SPOTS NEED TO BE UNDERCUT TO FIRM SOILS, REPLACED WITH SELECT FILL AND RECOMPACTED.
   - C) VERIFY THAT THE SUBGRADE SHALL THEN BE SCARIFIED AND MOISTURE CONDITIONED TO A SIX (6) INCH DEPTH AND THEN RECOMPACTED TO BETWEEN 95 AND 100 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR DENSITY TEST (ASTM D698). THE MOISTURE CONTENT SHALL BE BETWEEN OPTIMUM AND +3 PERCENT OF THE OPTIMUM MOISTURE CONTENT. PROVIDE A MINIMUM OF FOUR (4) FIELD DENSITY TESTS ON THE SUBGRADE OR ONE (1) FOR EVERY 2,500 SQUARE FEET WHICHEVER IS GREATER.
   - D) STRUCTURAL SELECT FILL PAD MATERIAL SHALL BE TESTED FOR ACCEPTABILITY AND A MOISTURE DENSITY CURVE SHALL BE ESTABLISHED. SELECT FILL MATERIAL SHALL BE AN INORGANIC SANDY CLAY WITH LIQUID LIMIT BETWEEN 26 AND 40 AND PLASTICITY INDEX BETWEEN [10 AND 20].
   - E) SELECT FILL SHALL BE PLACED IN EIGHT INCH LOOSE LIFTS AND COMPACTED TO BETWEEN 95 AND 100 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR DENSITY TEST (ASTM D698). THE MOISTURE CONTENT SHALL BE BETWEEN OPTIMUM AND +3 PERCENT OF THE OPTIMUM MOISTURE CONTENT FOR SELECT FILL.
   - F) SELECT FILL MATERIAL SHALL BE TESTED DURING PLACEMENT OF EACH LIFT FOR THE ATTERBERG LIMITS IN ACCORDANCE WITH ASTM D4318-98 METHOD B "STANDARD TEST METHOD FOR LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS" TO VERIFY THAT THE SELECT FILL MATERIAL IS IN ACCORDANCE WITH THE ORIGINALLY APPROVED SELECT FILL MATERIAL. PROVIDE A MINIMUM OF ONE (1) TEST PER LIFT OR ONE (1) FOR EVERY 2,500 SQUARE FEET WHICHEVER IS GREATER WITH A MAXIMUM OF TEN (10) PER LIFT.
   - G) OBSERVE THE EXCAVATION DAILY AND ENSURE THAT THE CONTRACTOR MAINTAINS A CLEAN EXCAVATION THAT IS FREE OF WATER 100% OF THE TIME. CONTRACTOR SHALL PROVIDE PUMPS AS REQUIRED TO REMOVE ANY WATER AT ALL TIMES.
   - H) OBSERVE GRADING OPERATIONS TO ENSURE THAT PROPER DRAINAGE AWAY FROM THE BUILDING PAD IS PROVIDED.

DRILLED FOOTINGS TESTING

1. DURING DRILLED FOOTING OPERATIONS KEEP A COMPETENT TRAINED TECHNICIAN ASSIGNED TO THE PROJECT. SERVICES PROVIDED SHALL INCLUDE:
   - A) OBSERVING THE BOTTOM OF SHAFT FOR CLEANLINESS.
   - B) CHECKING SHAFT FOR CONFORMANCE TO REQUIRED TOLERANCES. FOOTINGS SHALL BE WITHIN 3" OF THEIR REQUIRED LOCATIONS AND SHAFTS SHALL NOT BE OUT OF PLUMB BY MORE THAN 2 PERCENT OF THE SHAFT LENGTH.
   - C) CHECKING SHAFT BOTTOM FOR PROPER BEARING MATERIAL.
   - D) NOTING DEPTH AND DIAMETER OF ALL FOOTINGS.
   - E) VERIFY QUANTITY, SIZE AND LOCATION OF REINFORCEMENT.
   - F) CHECK FOR CAVING OF SHAFT OR BELL WALLS.
   - G) CHECKING THAT THE BELL IS CONCENTRIC WITH THE SHAFT.
2. ENSURE THAT THE SPOILS FROM THE DRILLED FOOTING EXCAVATIONS ARE REMOVED FROM THE BUILDING PAD AND THAT THE PAD IS MOISTURE CONDITIONED AND RECOMPACTED AS SPECIFIED.

CONCRETE TESTING

1. CONCRETE MIX DESIGNS SHALL BE SUBMITTED FOR REVIEW INDICATING CONFORMANCE WITH ACI 318, LATEST EDITION, CHAPTER 5, SECTION 5.3.
2. SLUMP TESTS, CONFORMING TO ASTM C143, SHALL BE TAKEN AT THE POINT OF DISCHARGE AT THE SAME RATE AS NOTED BELOW IN NOTE NUMBER 5.
3. AIR CONTENT TESTS CONFORMING TO ASTM C173, VOLUMETRIC METHOD FOR LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE; ASTM C231 PRESSURE METHOD FOR NORMAL WEIGHT CONCRETE; SHALL BE TAKEN FOR EACH DAY'S POUR OF EACH TYPE OF AIR-ENTRAINED CONCRETE.
4. CONCRETE TEMPERATURE SHALL BE TESTED HOURLY WHEN AIR TEMPERATURE IS 40 DEG F (4 DEG C) AND BELOW, WHEN 80 DEG F (27 DEG C) AND ABOVE, AND EACH TIME A SET OF COMPRESSION TEST SPECIMENS IS MADE.
5. ONE SET OF FOUR COMPRESSION TEST SPECIMENS CONFORMING TO ASTM C31 SHALL BE MOLDED AND STORED FOR LABORATORY-CURED SPECIMENS. COMPRESSIVE STRENGTH TESTS SHALL CONFORM TO ASTM C39 AND SHALL CONSIST OF ONE SET FOR EACH DAY'S POUR EXCEEDING 5 CU. YDS. PLUS ADDITIONAL SETS FOR EACH 50 CU. YDS. MORE THAN THE FIRST 25 CU. YDS OF EACH CONCRETE CLASS PLACED IN ANY ONE DAY. ONE SPECIMEN SHALL BE TESTED AT 7 DAYS, TWO SPECIMENS SHALL BE TESTED AT 28 DAYS, AND ONE SPECIMEN SHALL BE RETAINED FOR LATER TESTING AS REQUIRED.
6. VERIFY CONCRETE IS BEING CONSOLIDATED IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI 318 AND ACI 308R, LATEST EDITION.
7. VERIFY THAT POST INSTALLED ANCHORS ARE AS SPECIFIED AND THAT THE ANCHORS ARE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.

REINFORCING STEEL INSTALLATION

1. DURING CAST-IN-PLACE CONCRETE STRUCTURAL MEMBER REINFORCING PLACEMENT OPERATIONS KEEP A COMPETENT TRAINED TECHNICIAN ASSIGNED TO THE PROJECT. INSPECT REINFORCING UTILIZING ACI 311.4R "GUIDE FOR CONCRETE INSPECTION" AS A GUIDE. SERVICES PROVIDED SHALL INCLUDE:
   - A) VERIFY TYPE AND GRADE OF ALL REINFORCING STEEL.
   - B) VERIFY REBAR IS FREE OF OIL, DIRT, EXCESSIVE RUST AND FROM DAMAGE IN SHIPMENT TO SITE.
   - C) VERIFY REINFORCING IS ADEQUATELY TIED, CHAIRED AND SUPPORTED TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT.
   - D) VERIFY MINIMUM AND MAXIMUM CLEAR DISTANCES BETWEEN BARS AND MINIMUM STRUCTURAL DISTANCE TO OUTSIDE OF CONCRETE.
   - E) VERIFY QUANTITY, SIZE AND LOCATION OF REINFORCEMENT.
   - F) VERIFY MINIMUM CONCRETE COVER IS MAINTAINED BETWEEN REBAR AND SURFACE OF CONCRETE.
   - G) VERIFY SIZE AND PLACEMENT OF REBAR. VERIFY LAP LENGTHS, LOCATIONS AND STAGGERS AND VERIFY BENDS FOR MINIMUM DIAMETER, SLOPE AND LENGTH. VERIFY HOOKED BAR LENGTHS AND LOCATIONS.

POST INSTALLED ANCHORS — FIELD QUALITY CONTROL

1. THE INTERNATIONAL BUILDING CODE (IBC 2018) REQUIRES SPECIAL INSPECTION OF ALL POST-INSTALLED ANCHORS. ACI 318-19 SECTIONS 26.13.1.5 AND 26.13.1.6 REQUIRE THAT ALL INSPECTIONS OF MECHANICAL AND ADHESIVE ANCHORS, RESPECTIVELY, ARE PERFORMED BY A CERTIFIED FIELD INSPECTOR SPECIFICALLY APPROVED FOR THAT PURPOSE BY THE SER AND THE BUILDING OFFICIAL. CERTIFICATION IS ESTABLISHED THROUGH AN INDEPENDENT ASSESSMENT SUCH AS THE ACI POST-INSTALLED CONCRETE ANCHOR INSTALLATION INSPECTOR PROGRAM OR SIMILAR PROGRAM WITH EQUIVALENT REQUIREMENTS. ADHESIVE ANCHORS INSTALLED IN HORIZONTAL OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS SHALL BE CONTINUOUSLY INSPECTED DURING INSTALLATION BY A CERTIFIED INSPECTOR.
2. POST-INSTALLED EXPANSION AND ADHESIVE ANCHORS SHALL BE PROOF LOADED AS REQUIRED IN THE CONTRACT DOCUMENTS. A PERCENTAGE OF EACH TYPE AND SIZE OF EACH TYPE OF SIZE OF ANCHOR ASSEMBLY SHALL BE PROOF LOADED IN TENSION BY AN INDEPENDENT TESTING LABORATORY UNLESS OTHERWISE SHOWN ON THE CONTRACT DOCUMENTS.
   - A) PROOF LOADING SHALL BE CONDUCTED AS CONFINED TENSION TESTING FOR ADHESIVE ANCHORS USING A CENTER-HOLE CYLINDER.
   - B) THE INDEPENDENT TESTING LABORATORY SHALL SUBMIT AN ANCHORAGE TESTING PLAN TO THE SER TO ENSURE THE TESTING REQUIREMENTS ARE FULFILLED.
   - C) PROOF LOAD RANDOM SAMPLE RATES AS FOLLOWS:

TYPE OF ANCHOR	SAMPLE RATE (PERCENT)
REINFORCING FOR SLAB ON GROUND	5
REINFORCING — GRADE BEAMS	30
REINFORCING — CONCRETE BEAMS	50
REINFORCING — CONCRETE COLUMNS	50
ANCHOR BOLTS NEW OR REPLACEMENT — SHEAR ONLY	25
ANCHOR BOLTS NEW OR REPLACEMENT — MOMENT FRAMES	50
ANCHORS FOR SHEAR TABS/PLATES OR ANGLES	30
ANCHORS IN TENSION — STRUCTURAL MEMBERS	50
ANCHORS IN TENSION — NON-STRUCTURAL MEMBERS	25
ANCHORS SUPPORTING LIFE SAFETY DEVICES	100

3. POST-INSTALLED EXPANSION AND ADHESIVE ANCHORS SHALL BE PROOF LOADED TO LOAD LEVELS AS SHOWN ON THE CONTRACT DOCUMENTS. OR AS INDICATED ON THE STRUCTURAL DRAWINGS FOR THE SPECIFIC ANCHOR TYPES ABOVE. PROOF LOADING OF ADHESIVE ANCHORS SHALL BE PERFORMED AFTER A MINIMUM CURING PERIOD SPECIFIED BY THE MANUFACTURER.
4. ANCHORS SHALL HAVE NO VISIBLE INDICATIONS OF DISPLACEMENT OR DAMAGE DURING OR AFTER PROOF LOAD APPLICATION. CONCRETE CRACKING IN THE VICINITY OF THE ANCHOR AFTER LOADING SHALL BE CONSIDERED A FAILURE.
5. IF AN ANCHOR FAILS, MODIFY ALL INSTALLATIONS OF THE SAME TYPE AND RETEST UNTIL SATISFACTORY RESULTS ARE ACHIEVED
6. IF MORE THAN 5 PERCENT OF THE TESTED ANCHORS FAIL TO ACHIEVE THE SPECIFIED PROOF LOAD WITHIN THE LIMITS DEFINED ON THESE DRAWINGS, THEN 100 PERCENT OF THE ANCHORS OF THE SAME DIAMETER AND TYPE AS THE FAILED ANCHOR SHALL BE PROOF TESTED, UNLESS OTHERWISE DIRECTED BY THE SER.
7. PROVIDE WRITTEN FASTENER LOAD TEST REPORTS AND INTERMITTENT SPECIAL INSPECTION REPORTS OF POST INSTALLED FASTENERS AS THE WORK PROGRESSES.

STRUCTURAL STEEL TESTING

1. CERTIFY WELDERS FOR THE WELD TYPES IN THE PROJECT AND CONDUCT INSPECTIONS AND TESTS AS REQUIRED, AS A MINIMUM, WELDERS SHALL BE AISC CERTIFIED. RECORD TYPES AND LOCATIONS OF DEFECTS FOUND IN WORK. RECORD WORK REQUIRED AND PERFORMED TO CORRECT DEFICIENCIES.
2. VISUALLY INSPECT 100% OF ALL FILLET WELDS.
3. VISUALLY INSPECT 100% OF ALL FULL PENETRATION WELDS, TEST 20% OF ALL FULL PENETRATION WELDS BY ONE OF THE FOLLOWING METHODS: LIQUID PENETRANT INSPECTION (ASTM E165), MAGNETIC PARTICLE INSPECTION (ASTM E709; PERFORMED ON THE ROOT PASS AND ON THE FINISHED WELD; CRACKS AND ZONES OF INCOMPLETE FUSION OR PENETRATION IS NOT ACCEPTABLE), RADIOGRAPHIC INSPECTION (ASTM E94 AND ASTM E142; MINIMUM QUALITY LEVEL OF "2-2T"), OR ULTRASONIC INSPECTION (ASTM E164). IF FAILURE RATE IS 20% OR GREATER, TEST 100% OF WELDS AT CONTRACTOR'S EXPENSE UNTIL FAILURE RATE FALLS BELOW 20%.
4. ALL WELDS THAT FAIL SHALL BE REWELDED AND RETESTED UNTIL THEY PASS THE TEST. TEST TWO ADDITIONAL WELDS AT THE CONTRACTOR'S EXPENSE FOR EVERY WELD FAILURE.
5. VISUALLY INSPECT WELDS ON 100% OF ALL STUDS AND TEST 10% BY THE METHOD DESCRIBED BELOW IN COMPLIANCE WITH AWS D1.1. HEADED STUD SHALL BE TESTED BY ALTERNATELY BENDING 30 DEG. IN OPPOSITE DIRECTIONS FROM ITS ORIGINAL AXIS BY EITHER STRIKING THE STUDS WITH A HAMMER ON THE UNWELDED END OR PLACING A PIPE OR OTHER SUITABLE HOLLOW DEVICE OVER THE STUD AND MANUALLY OR MECHANICALLY BENDING THE STUD. IF FAILURE RATE IS 10% OR GREATER, TEST 100% OF STUDS AT CONTRACTOR'S EXPENSE UNTIL FAILURE RATE FALLS BELOW 10%. IF A VISUAL INSPECTION REVEALS ANY STUD THAT DOES NOT SHOW A FULL 360 DEG. FLASH (AS DEFINED IN AWS D1.1) OR ANY STUD THAT HAS BEEN REPAIRED BY WELDING, SUCH STUD SHALL BE BENT TO AN ANGLE OF APPROXIMATELY 15 DEGREES FROM ITS ORIGINAL AXIS. THE DIRECTION OF BENDING FOR STUDS WITH LESS THAN 360 DEGREES FLASH SHALL BE OPPOSITE TO THE MISSING PORTION OF FLASH.
6. BOLTS SHALL BE VISUALLY INSPECTED WHEN TWIST-OFF SPLINES ARE USED, OTHERWISE BOLTS SHALL BE SNUG TIGHT.
7. ALL FULL PENETRATION WELDS AT MOMENT CONNECTIONS REQUIRING TESTING SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY USING NON-DESTRUCTIVE TESTING METHODS. FOR SHOP WELDS, CERTIFICATION SHALL BE SUBMITTED PRIOR TO SHIPPING TO THE JOB SITE. FOR FIELD WELDS, CERTIFICATION SHALL BE SUBMITTED PRIOR FLOOR DECK INSTALLATION AND CONCRETE PLACEMENT AND PRIOR TO COVERING CONNECTIONS WITH FIREPROOFING OR ARCHITECTURAL FINISHES.

MASONRY TESTING

1. MASONRY TESTING SHALL CONSIST OF A QUALIFIED TESTING LABORATORY PROVIDING THE FOLLOWING SERVICES:
   - A) VERIFY QUANTITY, SIZE AND SPACING OF REQUIRED REINFORCING SHOWN ON THE DRAWINGS.
   - B) OBSERVE THE INSTALLATION OF MASONRY UNITS.
   - C) INSPECTION OF GROUT SPACE, IMMEDIATELY PRIOR TO CLOSING OF CLEANOUTS AND PRIOR TO ALL GROUTING OPERATIONS. VERIFY THAT THE SPECIFIED CELLS HAVE BEEN FULLY GROUTED.
   - D) MONITOR THE PROPORTIONING, MIXING AND CONSISTENCY OF MORTAR AND GROUT. PROVIDE 28 DAY COMPRESSIVE STRENGTH TESTS ON EACH GROUT MIX IN ACCORDANCE WITH ASTM C1019. COMPRESSION TEST MASONRY PRISMS FOR EACH TYPE OF WALL CONSTRUCTION IN ACCORDANCE WITH ASTM C1314. CONTRACTOR SHALL PREPARE ONE SET OF PRISMS FOR TESTING AT 28 DAYS. TESTS ARE TO BE CONDUCTED FOR EACH 2000 SQUARE FEET OF WALL INSTALLED, BUT NOT LESS THAN TWO TESTS.

SPECIAL INSPECTIONS AND STRUCTURAL TESTING

SPECIAL INSPECTION WORK AND THE FINAL LETTER OF COMPLIANCE HAVE NOT BEEN INCLUDED IN THE STRUCTURAL ENGINEER OF RECORD'S SCOPE OF SERVICES. THE OWNER IS RESPONSIBLE FOR OBTAINING THE SERVICES OF THE SPECIAL INSPECTOR AND THE TESTING LABORATORY. SPECIAL INSPECTIONS CAN BE PROVIDED BY AN INDEPENDENT SPECIAL INSPECTOR APPROVED BY THE BUILDING AUTHORITY. THE SPECIAL INSPECTION WORK DOES NOT INCLUDE THE TESTING LABORATORY SERVICES AS CALLED FOR ON THE DRAWINGS. ARRANGEMENTS FOR SPECIAL INSPECTIONS SHOULD BE MADE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE TESTING LABORATORY AND SPECIAL INSPECTOR IN A TIMELY MANNER PRIOR TO PROCEEDING WITH CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK REQUIRING INSPECTIONS WITHOUT THE TESTING LABORATORY'S OR SPECIAL INSPECTOR'S PRESENCE.

STRUCTURAL STATEMENT OF SPECIAL INSPECTIONS

THE STRUCTURAL SPECIAL INSPECTOR SHALL KEEP RECORDS OF ALL STRUCTURAL INSPECTIONS AND SHALL FURNISH INSPECTION REPORTS TO THE OWNER AND THE STRUCTURAL REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE (SRDP). DISCOVERED DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF SUCH DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND THE SRDP. THE SPECIAL INSPECTION PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES.

A FINAL REPORT OF SPECIAL INSPECTION DOCUMENTING COMPLETION OF ALL SPECIAL INSPECTIONS, TESTING AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED TO THE OWNER AND THE SRDP PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY AND USE.

STRUCTURAL SCHEDULE OF SPECIAL INSPECTIONS

QUALIFICATIONS OF INSPECTORS AND TESTING TECHNICIANS

THE QUALIFICATIONS OF ALL PERSONNEL PERFORMING SPECIAL INSPECTION AND TESTING ACTIVITIES ARE SUBJECT TO THE APPROVAL OF THE OWNER. THE CREDENTIALS OF ALL INSPECTORS AND TESTING TECHNICIANS SHALL BE PROVIDED TO THE SPECIAL INSPECTOR FOR THEIR RECORDS.

KEY FOR MINIMUM QUALIFICATION OF INSPECTION AGENTS

WHEN THE REGISTERED DESIGN PROFESSION IN RESPONSIBLE CHARGE OR SPECIAL INSPECTOR OF RECORD DEEMS APPROPRIATE THAT THE INDIVIDUAL PERFORMING THE STIPULATED TEST OR INSPECTION HAVE A SPECIFIC CERTIFICATION, LICENSE OR EXPERIENCE AS INDICATED BELOW. SUCH REQUIREMENT SHALL BE LISTED BELOW AND SHALL BE CLEARLY IDENTIFIED WITHIN THE SCHEDULE UNDER THE AGENT QUALIFICATION DESIGNATION.

PE/SE STRUCTURAL ENGINEER
A LICENSED SE OR PE SPECIALIZING IN THE DESIGN OF BUILDING STRUCTURES

PE/GE GEOTECHNCIAL ENGINEER
A LICENSED PE SPECIALIZING IN SOIL MECHANICS AND FOUNDATIONS

EIT OR ENGINEER IN TRAINING
A GRADUATE ENGINEER WHO HAS PASSED THE FUNDAMENTALS OF ENGINEERING EXAM

EXPERIENCED TESTING TECHNICIAN

ETT OR EXPERIENCED TESTING TECHNICIAN
AN EXPERIENCED TESTING TECHNICIAN WITH A MINIMUM OF 5 YEARS EXPERIENCE WITH THE STIPULATED TEST OR INSPECTION

AMERICAN CONCRETE INSTITUTE (ACI) CERTIFICATION

ACI-CFTT	CONCRETE FIELD-TESTING TECHNICIAN - GRADE I
ACI-CCI	CONCRETE CONSTRUCTION INSPECTOR
ACI-LTT	LABORATORY TESTING TECHNICIAN - GRADE 1&2
ACI-STT	STRENGTH TESTING TECHNICIAN

AMERICAN WELDING SOCIETY (AWS) CERTIFICATION

AWS-CWI	CERTIFIED WELDING INSPECTOR
AWS/AISC-SSI	CERTIFIED STRUCTURAL STEEL INSPECTOR

CHAPTER 17 OF THE **[2015]** INTERNATIONAL BUILDING CODE IS INTERPRETED TO REQUIRE SPECIAL INSPECTION FOR THE FOLLOWING ITEMS IN THE FOLLOWING TABLES:

SCHEDULE OF SPECIAL INSPECTIONS

VERIFICATION/INSPECTION	CONCRETE INSPECTION		
IBC SECTION 1705.3, TABLE 1705.3	EXTENT CONTINUOUS, PERIODIC	COMMENTS	AGENT PE/GE, EIT OR ETT
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT	PERIODIC	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3 IBC 1908.4	ETT
2. REINFORCING BAR WELDING:		AWS D1.4 ACI 318: 26.6.4	AWS-CWI
A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	PERIODIC		
B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"	PERIODIC		
C. INSPECT ALL OTHER WELDS	CONTINUOUS		
3. INSPECT ANCHORS CAST IN CONCRETE	PERIODIC	ACI 318: 17.8.2	ETT
4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS			ETT
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	CONTINUOUS	ACI 318: 17.8.2.4	
B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A	PERIODIC	ACI 318: 17.8.2	
5. VERIFY USE OF REQUIRED MIX DESIGN	PERIODIC	ACI 318: Ch. 19, 26.4.3, 26.4.4 IBC 1904.1, 1904.2, 1908.2, 1908.3	ETT
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONRETE	CONTINUOUS	ASTM C 172 ASTM C 31 ACI 318: 26.4, 26.12 IBC 1908.8	ACI-CFTT OR ACI-STT
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	CONTINUOUS	ACI 318: 26.5 IBC 1908.6, 1908.7, 1908.8	ETT
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	PERIODIC	ACI 318: 26.5.3-26.5.5 IBC 1908.9	ETT
9. INSPECT PRESTRESSED CONCRETE FOR:		ACI 318: 26.10	ETT
A. APPLICATION OF PRESTRESSING FORCES	CONTINUOUS		
B. GROUTING OF BONDED PRESTRESSING TENDONS	CONTINUOUS		
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	PERIODIC	ACI 318: Ch. 26.8	ETT
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	PERIODIC	ACI 318: 26.11.2	ETT
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	PERIODIC	ACI 318: 26.11.1.2(b)	ETT

SCHEDULE OF SPECIAL INSPECTIONS

VERIFICATION/INSPECTION	MASONRY LEVEL 1 INSPECTION				
IBC SECTION 1705.4 TMS 402/ACI 530/ASCE 5 TMS 602/ACI 530.1/ASCE 6	EXTENT CONTINUOUS, PERIODIC	COMMENTS			AGENT PE/GE, EIT OR ETT
		IBC SECTION	TMS 402 ACI 530 ASCE 5	TMS 602 ACI 530.1 ASCE 6	
1. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS SHALL BE VERIFIED	PERIODIC			ART. 1.5	ETT
2. VERIFICATION OF F'm AND F'AAC PRIOR TO CONSTRUCTION EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE	PERIODIC			ART. 1.4B	ETT
3. VERIFICATION OF SLUMP FLOW AND VSI AS DELIVERED TO THE SITE FOR SELF-CONSOLIDATING GROUT	CONTINUOUS			ART. 1.5B.1.b.3	ETT
4. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:					
A. PROPORTIONS OF SITE-PREPARED MORTAR	PERIODIC			ART. 2.6A	ETT
B. CONSTRUCTION OF MORTAR JOINTS	PERIODIC			ART. 3.3B	ETT
C. LOCATION OF REINFORCEMENT, CONNECTORS, PRESTRESSING TENDONS AND ANCHORAGES	PERIODIC			ART. 3.4, 3.6A	
D. PRESTRESSING TECHNIQUE	PERIODIC			ART. 3.6B	
E. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES	PERIODIC			ART. 2.4B 2.4H	
5. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:					
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	PERIODIC			ART. 3.3F	ETT
B. TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION	PERIODIC		SEC. 1.2.2(e) 1.16.1		ETT
C. SPECIFIED SIZE, GRADE AND TYPE OF REINFORCEMENT, ANCHOR BOLTS, PRESTRESSING TENDONS AND ANCHORAGES	PERIODIC		SEC. 1.15	ART. 2.4, 3.4	ETT
D. WELDING OF REINFORCING BARS	CONTINUOUS		SEC. 2.1.9.7.2 3.3.3.4(b)		AWS-CWI
E. PREPARATION, CONSTRUCTION AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40F) OR HOT WEATHER (TEMPERATURE ABOVE 90F).	PERIODIC	SEC. 2104.3 2104.4		ART. 1.8C 1.8D	ETT
F. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	CONTINUOUS			ART. 3.6B	
6. PRIOR TO GROUTING, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:					
A. GROUT SPACE IS CLEAN	PERIODIC			ART. 3.2D	ETT
B. PLACEMENT OF REINFORCEMENT AND CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES	PERIODIC		SEC 1.13	ART. 3.4	
C. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS.	PERIODIC			ART. 2.6B	
D. CONSTRUCTION OF MORTAR JOINTS	PERIODIC			ART. 3.3B	ETT
7. GROUT PLACEMENT SHALL BE VERIFIED TO ENSURE COMPLIANCE:	CONTINUOUS			ART. 3.5	ETT
A. GROUTING OF PRESTRESSING BONDED TENDONS	CONTINUOUS			ART. 3.6C	
8. PREPARATION OF ANY REQUIRED GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS SHALL BE OBSERVED	PERIODIC		SEC 2105.2.2 2105.3	ART. 1.4	ETT

SCHEDULE OF SPECIAL INSPECTIONS

VERIFICATION/INSPECTION	SOIL/FOUNDATION INSPECTION		
IBC SECTION 1705.6, TABLE 1705.6	EXTENT CONTINUOUS, PERIODIC	COMMENTS	AGENT PE/GE, EIT OR ETT
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	PERIODIC		ETT
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	PERIODIC		ETT
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	PERIODIC		ETT
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	CONTINUOUS		ETT
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	PERIODIC		ETT

SCHEDULE OF SPECIAL INSPECTIONS

VERIFICATION/INSPECTION	STRUCTURAL STEEL INSPECTION		
IBC SECTION 1705.2, AISC 360-10	EXTENT CONTINUOUS, PERIODIC	COMMENTS	AGENT PE/GE, EIT OR ETT
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:			
A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS	PERIODIC	AISC 360 SECTION A3.3 AND ALL APPLICABLE ASTM MATERIAL STANDARDS	ETT
B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	PERIODIC		ETT
2. INSPECTION OF HIGH-STRENGTH BOLTING:			
A. SNUG-TIGHT JOINTS	PERIODIC	AISC 360 SECTION M2.5 IBC 1704.3.3	AWS/AISC-SSI
B. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION	PERIODIC		
C. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION.	CONTINUOUS		
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD- FORMED STEEL DECK			
A. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360	PERIODIC	AISC 360 SECTION M5.5	ETT
B. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	PERIODIC	ALL APPLICABLE ASTM MATERIAL STANDARDS	ETT
C. MANUFACTURER'S CERTIFIED TEST REPORTS	PERIODIC		ETT
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS			
A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS.	PERIODIC	AISC 360, SECTION A3.5 AND APPLICABLE AWS A5 DOCUMENTS	ETT
B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED	PERIODIC		ETT
5. INSPECTION OF WELDING A. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK			
1) COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS	CONTINUOUS	AWS D1.1 IBC 1704.3.1	AWS-CWI
2) MULTIPASS FILLET WELDS	CONTINUOUS		
3) SINGLE-PASS FILLED WELDS > 5/16"	CONTINUOUS		
4) PLUG AND SLOT WELDS	CONTINUOUS		
5) SINGLE-PASS FILLET WELDS ≤ 5/16"	PERIODIC		
6) FLOOR AND ROOF DECK WELDS	PERIODIC	AWS D1.3	AWS-CWI
B. REINFORCING STEEL			
1) VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706	PERIODIC	AWS D1.4 ACI 318: SECTION 3.5.2	AWS-CWI
2) REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT.	CONTINUOUS		
3) SHEAR REINFORCEMENT	CONTINUOUS		
4) OTHER REINFORCING STEEL	PERIODIC		
6. INSPECTION OF STEEL FRAMED JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS:			
A. DETAILS SUCH AS BRACING AND STIFFENING	PERIODIC	IBC 1704.3.2	ETT
B. MEMBER LOCATIONS	PERIODIC		
C. APPLICATION OF JOINT DETAILS AT EACH CONNECTION	PERIODIC		

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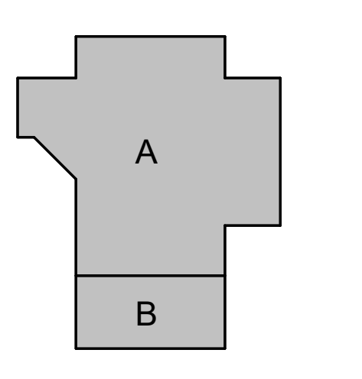

TOMBALL HIGH SCHOOL
CTE & MISC. RENOVATIONS
TOMBALL INDEPENDENT SCHOOL DISTRICT
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TEXAS ARCADIS INC.
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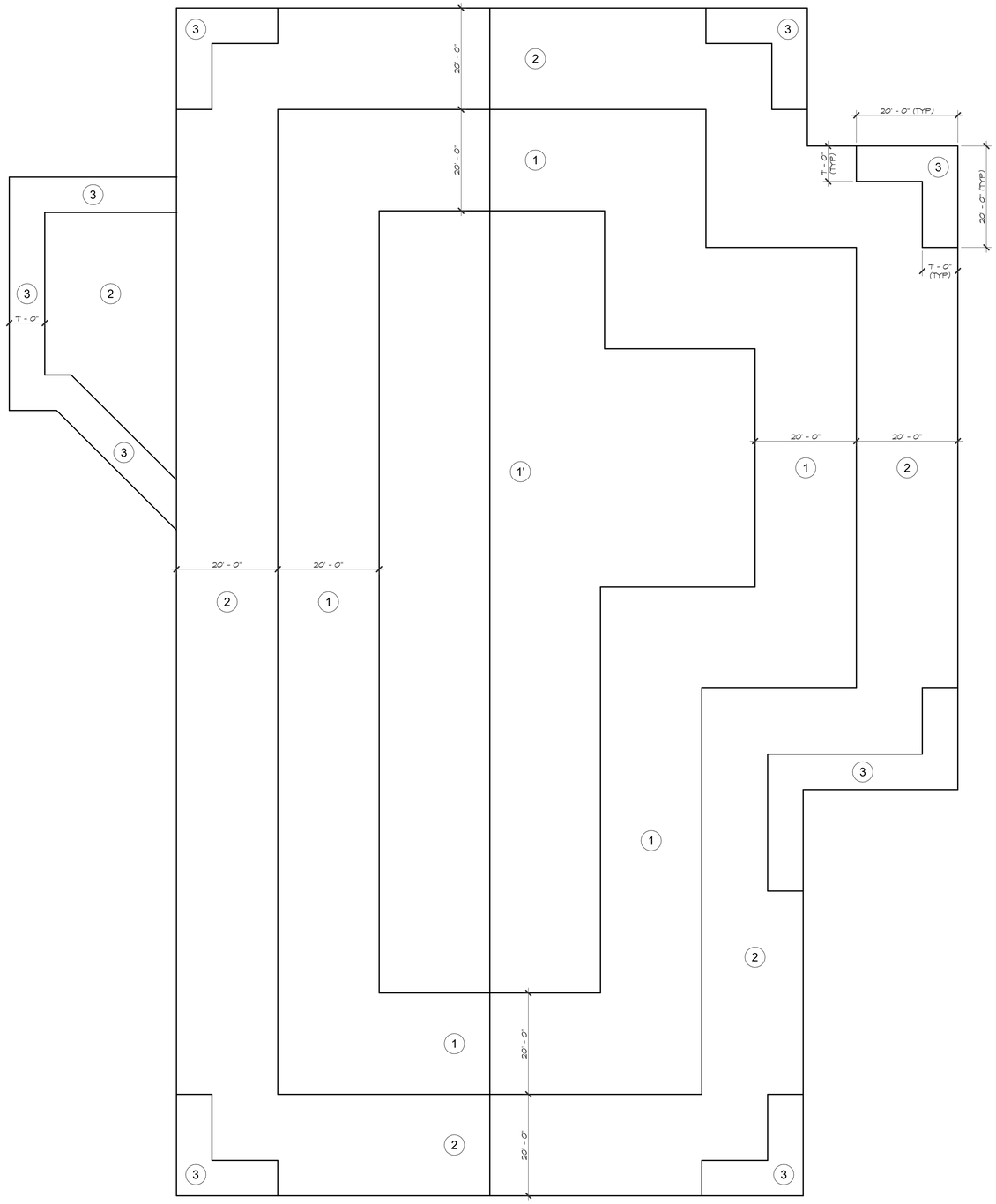
HUNTER KORNEGAY
91030

06 November 2023

PROJECT #: 202311
DATE: 2023-11-06
DRAWN: JG
CHECKED: HK

DATE	ISSUE
2023-11-06	BID SET

S0.02
TEST NOTES



NORTH

UPLIFT KEY PLAN

SCALE: NTS

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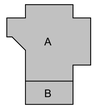

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STATE OF TEXAS
HUNTER KORNEGAY
91030
LICENSED
PROFESSIONAL ENGINEER

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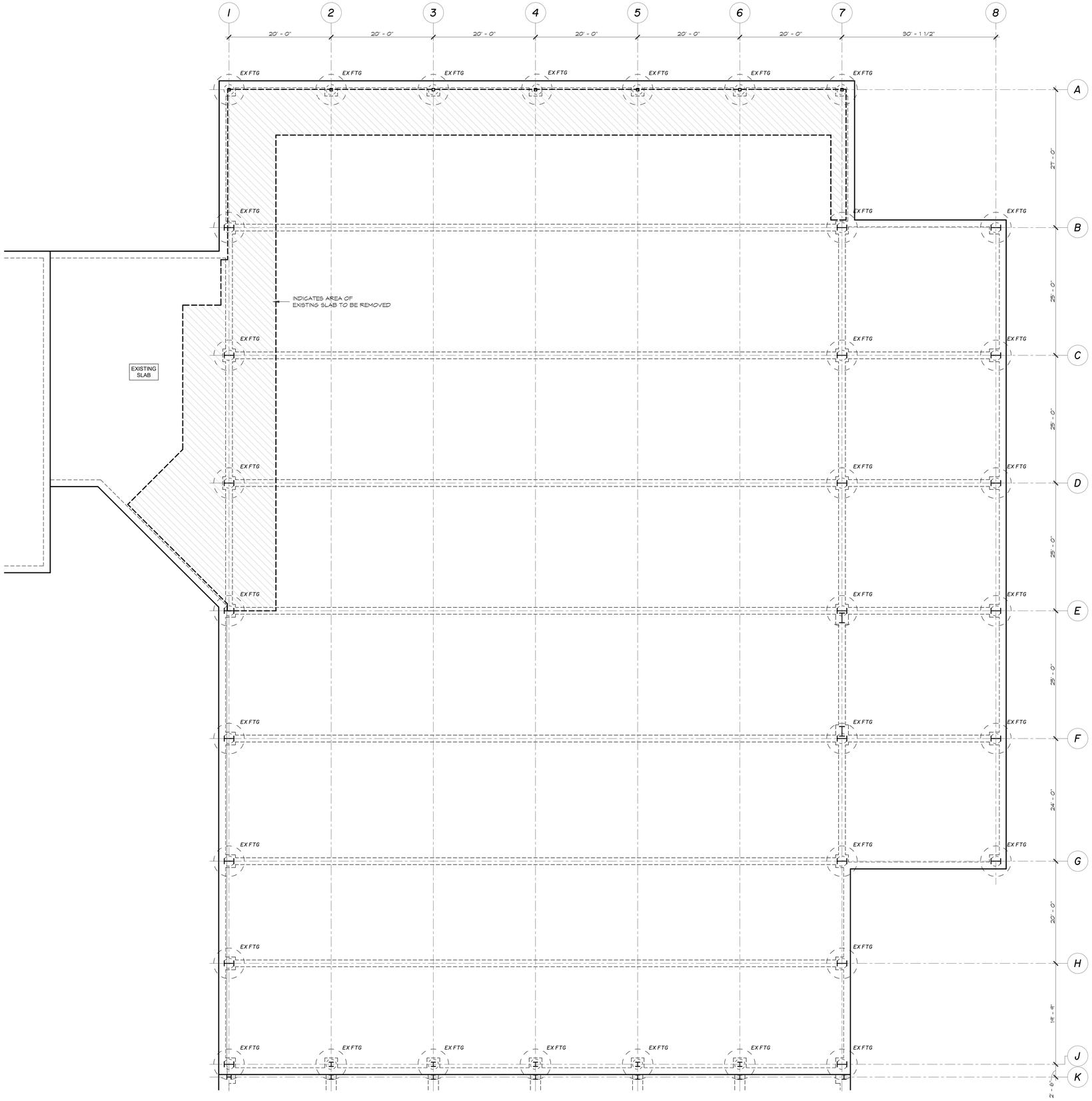
UPLIFT KEY PLAN



NORTH

DEMO FOUNDATION PLAN

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

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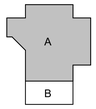

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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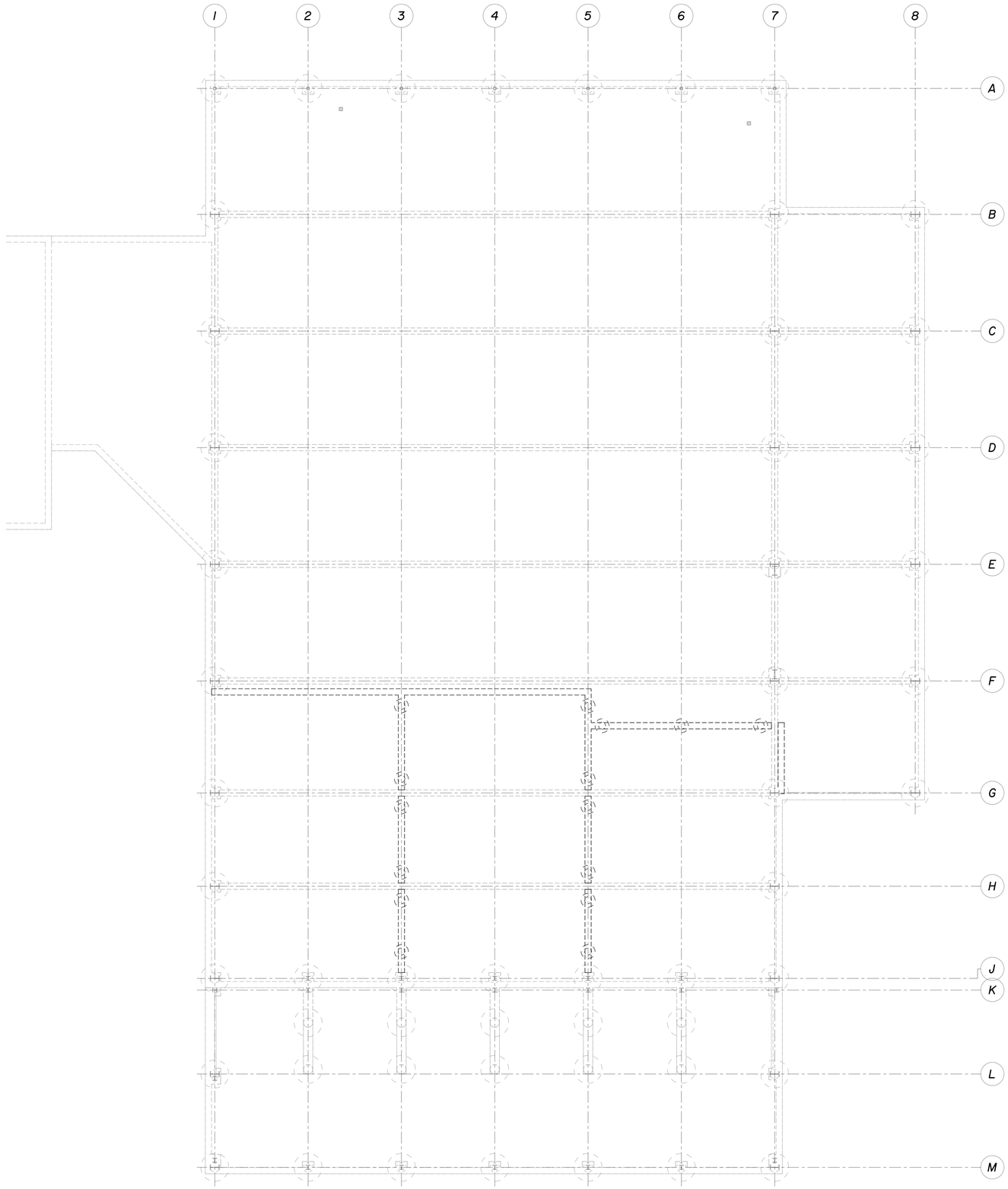
SD1.01

DEMO FOUNDATION PLAN



NORTH

COMPOSITE FOUNDATION PLAN

SCALE: 1" = 10'-0"

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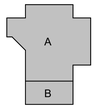

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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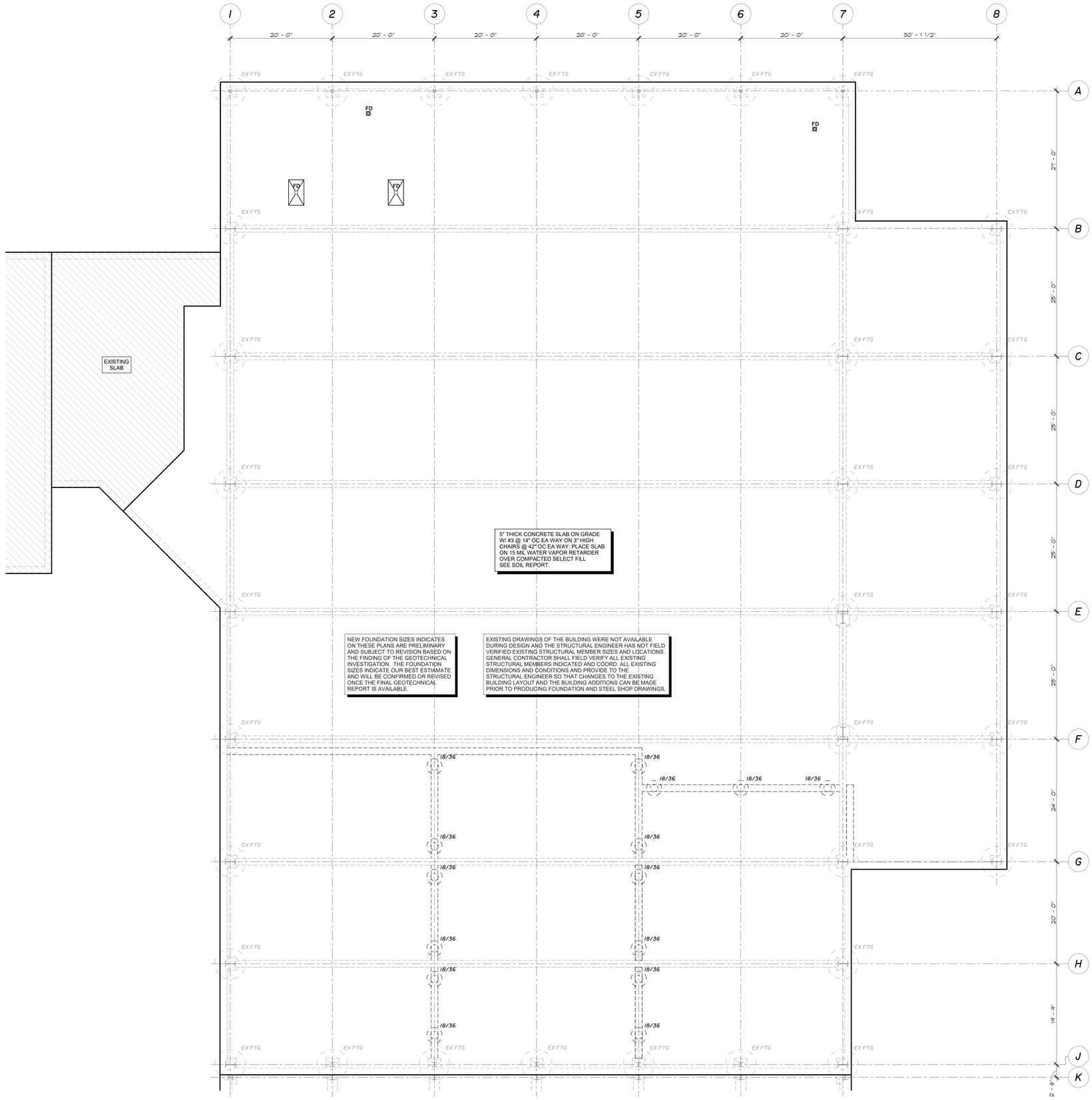
COMPOSITE FOUNDATION PLAN



NORTH

AREA 'A' FOUNDATION PLAN

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

CONSULTANTS

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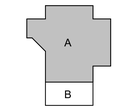

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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STATE OF TEXAS
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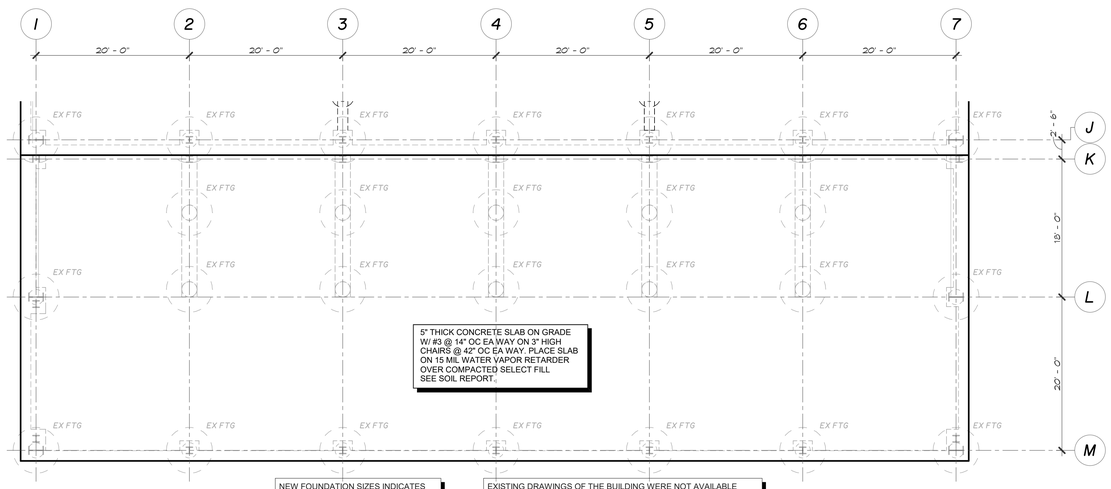
AREA 'A' FOUNDATION PLAN



NEW FOUNDATION SIZES INDICATES ON THESE PLANS ARE PRELIMINARY AND SUBJECT TO REVISION BASED ON THE FINDING OF THE GEOTECHNICAL INVESTIGATION. THE FOUNDATION SIZES INDICATE OUR BEST ESTIAMATE AND WILL BE CONFIRMED OR REVISED ONCE THE FINAL GEOTECHNICAL REPORT IS AVAILABLE.

EXISTING DRAWINGS OF THE BUILDING WERE NOT AVAILABLE DURING DESIGN AND THE STRUCTURAL ENGINEER HAS NOT FIELD VERIFIED EXISTING STRUCTURAL MEMBER SIZES AND LOCATIONS. GENERAL CONTRACTOR SHALL FIELD VERIFY ALL EXISTING STRUCTURAL MEMBERS INDICATED AND COORD. ALL EXISTING DIMENSIONS AND CONDITIONS AND PROVIDE TO THE STRUCTURAL ENGINEER SO THAT CHANGES TO THE EXISTING BUILDING LAYOUT AND THE BUILDING ADDITIONS CAN BE MADE PRIOR TO PRODUCING FOUNDATION AND STEEL SHOP DRAWINGS.

NORTH

AREA 'B' FOUNDATION PLAN

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

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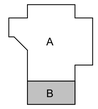

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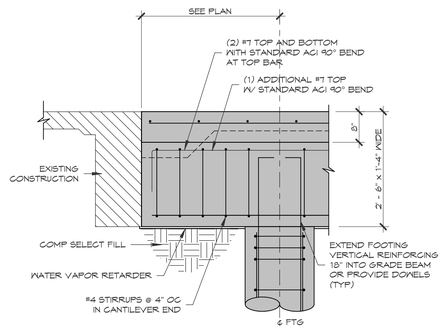
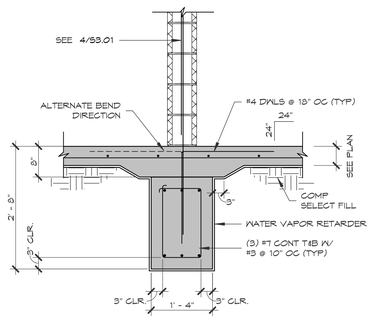
AREA 'B' FOUNDATION PLAN

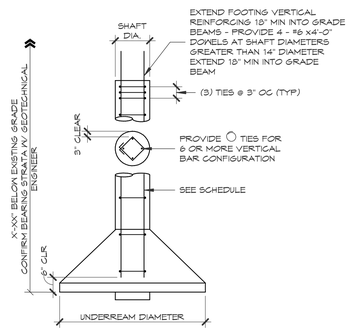


3 CANTILEVER GRADE BEAM
SCALE: 3/4" = 1'-0"

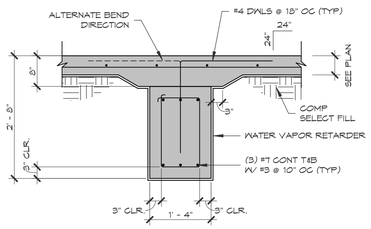
FOOTING SCHEDULE		
SHAFT DIA.	VERT. BARS	TIES
12"	4 - #5	#3 @ 10"
14"	4 - #5	#3 @ 10"
16"	4 - #5	#3 @ 10"
18"	4 - #6	#3 @ 12"
20"	4 - #6	#3 @ 12"
22"	6 - #6	#3 @ 14"
24"	6 - #6	#3 @ 14"
26"	6 - #7	#3 @ 16"
28"	6 - #7	#3 @ 16"
30"	6 - #8	#3 @ 18"
32"	6 - #8	#3 @ 18"
34"	8 - #8	#3 @ 18"
36"	8 - #10	#3 @ 18"
42"	8 - #9	#3 @ 18"
48"	8 - #10	#3 @ 18"



2 INTERIOR GRADE BEAM AT CMU WALL
SCALE: 3/4" = 1'-0"



5 DRILLED FOOTING DETAIL
SCALE: 3/4" = 1'-0"



1 INTERIOR GRADE BEAM
SCALE: 3/4" = 1'-0"

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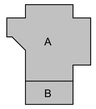

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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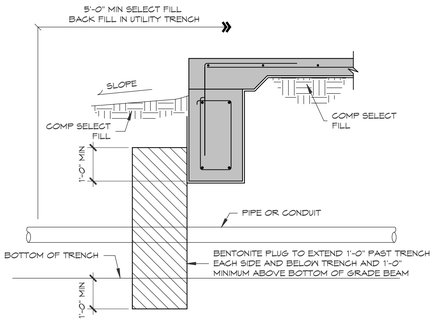
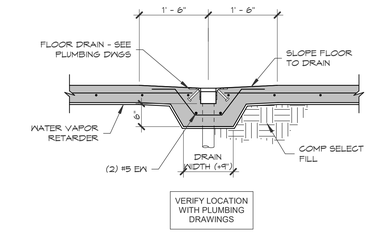
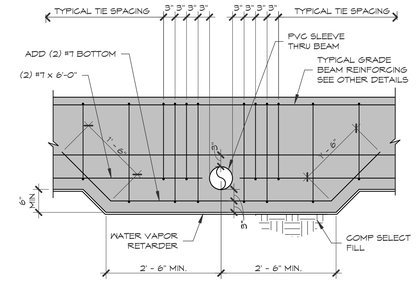
ROOF FRAMING DETAILS



20 PIPE ENTRY DETAIL
SCALE: 3/4" = 1'-0"

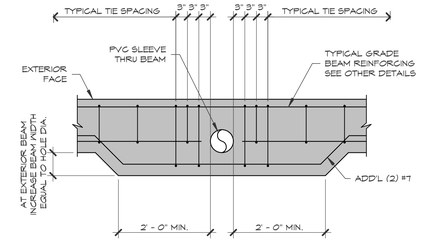


12 FLOOR DRAIN DETAIL
SCALE: 3/4" = 1'-0"



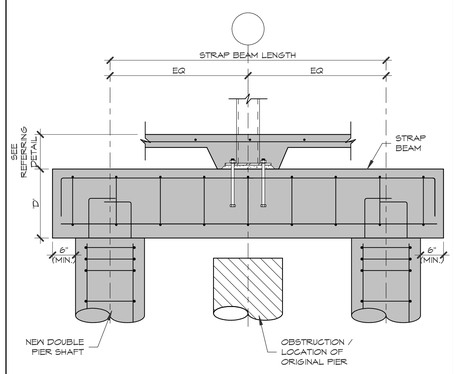
ELEVATION VIEW
TYPICAL HORIZONTAL HOLE THROUGH GRADE BEAM LARGER THAN 4" DIA.

8 GRADE BEAM PENETRATION (MAIN REINF INTERRUPTED)
SCALE: 3/4" = 1'-0"



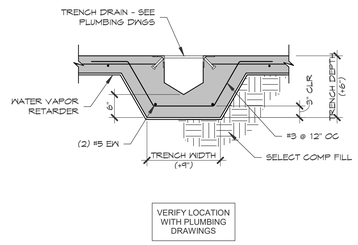
PLAN VIEW
TYPICAL VERTICAL HOLE THROUGH GRADE BEAM LARGER THAN 4" DIA.

4 GRADE BEAM PENETRATION DETAIL
SCALE: 3/4" = 1'-0"

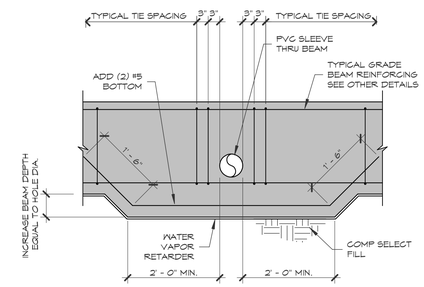


STRAP BEAM SCHEDULE					
ORIG SINGLE BELL DIAM	DBL PIER BELL SIZE	DBL PIER SHAFT SIZE	STRAP BEAM LENGTH (ℓ)	STRAP BEAM (WxD)	STRAP BEAM REINFORCING
24", 36"	30"	12"	5'-0"	30"x24"	(5) #7 T&B #4 @ 9" OC
42", 48"	36"	12"	6'-0"	30"x24"	(5) #7 T&B #4 @ 9" OC
54", 60"	48"	18"	8'-0"	30"x24"	(6) #7 T&B #4 @ 9" OC
66', 72"	54"	18"	9'-0"	30"x24"	(6) #7 T&B #4 @ 9" OC
72", 80"	60"	24"	10'-0"	30"x24"	(6) #7 T&B #4 @ 9" OC

18 OBSTRUCTION DETAIL
SCALE: 3/4" = 1'-0"

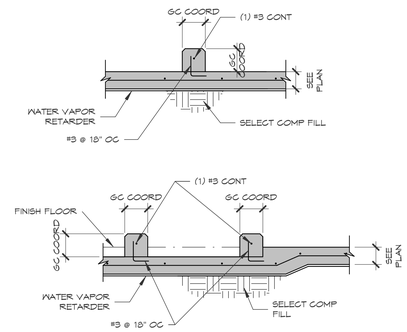


11 TRENCH DRAIN DETAIL
SCALE: 3/4" = 1'-0"

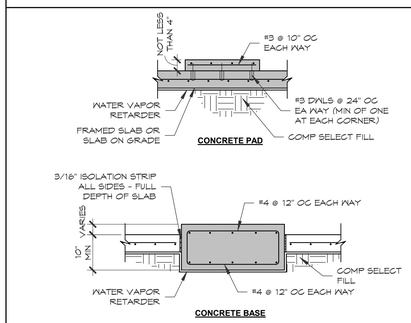


ELEVATION VIEW
TYPICAL HORIZONTAL HOLE THROUGH GRADE BEAM LARGER THAN 4" DIA.

7 GRADE BEAM PENETRATION DETAIL
SCALE: 3/4" = 1'-0"



3 TYPICAL CURB DETAIL
SCALE: 3/4" = 1'-0"

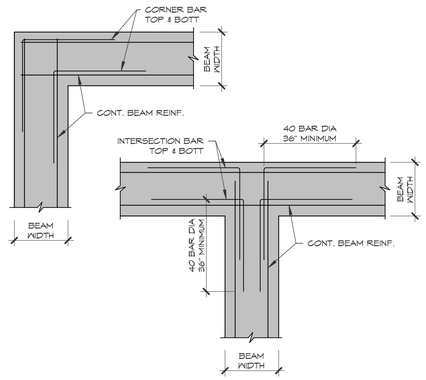


NOTES:

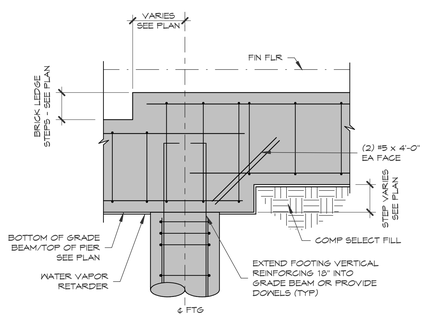
VERIFY ALL PAD AND BASE LOCATIONS, DIMENSIONS, AND ADEQUACY WITH THE MECHANICAL ENGINEER AND THE INDIVIDUAL EQUIPMENT REQUIREMENTS.

MECHANICAL ENGINEER TO SPECIFY ISOLATION DATA.

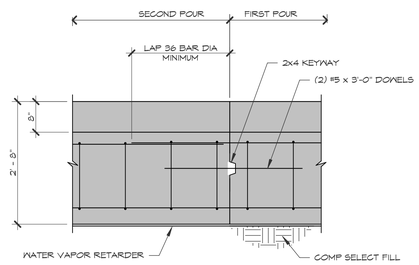
17 PAD AND BASE DETAIL
SCALE: 3/4" = 1'-0"



9 TYPICAL CORNER BAR DETAIL
SCALE: 3/4" = 1'-0"

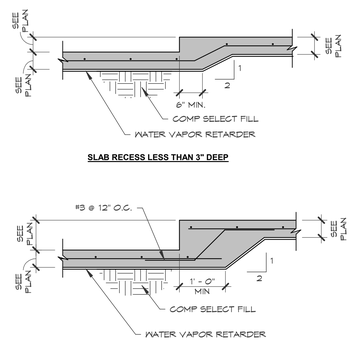


10 TYPICAL STEP IN GRADE BEAM
SCALE: 3/4" = 1'-0"

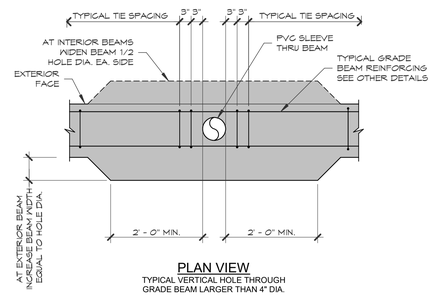


ELEVATION VIEW
LOCATE JOINTS IN MIDDLE THIRD OF BEAM SPAN BETWEEN SUPPORTS

6 GRADE BEAM CONSTRUCTION JOINT
SCALE: 3/4" = 1'-0"



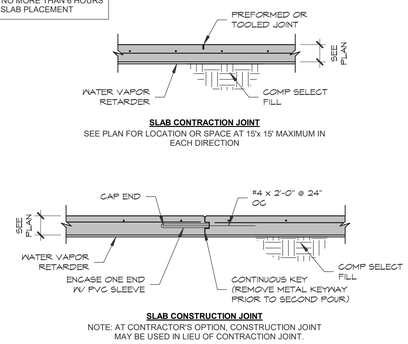
2 SLAB RECESS
SCALE: 3/4" = 1'-0"



PLAN VIEW
TYPICAL VERTICAL HOLE THROUGH GRADE BEAM LARGER THAN 4" DIA.

5 GRADE BEAM PENETRATION DETAIL
SCALE: 3/4" = 1'-0"

CONTRACTION JOINT MAY BE SAWCUT TO 1/4 OF THE SLAB DEPTH NO MORE THAN 6 HOURS AFTER SLAB PLACEMENT



1 SLAB JOINT DETAIL
SCALE: 3/4" = 1'-0"

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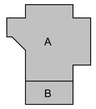

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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06 November 2023

PROJECT #:	202311
DATE:	2023-11-06
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CHECKED:	HK

DATE	ISSUE
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S2.02

FOUNDATION DETAILS

CMU WALL SCHEDULE

DESCRIPTION	WALL HEIGHT	VERTICAL REINFORCEMENT
INTERIOR WALLS	H ≤ 25'-0"	#4 @ 48" O.C.
	25'-0" < H ≤ 35'-0"	#5 @ 48" O.C.
EXTERIOR OR PERIMETER WALLS	H ≤ 24'-0"	#6 @ 24" O.C.
	24'-0" < H ≤ 30'-0"	#6 @ 16" O.C.

NOTES:

1. WALL HEIGHT, H, SHALL BE CONSIDERED AS THE DISTANCE BETWEEN LATERAL SUPPORTS
2. ALL DOWELS TO FLOOR SLAB SHALL MATCH SIZE & SPACING OF VERTICAL REINFORCEMENT
3. PROVIDE (2) #4 CONT. IN FULLY GROUTED BOND BEAM SPACED @ 8'-0" O.C. VERTICALLY (MAX) ((2) #5 IN 12" CMU WALLS)
4. ALL CELLS WITH REINFORCING SHALL BE FULLY GROUTED
5. f'm = 1800 PSI

REQUIRED LAP
(fy = 60 ksi)

BAR SIZE	LAP LENGTH
#4	20"
#5	25"
#6	36"
#7	48"
#8	72"

4 CMU WALL SCHEDULE
SCALE: 3/4" = 1'-0"

BRACE FRAMING (3 5/8" STUDS)

STUD TYPE	STUD PROPERTIES	SPACING	MAX LENGTH	MISCELLANEOUS
SJ 20 (40 KSI)	Ix = 0.541 IN^4	4'-0" OC	14'-0"	BRACE @ MID-PT FOR LENGTHS OVER 14'-0"
	rx = 1.429 IN			
	A = 0.2136 IN^2			
	Sx = 0.273 IN^3			

BRACE FRAMING (6" STUDS)

STUD TYPE	STUD PROPERTIES	SPACING	MAX LENGTH	MISCELLANEOUS
SJ 20 (40 KSI)	Ix = 1.787 IN^4	4'-0" OC	20'-0"	BRACE @ MID-PT FOR LENGTHS OVER 20'-0"
	rx = 2.253 IN			
	A = 0.2148 IN^2			
	Sx = 0.539 IN^3			

VERTICAL FRAMING (3 5/8" STUDS)

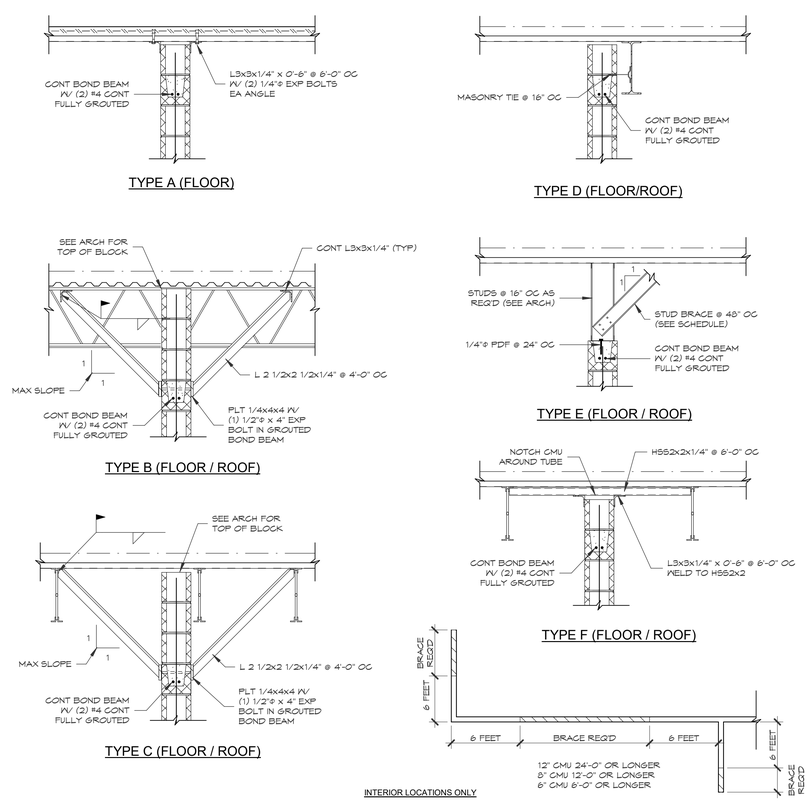
STUD TYPE	STUD PROPERTIES	SPACING	MAX LENGTH	MISCELLANEOUS
ST 20 (33 KSI)	Ix = 0.414 IN^4	1'-4" OC	22'-6"	ONE LAYER* SHEATHING (MIN)
	rx = 1.407 IN			
	A = 0.210 IN^2			
	Sx = 0.213 IN^3			

* ALTERNATIVELY, PROVIDE 1 1/2x1 1/2x16 GA HORIZONTAL CHANNEL FASTENED TO STUDS WITH 1 1/2x1 1/2x14 GA CLIP AT 4'-0" OC VERTICALLY

VERTICAL FRAMING (6" STUDS)

STUD TYPE	STUD PROPERTIES	SPACING	MAX LENGTH	MISCELLANEOUS
ST 20 (33 KSI)	Ix = 1.385 IN^4	1'-4" OC	32'-9"	ONE LAYER* SHEATHING (MIN)
	rx = 2.199 IN			
	A = 0.288 IN^2			
	Sx = 0.437 IN^3			

* ALTERNATIVELY PROVIDE 1 1/2x1 1/2x16 GA HORIZONTALCHANNEL FASTENED TO STUDS WITH 1 1/2x1 1/2x14 GA CLIP AT 4'-0" OC VERTICALLY



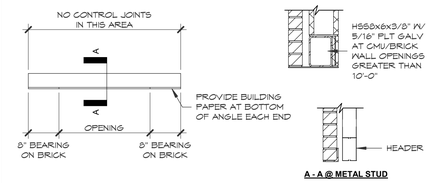
INTERIOR LOCATIONS ONLY

NON-LOAD BEARING MASONRY WALL BRACES. BRACING AT THE TOP OF MASONRY WALLS IS REQUIRED ON STRAIGHT RUNS OF WALL MORE THAN SIX FEET FROM A CORNER, INTERSECTING WALL, OR AS NOTED ABOVE.

WHEN THE MASONRY WALL TERMINATES AT THE BOTTOM OF THE DECK, A TYPE 'A' ATTACHMENT AT THE FLOOR DECK OR A TYPE 'B', 'C', 'D' OR 'F' ATTACHMENT AT EITHER THE FLOOR OR ROOF MAY BE USED. WHEN WALLS TERMINATE ABOVE THE CEILING A TYPE 'B', 'C' OR 'E' ATTACHMENT SHOULD BE USED.

9 TYPICAL CMU WALL BRACE CONNECTION DETAILS
SCALE: NTS

TYPICAL CMU WALL BRACING LOCATION PLAN



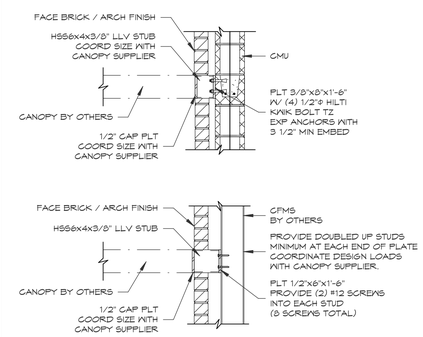
A - A @ METAL STUD

BRICK LOOSE LINTEL SCHEDULE

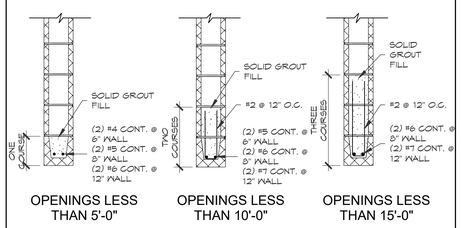
OPENING	ANGLE SIZE
LESS THAN 5'-0"	L 3 1/2 x 3 1/2 x 5/16
5'-0" TO LESS THAN 6'-0"	L 5 x 3 1/2 x 5/16 (LLV)
6'-0" TO LESS THAN 8'-0"	L 6 x 3 1/2 x 5/16 (LLV)
8'-0" TO LESS THAN 9'-0"	L 7 x 4 x 3/8 (LLV)

LLV = LONG LEG VERTICAL
GALVANIZE ALL LINTEL ANGLES.
ANGLE SIZES ARE MIN. - SEE ARCHITECTURAL DRAWINGS.

3 BRICK LOOSE LINTEL SCHEDULE
SCALE: 3/4" = 1'-0"



2 CANOPY CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



OPENINGS LESS THAN 5'-0" | OPENINGS LESS THAN 10'-0" | OPENINGS LESS THAN 15'-0"

NOTES:

1. PROVIDE BLOCK LINTELS FOR ALL OPENINGS IN INTERIOR & EXTERIOR BLOCK WALLS FOR WHICH STEEL LINTELS ARE NOT SCHEDULED. SEE ARCHITECTURAL DRAWINGS FOR SIZE & LOCATION OF OPENINGS.
2. PROVIDE 8" MIN BEARING EACH END OF LINTEL.
3. PROVIDE (2) #5 VERTICALS IN FULLY GROUTED CELLS AT EACH JAMB.

1 MASONRY LINTEL SCHEDULE
SCALE: 3/4" = 1'-0"

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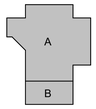

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S3.01

FRAMING DETAILS

1. DEMOLITION DWGS. INDICATE GENERAL DEMOLITION REQ'D., HOWEVER, THEY DO NOT SHOW SPECIFIC DETAILS OF DEMOLITION. CONTRACTOR SHALL VISIT PROJECT SITE / BLDG. PRIOR TO BIDDING TO ASCERTAIN EXISTING CONDITIONS & SPECIFIC REQ'MNTS. FOR DEMOLITION WORK & SHALL INCLUDE ALL COSTS ASSOCIATED W/ DEMOLITION. EXCEPTING CONDITIONS THAT COULD NOT BE DETERMIED WITHOUT DESTRUCTIVE INVESTIGATION. COORDINATE W/ ARCH. & OWNER W/ RESPECT TO VISITATION SCHEDULE.
2. RE: CIVIL, STRUC., & MEP DWGS. FOR DEMOLITION REQ'MNTS. PARTICULAR TO THE OTHER CONSULTING DISCIPLINES. THE CONTRACTOR SHALL BE RESPONSIBLE TO ASCERTAIN THE INTERRELATIONSHIPS OF ALL REQ'D. DEMOLITION & INCLUDE ALL ASSOCIATED COSTS IN THE PROPOSAL.
3. PRIOR TO STARTING DEMOLITION WORK, FIELD VERIFY ALL EXISTING CONDITIONS, NOTIFY THE ARCH. OF ANY ISSUES AND/ OR CONCEALED CONDITIONS THAT MAY PREVENT IMPLEMENTATION & PROGRESS OF DEMOLITION WORK. DO NOT PROCEED UNTIL SUCH ISSUES ARE FULLY RESOLVED.
4. FOR DEMOLITION CONDUCTED WITHIN AN OPERATIONAL BLDG., CONTRACTOR SHALL COORD. W/ ARCH. & OWNER REGARDING SCHEDULING AND/ OR DISRUPTIVE NOUISE ISSUES. IF REQ'D. TO MAINTAIN ONGOING OPERATION OF THE BLDG., CONTRACTOR SHALL BE PREPARED TO PERFORM DISRUPTIVE DEMOLITION OUTSIDE NROMAL HOURS OF OPERATION.
5. IF NOT INDICATED IN THE CONTRACT DOCUMENTS, COORD. W/ ARCH. & OWNER FOR DISPOITION OF EXISTING FIXTURES, FURNITURE & EQUIP. (FF&E).
6. OWNER SHALL RETAIN THE RIGHT TO RECEIVE & SALVAGE ANY EXISTING WORK SHOWN TO BE DEMOLISHED AND/ OR REMOVED. CONFIRM W/ OWNER IF ANY MATERIALS ARE TO BE SALVAGED PRIOR TO THE START OF ANY DEMOLITION WORK. COORD. W/ OWNER FOR TRANSFER OF SALAVAGED MATERIALS.
7. CONTRACTOR SHALL USE ALL MEANS NECESSARY TO PROTECT EXISTING WORK INDICATED TO REMAIN. IN CASE OF DAMAGE DURING DEMOLITION AND/ OR NEW WORK CONSTRUCTION, CONTRACTOR SHALL REPAIR AND/ OR REPLACE SUCH EXISTING WORK BACK TO ORIGINAL CONDITION, SUBJECT TO ACCEPTANCE BY THE ARCH. SIMILARLY, CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF RESTRICTING DISTRIBUTION OF DUST & OTHER DEMOLITION CONTAMINANTS FROM SPREADING INTO AREAS OUTSIDE OF DEMOLTION AREA(S).
8. WHERE EXISTING WORK IS INDICATED TO BE REMOVED & REINSTALLED, CONTRACTOR SHALL USE ALL MEANS NECESSARY TO REMOVE THE WORK WITHOUT DAMAGE. SUFFICIENTLY STORE THE WORK TO PREVENT LOSS OR DAMAGE & CAREFULLY REINSTALL THE WORK AS INDICATED ON THE DWGS. IN CASE OF DAMAGE, CONTRACTOR SHALL REPAIR AND/ OR REPLACE SUCH EXISTING WORK BACK TO ORIGINAL CONDITION, SUBJECT TO ACCEPTANCE BY THE ARCH.
9. ALL EXISTING CONCRETE SLABS TO BE REMOVED IN ORDER FOR DEMOLITION OF UNDER-SLAB WORK SHALL BE SAW-CUT. MAINTAIN INTEGRITY OF EXISTING VAPOR MEMBRANE AS REQ'D. FOR RECONNECTION TO NEW VAPOR BARRIER UNDER SAW-CUT AREA.
10. ALL EXISTING PLUMBING WORK SHOWN TO BE ABANDONED SHALL BE REMOVED & CAPPED 2' BELOW SLAB OR BACK TO WITHIN A WALL. SLABS & WALLS SHALL BE REPAIRED FLUSH W/ ADJACENT SURFACES.
11. WHERE NEW OPENING ARE TO BE INSTALLED IN EXISTING WALLS / PARTITIONS, LIMITS OF DEMOLITION SHALL BE BEYOND OPENING SIZE AS REQ'D. TO PROPERLY CONSTRUCT ROUGH OPENINGS IN ACCORNACE W/ NEW OPENING DETAILS INDICATED ON THE DWGS. REBUILD & OR PATCH ADJACENT AREAS TO NEW OPEING AS REQ'D. FOR FLUSH INTERFACE W/ EXISTING WORK TO REMAIN.
12. IN AREAS WHERE EXISTING FINISH FLOORING IS TO BE REMOVED, REMOVE FLOORING MATERIASL & ANY ADHESIVES DOWN TO THE CONCRETE SLAB. MAINTAIN SLAB IN A SUITABLE CONDITION FOR INSTALLATION OF NEW SCHEDULED FLOORING MATERIALS.
13. IN AREAS WHERE EXISTING WORK IS TO RECEIVE A NEW FINISH, CONTRACTOR SHALL REPAIR, PATCH AND/ OR PREP EXISTING WORK AS REQ'D. FOR PROPER INSTALLATION OF NEW FINISHES IN ACCORDANCE W/ NEW FINISH MANUF'R'S REQ'MNTS. VERIFY ALL CONDITIONS & COORD. AS REQ'D.

NOTES - GENERAL FLOOR PLAN - DEMO

1/4" = 1'-0"

1. REMOVE EXISTING OVERHEAD DOOR, CLEAN/PREP/ FINISH REMAINING SURFACES & INSTALL NEW FINISHES TO MATCH ADJACENT CONDITIONS
2. REMOVE EXISTING WATERFOUNTAIN, CLEAN/PREP/FINISH REMAINING SURFACES TO MATCH ADJACENT CONDITIONS, CAP PLUM. AS REQ'D BY MEP
3. CAREFULLY DEMOLISH AND REMOVE EXISTING CONCRETE WALK AND PADS. FIELD VERIFY EXACT LOCATION AND QUANTITY. CONTACT OWNER AND ARCHITECT IF THERE ARE QUESTIONS OR POTENTIAL CONFLICTS AT STRUCTURAL FRAMING OR EXTERIOR WALLS. PROPERLY DISPOSE OF MATERIALS
4. REMOVE EXISTING PLUMB. FIXTURE IN ITS ENTIRETY. CLEAN/ PREP/ FINISH REMAINING SURFACES TO MATCH ADJACENT CONDITIONS. CAP PLUMB. AS REQ'D BY MEP.
5. REMOVE EXISTING WALL FOR NEW OPENING, RE: #11 UNDER GENERAL DEMO PLAN NOTES
6. REMOVE PORTION OF EXISTING TOILET PARTITIONS IN THEIR ENTIRETY. CLEAN/ PREP/ FINISH REMAINING SURFACES TO MATCH ADJACENT CONDITIONS.
7. REMOVE EXISTING LOUVER PANELS IN THEIR ENTIRETY. CLEAN/ PREP/ FINISH REMAINING SURFACES TO MATCH ADJACENT CONDITIONS.
8. REMOVE EXISTING METAL PANELS TO TRANSITION POINT (V.I.F.). CLEAN/ PREP/ FINISH REMAINING SURFACES TO MATCH ADJACENT CONDITIONS.

KEYNOTES - FLOOR PLAN - DEMO

1/4" = 1'-0"

DEMOLISH WINDOW, CLEAN/ PREP/ FINISH REMAINING SURFACES TO MATCH ADJACENT CONDITIONS

DEMOLISH DOOR/ FRAME, CLEAN/ PREP/ FINISH REMAINING SURFACES TO MATCH ADJACENT CONDITIONS

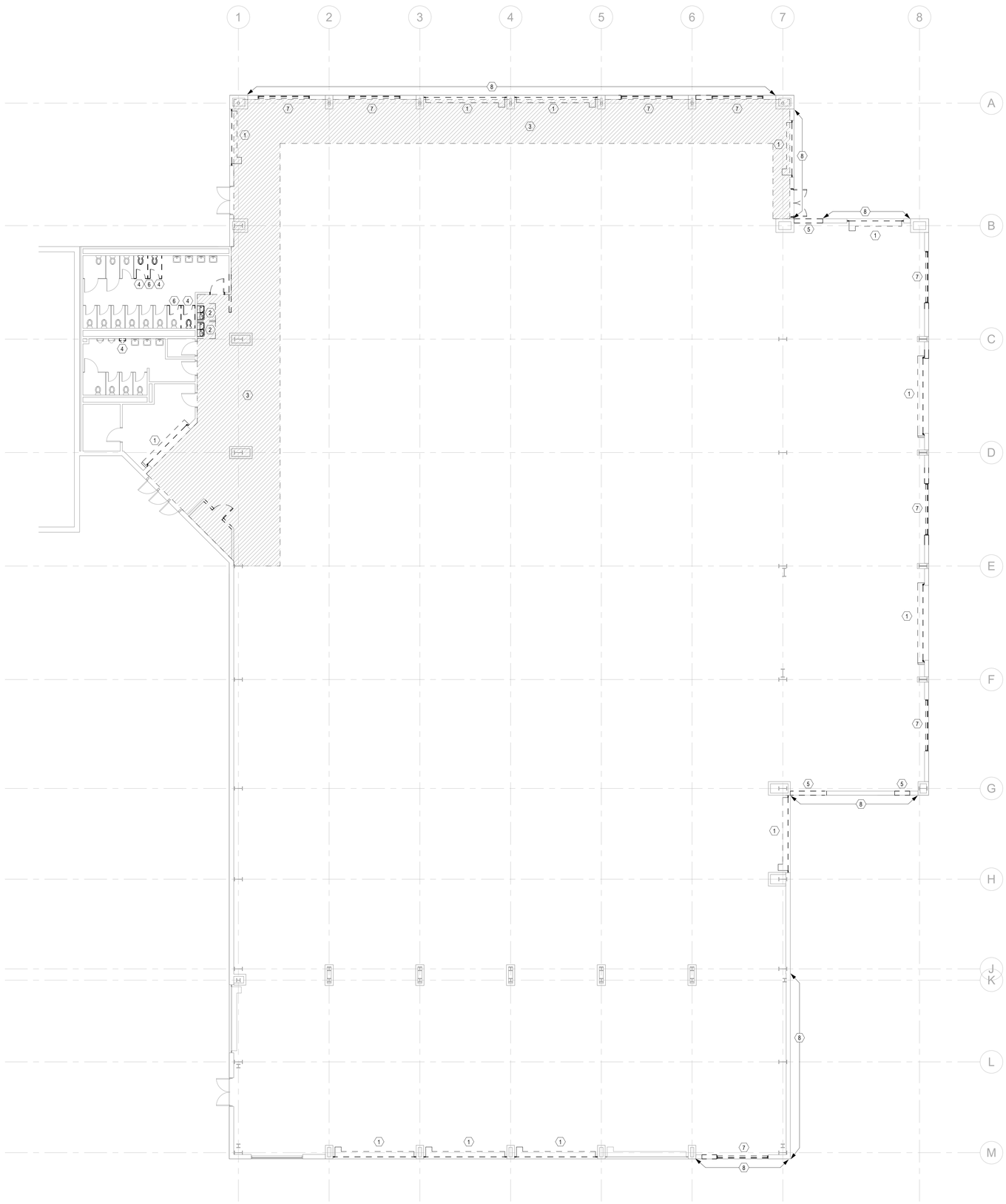
DEMOLISH WALL, CLEAN/ PREP/ FINISH REMAINING SURFACES TO MATCH ADJACENT CONDITIONS

EXISTING CONCRETE WALKS TO BE DEMOLISHED

NO WORK DONE IN THIS AREA

LEGEND - FLOOR PLAN - DEMO

1/4" = 1'-0"



1 DEMO PLAN

1" = 10'-0"

PLAN NORTH

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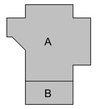

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REGISTERED ARCHITECT STATE OF TEXAS

2023-11-06

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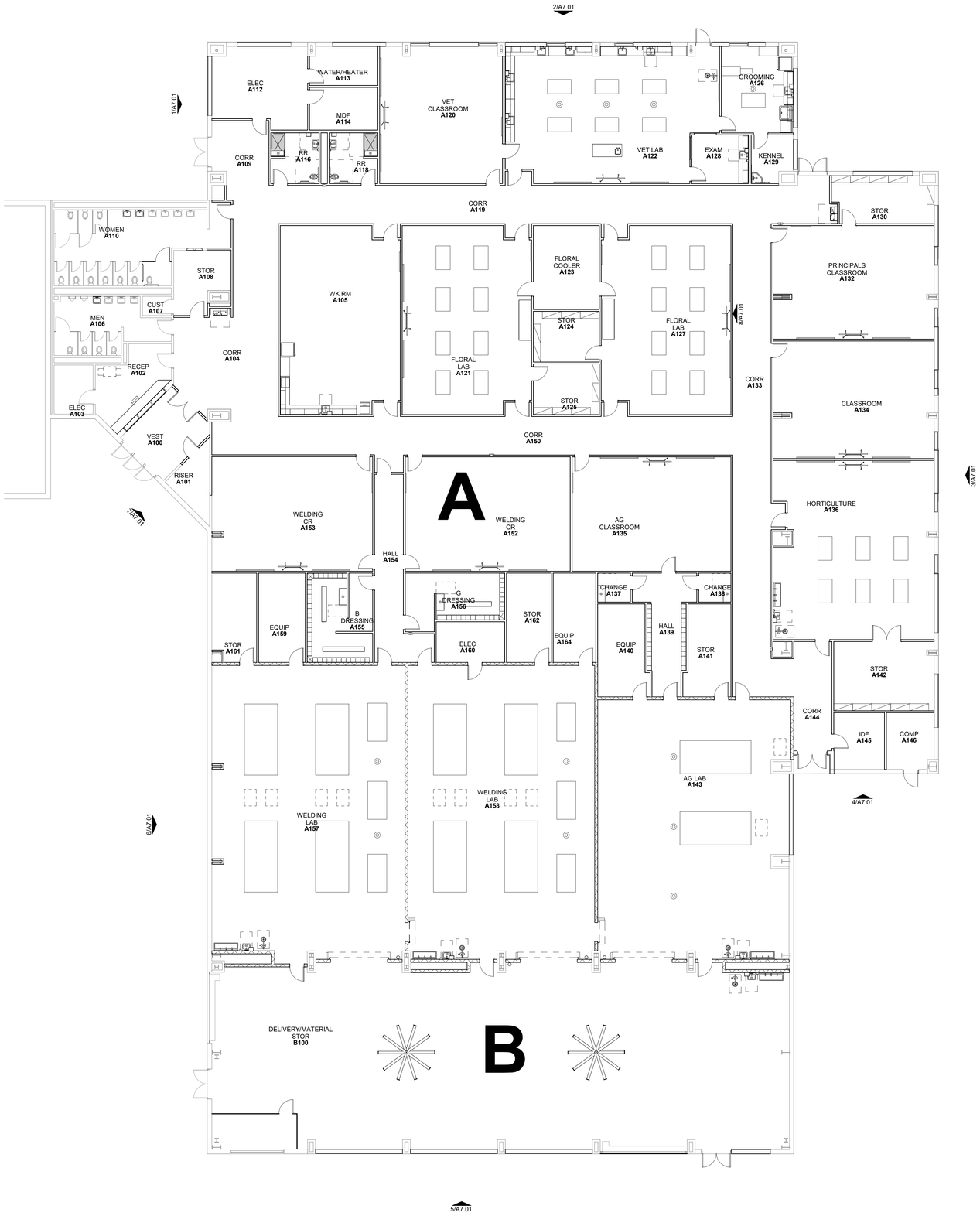
A0.01

DEMO PLAN



1 1ST FLOOR COMPOSITE PLAN
1" = 10'-0"

PLAN NORTH

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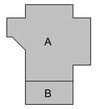
Fax: 713.780.3712



TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

REGISTERED ARCHITECT STATE OF TEXAS 18310

2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

A1.01

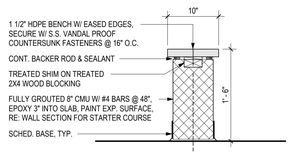
1ST FLOOR COMPOSITE PLAN

1. RE: G1 SERIES SHEETS FOR ACCESSIBLE MOUNTING HEIGHTS
2. RE: A6 SERIES SHEETS FOR PARTITION TYPES
3. RE: A9 SERIES SHEETS FOR DOOR & FRAME ELEVATIONS
4. RE: A11 SERIES SHEETS COLOR SELECTIONS IN FINISH LEGEND
5. ALL INTERIOR STUD PARTITIONS ARE TYPE B11, UNLESS OTHERWISE NOTED
6. ALL MTL. STUD COLUMN FURROUTS ARE TO BE 10" OFF COLUMN CENTER LINE & ALL CMU COLUMN FURROUTS ARE TO BE 1' - 0" OFF COLUMN CENTER LINE, UNLESS NOTED OTHERWISE
7. MASONRY DIMENSIONS ARE NOMINAL
8. ALL DIMENSIONS ARE TO FACE OF STUD @ INTERIOR PARTITIONS UNLESS OTHERWISE NOTED
9. ALL DIMENSIONS ARE TO FINISH FACE OF EXTERIOR WALLS, FOUNDATION, MASONRY, OR TO CENTER LINE OF COLUMN, UNLESS NOTED OTHERWISE
10. ALL WALL FINISH GOES TO DECK IN ROOMS WITHOUT CEILINGS
11. ALL EXTERIOR WALLS EXTEND TO BOTTOM OF ROOF DECK
12. PROVIDE EXPANSION JOINT COVERS ON INTERIOR WALLS @ BUILDING EXPANSION JOINTS
13. ALL SPACES W/ FLOOR DRAINS SHALL HAVE FINISHED FLOOR SLOPE TO DRAIN. VERIFY W/ ARCH. IN FIELD
14. ALL EQUIP. PADS SHALL BE AS PER STRUC. DWGS. COORDINATE SIZES, THICKNESS & LOCATIONS W/ MECH. CHAMFER EDGES
15. ALL EXTERIOR DOORS SHALL RECEIVE A THRESHOLD. THRESHOLD TO BE OF SUFFICIENT WIDTH TO COVER SIDEWALK TO FOUNDATION EXPANSION JOINT TO MAINTAIN ONLY 1/2" RISE & STAY ADA COMPLIANT
16. PROVIDE TRANSITION STRIPS @ ALL FLOOR FINISH TRANSITIONS PER SPECS., UNLESS NOTED OTHERWISE
17. ALL FLOOR MATERIAL CHANGES SHALL OCCUR @ CENTERLINE OF DOOR, UNLESS NOTED OTHERWISE
18. F.E.C. DENOTES FIRE EXTINGUISHER & CABINET
19. DASHED EQUIPMENT/ FURNITURE IS NOT IN CONTRACT (N.I.C.)
20. PROVIDE HORIZONTAL BLINDS @ ALL EXTERIOR WINDOWS, EXCEPT WINDOWS ADJACENT TO EXIT/ ENTRY DOORS. PROVIDE HORIZONTAL BLINDS @ ALL INTERIOR WINDOW LOCATIONS
21. PROVIDE SOAP (TA-1) & PAPER TOWEL (TA-3) DISPENSERS PER SPECS @ ALL SINK LOCATIONS

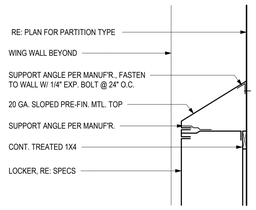
NOTES - GENERAL FLOOR PLAN
1/4" = 1'-0"

1. HI/LO ELECTRONIC DRINKING FOUNTAIN, RE: MEP
2. SOAP DISPENSER, (N.I.C.)
3. PAPER TOWEL DISPENSER, (N.I.C.)
4. FLOWER DISPLAY
5. DRYER, RE: SPECS
6. WASHER, RE: SPECS
7. REFRIGERATOR
8. ICE MACHINE
9. DISHWASHER
10. MICROWAVE, (N.I.C.)
11. 20"X42" ACCESSIBLE BENCH
12. COPIER/ PRINTER (N.I.C.)
13. VENDING (N.I.C.)
14. STAINLESS STEEL TABLES
15. CURTAIN TRACK (ABOVE)
16. EMERGENCY EYE WASH / SHOWER, RE: PLUMB.
17. PEG BOARD DRYING RACK
18. (3) DOUBLE WELDING BOOTHS
19. PET WASH W/ RAMP
20. CORD REEL
21. LOCKERS, RE: 2 / A2.01
22. WOOD BENCH, RE: 4 / A2.01

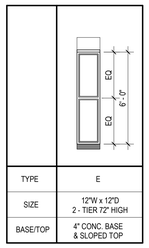
KEYNOTES - FLOOR PLAN
1/4" = 1'-0"



4 LCKR - BENCH HDPE-CMU
1" = 1'-0"

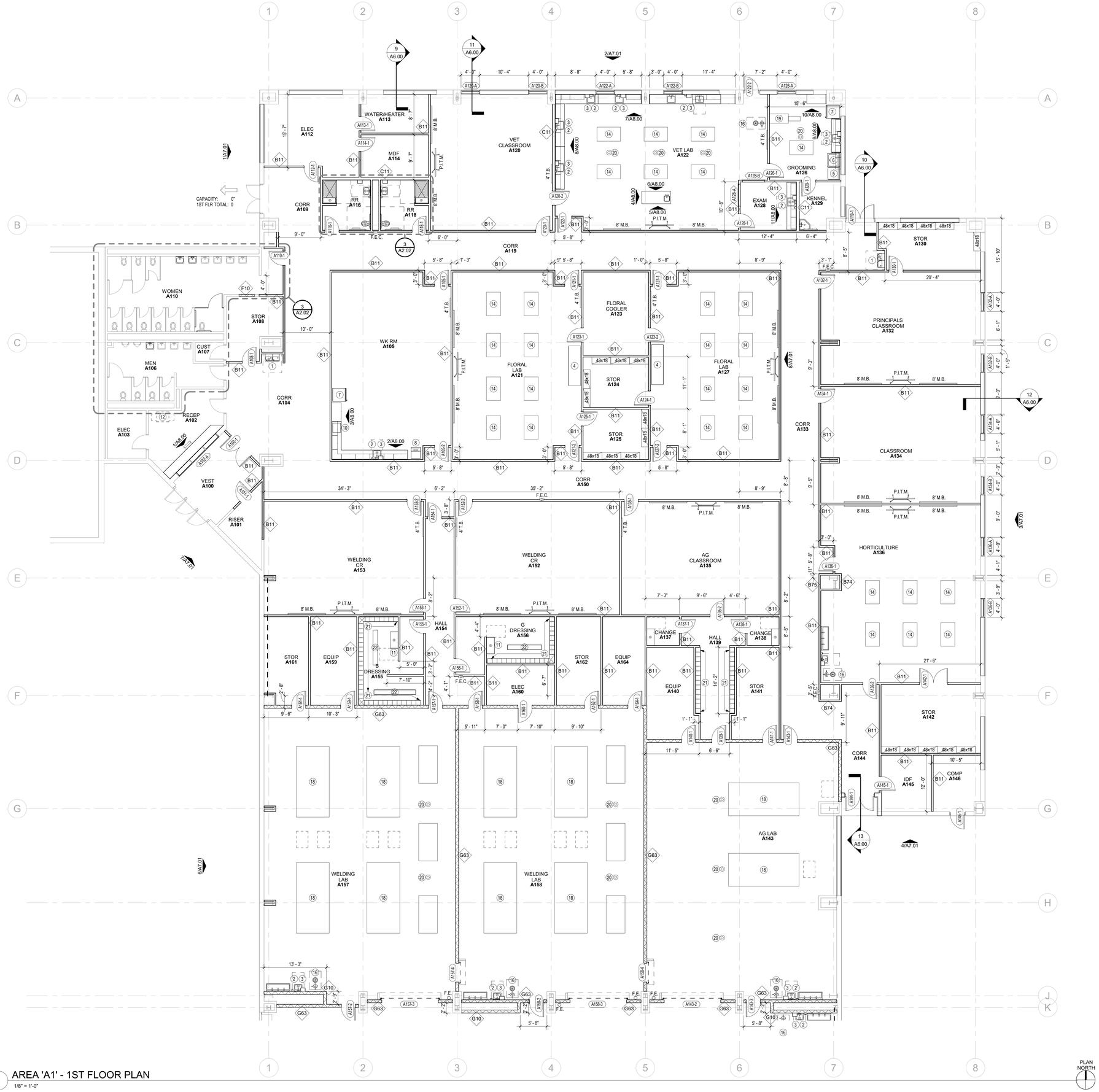


3 LCKR - HEAD @ PARTITION
1" = 1'-0"



TYPE	E
SIZE	12"W x 12"D 2 - TIER 72" HIGH
BASE/TOP	4" CONC. BASE & SLOPED TOP

2 LCKR - TYPES
1/4" = 1'-0"



1 AREA 'A1' - 1ST FLOOR PLAN
1/8" = 1'-0"

CONSULTANTS

MEP
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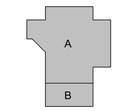

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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tel 713.953.4897, fax 713.977.4620

REGISTERED ARCHITECT — STATE OF TEXAS — 15113
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A2.01
AREA 'A1' 1ST FLOOR PLAN

AREA 'B1' - DOOR SCHEDULE

MARK	DOOR SLAB WIDTH	HEIGHT	S/ PR	ELEV.	MATERIAL	GLASS	DOOR FRAME WIDTH	DEPTH	ELEV.	MATERIAL	FIRE R.	COMMENTS	MARK
B100-1	3' - 0"	7' - 0"	PR	BB	H.M.	-	2"	6"	1-E	H.M.	-	-	B100-1

AREA 'B1' - ROOM FINISH SCHEDULE

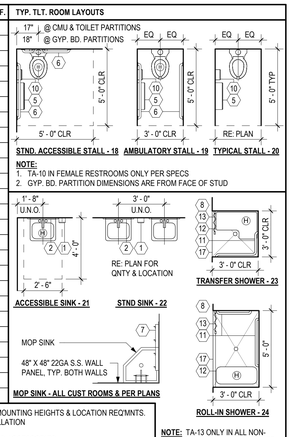
ROOM #	ROOM NAME	FLOOR FINISHES FLOOR	BASE	WALL FINISH(S) COOR. W/ A7 & A11	CEILING FINISH(S) COOR. W/A10	COMMENTS	ROOM #
B100	DELIVERY/MATERIAL STOR	SC-1	RB-1	PTW-1	ACT-1		B100

AREA 'B1' - WINDOW SCHEDULE

MARK	FRAME WIDTH	DEPTH	ELEV.	MATERIAL	COMMENTS	MARK

MARK	DESCRIPTION	SPEC REF.
1	SOAP DISPENSER	TA-1
2	MIRROR	TA-2
3	PAPER TOWEL DISPENSER	TA-3
4	RECESSED WASTE RECEPTACLE	TA-4
5	TOILET TISSUE DISPENSER	TA-5
6	GRAB BARS	TA-6
7	MOP & BROOM HOLDER	TA-7
8	CLOTHES/ TOWEL HOOKS	TA-8
9	FEMININE NAPKIN DISPENSER	TA-9
10	FEMININE NAPKIN DISPOSAL	TA-10
11	SHOWER GRAB BARS	TA-11
12	FOLDING BENCH - SHOWER COMPARTMENTS	TA-12
13	SHOWER CURTAINS & RODS	TA-13
14	ELECTRIC HAIR DRYERS	TA-14
15	ELECTRIC HAND DRYERS	TA-15
16	BABY CHANGING STATION	TA-16
17	SHOWER WATER RETAINER	TA-17
18	ACCESSIBLE TOILET STALL	TA-18
19	AMBULATORY TOILET STALL	TA-19
20	STANDARD TOILIET STALL	TA-20
21	ACCESSIBLE SINK	TA-21
22	STANDARD SINK	TA-22
23	TRANSFER TYPE SHOWER COMPARTMENTS	TA-23
24	ROLL-IN SHOWER COMPARTMENTS	TA-24
25	MARBLE THRESHOLD	

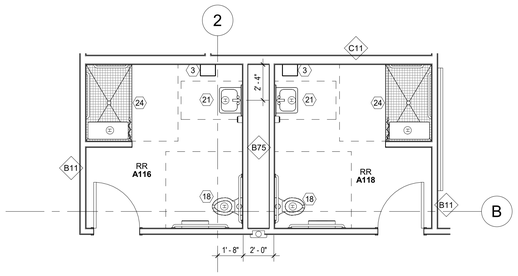
TYP. TLT. ROOM LAYOUTS



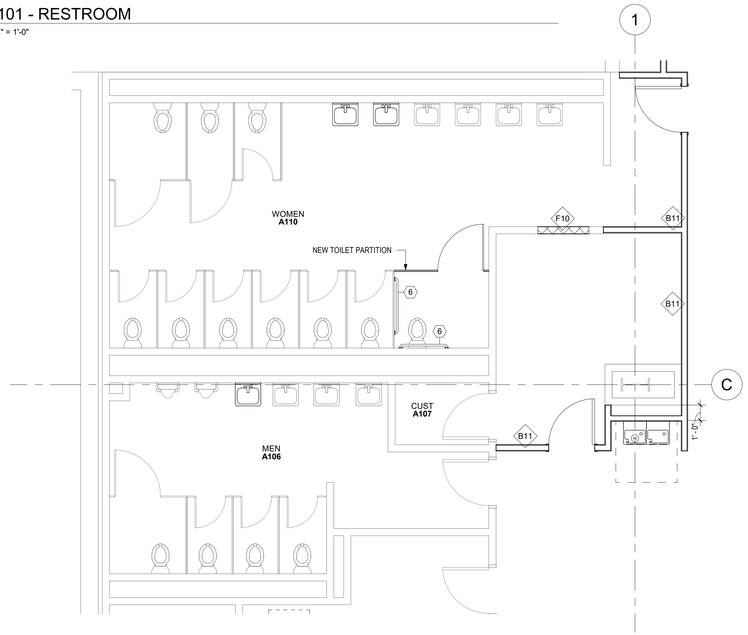
1. (H) INDICATES HANDICAP MOUNTING HEIGHT, RE: G1.00 FOR ALL MOUNTING HEIGHTS & LOCATION REQ'MNTS.
2. VERIFY LOCATION OF ACCESSORIES W/ OWNER PRIOR TO INSTALLATION
3. RE: FLOOR PLANS FOR ADDITIONAL TOILET ACCESSORIES
4. "O.F.C.I." INDICATES OWNER FURNISHED, CONTRACTOR INSTALLED ACCESSORIES
5. ALL MOP SINKS TO RECEIVE MOP & BROOM HOLDER (TA-7) @ MOP SINK WHETHER SHOWN IN PLAN OR NOT

NOTE: TA-13 ONLY IN ALL NON-ACCESSIBLE SHOWERS WHETHER SHOWN IN PLAN OR NOT

LEGEND - TOILET ACCESSORIES
1/4" = 1'-0"



3 A101 - RESTROOM
1/4" = 1'-0"



2 A100 - RESTROOM
1/4" = 1'-0"

AREA 'A1' - DOOR SCHEDULE

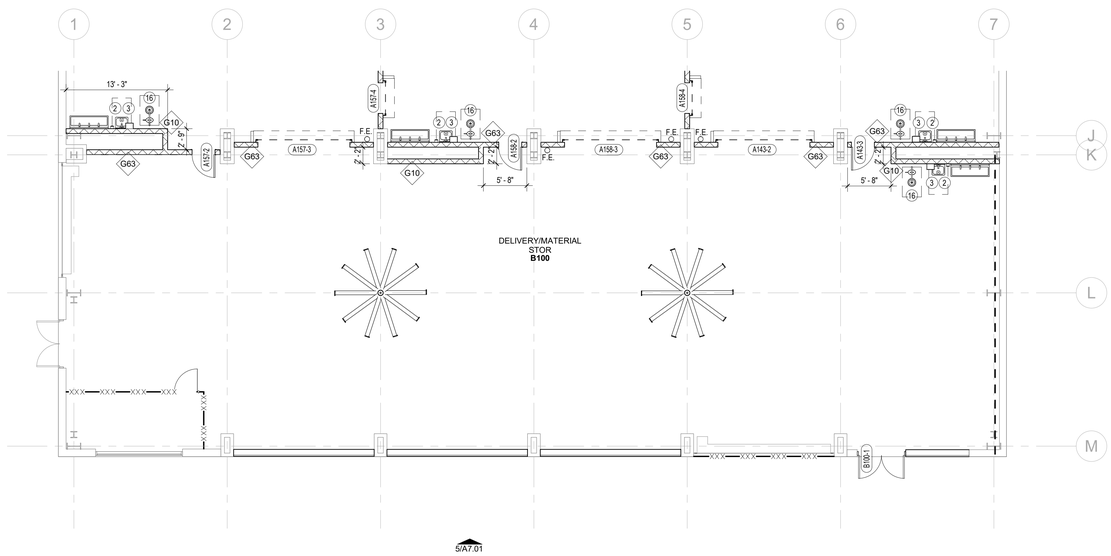
MARK	DOOR SLAB WIDTH	HEIGHT	S/ PR	ELEV.	MATERIAL	GLASS	DOOR FRAME WIDTH	DEPTH	ELEV.	MATERIAL	FIRE R.	COMMENTS	MARK
A100-1	3' - 0"	7' - 0"	PR	BB	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A100-1
A101-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A101-1
A105-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A105-1
A105-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A105-2
A108-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A108-1
A110-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A110-1
A112-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A112-1
A113-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A113-1
A114-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A114-1
A116-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A116-1
A118-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A118-1
A119-1	3' - 0"	7' - 0"	PR	BB	H.M.	-	2"	6"	1-E	H.M.	-	-	A119-1
A120-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A120-1
A120-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/8"	1	H.M.	-	-	A120-2
A121-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A121-1
A121-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A121-2
A122-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A122-1
A122-2	3' - 0"	7' - 0"	S	B	H.M.	-	2"	6"	1-E	H.M.	-	-	A122-2
A122-5	3' - 0"	6' - 0"	S	C1	C.L. MESH					GALV.		EGRESS GATE	A122-5
A123-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A123-1
A123-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A123-2
A124-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A124-1
A125-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A125-1
A126-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A126-1
A127-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A127-1
A127-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A127-2
A128-1	3' - 0"	7' - 0"	S	D	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A128-1
A129-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A129-1
A130-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A130-1
A132-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A132-1
A134-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A134-1
A135-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A135-1
A135-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A135-2
A136-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A136-1
A136-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A136-2
A137-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A137-1
A138-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A138-1
A139-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A139-1
A140-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A140-1
A141-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A141-1
A142-1	3' - 0"	7' - 0"	PR	CC	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A142-1
A143-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A143-1
A143-2	12' - 0"	12' - 0"	-	Q	GRILLE MESH	-			-	GALV.	-	MANUAL COILING GRILLE	A143-2
A143-3	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A143-3
A144-1	3' - 0"	7' - 0"	PR	BB	H.M.	-	2"	6"	1-E	H.M.	-	-	A144-1
A145-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A145-1
A146-1	3' - 0"	7' - 0"	S	B	H.M.	-	2"	6"	1-E	H.M.	-	-	A146-1
A152-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A152-1
A152-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A152-2
A153-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A153-1
A153-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A153-2
A154-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	6"	1	H.M.	-	-	A154-1
A155-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A155-1
A156-1	3' - 0"	7' - 0"	S	B	S.C.P.L.	-	2"	6"	1	H.M.	-	-	A156-1
A157-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A157-1
A157-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A157-2
A157-3	12' - 0"	12' - 0"	-	Q	GRILLE MESH	-			-	GALV.	-	MANUAL COILING GRILLE	A157-3
A157-4	4' - 0"	12' - 0"	-	Q	GRILLE MESH	-			-	GALV.	-	MANUAL COILING GRILLE	A157-4
A158-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A158-1
A158-2	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A158-2
A158-3	12' - 0"	12' - 0"	-	Q	GRILLE MESH	-			-	GALV.	-	MANUAL COILING GRILLE	A158-3
A158-4	4' - 0"	12' - 0"	-	Q	GRILLE MESH	-			-	GALV.	-	MANUAL COILING GRILLE	A158-4
A159-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A159-1
A160-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A160-1
A161-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A161-1
A162-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A162-1
A164-1	3' - 0"	7' - 0"	S	C	S.C.P.L.	G2	2"	8 3/4"	1	H.M.	-	-	A164-1

AREA 'A1' - ROOM FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR FINISHES FLOOR	BASE	WALL FINISH(S) COOR. W/ A7 & A11	CEILING FINISH(S) COOR. W/A10	COMMENTS	ROOM #
A100	VEST	SC-1	RB-1	PTW-1	ACT-1		A100
A101	RISER	SC-1	RB-1	PTW-1	ACT-1		A101
A102	RECEP	LVT-1	RB-1	PTW-1	ACT-1		A102
A103	ELEC	SC-1	RB-1	PTW-1	ACT-1		A103
A104	CORR	SC-1	RB-1	AWC-1/PTW-1	ACT-1		A104
A105	WK RM	LVT-1	RB-1	PTW-1	ACT-1		A105
A106	MEN	SC-1	RB-1	PTW-1	ACT-2		A106
A107	CUST	SC-1	RB-1	PTW-1	ACT-1		A107
A108	STOR	SC-1	RB-1	PTW-1	ACT-1		A108
A109	CORR	SC-1	RB-1	PTW-1	ACT-1		A109
A110	WOMEN	SC-1	RB-1	PTW-1	ACT-2		A110
A112	ELEC	SC-1	RB-1	PTW-1	EXP. TO STRUC.		A112
A113	WATER/HEATER	SC-1	RB-1	PTW-1	EXP. TO STRUC.		A113
A114	MDF	SC-1	RB-1	PTW-1	EXP. TO STRUC.		A114
A116	RR	SC-1	RB-1	PTW-1	ACT-2		A116
A118	RR	SC-1	RB-1	PTW-1	ACT-2		A118
A119	CORR	SC-1	RB-1	AWC-1/PTW-1	ACT-1		A119
A120	VET CLASSROOM	SC-1	RB-1	PTW-1	ACT-1		A120
A121	FLORAL LAB	SC-1	RB-1	PTW-1	ACT-1		A121
A122	VET LAB	SC-1	RB-1	PTW-1	ACT-1		A122
A123	FLORAL COOLER	SC-1	RB-1	PTW-1	ACT-1		A123
A124	STOR	SC-1	RB-1	PTW-1	ACT-1		A124
A125	STOR	SC-1	RB-1	PTW-1	ACT-1		A125
A126	GROOMING	SC-1	RB-1	PTW-1	ACT-1		A126
A127	FLORAL LAB	SC-1	RB-1	PTW-1	ACT-1		A127
A128	EXAM	SC-1	RB-1	PTW-1	ACT-1		A128
A129	KENNEL	SC-1	RB-1	PTW-1	ACT-1		A129
A130	STOR	SC-1	RB-1	PTW-1	ACT-1		A130
A132	PRINCIPALS CLASSROOM	SC-1	RB-1	PTW-1	ACT-1		A132
A133	CORR	SC-1	RB-1	AWC-1/PTW-1	ACT-1		A133
A134	CLASSROOM	SC-1	RB-1	PTW-1	ACT-1		A134
A135	AG CLASSROOM	SC-1	RB-1	PTW-1	ACT-1		A135
A136	HORTICULTURE	SC-1	RB-1	PTW-1	ACT-1		A136
A137	CHANGE	SC-1	RB-1	PTW-1	ACT-1		A137
A138	CHANGE	SC-1	RB-1	PTW-1	ACT-1		A138
A139	HALL	SC-1	RB-1	PTW-1	ACT-1		A139
A140	EQUIP	SC-1	RB-1	PTW-1	ACT-1		A140
A141	STOR	SC-1	RB-1	PTW-1	ACT-1		A141
A142	STOR	SC-1	RB-1	PTW-1	ACT-1		A142
A143	AG LAB	SC-1	RB-1	PTW-1	EXP. TO STRUC.		A143
A144	CORR	SC-1	RB-1	PTW-1	ACT-1		A144
A145	IDF	SC-1	RB-1	PTW-1	EXP. TO STRUC.		A145
A146	COMP	SC-1	RB-1	PTW-1	EXP. TO STRUC.		A146
A150	CORR	SC-1	RB-1	AWC-1/PTW-1	ACT-1		A150
A152	WELDING CR	SC-1	RB-1	PTW-1	ACT-1		A152
A153	WELDING CR	SC-1	RB-1	PTW-1	ACT-1		A153
A154	HALL	SC-1	RB-1	AWC-1/PTW-1	ACT-1		A154
A155	B DRESSING	SC-1	RB-1	PTW-1	ACT-1		A155
A156	G DRESSING	SC-1	RB-1	PTW-1	ACT-1		A156
A157	WELDING LAB	SC-1	RB-1	PTW-1	EXP. TO STRUC.		A157
A158	WELDING LAB	SC-1	RB-1	PTW-1	EXP. TO STRUC.		A158
A159	EQUIP	SC-1	RB-1	PTW-1	ACT-1		A159
A160	ELEC	SC-1	RB-1	PTW-1	ACT-1		A160
A161	STOR	SC-1	RB-1	PTW-1	ACT-1		A161
A162	STOR	SC-1	RB-1	PTW-1	ACT-1		A162
A164	EQUIP	SC-1	RB-1	PTW-1	ACT-1		A164

AREA 'A1' - WINDOW SCHEDULE

MARK	FRAME WIDTH	DEPTH	ELEV.	MATERIAL	COMMENTS	MARK
A102-A	2"	1' - 0 3/4"		H.M.	-	A102-A
A120-A	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A120-A
A120-B	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A120-B
A122-A	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A122-A
A122-B	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A122-B
A126-A	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A126-A
A128-A	2"	6"		H.M.	-	A128-A
A128-B	2"	6"		H.M.	-	A128-B
A132-A	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A132-A
A132-B	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A132-B
A134-A	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A134-A
A134-B	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A134-B
A136-A	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A136-A
A136-B	2 1/4"	7 1/4"		ALUM.	ALT #02 ONLY	A136-B



1 AREA 'B1' - 1ST FLOOR PLAN
1/8" = 1'-0"

CONSULTANTS

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Salas O'Brien
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STRUCTURAL
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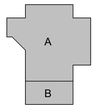
Fax: 713.780.3712



TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
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tel 713.953.4897, fax 713.977.4620

REGISTERED ARCHITECT — STATE OF TEXAS — 15113

2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

A2.02

AREA 'B1' 1ST FLOOR PLAN, SCHEDULES, & ENLARGED RESTROOMS

PLAN NORTH

ADDITIONAL RIGID INSULATION SLOPE (DOWN), SLOPE TO DRAIN MIN 1/4" PER FOOT, TYP.

SLOPE — STRUCTURE SLOPE (DOWN), SLOPE TO DRAIN MIN 1/4" PER FOOT, TYP.

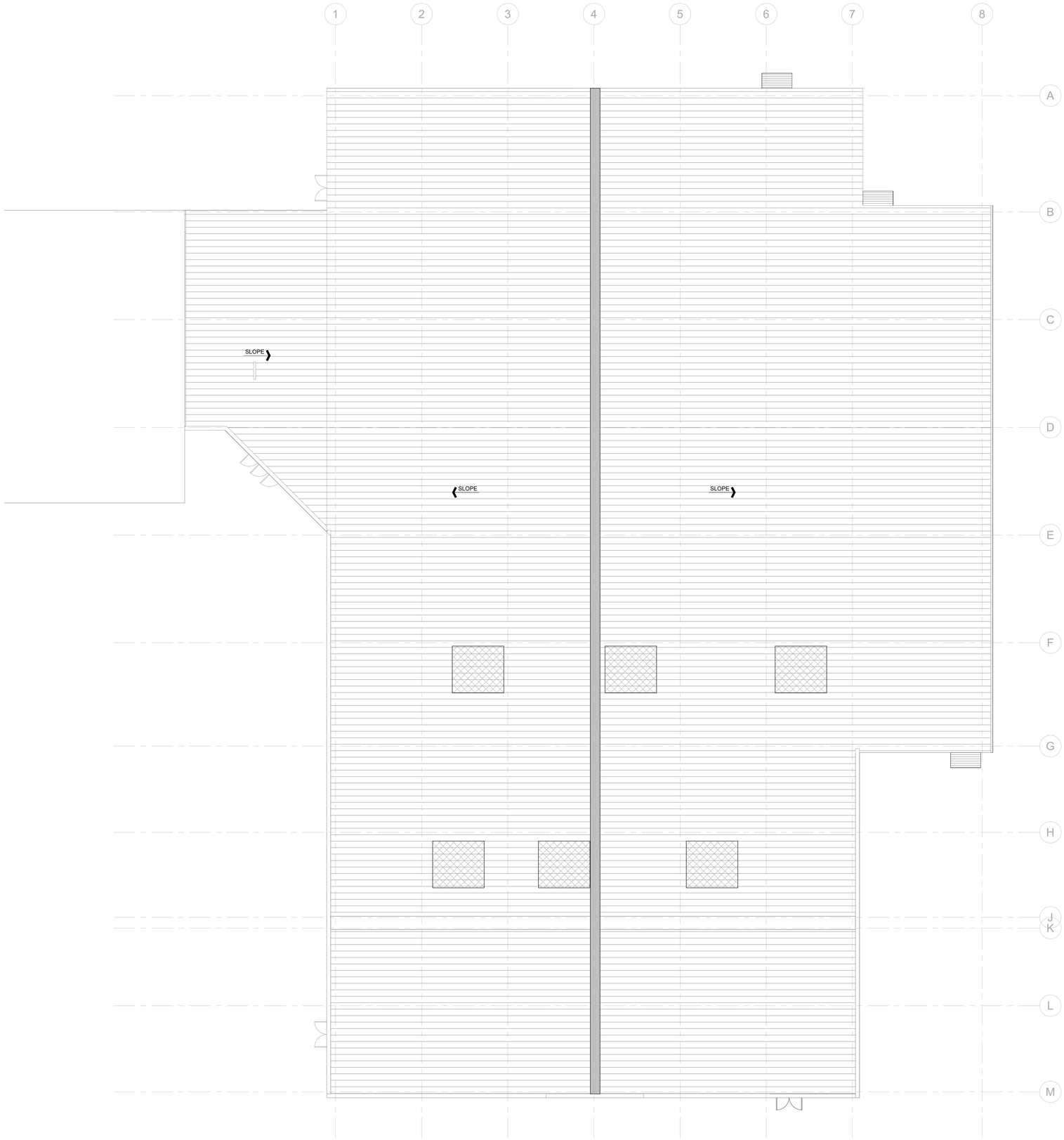
HIGH ROOF / LOW ROOF — HIGH TO LOW ROOF TRANSITION

REMOVE VENT AND REPLACE WITH METAL ROOF PANELS

REMOVE EXISTING HAVC UNITS, PROVIDE NEW ROOF PANELS

LEGEND - ROOF PLAN

1/4" = 1'-0"



1 ROOF PLAN

1" = 10'-0"

PLAN NORTH

CONSULTANTS

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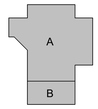

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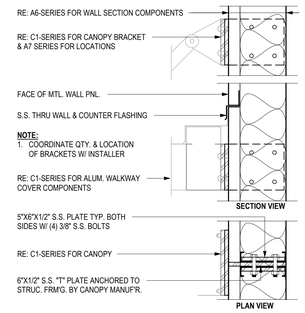
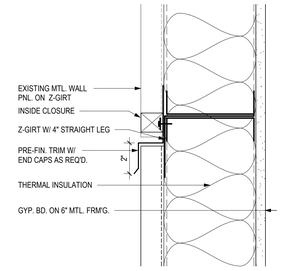
A4.00

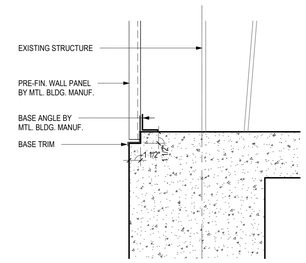
ROOF PLAN



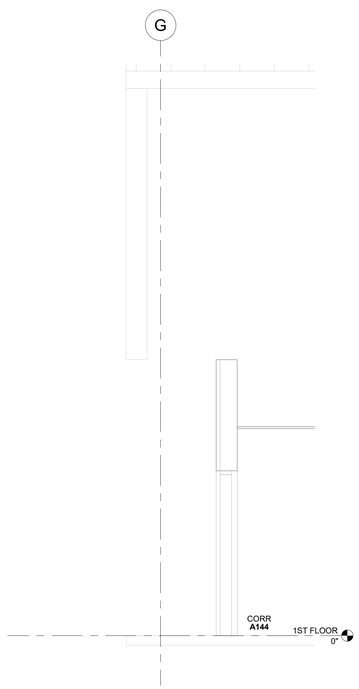
16 WALL - EXT CNPY @ MTL BLDG
1 1/2" = 1'-0"



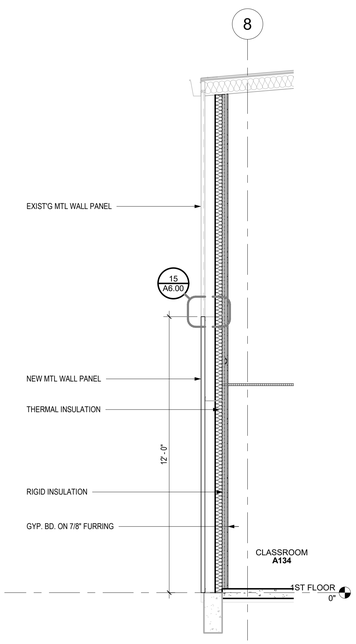
15 WALL - EXT MTL TO MAS @ MTL
3" = 1'-0"



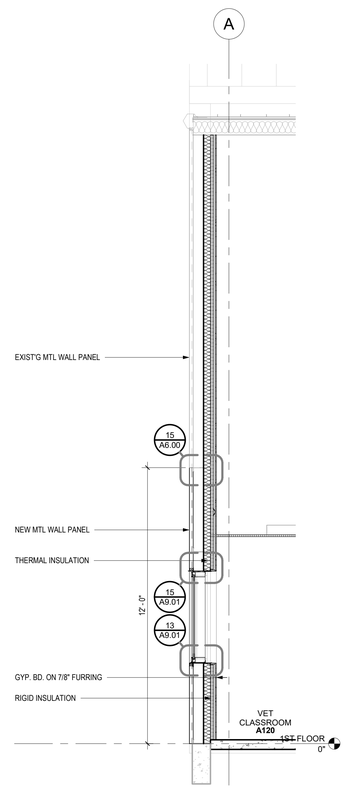
14 WALL - EXT - MTL BLDG LEDGE
1 1/2" = 1'-0"



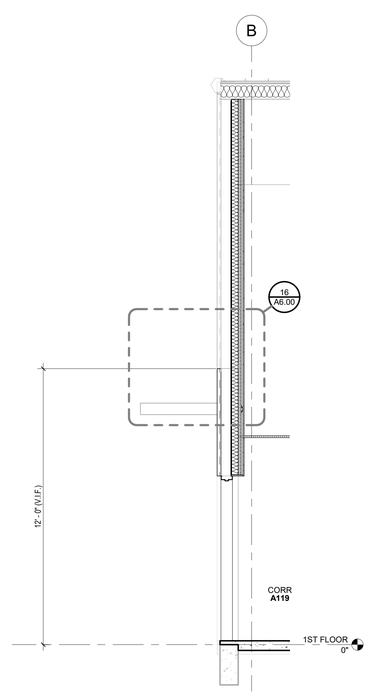
13 MTL GYP -A144-S
3/8" = 1'-0"



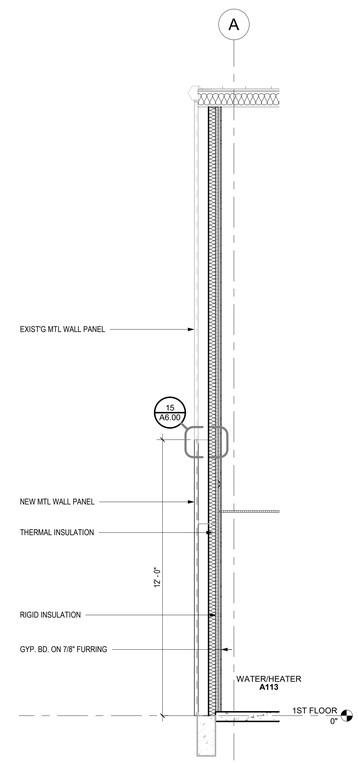
12 MTL GYP -A134-E
3/8" = 1'-0"



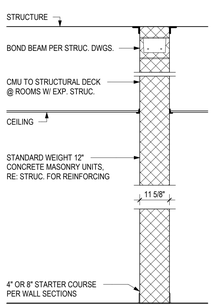
11 MTL GYP -A120-N
3/8" = 1'-0"



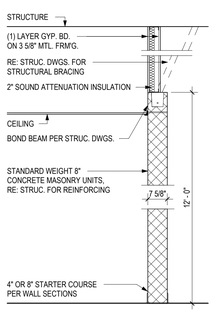
10 MTL GYP -A119-N
3/8" = 1'-0"



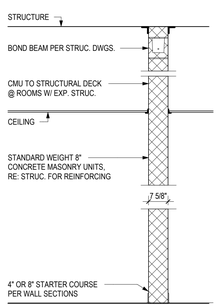
9 MTL GYP -A113-N
3/8" = 1'-0"



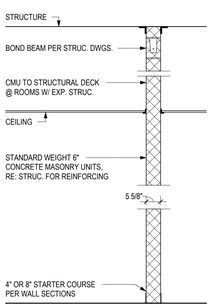
8 PARTITION H10
1/2" = 1'-0"



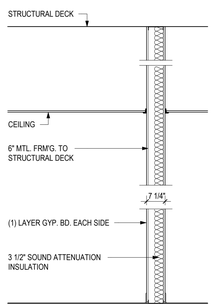
7 PARTITION G63
1/2" = 1'-0"



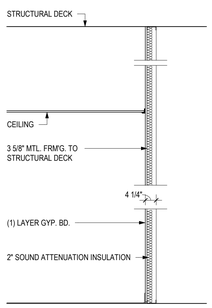
6 PARTITION G10
1/2" = 1'-0"



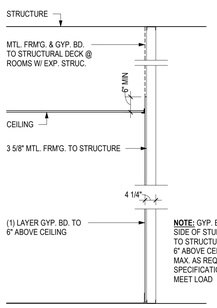
5 PARTITION F10
1/2" = 1'-0"



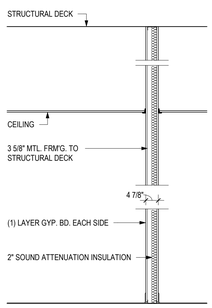
4 PARTITION C11
1/2" = 1'-0"



3 PARTITION B75
1/2" = 1'-0"



2 PARTITION B74
1/2" = 1'-0"



1 PARTITION B11
1/2" = 1'-0"

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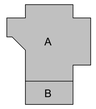

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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2023-11-06

PROJECT #:	202311
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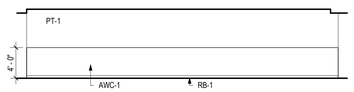
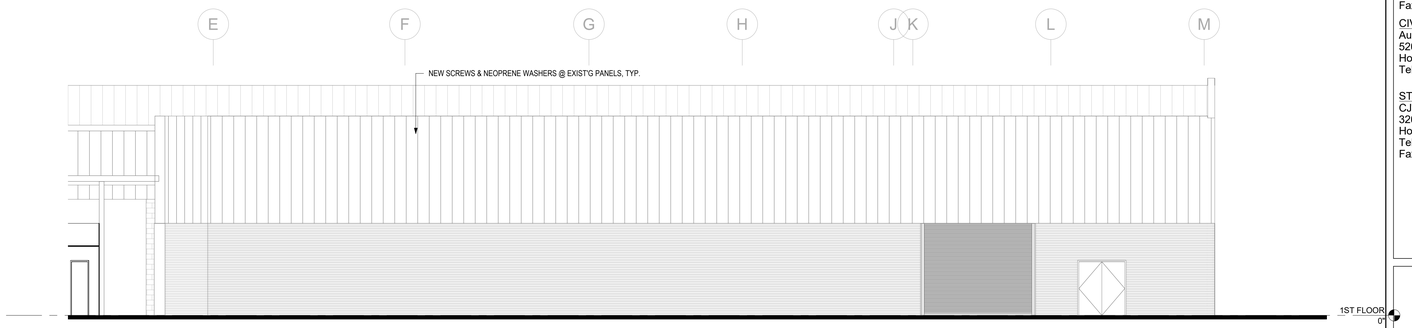
A6.00

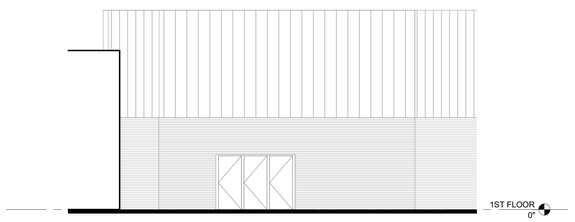
PARTITION TYPES & WALL SECTIONS



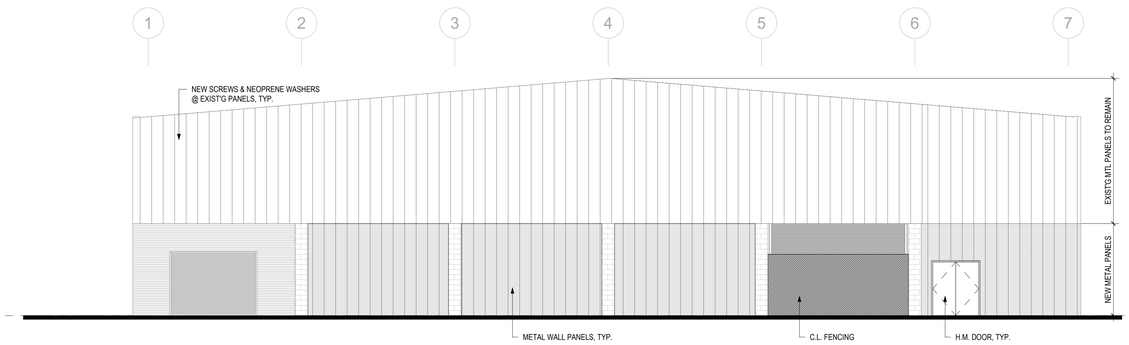
8 INT - TYP CORR. @ GYP
1/8" = 1'-0"



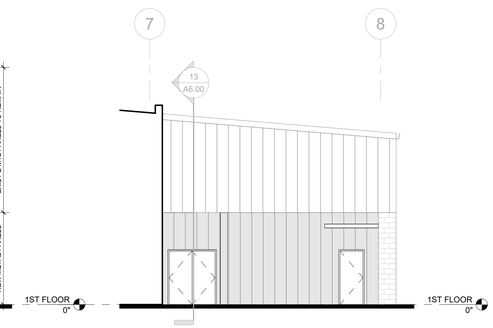
6 EXT - AREA 'A'&'B' - W
1/8" = 1'-0"



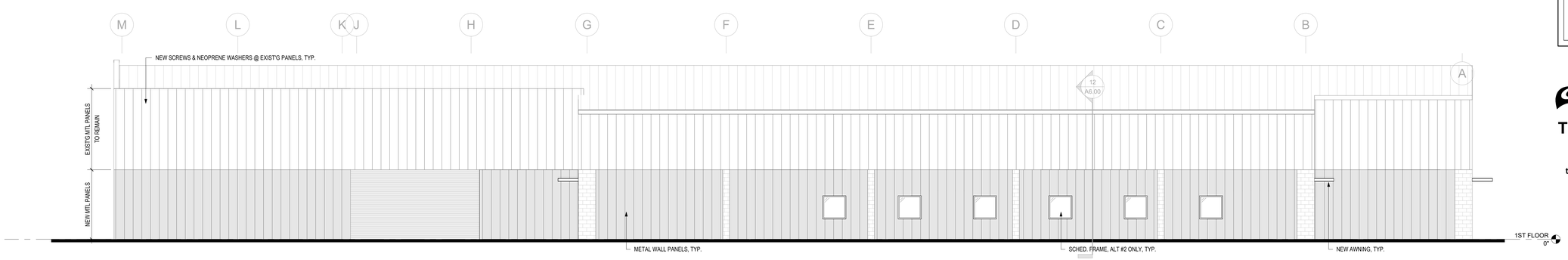
7 EXT - AREA 'A' - NW
1/8" = 1'-0"



5 EXT - AREA 'B' - S
1/8" = 1'-0"

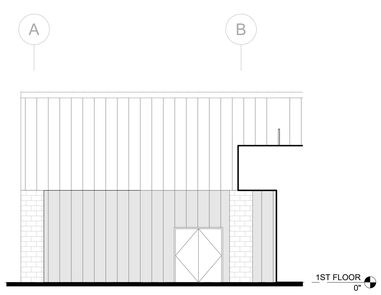


4 EXT - AREA 'A' - S
1/8" = 1'-0"



3 EXT - AREA 'A'&'B' - E
1/8" = 1'-0"

2 EXT - AREA 'A' - N
1/8" = 1'-0"



1 EXT - AREA 'A' - W
1/8" = 1'-0"

CONSULTANTS

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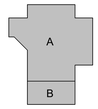

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REGISTERED ARCHITECT
STATE OF TEXAS
2023-11-06

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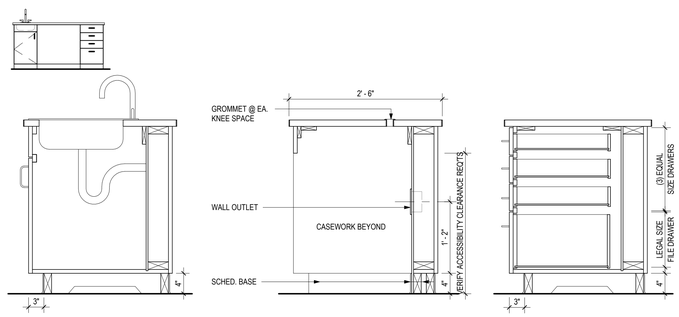
A7.01

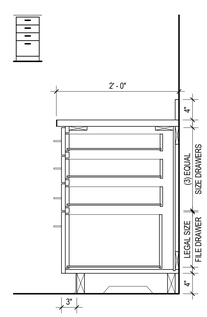
ELEVATIONS

1. PROVIDE LOCKS ON ALL DOORS & DRAWERS. LOCKS ARE TO BE MASTER KEYED PER SPECS.
2. PROVIDE KEYBOARD TRAY & 2" GROMMET @ ALL KNEESPACES.
3. RE: MEP DWGS. FOR OTHER DEVICES. ONLY UNIQUE CONDITIONS ARE SHOWN ON THESE DRAWINGS.
4. FINISH TOE SPACE OF ALL CABINETS W/ SCHEDULED BASE FINISH.
5. ALL COUNTERTOPS ARE 24" DEEP UNLESS INDICATED OTHERWISE.
6. PROVIDE REMOVABLE BACK PANEL ON ALL SINK CASEWORK & FUME HOOD CASEWORK.
7. ALL CASEWORK IS EDUCATIONAL CASEWORK UNLESS NOTED OTHERWISE.
8. ALL SINKS IN CASEWORK SHOULD BE SUPPLIED & INSTALLED BY PLUMB. CONTRACTOR & SHOULD INCLUDE STRAINER & TAIL PIECE. RE: PLUMB. DWGS. FOR SINK TYPES.
9. ALL COUNTERTOPS ARE 1 1/2" THK PLASTIC LAMINATE W/ 4" HIGH BACKSPLASH & SPLASH RETURN UNLESS NOTED OTHERWISE.
10. ALL EXPOSED BACKS & ENDS SHALL BE FINISHED W/ LAMINATE.
11. PROVIDE FILLER & CLOSER PANELS AS REQ'D. TO MATCH UNITS.
12. PROVIDE RADIUS EDGE @ ALL OUTSIDE COUNTERTOP CORNERS.
13. FILE DRAWERS TO INCLUDE INTEGRAL FILE HANGING SYSTEM.
14. 'H' INDICATES ACCESSIBLE PLUMBING FIXTURE @ ACCESSIBLE MOUNTING HEIGHT, RE: G1 SERIES.
15. ALL UPPER WALL CABINETS ARE 14" DEEP UNLESS NOTED OTHERWISE.
16. TEACHERS CABINET TO INCLUDE (1) FIXED SHELF & ROD, (2) ADJUSTABLE SHELVES, (2) LETTER SIZE FILE DRAWERS, & (1) 10"X12" MIRROR & PIN TRAY.
17. CASEWORK ELEVATIONS ARE INTENDED TO SHOW CASEWORK & MILLWORK ONLY. ANY OTHER ELEMENTS SUCH AS WALLS, WINDOWS, & DOORS ARE FOR REFERENCE ONLY. RE: FLOOR PLANS, SCHEDULES & RELATED ELEVATIONS FOR SPECIFIC INFO RELATED TO THESE ELEMENTS.

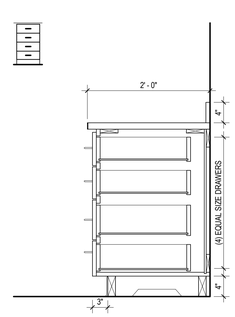
NOTES - GENERAL CASEWORK
1/4" = 1'-0"



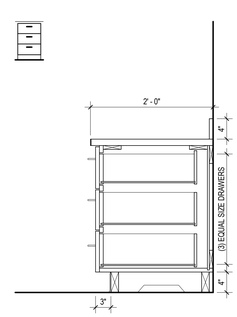
18 CSK "D801"
1" = 1'-0"



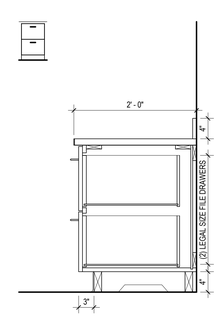
17 CSK "B256"
1" = 1'-0"



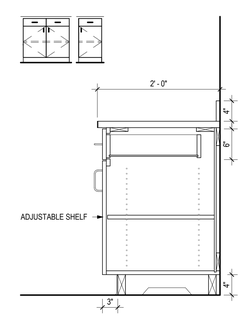
16 CSK "B234"
1" = 1'-0"



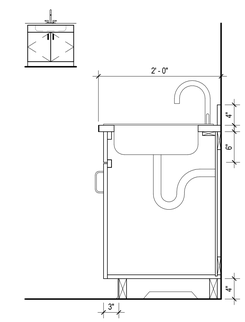
15 CSK "B232"
1" = 1'-0"



14 CSK "B221"
1" = 1'-0"



13 CSK "B201"
1" = 1'-0"



12 CSK "B152"
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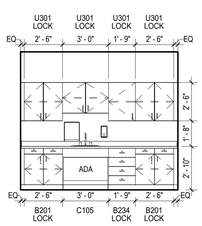
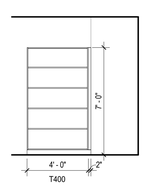
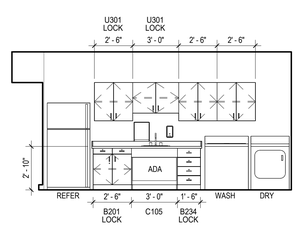


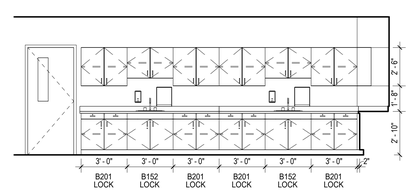
11 A128 - EXAM-E
1/4" = 1'-0"



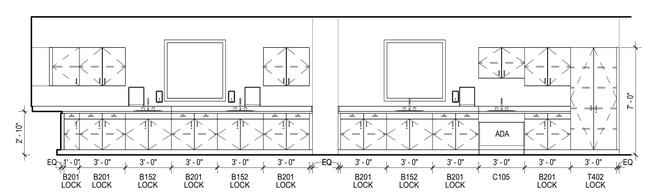
10 A126 - GROOMING-N
1/4" = 1'-0"



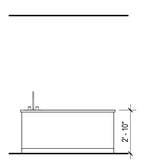
9 A126 - GROOMING-E
1/4" = 1'-0"



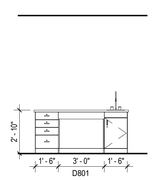
8 A122 - VET LAB-W
1/4" = 1'-0"



7 A122 - VET LAB-N
1/4" = 1'-0"

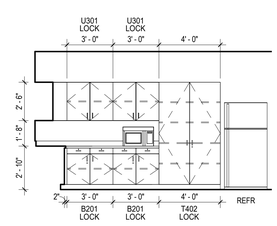


6 A122 - DEMO-S
1/4" = 1'-0"

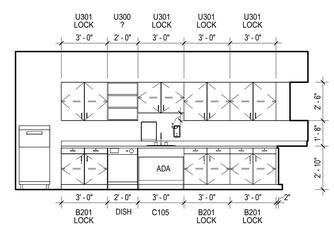


5 A122 - DEMO-N
1/4" = 1'-0"

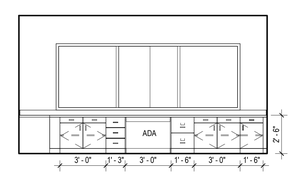
4 A122 - DEMO-E
1/4" = 1'-0"



3 A105 - WK RM-W
1/4" = 1'-0"



2 A105 - WK RM-S
1/4" = 1'-0"



1 A102 - RECEP-SE
1/4" = 1'-0"

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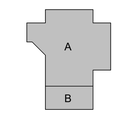

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
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ARCADIS
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10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

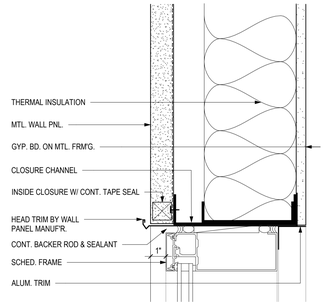
REGISTERED ARCHITECT STATE OF TEXAS 18112
2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

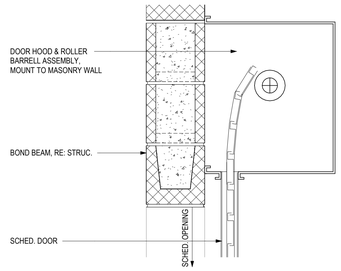
DATE	ISSUE
2023-11-06	BID SET

A8.00

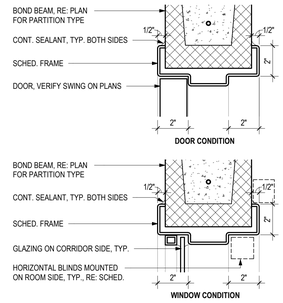
CASEWORK ELEVATIONS & SECTIONS



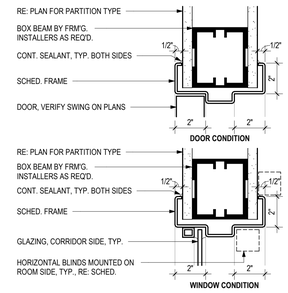
15 EXT ALUM WND HEAD @ MTL B-GYP
3" = 1'-0"



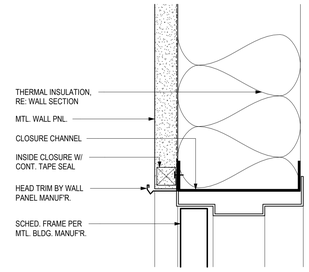
12 INT OVRHD DOOR HEAD @ CMU
1 1/2" = 1'-0"



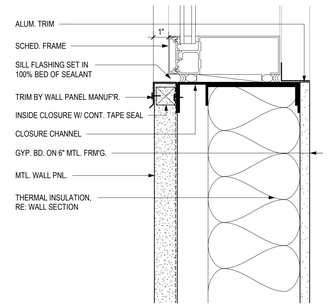
9 INT HM WRP HEAD @ CMU
3" = 1'-0"



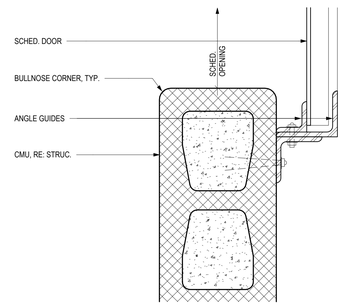
6 INT HM WRP HEAD @ GYP
3" = 1'-0"



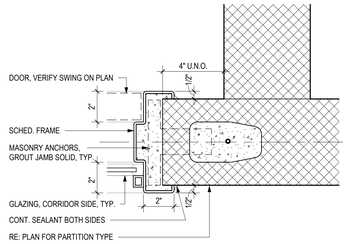
3 EXT HM DR HEAD @ MTL BLDG
3" = 1'-0"



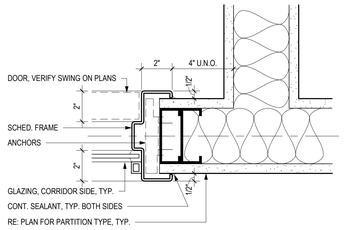
14 EXT ALUM WND JAMB @ MTL B-GYP
3" = 1'-0"



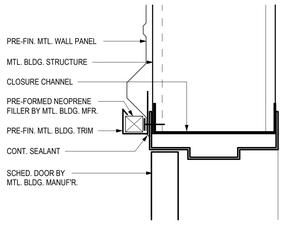
11 INT OVRHD DOOR JAMB @ CMU
3" = 1'-0"



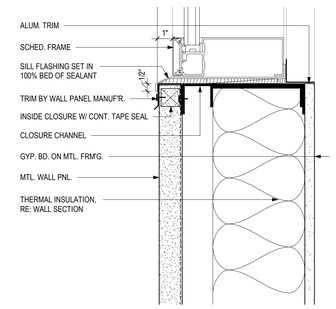
8 INT HM WRP JAMB @ CMU
3" = 1'-0"



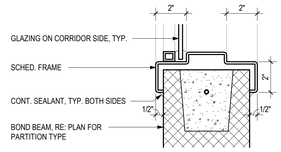
5 INT HM WRP JAMB @ GYP
3" = 1'-0"



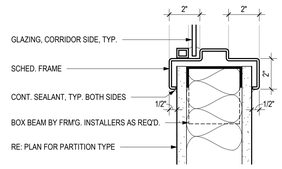
2 EXT HM DR JAMB @ MTL BLDG
3" = 1'-0"



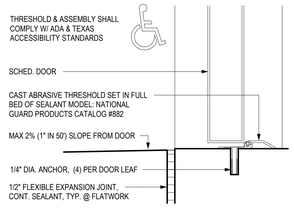
13 EXT ALUM WND SILL @ MTL B-GYP
3" = 1'-0"



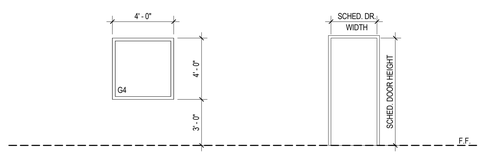
7 INT HM WRP SILL @ CMU
3" = 1'-0"



4 INT HM WRP SILL @ GYP
3" = 1'-0"



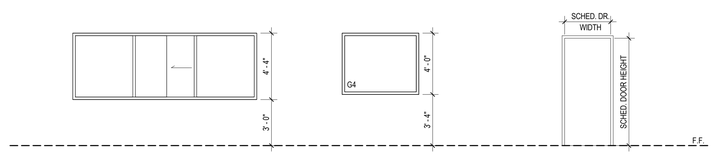
1 EXT DOOR THRSHLD @ FOUND
3" = 1'-0"



2-E - ALT 2			
SILL	JAMB	HEAD	CONDITION
13 / A9.01	14 / A9.01	15 / A9.01	@ MTL BLDG

1-E			
SILL	JAMB	HEAD	CONDITION
1 / A9.01	2 / A9.01	3 / A9.01	@ MTL BLDG

ELEVATIONS - EXTERIOR FRAMES
1/4" = 1'-0"



3			
SILL	JAMB	HEAD	CONDITION
7 / A9.01	8 / A9.01	9 / A9.01	@ CMU

2			
SILL	JAMB	HEAD	CONDITION
4 / A9.01	5 / A9.01	6 / A9.01	@ GYP

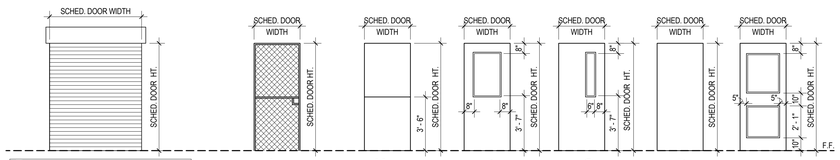
1			
SILL	JAMB	HEAD	CONDITION
-	5 / A9.01	6 / A9.01	@ GYP
-	8 / A9.01	9 / A9.01	@ CMU

GENERAL NOTES:
1. "00-E" DESIGNATES EXTERIOR FRAMES
2. RE: WINDOW ELEVATIONS FOR DOOR FRAMES WHICH ARE PART OF A WINDOW ASSEMBLY

ELEVATIONS - INTERIOR FRAMES
1/4" = 1'-0"

G1 - INSULATED FIRE RATED GLASS
G2 - TEMPERED GLASS
G3 - CLEAR WIRE SAFETY GLASS
G4 - INSULATED GLASS
G5 - INSULATED SPANDREL GLASS
G6 - ACOUSTIC GLASS
G7 - HURRICANE RESISTANT GLASS
G8 - HURRICANE RESISTANT SPANDREL GLASS

LEGEND - GLAZING
1/4" = 1'-0"



P OVERHEAD COILING DOOR SOLID W/ HOOD			
SILL	JAMB	HEAD	CONDITION
-	11 / A9.01	12 / A9.01	@ CMU

ELEVATIONS - DOORS
1/4" = 1'-0"

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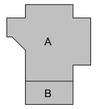

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
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REGISTERED ARCHITECT
STATE OF TEXAS
2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

A9.01

FRAME ELEVATIONS & OPENING DETAILS

1'-0" X 4'-0" LIGHT FIXTURE

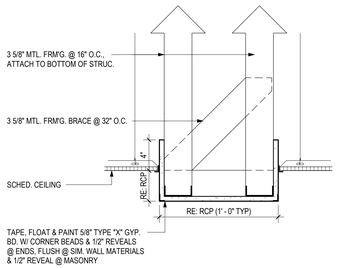
2'-0" X 4'-0" LIGHT FIXTURE

SUSPENDED GRID W/ ACOUSTICAL CEILING TILE, RE: SCHED. & SPECS.

GYP.BD., PAINTED

LEGEND - RCP

1/4" = 1'-0"



2 FURR DN - ACT-GYP-ACT
1 1/2" = 1'-0"

1 AREA 'A' - RCP
1/8" = 1'-0"

PLAN NORTH

CONSULTANTS

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A
B

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
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tel 713.953.4897, fax 713.977.4620

REGISTERED ARCHITECT MICHAEL T. SMITH (5113) STATE OF TEXAS

2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

A10.01

AREA 'A' 1ST FLOOR RCP

1'-0" X 4'-0" LIGHT FIXTURE

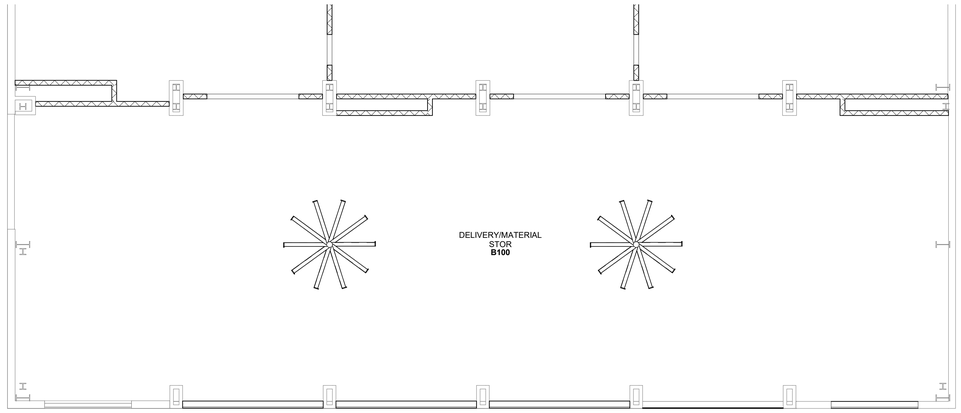
2'-0" X 4'-0" LIGHT FIXTURE

SUSPENDED GRID W/ ACOUSTICAL CEILING TILE, RE: SCHED. & SPECS.

GYP.BD., PAINTED

LEGEND - RCP

1/4" = 1'-0"



1 AREA 'B' - RCP

1/8" = 1'-0"

PLAN NORTH

CONSULTANTS

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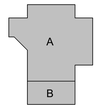


TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

REGISTERED ARCHITECT
STATE OF TEXAS
18312

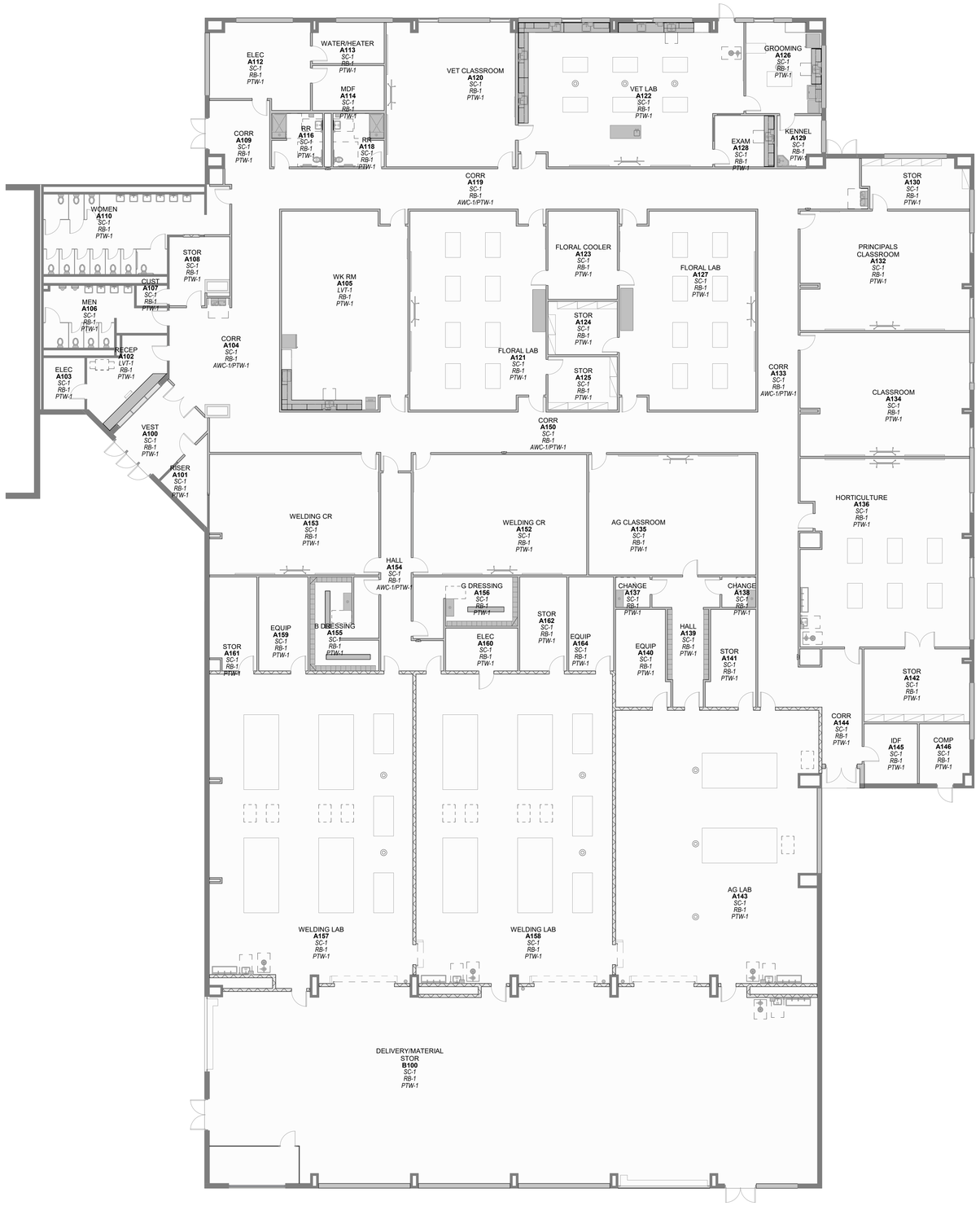
2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

A10.02

AREA 'B' 1ST FLOOR RCP



2 INTERIOR FINISH PLAN
1" = 10'-0"

FLOORS		WALLS		CEILINGS		MISC.	
CT F-1	CERAMIC TILE MFR: XX SERIES: XX COLOR: XX SIZES: XX	AWC-1	RIGID STAIN RESISTANT WALL COVERING MFR: XX SERIES: XX COLOR: XX SIZES: XX	ACT-1	ACOUSTICAL CEILING TILE (TYPE A) MFR: XX SERIES: XX COLOR: XX SIZES: XX	GRT-1	GROUT MFR: XX SERIES: XX COLOR: XX SIZES: XX
CT F-2	CERAMIC TILE MFR: XX SERIES: XX COLOR: XX SIZES: XX	AWP-1	ACOUSTICAL WALL PANEL MFR: TECTUM SERIES: XX COLOR: XX SIZES: XX	ACT-2	ACOUSTICAL CEILING TILE (TYPE B) MFR: XX SERIES: XX COLOR: XX SIZES: XX	GRT2	GROUT MFR: XX SERIES: XX COLOR: XX SIZES: XX
LVT-1	RESILIENT FLOOR MFR: XX SERIES: XX COLOR: XX SIZES: XX	CTW-1	CERAMIC TILE MFR: XX SERIES: XX COLOR: XX SIZES: XX	PT C-1	PAINT (GYP. BD. CEILING) MFR: XX SERIES: XX COLOR: XX SIZES: XX	LCK-1	LOCKER MFR: XX SERIES: XX COLOR: XX SIZES: XX
SC-1	SEALED CONCRETE MFR: XX SERIES: XX COLOR: XX SIZES: XX	CTW-2	CERAMIC TILE MFR: XX SERIES: XX COLOR: XX SIZES: XX			PT M-1	PAINT (DOOR FRAMES) MFR: XX SERIES: XX COLOR: XX SIZES: XX
WM-1	WALK-OFF MAT MFR: XX SERIES: XX COLOR: XX SIZES: XX	CG-1	CORNER GUARD MFR: XX SERIES: XX COLOR: XX SIZES: XX			PL-1	PLASTIC LAMINATE (DOORS) MFR: XX SERIES: XX COLOR: XX SIZES: XX
		PT W-1	PAINT MFR: XX SERIES: XX COLOR: XX SIZES: XX			PL-2	PLASTIC LAMINATE (CASEWORK) MFR: XX SERIES: XX COLOR: XX SIZES: XX
		PT W-2	PAINT MFR: XX SERIES: XX COLOR: XX SIZES: XX			PL-3	PLASTIC LAMINATE (COUNTERTOPS) MFR: XX SERIES: XX COLOR: XX SIZES: XX
		PT W-3	PAINT MFR: XX SERIES: XX COLOR: XX SIZES: XX			PL-4	PLASTIC LAMINATE (TOILET PARTITIONS) MFR: XX SERIES: XX COLOR: XX SIZES: XX
		RB-1	RUBBER BASE MFR: XX SERIES: XX COLOR: XX SIZES: XX			SS-1	SOLID SURFACE MFR: XX SERIES: XX COLOR: XX SIZES: XX

NOTE: ALL OPTIONS, SIZES, AND PATTERNS ARE SUBJECT TO CHANGE UPON OWNER APPROVAL

1 INTERIOR FINISH LEGEND
3/8" = 1'-0"

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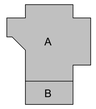

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

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REGISTERED ARCHITECT
18113
STATE OF TEXAS

2023-11-06

PROJECT #: 202311
DATE: 2023-11-06
DRAWN: Author
CHECKED: Checker

DATE	ISSUE
2023-11-06	BID SET

A11.00

INTERIOR FINISH PLAN & LEGEND

AREA 'A1' - GRAPHIC SCHEDULE

ROOM #	ROOM NAME	GRAPHIC #	GRAPHIC NAME	PLAQUE TYPE	SEX ID	ADA SYMBOL	QTY	BCKR PLT(S)	COMMENTS
A100	VEST	1650		B			1		
A101	RISER	1650A		B			1		
A102	RECEP	1652		B			1		
A103	ELEC	1652A		B			1		
A104	CORR	1651		B			1		
A105	WK RM	1661		A			1		
A106	MEN	1654		A			1		
A107	CUST	-					0		
A108	STOR	1656		B			1		
A109	CORR	1651A		B			1		
A110	WOMEN	1658		D			1		
A112	ELEC	1600		B			1		
A113	WATER/HEATER	1660A		B			1		
A114	MDF	1660B		B			1		
A116	RR	1662		D			1		
A118	RR	1664		D			1		
A119	CORR	1651B		B			1		
A120	VET CLASSROOM	1666		A			1		
A121	FLORAL LAB	1663		A			1		
A122	VET LAB	1668		A			1		
A123	FLORAL COOLER	1665		B			1		
A124	STOR	1667A		B			1		
A125	STOR	1663A		B			1		
A126	GROOMING	1668B		A			1		
A127	FLORAL LAB	1667		A			1		
A128	EXAM	1668A		B			1		
A129	KENNEL	1668C		B			1		
A130	STOR	1670A		B			1		
A132	PRINCIPALS CLASSROOM	1670		A			1		
A133	CORR	1651C		B			1		
A134	CLASSROOM	1672		A			1		
A135	AG CLASSROOM	1680		A			1		
A136	HORTICULTURE	1674		A			1		
A137	CHANGE	1680C		B			1		
A138	CHANGE	1680B		B			1		
A139	HALL	1680A		B			1		
A140	EQUIP	1681B		B			1		
A141	STOR	1681A		B			1		
A142	STOR	1674A		B			1		
A143	AG LAB	1681		A			1		
A144	CORR	1651E		B			1		
A145	IDF	1676		B			1		
A146	COMP	1678		B			1		
A150	CORR	1651D		B			1		
A152	WELDING CR	1682		A			1		
A153	WELDING CR	1686		A			1		
A154	HALL	1684		B			1		
A155	B DRESSING	1684B		B			1		
A156	G DRESSING	1684A		B			1		
A157	WELDING LAB	1685		A			1		
A158	WELDING LAB	1683		A			1		
A159	EQUIP	1685A		B			1		
A160	ELEC	1683C		B			1		
A161	STOR	1685B		B			1		
A162	STOR	1683B		B			1		
A164	EQUIP	?		B			1		

AREA 'B1' - GRAPHIC SCHEDULE

ROOM #	ROOM NAME	GRAPHIC #	GRAPHIC NAME	PLAQUE TYPE	SEX ID	ADA SYMBOL	QTY	BCKR PLT(S)	COMMENTS
B100	DELIVERY/MATERIAL STOR	1688							

1 1ST FLOOR GRAPHICS PLAN
1" = 10'-0"

PLAN NORTH

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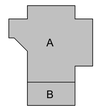

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
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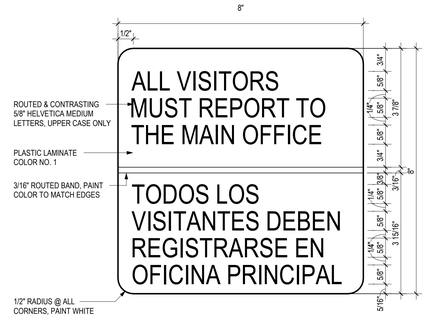
REGISTERED ARCHITECT 18312 STATE OF TEXAS
2023-11-06

PROJECT #:	202311
DATE:	2023-11-06
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

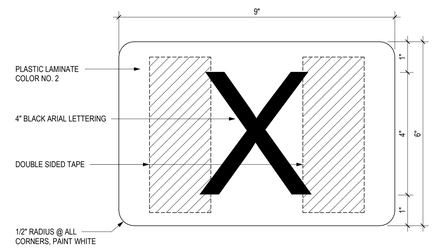
A12.00

SIGNAGE FLOOR PLAN



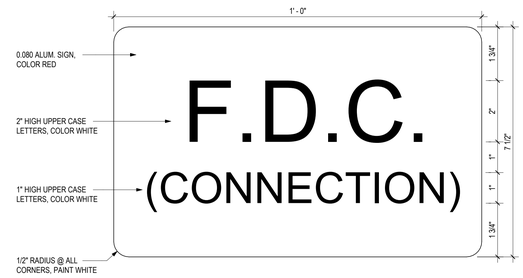
NOTE:
1. SEE SIGN TYPE "A" FOR PLASTIC LAMINATE & LETTERING COLORS

7 SIGN - TYPE 'V'
6" = 1'-0"



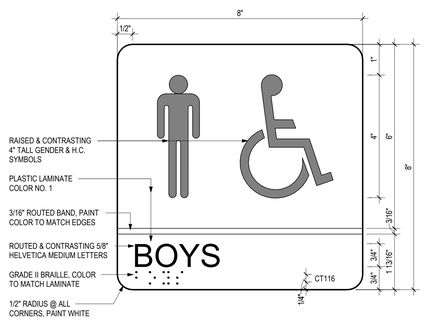
NOTE:
1. SEE SIGN TYPE "A" FOR PLASTIC LAMINATE & LETTERING COLORS

6 SIGN - TYPE 'Q'
6" = 1'-0"



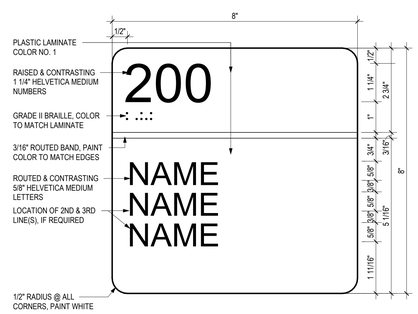
NOTE:
1. MECHANCIALLY FASTEN SIGN TO BUILDING

5 SIGN - TYPE 'K'
6" = 1'-0"



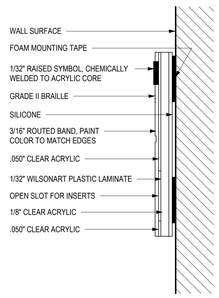
NOTE:
1. SEE SIGN TYPE "A" FOR PLASTIC LAMINATE & LETTERING COLORS

4 SIGN - TYPE 'D'
6" = 1'-0"

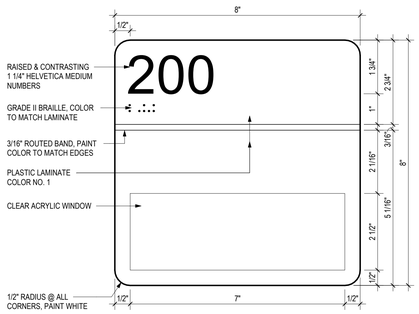


NOTE:
1. SEE SIGN TYPE "A" FOR PLASTIC LAMINATE & LETTERING COLORS

3 SIGN - TYPE 'B'
6" = 1'-0"



2 SIGN - TYPE 'A' SECTION
6" = 1'-0"



PLASTIC LAMINATE		RAISED LETTERING
#	WILSONART COLOR/ NUMBER	
1	HUNTINGTON MAPLE / 7929-38	BLACK

1 SIGN - TYPE 'A'
6" = 1'-0"

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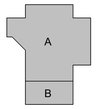

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUINN ROAD, TOMBALL, TX 77375

ARCADIS
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REGISTERED ARCHITECT
STATE OF TEXAS
2023-11-06

PROJECT #:	202311
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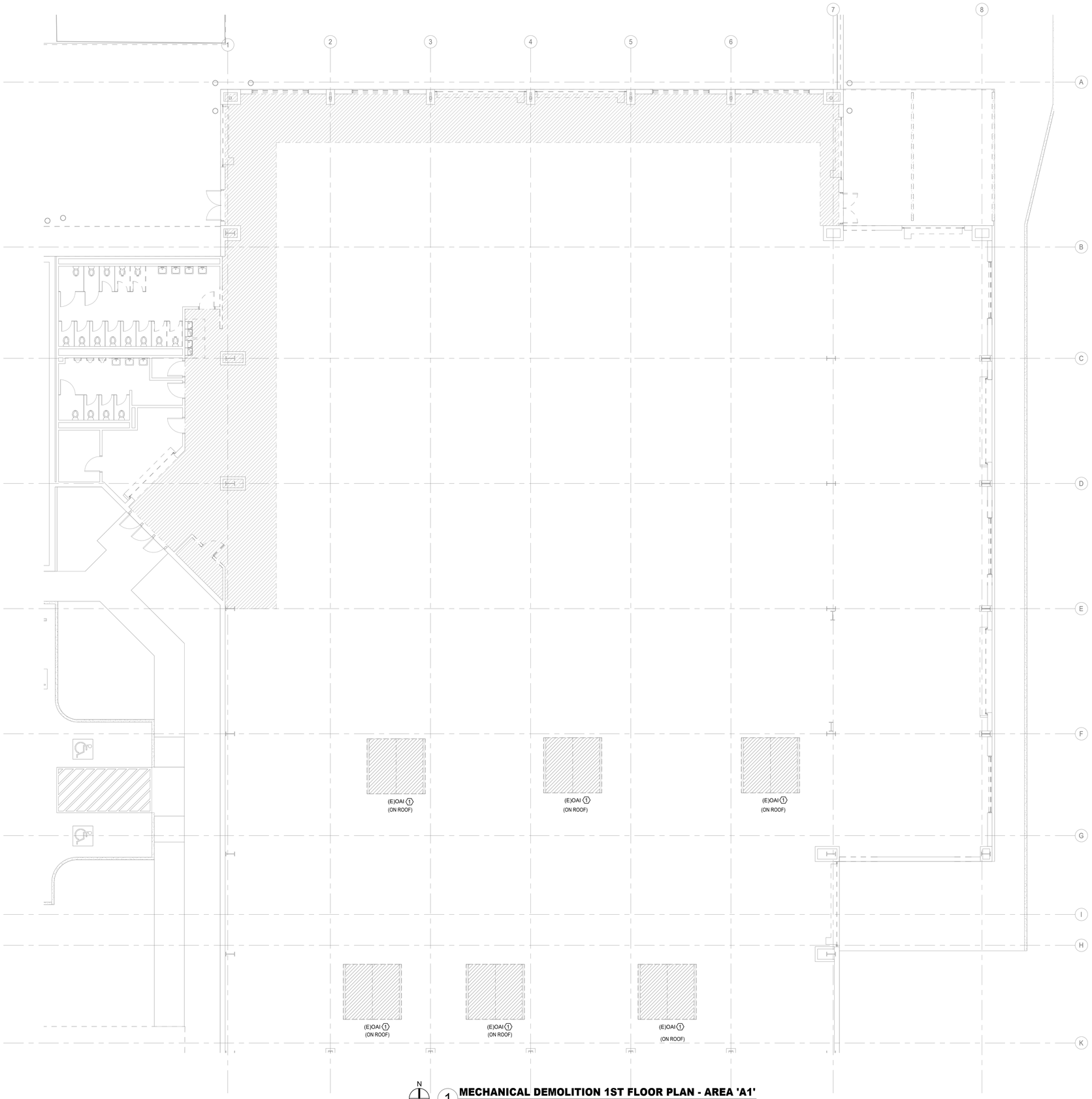
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-06	BID SET

A12.01

SIGNAGE DETAILS



N

1 **MECHANICAL DEMOLITION 1ST FLOOR PLAN - AREA 'A1'**
Scale: 1/8" = 1'-0"

MECHANICAL DEMOLITION GENERAL NOTES:

1. THESE CONSTRUCTION DRAWINGS ARE DIAGRAMMATIC, AND DO NOT NECESSARILY REFLECT ACTUAL DIMENSIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD-VERIFY ALL DIMENSIONS AND COORDINATE PLACEMENT OF ALL EQUIPMENT AND ROUTING OF ALL PIPING AND/OR DUCT SYSTEMS.
2. ALL MECHANICAL SYSTEMS SHOWN ON THIS PLAN ARE FROM EXISTING PRELIMINARY FIELD WORK. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL LOCATIONS AND SIZES OF MECHANICAL SYSTEMS PRIOR TO THE START OF WORK.
3. MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE REMOVE ALL EXISTING SPACE MOUNTED TEMPERATURE AND HUMIDITY SENSORS NOT BEING REUSED. PROVIDE STAINLESS STEEL COVER PLATES. CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.
4. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL HVAC EQUIPMENT BEING REMOVED FROM THIS PROJECT. THIS INCLUDES BUT NOT LIMITED TO CONDENSING UNITS, AIR HANDLING UNITS, CONTROLS, AND OUTSIDE AIR INTAKE VENTS.

MECHANICAL DEMOLITION KEYED NOTES:

1 EXISTING ROOF MOUNTED FAN / ROOF VENT SHALL BE REMOVED. ROOF OPENING SHALL BE CAPPED AND PATCHED. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.

SYMBOL LEGEND	
	POINT OF CONNECTION TO EXISTING
	ITEM TO REMAIN
	ITEM TO BE REMOVED

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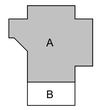

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUIN ROAD, TOMBALL, TX 77375

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BRADLEY KALMANS
80219
CENSED
11-06-23

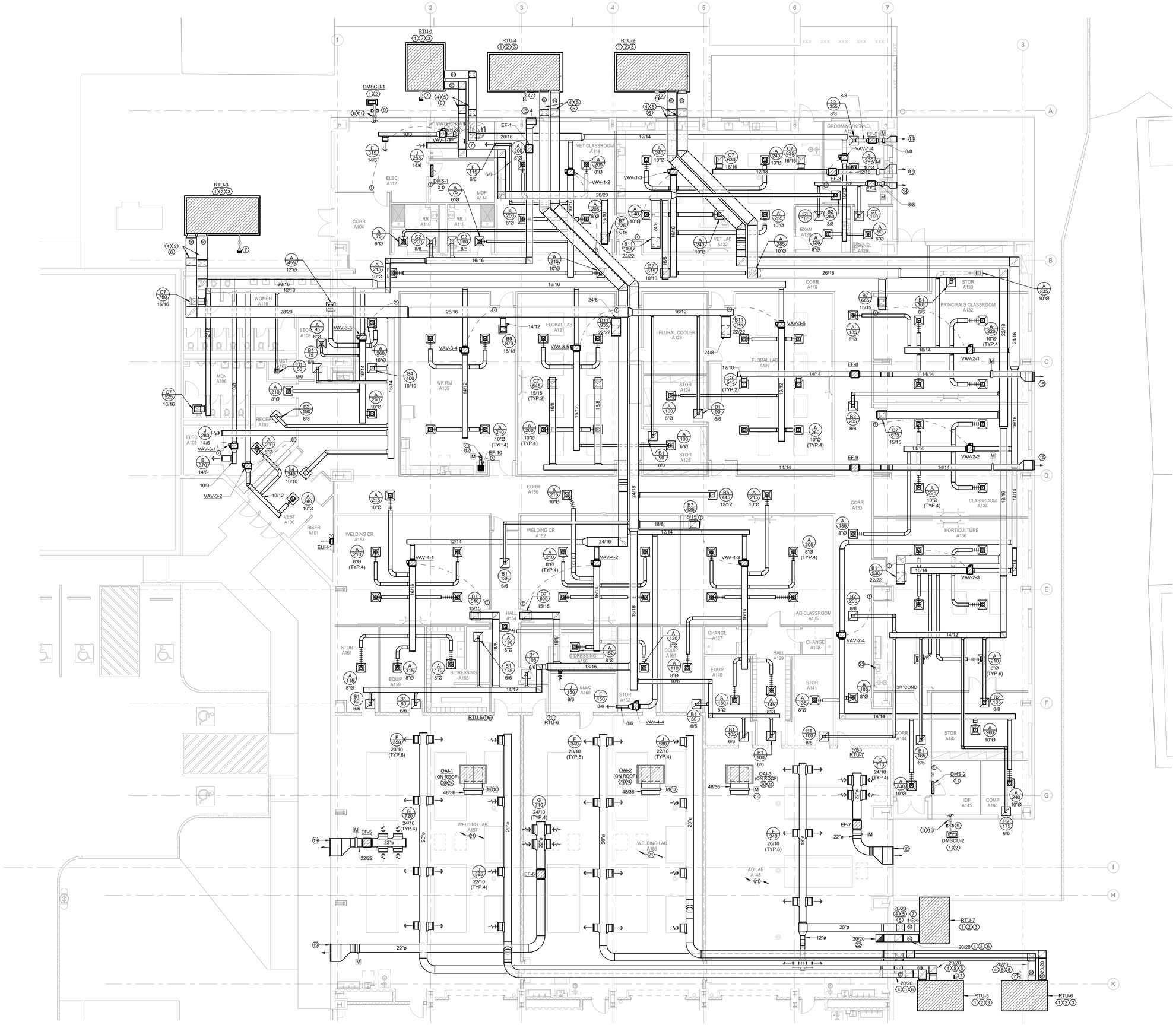
PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	AA
CHECKED:	SH

DATE	ISSUE △
2023-11-03	BID SET

M1.01

MECHANICAL DEMOLITION AREA 'A1' 1ST FLOOR PLAN

PLAN NORTH



1 **MECHANICAL 1ST FLOOR PLAN - AREA 'A1'**
Scale: 1/8" = 1'-0"

MECHANICAL GENERAL NOTES:

1. COORDINATE IN THE FIELD THE EXACT LOCATION OF MECHANICAL EQUIPMENT WITH CONTRACTOR AND ALL TRADES.
2. SENSORS SHALL BE MOUNTED AT +48" AFF (ABOVE FINISHED FLOOR). UNLESS OTHERWISE NOTED.
3. MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.
4. THESE CONSTRUCTION DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY REFLECT ACTUAL DIMENSIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD-VERIFY ALL DIMENSIONS AND COORDINATE PLACEMENT OF ALL EQUIPMENT AND ROUTING OF ALL PIPING AND/OR HVAC SYSTEMS.

MECHANICAL KEYED NOTES:

1. VERIFY SERVICE CLEARANCE WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADES NOT TO OBSTRUCT.
2. MOUNT PACKAGED UNIT ON 4" THICK HOUSE KEEPING CONCRETE PAD.
3. PACKAGED UNIT SHALL MAINTAIN MANUFACTURER'S RECOMMENDED UNOBSTRUCTED CLEARANCE ON ALL SIDES FOR SERVICING AND AIR FLOW.
4. REFER TO SPECIFICATIONS FOR OUTDOOR DUCTWORK, MATERIAL, AND INSULATION.
5. SUPPORT DUCTWORK FROM EXTERIOR WALL BY SECURING GALVANIZED UNISTRUT SUPPORT CHANNELS TO WALL AND ATTACH DUCTWORK TO UNISTRUT WITH GALVANIZED DUCT STRAPS. ALL FASTENERS SHALL BE STAINLESS STEEL.
6. PROVIDE PHP DUCT SUPPORT OR APPROVED EQUAL AT LOCATION SHOWN.
7. ROUTE FULL SIZE CONDENSATE PIPE TO FLOOR SINK. REFER TO PLUMBING DRAWINGS FOR FLOOR SINK EXACT LOCATION.
8. INSULATE OUTDOOR REFRIGERANT PIPING PER SPECIFICATION.
9. PROVIDE PHP PIPE SUPPORT AND ATTACH TO CONCRETE SLAB WITH STRUT CLAMPS.
10. ROUTE REFRIGERANT PIPE UP WALL.
11. ROUTE REFRIGERANT LINES TO ASSOCIATED AIR COOLED CONDENSING UNIT.
12. ROUTE EXHAUST DUCT AT SIZE INDICATED UP TO GOOSENECK ON ROOF. REFER TO 12/M3.01 FOR DETAIL.
13. PROVIDE 26" X 28" RUSKIN MODEL EME520MD WIND-DRIVEN RAIN RESISTANT STATIONARY LOUVER OR APPROVED EQUAL WITH MINIMUM FREE AREA OF 2.05 SQ. FT. PROVIDE WITH BIRD SCREEN AND PAINT TO MATCH WALL OR AS SPECIFIED BY ARCHITECT. COORDINATE FINAL LOCATION WITH ARCHITECT.
14. PROVIDE 16" X 14" RUSKIN MODEL EME520MD WIND-DRIVEN RAIN RESISTANT STATIONARY LOUVER OR APPROVED EQUAL WITH MINIMUM FREE AREA OF 0.49 SQ. FT. PROVIDE WITH BIRD SCREEN AND PAINT TO MATCH WALL OR AS SPECIFIED BY ARCHITECT. COORDINATE FINAL LOCATION WITH ARCHITECT.
15. PROVIDE 26" X 26" RUSKIN MODEL EME520MD WIND-DRIVEN RAIN RESISTANT STATIONARY LOUVER OR APPROVED EQUAL WITH MINIMUM FREE AREA OF 1.88 SQ. FT. PROVIDE WITH BIRD SCREEN AND PAINT TO MATCH WALL OR AS SPECIFIED BY ARCHITECT. COORDINATE FINAL LOCATION WITH ARCHITECT.
16. INTERLOCK MOTORIZED DAMPER WITH EF-5.
17. INTERLOCK MOTORIZED DAMPER WITH EF-6.
18. INTERLOCK MOTORIZED DAMPER WITH EF-7.
19. PROVIDE 48"X 24" RUSKIN MODEL EME520MD WIND-DRIVEN RAIN RESISTANT STATIONARY LOUVER OR APPROVED EQUAL WITH MINIMUM FREE AREA OF 3.3 SQ. FT. PROVIDE WITH BIRD SCREEN AND PAINT TO MATCH WALL OR AS SPECIFIED BY ARCHITECT. COORDINATE FINAL LOCATION WITH ARCHITECT.
20. FULL SIZE DUCTWORK DOWN THROUGH ROOF FROM OUTSIDE AIR INTAKE ON ROOF. PROVIDE TRANSITION AS REQUIRED TO SIZE INDICATED.
21. PROVIDE SPIRAL DOUBLE WALL ACOUSTICAL DUCTWORK AT THIS AREA.
22. PROVIDE INTERNALLY LINED RETURN AIR ELBOW.
23. ROUTE CONDENSATE PIPE AT SIZE INDICATED TO WYE TAIL PIECE. REFER TO PLUMBING DRAWINGS AT SIZE INDICATED.
24. MOUNT OUTSIDE AIR INTAKE ON WIND RESISTANT ROOF CURB RE: 14/M3.02 FOR MORE INFORMATION.

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A
B

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
11-06-23

PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	AA
CHECKED:	SH

DATE	ISSUE
2023-11-03	BID SET

M2.01

MECHANICAL AREA 'A1' 1ST FLOOR PLAN

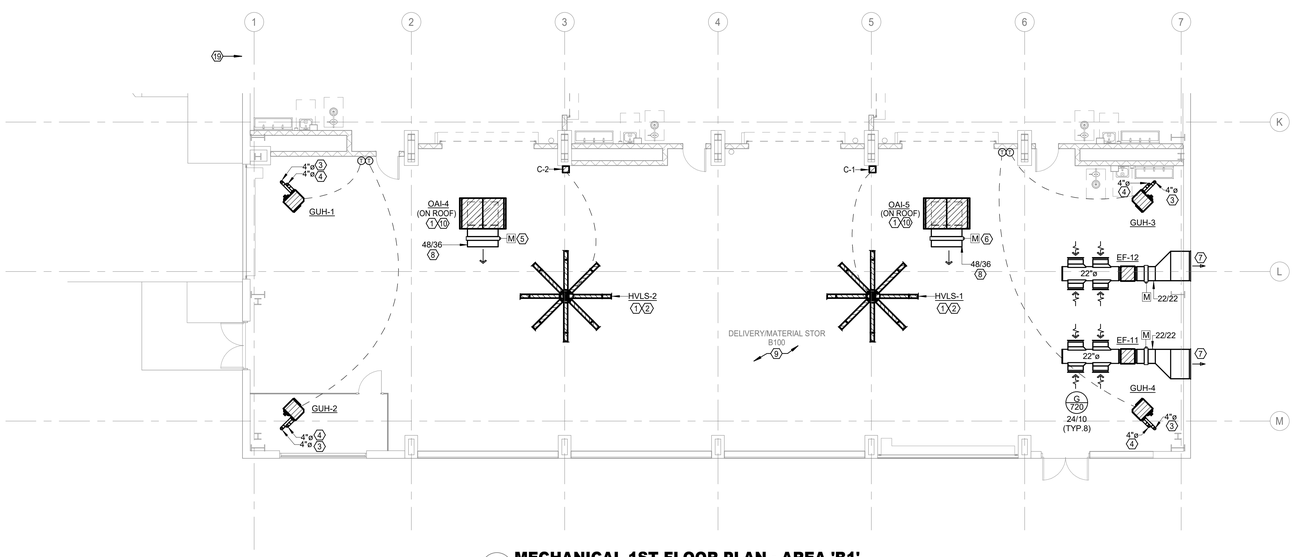
PLAN NORTH

MECHANICAL GENERAL NOTES:

1. COORDINATE IN THE FIELD THE EXACT LOCATION OF MECHANICAL EQUIPMENT WITH CONTRACTOR AND ALL TRADES.
2. SENSORS SHALL BE MOUNTED AT +48" AFF (ABOVE FINISHED FLOOR). UNLESS OTHERWISE NOTED.
3. MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL POWER REQUIREMENTS.
4. THESE CONSTRUCTION DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY REFLECT ACTUAL DIMENSIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND COORDINATE PLACEMENT OF ALL EQUIPMENT AND ROUTING OF ALL PIPING AND/OR HVAC SYSTEMS.

MECHANICAL KEYED NOTES:

1. VERIFY SERVICE CLEARANCE WITH EQUIPMENT MANUFACTURER. COORDINATE WITH ALL TRADES NOT TO OBSTRUCT.
2. MAINTAIN A MINIMUM OF 3'0" FT BETWEEN FAN BLADE AND HOIST CRANE.
3. ROUTE FLUE AT SIZE INDICATED UP TO GOOSENECK ON ROOF. REFER TO DETAILS FOR MORE INFORMATION.
4. ROUTE INTAKE AT SIZE INDICATED UP TO ROOF.
5. INTERLOCK MOTORIZED DAMPER WITH EF-11.
6. INTERLOCK MOTORIZED DAMPER WITH EF-12.
7. PROVIDE 48"X 24" RUSKIN MODEL EME520MD WIND-DRIVEN RAIN RESISTANT STATIONARY LOUVER OR APPROVED EQUAL WITH MINIMUM FREE AREA OF 3.3 SQ. FT. PROVIDE WITH BIRD SCREEN AND PAINT TO MATCH WALL OR AS SPECIFIED BY ARCHITECT. COORDINATE FINAL LOCATION WITH ARCHITECT.
8. FULL SIZE DUCTWORK DOWN THROUGH ROOF FROM OUTSIDE AIR INTAKE ON ROOF. PROVIDE TRANSITION AS REQUIRED TO SIZE INDICATED.
9. PROVIDE DOUBLE WALL ACOUSTICAL DUCTWORK AT THIS AREA.
10. MOUNT OUTSIDE AIR INTAKE ON WIND RESISTANT ROOF CURB RE: 14/M3.02 FOR MORE INFORMATION.



1 **MECHANICAL 1ST FLOOR PLAN - AREA 'B1'**
Scale: 1/8" = 1'-0"

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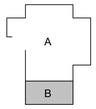

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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STATE OF TEXAS
BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
11-06-23

PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	AA
CHECKED:	SH

DATE	ISSUE 1
2023-11-03	BID SET

M2.02

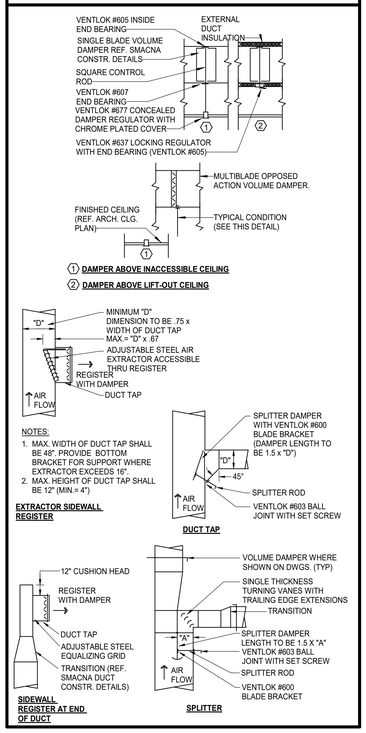
MECHANICAL AREA 'B1' 1ST LOOR PLAN

PLAN NORTH

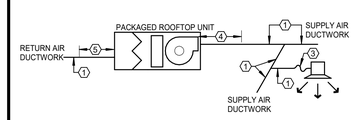
SYMBOL LEGEND

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
GENERAL	
#	KEY NOTE TAG
△	REVISION TAG
	NEW EQUIPMENT
DUCTWORK	
	SUPPLY AIR DUCTWORK
	RETURN AIR AND OUTSIDE AIR DUCTWORK
	EXHAUST AIR DUCTWORK
	FLEXIBLE DUCTWORK
	SUPPLY AIR DUCTWORK THROUGH HORIZONTAL PARTITION
	EXHAUST AIR DUCTWORK THROUGH HORIZONTAL PARTITION
▲	FIRE DAMPER (VERTICAL)
♦	FIRE DAMPER (HORIZONTAL)
△	SMOKE DAMPER (VERTICAL)
◇	SMOKE DAMPER (HORIZONTAL)
△	COMBINATION FIRE & SMOKE DAMPER (VERTICAL)
◇	COMBINATION FIRE & SMOKE DAMPER (HORIZONTAL)
	MANUAL BALANCING DAMPER (SEE DAMPER SCHEDULE)
	MOTORIZED DAMPER (SEE DAMPER SCHEDULE)
SENSORS	
T	THERMOSTAT AND TEMPERATURE SENSOR
H	HUMIDISTAT
SD	SMOKE DETECTOR
HD	HEAT DETECTOR
AIR DEVICES	
	GRILLE SIZE TAG (REFER TO GRILLE SIZE LEGEND)
	SUPPLY AIR GRILLE WITH FOUR-WAY THROW
	SUPPLY AIR GRILLE WITH THREE-WAY THROW
	SUPPLY AIR GRILLE WITH TWO-WAY THROW
	SUPPLY AIR GRILLE WITH TWO-WAY CORNER THROW
	SUPPLY AIR GRILLE WITH ONE-WAY THROW
	RETURN AIR GRILLE
	RETURN AIR GRILLE WITH SOUND BOOT
	EXHAUST AIR GRILLE
	SUPPLY AIR SIDEWALL GRILLE
	RETURN AIR SIDEWALL GRILLE
20X12	RETURN AIR OPENING ABOVE CEILING
PIPING	
–CWS&R–	CONDENSER WATER SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–CWS–	CONDENSER WATER SUPPLY
–CWR–	CONDENSER WATER RETURN
–CHWS&R–	CHILLED WATER SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–CHWS–	CHILLED WATER SUPPLY
–CHWR–	CHILLED WATER RETURN
–HWS&R–	HOT WATER FOR HYDRONIC HEATING SUPPLY & RETURN (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
–HWS–	HOT WATER FOR HYDRONIC HEATING SUPPLY
–HWR–	HOT WATER FOR HYDRONIC HEATING RETURN
—D—	CONDENSATE DRAIN LINE
—AD—	AUXILLARY CONDENSATE DRAIN LINE
—RLR—	REFRIGERANT LIQUID & GAS RECIRCULATION LINE (TOTAL OF TWO PIPES, ONLY ONE PIPE SHOWN FOR DRAWING CLARITY)
—RL—	REFRIGERANT LIQUID LINE
—HG—	REFRIGERANT HOT GAS LINE
—RS—	REFRIGERANT SUCTION LINE
	ELBOW UP
	ELBOW DOWN
	90° ELBOW
	45° ELBOW
	TEE
	TEE DOWN
	TEE UP
	TOP BRANCH CONNECTION
	BOTTOM BRANCH CONNECTION
	FLANGE
	CAP
	CONTINUATION
	FLOOR DRAIN (REFER TO PLUMBING DRAWINGS)
	GAUGE COCK
	SITE GLASS
	DIFFERENTIAL PRESSURE SENSOR
	TURBINE FLOW METER
	ANCHOR
	PIPE GUIDE
SUBSCRIPTS AND ABREVIATIONS	
AFF	ABOVE FINISHED FLOOR
BBS	BELOW BOTTOM OF STRUCTURE
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
CA	COMBUSTION AIR
CFM	CUBIC FEET PER MINUTE
EA	EXHAUST AIR
FPM	FEET PER MINUTE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
RENOVATIONS	
	POINT OF CONNECTION FROM NEW TO EXISTING
	ITEM TO REMAIN
	ITEM TO BE REMOVED

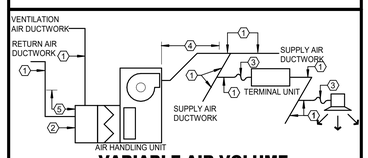
DUCTWORK CONSTRUCTION DETAILS



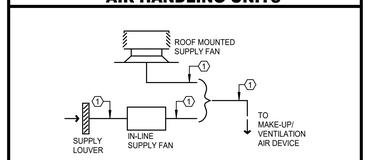
DUCT LINER AND INSULATION



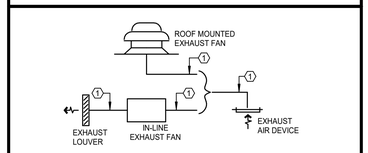
PACKAGED ROOFTOP UNIT



VARIABLE AIR VOLUME AIR HANDLING UNITS



MAKE-UP/VENTILATION AIR SYSTEMS

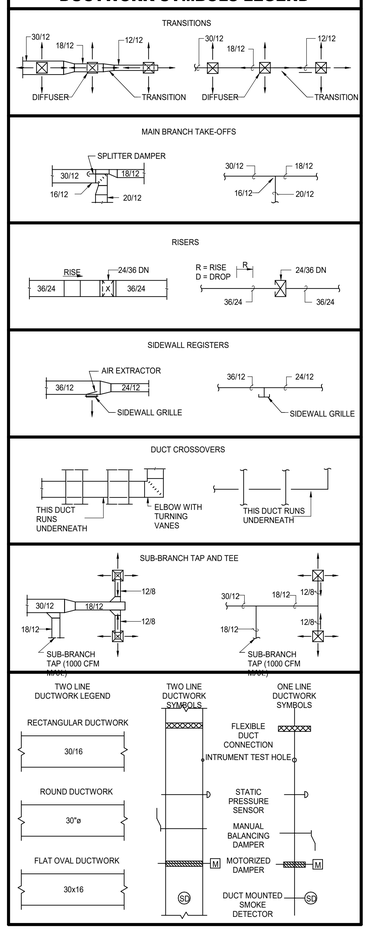


EXHAUST AIR SYSTEMS

KEYED NOTES:

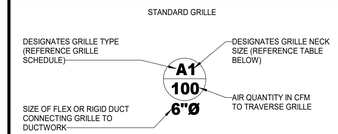
1. SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
2. SHEETMETAL DUCTWORK RETURN AIR PLENUM WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
3. FLEXIBLE DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED.
4. SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED AND 1" THICK 1-1/2 LB LINER AS SPECIFIED FROM AIR HANDLING UNIT DISCHARGE TO 10'-0" DOWNSTREAM.
5. SHEETMETAL DUCTWORK WITH EXTERNAL DUCTWORK INSULATION AS SPECIFIED AND 1" THICK 1-1/2 LB LINER AS SPECIFIED FROM AIR HANDLING UNIT INLET TO 10'-0" UPSTREAM.
6. EXHAUST DUCTWORK AS SPECIFIED WITH FIREBOARD INSULATION AS SPECIFIED.
7. SHEETMETAL DUCTWORK ONLY. NO INSULATION REQUIRED.

DUCTWORK SYMBOLS LEGEND



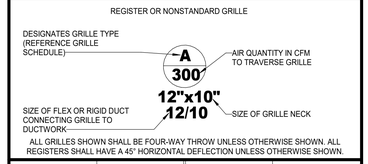
GRILLE SIZING SCHEDULE

STANDARD GRILLE



ALL GRILLES SHOWN SHALL BE FOUR-WAY THROW UNLESS OTHERWISE SHOWN.

REGISTER OR NONSTANDARD GRILLE



ALL GRILLES SHOWN SHALL BE FOUR-WAY THROW UNLESS OTHERWISE SHOWN. ALL REGISTERS SHALL HAVE A 45° HORIZONTAL DEFLECTION UNLESS OTHERWISE SHOWN.

GRILLE SIZE DESIGNATION	GRILLE NECK SIZE	GRILLE SIZE DESIGNATION	GRILLE NECK SIZE
1	6" x 6"	7	15" x 15"
2	8" x 8"	8	16" x 16"
3	9" x 9"	9	18" x 18"
4	10" x 10"	10	20" x 20"
5	12" x 12"	11	22" x 22"
6	14" x 14"	12	24" x 24"

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A

B

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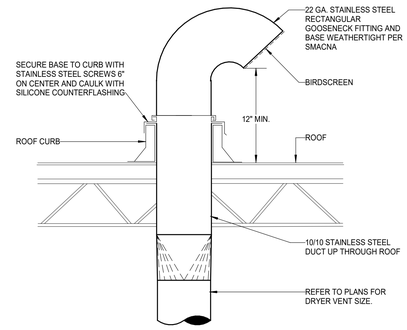
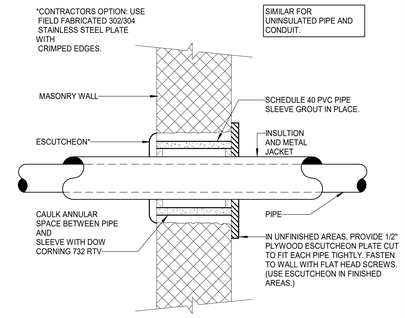
MECHNICAL DETAILS AND LEGENDS

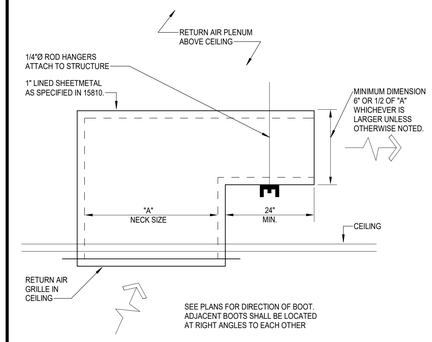
PLAN NORTH



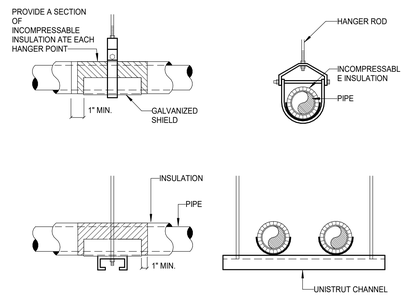
12 VENT THROUGH ROOF
SCALE: NONE



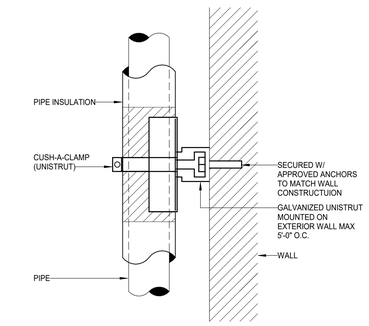
8 PIPE THROUGH EXTERIOR WALL
SCALE: NONE



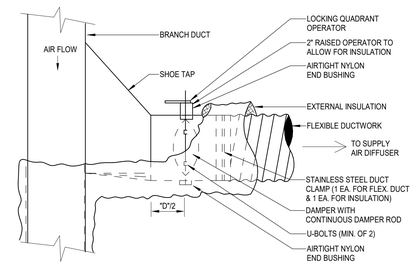
4 RETURN AIR GRILLE BOOT
SCALE: NONE



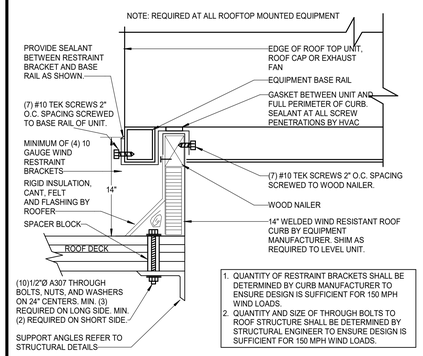
11 PIPE HANGERS
SCALE: NONE



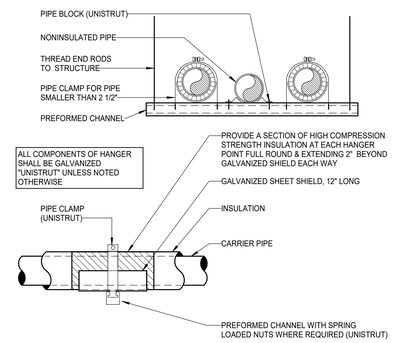
7 EXTERIOR PIPE MOUNTING DETAIL
SCALE: NONE



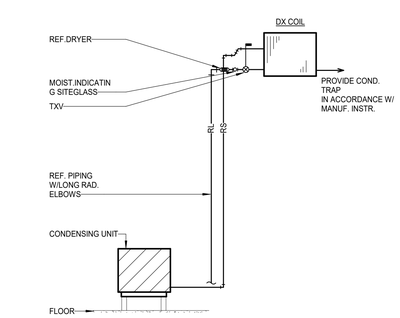
3 FLEXIBLE DUCT TAP - SHOE
SCALE: NONE



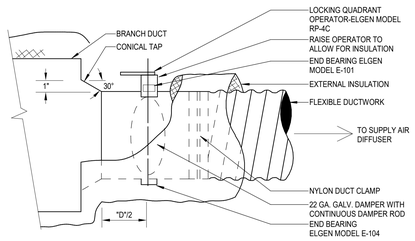
14 WIND RESISTANT ROOF CURB
SCALE: NONE



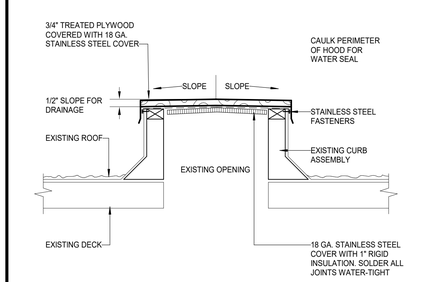
10 MULTI-PIPE TRAPEZE HANGER
SCALE: NONE



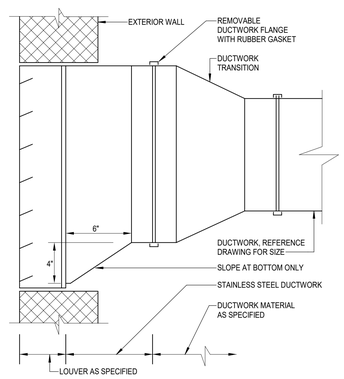
6 REFRIGERANT PIPING DIAGRAM
SCALE: NONE



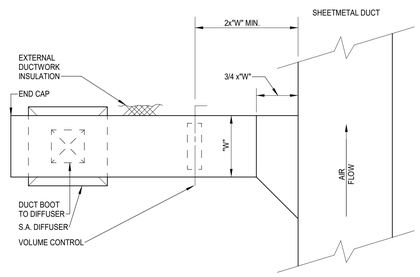
2 FLEXIBLE DUCT TAP - CONICAL
SCALE: NONE



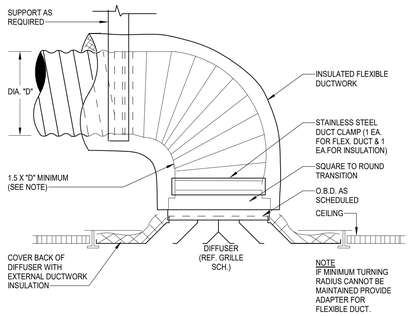
13 EXISTING ROOF OPENING COVER
SCALE: NONE



9 DUCTWORK AT LOUVER
SCALE: NONE



5 RIGID DUCT TAP TO SINGLE SUPPLY AIR DIFFUSER
SCALE: NONE



1 FLEX DUCT CONNECTION AT SUPPLY AIR DIFFUSER
SCALE: NONE

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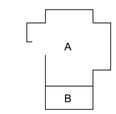

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M3.02

MECHANICAL DETAILS AND LEGENDS

PLAN NORTH

UNIT HEATER - GAS FIRED

TAG	MINIMUM INPUT CAPACITY (BTUH)	AGA EFFICIENCY (%)	CURRENT CHARAC. V	PH	F	CFM	MANUFACTURER	MODEL	REMARKS
GUH-1	30,000	80	120	1	60	450	REZNOR	UDAS	1,2
GUH-2	30,000	80	120	1	60	450	REZNOR	UDAS	1,2
GUH-3	30,000	80	120	1	60	450	REZNOR	UDAS	1,2
GUH-4	30,000	80	120	1	60	450	REZNOR	UDAS	1,2

REMARKS:
1. PROVIDE WITH WALL MOUNTED THERMOSTAT.
2. REFER TO MANUFACTURER FOR INSTALLATION GUIDE.

FAN

MARK	LOCATION	CFM	EXT. STATIC PRESSURE (IN. W.C.)	MAX. FAN RPM	HORSE POWER	CURRENT CHARAC. V	P	F	LOCALLY SWITCHED BY	INTERLOCKED WITH	FAN TYPE	DRIVE TYPE	MANUFACTURER	MODEL NUMBER	REMARKS
EF-1	VET CLASSROOM A114	1,725	0.90	1,114	0.5	120	1	60	-	RTU-3	INLINE	DIRECT	COOK	SQND	1,2,3,4,6
EF-2	GROOMING KENNEL A126	355	0.50	1,725	0.5	120	1	60	TIMER	-	INLINE	DIRECT	COOK	SQND	1,2,3,4,5,6
EF-3	GROOMING KENNEL A126	1,265	0.50	1,725	0.5	120	1	60	TIMER	-	INLINE	DIRECT	COOK	SQND	1,2,3,4,5,6
EF-4	GROOMING KENNEL A126	305	0.50	1,725	0.5	120	1	60		RTU-1	INLINE	DIRECT	COOK	SQND	1,2,3,4
EF-5	WELDING LAB A157	2,880	0.80	1,725	1	480	3	60	SWITCH	-	INLINE	DIRECT	COOK	SQN	1,2,3,4
EF-6	WELDING LAB A158	2,840	0.80	1,725	1	480	3	60	SWITCH	-	INLINE	DIRECT	COOK	SQN	1,2,3,4
EF-7	AG LAB A143	2,840	0.80	1,725	1	480	3	60	SWITCH	-	INLINE	DIRECT	COOK	SQN	1,2,3,4
EF-8	GROOMING KENNEL A126	1,090	0.50	1,725	0.5	120	1	60	TIMER	-	INLINE	DIRECT	COOK	SQND	1,2,3,4,5,6
EF-9	GROOMING KENNEL A128	1,090	0.50	1,725	0.5	120	1	60	TIMER	-	INLINE	DIRECT	COOK	SQND	1,2,3,4,5,6
EF-10	WK RM A105	150	0.20	1,160	0.1	120	1	60		TSTAT	CEILING	DIRECT	COOK	GC	1,3,6,10,11
EF-11	DELIVERY/MATERIAL STOR B100	2,880	0.80	1,725	1	480	3	60	SWITCH	-	INLINE	DIRECT	COOK	SQN	1,2,3,4,6
EF-12	DELIVERY/MATERIAL STOR B100	2,880	0.80	1,725	1	480	3	60	SWITCH	-	INLINE	DIRECT	COOK	SQN	1,2,3,4,6
HVLS-1	DELIVERY/MATERIAL STOR B100	0	0.00	145	1	480	3	60	CONTROLLER	-	CEILING MOUNTED	DIRECT	Big Ass Fans	PFD 12	7,8,9
HVLS-2	DELIVERY/MATERIAL STOR B100	0	0.00	145	1	480	3	60	CONTROLLER	-	CEILING MOUNTED	DIRECT	Big Ass Fans	PFD 12	7,8,9

GENERAL NOTES:
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MINIMUM RECOMMENDED CLEARANCE AROUND UNIT IS 12 INCHES ON NON-SERVICE SIDES AND 30 INCHES ON SERVICE SIDES. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE WITH DISCONNECT SWITCH.
2. PROVIDE WITH BIRD SCREEN.
3. PROVIDE WITH MOTORIZED DAMPER.
4. SUSPEND UNIT WITH FOR HANGER RODS ATTACHED TO TWO UNISTRUT RUNNERS SECURED TO STRUCTURE. PROVIDE SPRING ISOLATION. REFER TO MANUFACTURER FOR MORE INFORMATION.
5. PROVIDE WITH 60 MINUTE TIMER WITHOUT HOLD FEATURE.
6. PROVIDE WITH SPEED CONTROLLER.
7. PROVIDE WITH FAN CONTROLLER.
8. MOUNT FAN TO STRUCTURAL BEAMS. REFER TO MANUFACTURER'S INSTRUCTION FOR MOUNTING OPTIONS AND REQUIRED CLEARANCES.
9. INCLUDE AUTOMATIC FIRE SPRINKLER RELAY.
10. PROVIDE WITH MANUFACTURER GRILLE
11. PROVIDE WITH LINE VOLTAGE THERMOSTAT.

PACKAGED ROOFTOP UNIT - GAS HEAT

MARK	FAN: SUPPLY AIR CFM	OUTSIDE AIR CFM	EXT.STATIC PRESSURE (IN. W.C.)	HORSE POWER	CURRENT CHARAC. V	PH	F	COOLING: AIR TEMPERATURE (°F) ENTERING DRY BULB	ENTERING WET BULB	AMBIENT TEMP	MIN. TOTAL CAPACITY (BTUH)	MIN. SENS. CAPACITY (BTUH)	MINIMUM EER/ SEER	HEATING: ENTERING AIR TEMP.(°F)	HEATING CAPACITY (BTUH)	AFUE %	MCA	MOCP	REMARKS
RTU-5	2,800	420	1.50	5.0	480	3	60	78.3	65.5	95 °F	108,173	76,507	11.2/-	65	90,720	8000	29	35	(1-11)
RTU-6	2,720	405	1.50	5.0	480	3	60	78.3	65.5	95 °F	105,083	74,321	11.2/-	65	88,128	8000	26	30	(1-11)
RTU-7	2,720	405	1.50	5.0	480	3	60	78.3	65.5	95 °F	105,083	74,321	11.2/-	65	88,128	8000	26	30	(1-11)

GENERAL NOTES:
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MAINTAIN MINIMUM CLEARANCE FOR COIL PULL AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE UNIT WITH DISCONNECT SWITCH, ROOF CURB AND MOTORIZED OUTSIDE AIR DAMPER.
2. PROVIDE UNIT WITH FACTORY MOUNTED GFCI RECEPTACLE FOR ELECTRICIAN TO WIRE TO SEPARATE CIRCUIT.
3. PROVIDE UNIT WITH LOW AMBIENT CONTROL.
4. PROVIDE UNIT WITH TEMPERATURE AND HUMIDITY SENSOR.
5. PROVIDE WITH SIDE DISCHARGE OR TRANSITION PLENUM CURB.
6. PROVIDE A WATER LEVEL SENSING DEVICE (FLOW SWITCH) IN THE PRIMARY DRAIN PAN. THIS DEVICE SHALL SHUT OFF THE APPLIANCE IN THE EVENT THE PRIMARY DRAIN LINE BECOMES RESTRICTED.
7. PROVIDE UNIT WITH DIFFERENTIAL ENTHALPY CONTROLLED ECONOMIZER AND POWERED EXHAUST. ECONOMIZER DAMPER SHALL BE ULTRA LOW LEAK EQUIVALENT TO RUSKIN CD60 OR BETTER.
8. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL COSTS IF ALTERNATE UNIT IS PROVIDED WITH GREATER ELECTRICAL CHARACTERISTICS THEN SHOWN.
9. PROVIDE WITH EVAPORATOR COIL LEAVING AIR TEMPERATURE SENSOR.
10. PROVIDE WITH HOT GAS REHEAT.
11. PROVIDE UNIT WITH DEMAND CONTROLLED VENTILATION.

PACKAGED ROOFTOP UNIT - VAV NO HEAT

MARK	FAN: SUPPLY AIR CFM	OUTSIDE AIR CFM	EXT.STATIC PRESSURE (IN. W.C.)	HORSE POWER	CURRENT CHARAC. V	PH	F	COOLING: AIR TEMPERATURE (°F) ENTERING DRY BULB	ENTERING WET BULB	AMBIENT TEMP	MIN. TOTAL CAPACITY (BTUH)	MIN. SENS. CAPACITY (BTUH)	MINIMUM EER/ SEER	MCA	MOCP	REMARKS
RTU-1	3,835	870	2.50	5.0	480	3	60	81.0	67.9	95 °F	175,440	118,041	11/-	44	50	(1-12)
RTU-2	4,695	1,225	2.50	5.0	480	3	60	81.3	67.9	95 °F	214,730	146,033	11/-	51	60	(1-12)
RTU-3	5,450	1,245	2.50	7.5	480	3	60	80.7	67.9	95 °F	249,382	165,985	10/-	57	80	(1-12)
RTU-4	4,560	1,310	2.50	5.0	480	3	60	81.7	67.9	95 °F	208,487	143,804	11/-	51	60	(1-12)

GENERAL NOTES:
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MAINTAIN MINIMUM CLEARANCE FOR COIL PULL AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE UNIT WITH DISCONNECT SWITCH, ROOF CURB AND MOTORIZED OUTSIDE AIR DAMPER.
2. PROVIDE UNIT WITH FACTORY MOUNTED GFCI RECEPTACLE FOR ELECTRICIAN TO WIRE TO SEPARATE CIRCUIT.
3. PROVIDE UNIT WITH LOW AMBIENT CONTROL.
4. PROVIDE UNIT WITH OUTSIDE AIR FLOW MONITORING STATION.
5. PROVIDE WITH HORIZONTAL DISCHARGE.
6. PROVIDE A WATER LEVEL SENSING DEVICE (FLOW SWITCH) IN THE PRIMARY DRAIN PAN. THIS DEVICE SHALL SHUT OFF THE APPLIANCE IN THE EVENT THE PRIMARY DRAIN LINE BECOMES RESTRICTED.
7. PROVIDE UNIT WITH DIFFERENTIAL ENTHALPY CONTROLLED ECONOMIZER AND POWERED EXHAUST. ECONOMIZER DAMPER SHALL BE ULTRA LOW LEAK EQUIVALENT TO RUSKIN CD60 OR BETTER.
8. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL COSTS IF ALTERNATE UNIT IS PROVIDED WITH GREATER ELECTRICAL CHARACTERISTICS THEN SHOWN.
9. PROVIDE WITH EVAPORATOR COIL LEAVING AIR TEMPERATURE SENSOR.
10. PROVIDE WITH MULTIPLE ZONE VAV UNIT CONTROLS WITH VFD ON SUPPLY FAN.
11. PROVIDE WITH VARIABLE CAPACITY COMPRESSOR.
12. PROVIDE WITH DUCT STATIC PRESSURE SENSOR.

DUCTLESS MINI-SPLIT - INDOOR UNIT

MARK	FAN: SUPPLY AIR CFM	OUTSIDE AIR CFM	EXT.STATIC PRESSURE (IN. W.C.)	POWER (WATTS)	CURRENT CHARAC. V	PH	F	COOLING: AIR TEMPERATURE (°F) ENTERING DRY BULB	ENTERING WET BULB	MIN. TOTAL CAPACITY (BTUH)	MIN. SENS. CAPACITY (BTUH)	MINIMUM EER/ SEER	NUMBER OF STAGES	REMARKS
DMS-1	705	0	0.10	75.0	208	1	60	75.0	62.5	34,200	27,860	-/14	1	(1,2,3,4,5)
DMS-2	370	0	0.10	40.0	208	1	60	75.0	62.5	17,100	13,680	-/15.2	1	(1,2,3,4,5)

GENERAL NOTES:
1. EXTERNAL STATIC PRESSURE INCLUDES LOSSES DUE TO DUCTWORK, AIR DEVICES, DAMPERS, AND DUCT MOUNTED HOT WATER COILS WHERE APPLICABLE. DIRTY FILTER AND UNIT CASING MUST BE ADDED TO EXTERNAL STATIC PRESSURE TO OBTAIN TOTAL PRESSURE LOSS. INCREASE HORSEPOWER AS REQUIRED TO MEET YOUR TOTAL PRESSURE LOSS. COORDINATE WITH ELECTRICIAN.
2. MAINTAIN MINIMUM CLEARANCE FOR COIL PULL AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. UNIT TO BE INSTALLED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. CONTROLLED BY PROGRAMMABLE WIRED THERMOSTAT.
3. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.
4. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT.
5. PROVIDE INTEGRAL MINI SPLIT CONDENSATE PUMP KIT ASP-MA-UNI MINI AQUA BY ASPEN PUMPS OR EQUAL. CONDENSATE PUMP SHALL BE INSTALLED INSIDE HIGH WALL UNIT. REFER TO MANUFACTURER INSTALLATION INSTRUCTIONS.

AIR COOLED CONDENSING UNIT

MARK	MIN. TOTAL CAPACITY (BTUH)	OUTDOOR AIR TEMP (°F)	MINIMUM EER/ SEER	CURRENT CHARAC. V	PH	F	RELATED UNIT MARK	REMARKS
DMSCU-1	34,200	95	-/14	208	1	60	DMS-1	(1,2,3)
DMSCU-2	17,100	95	-/15.2	208	1	60	DMS-2	(1,2,3)

GENERAL NOTES:
1. MINIMUM RECOMMENDED CLEARANCE AROUND ROOFTOP UNIT IS 12 INCHES ON NON-SERVICE SIDES AND 30 INCHES ON SERVICE SIDES. MAINTAIN MINIMUM CLEARANCE FOR CONDENSER AIR FLOW AS RECOMMENDED BY UNIT MANUFACTURER. MAINTAIN MINIMUM CLEARANCE AS REQUIRED TO OPEN ACCESS AND CONTROL DOORS ON UNIT FOR SERVICE, MAINTENANCE, AND INSPECTION. MAINTAIN MINIMUM ELECTRICAL CLEARANCE AS REQUIRED BY NEC.

REMARKS:
1. PROVIDE WITH LOW AMBIENT CONTROL DOWN TO 20°F.
2. PROVIDE WITH DISCONNECT SWITCH.
3. REFRIGERANT LINES TO BE SIZED PER MANUFACTURER'S REQUIREMENTS.

VARIABLE VOLUME TERMINAL BOX (ELECTRIC HEAT)

MARK	MAXIMUM CFM	MINIMUM CFM	INLET DIAMETER SIZE (IN.)	KW	CURRENT CHARAC. V	P	F	REMARKS
VAV-1-1	315	315	6					-
VAV-1-2	1,500	575	12	16.6	480	3	60	-
VAV-1-3	1,500	645	12	16.6	480	3	60	-
VAV-1-4	520	365	8	5.8	480	3	60	-
VAV-2-1	1,300	640	12	14.4	480	3	60	-
VAV-2-2	1,085	400	10	12.0	480	3	60	-
VAV-2-3	1,260	450	12	14.0	480	3	60	-
VAV-2-4	1,050	550	10	11.6	480	3	60	-
VAV-3-1	370	370	6					-
VAV-3-2	560	290	8	6.2	480	3	60	-
VAV-3-3	1,280	720	12	14.2	480	3	60	-
VAV-3-4	960	360	10	10.6	480	3	60	-
VAV-3-5	1,140	360	12	12.6	480	3	60	-
VAV-3-6	1,140	360	12	12.6	480	3	60	-
VAV-4-1	1,455	455	12	16.1	480	3	60	-
VAV-4-2	1,515	420	12	16.8	480	3	60	-
VAV-4-3	1,440	360	12	16.0	480	3	60	-
VAV-4-4	150	150	4					-

GENERAL NOTES:
1. MAXIMUM STATIC PRESSURE DROP OF AIR THROUGH THE TERMINAL BOX SHALL BE 0.2" W.G.
2. MAXIMUM VELOCITY THROUGH DUCT INLET SHALL BE 2,000 FPM.
3. SUSPEND UNIT WITH FOUR THREADED HANGER RODS ATTACHED TO TWO UNISTRUT RUNNERS SECURED TO STRUCTURE. REFER TO MANUFACTURER FOR MORE DETAILS.
4. UNITS TO BE MOUNTED BETWEEN BEAMS AND 18" MAXIMUM ABOVE CEILING. AVOID MOUNTING OVER LIGHTS WHEREVER POSSIBLE.

REMARKS:
1. N/A

UNIT HEATER - ELECTRIC

MARK	MINIMUM CAPACITY (BTUH)	KW	NUMBER OF STAGES	CURRENT CHARAC. V	P	F	CFM	MANUFACTURER	MODEL	REMARKS
EUH-1	17,060	5	1	208	1	60	310	REZNOR	EGEB	(1,2)

REMARKS:
1. PROVIDE WITH DISCONNECT SWITCH AND PENDANT MOUNTED THERMOSTAT.
2. REFER TO MANUFACTURER INSTALLATION GUIDE FOR CLEARANCES AND MOUNTING HEIGHTS.

GRILLE

MARK	SERVICE	TYPE	DAMPER	CONSTRUCTION MATERIAL	FINISH COLOR	MANUFACTURER	MODEL NUMBER	DESCRIPTION
A	SUPPLY AIR	DIFFUSER	-	STEEL	-	TITUS	OMNI	EXPOSED T-BAR CEILING FRAME STYLE WITH 24"X24" OR 12"X12" FACE.
B	RETURN AIR	DIFFUSER	-	STEEL	-	TITUS	PAR	EXPOSED T-BAR CEILING FRAME STYLE WITH A 24"X24" FACE. PERFORATED.
C	EXHAUST AIR	DIFFUSER	-	STEEL	-	TITUS	PAR	EXPOSED T-BAR CEILING FRAME STYLE WITH A 24"X24" OR 12"X12" FACE. PERFORATED FACE.
E	SUPPLY AIR	SUPPLY AIR	-	STEEL	-	TITUS	300RL	DOUBLE DEFLECTION SIDEWALL GRILLE WITH HORIZONTAL FRONT BARS. SURFACE MOUNTED
F	SUPPLY AIR	GRILLE	-	STEEL	-	TITUS	DL	DRUM LOUVER
G	EXHAUST AIR	GRILLE	-	STEEL	-	TITUS	350RL	SINGLE DEFLECTION SIDEWALL GRILLE WITH HORIZONTAL FRONT BARS. SURFACE MOUNTED
H	EXHAUST AIR	DIFFUSER	-	STEEL	-	TITUS	PAR	SURFACE MOUNT CEILING FRAME STYLE WITH 24"X24" OR 12"X12" FACE. PERFERATED FACE.
J	RETURN AIR	GRILLE	-	STEEL	-	TITUS	350RL	SINGLE DEFLECTION SIDEWALL GRILLE WITH HORIZONTAL FRONT BARS. SURFACE MOUNTED

GENERAL NOTES:
1. DAMPERS NOTED AS U.L. SHALLBE A "U.L." CLASSIFIED CEILING RADIATION DAMPER WITH THERMAL BLANKET.
2. COORDINATE FINAL AIR DEVICE LOCATION AND FINISH COLOR WITH ARCHITECT.

REMARKS:
1. N/A

DAMPER

MARK	ACTUATOR	DUTY	BLADE ACTION	MANUFACTURER	MODEL NUMBER	REMARKS
D-1	MANUAL BALANCING	UNDER 9" WIDE	N/A	N/A	N/A	SEE SMACNA CONSTRUCTION DETAILS REFERENCED "TYPICAL CONSTRUCTION DETAILS FOR LOW VELOCITY DUCTS."
D-2	MANUAL BALANCING	OVER 9" WIDE	OPPOSED	RUSKIN	MD-35	MANUAL DAMPER WITH STANDARD CONSTRUCTION FEATURES AND VENTLOCK #639 LOCKING REGULATOR.
D-3	MOTORIZED	OVER 9" WIDE	OPPOSED	RUSKIN	CD-60	LOW LEAKAGE DAMPER WITH BLADE SEALS

NOTES:
N/A - NOT APPLICABLE

RELIEF VENT & O.A. INTAKE

MARK	CFM	MAX. S.P. (IN.WC.)	MIN. THROAT AREA	COOK MODEL NUMBER	SERVES	REMARKS
OAI-1	2,880	0.17	8.75	GI	EF-5	1,2,3
OAI-2	2,840	0.17	8.75	GI	EF-6	1,2,3
OAI-3	2,840	0.17	8.75	GI	EF-7	1,2,3
OAI-4	2,880	0.17	8.75	GI	EF-8	1,2,3
OAI-5	2,880	0.17	8.75	GI	EF-9	1,2,3

REMARKS:
1. PROVIDE WITH ROOF CURB.
2. PROVIDE WITH BIRD SCREEN.
3. PROVIDE WITH MOTORIZED DAMPER.

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A

B

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUIN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

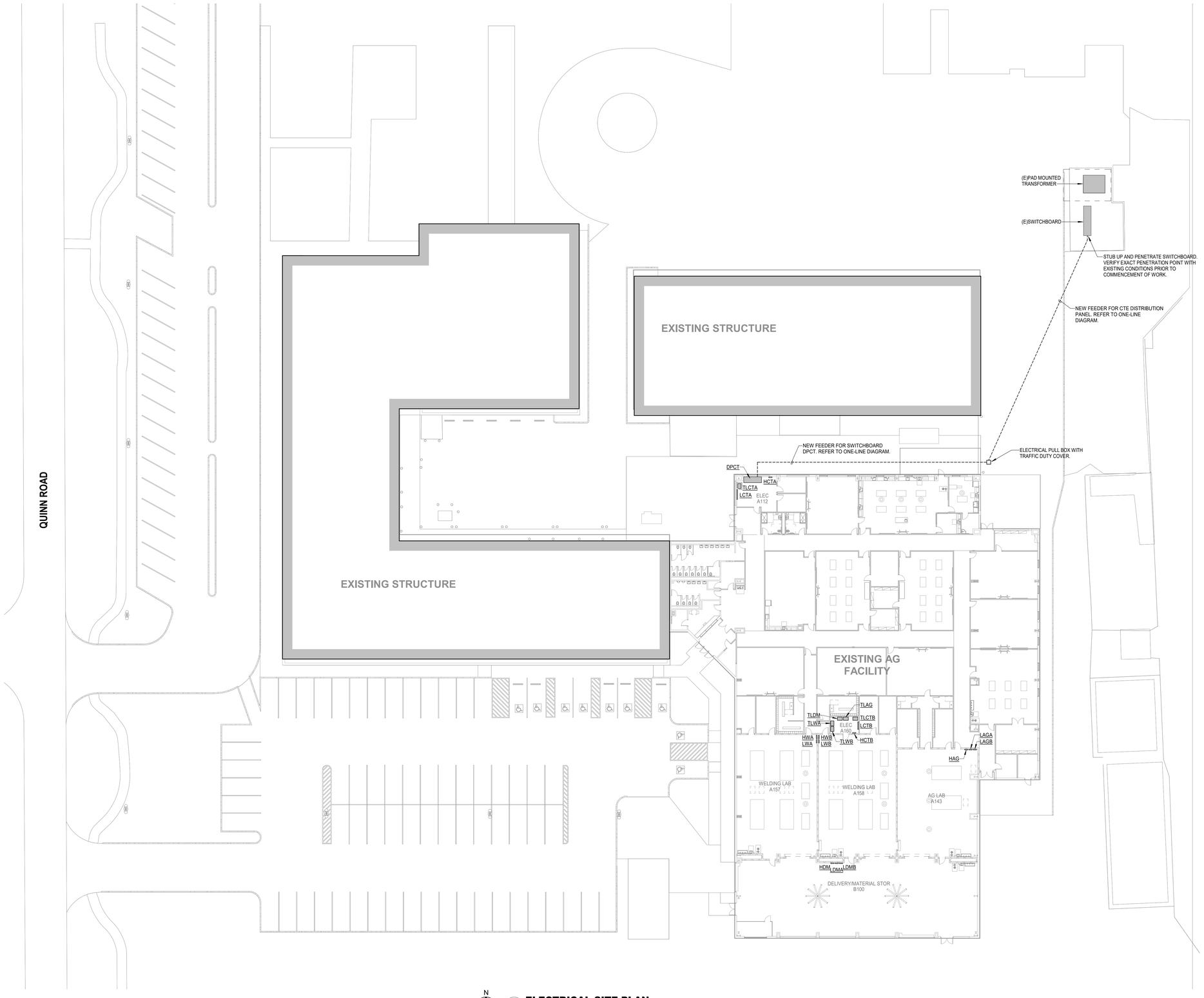
BRADLEY KALMANS 80213 LICENSED TEXAS PROFESSIONAL ENGINEER
11-06-23

PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	AA
CHECKED:	SH

DATE	ISSUE 1
2023-11-03	BID SET

M4.01

MECHANICAL SCHEDULES



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1 **ELECTRICAL SITE PLAN**
Scale: 1" = 20'-0"

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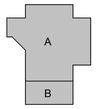

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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ARCADIS
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BRADLEY KALMANS
80219
LICENSED
TEXAS
11-06-23

PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	DES
CHECKED:	JZ

DATE	ISSUE
2023-11-03	BID SET

E1.00

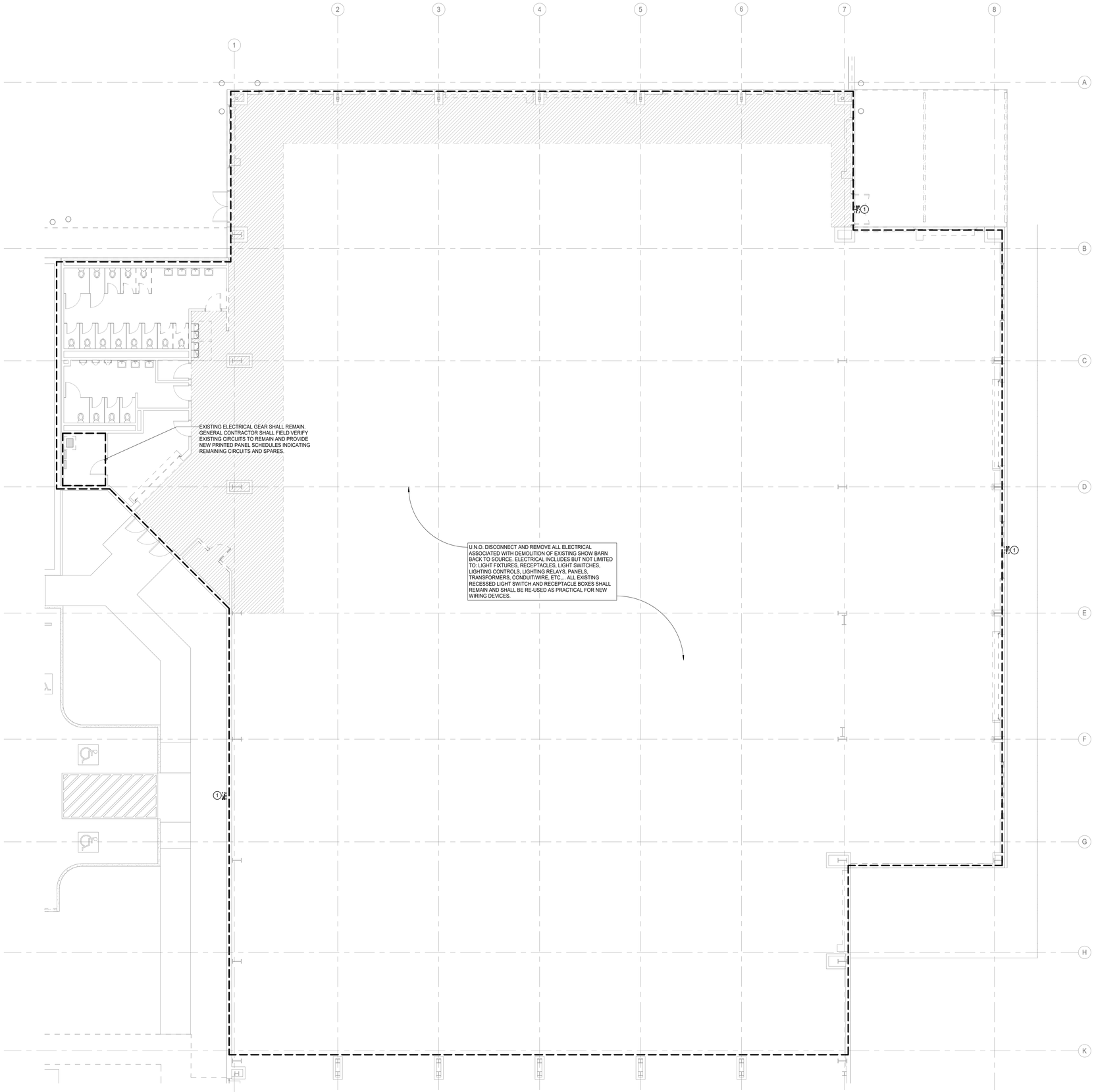
ELECTRICAL SITE PLAN

PLAN NORTH

ELECTRICAL GENERAL NOTES:

1. DISCONNECT AND REMOVE ALL ABANDONED WIRING AND CONDUIT.
2. DISCONNECT AND REMOVE ALL CONDUIT, WIRE, AND DISCONNECTING MEANS ASSOCIATED WITH HVAC EQUIPMENT BEING REMOVED.
3. DISCONNECT AND REMOVE ALL ELECTRICAL FROM WALLS SCHEDULED TO BE DEMOLISHED. REMOVE BACK TO SOURCE. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT WALL DEMOLITION.

LINETYPE LEGEND	
————	EXISTING TO REMAIN
- - - - - - - -	DISCONNECT AND REMOVE



N

1 **ELECTRICAL DEMOLITION 1ST FLOOR PLAN - AREA 'A1'**
Scale: 1/8" = 1'-0"

PLAN NORTH

CONSULTANTS

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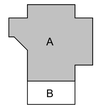

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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STATE OF TEXAS
BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
11-06-23

PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	DES
CHECKED:	JZ

DATE	ISSUE
2023-11-03	BID SET

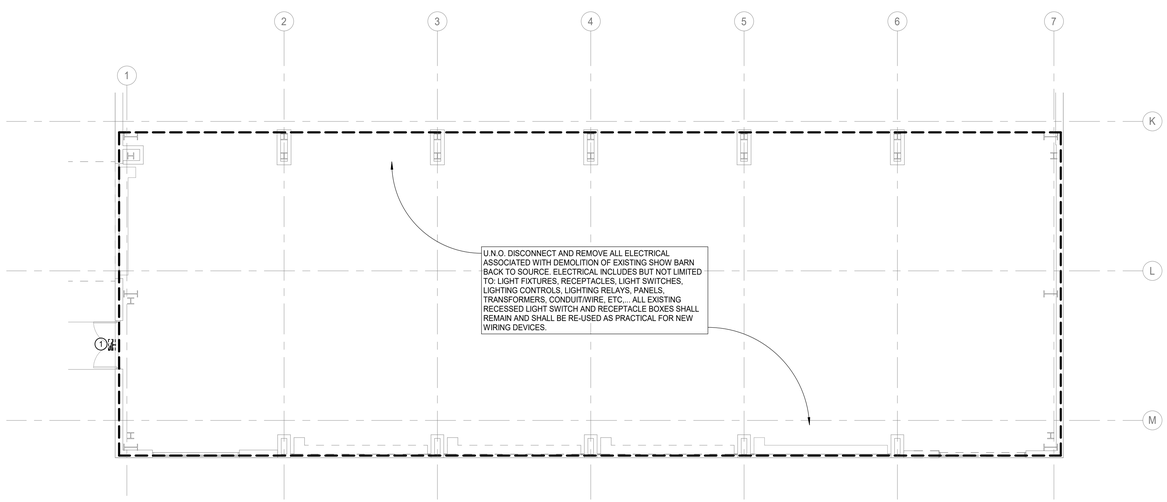
E1.01

ELECTRICAL DEMOLITION AREA 'A1' 1ST FLOOR PLAN

ELECTRICAL GENERAL NOTES:

1. DISCONNECT AND REMOVE ALL ABANDONED WIRING AND CONDUIT.
2. DISCONNECT AND REMOVE ALL CONDUIT, WIRE, AND DISCONNECTING MEANS ASSOCIATED WITH HVAC EQUIPMENT BEING REMOVED.
3. DISCONNECT AND REMOVE ALL ELECTRICAL FROM WALLS SCHEDULED TO BE DEMOLISHED. REMOVE BACK TO SOURCE. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT WALL DEMOLITION.

LINETYPE LEGEND	
————	EXISTING TO REMAIN
- - - - - - - -	DISCONNECT AND REMOVE



N

1 **ELECTRICAL DEMOLITION 1ST FLOOR PLAN - AREA 'B1'**
Scale: 1/8" = 1'-0"

PLAN NORTH

CONSULTANTS

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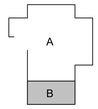


TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUIN ROAD, TOMBALL, TX 77375

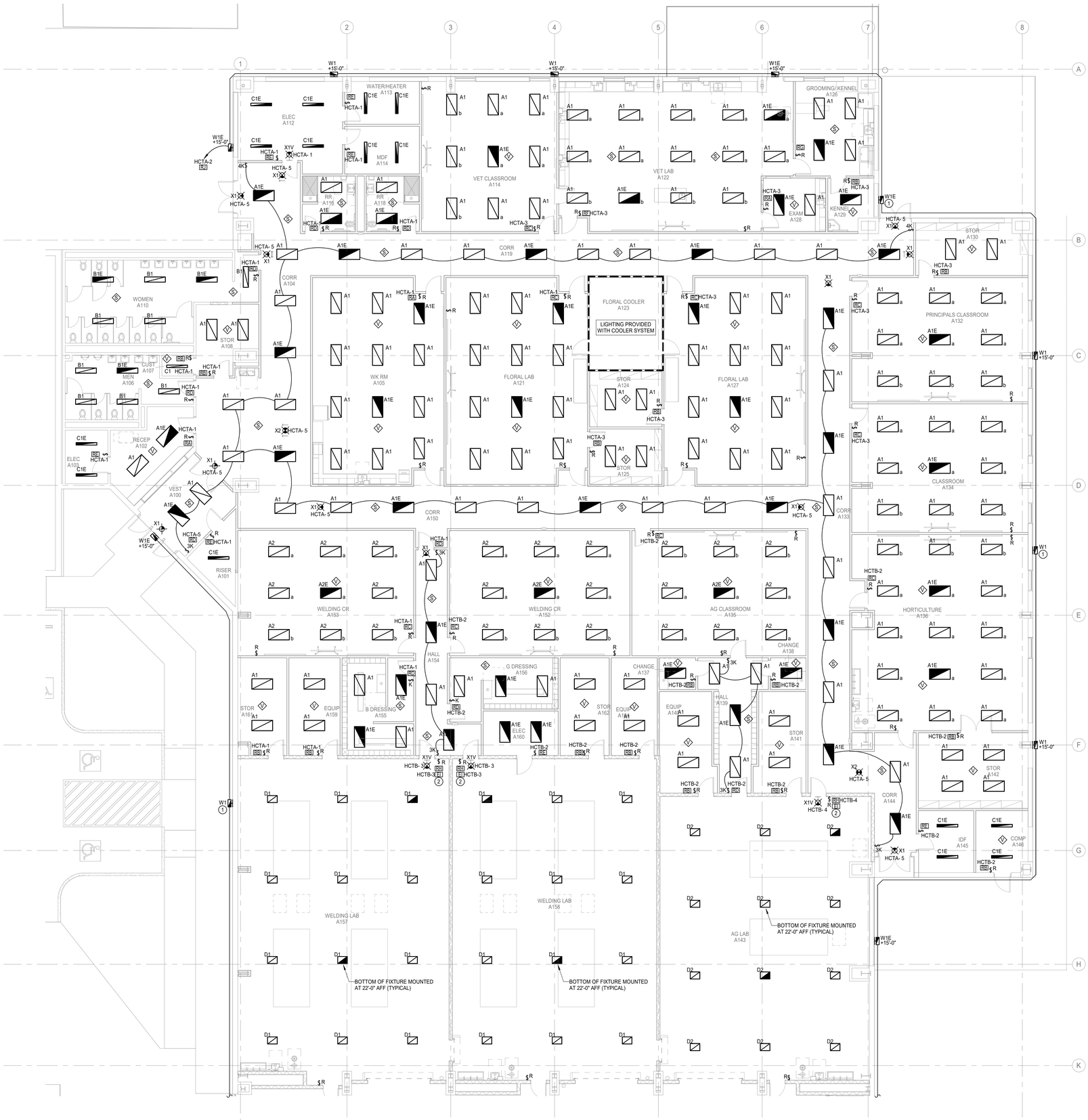
ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	DES
CHECKED:	JZ

DATE	ISSUE △1
2023-11-03	BID SET

E1.02

ELECTRICAL DEMOLITION AREA 'B1' 1ST FLOOR PLAN



1 **ELECTRICAL LIGHTING 1ST FLOOR PLAN - AREA 'A1'**
Scale: 1/8" = 1'-0"

ELECTRICAL GENERAL NOTES:

1. LIGHTING CONTROLS SHALL COMPLY WITH IECC 2015. REFER TO CONTROLS SCHEDULE FOR ALL LIGHTING CONTROLS, SENSORS, AND SWITCHING SCHEMES THROUGHOUT FACILITY.
2. CONTRACTOR SHALL MAINTAIN CONSTANT UNSWITCHED POWER FOR EMERGENCY LOAD CONTROL RELAYS AND EXIT SIGNS.
3. LOCATE DIGITAL LIGHTING CONTROLLER AND / OR EMERGENCY LOAD CONTROL RELAY ABOVE ACCESSIBLE CEILING 12-FEET AFF OR BELOW ADJACENT TO SWITCH CONTROLLING THE SPACE. IN NON-ACCESSIBLE AND / OR HIGH CEILING AREAS, LOCATE DIGITAL LIGHTING CONTROLLER IN ADJACENT ANCILLARY AREA WITH ACCESSIBLE CEILING. IN AREAS WITH NO CEILING AND / OR IN EXTERIOR APPLICATIONS LOCATE ADJACENT TO PANEL SERVING THE LOAD. PROVIDE PLASTIC TAPE MACHINE TYPED NAME PLATE TO BOTTOM OF CEILING T-GRID BELOW RELAY LOCATION. WHITE LETTERS ON BLACK BACKGROUND WITH 1/4" HIGH LETTERS ON 1/2" TALL LABEL FOR DIGITAL MODULE, INDICATE AS: LGT RELAYS.
4. OCCUPANCY / VACANCY SENSOR AND DAYLIGHTING SENSOR LOCATIONS INDICATE SPACE OR AREA CONTROLLED, CONTRACTOR TO PROVIDE ACTUAL QUANTITIES, TYPES, AND MOUNTING LOCATIONS AS RECOMMENDED BY MANUFACTURER.
5. SPACES WITH MULTIPLE OCCUPANCY / VACANCY SENSORS OR WHERE LINE OF SIGHT MAY BE OBSCURED, SHALL BE LINKED TOGETHER FOR SIMULTANEOUS OPERATION WITHIN THE SPACE.
6. COORDINATE LOCATION OF LIGHT FIXTURES IN ALL MEPT ROOMS WITH MECHANICAL EQUIPMENT, PIPING, AND ALL OTHER TRADES.

ELECTRICAL KEYED NOTES:

1. EXISTING EXTERIOR LIGHT FIXTURE LOCATION. PROVIDE NEW LIGHT FIXTURE IN SAME LOCATION. CONNECT TO NEW CIRCUITRY/CONTROLS.
2. PROVIDE EMERGENCY POWER INVERTER FOR CONNECTION OF EMERGENCY 'HATCHED' FIXTURES IN SHOP. LOCATE INVERTER IN ELECTRICAL A160 AND MAKE FINAL CONNECTION TO LIGHT FIXTURES.

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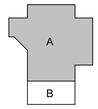

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BRADLEY KALMANS 80219 LICENSED TEXAS PROFESSIONAL ENGINEER
11-06-23

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E2.01

ELECTRICAL LIGHTING AREA 'A1' 1ST FLOOR PLAN

PLAN NORTH

ELECTRICAL GENERAL NOTES:

1. LIGHTING CONTROLS SHALL COMPLY WITH IECC 2015. REFER TO CONTROLS SCHEDULE FOR ALL LIGHTING CONTROLS, SENSORS, AND SWITCHING SCHEMES THROUGHOUT FACILITY.
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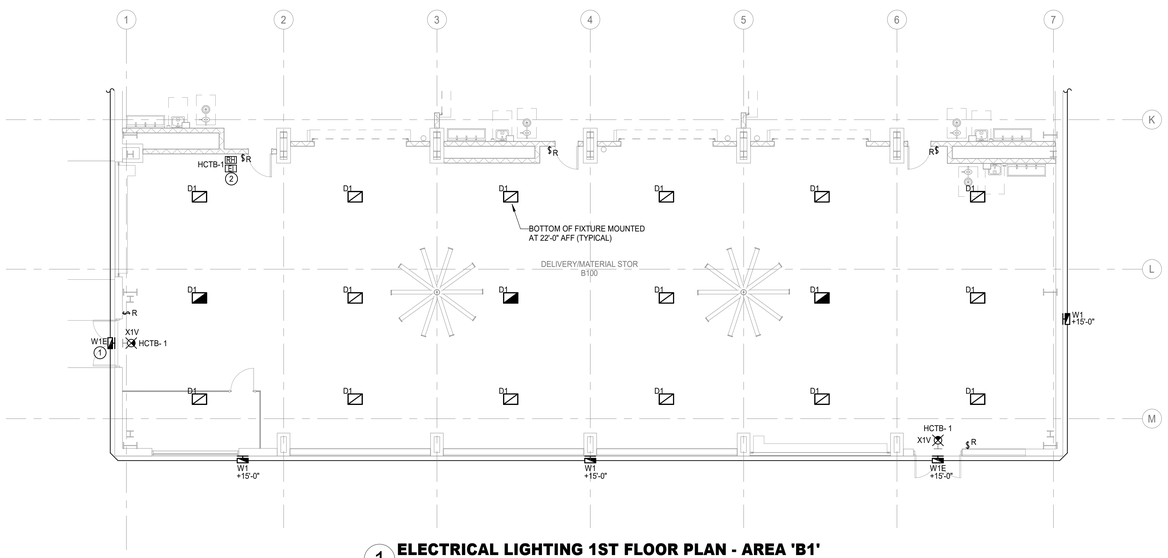

1 **ELECTRICAL LIGHTING 1ST FLOOR PLAN - AREA 'B1'**
Scale: 1/8" = 1'-0"

CONSULTANTS

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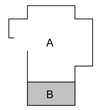

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BRADLEY KALMANS
STATE OF TEXAS
80219
LICENSED
PROFESSIONAL ENGINEER
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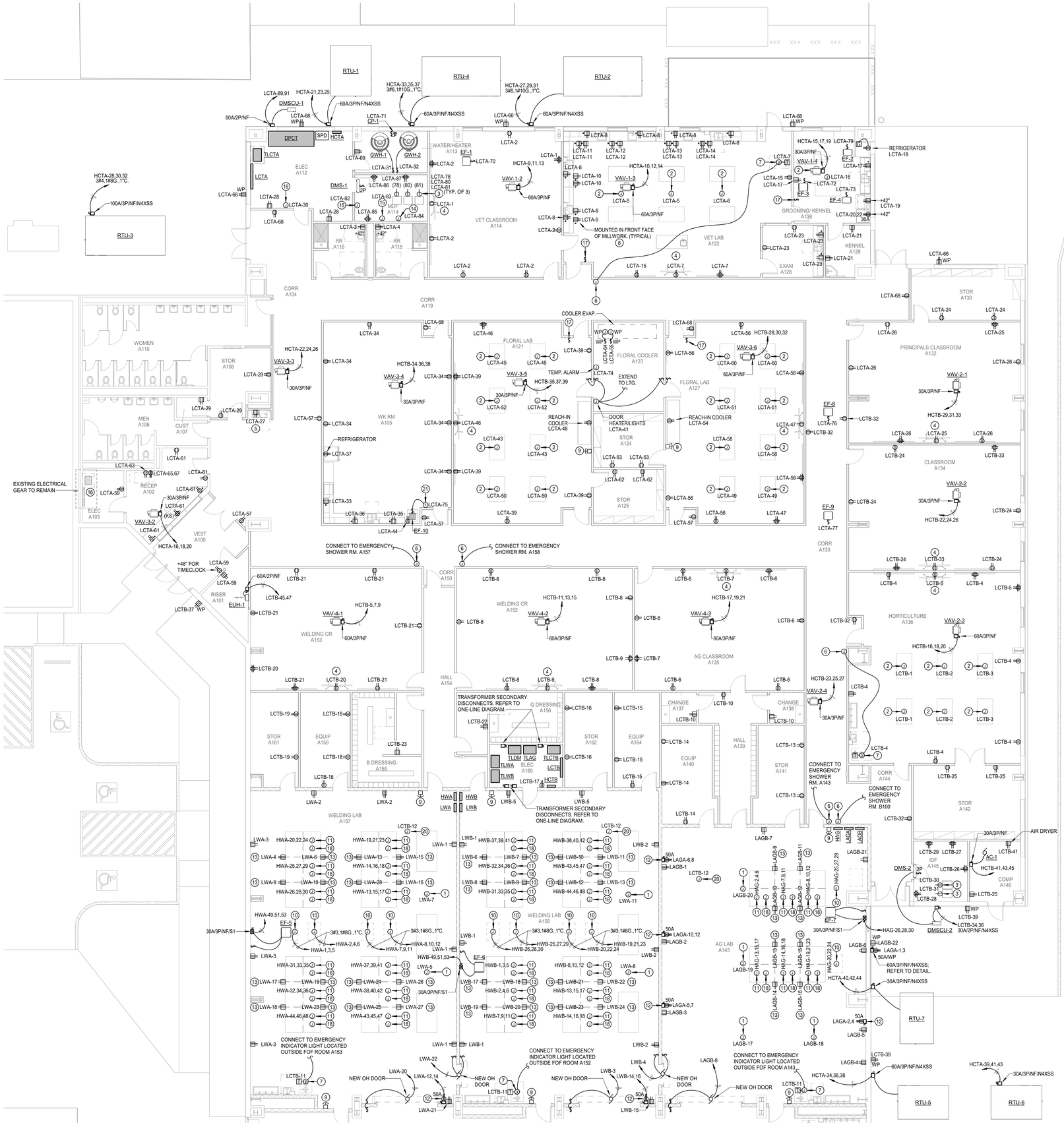
ELECTRICAL LIGHTING AREA 'B1' 1ST FLOOR PLAN

PLAN NORTH



1 **ELECTRICAL POWER 1ST FLOOR PLAN - AREA 'A1'**
Scale: 1/8" = 1'-0"

ELECTRICAL GENERAL NOTES:

1. REFER TO TECHNOLOGY DRAWINGS (T-SERIES) FOR ADDITIONAL WORK REQUIRED BY DIVISION 26.
2. GENERAL CONTRACTOR SHALL VERIFY ALL ELECTRICAL REQUIREMENTS TO SHOP/LAB EQUIPMENT TO BE INSTALLED IN CTE BUILDING PRIOR TO ANY ELECTRICAL INSTALLATION.

ELECTRICAL KEYED NOTES:

1. PROVIDE 125V, 20-AMP DOUBLE DUPLEX ELECTRIC CORD REEL WITH GFCI PROTECTION. MOUNT TO BOTTOM OF STRUCTURE.
2. PROVIDE 125V, 20-AMP DOUBLE DUPLEX ELECTRIC CORD REEL WITH GFCI PROTECTION. LOCATE WITHIN RECESSED PLENUM RATED CORD REEL ENCLOSURE.
3. PROVIDE NEMA L5-30R 125V RECEPTACLE FOR DATA RACK UPS. VERIFY EXACT LOCATION WITH OWNER AND DIVISION 27 PRIOR TO ROUGH-IN.
4. RECEPTACLE FOR INTERACTIVE VIDEO DISPLAY. MOUNT AT +18"ABOVE FINISHED FLOOR OR AS DIRECTED BY DISTRICT REPRESENTATIVE. VERIFY EXACT LOCATION WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN.
5. RECEPTACLE FOR DRINKING FOUNTAIN. LOCATE IN READILY ACCESSIBLE LOCATION BELOW DRINKING FOUNTAIN UNDER LOWER BASIN.
6. PROVIDE WHEELOCK® RSSR-2475C-NW EMERGENCY SHOWER WATER FLOW INDICATOR LIGHT OR APPROVED EQUAL. COORDINATE LOCATION OF FLOW SWITCH WITH DIVISION 22. COORDINATE LOCATION OF LIGHT FIXTURE WITH ARCHITECT/OWNER.
7. PROVIDE 120V: 24V LOW VOLTAGE TRANSFORMER FOR CONNECTION OF EMERGENCY SHOWER WATER FLOW DETECTION EQUIPMENT AND STROBE LIGHT. COORDINATE INSTALLATION WITH DIVISION 22.
8. RECEPTACLES MOUNTED IN VERTICAL FRONT FACE OF MILLWORK. COORDINATE EXACT LOCATION WITH ARCHITECT AND MILLWORK DRAWINGS PRIOR TO ROUGH-IN.
9. PROVIDE EMERGENCY POWER OFF (EPO) MUSHROOM PUSH BUTTON WITH COVER AND KEY RESET (STI #SS2-SERIES OR EQUAL). EPO SHALL CONTROL SHUNT TRIP BREAKER(S) FOR PANEL/EQUIPMENT SERVING ROOM.
10. PROVIDE A JUNCTION BOX WITH 'SO' DROP CORD MOUNTED TO BOTTOM OF STRUCTURE FOR CONNECTION OF WELDING INVERTER BANK. VERY EXACT ELECTRICAL REQUIREMENTS AND MAKE FINAL CONNECTION. DROP CORD SHALL BE 20'-0" IN LENGTH WITH A 100-AMP 3POLE PIN/SLEEVE CONNECTION. PROVIDE CORD WITH STRAIN RELIEF GRIP.
11. PROVIDE A JUNCTION BOX MOUNTED TO BOTTOM OF STRUCTURE FOR CONNECTION OF WELDING BOOTH BLOWER AND INTEGRATED DISCONNECT SWITCH, MOTOR STARTER, OVERLOAD, AND START/STOP BUTTON. VERIFY EXACT CONNECTION POINT AND MAKE FINAL CONNECTION.
12. PROVIDE 60A/2P/NF/N1 DISCONNECT SWITCH FOR SHOP EQUIPMENT WITH TWIST LOCK RECEPTACLE MOUNTED BELOW. REFER TO DETAIL.
13. MOUNT RECEPTACLE ON FRONT FACE OF WELDING BOOTH. MOUNT AT + 48"AFF UNLESS DIRECTED OTHERWISE BY ARCHITECT/OWNER.
14. PROVIDE JUNCTION BOX AT +54" FOR CONNECTION OF ACCESS CONTROL PANEL. VERIFY EXACT LOCATION WITH DIVISION 27 CONTRACTOR AND MAKE FINAL CONNECTION.
15. PROVIDE JUNCTION BOX AT +54" FOR CONNECTION OF INTRUSION DETECTION PANEL. VERIFY EXACT LOCATION WITH DIVISION 27 CONTRACTOR AND MAKE FINAL CONNECTION.
16. INTERCEPT EXISTING 277/480V 3PH FEEDER AND EXTEND CONDUIT TO NEW PANEL DPCT; PULL NEW CONDUCTORS. REFER TO ONE-LINE DIAGRAM.
17. FAN CONTROL SWITCH PROVIDED BY DIVISION 23, INSTALLED BY DIVISION 26. REFER TO MECHANICAL SCHEDULE FOR MORE INFO.
18. PROVIDE A JUNCTION BOX MOUNTED TO BOTTOM OF STRUCTURE WITH 3/4"C. TO WELDING BOOTHS FOR DATA CABLING. VERIFY EXACT CONNECTION POINT AND MAKE FINAL CONNECTION.
19. PROVIDE JUNCTION BOX AT +54" FOR CONNECTION OF BMCS PANEL. VERIFY EXACT LOCATION WITH DIVISION 27 CONTRACTOR AND MAKE FINAL CONNECTION.
20. PROVIDE A JUNCTION BOX FOR CONNECTIN OF MOTORIZED DAMPER. VERIFY EXACT LOCATION AND MAKE FINAL CONNECTION.
21. LINE VOLTAGE THERMOSTAT PROVIDED BY DIVISION 23, INSTALLED BY DIVISION 26.

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ELECTRICAL POWER AREA 'A1' 1ST FLOOR PLAN

PLAN NORTH

ELECTRICAL GENERAL NOTES:

1. REFER TO TECHNOLOGY DRAWINGS (T-SERIES) FOR ADDITIONAL WORK REQUIRED BY DIVISION 26.
2. GENERAL CONTRACTOR SHALL VERIFY ALL ELECTRICAL REQUIREMENTS TO SHOP/LAB EQUIPMENT TO BE INSTALLED IN CTE BUILDING PRIOR TO ANY ELECTRICAL INSTALLATION.

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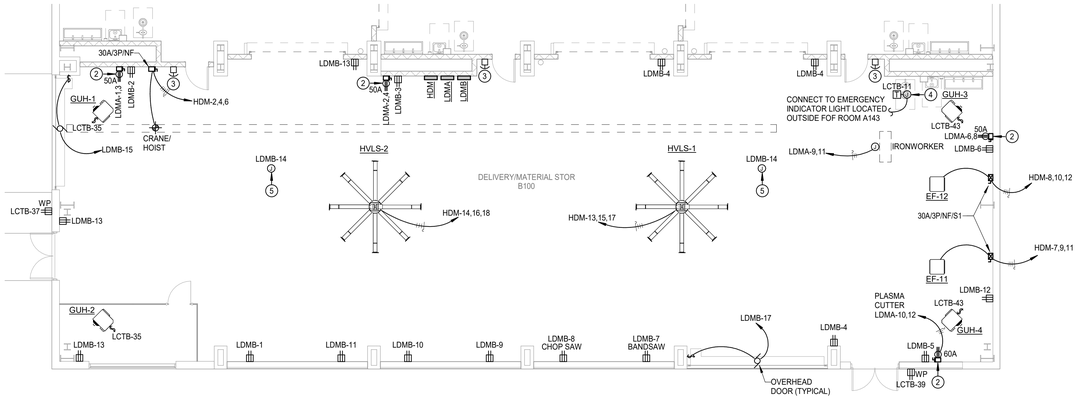

1 **ELECTRICAL POWER 1ST FLOOR PLAN - AREA 'B1'**
Scale: 1/8" = 1'-0"

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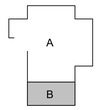

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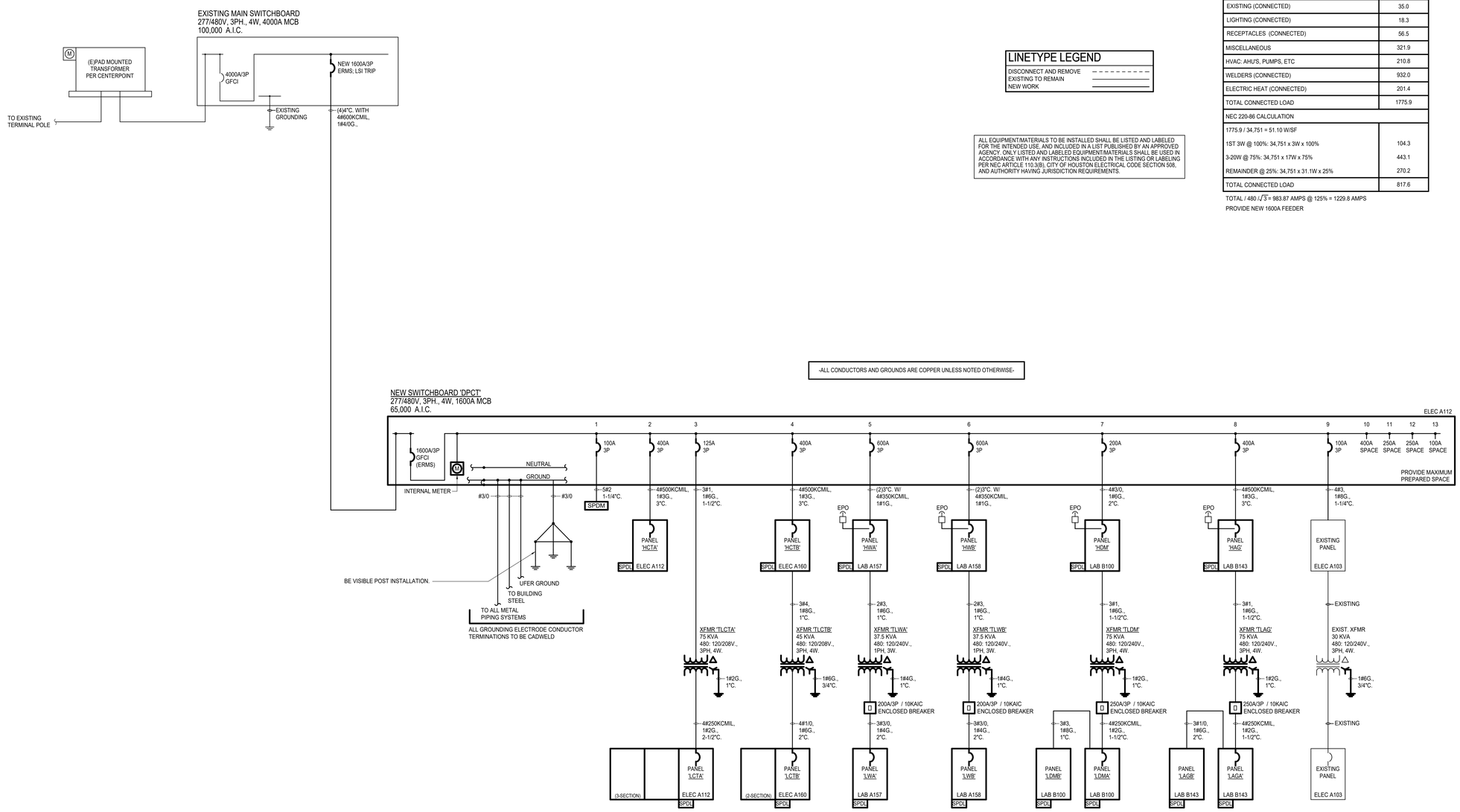
ELECTRICAL POWER AREA 'B1' 1ST FLOOR PLAN



1 ELECTRICAL ONE-LINE DIAGRAM
SCALE: NONE

LINETYPE LEGEND

DISCONNECT AND REMOVE	- - - - - - - - - -
EXISTING TO REMAIN	————————
NEW WORK	————————

ALL EQUIPMENT/MATERIALS TO BE INSTALLED SHALL BE LISTED AND LABELED FOR THE INTENDED USE, AND INCLUDED IN A LIST PUBLISHED BY AN APPROVED AGENCY. ONLY LISTED AND LABELED EQUIPMENT/MATERIALS SHALL BE USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING PER NEC ARTICLE 110.3(B). CITY OF HOUSTON ELECTRICAL CODE SECTION 508, AND AUTHORITY HAVING JURISDICTION REQUIREMENTS.

ELECTRICAL LOAD ANALYSIS: MSB
480V,3PH.,4W.

LOAD DESCRIPTION	LOAD KVA
NEW LOAD	
EXISTING (CONNECTED)	35.0
LIGHTING (CONNECTED)	18.3
RECEPTACLES (CONNECTED)	56.5
MISCELLANEOUS	321.9
HVAC: AHU'S, PUMPS, ETC	210.8
WELDERS (CONNECTED)	932.0
ELECTRIC HEAT (CONNECTED)	201.4
TOTAL CONNECTED LOAD	1775.9
NEC 220-86 CALCULATION	
1775.9 / 34,751 = 51.10 W/SF	
1ST 3W @ 100%: 34,751 x 3W x 100%	104.3
3-20W @ 75%: 34,751 x 17W x 75%	443.1
REMAINDER @ 25%: 34,751 x 31.1W x 25%	270.2
TOTAL CONNECTED LOAD	817.6

TOTAL / 480 / $\sqrt{3}$ = 983.87 AMPS @ 125% = 1229.8 AMPS
PROVIDE NEW 1600A FEEDER

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ELECTRICAL ONE-LINE DIAGRAM

Branch Panel: HWA

Location: WELDING LAB A157 | **Volts:** 277/480V | **A.I.C. Rating:** 18,000
Supply From: DPCT | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 600A MCB
Phase in kVA | Shunt Trip

Note	CKT	Circuit Description	Wire	Breaker		A	B	C	Breaker		Wire	Circuit Description	CKT	Note
	1	Welder Rack	#3	100	3	28.4 /...			3	100	#3	Welder Rack	2	
	3						28.4 /...						4	
	5							28.4 /...					6	
	7	Welder Rack	#3	100	3	28.4 /...			3	100	#3	Welder Rack	8	
	9						28.4 /...						10	
	11							28.4 /...					12	
	13	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	14	
	15						2.0 / 2.0						16	
	17							2.0 / 2.0					18	
	19	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	20	
	21						2.0 / 2.0						22	
	23							2.0 / 2.0					24	
	25	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	26	
	27						2.0 / 2.0						28	
	29							2.0 / 2.0					30	
	31	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	32	
	33						2.0 / 2.0						34	
	35							2.0 / 2.0					36	
	37	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	38	
	39						2.0 / 2.0						40	
	41							2.0 / 2.0					42	
	43	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	44	
	45						2.0 / 2.0						46	
	47							2.0 / 2.0					48	
	49	EF-5	#12	20	3	0.3 / 0.0			1	--	--	Space	50	--
	51						0.3 / 0.0		1	--	--	Space	52	--
	53							0.3 / 0.0	1	--	--	Space	54	--
--	55	Space	--	--	1	0.0 / 0.0			1	--	--	Space	56	--
--	57	Space	--	--	1		0.0 / 0.0		1	--	--	Space	58	--
--	59	Space	--	--	1			0.0 / 0.0	1	--	--	Space	60	--
--	61	Space	--	--	1	0.0 / 0.0			3	30	--	SPDL	62	--
LF	63	TLWA	1-L	100	2		15.3 / 0.0						64	
	65							14.1 / 0.0					66	
				Total Load:		138.3...	153.6...	152.5...						
				Total Amps:		499 A	562 A	558 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
HVAC	1.0 kVA	100.00%	1.0 kVA		
Miscellaneous	91.7 kVA	100.00%	91.7 kVA	Total Conn. Load:	444.4 kVA
Receptacles	2.9 kVA	100.00%	2.9 kVA	Total Est. Demand:	367.7 kVA
Welders (60% Duty)	348.8 kVA	78.00%	272.1 kVA	Total Conn. Current:	535 A
				Total Est. Demand...	442 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: HCTB

Location: ELEC A160 | **Volts:** 277/480V | **A.I.C. Rating:** 18,000
Supply From: DPCT | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 400A MLO
Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B	C	Breaker		Wire	Circuit Description	CKT	Note
	1	Lighting	#12	20	1	2.3 / 2.8			1	20	#12	Lighting	2	
	3	Lighting	#12	20	1		3.0 / 1.5		1	20	#12	Lighting	4	
	5	VAV-4-1	#8	40	3			5.4 / 0.0	1	20	--	Spare	6	--
	7					5.4 / 0.0			1	20	--	Spare	8	--
	9						5.4 / 0.0		1	20	--	Spare	10	--
	11	VAV-4-2	#8	40	3			5.6 / 0.0	1	20	--	Spare	12	--
	13					5.6 / 0.0			1	20	--	Spare	14	--
	15						5.6 / 4.7		3	30	#10	VAV-2-3	16	
	17	VAV-4-3	#8	40	3			5.3 / 4.7					18	
	19					5.3 / 4.7							20	
	21						5.3 / 4.0		3	30	#10	VAV-2-2	22	
	23	VAV-2-4	#10	60	3			3.9 / 4.0					24	
	25					3.9 / 4.0							26	
	27						3.9 / 4.2		3	30	#10	VAV-3-6	28	
	29	VAV-2-1	#10	30	3			4.8 / 4.2					30	
	31					4.8 / 4.2							32	
	33						4.8 / 3.6		3	30	#10	VAV-3-4	34	
	35	VAV-3-5	#10	30	3			4.2 / 3.6					36	
	37					4.2 / 3.6							38	
	39						4.2 / 0.0		1	--	--	Space	40	--
	41	Air Compressor (7-1/2HP)	#12	20	3			3.0 / 0.0	1	--	--	Space	42	--
	43					3.0 / 0.0			1	--	--	Space	44	--
	45						3.0 / 0.0		1	--	--	Space	46	--
--	47	Space	--	--	1			0.0 / 0.0	1	--	--	Space	48	--
--	49	Space	--	--	1	0.0 / 0.0			1	--	--	Space	50	--
--	51	Space	--	--	1		0.0 / 0.0		1	--	--	Space	52	--
--	53	Space	--	--	1			0.0 / 0.0	1	--	--	Space	54	--
--	55	Space	--	--	1	0.0 / 0.0			1	--	--	Space	56	--
--	57	Space	--	--	1		0.0 / 0.0		1	--	--	Space	58	--
--	59	Space	--	--	1			0.0 / 0.0	1	--	--	Space	60	--
	61	XFMR TLCTB	1-L	70	3	9.9 / 0.0			3	30	--	SPDL	62	--
	63						9.9 / 0.0						64	
	65							11.1 / 0.0					66	
				Total Load:		63.7 kVA	63.1 kVA	59.8 kVA						
				Total Amps:		232 A	230 A	216 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
HVAC	0.0 kVA	0.00%	0.0 kVA		
Heating	142.0 kVA	100.00%	142.0 kVA	Total Conn. Load:	186.7 kVA
Lighting	9.6 kVA	125.00%	12.0 kVA	Total Est. Demand:	184.9 kVA
Miscellaneous	16.7 kVA	100.00%	16.7 kVA	Total Conn. Current:	225 A
Receptacles	18.4 kVA	77.23%	14.2 kVA	Total Est. Demand...	222 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: HAG

Location: AG LAB A143 | **Volts:** 277/480V | **A.I.C. Rating:** 18,000
Supply From: DPCT | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 400A MCB
Phase in kVA | SHUNT TRIP

Note	CKT	Circuit Description	Wire	Breaker		A	B	C	Breaker		Wire	Circuit Description	CKT	Note
LF	1	XFMR TLAG	1-L	125	3	16.0 / 2.0			3	20	#12	Welding Booth	2	
	3						25.7 / 2.0						4	
	5							21.7 / 2.0					6	
	7	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	8	
	9						2.0 / 2.0						10	
	11							2.0 / 2.0					12	
	13	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	14	
	15						2.0 / 2.0						16	
	17							2.0 / 2.0					18	
	19	Welding Booth	#12	20	3	2.0 / 28.4			3	100	#3	Welder Rack	20	
	21						2.0 / 28.4						22	
	23							2.0 / 28.4					24	
	25	Welder Rack	#3	100	3	28.4 / 0.3			3	30	#12	EF-7	26	
	27						28.4 / 0.3						28	
	29							28.4 / 0.3					30	
--	31	Space	--	--	1	0.0 / 0.0			1	20	--	Spare	32	--
--	33	Space	--	--	1		0.0 / 0.0		1	20	--	Spare	34	--
--	35	Space	--	--	1			0.0 / 0.0	1	20	--	Spare	36	--
--	37	Spare	--	20	1	0.0 / 0.0			3	30	--	SPDL	38	--
--	39	Spare	--	20	1		0.0 / 0.0						40	
--	41	Spare	--	20	1			0.0 / 0.0					42	
				Total Load:		85.3 kVA	95.1 kVA	91.1 kVA						
				Total Amps:		308 A	346 A	332 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
HVAC	1.0 kVA	100.00%	1.0 kVA		
Miscellaneous	58.6 kVA	100.00%	58.6 kVA	Total Conn. Load:	271.5 kVA
Receptacles	1.4 kVA	100.00%	1.4 kVA	Total Est. Demand:	225.2 kVA
Welders (60% Duty)	210.4 kVA	78.00%	164.1 kVA	Total Conn. Current:	327 A
				Total Est. Demand...	271 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: HCTA

Location: ELEC A112 | **Volts:** 277/480V | **A.I.C. Rating:** 18,000
Supply From: DPCT | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 400A MLO
Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B	C	Breaker		Wire	Circuit Description	CKT	Note
	1	Lighting	#12	20	1	3.2 / 0.9			1	20	#8	Exterior Lighting	2	
	3	Lighting	#12	20	1		2.8 / 0.0		1	20	--	Spare	4	--
	5	Corridor Lighting	#12	20	1			1.8 / 0.0	1	20	--	Spare	6	--
--	7	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	8	--
	9	VAV-1-2	#8	40	3		5.5 / 5.5		3	40	#8	VAV-1-3	10	
	11							5.5 / 5.5					12	
	13					5.5 / 5.5							14	
	15	VAV-1-4	#12	20	3		1.9 / 2.1		3	20	#12	VAV-3-2	16	
	17							1.9 / 2.1					18	
	19					1.9 / 2.1							20	
	21	RTU-1	#8	50	3		9.8 / 4.7		3	30	#10	VAV-3-3	22	
	23							9.8 / 4.7					24	
	25					9.8 / 4.7							26	
	27	RTU-2	#6	60	3		11.3 /...		3	80	#4	RTU-3	28	
	29							11.3 /...					30	
	31					11.3 /...							32	
	33	RTU-4	#6	60	3		11.3 / 6.4		3	35	#8	RTU-5	34	
	35							11.3 / 6.4					36	
	37					11.3 / 6.4							38	
	39	RTU-6	#10	30	3		6.4 / 5.8		3	20	#10	RTU-7	40	
	41							6.4 / 5.8					42	
	43					6.4 / 5.8							44	
--	45	Space	--	--	1		0.0 / 0.0		1	--	--	Space	46	--
--	47	Space	--	--	1			0.0 / 0.0	1	--	--	Space	48	--
--	49	Space	--	--	1	0.0 / 0.0			1	--	--	Space	50	--
--	51	Space	--	--	1		0.0 / 0.0		1	--	--	Space	52	--
--	53	Space	--	--	1			0.0 / 0.0	1	--	--	Space	54	--
--	55	Space	--	--	1	0.0 / 0.0			1	--	--	Space	56	--
--	57	Space	--	--	1		0.0 / 0.0		1	--	--	Space	58	--
--	59	Space	--	--	1			0.0 / 0.0	1	--	--	Space	60	--
--	61	Space	--	--	1	0.0 / 0.0			3	30	--	SPDL	62	--
--	63	Space	--	--	1		0.0 / 0.0						64	
--	65	Space	--	--	1			0.0 / 0.0					66	
				Total Load:		88.2 kVA	86.9 kVA	85.9 kVA						
				Total Amps:		319 A	314 A	310 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
HVAC	192.9 kVA	100.00%	192.9 kVA		
Heating	59.4 kVA	100.00%	59.4 kVA	Total Conn. Load:	261.0 kVA
Lighting	8.7 kVA	125.00%	10.9 kVA	Total Est. Demand:	263.1 kVA
Miscellaneous	0.0 kVA	0.00%	0.0 kVA	Total Conn. Current:	314 A
				Total Est. Demand...	317 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: LCTA

Location: ELEC A112 | **Volts:** 120/208V Wye | **A.I.C. Rating:** 10,000
Supply From: TLCTA | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 250A MCB
Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B	C	Breaker		Wire	Circuit Description	CKT	Note
	1	Convenience Recept. RM. A114	#12	20	1	0.5 / 1.3			1	20	#12	Convenience Recept. RM. A114	2	
	3	Convenience Recept. RR. A116	#12	20	1		0.2 / 0.2		1	20	#12	Convenience Recpet. RR. A118	4	
	5	Cord Reel RM. A122	#12	20	1			0.7 / 0.4	1	20	#12	Cord Reel RM. A122	6	
	7	Emergency Shower RM. A122	#12	20	1	0.7 / 1.1			1	20	#12	Receptacles VET LAB A122	8	
	9	Recept. Lab Station RM. A122	#12	20	1		0.4 / 0.4		1	20	#12	Recept. Lab Station RM. A122	10	
	11	Recept. Lab Station RM. A122	#12	20	1			0.4 / 0.4	1	20	#12	Recept. Lab Station RM. A122	12	
	13	Recept. Lab Station RM. A122	#12	20	1	0.4 / 0.4			1	20	#12	Recept. Lab Station RM. A122	14	
	15	Receptacles RM. A122	#12	20	1		0.4 / 0.4		1	20	#12	Cord Reel RM. A126	16	
	17	Convenience Recept. RM. A126	#12	20	1			0.4 / 0.6	1	20	#12	Refrigerator	18	
	19	Washer RM. A126	#12	20	1	1.5 / 1.6			2	30	#12	Dryer	20	
	21	Convenience Recept. RM. A129	#12	20	1		0.4 / 1.6						22	
	23	Convenience Recept. RM. A128	#12	20	1			0.7 / 0.4	1	20	#12	Conenience Recept. RM. A130	24	
	25	Receptacles RM. A132	#12	20	1	0.5 / 1.1			1	20	#12	Convience Recept. RM. A132	26	
	27	Drinking Fountain	#12	20	1		0.4 / 0.4		1	20	#12	Convenience Recept. RM. A112	28	
	29	Receptacles Room A107, A108	#12	20	1			0.5 / 0.5	1	20	#12	BMCS	30	
	31	Gas Water Heater (GWH)	#12	20	1	0.6 / 0.6			1	20	#12	Gas Water Heater (GWH)	32	
	33	Convenience Recept. RM. A105	#12	20	1		0.2 / 1.1		1	20	#12	Receptacles WK RM A105	34	
	35	Convenience Recept. RM. A105	#12	20	1			0.2 / 0.2	1	20	#12	Receptacles WK RM A105	36	
	37	Refrigerator	#12	20	1	0.6 / 0.0			3	30	--	SPD	38	--
	39	Receptacles RM. A121	#12	20	1		1.1 / 0.0						40	
	41	Cooler Heater/Lights	#12	20	1			0.5 / 0.0					42	
	43	Cord Reel RM. A121	#12	20	1	0.7 / 1.5			1	20	#12	Ice Machine	44	
	45	Cord Reel RM. A121	#12	20	1		0.7 / 0.5		1	20	#12	Receptacles	46	
	47	Receptacles RM. A127	#12	20	1			0.5 / 0.2	1	20	#12	Receptacles FLORAL LAB A121	48	
	49	Cord Reel RM. A127	#12	20	1	0.7 / 0.7			1	20	#12	Receptacles	50	
	51	Coord Reel RM. A127	#12	20	1		0.7 / 0.7		1	20	#12	Receptacles	52	
	53	Convenience Recept. RM. A124	#12	20	1			0.4 / 0.2	1	20	#12	Receptacles FLORAL LAB A127	54	
	55	Evaporator Heater	#12	20	1	0.5 / 1.3			1	20	#12	Receptacles FLORAL LAB A127	56	
	57	Convenience Recept. Corr. A150	#12	20	1		0.7 / 0.7		1	20	#12	Receptacles	58	
	59	Convenience Recept. Vest. A100	#12	20	1			0.5 / 0.7	1	20	#12	Receptacles	60	
	61	Receptacles Recep. A102	#12	20	1	1.1 / 0.4			1	20	#12	Convenience Recept. RM. A125	62	
	63	Copier	#12	20	1		1.5 / 0.5		1	20	#12	Cooler Evaperator	64	
	65	Copier	#12	20	2			1.0 / 0.9	1	20	#12	Receptacles	66	
	67					1.0 / 0.7			1	20	#12	Convenience Recept. Corr. A119	68	
	69	Convenience Recept. A113		20	1		0.2 / 0.5		1	20	#12	EF-1	70	
	71	Circualation Pump (CP-1)	#12	20	1			0.1 / 0.5	1	20	#12	EF-3	72	
	73	EF-4	#12	20	1	0.5 / 0.5			1	20	#12	Temp. Alarm	74	
	75	EF-10	#12	20	1		0.1 / 0.5		1	20	#12	EF-8	76	
	77	EF-9	#12	20	1			0.5 / 2.5	1	30	#10	UPS Receptacle	78	
	79	EF-2	#12	20	1	0.5 / 2.5			1	30	#10	UPS Receptacle	80	
	81	UPS Receptacle	#10	30	1		2.5 / 0.5		1	20	#12	Fire Alarm Panel	82	LO
LO	83	Intrusion Detection Panel	#12	20	1			0.5 / 0.5	1	20	#12	Access Control Panel	84	LO
	85	Receptacles MDF A114		20	1	0.4 / 0.4			1	20	#12	Receptacles MDF A114	86	
	87	Receptacles MDF A114		20	1		0.4 / 0.0		1	20	--	Spare	88	--
	89	DMSCU-1 / DMS-1	#8	40	2			1.8 / 0.0	1	20	--	Spare	90	--
	91					1.8 / 0.0			1	20	--	Spare	92	--
--	93	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	94	--
--	95	Spare	--	20	1			0.0 / 0.0	1	20	--	Spare	96	--
--	97	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	98	--
--	99	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	100	--
--	101	Spare	--	20	1			0.0 / 0.0	1	20	--	Spare	102	--
--	103	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	104	--
--	105	Space	--	--	1		0.0 / 0.0		1	20	--	Spare	106	--
--	107	Space	--	--	1			0.0 / 0.0	1	20	--	Spare	108	--
--	109	Space	--	--	1	0.0 / 0.0			1	--	--	Space	110	--
--	111	Space	--	--	1		0.0 / 0.0		1	--	--	Space	112	--
--	113	Space	--	--	1			0.0 / 0.0	1	--	--	Space	114	--
--	115	Space	--	--	1	0.0 / 0.0			1	--	--	Space	116	--
--	117	Space	--	--	1		0.0 / 0.0		1	--	--	Space	118	--
--	119	Space	--	--	1			0.0 / 0.0	1	--	--	Space	120	--
--	121	Space	--	--	1	0.0 / 0.0			1	--	--	Space	122	--
--	123	Space	--	--	1		0.0 / 0.0		1	--	--	Space	124	--
--	125	Space	--	--	1			0.0 / 0.0	1	--	--	Space	126	--
				Total Load:		26.0 kVA	17.6 kVA	16.7 kVA						
				Total Amps:		218 A	148 A	139 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
HVAC	7.0 kVA	100.00%	7.0 kVA		
Miscellaneous	20.5 kVA	100.00%	20.5 kVA	Total Conn. Load:	60.3 kVA
Receptacles	32.8 kVA	65.26%	21.4 kVA	Total Est. Demand:	48.9 kVA
				Total Conn. Current:	167 A
				Total Est. Demand...	136 A

Notes:
-Provide (3) 42-circuit sections.

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: HWB

Location: WELDING LAB A158 | **Volts:** 277/480V | **A.I.C. Rating:** 18,000
Supply From: DPCT | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 600A MCB
Phase in kVA | Shunt Trip

Note	CKT	Circuit Description	Wire	Breaker		A	B	C	Breaker		Wire	Circuit Description	CKT	Note
	1	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	2	
	3						2.0 / 2.0						4	
	5							2.0 / 2.0					6	
	7	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	8	
	9						2.0 / 2.0						10	
	11							2.0 / 2.0					12	
	13	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	14	
	15						2.0 / 2.0						16	
	17							2.0 / 2.0					18	
	19	Welder Rack	#3	100	3	28.4 /...			3	100	#3	Welder Rack	20	
	21						28.4 /...						22	
	23							28.4 /...					24	
	25	Welder Rack	#3	100	3	28.4 /...			3	100	#3	Welder Rack	26	
	27						28.4 /...						28	
	29							28.4 /...					30	
	31	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	32	
	33						2.0 / 2.0						34	
	35							2.0 / 2.0					36	
	37	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	38	
	39						2.0 / 2.0						40	
	41							2.0 / 2.0					42	
	43	Welding Booth	#12	20	3	2.0 / 2.0			3	20	#12	Welding Booth	44	
	45						2.0 / 2.0						46	
	47							2.0 / 2.0					48	
	49	EF-6	#12	20	3	0.3 / 0.0			1	--	--	Space	50	--
	51						0.3 / 0.0		1	--	--	Space	52	--
	53							0.3 / 0.0	1	--	--	Space	54	--
--	55	Space	--	--	1	0.0 / 0.0			1	--	--	Space	56	--
--	57	Space	--	--	1		0.0 / 0.0		1	--	--	Space	58	--
--	59	Space	--	--	1			0.0 / 0.0	1	--	--	Space	60	--
--	61	Space	--	--	1	0.0 / 0.0			3	30	--	SPDL	62	--
LF	63	TLWB	1-L	100	2		13.4 / 0.0						64	
	65							14.5 / 0.0					66	
				Total Load:		138.3...	151.8...	152.8...						
				Total Amps:		499 A	555 A	559 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
HVAC	1.0 kVA	100.00%	1.0 kVA		
Miscellaneous	91.9 kVA	100.00%	91.9 kVA	Total Conn. Load:	443.0 kVA
Receptacles	1.3 kVA	100.00%	1.3 kVA	Total Est. Demand:	366.2 kVA
Welders (60% Duty)	348.8 kVA	78.00%	272.1 kVA	Total Conn. Current:	533 A
				Total Est. Demand...	441 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: HDM

Location: DELIVERY/MATERIAL... | **Volts:** 277/480V | **A.I.C. Rating:** 18,000
Supply From: DPCT | **Phases:** 3 | **Enclosure:** Type 1
Mounting: Surface | **Wires:** 4 | **Mains:** 200A MCB
Phase in kVA | SHUNT TRIP

Note	CKT	Circuit Description	Wire	Breaker		A	B	C	Breaker		Wire	Circuit Description	CKT	Note
LF	1	XFMR TLDM	1-L	125	3	20.5 / 2.9			3	20	#12	CRANE/HOIST	2	
	3						15.4 / 2.9						4	
	5							21.7 / 2.9					6	
	7	EF-11	#12	20	3	0.3 / 0.3			3	20	#12	EF-12	8	
	9						0.3 / 0.3						10	
	11							0.3 / 0.3					12	
	13	HVLS-1	#12	20	3	0.6 / 0.6			3	20	#12	HVLS-2	14	
	15						0.6 / 0.6						16	
	17							0.6 / 0.6					18	
--	19	Space	--	--	1	0.0 / 0.0			1	--	--	Space	20	--
--	21	Space	--	--	1		0.0 / 0.0		1	--	--	Space	22	--
--	23	Space	--	--	1			0.0 / 0.0	1	--	--	Space	24	--
--	25	Space	--	--	1	0.0 / 0.0			1	--	--	Space	26	--
--	27	Space	--	--	1		0.0 / 0.0		1	--	--	Space	28	--
--	29	Space	--	--	1			0.0 / 0.0	1	--	--	Space	30	--
--	31	Space	--	--	1	0.0 / 0.0			1	--	--	Space	32	--
--	33	Space	--	--	1		0.0 / 0.0		1	--	--	Space	34	--
--	35	Space	--	--	1			0.0 / 0.0	1	--	--	Space	36	--
--	37	Space	--	--	1	0.0 / 0.0			3	30	--	SPDL	38	--
--	39	Space	--	--	1		0.0 / 0.0						40	
--	41	Space	--	--	1			0.0 / 0.0					42	
				Total Load:		25.3 kVA	20.2 kVA	26.5 kVA						
				Total Amps:		94 A	73 A	98 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
HVAC	5.5 kVA	100.00%	5.5 kVA		
Miscellaneous	42.5 kVA	100.00%	42.5 kVA	Total Conn. Load:	72.0 kVA
Welders (60% Duty)	24.0 kVA	78.00%	18.7 kVA	Total Est. Demand:	66.7 kVA
				Total Conn. Current:	87 A
				Total Est. Demand...	80 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

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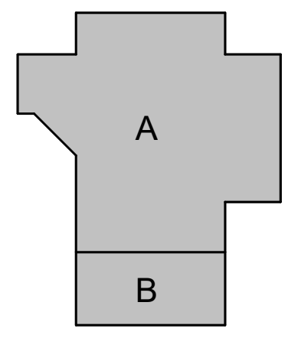

TOMBALL HIGH SCHOOL
CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUIN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

Bradley Kalmans
BRADLEY KALMANS
80219
11-06-23

PROJECT #: 202311
DATE: 2023-11-03
DRAWN: Author
CHECKED: Checker

DATE	ISSUE
2023-11-03	BID SET

E5.01

ELECTRICAL
PANEL
SCHEDULES

PLAN
NORTH

Branch Panel: LAGA

Location: AG LAB A143 **Volts:** 120/240V 3Ph **A.I.C. Rating:** 10,000
Supply From: TLAG **Phases:** 3 **Enclosure:** Type 1
Mounting: Surface **Wires:** 4 **Mains:** 250A MCB

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B	C		Breaker	Wire	Circuit Description	CKT	Note
	1	Welder	#8	50	2	4.0 / 4.0			2	50	#8	Welder	2	
	3						4.0 / 4.0						4	
	5	Welder	#8	50	2			4.0 / 4.0	2	50	#8	Welder	6	
	7					4.0 / 4.0							8	
1	9	Panel LAGB	1-L	150	2		13.7 / 4.0		2	50	#8	Welder	10	
	11							9.7 / 4.0					12	
--	13	Spare	--	50	2	0.0 / 0.0			1	--	--	Space	14	--
	15						0.0 / 0.0		1	--	--	Space	16	--
--	17	Spare	--	50	2			0.0 / 0.0	1	--	--	Space	18	--
	19					0.0 / 0.0			1	--	--	Space	20	--
--	21	Space	--	--	1		0.0 / 0.0		1	--	--	Space	22	--
--	23	Space	--	--	1			0.0 / 0.0	1	--	--	Space	24	--
--	25	Space	--	--	1	0.0 / 0.0			1	--	--	Space	26	--
--	27	Space	--	--	1		0.0 / 0.0		1	--	--	Space	28	--
--	29	Space	--	--	1			0.0 / 0.0	1	--	--	Space	30	--
--	31	Space	--	--	1	0.0 / 0.0			1	--	--	Space	32	--
--	33	Space	--	--	1		0.0 / 0.0		1	--	--	Space	34	--
--	35	Space	--	--	1			0.0 / 0.0	1	--	--	Space	36	--
--	37	Space	--	--	1	0.0 / 0.0							38	
--	39	Space	--	--	1		0.0 / 0.0		3	30	--	SPDL	40	--
--	41	Space	--	--	1			0.0 / 0.0					42	
				Total Load:		16.0 kVA	25.7 kVA	21.7 kVA						
				Total Amps:		115 A	192 A	163 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
Miscellaneous	22.0 kVA	100.00%	22.0 kVA		
Receptacles	1.4 kVA	100.00%	1.4 kVA	**Total Conn. Load:**	63.4 kVA
Welders (60% Duty)	40.0 kVA	78.00%	31.2 kVA	**Total Est. Demand:**	54.6 kVA
				Total Conn. Current:	153 A
				Total Est. Demand...	131 A

Notes:
1 - CONNECT TO A/C PHASE ONLY

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: LAGB

Location: AG LAB A143 **Volts:** 120/240V 1Ph **A.I.C. Rating:** 10,000
Supply From: LAGA **Phases:** 1 **Enclosure:** Type 1
Mounting: Surface **Wires:** 3 **Mains:** 225A MLO

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		B	C		Breaker	Wire	Circuit Description	CKT	Note
	1	Welder	#12	20	1	1.5 / 1.5			1	20	#12	Welder	2	
	3	Welder	#12	20	1		1.5 / 1.5		1	20	#12	Convenience Recept. RM. A143	4	
	5	Welder	#12	20	1	1.5 / 1.5			1	20	#12	Convenience Recept. RM. A143	6	
	7	Convenience Recept. RM. A143	#12	20	1		1.5 / 0.5		1	20	#12	Overhead Door	8	
	9	Grinder	#12	20	1	1.0 / 1.0			1	20	#12	Grinder	10	
	11	Grinder	#12	20	1		1.0 / 1.0		1	20	#12	Grinder	12	
	13	Grinder	#12	20	1	1.0 / 1.0			1	20	#12	Grinder	14	
	15	Grinder	#12	20	1		1.0 / 1.0		1	20	#12	Grinder	16	
	17	Cord Reel	#12	20	1	0.4 / 0.4			1	20	#12	Cord Reel	18	
	19	Cord Reel	#12	20	1		0.4 / 0.4		1	20	#12	Cord Reel	20	
	21	Convenience Recept. RM. A143	#12	20	1	1.5 / 1.5			1	20	#12	Welder	22	
--	23	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	24	--
--	25	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	26	--
--	27	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	28	--
--	29	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	30	--
--	31	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	32	--
--	33	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	34	--
--	35	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	36	--
--	37	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	38	--
--	39	Spare	--	20	1		0.0 / 0.0		3	30	--	SPDL	40	--
--	41	Spare	--	20	1	0.0 / 0.0							42	
				Total Load:		13.7 kVA	9.7 kVA							
				Total Amps:		114 A	81 A							

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
Miscellaneous	22.0 kVA	100.00%	22.0 kVA		
Receptacles	1.4 kVA	100.00%	1.4 kVA	**Total Conn. Load:**	23.4 kVA
				Total Est. Demand:	23.4 kVA
				Total Conn. Current:	98 A
				Total Est. Demand...	98 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: LDMB

Location: DELIVERY/MATERIAL... **Volts:** 120/240V 1Ph **A.I.C. Rating:** 10,000
Supply From: LDMA **Phases:** 1 **Enclosure:** Type 1
Mounting: Surface **Wires:** 3 **Mains:** 100A MLO

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	C		Breaker	Wire	Circuit Description	CKT	Note
	1	Miscellaneous Equipment	#12	20	1	1.5 / 1.5			1	20	#12	Miscellaneous Equipment	2	
	3	Miscellaneous Equipment	#12	20	1		1.5 / 0.5		1	20	#12	Receptacles	4	
	5	Miscellaneous Equipment	#12	20	1	1.5 / 1.5			1	20	#12	Miscellaneous Equipment	6	
	7	Bandsaw	#12	20	1		1.5 / 1.5		1	20	#12	Chop Saw	8	
	9	Miscellaneous Equipment	#12	20	1	1.5 / 1.5			1	20	#12	Miscellaneous Equipment	10	
	11	Miscellaneous Equipment	#12	20	1		1.5 / 1.5		1	20	#12	Miscellaneous Equipment	12	
	13	Receptacles		20	1	0.5 / 0.2			1	20	#12	Motorized Dampers	14	
	15	Overhead Door	#12	20	1		0.5 / 0.0		1	20	--	Spare	16	--
	17	Overhead Door	#1...	20	1	0.5 / 0.0			1	20	--	Spare	18	--
--	19	Spare	--	20	1			0.0 / 0.0	1	20	--	Spare	20	--
--	21	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	22	--
--	23	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	24	--
--	25	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	26	--
--	27	Spare	--	20	1			0.0 / 0.0	1	20	--	Spare	28	--
--	29	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	30	--
--	31	Spare	--	20	1			0.0 / 0.0	1	20	--	Spare	32	--
--	33	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	34	--
--	35	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	36	--
--	37	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	38	--
--	39	Spare	--	20	1		0.0 / 0.0		2	30	--	SPDL	40	--
--	41	Spare	--	20	1	0.0 / 0.0							42	
				Total Load:		10.2 kVA	8.5 kVA							
				Total Amps:		85 A	71 A							

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
Miscellaneous	18.8 kVA	100.00%	18.8 kVA		
				Total Conn. Load:	18.8 kVA
				Total Est. Demand:	18.8 kVA
				Total Conn. Current:	78 A
				Total Est. Demand...	78 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: LWA

Location: WELDING LAB A157 **Volts:** 120/240V 1Ph **A.I.C. Rating:** 10,000
Supply From: TLWA **Phases:** 1 **Enclosure:** Type 1
Mounting: Surface **Wires:** 3 **Mains:** 200A MCB

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B		Breaker	Wire	Circuit Description	CKT	Note
	1	Receptacles	#12	20	1	0.5 / 0.4			1	20	#12	Receptacles	2	
	3	Receptacles	#12	20	1		0.5 / 1.0		1	20	#12	Grinder	4	
	5	Receptacles WELDING LAB A157	#12	20	1	0.4 / 1.0			1	20	#12	Grinder	6	
	7	Receptacles WELDING LAB A157	#12	20	1		0.4 / 0.4		1	20	#12	Receptacles	8	
	9	Grinder	#12	20	1	1.0 / 1.0			1	20	#12	Grinder	10	
	11	Receptacles WELDING LAB A158	#12	20	1		0.4 / 4.0	2	50	#8	Welder	12	
	13	Grinder	#12	20	1	1.0 / 4.0						14	
	15	Grinder	#12	20	1		1.0 / 1.0	1	20	#12	Grinder	16	
	17	Grinder	#12	20	1	1.0 / 1.0			1	20	#12	Grinder	18	
	19	Grinder	#12	20	1		1.0 / 0.5	1	20	#12	Overhead door	20	
	21	Miscellaneous Equipment	#12	20	1	1.5 / 0.5		1	20	#12	Overhead Door	22	
	23	Grinder	#12	20	1		1.0 / 1.0	1	20	#12	Grinder	24	
	25	Grinder	#12	20	1	1.0 / 1.0		1	20	#12	Grinder	26	
	27	Grinder	#12	20	1		1.0 / 1.0	1	20	#12	Grinder	28	
--	29	Spare	--	20	1	0.0 / 0.0		1	20	--	Spare	30	--
--	31	Spare	--	20	1		0.0 / 0.0	1	20	--	Spare	32	--
--	33	Spare	--	20	1	0.0 / 0.0		1	20	--	Spare	34	--
--	35	Spare	--	20	1		0.0 / 0.0	1	20	--	Spare	36	--
--	37	Spare	--	20	1	0.0 / 0.0		1	20	--	Spare	38	--
--	39	Spare	--	20	1		0.0 / 0.0	2	30	--	SPDL	40	--
--	41	Spare	--	20	1	0.0 / 0.0						42	
				Total Load:		15.3 kVA	14.1 kVA						
				Total Amps:		127 A	118 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
Miscellaneous	18.5 kVA	100.00%	18.5 kVA		
Receptacles	2.9 kVA	100.00%	2.9 kVA	**Total Conn. Load:**	29.4 kVA
Welders (60% Duty)	8.0 kVA	78.00%	6.2 kVA	**Total Est. Demand:**	27.6 kVA
				Total Conn. Current:	122 A
				Total Est. Demand...	115 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: LWB

Location: WELDING LAB A158 **Volts:** 120/240V 1Ph **A.I.C. Rating:** 10,000
Supply From: TLWB **Phases:** 1 **Enclosure:** Type 1
Mounting: Surface **Wires:** 3 **Mains:** 200A MCB

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B		Breaker	Wire	Circuit Description	CKT	Note
	1	Receptacles	#12	20	1	0.5 / 0.5			1	20	#12	Receptacles	2	
	3	Overhead Door	#12	20	1		0.5 / 0.5		1	20	#12	Overhead Door	4	
	5	Receptacles	#12	20	1	0.4 / 1.0			1	20	#12	Grinder	6	
	7	Grinder	#12	20	1		1.0 / 1.0		1	20	#12	Grinder	8	
	9	Grinder	#12	20	1	1.0 / 1.0			1	20	#12	Grinder	10	
	11	Grinder	#12	20	1		1.0 / 1.0		1	20	#12	Grinder	12	
	13	Grinder	#12	20	1	1.0 / 4.0		2	50	#8	Welder	14	
	15	Miscellaneous Equipment	#12	20	1		1.5 / 4.0					16	
	17	Grinder	#12	20	1	1.0 / 1.0			1	20	#12	Grinder	18	
	19	Grinder	#12	20	1		1.0 / 1.0		1	20	#12	Grinder	20	
	21	Grinder	#12	20	1	1.0 / 1.0			1	20	#12	Grinder	22	
	23	Grinder	#12	20	1		1.0 / 1.0		1	20	#12	Grinder	24	
--	25	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	26	--
--	27	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	28	--
--	29	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	30	--
--	31	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	32	--
--	33	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	34	--
--	35	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	36	--
--	37	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	38	--
--	39	Spare	--	20	1		0.0 / 0.0	2	30	--	SPDL	40	--
--	41	Spare	--	20	1	0.0 / 0.0						42	
				Total Load:		13.4 kVA	14.5 kVA						
				Total Amps:		112 A	121 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
Miscellaneous	18.7 kVA	100.00%	18.7 kVA		
Receptacles	1.3 kVA	100.00%	1.3 kVA	**Total Conn. Load:**	27.9 kVA
Welders (60% Duty)	8.0 kVA	78.00%	6.2 kVA	**Total Est. Demand:**	26.2 kVA
				Total Conn. Current:	116 A
				Total Est. Demand...	109 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: LCTB

Location: ELEC A160 **Volts:** 120/208V Wye **A.I.C. Rating:** 10,000
Supply From: TLCTB **Phases:** 3 **Enclosure:** Type 1
Mounting: Surface **Wires:** 4 **Mains:** 150A MCB

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B	C		Breaker	Wire	Circuit Description	CKT	Note
	1	Cord Reel RM. A136	#12	20	1	0.7 / 0.7			1	20	#12	Cord Reel RM. A136	2	
	3	Cord Reel RM. A136	#12	20	1		0.7 / 1.5		1	20	#12	Convenience Recept. RM. A136	4	
	5	Convenience Recept. RM. A136	#12	20	1			0.5 / 1.3	1	20	#12	Convenience Recept. RM. A135	6	
	7	Convenience Recept. RM. A135	#12	20	1	0.5 / 1.3			1	20	#12	Convenience Recept. RM. A152	8	
	9	Convenience Recept. RM. A152	#12	20	1		0.5 / 0.5		1	20	#12	Convenience Recept. RM. A139	10	
	11	Emerg. Shower RM. A157/158/143	#12	20	1			0.8 / 0.3	1	20	#12	Motorized Dampers	12	
	13	Convenience Recept. RM. A141	#12	20	1	0.4 / 0.5			1	20	#12	Convenience Recept. RM. A140	14	
	15	Convenience Recetp. RM. A164	#12	20	1		0.5 / 0.4		1	20	#12	Convenience Recept. RM. A162	16	
	17	Convenience Recept. RM. A160	#12	20	1			0.2 / 0.5	1	20	#12	Convenience Recpt. RM. A159	18	
	19	Convenience Recept. RM. A161	#12	20	1	0.4 / 0.5			1	20	#12	Convenience Recept. RM. A153	20	
	21	Convenience Recept. RM. A153	#12	20	1		1.3 / 0.2		1	20	#12	Convenience Recept. RM. A156	22	
	23	Convenience Recept. RM. A155	#12	20	1			0.2 / 1.1	1	20	#12	Convenience Recept. RM. A134	24	
	25	Receptacles S1QR A142	#12	20	1	0.5 / 0.4			1	20	#12	Convenience Recept. RM. A145	26	
	27	Convenience Recept. RM. A145	#12	20	1		0.4 / 0.4		1	20	#12	Convenience Recept. RM. A145	28	
	29	Convenience Recept. RM. A145	#12	20	1			0.4 / 2.5	1	30	#10	UPS Receptacle	30	
	31	UPS Receptacle	#10	30	1	2.5 / 0.7			1	20	#12	Corridor Convenience Recept.	32	
	33	Convenience Recept. RM. A134	#12	20	1		0.5 / 0.0		2	25	#10	DMSCU-2 / DMS-2	34	
	35	GUH-1	#12	20	1			0.4 / 0.0					36	
	37	Receptacles	#12	20	1	0.4 / 0.0							38	
	39	Receptacles	#12	20	1		0.5 / 0.0		3	30	--	SPDL	40	--
	41	Air Dryer	#12	20	1			0.5 / 0.0					42	
	43	GUH-3	#12	20	1	0.4 / 0.0			1	20	--	Spare	44	--
	45	EUH-1	#8	40	2		2.5 / 0.0		1	20	--	Spare	46	--
	47							2.5 / 0.0	1	20	--	Spare	48	--
--	49	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	50	--
--	51	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	52	--
--	53	Spare	--	20	1			0.0 / 0.0	1	20	--	Spare	54	--
--	55	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	56	--
--	57	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	58	--
--	59	Spare	--	20	1			0.0 / 0.0	1	20	--	Spare	60	--
--	61	Spare	--	20	1	0.0 / 0.0			1	20	--	Spare	62	--
--	63	Spare	--	20	1		0.0 / 0.0		1	20	--	Spare	64	--
--	65	Spare	--	20	1			0.0 / 0.0	1	20	--	Spare	66	--
--	67	Space	--	--	1	0.0 / 0.0			1	--	--	Space	68	--
--	69	Space	--	--	1		0.0 / 0.0		1	--	--	Space	70	--
--	71	Space	--	--	1			0.0 / 0.0	1	--	--	Space	72	--
--	73	Space	--	--	1	0.0 / 0.0			1	--	--	Space	74	--
--	75	Space	--	--	1		0.0 / 0.0		1	--	--	Space	76	--
--	77	Space	--	--	1			0.0 / 0.0	1	--	--	Space	78	--
--	79	Space	--	--	1	0.0 / 0.0			1	--	--	Space	80	--
--	81	Space	--	--	1		0.0 / 0.0		1	--	--	Space	82	--
--	83	Space	--	--	1			0.0 / 0.0	1	--	--	Space	84	--
				Total Load:		9.9 kVA	9.9 kVA	11.1 kVA						
				Total Amps:		83 A	82 A	93 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
HVAC	0.0 kVA	0.00%	0.0 kVA		
Heating	5.0 kVA	100.00%	5.0 kVA	**Total Conn. Load:**	31.0 kVA
Miscellaneous	7.6 kVA	100.00%	7.6 kVA	**Total Est. Demand:**	26.8 kVA
Receptacles	18.4 kVA	77.23%	14.2 kVA	**Total Conn. Current:**	86 A
				Total Est. Demand...	74 A

Notes:

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

Branch Panel: LDMA

Location: DELIVERY/MATERIAL... **Volts:** 120/240V 3Ph **A.I.C. Rating:** 10,000
Supply From: TLDM **Phases:** 3 **Enclosure:** Type 1
Mounting: Surface **Wires:** 4 **Mains:** 250A MCB

Phase in kVA

Note	CKT	Circuit Description	Wire	Breaker		A	B	C		Breaker	Wire	Circuit Description	CKT	Note
	1	Welder	#8	50	2	4.0 / 4.0			2	50	#8	Welder	2	
	3						4.0 / 4.0						4	
	5	LDM2	1-L	100	2			10.2 / 4.0	2	50	#8	Welder	6	
1	7					8.5 / 4.0							8	
	9	Ironworker	#12	20	2		1.4 / 6.0		2	60	#6	Plasma Cutter	10	
	11							1.4 / 6.0					12	
--	13	Space	--	--	1	0.0 / 0.0			1	--	--	Space	14	--
--	15	Space	--	--	1		0.0 / 0.0		1	--	--	Space	16	--
--	17	Space	--	--	1			0.0 / 0.0	1	--	--	Space	18	--
--	19	Space	--	--	1	0.0 / 0.0			1	--	--	Space	20	--
--	21	Space	--	--	1		0.0 / 0.0		1	--	--	Space	22	--
--	23	Space	--	--	1			0.0 / 0.0	1	--	--	Space	24	--
--	25	Space	--	--	1	0.0 / 0.0			1	--	--	Space	26	--
--	27	Space	--	--	1		0.0 / 0.0		1	--	--	Space	28	--
--	29	Space	--	--	1			0.0 / 0.0	1	--	--	Space	30	--
--	31	Space	--	--	1	0.0 / 0.0			1	--	--	Space	32	--
--	33	Space	--	--	1		0.0 / 0.0		1	--	--	Space	34	--
--	35	Space	--	--	1			0.0 / 0.0	1	--	--	Space	36	--
--	37	Space	--	--	1	0.0 / 0.0							38	
--	39	Space	--	--	1		0.0 / 0.0		3	30	--	SPDL	40	--
--	41	Space	--	--	1			0.0 / 0.0					42	
				Total Load:		20.5 kVA	15.4 kVA	21.7 kVA						
				Total Amps:		154 A	111 A	162 A						

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
Miscellaneous	33.7 kVA	100.00%	33.7 kVA		
Welders (60% Duty)	24.0 kVA	78.00%	18.7 kVA	**Total Conn. Load:**	57.7 kVA
				Total Est. Demand:	52.4 kVA
				Total Conn. Current:	139 A
				Total Est. Demand...	126 A

Notes:
1 - CONNECT TO A/C PHASE ONLY

Abbrevations:
G - PROVIDE GFCI CIRCUIT BREAKER
LF - PROVIDE PERMANENT LOCK-OFF DEVICE
LO - PROVIDE PERMANENT LOCK-ON DEVICE

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A
B

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STATE OF TEXAS
BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
11-06-23

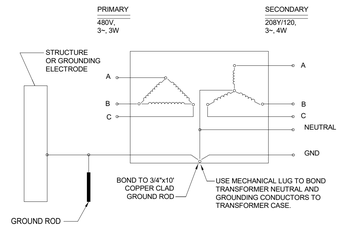
PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	Author
CHECKED:	Checker

DATE	ISSUE
2023-11-03	BID SET

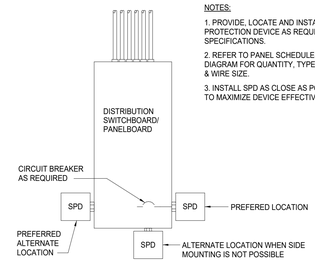
E5.02

ELECTRICAL
PANEL
SCHEDULES

PLAN NORTH



2 TRANSFORMER GROUNDING DETAIL
SCALE: NONE



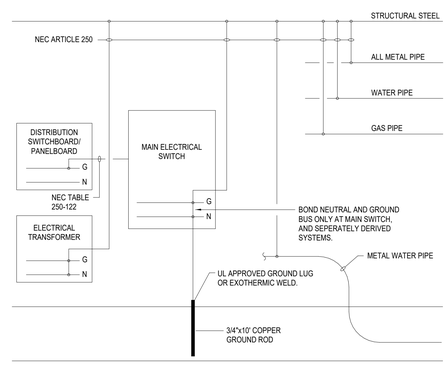
NOTES:

1. PROVIDE, LOCATE AND INSTALL SURGE PROTECTION DEVICE AS REQUIRED PER SPECIFICATIONS.

2. REFER TO PANEL SCHEDULES AND ONE-LINE DIAGRAM FOR QUANTITY, TYPE, BREAKER SIZE, & WIRE SIZE.

3. INSTALL SPD AS CLOSE AS POSSIBLE TO PANEL TO MAXIMIZE DEVICE EFFECTIVENESS.

3 SURGE PROTECTION DETAIL
SCALE: NONE



2 GROUNDING DETAIL
SCALE: NONE

SYMBOL SCHEDULE

SYMBOL	DESCRIPTION (DISREGARD ITEMS NOT SHOWN ON PLANS)
LIGHTING (LETTER DENOTES TYPE - SEE LIGHT FIXTURE SCHEDULE)	
	LIGHT FIXTURE - RECESSED OR SURFACE MOUNTED
	LIGHT FIXTURE - RECESSED OR SURFACE MOUNTED ON EMERGENCY CIRCUIT
	DOWNLIGHT FIXTURE
	DOWNLIGHT FIXTURE ON EMERGENCY CIRCUIT
	LIGHT FIXTURE - WALL MOUNTED
	LIGHT FIXTURE - WALL MOUNTED ON EMERGENCY CIRCUIT
	EXIT LIGHT - CEILING MOUNTED ON EMERGENCY CIRCUIT
	EXIT LIGHT - WALL MOUNTED ON EMERGENCY CIRCUIT
LIGHTING CONTROLS & DEVICES	
S	LINE VOLTAGE SINGLE POLE SWITCH
S^3	LINE VOLTAGE 3-WAY SWITCH
S^4	LINE VOLTAGE 4-WAY SWITCH
S^K	LINE VOLTAGE MOMENTARY DPST KEYED SWITCH
S^D	LINE VOLTAGE DIMMER SWITCH, SIZE AND TYPE AS REQUIRED
S^P	LINE VOLTAGE SWITCH WITH PILOT LIGHT
S^T	6-HOUR ROTARY TIMER SWITCH WITH NO HOLD U.N.O.
	PUSH BUTTON EPO SWITCH WITH COVER
S^{MC}	LOW VOLTAGE MOMENTARY CONTACT SWITCH
S^R	LOW VOLTAGE DIGITAL KEYPAD
S^B	LOW VOLTAGE BUILDING MANAGEMENT (BMCS) LOCAL OVERRIDE SWITCH
	OCCUPANCY SENSOR (AUTO ON / AUTO OFF WITHIN 20-MINUTES)
	VACANCY SENSOR (MANUAL ON / AUTO OFF WITHIN 20-MINUTES)
	PHOTOCELL SENSOR
R#	LIGHTING CONTROL SYSTEM. ('#' DENOTES TYPE - SEE LIGHTING CONTROLS SCHEDULE)
ER	EMERGENCY LOAD CONTROL RELAY. MINIMUM 16A AND 0-10V COMPATIBLE. PROVIDE U.L. 924 U.N.O.
RECEPTACLES AND OUTLETS	
	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE
U	DUPLEX RECEPTACLE WITH TWO USB CHARGING PORTS.
	125/250 VOLT, 1 PHASE, 3-WIRE, 20 AMPS UNLESS NOTED OTHERWISE
	DOUBLE DUPLEX IN 2-GANG BOX WITH SINGLE COVER PLATE
U	DOUBLE DUPLEX WITH TWO USB CHARGING PORTS IN 2-GANG BOX WITH SINGLE COVER PLATE
	DOUBLE DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE IN 2-GANG BOX WITH SINGLE COVER PLATE
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
	FLUSH FLOOR DUPLEX RECEPTACLE OUTLET
	FLUSH FLOOR DOUBLE DUPLEX RECEPTACLE OUTLET
	CONCEALED SERVICE MULTI-ACCESS FLOOR BOX WITH DUPLEX RECEPTACLE AND DATA OUTLET. REFER TO TECHNOLOGY SERIES DRAWINGS FOR DATA CABLE QUANTIES.
	CONCEALED SERVICE MULTI-ACCESS FLOOR BOX WITH DOUBLE DUPLEX RECEPTACLE AND DATA OUTLET. REFER TO TECHNOLOGY SERIES DRAWINGS FOR DATA CABLE QUANTIES.
	JUNCTION BOX
G	FLUSH REMOTE GFCI DEVICE (LOCATE IN READILY ACCESSIBLE LOCATION)
MOTOR CONTROLLERS AND EQUIPMENT	
	MOTOR, MAKE FINAL MOTOR CONNECTION
S	MOTOR-RATED SWITCH. 20A UNLESS INDICATED OTHERWISE.
	DISCONNECT SWITCH AS REQUIRED
	COMBINATION MOTOR STARTER/DISCONNECT SWITCH AS REQUIRED
	MOTOR STARTER
	PREWIRED DEVICE, MAKE ELECTRICAL FINAL CONNECTIONS
VFD	VARIABLE FREQUENCY DRIVE MOTOR CONTROLLER FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR.
HF	HIGH EFFICIENCY HARMONIC FILTER FURNISHED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR.
T	LOW VOLTAGE TRANSFORMER, SIZE AND TYPE AS REQUIRED.
Y	CHIME/BUZZER
ELECTRICAL EQUIPMENT	
	ELECTRICAL PANELBOARD; REFER TO FLOOR PLANS FOR VOLTAGE.
	DRY TYPE TRANSFORMER
	PLYWOOD TELEPHONE BACKBOARD
CIRCUITING	
	CONDUIT
	CONDUIT BELOW FLOOR, SLAB, OR GRADE
	3/4"C. UNLESS OTHERWISE NOTED; LONG HATCH, NEUTRAL; SHORT HATCH, PHASE; LONG HATCH & HOOK, INSULATED GROUND. NO HATCHES INDICATES 2 CONDUCTORS. ARROW INDICATES HOMERUN.
	PARTIAL ELECTRICAL HOME RUN
SUBSCRIPTS AND ABBREVIATIONS	
WP	INDICATES 'WEATHERPROOF'
H	INDICATES 'HORIZONTAL'
NL	INDICATES 'NIGHT LIGHT'.
TP	INDICATES 'TAMPER PROOF'
(KS)	INDICATES 'KNEE SPACE'. LOCATE WIRING DEVICE IN KNEESPACE
U.N.O.	INDICATES 'UNLESS NOTED OTHERWISE'
(E)	INDICATES EXISTING TO REMAIN
(R)	INDICATES REPLACE DEVICE AND COVERPLATE.
*	NEXT TO ANY SYMBOL INDICATES FINAL ROUGH-IN FIELD COORDINATION BY CONTRACTOR WITH ARCHITECTURAL MILLWORK DRAWINGS AND OTHER TRADES

GENERAL NOTES:
-ALL EXTERIOR BUILDING ELECTRICAL EQUIPMENT TO BE WEATHERPROOF NEMA-4X MINIMUM.
-ALL EXTERIOR RECEPTACLES SHALL BE WATER RESISTANT TYPE.

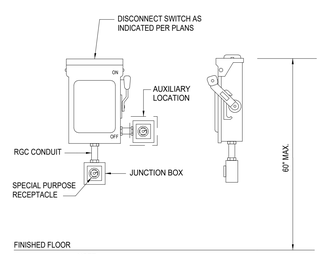
LIGHTING CONTROLS SCHEDULE

Type	Sensor Operation	# of Lighting Zones	Description
EI	-	-	UL924 EMERGENCY POWER INVERTER; SINE WAVE OUTPUT, 550-WATTS, 120/277V. IOTA #ISS 550-SERIES OR EQUAL.
RA	VACANCY - MANUAL ON / AUTO OFF	1	DIGITAL KEYPAD; ON/OFF SWITCH WITH RAISE LOWER; 0-10V DIMMING.
RB	VACANCY - MANUAL ON / AUTO OFF	1	DIGITAL KEYPAD; ON/OFF SWITCH, NO DIMMING.
RC	VACANCY - MANUAL ON / AUTO OFF	2	DIGITAL KEYPAD WITH MULTIPLE BUTTONS FOR ZONING, RAISE/LOWER; ADDITIONAL KEYPAD FOR TEACHING WALL ZONE; 0-10V DIMMING.
RD	OCCUPANCY - AUTO ON / AUTO OFF	1	ON/OFF KEYED SWITCH. NO DIMMING.
RE	NONE	1	ON/OFF SWITCH; NO DIMMING.
RF	OCCUPANCY - AUTO ON @ 50% / AUTO OFF	2	DIGITAL KEYPAD WITH MULTIPLE BUTTONS FOR ZONING, RAISE/LOWER; ADDITIONAL KEYPAD FOR TEACHING WALL ZONE; 0-10V DIMMING.
RG	OCCUPANCY - AUTO ON @ 50% / AUTO OFF	1	DIGITAL KEYPAD; ON/OFF SWITCH WITH RAISE LOWER; 0-10V DIMMING.
RH	NONE	1	DIGITAL KEYPAD; ON/OFF WITH RAISE/LOWER; 0-10V DIMMING. (AUTOMATIC AND TIMESWITCH CONTROLS EXEMPT. IECC 2015 - C405.2.2 EXCEPTION 5)
RJ	NONE	1	EXTERIOR LIGHTING. CIRCUIT CONTROLLED VIA CONTACTOR, CONTACTOR CONTROLLED VIA BMCS.

**ALL EGRESS PATHWAYS AND ASSEMBLY SPACES SHALL BE INTEGRATED WITH FIRE ALARM TO FORCE ON EMERGENCY LIGHTING TO 100% OUTPUT DURING A FIRE ALARM OR FIRE DRILL ACTIVATION. EGRESS PATHS SHALL BE CONNECTED TO A NETWORKED LIGHTING SYSTEM.

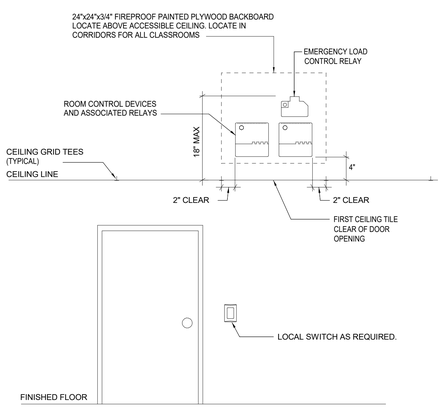
LIGHTING FIXTURE SCHEDULE

Type	Manufacturer	Model	Mounting	Driver / Light Engine: Type/Lumens	Color Temperature	CRI	Voltage	Input Wattage	Remarks
A1	METALUX	24FP4740C	RECESSED	LED / 4700 LUMENS	4000 K	80+	277 V	42 W	2x4 FLAT PANEL, OPAQUE ACRYLIC LENS, 0-10V DIMMING, DLC LISTED.
A1E	METALUX	24FP470C +EL14W	RECESSED	LED / 4700 LUMENS	4000 K	80+	277 V	42 W	2x4 FLAT PANEL, OPAQUE ACRYLIC LENS, 0-10V DIMMING, DLC LISTED.
A2	METALUX	24FP6440C	RECESSED	LED / 6400 LUMENS	4000 K	80+	277 V	62 W	2x4 FLAT PANEL, OPAQUE ACRYLIC LENS, 0-10V DIMMING, DLC LISTED.
A2E	METALUX	24FP640C +EL14W	RECESSED	LED / 6400 LUMENS	4000 K	80+	277 V	62 W	2x4 FLAT PANEL, OPAQUE ACRYLIC LENS, 0-10V DIMMING, DLC LISTED.
B1	METALUX	14FP4240C	RECESSED	LED / 4200 LUMENS	4000 K	80+	277 V	38 W	1x4 FLAT PANEL, OPAQUE ACRYLIC LENS, 0-10V DIMMING, DLC LISTED.
B1E	METALUX	14FP4240C +EL14W	RECESSED	LED / 4200 LUMENS	4000 K	80+	277 V	38 W	1x4 FLAT PANEL, OPAQUE ACRYLIC LENS, 0-10V DIMMING, DLC LISTED.
C1	METALUX	4SNX-515L-LW-UNV-L840-CD1-U + AYC/CHAIN-SET-U	CHAIN HANG	LED / 4000 LUMENS	4000 K	80+	277 V	31 W	4-FOOT STRIP, FROSTED ACRYLIC LENS, WIREGUARD, DLC LISTED.
C1E	METALUX	4SNX-515L-LW-UNV-L840-CD1-EL14W-U + AYC/CHAIN-SET-U	CHAIN HANG	LED / 4000 LUMENS	4000 K	80+	277 V	31 W	4-FOOT STRIP, FROSTED ACRYLIC LENS, WIREGUARD, DLC LISTED.
D1	METALUX	LHBS-1218-UNV-L84050 + LHBS-PMK	PENDANT	LED / 18000 LUMENS	4000 K	80+	277 V	124 W	INDUSTRIAL HIGH BAY, DISFFUSED ACRYLIC LENS, SELECTABLE LUMENS/CCT, 0-10VV DIMING, DLC LISTED.
D2	METALUX	LHBS-1218-UNV-L84050 + LHBS-PMK	PENDANT	LED / 12000 LUMENS	4000 K	80+	277 V	124 W	INDUSTRIAL HIGH BAY, DISFFUSED ACRYLIC LENS, SELECTABLE LUMENS/CCT, 0-10VV DIMING, DLC LISTED.
W1	McGRAW EDISON	GWA-SA1-C-740-U-T4W-BK-LCF	WALL	LED / 7502 LUMENS	4000 K	70+	277 V	59 W	ARCHITECTURAL WALLPACK, TYPE IV WIDE DISTRIBUTION, BLACK FINISH, DLC LISTED.
W1E	McGRAW EDISON	GWA-SA1-C-740-U-T4W-BK-LCF + REMOTE EMERGENCY BATTERY	WALL	LED / 7502 LUMENS	4000 K	70+	277 V	59 W	ARCHITECTURAL WALLPACK, TYPE IV WIDE DISTRIBUTION, BLACK FINISH. DLC LISTED. PROVIDE WITH REMOTE EMERGENCY BATTERY PACK. LOCATE BATTERY INDOORS ABOVE ACCESSIBLE CEILING.
X1	SURE-LITES	EUX7RWH	UNIVERSAL	LED			277 V		SINGLE-FACED EDGE-LIT EXIT SIGN, WHITE HOUSING, RED LETTERING, MIRROR BACKGROUND, 90MIN BATTERY. PROVIDE CHEVRON DIRECTIONAL ARROWS PER PLANS OR AS DIRECTED BY AHJ.
X1V	SURE-LITES	UX71WHSD	SURFACE	LED			277 V		SINGLE-FACED VANDAL RESISTANT EXIT SIGN, WHITE HOUSING, RED LETTERING. PROVIDE CHEVRON DIRECTIONAL ARROWS PER PLANS OR AS DIRECTED BY AHJ.
X2	SURE-LITES	EUX7RWH	UNIVERSAL	LED			277 V		DOUBLE-FACED EDGE-LIT EXIT SIGN, WHITE HOUSING, RED LETTERING, MIRROR BACKGROUND, 90MIN BATTERY. PROVIDE CHEVRON DIRECTIONAL ARROWS PER PLANS OR AS DIRECTED BY AHJ.



NOTE:
COORDINATE EXACT NEMA CONFIGURATION AND EQUIPMENT REQUIREMENTS PRIOR TO ROUGH-IN.

5 SPECIAL PURPOSE RECEPTACLE WITH DISCONNECT SWITCH DETAIL
SCALE: NONE



1 TYPICAL LIGHTING CONTROLS ELEVATION
SCALE: NONE

ELECTRICAL GENERAL NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES.
2. ALL LIGHT FIXTURES IN MECHANICAL AREAS SHALL BE COORDINATED WITH MECHANICAL AND PLUMBING EQUIPMENT TO AVOID CONFLICTS. LOCATE LIGHT FIXTURES ON PERIMETER WALLS OF MECHANICAL AREAS WHERE PRACTICAL.
3. ALL EMPTY CONDUIT SHALL HAVE PULL STRING.
4. EACH CONDUIT SHALL BE LIMITED TO (3) CIRCUITS MAXIMUM.
5. VERIFY MOUNTING HEIGHTS OF RECEPTACLES WITH CASEWORK ELEVATIONS PRIOR TO ROUGH-IN. REFER TO ARCHITECTURAL DRAWINGS FOR ROOM ELEVATIONS FOR LOCATION AND COORDINATION OF ELECTRICAL OUTLETS. AT KNEESPACE LOCATIONS, LOCATE ELECTRICAL OUTLETS WITHIN KNEESPACE, UNLESS NOTED OTHERWISE. AT COUNTERS WITH OUT KNEESPACE, LOCATE OUTLETS HORIZONTALLY 6" ABOVE BACK SPLASH, UNLESS NOTED OTHERWISE.
6. ALL FIRE ALARM DEVICES, RECEPTACLES, SWITCHES, AND WIRING DEVICES IN MECHANICAL AND ELECTRICAL ROOMS ARE TO BE RECESSED IN WALLS.
7. ALL LIGHTING, RECEPTACLE, AND EQUIPMENT BRANCH CIRCUITS CONDUITS SHALL CONTAIN A GROUND WIRE. USING THE CONDUIT SYSTEM AS THE ONLY GROUND PATH IS NOT ACCEPTABLE.
10. CENTER ALL EXIT SIGNS OVER DOORS.
11. PROVIDE 120V CIRCUIT FROM NEAREST RECEPTACLE OUTLET TO EACH FAN COIL UNIT. COOLING UNITS ABOVE CEILING TO RECEPTACLE FOR CONDENSATE PUMP.

PLAN NORTH

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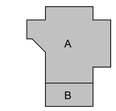

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUIN ROAD, TOMBALL, TX 77375

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STATE OF TEXAS
BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
11-06-23

PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	DES
CHECKED:	JZ

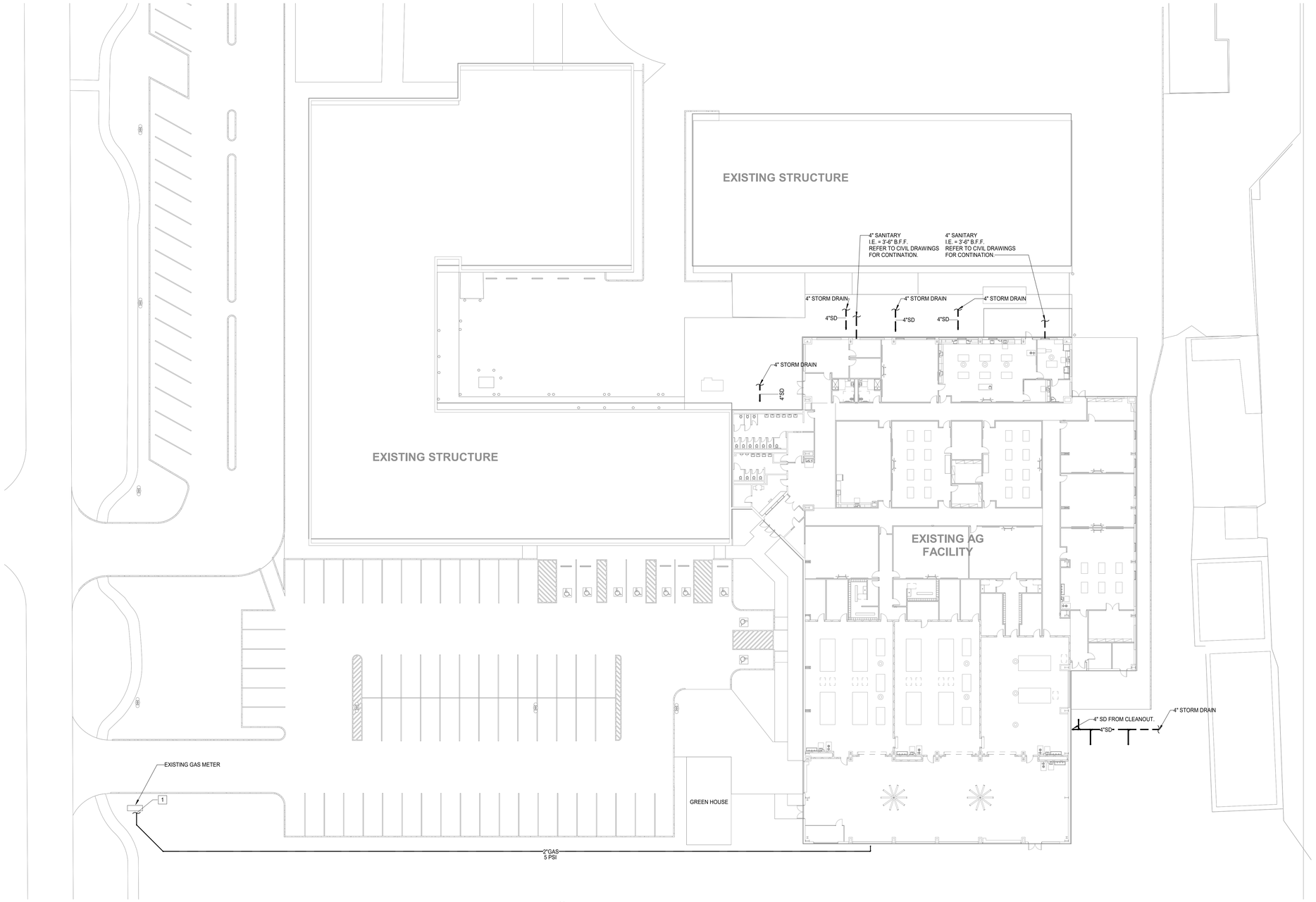
DATE	ISSUE
2023-11-03	BID SET

E6.01

ELECTRICAL DETAILS AND SCHEDULES

PLUMBING KEYED NOTES

1 CONNECT 2" GAS LINE TO EXISTING METER, 5PSI TOTAL DEMAND XXX CFH.



N

1 **PLUMBING SITE PLAN**
Scale: 1" = 20'-0"

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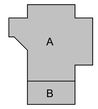

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STATE OF TEXAS
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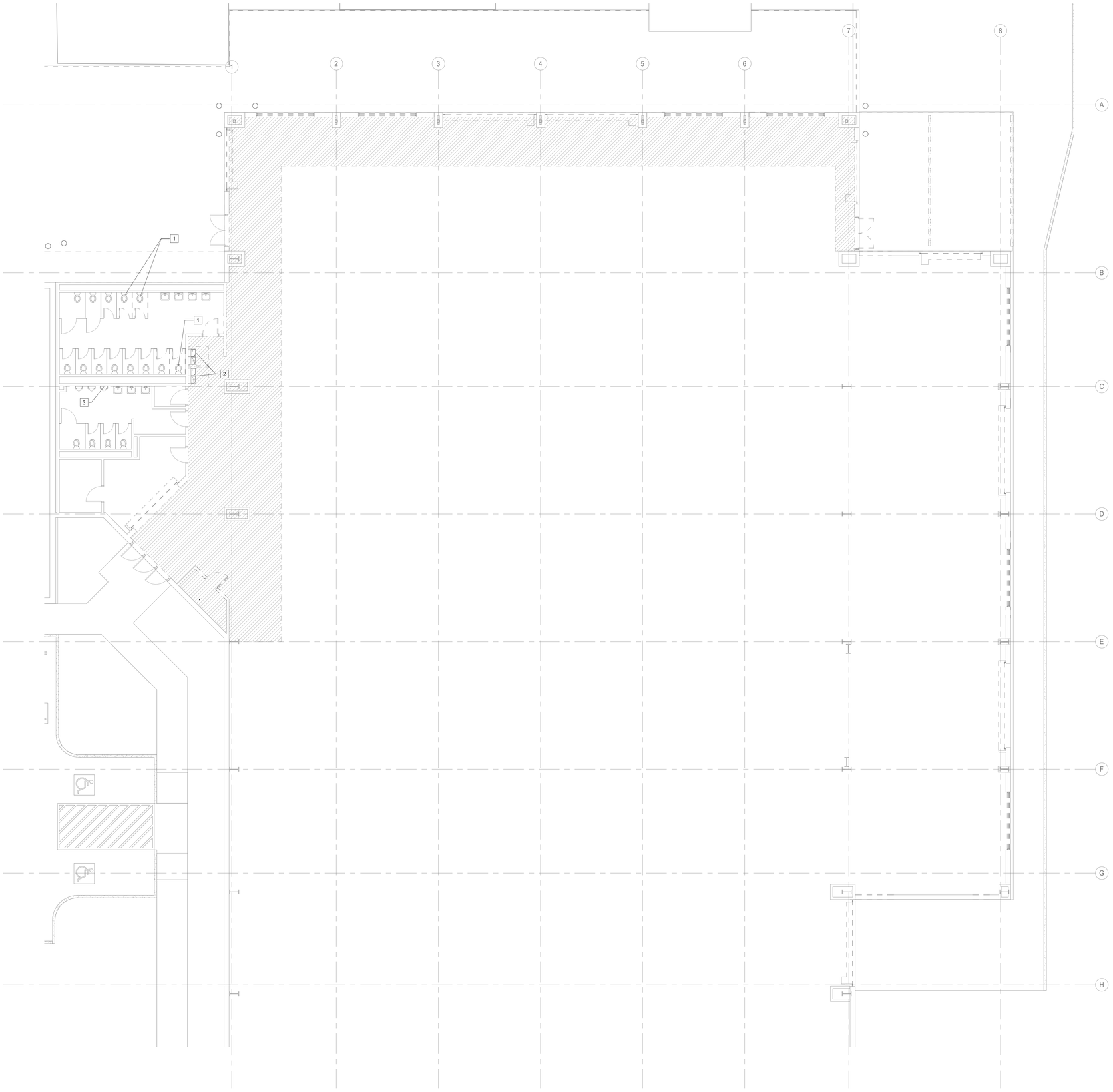
P1.00

PLUMING SITE PLAN

PLAN NORTH

PLUMBING KEYED NOTES

1. EXISTING WATER CLOSET TO BE REMOVED. REMOVE SANITARY, CW AND VENT BACK TO MAIN.
2. EXISTING ELECTRONIC DRINKING FOUNTAIN TO BE REMOVED. REMOVE SANITARY, CW AND VENT BACK TO MAIN.
3. EXISTING URINAL TO BE REMOVED AND REPLACED. CAP UTILITIES FOR FUTURE CONNECTION.



N

1 **PLUMBING DEMOLITION 1ST FLOOR PLAN - AREA 'A1'**
Scale: 1/8" = 1'-0"

PLAN NORTH

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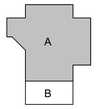

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
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BRADLEY KALMANS
80219
LICENSED
TEXAS
11-06-23

PROJECT #:	202311
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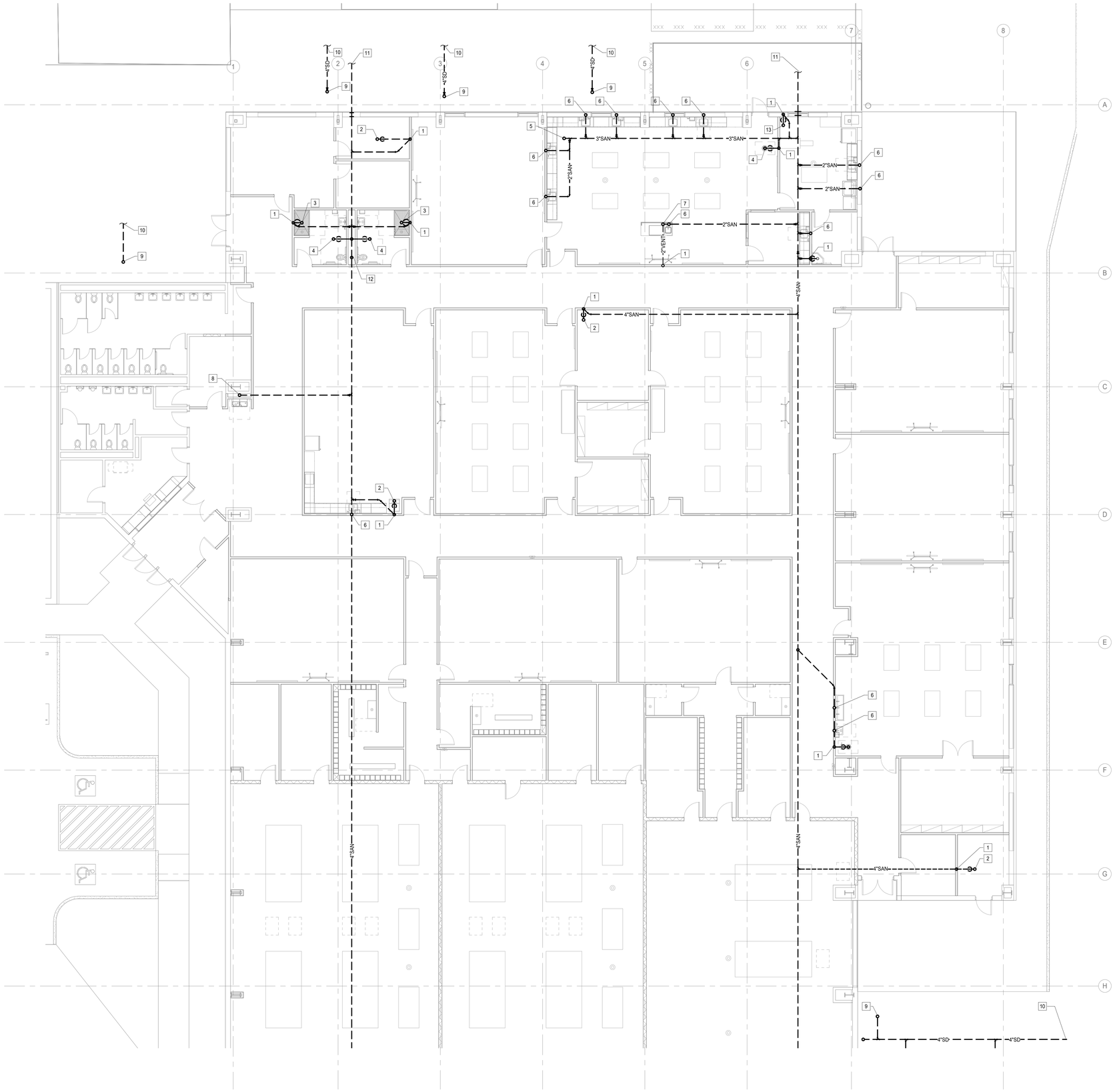
DATE	ISSUE
2023-11-03	BID SET

P1.01

PLUMBING DEMOLITION AREA 'A1' 1ST FLOOR PLAN



1 **PLUMBING UNDERFLOOR PLAN - AREA 'A1'**
Scale: 1/8" = 1'-0"

PLUMBING KEYED NOTES

1. 2" VENT UP.
2. 4" SANITARY FROM FLOOR SINK ABOVE.
3. 2" SANITARY FROM SHOWER ABOVE.
4. 3" SANITARY FROM FLOOR DRAIN ABOVE.
5. 4" SANITARY FROM CLEANOUT ABOVE.
6. 2" SANITARY FROM SINK ABOVE.
7. 2" VENT FROM BELOW.
8. 2" SANITARY FROM ELECTRONIC DRINKING FOUNTAIN ABOVE.
9. 4" STORM FROM ABOVE.
10. 4" STORM, REFER TO PLUMBING SITE PLAN P1.01 FOR CONTINUATION.
11. REFER TO SHEET P1.00 FOR CONTINUATION.
12. 4" SANITARY FROM ABOVE.
13. 3" SANITARY FROM FLOOR SINK ABOVE.

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A
B

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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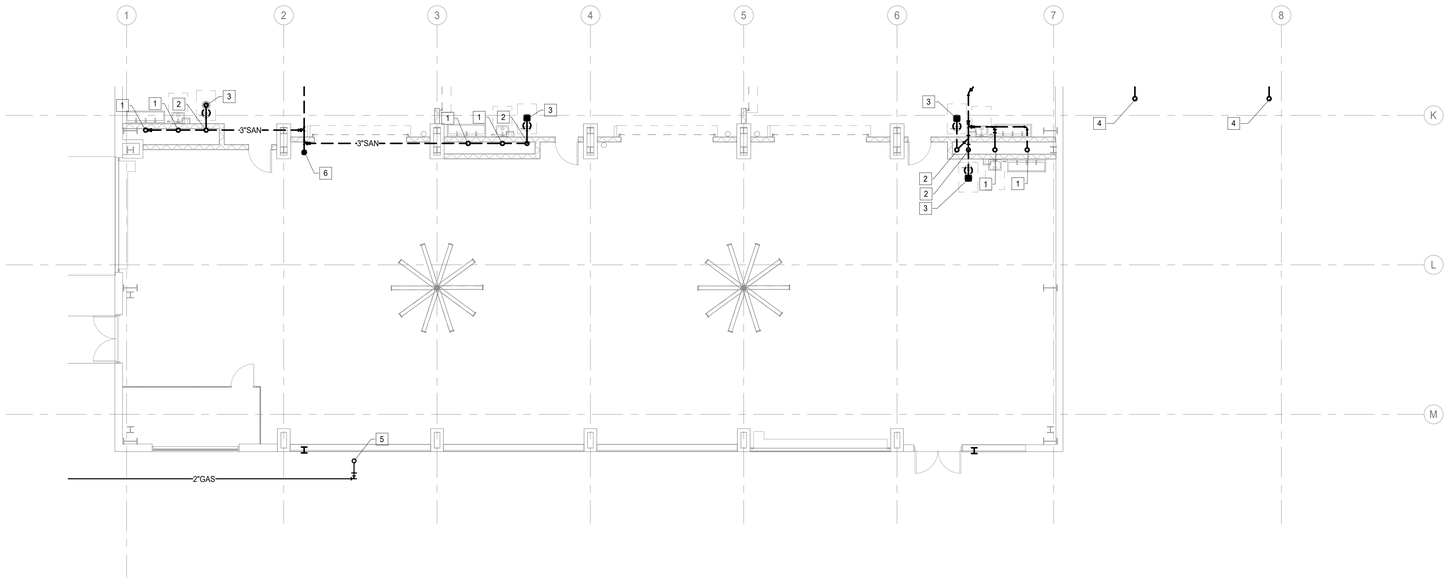
P2.01

PLUMBING UNDERFLOOR AREA 'A1' 1ST FLOOR PLAN

PLAN NORTH

PLUMBING KEYED NOTES

1 2" SANITARY FROM SINK ABOVE.
2 2" VENT UP.
3 3" SANITARY FROM FLOOR DRAIN ABOVE.
4 4" STORM FROM ABOVE.
5 2" GAS UP.
6 4" SANITARY FROM CLEANOUT ABOVE.



1 **PLUMBING UNDERFLOOR PLAN - AREA 'B1'**
Scale: 1/8" = 1'-0"

CONSULTANTS

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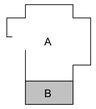

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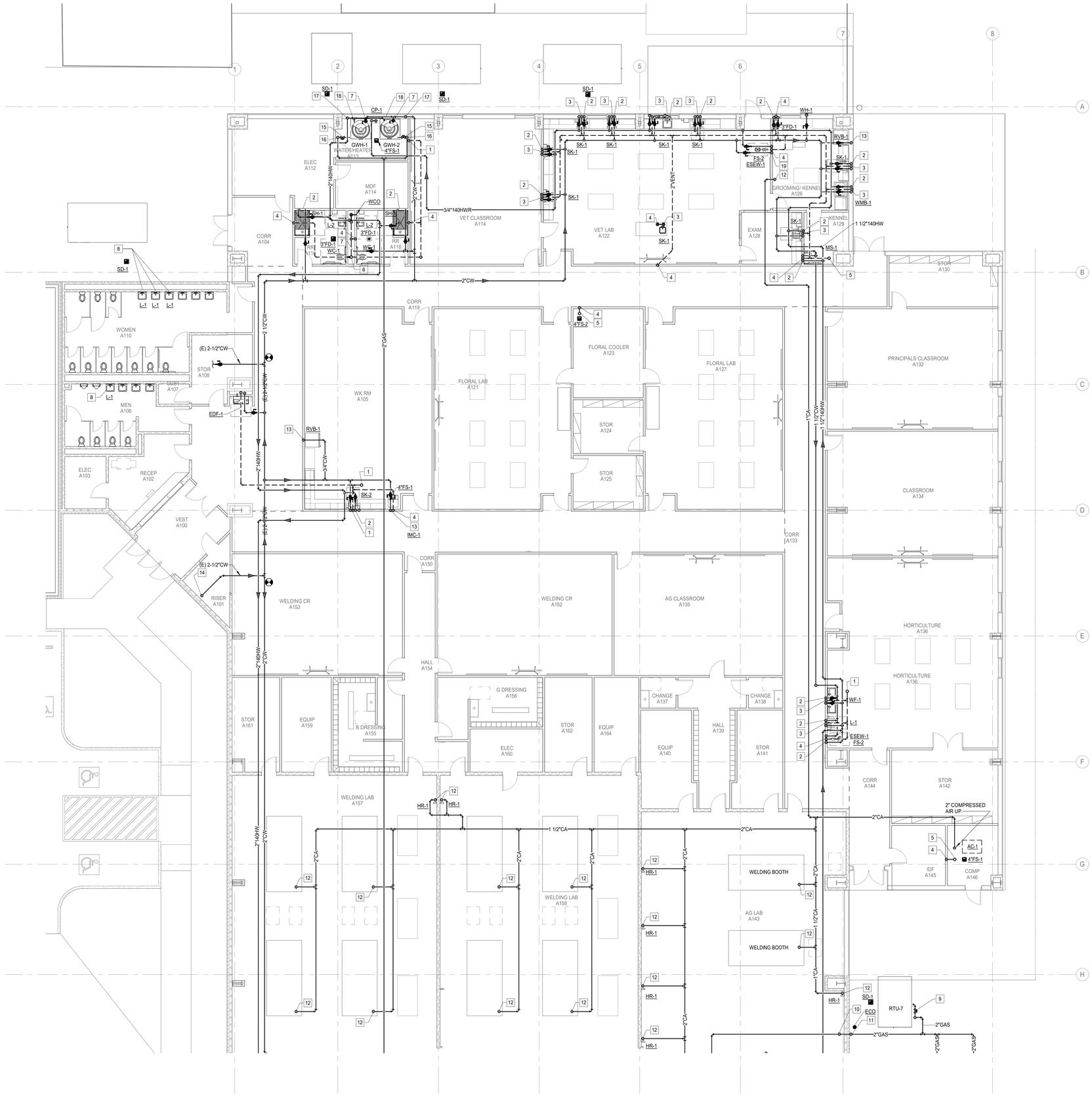
P2.02

PLUMBING UNDERFLOOR AREA 'B1' 1ST FLOOR PLAN

PLAN NORTH



1 **PLUMBING 1ST FLOOR PLAN - AREA 'A1'**
Scale: 1/8" = 1'-0"

PLUMBING KEYED NOTES

1. 2" VENT UP.
2. 3/4" CW AND HW DOWN.
3. 2" SANITARY DOWN, 2" VENT UP.
4. 2" VENT FROM BELOW.
5. 2" VENT UP TO 2" VTR.
6. 2" VENT UP TO 4" VTR.
7. 1-1/2" CW DOWN.
8. INSTALL NEW LAVATORIES AND CONNECT TO EXISTING PLUMBING IN CHASE.
9. PRESSURE REGULATOR FROM 5 PSI TO 8 OZ. 150 CFH.
10. 2" GAS DOWN
11. 2" GAS DOWN MOUNTED ON TOP OF SLAB.
12. 1" COMPRESSED AIR DOWN.
13. 3/4" CW DOWN.
14. 2-1/2" CW FROM BELOW.
15. PRESSURE REGULATOR FROM 5 PSI TO 8 OZ. 199 CFH.
16. 1" GAS DOWN
17. 2" CW DOWN.
18. 1-1/2" HOT WATER FROM WATER HEATERS BELOW.
19. 1-1/4" CW AND HW DOWN TO SERVE EMERGENCY SHOWER.

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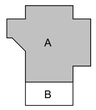

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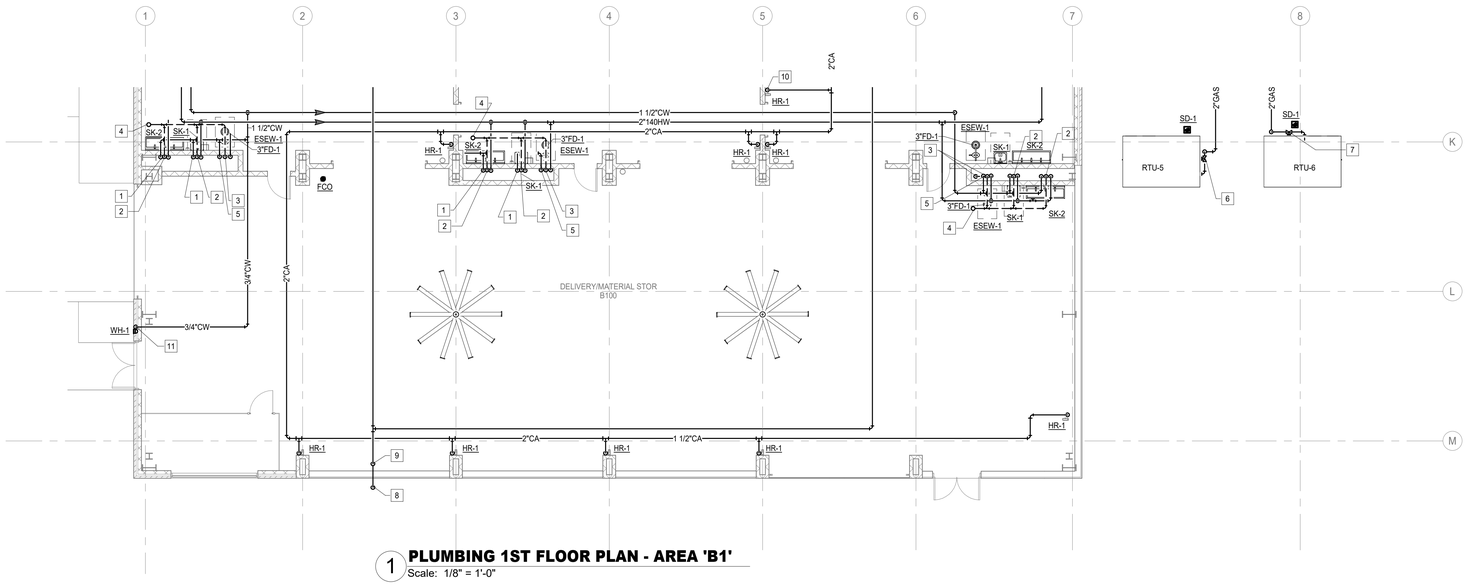
P3.01

PLUMBING AREA 'A1' 1ST FLOOR PLAN

PLUMBING KEYED NOTES

1. 3/4" CW AND HW DOWN.
2. 2" SANITARY DOWN, 2" VENT UP.
3. 2" VENT FROM BELOW.
4. 2" VENT UP.
5. 3/4" CW DOWN.
6. PRESSURE REGULATOR FROM 5 PSI TO 8 OZ. 180 CFH.
7. PRESSURE REGULATOR FROM 5 PSI TO 8 OZ. 150 CFH.
8. 2" GAS FROM BELOW
9. 2" GAS UP
10. 1" COMPRESSED AIR DOWN.
11. 3/4" CW DOWN TO SERVE PLUMBING FIXTURE/S.



1 **PLUMBING 1ST FLOOR PLAN - AREA 'B1'**
Scale: 1/8" = 1'-0"

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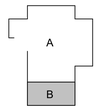

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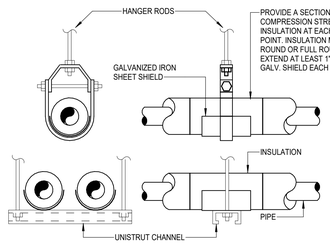
PLUMBING AREA 'B1' 1ST FLOOR PLAN

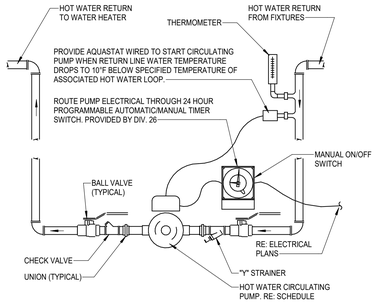
PLAN NORTH

PP01 - XX/XX/XX

MINIMUM DIMENSIONS OF GALVANIZED SHEETMETAL PROTECTION SHIELDS AT PIPE HANGERS		
NOMINAL SIZE PIPE	SHIELD LENGTH (IN.)	GAUGE THICKNESS
1/2" & 3/4"	12	18
1" - 2-1/2"	12	18
3" - 4"	16	18
6"	18	16



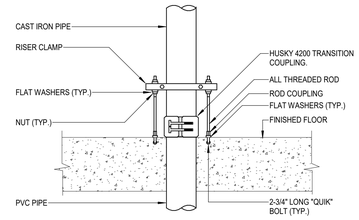
20 PIPE SHIELDS FOR INSULATED PIPING
SCALE: NONE



NOTE: MOUNT AT 54"-60" A.F.F. UNLESS NOTED OTHERWISE ON PLANS.

16 HOT WATER CIRCULATING PUMP
SCALE: NONE

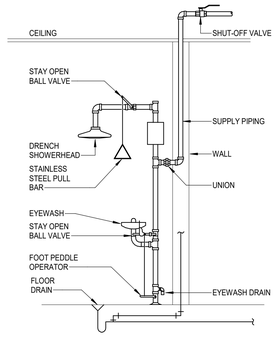
PSAN12- XX/XX/XX



NOTE:
1. MAKE CONNECTION FROM PVC BELOW SLAB TO CAST IRON ABOVE SLAB WITH HUSKY 4200 TRANSITION COUPLING.
2. THERE IS TO BE NO EXPOSED PVC ABOVE SLAB.

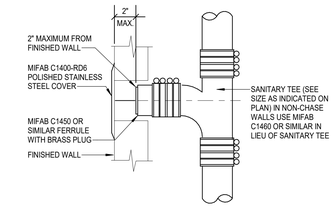
12 CAST IRON TO PVC TRANSITION
SCALE: NONE

PSP17 - XX/XX/XX



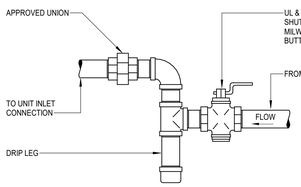
8 EMERGENCY SHOWER / EYEWASH CONNECTION
SCALE: NONE

PSAN03- XX/XX/XX



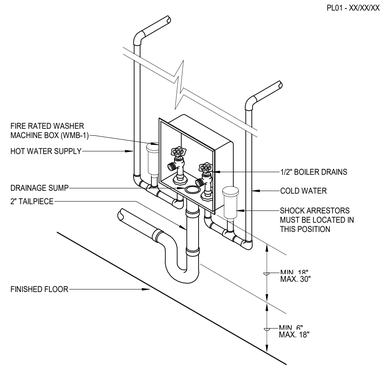
4 WALL CLEANOUT
SCALE: NONE

PNG03 - XX/XX/XX



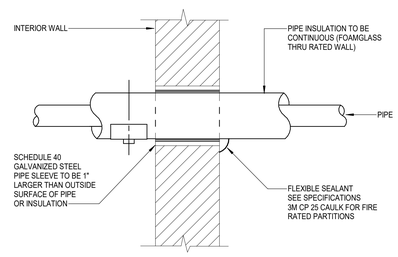
19 GAS CONNECTION
SCALE: NONE

PL01 - XX/XX/XX



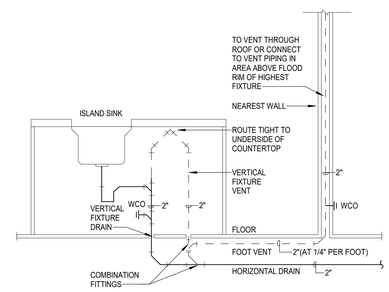
15 WASHING MACHINE DRAIN BOX (WMB)
SCALE: NONE

PSL01- XX/XX/XX



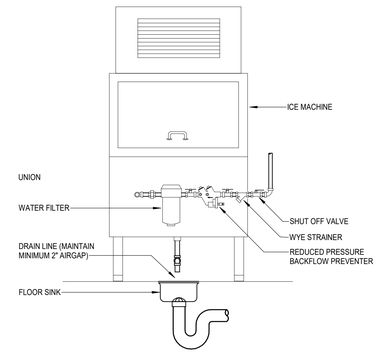
11 INTERIOR WALL PENETRATION
SCALE: NONE

PSAN13- XX/XX/XX



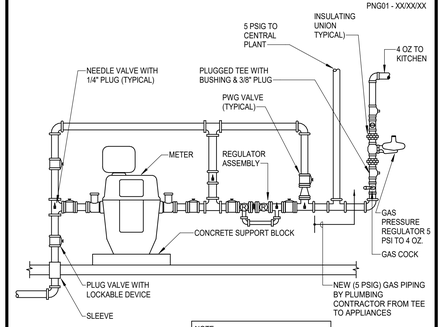
7 TYPICAL ISLAND SINK PIPING
SCALE: NONE

PSAN25- XX/XX/XX



3 ICE MACHINE CONNECTION
SCALE: NONE

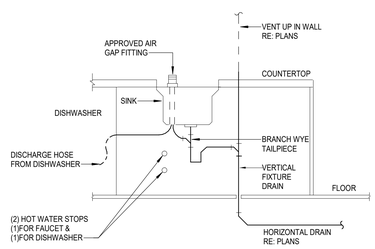
PNG01 - XX/XX/XX



NOTE:
ALL SERVICE GAS PIPING FROM GAS MAIN TO METER OUTLET PROVIDED BY LOCAL GAS COMPANY.

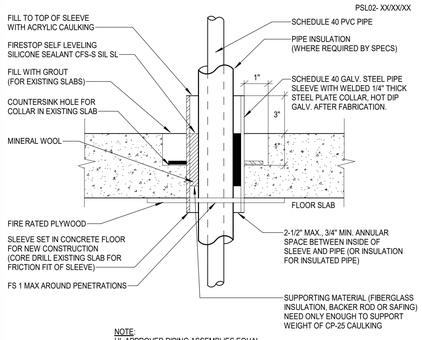
18 GAS METER PIPING
SCALE: NONE

PSAN14- XX/XX/XX



14 DISHWASHER CONNECTION
SCALE: NONE

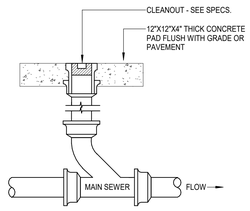
PSL02- XX/XX/XX



NOTE:
UL APPROVED PIPING ASSEMBLIES EQUAL TO UL SYSTEM # FOR UNINSULATED PIPE AND SYSTEM # FOR INSULATED PIPE

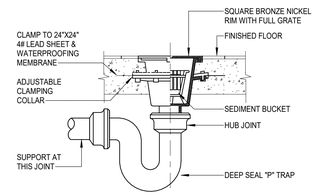
10 INTERIOR FLOOR PENETRATION
SCALE: NONE

PSAN04- XX/XX/XX



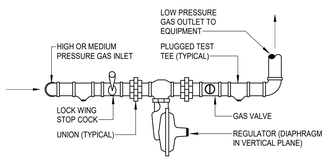
6 EXTERIOR CLEANOUT
SCALE: NONE

PSAN08- XX/XX/XX



2 FLOOR SINK
SCALE: NONE

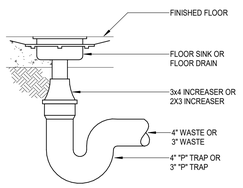
PNG02 - XX/XX/XX



NOTE: REFERENCE DRAWINGS FOR PIPE SIZES.

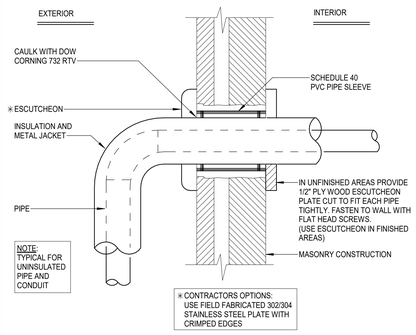
17 GAS PRESSURE REGULATOR PIPING
SCALE: NONE

PSAN09- XX/XX/XX



13 COMBINATION WASTE AND VENT DRAIN CONNECTION
SCALE: NONE

PSL03- XX/XX/XX

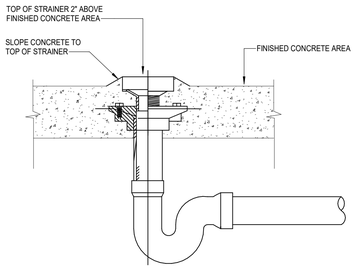


NOTE:
TYPICAL FOR UNINSULATED PIPE AND CONDUIT

* CONTRACTORS OPTIONS:
USE FIELD FABRICATED 302/304 STAINLESS STEEL PLATE WITH CRIMPED EDGES

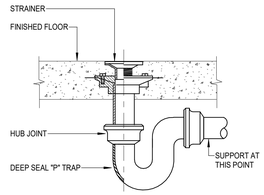
9 EXTERIOR WALL PENETRATION
SCALE: NONE

PCON04 - XX/XX/XX



5 OUTDOOR CONDENSATE DRAIN (SD-1)
SCALE: NONE

PSAN07- XX/XX/XX



1 FLOOR DRAIN
SCALE: NONE

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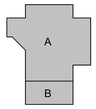

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11-06-23

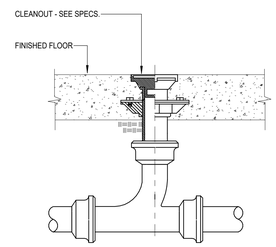
PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	PG
CHECKED:	EH

DATE	ISSUE
2023-11-03	BID SET

P5.01
PLUMBING DETAILS

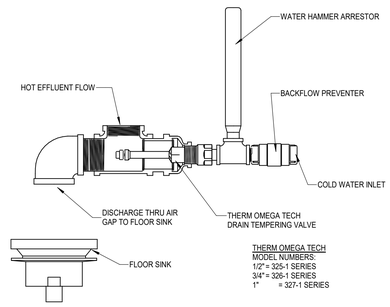
PLAN NORTH

PSAN01- XX/XX/XX



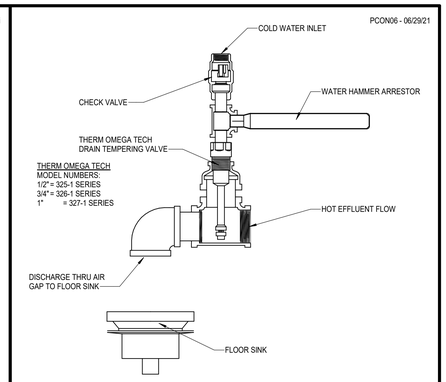
11 FLOOR CLEANOUT
SCALE: NONE

PCON07 - 06/29/21



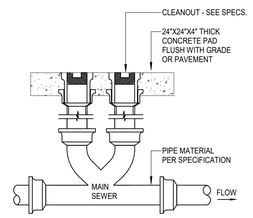
7 DRAIN TEMPERING VALVE IN HORIZONTAL
SCALE: NONE

PCON06 - 06/29/21



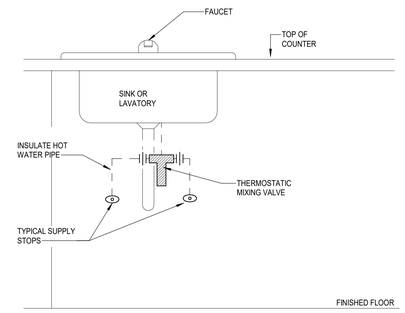
4 DRAIN TEMPERING VALVE IN VERTICAL
SCALE: NONE

PSAN05- XX/XX/XX



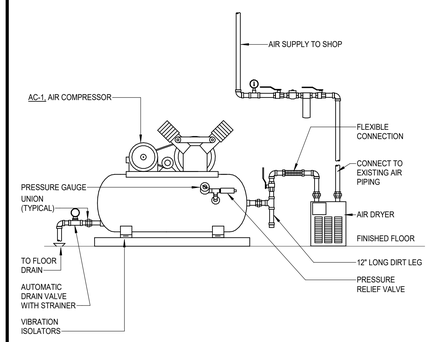
10 TWO-WAY EXTERIOR CLEANOUT
SCALE: NONE

PHW04 - 08/10/20



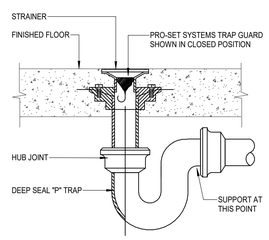
6 THERMOSTATIC MIXING VALVE AT SINK/LAVATORY SINGLE TEMPERATURE
SCALE: NONE

PCA02 - XX/XX/XX



3 SHOP AIR COMPRESSOR PIPING
SCALE: NONE

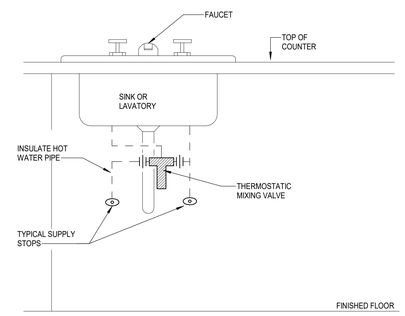
PSAN10- XX/XX/XX



NOTES:
1. TRAP GUARD SHALL BE FACTORY FITTED TO MATCH EACH FLOOR DRAIN (AND/FLOOR SINK) BY SIZE, MODEL, AND MANUFACTURER.
2. CONTACT LOCAL REP OR MANUFACTURER FOR CORRECT MODEL NUMBER.
3. FLOOR SINK TRAP GUARD INSTALLATION IS SIMILAR.
4. INSTALLATION OF TRAP GUARD TO BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. INSERT TRAP GUARD ONLY AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS TITE SEAL. FOR DRAIN RODDING AFTER INSTALLATION, INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.

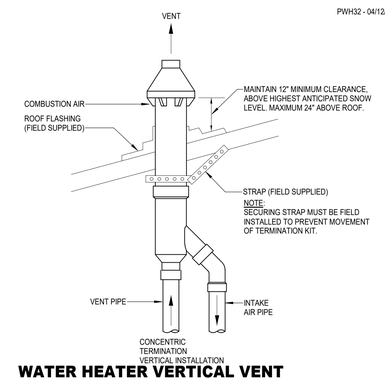
9 TRAP SEAL PROTECTION
SCALE: NONE

PHW04 - 08/10/20

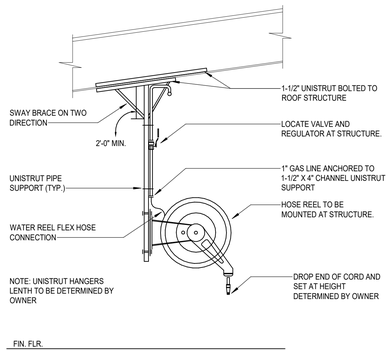


5 THERMOSTATIC MIXING VALVE AT SINK/LAVATORY DUAL TEMPERATURE
SCALE: NONE

PWH32 - 04/12/18

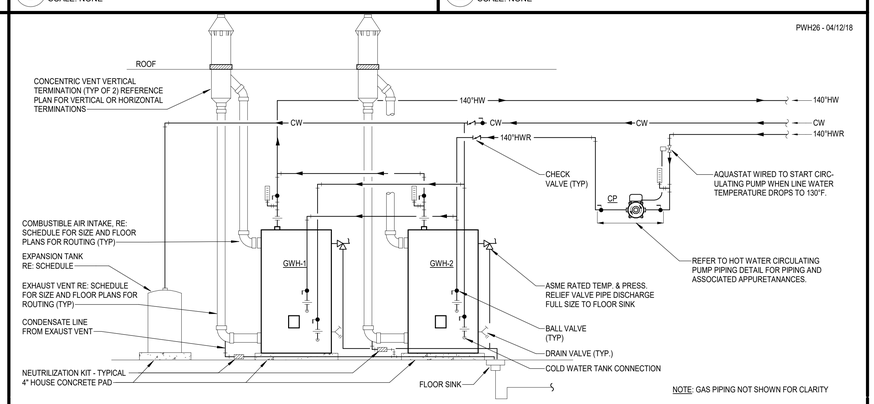


2 WATER HEATER VERTICAL VENT TERMINATION
SCALE: NONE



8 HOSE REEL MOUNTING (HR-W)
SCALE: NONE

PWH26 - 04/12/18



1 DOMESTIC DUPLEX GAS WATER HEATER PIPING
SCALE: NONE

PLAN NORTH

CONSULTANTS

MEP
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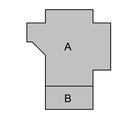
Tel: 713.780.3345
Fax: 713.780.3712



TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUIN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
10205 WESTHEIMER SUITE 800
HOUSTON, TX 77042
tel 713.953.4897, fax 713.977.4620

BRADLEY KALMANS 80219 LICENSED TEXAS PROFESSIONAL ENGINEER
11-06-23

PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	PG
CHECKED:	EH

DATE	ISSUE
2023-11-03	BID SET

P5.02

PLUMBING DETAILS

PLUMBING FIXTURE SCHEDULE

TYPE: WC-1 (T.A.S. / ADA COMPLIANT)
DESCRIPTION: WATER CLOSET, WALL HUNG, WHITE VITREOUS CHINA WITH ANTIMICROBIAL SURFACE, 1.28 GALLON PER FLUSH SIPHON JET ACTION, ELONGATED CLOSET BOWL WITH 1- 1/2" TOP SPUD AND BOLT COVERS. AMERICAN STANDARD AFWALL #3351.101
SEAT: ELONGATED OPEN FRONT SEAT WITH SELF SUSTAINING CONCEALED CHECK HINGES. REFER TO ARCHITECTURAL DRAWINGS FOR SEAT COLOR. BEMIS #1955SSCT.
FLUSH VALVE: 1.28 GALLON FLUSH CYCLE. EXPOSED, DIAPHRAGM TYPE, CHROME PLATED CLOSET FLUSHOMETER. VACUUM BREAKER, SPUD COUPLING FOR 1-1/2" TOP SPUD. SLOAN ROYAL II #111-1.28.
CARRIER: WADE 311 (HORIZONTAL) AND 330 (VERTICAL) SERIES WITH 500 LB WEIGHT CAPACITY AND FLUSH VALVE SUPPORT (-AM1).
ROUGH-IN: 4" WASTE, 2" VENT, 1" COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT REQUIREMENTS.

TYPE: L-1 (T.A.S. COMPLIANT) - METERED - TEMPERED WATER FOR STUDENTS
DESCRIPTION: LAVATORY, WALL HUNG, WHITE VITREOUS CHINA, 20-1/2" X 18-1/4" WITH FRONT OVERFLOW AND CONCEALED ARM SUPPORTS, 4" CENTERSET FAUCET HOLES. AMERICAN STANDARD LUCERNE #0355.012.
FAUCET: CHROME PLATED BRASS DECK MOUNTED LAVATORY FAUCET WITH COVER PLATE, 4-1/8" SPOUT, AND PUSH BUTTON HANDLE INDEXED "PUSH". SELF CLOSING METERING CARTRIDGE, VANDAL RESISTANT 0.5 GPM NON-AERATING LAMINAR FLOW OUTLET. CHICAGO MODEL #857-E66VP-665PSHABCP.
STRAINER: 1-1/4" 17 GAUGE CHROME PLATED BRASS GRID STRAINER WITH TAILPIECE. MCGUIRE #155A.
P-TRAP: 1-1/4" 17 GAUGE CHROME PLATED HEAVY CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON PLATE. MCGUIRE #8872C.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE #LFH2165LK.
CARRIER: RECTANGULAR STEEL TUBING UPRIGHTS WITH WELDED 3" X 4-1/2" BASE ANCHORED TO CONCRETE WITH (4) 1/2" BOLTS, ADJUSTABLE SLEEVE, THREADED CONCEALED ARMS, ALIGNMENT BAR, LOCKING DEVICE, AND LEVELING SCREWS. WADE 520-08.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" COLD WATER ONLY. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: L-2 (T.A.S. COMPLIANT) - HOT AND COLD WATER FOR FACULTY
DESCRIPTION: LAVATORY, WALL HUNG, VITREOUS CHINA, 20-1/2" X 18-1/4" WITH FRONT OVERFLOW AND CONCEALED ARM SUPPORTS, FAUCET HOLES ON 4" CENTERS. AMERICAN STANDARD "LUCERNE" 0355.012.
FAUCET: CHROME PLATED BRASS DECK MOUNTED LAVATORY FAUCET WITH 4" SPOUT AND 4" WRIST BLADE HANDLES ON 4" CENTERS. QUARTER TURN CERAMIC DISC OPERATING CARTRIDGES, VANDAL RESISTANT 2.2 GPM AERATOR. CHICAGO MODEL 802-V317XKCP-E12.
STRAINER: 1-1/4" 17 GAUGE CHROME PLATED BRASS GRID STRAINER WITH TAILPIECE. MCGUIRE #155A.
P-TRAP: 1-1/4" 17 GAUGE CHROME PLATED HEAVY CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON PLATE. MCGUIRE 8872.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE 2165LK.
CARRIER: RECTANGULAR STEEL TUBING UPRIGHTS WITH WELDED 3" X 4-1/2" BASE ANCHORED TO CONCRETE WITH (4) 1/2" BOLTS, ADJUSTABLE SLEEVE, THREADED CONCEALED ARMS, ALIGNMENT BAR, LOCKING DEVICE, AND LEVELING SCREWS. WADE 520-08.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: SK-1 (T.A.S. COMPLIANT) - HOT AND COLD WATER - VET LAB
DESCRIPTION: SINK, COUNTER MOUNTED, SELF-RIMMING, 18 GAUGE TYPE 304 STAINLESS STEEL, 19" X 18" X 6" DEEP, SINGLE COMPARTMENT WITH FAUCET DECK. THREE FAUCET HOLES ON 4" CENTERS. ELKAY LRAD-1918.
FAUCET: CHROME PLATED BRASS DECK MOUNTED FITTING WITH 11" HIGH GOOSENECK SPOUT AND 4" WRIST BLADE HANDLES ON 8" CENTERS. QUARTER TURN CERAMIC DISC OPERATING CARTRIDGES, VANDAL RESISTANT 2.2 GPM AERATOR. CHICAGO MODEL 786-E3XK- E3VPJKCP.
STRAINER: CHROME PLATED WROUGHT BRASS 4-1/2" WIDE GRID SINK STRAINER, 1-1/4" 17 GAUGE CHROME PLATED BRASS TAILPIECE. MCGUIRE #152.
P-TRAP: 1-1/2" 17 GAUGE CHROME PLATED CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON PLATE. MCGUIRE 8912.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE 2165LK.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: SK-8 (NON T.A.S. COMPLIANT) - PET GROOMING
DESCRIPTION: SINK, FREE STANDING, STAINLESS STEEL, WITH FAUCET AND VACUUM BREAKER MOUNTED ON SIDEWALL OF SINK. FOREVER STAINLESS STEEL AR48HT WITH DELUXE PLUS FIXTURE PACKAGE AND TWO BACK SPLASH MOUNTED BOTTLE AND TOOL HOLDER TRAYS.
FAUCET: MOUNTED ON SIDEWALL OF SINK NSF TO HAVE HOT AND COLD WATER AND HAND SPRAYER, GOOSENECK SWING SPOUT.
STRAINER: CHROME PLATED BRASS WIDE TOP SINK STRAINER WITH PERFORATED STRAINER, 1-1/2" CHROME PLATED BRASS TAILPIECE. MCGUIRE 152.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D. CHROME PLATED LOOSE KEY STOP VALVES WITH ESCUTCHEONS AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE 2165LK.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER. REFER TOARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: EDF-1 (T.A.S. COMPLIANT)
DESCRIPTION: WALL HUNG, BARRIER FREE, ELECTRIC DRINK FOUNTAIN, ALL STAINLESS STEEL, CHROME-PLATED TWO-STREAM MOUND BUILDING TYPE BUBBLER. 8 GPH OF 50 DEGREE WATER AT 90 DEGREE AMBIENT AND 80 DEGREE INLET WATER. PROVIDE CANE TOUCH APRON IN ALL STAINLESS STEEL ON ALL UNITS MOUNTED WITH A CLEAR KNEE SPACE GREATER THAN 27" HIGH. HALSEY TAYLOR HAC8FS-Q WITH APRON 42522.
P-TRAP: 1-1/4" CHROME PLATED CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON. MCGUIRE 8872.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE 2165LK.
CARRIER: RECTANGULAR STEEL TUBING UPRIGHTS WITH WELDED 3" X 4-1/2" BASE ANCHORED TO CONCRETE SLAB WITH (4) 1/2" BOLTS. ADJUSTABLE SLEEVE FOR CONNECTION TO HANGER PLATE PROVIDED BY FIXTURE MANUFACTURER. WADE 400.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: SK-2 (T.A.S. COMPLIANT) - LOUNGE, WORKROOM, CLINIC
DESCRIPTION: SINK, COUNTER MOUNTED, TOP MOUNT, 18 GAUGE TYPE 304 STAINLESS STEEL, 33" X 22" X 12" DEEP, SINGLE COMPARTMENT WITH FAUCET DECK. THREE HOLES ON 8" CENTERS. ELKAY #1918.
FAUCET: CHROME PLATED BRASS DECK MOUNTED FITTING WITH 8" SWING SPOUT AND 4" WRIST BLADE HANDLES ON 8" CENTERS. QUARTER TURN CERAMIC DISC OPERATING CARTRIDGES, VANDAL RESISTANT 2.2 GPM AERATOR. CHICAGO MODEL #786-GN8FCXKABCP.
STRAINER: CHROME PLATED WROUGHT BRASS 4-1/2" WIDE GRIDE SINK STRAINER, 1-1/4 17 GAUGE CRHOME PLATED BRASS TAILPIECE. PERFORATED STRAINER, 1-1/2" CHROME PLATED BRASS TAILPIECE. MCGUIRE 152MN.
P-TRAP: 1-1/2" 17 GAUGE CHROME PLATED CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON PLATE. MCGUIRE #8912.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D. CHROME PLATED LOOSE KEY STOP VALVES WITH ESCUTCHEONS AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE 2165LK.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS

TYPE: WF-1 (T.A.S. COMPLIANT) - SHOP AREAS
DESCRIPTION: HAND WASH FOUNTAIN, OFF-FLOOR WALL MOUNTED, SEMI-CIRCULAR, FOUR STATION, 38" L X 32" W X 4-1/2" DEEP. FACTORY PRE-ASSEMBLED WITH INDIVIDUAL SECTIONAL CONTROL BY PUSH BUTTON ACTIVATED METERING NON-HOLD OPEN AIR CONTROL VALVES. TIMING CYCLE TO BE FIELD SET PER OWNER'S INSTRUCTIONS. BOWL, INTEGRAL BACKSPLASH, SPRAYHEAD, HOUSING, AND ACCESS COVER TO BE OF HEAVY GAUGE TYPE 304 STAINLESS STEEL CONSTRUCTION. SPRAYHEAD COLUMN TO BE BRACED TO BACKSPLASH. VANDAL RESISTANT SPRAY NOZZLES WITH 0.5 GPM FLOW CONTROLS. COPPER TUBE RISERS FROM OPERATING VALVES TO SPRAY NOZZLES. INCLUDE HEAVY DUTY S-CLIPS FOR ANCHORING BACKSPLASH AND HOUSING TO WALL. ACORN 3424-ES-ADA-1-H-CB-CR-ST-MXT.
P-TRAP: 1-1/2" 17 GAUGE CHROME PLATED CAST BRASS TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON PLATE. MCGUIRE 8912.
SUPPLIES: 1/2" I.P.S. X 3/8" O.D.CHROME PLATED LOOSE KEY STOP VALVE WITH ESCUTCHEON AND 3/8" COMPRESSION CHROME PLATED FLEXIBLE RISERS. MCGUIRE 2165LK.
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT & COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIRMENTS AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

TYPE: MS-1
DESCRIPTION: MOP SINK BASIN, 36" X 36" X 12" HIGH CORNER TYPE, PRECAST TERRAZZO WITH 6" DROPPED FRONT, STAINLESS STEEL THRESHOLD CAP, AND DOUBLE STAINLESS STEEL WALL GUARDS.STERN-WILLIAMS "CORLOW" SBC-1750.
FAUCET: CHROME PLATED BRASS WALL MOUNTED FITTING WITH CHECK IN STOPS, ADJUSTABLE SUPPLY ARMS, VACUUM BREAKER SPOUT WITH PAIL HOOK AND WALL BRACE, 2-1/2" INDEXED LEVER HANDLES ON 8" CENTERS. QUARTER TURN CARTRIDGES, 3/4" MALE HOSE THREAD OUTLET. CHICAGO 445-897-CP.
ROUGH-IN: 3" WASTE, 2" VENT, 1/2" HOT AND COLD WATER.

TYPE: SH-1 (T.A.S. COMPLIANT) - INDIVIDUAL SHOWER STATION
DESCRIPTION: SHOWER, JOB BUILT BASE INSTALLED PER ARCHITECTURAL DRAWINGS.
CONTROLS: PRESSURE BALANCING HOT AND COLD WATER SHOWER CONTROL VALVE WITH LEVER HANDLE AND INTEGRAL CHECKSTOPS. STAINLESS STEEL, ALUMINUM OR CHROME PLATED BRASS ESCUTCHEON. 2.5 GPM HAND HELD SHOWER WITH 60" FLEXIBLE STAINLESS STEEL CLAD HOSE, VACUUM BREAKER, MOUNTING BRACKET, AND 24" SLIDE BAR. ACORN 532-GX-FX-SB-LVR.
DRAIN: FLOOR DRAIN, CAST IRON BODY, ADJUSTABLE 5" DIAMETER STAINLESS STEEL STRAINER WITH VANDAL PROOF SCREWS, INTEGRAL CLAMPING DEVICE, BOTTOM OUTLET. WADE 1100-MR5.
TRAP SEAL: PROVIDE PRO-SET SYSTEMS, INC. TRAP GUARD FACTORY FITTED TO MATCH EACH FLOOR DRAIN BY SIZE, MODEL, AND MANUFACTURER.
ROUGH-IN: 3" WASTE, 2" VENT, 1/2" HOT AND COLD WATER. REFER TO ARCHITECTURAL DRAWINGS FOR HEIGHT REQUIREMENTS.

TYPE: WH-1
DESCRIPTION: WALL HYDRANT IN S.S. BOX, 3/4" NON FREEZE, HALF TURN CERAMIC DISC CARTRIDGE, STAINLESS STEEL FINISH WITH ANTI SIPHON VACUUM BREAKER AND LOOSE TEE KEY. INSTALL WITH BOTTOM OF HYDRANT 18" A.F.F. WADE 8601-MT-175.
ROUGH-IN: 3/4" COLD WATER

TYPE: TG-1
SERVICE: TRAP GUARD FOR FLOOR DRAINS AND FLOOR SINKS
DESCRIPTION: INSTALL PROSET TRAP GUARDS AT ALL FLOOR DRAINS AND FLOOR SINKS FOR TRAP SEAL PROTECTION. SERIES TO MATCH DRAIN AND PIPING TYPE.

TYPE: IMC-1
DESCRIPTION: ICE MACHINE CONNECTION, WATER SUPPLY VALVED AT WALL. PROVIDE DOUBLE CHECK VALVE TYPE BACKFLOW PREVENTER AND WATER FILTER. WATTS 1/2" 007-S BACKFLOW PREVENTER AND AQUA-PURE #ICE 140-S FILTER. ROUTE BACKFLOW PREVENTER DISCHARGE TO FLOOR SINK SERVING ICE MACHINE.
ROUGH-IN: 3/4" COLD WATER. COORDINATE ROUGH-IN LOCATION/HEIGHT, FINAL CONNECTION WITH EQUIPMENT BEING INSTALLED AND WITH ARCHITECTURAL/CASEWORK DRAWINGS.

TYPE: FD-1
SERVICE: TOILET ROOMS AND GENERAL USE
DESCRIPTION: FLOOR DRAIN, CAST IRON BODY, ADJUSTABLE 6" DIAMETER STAINLESS STEEL STRAINER WITH VANDAL PROOF SCREWS, INTEGRAL CLAMPING DEVICE, BOTTOM OUTLET. WADE 1100-MR6.
TRAP SEAL: PROVIDE PRO-SET SYSTEMS, INC. TRAP GUARD FACTORY FITTED TO MATCH EACH FLOOR DRAIN BY SIZE, MODEL, AND MANUFACTURER.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES. COORDINATE FINAL LOCATION AND INSTALLATION WITH ARCHITECTURAL DRAWINGS / FLOOR CONSTRUCTION.

TYPE: FS-1
SERVICE: ICE MACHINE DRAIN / BACKFLOW PREVENTER DISCHARGE
DESCRIPTION: CAST IRON 8" SQUARE FLOOR SINK WITH 6" DEEP SUMP, A.R.E. INTERIOR, ALUMINUM DOME BOTTOM STRAINER, 1/2 STAINLESS STEEL TOP, CLAMPING DEVICE. WADE 9110-15026-27-SS.
TRAP SEAL: PROVIDE PRO-SET SYSTEMS, INC. TRAP GUARD FACTORY FITTED TO MATCH EACH FLOOR DRAIN BY SIZE, MODEL, AND MANUFACTURER.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES. COORDINATE FINAL LOCATION WITH ARCHITECTURAL DRAWINGS / EQUIPMENT PLACEMENT.

TYPE: FS-2
SERVICE: MECHANICAL ROOM
DESCRIPTION: A.R.E. COATED CAST IRON BODY 12" SQUARE FLOOR SINK WITH 8" DEEP SUMP, BOTTOM OUTLET, LOOSE SET CAST IRON SECONDARY STRAINER, CLAMPING DEVICE, AND HALF TOP GRATE. WADE 9140-8-15-26-64.
TRAP SEAL: PROVIDE PRO-SET SYSTEMS, INC. TRAP GUARD FACTORY FITTED TO MATCH EACH FLOOR SINK BY SIZE, MODEL, AND MANUFACTURER.
ROUGH-IN: REFER TO FLOOR PLANS FOR SIZES. COORDINATE FINAL LOCATION WITH EQUIPMENT PLACEMENT.

TYPE: ESEW-1 (T.A.S. COMPLIANT)
DESCRIPTION: EMERGENCY SHOWER/FACE AND EYEWASH. FLOOR MOUNTED WITH STAINLESS STEEL BOWL AND SCHEDULE 80, HOT DIP GALVANIZED PIPING. CHROME PLATED STAY-OPEN BALL VALVES, STAINLESS STEEL ACTUATORS, GRAPHICS. YELLOW ABS PLASTIC SHOWER HEAD ACTIVATED BY PULL ROD, 30 GPM FLOW CONTROL. ABS PLASTIC DUAL STREAM EYE-FACEWASH HEADS ACTIVATED BY PUSH PLATE, SELF ADJUSTING 3.5 GPM REGULATOR. FLOAT OFF COVERS SECURED WITH STAINLESS STEEL BEAD CHAINS. IN-LINE STRAINER TEE. ROTATE DRAIN TEE TO FLOOR DRAIN LOCATION. FACTORY PAINTED SAFETY YELLOW. ENCON 01050273 WITH 01-0520-98 STRAINER TEE.
ROUGH-IN: 1-1/4" COLD WATER. COORDINATE FINAL LOCATION / HEIGHT WITH ARCHITECTURAL DRAWINGS.

TYPE: TMV
DESCRIPTION: THERMOSTATIC MIXING VALVE. SCHEDULED ON DRAWINGS.

TYPE: G
DESCRIPTION: NATURAL GAS COCK, SINGLE OR DOUBLE, COUNTERTOP OR WALL MOUNTED. FURNISHED BY DIVISION 12 AND INSTALLED BY DIVISION 22.
ROUGH-IN: 1/2" NATURAL GAS. COODINATE FINAL QUANTITY, LOCATIONS AND INSTALLATION WITH ARCHITECTURAL / CASEWORK DRAWINGS.

TYPE: A
DESCRIPTION: AIR DROP WITH REGULATOR, 1/2" AIR KWICK COUPLING MILTON "G" STYLE. BALCRANK MINI PIGGYBACK FILTER/REGULATOR COMBO UNIT RATED FOR 150 PSI AND FLOWS OF 15 SCFM.
ROUGH-IN: 1/2" COMPRESSED AIR. INSTALL WITH OUTLET AT 30" A.F.F. OR AS DIRECTED BY ARCHITECT/OWNER. COORDINATE FINAL QUANTITY, LOCATIONS, AND INSTALLATION WITH ARCHITECTURAL DRAWINGS.

TYPE: HB-1 - COLD WATER
DESCRIPTION: HOSE BIBB. EXPOSED TYPE, MILD CLIMATE, WALL-MOUNTED FAUCET WITH 3/4" F.P.T. INLET, 3/4" MALE HOSE THREAD OUTLET AND SELF-DRAINING ANTI-SIPHON VACUUM BREAKER. CHROME PLATED BRASS FINISH WITH REMOVABLE TEE HANDLE. CHICAGO 952-CP.
ROUGH-IN: 3/4" COLD WATER. INSTALL WITH OUTLET AT 18" A.F.F. OR AS DIRECTED BY ARCHITECT/OWNER.

TYPE: WMB-1
DESCRIPTION: WASHING MACHINE DRAIN BOX, 20 GAUGE STEEL BOX WITH WHITE POWDER COAT FINISH, MALE IRON PIPE WATER SUPPLY CONNECTIONS AND DRAIN FITTING. PROVIDE HAMMER ARRESTOR AT BOTH HOT AND COLD WATER HOSE THREADS. GUY GRAY T-200 (36" - 42" AFF).
ROUGH-IN: 2" WASTE, 2" VENT, 1/2" HOT AND COLD WATER

TYPE: RVB-1
DESCRIPTION: RECESSED VALVE BOX, 7" X 7", 18 GAUGE STEEL WITH WHITE POWDER COAT FINISH, 1/2" THREADED CONNECTION DOMESTIC VALVE. PROVIDE FILTER WHEN MAKING FINAL CONNECTION. GUY GRAY BIM-875 WITH AQUA-PURE AP717 FILTER.
ROUGH-IN: 1/2" COLD WATER

TYPE: HR-1
DESCRIPTION: OVERHEAD AIR HOSE REEL WITH 50 FOOT `2" WITH 1/4" FITTINGS AIR HOSE WITH ADJUSTABLE HOSE STOP AND SNAP HOOK. BALCRANK MODEL 2110-019.
ROUGH-IN: 1/2" COMPRESSED AIR. COORDINATE FINAL LOCATIONS AND INSTALLATION WITH STRUCTURE, ARCHITECT/OWNER, AND THE WORK OF OTHER TRADES.

TYPE: ECO
DESCRIPTION: EXTERIOR CLEANOUT TO GRADE, CAST IRON BODY WITH ADJUSTABLE TOP ASSEMBLY WITH GASKET SEAL, AND ROUND SCORIATED VANDAL RESISTANT DUCTILE IRON TRACTOR TYPE COVER. IF LOCATED IN ASPHALT OR DIRT PROVIDE 18"X18"X12" CONCRETE PAD. WADE 6000-Z.

TYPE: FCO
DESCRIPTION: FLOOR CLEANOUT, CAST IRON BODY AND ADJUSTABLE TOP ASSEMBLY WITH GASKET SEAL, AND ROUND SCORIATED STAINLESS STEEL COVER. WADE 6000-153. FOR CARPETED FLOORS PROVIDE WADE 6000-CM.

TYPE: WCO
DESCRIPTION: WALL CLEANOUT. CAST IRON CLEANOUT FERRULE WITH DUCTILE IRON COMBINED COVER/PLUG AND ROUND STAINLESS COVER PLATE WITH CENTER SECURING SCREW. WADE 8550 WITH 8480-R6. PROVIDE WADE 8560 CAST IRON CLEANOUT TEE IN LIEU OF FERRULE AS REQUIRED FOR WALL CONSTRUCTION.

GENERAL NOTES

ALL LAVATORIES AND SINKS SHALL BE SUPPLIED WITH HOT AND COLD WATER (UNLESS NOTED TO BE COLD WATER ONLY) TO FAUCETS AS INDICATED ON PLANS AND FIXTURE SCHEDULE. PROVIDE CHROME PLATED BRASS SUPPLY STOPS WITH LOOSE KEYS AND WALL ESCUTCHEONS. PROVIDE CHROME PLATED FLEXIBLE RISERS OF SIZE REQUIRED TO PROPERLY CONNECT FIXTURES. PROVIDE 17 GAUGE CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT AND EXTENSION TO WALL WITH ESCUTCHEON (UNLESS NOTED TO BE AN ACID WASTE FIXTURE). REFER TO FIXTURE SCHEDULE FOR MINIMUM SIZES OF PLUMBING FIXTURE ROUGH-INS.

INSULATION KITS AT ALL LAVATORIES AND SINKS REQUIRED TO BE T.A.S. ACCESSIBLE (MCGUIRE OR TRUEBRO). ALL SUCH FIXTURES AND FINAL INSTALLATIONS SHALL COMPLY WITH THE STATE ACCESSIBILITY STANDARDS REQUIREMENTS.

INSERT TRAP GUARDS AFTER FINAL RODDING OF DRAINS. INSTALL TRAP GUARD WITH CLEAR SILICONE CAULK FOR GAS-TIGHT SEAL. FOR DRAIN RODDING AFTER INSTALLATION. INSERT SEWER TAPE THROUGH LIGHTLY GREASED 1-1/2" PVC PIPE TO PROTECT TRAP GUARD.

PROVIDE AND INSTALL ACID RESISTANT P-TRAPS ON ALL SCIENCE, BIOLOGY, CHEMISTRY, AND PHYSICS CLASSROOM SINKS.

DISREGARD FIXTURES LISTED THAT ARE NOT ON THIS JOB.

PLUMBING PIPING LEGEND

SYMBOLS	DESCRIPTION
SAN	SANITARY OR WASTE PIPING ABOVE GRADE (SAN)
SAN	SANITARY OR WASTE PIPING BELOW GRADE (SAN)
GW	GREASE WASTE PIPING (GW)
GW	GREASE WASTE PIPING BELOW GRADE (GW)
SD	STORM DRAIN PIPING (SD)
SD	STORM DRAIN PIPING BELOW GRADE (GW)
SSD	SUB-SOIL DRAIN OR FOOTING DRAIN (SSD)
AW	ACID WASTE PIPING (AW)
AW	ACID WASTE PIPING BELOW GRADE (AW)
PD	PUMPED DISCHARGE (PD)
CD	CONDENSTATE DRAIN PIPING (CD)
D	CONDENSTATE - INDIRECT DRAIN PIPING (D)
	VENT PIPING (V)
CW	COLD WATER PIPING (CW)
HW	HOT WATER PIPING (HW)
HWR	HOT WATER RETURN PIPING (HWR)
SCW	SOFT COLD WATER PIPING (SCW)
CDW	CHILLED DRINKING WATER PIPING (CDW)
TP	TRAP PRIMER LINE (TP)
F	FIRE PROTECTION PIPING (F)
AS	AUTOMATIC SPRINKLER PIPING (AS)
GAS	NATURAL GAS PIPING (G)
GV	GAS VENT PIPING (GV)
AIR	COMPRESSED AIR PIPING (A)
	FLOW DIRECTIONAL ARROW
	SHUT-OFF VALVE
	BALANCING VALVE (BV)
	SOLENOID VALVE (SV)
	BALL VALVE (BV)
	BUTTERFLY VALVE
	LUBRICATED PACKED PLUG STOP STOP COCK (PC)
	HORIZONTAL SWING CHECK
	UNION
	HORIZONTAL SWING CHECK
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	REDUCED PRESSURE BACKFLOW PREVENTER (RPBFP)
	PIPING DOWN
	RISE OR DROP PIPING
	PIPING UP -OR- PIPING UP & DOWN
	CAP ON END OF PIPE
	CLEANOUT (WALL OR CEILING) (CO)
	FLOOR CLEANOUT (FCO)
	EXTERIOR CLEANOUT WITH 18"x18"x4" CONCRETE PAD (ECO)
	TWO-WAY CLEANOUT (PROVIDE 18"x24"x4" CONCRETE PAD OUTSIDE)
	FIRE DEPARTMENT VALVE AT RISER
	FIRE HYDRANT
	FIRE DEPARTMENT CONNECTION
	PRESSURE REDUCING VALVE (PRV)
	BRANCH CONNECTION OUT OF TOP
	BRANCH CONNECTION OUT OF BOTTOM
	BRANCH CONNECTION OUT OF SIDE
	WYE & 1/8TH BEND BRANCH CONNECTION
	WYE BRANCH CONNECTION
	HOSE BIBB
	PRESSURE GAUGE WITH COCK
	THERMOMETER
	GAS PRESSURE REGULATOR
	TEST COCK
◢	GAS METER
■	WALL HYDRANT
	VALVE IN RISE
	ASME TEMPERATURE & PRESSURE RELIEF VALVE
	VACUUM RELIEF VALVE
	ANGLE VALVE
	OS&Y VALVE
	ROOF DRAIN
1	REFER TO KEYED NOTE
FS	FLOW SWITCH
	FLOOR SINK (FS)
	FLOOR DRAIN (FD)
	FLOOR DRAIN WITH P-TRAP (FD)
	FLOOR DRAIN WITH P-TRAP AT 45° ANGLE (FD)
	HUB DRAIN (HD)
	ACCESS PANEL FOR TRAP PRIMER OR SHOCK ABSORBER
AP	ACCESS PANEL LOCATION SYMBOL
A	SHOCK ABSORBER
	AIR CHAMBER
(E)	EXISTING
(N)	NEW
VTR	VENT THRU ROOF
B.F.F.	BELOW FINISHED FLOOR
A.F.F.	ABOVE FINISHED FLOOR
	NEW CONNECTION
IE=100.00'	INVERT ELEVATION
1	DELTA CHANGE SYMBOL
P 1 4" VTR	RISER FLAG

PLUMBING MATERIAL LIST

ABOVE GRADE, INSIDE BUILDING

SANITARY WASTE AND VENT PIPING SHALL BE

NO-HUB CAST IRON SYSTEM CONFORMING TO CISPI. STANDARD NO. 301-75. NEOPRENE GASKETS SHALL CONFORM TO ASTM STANDARD C564-75, OR,

STORM PIPING SHALL BE

SERVICE WEIGHT CAST IRON HUB AND SPIGOT PIPE AND FITTINGS WITH ELASTOMERIC GASKETS JOINTS.

DOMESTIC WATER PIPING SHALL BE

DRAWN (HARD) COPPER WATER TUBE, TYPE "L", ASTM B88, WITH WROUGHT COPPER FITTINGS, ANSI B16.22 AND 95-5 SOLDER JOINTS.

BELOW GRADE, INSIDE BUILDING

SANITARY WASTE AND VENT PIPING SHALL BE

SCHEDULE 40 DWV POLYVINYL CHLORIDE PIPE AND FITTINGS CONFORMING TO ASTM-2665 WITH SOLVENT WELDED JOINTS. DO NOT USE IN AIR SUPPLY OR RETURN PLENUMS, AND OR WHERE FIRE RATED WALLS, PARTITIONS, OR FLOORS ARE PENETRATED.

STORM PIPING SHALL BE

SCHEDULE 40 DWV POLYVINYL CHLORIDE PIPE AND FITTINGS CONFORMING TO ASTM-2665 WITH SOLVENT WELDED JOINTS.

DOMESTIC WATER PIPING SHALL BE

ANNEALED (SOFT) COPPER WATER TUBE, TYPE "K", ASTM B88, WITH NO JOINTS OR FITTINGS BELOW SLAB.

GAS PIPING SHALL BE

PIPE 2" AND SMALLER. PROVIDE SCHEDULE 40 ASTM A 53 BLACK STEEL WITH FACTORY FABRICATED SOCKET WELD FITTINGS.

PIPE LARGER THAN 2", USE SCHEDULE 40 ASTM A 53 BLACK STEEL PIPE WITH LONG RADIUS WELD FITTINGS.

SHOCK ARRESTOR SCHEDULE

P.D.I. SYMBOLS:	FIXTURE UNITS:	THREADED CONNECTION	CERTIFICATION
A	1 - 11	1/2"	ASSE 1010
B	12 - 32	3/4"	ASSE 1010
C	33 - 60	1"	ASSE 1010
D	61 - 113	1"	ASSE 1010
E	114 - 154	1"	ASSE 1010
F	155 - 330	1"	ASSE 1010

CIRCULATING PUMP SCHEDULE

ITEM NO.	DESCRIPTION	TYPE	GPM	HEAD FEET	H.P. MIN.	VOLT/ PHASE	MAX RPM	MANUFACTURER AND MODEL
CP-1	CIRCULATION PUMP 110 F HOT WATER	IN-LINE STAINLESS STEEL	5	13	1/12	120/1	2400	GRUNDFOS #ALPHA 2 SERIES

DOMESTIC HW EXPANSION TANK SCHED.

ITEM NO.	DESCRIPTION	MAX. WORK PRESSURE	TANK VOL. GALLONS	MAX. ACCEPT. GALLONS	DIAMETER INCHES	MANUFACTURER AND MODEL
ET-1	HOT WATER EXPANSION TANK	150 PSI	34	11.2	18"	AMTROL THERM-X-TROL #ST-70V-C

NOTES:
1. ALL EXPANSION TANKS SHALL BE ASME RATED.
2. ET-1 SHALL BE PIPE IN CONJUNCTION WITH GWH-1 AND GWH-2.

GAS WATER HEATER SCHEDULE

ITEM NO.	BTU/HR. INPUT	GALS. PER HR. RECOVERY RATE 100 F RISE	STORAGE CAPACITY GALLONS	ELECTRICAL REQUIRED	STORED WATER TEMP.	MANUFACTURER / COMMENTS
GWH-1	199,000	230	100	120V/1PH.	140 F	A.O. SMITH BTH-199A
GWH-2	199,000	230	100	120V/1PH.	140F	A.O. SMITH BTH-199A

NOTES:
1. THE WATER HEATERS SHALL BE EQUIPPED WITH ASME RATED TANKS, ASME RATED TEMPERATURE PRESSURE AND RELIEF VALVES, IGNITION CONTROL DEVICES WITH INTEGRAL DIAGNOSTICS, LED FAULT DISPLAY AND DIGITAL DISPLAY OF TEMPERATURE SETTINGS.
2. THE WATER HEATERS SHALL BE LOW NOX AND THE SYSTEMS SHALL BE PIPED WITH AN EXPANSION TANK. RE: SCHEDULE THIS SHEET (ET-1,2).
3. THE WATER HEATERS SHALL BE SUITABLE FOR SEALED COMBUSTION DIRECT-VENT USING 3" OR 4" POLYPROPYLENE PIPE (UL 1738), RATED FOR FLUE GAS VENTING, FOR INTAKE AND EXHAUST AS MANUFACTURED BY DURA VENT. PROVIDE A CONCENTRIC VENT KIT FROM SAME MANUFACTURER AS GAS WATER HEATER SUPPLIED. INSTALL PER MANUFACTURERS INSTRUCTIONS.

SHOP AIR COMPRESSOR SCHEDULE

ITEM NO.	HP	CFM DELIVERED @125 PSI	CFM DELIVERED @175 PSI	RECEIVER TANK SIZE (GALLONS), ORIENTATION	ELECTRICAL VOLTS/PH/HZ	MANUFACTURER / COMMENTS
AC-1	7.5	23.9	23.1	80 GALLONS, VERTICAL	460/3/60	CHAMPION UNIT MODEL VR7F-8

NOTES:
1. VERTICAL TANK MOUNTED SIMPLEX UNIT TO INCLUDE ASME AIR RECEIVER TANK, AUTOMATIC TANK DRAIN, ASME PRESSURE RELIEF VALVE, TANK MOUNTED 0-300 PSIG AIR PRESSURE GAUGE, ENCLOSED BELT GUARD, MOUNTED AND WIRED MAGNETIC STARTER, ON-OFF SWITCH, AIR COOLED AFTERCOOLER, AND SHALL BE MOUNTED ON RUBBER VIBRATION ISOLATION PADS.
2. PROVIDE HOUSEKEEPING PAD PER SPECIFICATIONS.
3. PROVIDE REFRIGERATED AIR DRYER UPSTREAM OF AFTER-COOLER. MODEL #CRH20.

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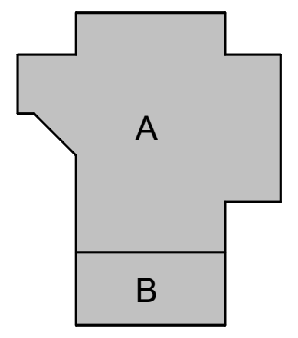

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80219
LICENSED
PROFESSIONAL ENGINEER
11-06-23

PROJECT #: 202311
DATE: 2023-11-03
DRAWN: PG
CHECKED: EH

DATE	ISSUE	#
2023-11-03	BID SET	

P6.01
PLUMBING SCHEDULES

PLAN NORTH

TECHNOLOGY LEGEND

SYMBOL	DESCRIPTION	ELEVATION	BACK BOX/RACEWAY	NOTES
#₩	WALL MOUNTED NETWORK OUTLET D#: NUMBER OF DATA DROPS IN OUTLET AP: WIRELESS ACCESS POINT	+18" AFF, UNLESS OTHERWISE NOTED	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
V#	COMMUNICATIONS OUTLET	FIELD COORDINATE	FIELD COORDINATE	
W	WALL MOUNTED NETWORK OUTLET	+44" AFF	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
B	WALL MOUNTED BOX FOR FUTURE USE.	+18" AFF UNO	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
D#	FLOOR MOUNTED NETWORK OUTLET	N/A	COORDINATE WITH ELECTRICAL CONTRACTOR	FINISHED HARDWARE PROVIDED BY DIV 27
*#	CEILING MOUNTED NETWORK OUTLET AP: WIRELESS ACCESS POINT D#: NETWORK OUTLET	ABOVE CEILING	CEILING BRACKET WITH BISCUIT BLOCK	

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. CONDUIT STUB UP AND SLEEVES SHALL HAVE A SOLID UNCUT PLASTIC PROTECTIVE BUSHING.
5. NO CONDUITS SHALL EXCEED FOR 40% MAXIMUM FILL RATIO. CONTRACTOR TO PROVIDE ADDITIONAL CONDUITS REQUIRED.

ACCESS CONTROL LEGEND

SYMBOL	DESCRIPTION	ELEVATION	BACK BOX/RACEWAY	NOTES
ACP	ACCESS CONTROL SYSTEM. CONTROL PANEL.	+60" AFF TO CENTER	AS REQUIRED	COORDINATE POWER. NOTE #4.
CR *#	ACCESS CONTROL PROXIMITY CARD READER. *W - INDICATES WALL MOUNTED READER *M - INDICATES MULLION MOUNTED READER	+42" A.F.F.	1-G, 3/4" C	
CR	DOOR MOUNTED ACCESS CONTROL PROXIMITY CARD READER THAT IS INTEGRATED INTO THE DOOR HARDWARE.	+42" AFF	N/A	
DS *#	2-WAY AUDIO/VIDEO INTERCOM DOOR STATION. *W - INDICATES WALL MOUNTED READER *M - INDICATES MULLION MOUNTED READER	+42" AFF	*W: 1-G, 3/4" C *M: 3/4"C	COORDINATE POWER. NOTE #4.
DS	DOOR MOUNTED, 2-WAY AUDIO/VIDEO INTERCOM DOOR STATION.	+42" AFF, FIELD COORDINATE		COORDINATE POWER. NOTE #4.
MS	2-WAY AUDIO/VIDEO INTERCOM MASTER STATION.	DESK MOUNTED UNO		COORDINATE POWER. NOTE #4.
DR	DOOR RELEASE BUTTON	COORDINATE WITH GC	1-G, 3/4" C	
REX	PIR MOTION REQUEST TO EXIT DEVICE			
DP	DOOR PROP ALARM	CEILING MOUNTED UNO	N/A	N/A
DC	DPDT MAGNETIC DOOR CONTACT/DOOR POSITION SENSOR.	FLUSH MOUNTED IN DOOR FRAME	N/A	PROVIDED BY ACS CONTRACTOR.
RFID	VEHICLE RFID TAG READER.		FIELD COORDINATE RACEWAYS AND BACK BOXES	PROVIDE NECESSARY EQUIPMENT FOR A FULLY FUNCTIONAL VEHICLE ENTRY POINT

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE.
4. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK.

INTERCOM LEGEND

SYMBOL	DESCRIPTION	ELEVATION	BACK BOX/RACEWAY	NOTES
ICS	INTERCOM COMMUNICATIONS SYSTEM HEAD END UNIT.	FLOOR MOUNTED	COORDINATE WITH EC	COORDINATE POWER WITH EC.
S	CEILING MOUNTED INTERCOM SPEAKER, LAY-IN CEILING	CEILING	CONTRACTOR PROVIDED	
S2	CEILING MOUNTED INTERCOM SPEAKER, HARD CEILING.	CEILING	CONTRACTOR PROVIDED	
S3	WALL MOUNTED INTERIOR INTERCOM SPEAKER	REFERENCE FLOOR PLANS	CONTRACTOR PROVIDED	
S4	WALL MOUNTED EXTERIOR INTERCOM SPEAKER	+10' AFF UNO	CONTRACTOR PROVIDED	
# IP	IP BASED SPEAKER. '#' TO BE REPLACED WITH S, S2, S3, S4 INDICATING THE SPECIFIC TYPE OF SPEAKER.	REFERENCE FLOOR PLANS	CONTRACTOR PROVIDED	NOTE #5
VC	WALL MOUNTED VOLUME CONTROL	+48" AFF	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
CB	INTERCOM CALL BUTTON	+48" AFF	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
C	SINGLE FACE CLOCK	REFERENCE FLOOR PLANS	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
C2	DOUBLE FACE CLOCK	REFERENCE FLOOR PLANS	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
RPS	REMOTE PROGRAM SOURCE	DESK TOP	COORDINATE WITH EC	NOTE #5
ACS	ADMINISTRATIVE CALL STATION.	DESK TOP	N/A	NOTE #5
LD	LOCKDOWN BUTTON	+48" AFF	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. THE SYSTEM INTEGRATOR SHALL COORDINATE ALL BOX AND CONDUIT SIZE REQUIREMENTS PRIOR TO ROUGH-IN BY THE PROJECTS ELECTRICAL CONTRACTOR.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK

VIDEO SURVEILLANCE LEGEND

SYMBOL	DESCRIPTION	ELEVATION	BACK BOX/RACEWAY	NOTES
	WALL/CORNER MOUNT 4-SENSOR CAMERA	REFERENCE FLOOR PLANS	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	NOTE #5
	CEILING MOUNTED 4-SENSOR CAMERA	CEILING		NOTE #5
W W	2-SENSOR CAMERA W: INDICATES WALLMOUNTED CAMERA	REFERENCE FLOOR PLANS	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	NOTE #5
W	1-SENSOR CAMERA W: INDICATES WALLMOUNTED CAMERA	REFERENCE FLOOR PLANS	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	NOTE #5
VRS	VIDEO RECORDING SERVER			NOTE #5
#MU	VIDEO SURVEILLANCE MAIN UNIT	ABOVE CEILING		NOTE #5

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. THE SYSTEM INTEGRATOR SHALL COORDINATE ALL BOX AND CONDUIT SIZE REQUIREMENTS PRIOR TO ROUGH-IN BY THE PROJECTS ELECTRICAL CONTRACTOR.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK

AUDIO/VIDEO LEGEND

SYMBOL	DESCRIPTION	ELEVATION	BACK BOX/RACEWAY	NOTES
AV-1	WALL MOUNTED AUDIO/VIDEO INPUT OUTLET	+18" AFF UNO	4 11/16"X4 11/16"X2-1/8" BACK BOX WITH DOUBLE GANG RING, TWO(2) 1.25"C	
FSD-1	WALL MOUNTED FLAT SCREEN DISPLAY AUDIO/VIDEO OUTPUT OUTLET	REFERENCE FLOOR PLAN	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	NOTE #5
FSD-2	WALL MOUNTED FLAT SCREEN DISPLAY AUDIO/VIDEO OUTPUT OUTLET ASSOCIATED WITH AV-1 INPUT OUTLET	REFERENCE FLOOR PLAN	4 11/16"X4 11/16"X2-1/8" BACK BOX WITH DOUBLE GANG RING, TWO(2) 1.25"C	NOTE #5
IVD	INTERACTIVE VIDEO DISPLAY ON CART	N/A	N/A	N/A
CP	AV CONTROL PANEL	+48" AFF TO TOP	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. THE SYSTEM INTEGRATOR SHALL COORDINATE ALL BOX AND CONDUIT SIZE REQUIREMENTS PRIOR TO ROUGH-IN BY THE PROJECTS ELECTRICAL CONTRACTOR.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK

INTRUSION LEGEND

SYMBOL	DESCRIPTION	ELEVATION	BACK BOX/RACEWAY	NOTES
IDP	INTRUSION DETECTION SYSTEM CONTROL PANEL	+60" AFF	TWO(2) - 1"C TO CONTRACTOR PROVIDED BACK BOX	COORDINATE POWER WITH EC. NOTE #5
KP	INTRUSION DETECTION SYSTEM KEYPAD.	+48" AFF TO TOP	4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C	
M	CEILING MOUNTED MOTION DETECTOR	CEILING		
M	WALL MOUNTED MOTION DETECTOR LR: LONG RANGE	REFERENCE FLOOR PLAN	N/A	
GB	CEILING MOUNTED GLASS BREAK DETECTOR	CEILING	N/A	
DC	DPDT MAGNETIC DOOR CONTACT/DOOR POSITION SENSOR.	FLUSH MOUNTED IN DOOR FRAME	N/A	DEVICE PROVIDED BY ACS CONTRACTOR.
SDC	SURFACE MOUNT MAGNETIC DOOR CONTACT.	SURFACE MOUNTED ON DOOR FRAME	N/A	
ODC	OVERHEAD DOOR MOUNT MAGNETIC DOOR CONTACT.	SURFACE MOUNTED ON DOOR FRAME	N/A	
DB	DURESS PANIC BUTTON	UNDER DESK UNO	N/A	

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. REFERENCE DIVISION 28 SPECIFICATION FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK

FIRE ALARM

*FIRE ALARM CONTROL PANEL SHALL BE EXISTING TO REMAIN. FIRE ALARM SYSTEM SHALL BE FULLY OPERATIONAL THROUGHOUT ALL PHASES OF CONSTRUCTION. DEMOLISH EXISTING SYSTEM ONCE NEW SYSTEM IS INSTALLED, TESTED, AND ACCEPTED BY THE AHJ.

*EXISTING FIELD DEVICE LOCATIONS SHALL BE REUSED WHENEVER POSSIBLE. INSTALL NEW FIRE ALARM SYSTEM SPEAKER AS SPECIFIED FOR VOICE EVACUATION.

LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL
FAA	FIRE ALARM ANNUNCIATOR PANEL

NOTES:
1. FIRE ALARM SYSTEM IS PERFORMANCE BASED PER SPECIFICATIONS. CONTRACTOR TO REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. A LICENSED FIRE ALARM PLANNING SUPERINTENDENT CERTIFIED TO A MINIMUM LEVEL 3, IN THE SUBFIELD OF FIRE ALARM SYSTEMS THROUGH THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET), SHALL PROVIDE PLANS AND CALCULATIONS FOR A MANUAL AND AUTOMATIC FIRE DETECTION AND ALARM SYSTEM TO COMPLY WITH THE BUILDING SPACE LAYOUT, BUILDING OCCUPANCY, CURRENT NFPA 72, LOCAL AND STATE CODE REQUIREMENTS, AND THE FIRE ALARM AND DETECTION SYSTEM SPECIFICATIONS.

SUBSCRIPTS AND ABBREVIATIONS

TEXT	DESCRIPTION
'WP'	DEVICE SHALL BE WEATHER PROOF AND RATED FOR EXTERIOR CONDITIONS
●	FIELD COORDINATE ELEVATION.
AFF	ABOVE FINISHED FLOOR
'UC'	DEVICE IS TO BE MOUNTED ON THE UNDERSIDE OF THE ELEVATED CANOPY.

SUBSCRIPTS LEGEND - EXISTING DEVICES

TEXT	DESCRIPTION
'E'	EXISTING TO REMAIN.
'D'	DEVICE IS EXISTING AND IS TO BE REMOVED. CONTRACTOR TO REMOVE THE DEVICE AND RETURN TO OWNER.
'RR'	REMOVE EXISTING DEVICE AND RELOCATE TO A LOCATION INDICATED ON THE DRAWINGS.

NOTES TO CONTRACTOR

1. EVERY SYMBOL SHOWN ON LEGEND MAY NOT APPEAR ON DRAWINGS.
2. SYSTEM INSTALLERS SHALL COORDINATE LOCATIONS AND CONNECTIONS WITH THE PROJECT'S ELECTRICAL CONTRACTOR.
3. CONTRACTOR TO PROVIDE PROPERLY GROUNDED LIGHTING PROTECTION ON ALL CABLING ENTERING AND EXITING THE BUILDING.

RESPONSIBILITY MATRIX

SCOPE ITEM	RESPONSIBILITY			NOTES
COMMUNICATIONS - DIVISION 27	OFOI	CFCI	OFCI	
CATEGORY 6/6A STRUCTURED CABLING SYSTEM		✓		
FLAT PANEL DISPLAYS		✓		
FLAT PANEL DISPLAY MOUNTS		✓		
INTERACTIVE DISPLAYS	✓			
INTERACTIVE DISPLAY MOUNTS	✓			
BUILDING INTERCOM/PA, BELL, AND CLOCK SYSTEM		✓		
NETWORK EQUIPMENT				
→ MDF/IDF NETWORK EQUIPMENT	✓			
→ VOIP TELEPHONES	✓			
→ WIRELESS ACCESS POINTS	✓			
→ UNINTERRUPTIBLE POWER SUPPLIES (UPS)	✓			
RACEWAY: CONDUIT, BACK BOXES, SLEEVES, ETC.		✓		SEE NOTE 4.
ELECTRICAL POWER		✓		SEE NOTE 4.
LIFE SAFETY AND SECURITY - DIVISION 28	OFOI	CFCI	OFCI	
ACCESS CONTROL SYSTEM(ACS)		✓		
INTRUSION DETECTION SYSTEM		✓		
DOOR ACCESS VIDEO INTERCOM SYSTEM		✓		
VIDEO SURVEILLANCE SYSTEM (VSS)				
→ VSS SERVERS	✓			
→ VSS CAMERAS		✓		
→ VSS PROGRAMMING		✓		
→ VSS CABLING		✓		SEE NOTE 7.
FIRE ALARM SMOKE DETECTION WITH VOICE EVACUATION		✓		
RACEWAY: CONDUIT, BACK BOXES, SLEEVES, ETC.		✓		SEE NOTE 4.
ELECTRICAL POWER		✓		SEE NOTE 4.

OFOI - OWNER FURNISHED AND OWNER INSTALLED
CFCI - CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED
OFCI - OWNER FURNISHED AND CONTRACTOR INSTALLED

RESPONSIBILITY MATRIX NOTES:
1. NONE IN PROJECT
2. OWNER CONFIGURED, CONTRACTOR INSTALLED AND PATCHED.
3. OWNER CONFIGURED, CONTRACTOR INSTALLED AND PATCHED. CONTRACTOR TO PROVIDE AND INSTALL WALL MOUNT BRACKETS AND HIGH IMPACT ENCLOSURES.
4. BY DIVISION 26.
5. REFERENCE DIVISION 8 FOR DOOR HARDWARE.
6. BY DIVISION 11.
7. BY DIVISION 27.
8. UNLESS SPECIFIED OTHERWISE

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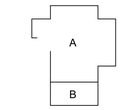

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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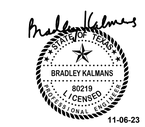

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DATE:	2023-11-03
DRAWN:	MA
CHECKED:	DS

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2023-11-03	BID SET

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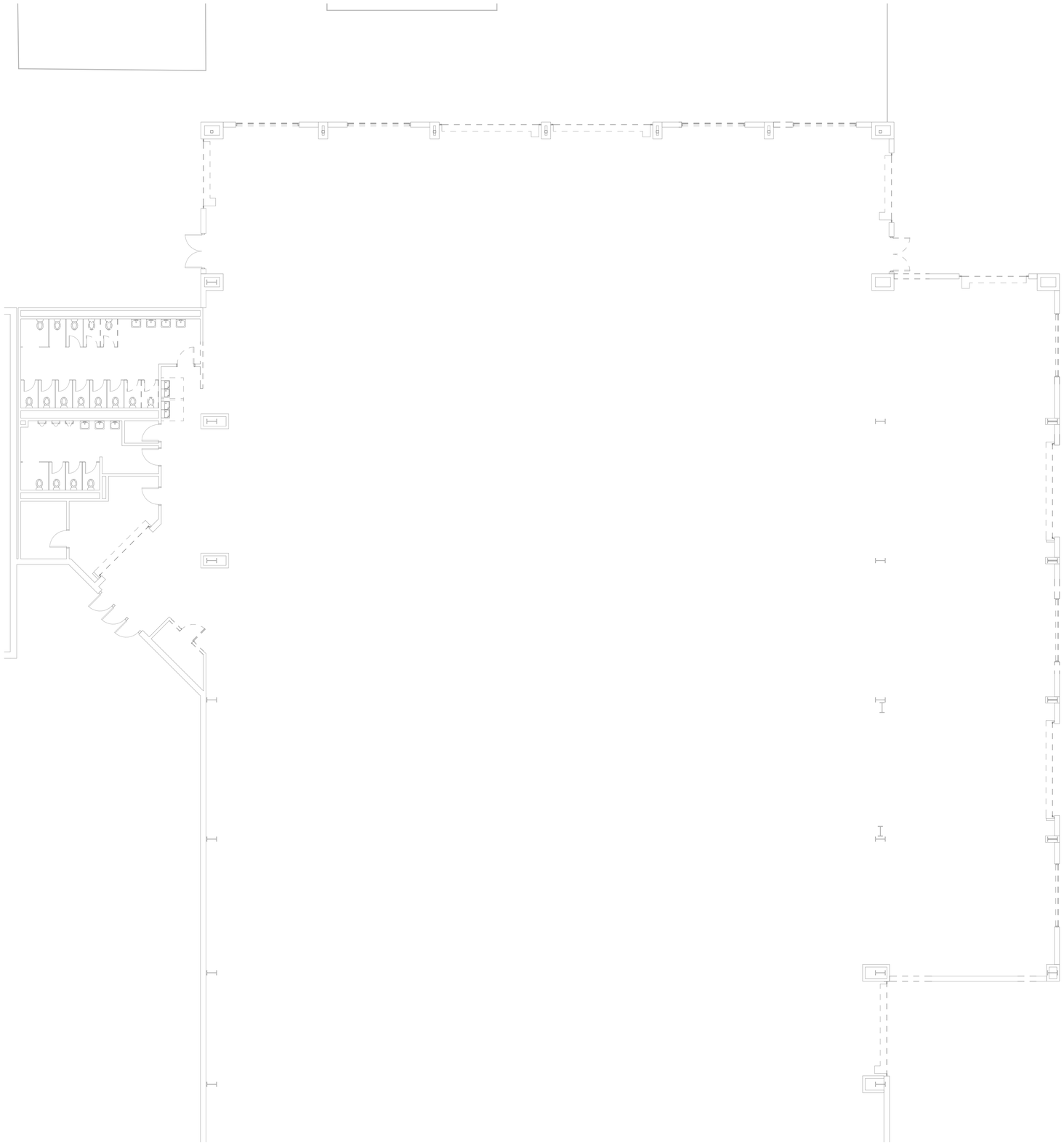
TECHNOLOGY NOTES AND LEGENDS

PLAN NORTH



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1 **TECHNOLOGY DEMOLITION 1ST FLOOR PLAN - AREA 'A1'**
Scale: 1/8" = 1'-0"

TECHNOLOGY DEMO PLAN GENERAL NOTES

A CONTRACTOR SHALL HAVE EACH LOW VOLTAGE SYSTEM TESTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SYSTEMS SHALL INCLUDE BUT NOT BE LIMITED TO:
1) FIRE ALARM
2) INTERCOM
3) STRUCTURED CABLING
4) INTRUSION DETECTION
5) ACCESS CONTROL
6) AUDIO VIDEO
7) VIDEO SURVEILLANCE

TESTING SHALL INCLUDE THE FUNCTIONALITY OF ALL FIELD DEVICES AND EQUIPMENT. ANY FAILURES OR ITEMS FOUND NOT TO BE FUNCTIONING TO SPECIFICATION, SHALL BE REPORTED PRIOR TO CONSTRUCTION. ANY ITEMS FOUND TO BE IMPROPERLY OR NON-FUNCTIONING UPON THE COMPLETION OF THE PROJECT, SHALL BE REPLACED AND/OR REPAIRED, BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE PROJECT OR THE OWNER.

B CONTRACTOR SHALL REMOVE ANY DEVICES WHERE CONSTRUCTION OCCURS TO PREVENT POSSIBLE DAMAGE TO THE DEVICE. REMOVAL OF ANY DEVICES WHICH SUPPORT USER CONNECTION OR OTHER SYSTEMS, SHALL BE COORDINATED WITH THE OWNER PRIOR TO REMOVAL AND/OR TAKING OFF LINE. REMOVAL SHALL CONSIST OF BUT NOT BE LIMITED TO THE FOLLOWING DEVICES AND ASSOCIATED SUPPORT INFRASTRUCTURE:
1) FIRE ALARM DEVICES
2) INTERCOM DEVICES
3) WIRELESS ACCESS POINTS
4) TELEPHONES
5) VIDEO SURVEILLANCE CAMERAS
6) INTRUSION DETECTION DEVICES
7) ACCESS CONTROL DEVICES
8) VIDEO PROJECTION DEVICES
9) VIDEO DISPLAY DEVICES

ANY DEVICES, NOT BEING REINSTALLED, SHALL BE RETURNED TO THE OWNER.

C CONTRACTOR SHALL DOCUMENT THE LOCATION AND ANY ID TAG, MAC ADDRESS, IP ADDRESS, OR BAR CODE OF ANY EXISTING DEVICE THAT IS TO BE REMOVED FROM ITS CURRENT LOCATION. DEVICES THAT ARE TO REMAIN, SHALL BE REINSTALLED IN THE EXACT LOCATION THAT THEY RESIDE IN PRIOR TO CONSTRUCTION, UNLESS NOTED OTHERWISE.

D ANY INDIVIDUAL THAT WILL BE REMOVING, RELOCATING, REINSTALLING, AND/OR TAMPERING WITH ANY EXISTING DEVICES; SHALL BE CERTIFIED BY THE MANUFACTURER OF THE SPECIFIC SYSTEM AND/OR LICENSED AS REQUIRED BY THE STATE TO PERFORM WORK ON THE SYSTEM. THE INDIVIDUAL SHALL BE A FULL-TIME EMPLOYEE OF THE FIRM CONTRACTED TO CONDUCT SUCH WORK ON THE PROJECT AND THAT FIRM SHALL ALSO HOLD ANY CERTIFICATIONS AND/OR LICENSES REQUIRED TO CONDUCT WORK ON THE SPECIFIC SYSTEM.

E ANY INDIVIDUAL/FIRM THAT WILL BE REMOVING, RELOCATING, REINSTALLING, OR TAMPERING WITH IN ANY DEVICES; SHALL BE LICENSED BY THE STATE, AS APPLICABLE, AND CERTIFIED BY THE MANUFACTURER OF THE SYSTEM.

F ALL CABLING ASSOCIATED WITH DEVICES THAT ARE TO BE DEMOLISHED, SHALL BE REMOVED FROM THE DEVICE LOCATION TO THE CABLES POINT OF ORIGIN. NO CABLE SHALL BE ABANDONED IN PLACE.

G ALL CATEGORY CABLING RATED LOWER THAN CATEGORY 6 SHALL BE REMOVED AND REPLACED WITH CATEGORY 6 CABLING. COORDINATE WITH OWNER PRIOR TO DEMOLITION OF CABLE.

H CONTRACTOR TO COORDINATE WITH TISD TECHNOLOGY DEPARTMENT PRIOR TO CONSTRUCTION ON WHICH DEVICES ARE TO BE REMOVED BY THE OWNER'S VENDER IN ORDER TO PREVENT VOID OF WARRANTY.

I CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD.

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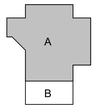

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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BRADLEY KALMANS
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LICENSED
11-06-23

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TECHNOLGY DEMOLITION AREA 'A1' 1ST FLOOR PLAN

PLAN NORTH

TECHNOLOGY DEMO PLAN GENERAL NOTES

A CONTRACTOR SHALL HAVE EACH LOW VOLTAGE SYSTEM TESTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SYSTEMS SHALL INCLUDE BUT NOT BE LIMITED TO:
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7) VIDEO SURVEILLANCE

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3) WIRELESS ACCESS POINTS
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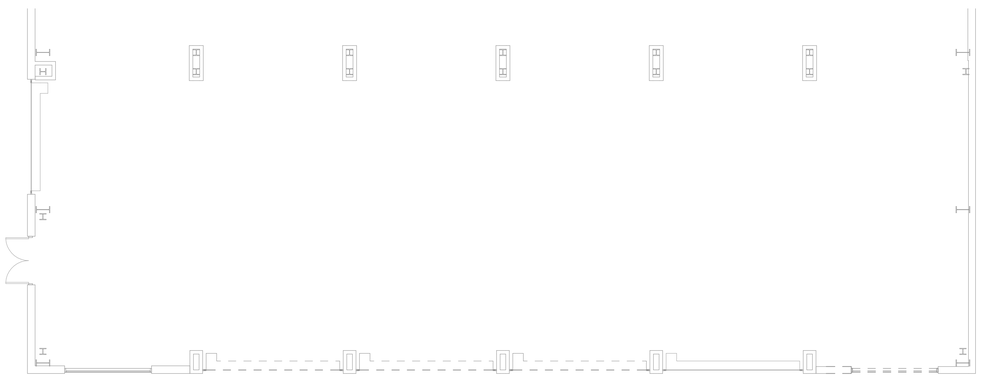
G ALL CATEGORY CABLING RATED LOWER THAN CATEGORY 6 SHALL BE REMOVED AND REPLACED WITH CATEGORY 6 CABLING. COORDINATE WITH OWNER PRIOR TO DEMOLITION OF CABLE.

H CONTRACTOR TO COORDINATE WITH TISD TECHNOLOGY DEPARTMENT PRIOR TO CONSTRUCTION ON WHICH DEVICES ARE TO BE REMOVED BY THE OWNER'S VENDER IN ORDER TO PREVENT VOID OF WARRANTY.

I CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD.



N

1 **TECHNOLOGY DEMOLITION 1ST FLOOR PLAN - AREA 'B1'**
Scale: 1/8" = 1'-0"

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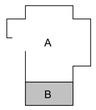

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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LICENSED
11-06-23

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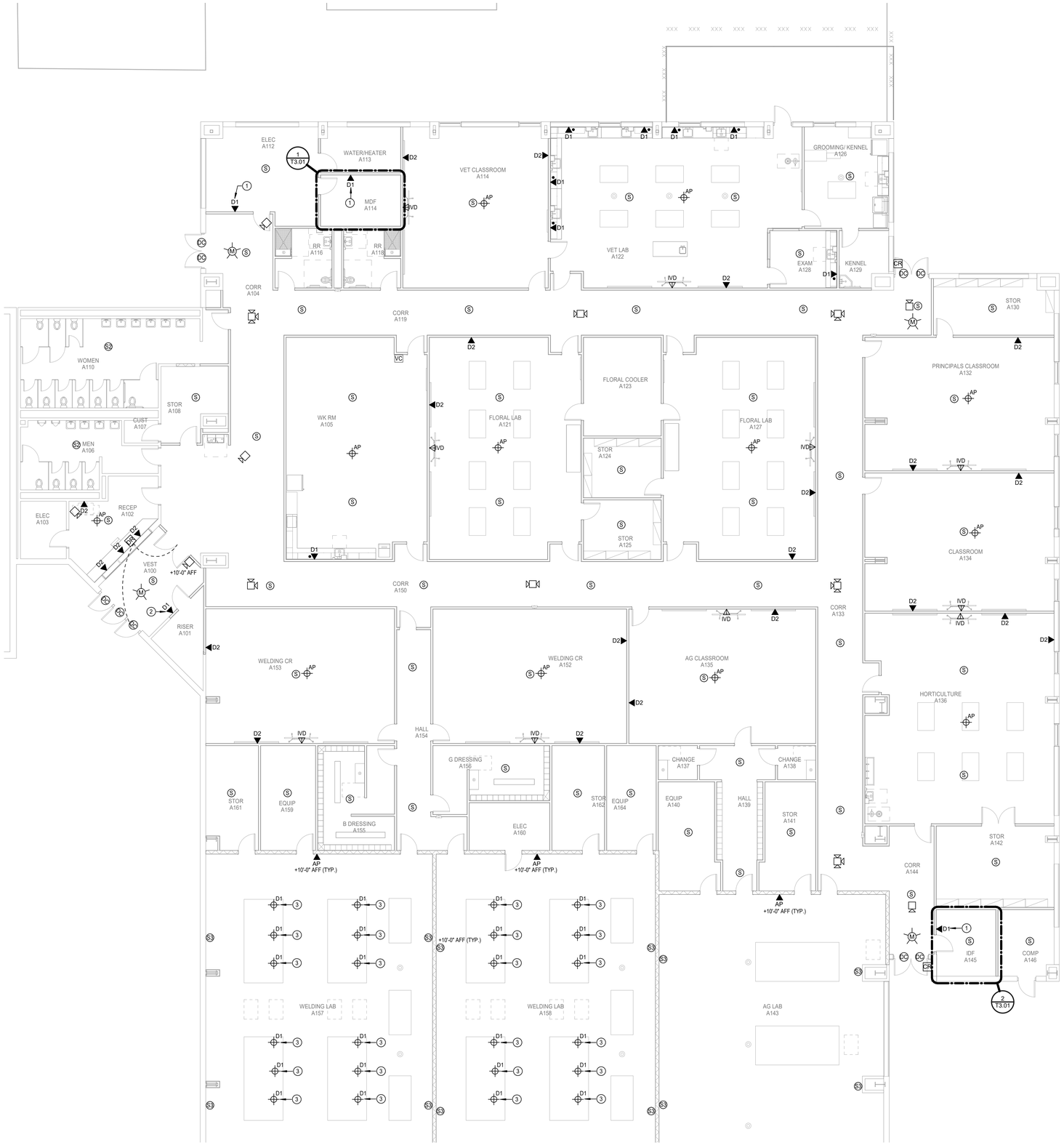
TECHNOLOGY DEMOLITION AREA 'B1' 1ST FLOOR PLAN

PLAN NORTH

TECHNOLOGY KEYED NOTES

1. PROVIDE ONE (1) CATEGORY 6 DATA CIRCUIT TO EACH MECHANICAL ROOM FOR THE BUILDING MANAGEMENT CONTROL SYSTEM AND MDF / IDF ROOMS. COORDINATE WITH THE CONTRACTOR FOR EXACT LOCATION AND TERMINATION TYPE.
2. DATA DROP SHALL BE USED FOR TIMECLOCK. MOUNT AT +48" A.F.F.
3. PROVIDE (1) DATA DROP FOR CONNECTION OF WELDING BOOTH HUMAN-MACHINE INTERFACE (HMI). VERIFY EXACT LOCATION PRIOR TO INSTALLATION. REFER TO ELECTRICAL PLANS FOR J-BOX AND CONDUIT REQUIREMENTS.



1 **TECHNOLOGY 1ST FLOOR PLAN - AREA 'A1'**
Scale: 1/8" = 1'-0"

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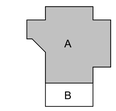

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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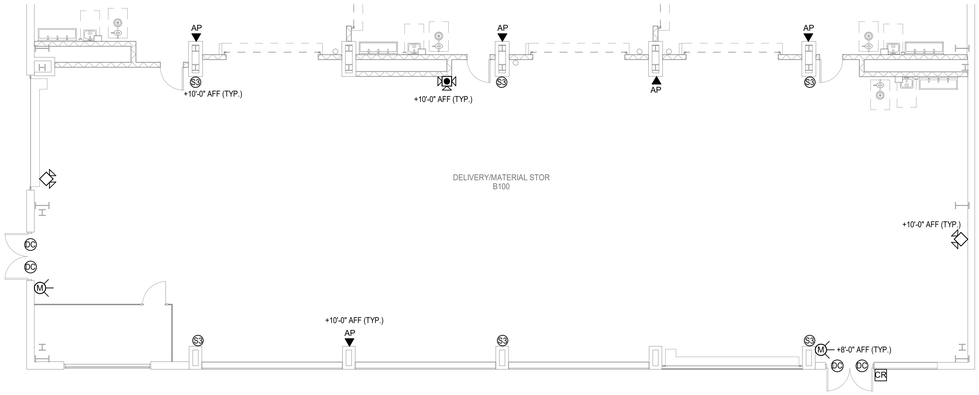
TECHNOLOGY
AREA 'A1' 1ST
LOOR PLAN

PLAN NORTH



1 **TECHNOLOGY 1ST FLOOR PLAN - AREA 'B1'**
Scale: 1/8" = 1'-0"

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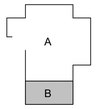

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

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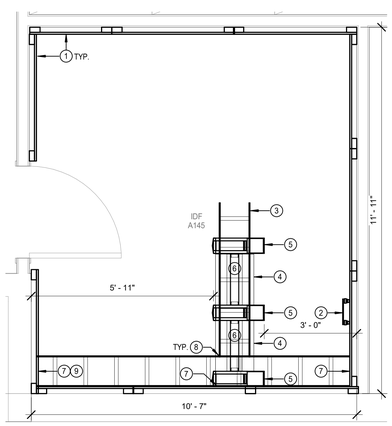
TECHNOLOGY
AREA 'B1' 1ST
LOOR PLAN

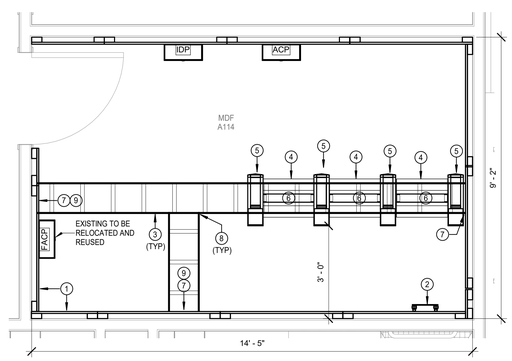
PLAN NORTH

TECHNOLOGY ENLARGED KEYED NOTES

1. INDICATES THE LOCATION OF A 8' TALL, 3/4" FIRE RATED PLYWOOD. CONTRACTOR TO PROVIDE AND INSTALL PLYWOOD AND ALL REQUIRED MOUNTING HARDWARE. PLYWOOD SHALL BE PAINTED WHITE WITH FIRE RATED PAINT. TYPICAL FOR ALL SHOWN ON DRAWING.
2. INDICATES THE LOCATION OF A NEW WALL MOUNTED TELECOMMUNICATION GROUND BUSBAR (TGBB). CABLING CONTRACTOR TO PROVIDE BUSBAR AND ALL REQUIRED MATERIAL TO MOUNT AT THE LOCATION SHOWN. TGBB TO BE MOUNTED AT +93" A.F.F.
3. PROVIDE AND INSTALL A 12" WIDE, UNIVERSAL LADDER TRAY AND ALL REQUIRED MOUNTING HARDWARE. LADDER TRAY SHALL BE BLACK IN COLOR. TYPICAL FOR ALL SHOWN ON ENTIRE PROJECT.
4. PROVIDE AND INSTALL ONE (1) 2-POST, FLOOR MOUNTED, 7' RELAY RACK (BLACK IN CONNECTED LOCATIONS OF THE RACK TO ENSURE THAT ALL PIECES OF THE RACK ARE COMPLETELY BONDED. SCRAPING PAINT FROM RACKS TO MAKE A BOND WILLNOT BE ACCEPTED. ALL RACK MOUNTED COMPONENTS SHALL BE MOUNTED WITH BONDING SCREWS AND THE CONTRACTOR SHALL PROVIDE THE OWNER WITH (50) ADDITIONAL BONDING SCREWS FOR THE INSTALLATION OF OWNER EQUIPMENT. NO DAISY CHAINING GROUNDS FROM RACK TO CABLE TRAY OR TO OTHER RACKS WILL BE ACCEPTED. ALL GROUNDS SHALL BE HOME RUN TO THE TELECOMMUNICATIONS GROUND BUS BAR (TGBB). TYPICAL FOR ALL SHOWN ON THE ENTIRE PROJECT.
5. PROVIDE AND INSTALL ONE (1) 7'X6", FRONT AND REAR MANAGED, VERTICAL CABLE MANAGER (BLACK IN COLOR). CABLE MANAGERS SHALL BE INSTALLED ON EACH END OF THE RACK SYSTEMS AND BETWEEN EACH RACK. CABLE MANAGERS SHALL HAVE A SINGLE, SOLID, FULL HEIGHT HINGED DOOR IN THE FRONT AND WIDE SPACED CABLE RINGS WITH SPIN-OPEN LATCHES IN THE REAR. TYPICAL FOR ALL SHOWN IN THE ENTIRE PROJECT.
6. PROVIDE AND INSTALL RACK-TO-RUNWAY MOUNTING PLATE FOR ALL LOCATIONS WHEN ASSOCIATED WITH A 2-POST OR 4-POST BACK RACK. MOUNTING PLATE SHALL BE BLACK IN COLOR. PROVIDE (1) 6" LADDER TRAY ELEVATION KIT (BLACK IN COLOR) AT EACH RACK-TO-RUNWAY MOUNTING PLATE LOCATION. TYPICAL FOR ALL SHOWN ON THE ENTIRE PROJECT.
7. INDICATES THE LOCATION OF A 12" LADDER TRAY WALL ANGLE SUPPORT BRACKET, BLACK IN COLOR. CONTRACTOR TO PROVIDE AND INSTALL WALL ANGLE SUPPORT BRACKET AND ALL REQUIRED MOUNTING HARDWARE AT EACH LOCATION WHERE LADDER TRAY TERMINATES INTO A VERTICAL WALL SECTION. TYPICAL FOR ALL SHOWN.
8. PROVIDE AND INSTALL A LADDER JUNCTION SPLICE KIT, BLACK IN COLOR. PROVIDE ONE (1) KIT AT EACH LADDER TRAY JUNCTION SPLICE LOCATION ON THE ENTIRE PROJECT.
9. PROVIDE AND INSTALL A MINIMUM OF THREE (3) STI EZPATH SERIES 44+ THRU-WALL PENETRATION SLEEVES WITH MULTI-GANG WALLPLATE BRACKET SYSTEM AT INDICATED LOCATION. PROVIDE ADDITIONAL AS REQUIRED TO MAINTAIN A MAXIMUM OF 40% FILL RATIO, PLUS ONE (1) ADDITIONAL FOR SPARE.



2 **TECHNOLOGY ENLARGED PLAN - IDF A145**
Scale: 1/2" = 1'-0"



1 **TECHNOLOGY ENLARGED PLANS - MDF A114**
Scale: 1/2" = 1'-0"

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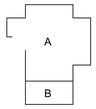

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BRADLEY KALMANS
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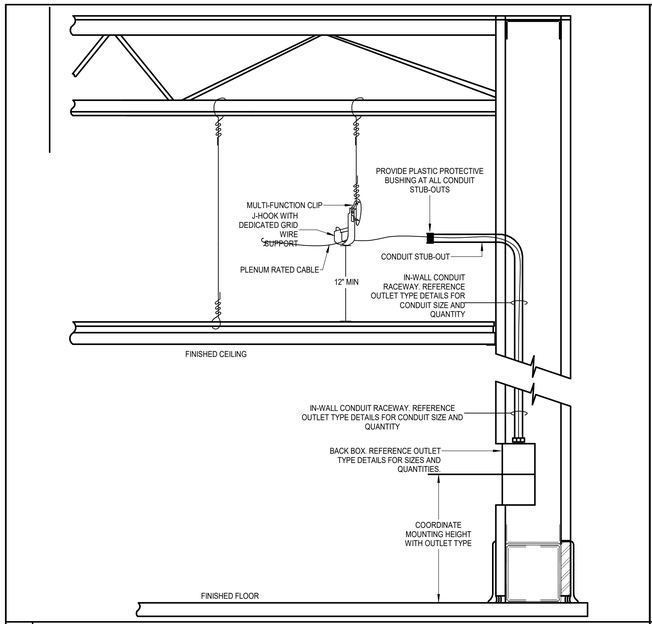
CHECKED:	DS

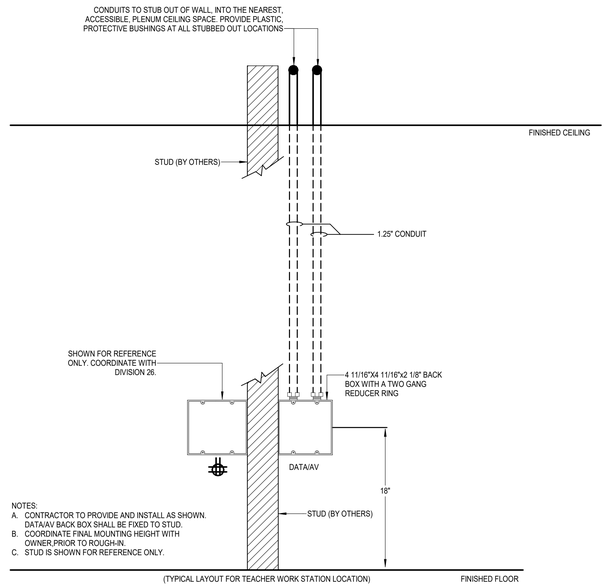
DATE	ISSUE
2023-11-03	BID SET

T3.01

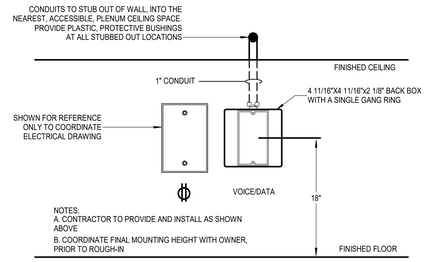
TECHNOLOGY ENLARGED PLANS



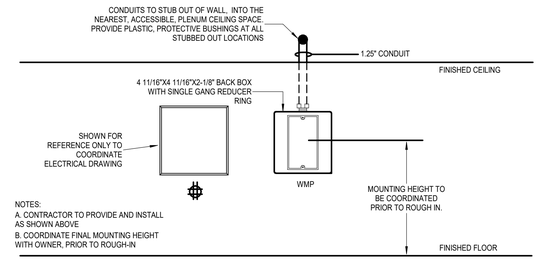
01 LOW VOLTAGE ELEVATION - IN-WALL RACEWAY — NOT TO SCALE



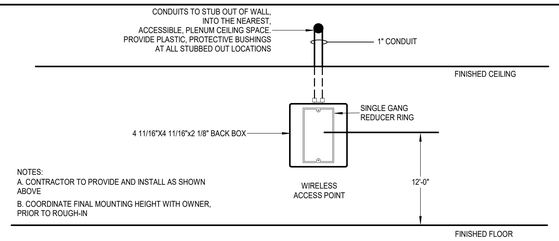
02 RACEWAY DETAIL - TYPICAL INSTRUCTORS OUTLET — NOT TO SCALE



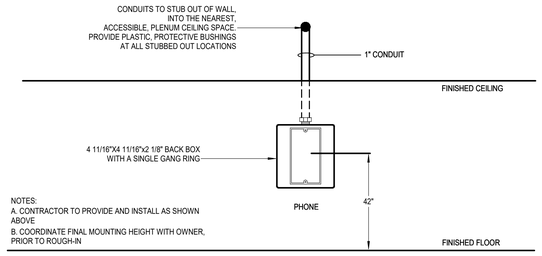
03 RACEWAY DETAIL - TYPICAL VOICE/DATA OUTLET — NOT TO SCALE



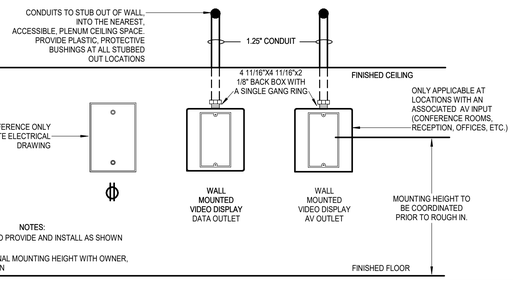
04 RACEWAY DETAIL - WALL MOUNTED PROJECTOR — NOT TO SCALE



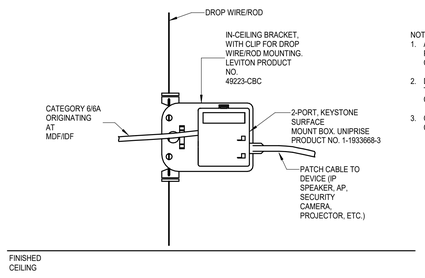
05 RACEWAY DETAIL - WALL MOUNTED WIRELESS AP — NOT TO SCALE



06 RACEWAY DETAIL - WALL MOUNTED TELEPHONE — NOT TO SCALE

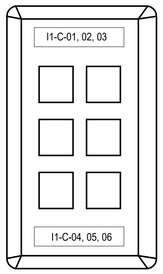


07 RACEWAY DETAIL - WALL MOUNTED DISPLAY — NOT TO SCALE



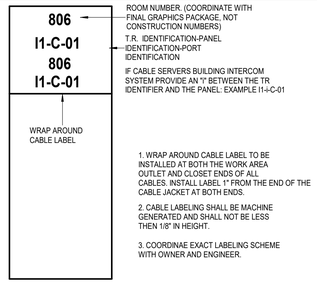
NOTE:
1. ALL ITEMS SHOWN IN THIS DETAIL SHALL BE PROVIDED AND INSTALLED BY THE STRUCTURED CABLING SYSTEM INSTALLER.
2. DROP WIRE SUPPORT SHALL BE DEDICATED TO THE OUTLET. DO NOT MOUNT TO EXISTING CEILING GRID WIRE.
3. OUTLET SHALL BE LOCATED WITHIN 3' OF THE CEILING AND WITH 5' FROM THE IP DEVICE.

08 ABOVE CEILING STAND ALONE OUTLET — NOT TO SCALE



1. FACEPLATE LABELING SHALL BE MACHINE GENERATED AND SHALL NOT BE LESS THEN 1/4" IN HEIGHT
2. PROVIDE BLANK INSERTS FOR ANY UNUSED PORTS
3. COORDINATE EXACT LABELING SCHEME WITH OWNER AND ENGINEER.

09 FACEPLATE LABEL DETAIL — NOT TO SCALE



1. WRAP AROUND CABLE LABEL TO BE INSTALLED AT BOTH THE WORK AREA OUTLET AND CLOSET ENDS OF ALL CABLES. INSTALL LABEL 1" FROM THE END OF THE CABLE JACKET AT BOTH ENDS.
2. CABLE LABELING SHALL BE MACHINE GENERATED AND SHALL NOT BE LESS THEN 1/8" IN HEIGHT.
3. COORDINAE EXACT LABELING SCHEME WITH OWNER AND ENGINEER.

10 CABLE LABEL DETAIL — NOT TO SCALE

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A
B

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
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ARCADIS
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STATE OF TEXAS
BRADLEY KALMANS
80219
LICENSED
PROFESSIONAL ENGINEER
11-06-23

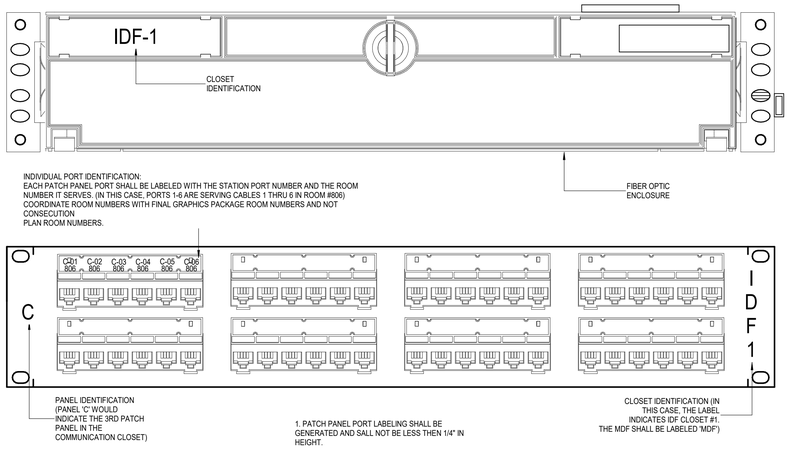
PROJECT #:	202311
DATE:	2023-11-03
DRAWN:	MA
CHECKED:	DS

DATE	ISSUE
2023-11-03	BID SET

T4.01

TECHNOLOGY DETAILS

PLAN NORTH

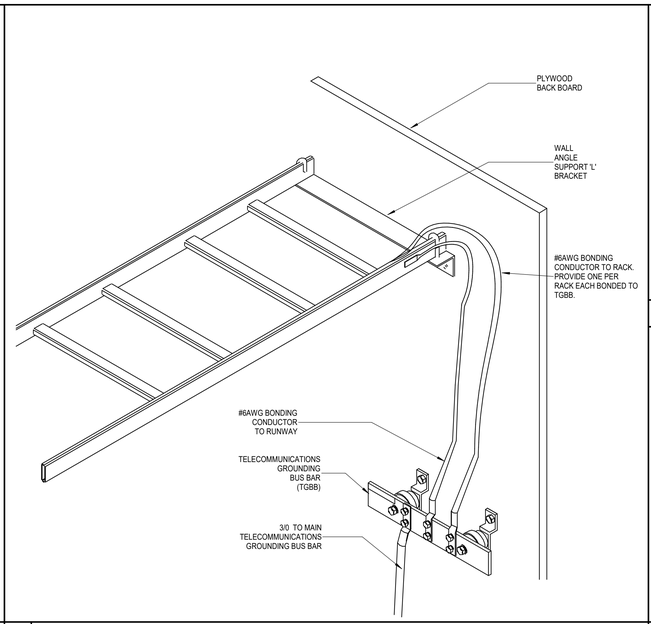


1. PATCH PANEL PORT LABELING SHALL BE GENERATED AND SALL NOT BE LESS THEN 1/4" IN HEIGHT.

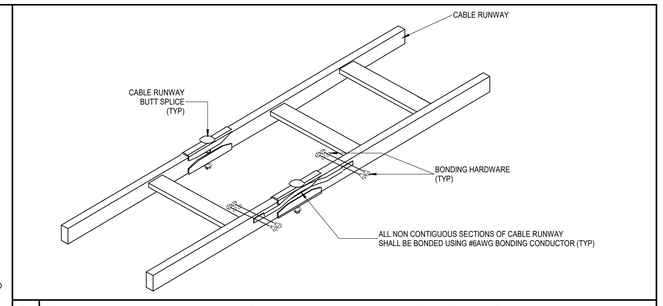
2. PATCH PANEL AND CLOSET IDENTIFICATION LABEL SHALL BE MACHINE GENERATED AND SHALL NOT BE LESS THEN 1/8" HEIGHT.

3. COORDINATE EXACT LABELING SCHEME WITH OWNER AND ENGINEER.

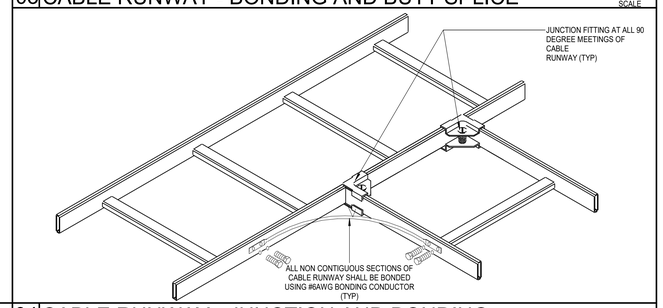
01 FIBER ENCLOSURE/ COPPER PATCH PANEL LABELING DETAIL NOT TO SCALE



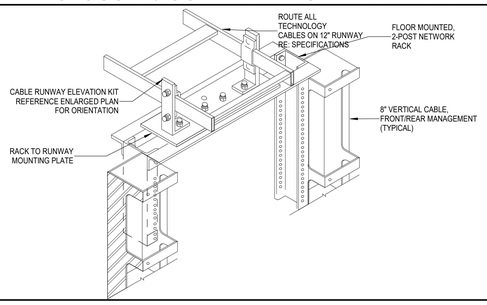
02 CABLE RUNWAY - GROUNDING AND BONDING NOT TO SCALE



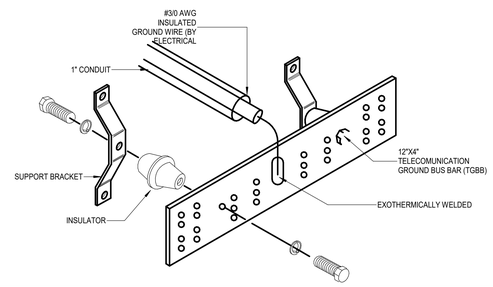
03 CABLE RUNWAY - BONDING AND BUTT SPLICE NOT TO SCALE



04 CABLE RUNWAY - JUNCTION AND BONDING NOT TO SCALE



05 RACK TO RUNWAY DETAIL NOT TO SCALE



07 TELECOMMUNICATION GROUNDING BUS DETAIL NOT TO SCALE

CONSULTANTS

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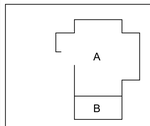

TOMBALL HIGH SCHOOL CTE & MISC. RENOVATIONS

TOMBALL INDEPENDENT SCHOOL DISTRICT
30330 QUIN ROAD, TOMBALL, TX 77375

ARCADIS
TEXAS ARCADIS INC.
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PROJECT #:	202311
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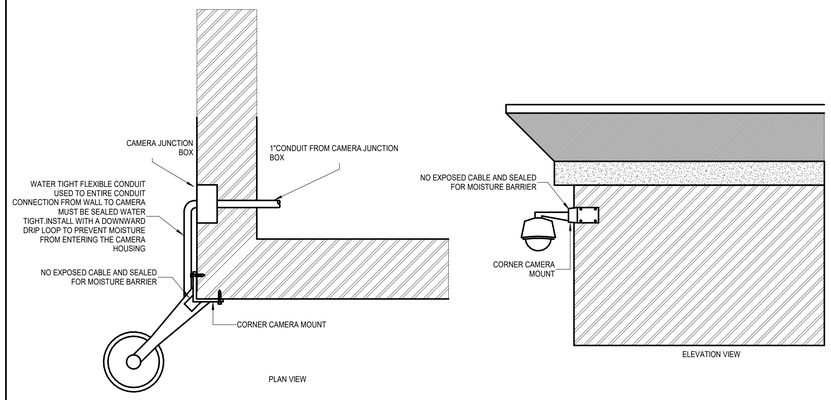
TECHNOLOGY DETAILS

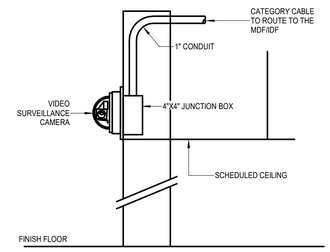
PLAN NORTH



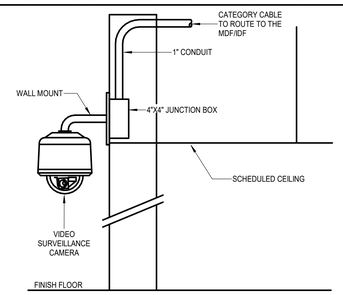
NOTE:

ELECTRICAL CONTRACTOR SHALL PROVIDE 1" CONDUIT WITH PULL STRING TO NEAREST AVAILABLE PLENUM SPACE. SECURITY CONTRACTORS SHALL PROVIDE CABLE FEED-THROUGH MOUNT FOR CAMERA. NO EXPOSED CABLE WILL BE ALLOWED. SECURITY CONTRACTOR TO COORDINATE MOUNTING HEIGHT WITH ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.

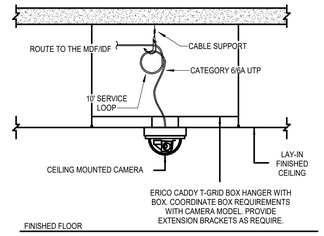
01 CORNER MOUNTING DETAIL — NOT TO SCALE



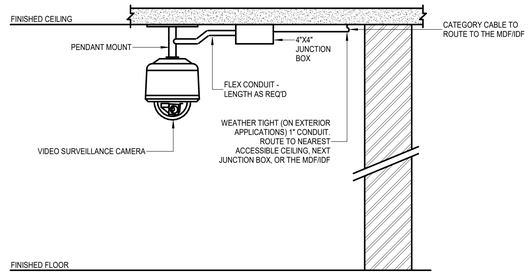
02 INTERIOR WALL MOUNT CAMERA-VERTICAL — NOT TO SCALE



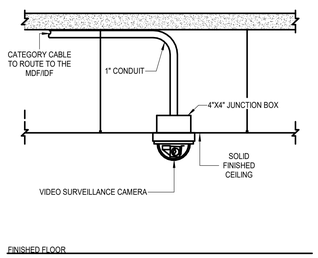
03 INTERIOR WALL MOUNTED DOME CAMERA — NOT TO SCALE



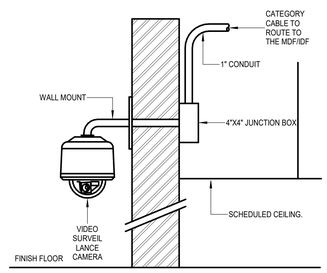
04 INTERIOR LAY-IN CEILING MOUNTED CAMERA — NOT TO SCALE



05 EXT./INT. PENDANT MOUNTED DOME CAMERA — NOT TO SCALE



06 EXTERIOR/INTERIOR SOLID CEILING MOUNT CAMERA — NOT TO SCALE



07 EXTERIOR WALL MOUNTED DOME CAMERA — NOT TO SCALE

GENERAL NOTES:

A. ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUITS AND BACK BOXES. CONDUITS SHALL ROUTE TO THE NEAREST, ACCESSIBLE PLENUM SPACE.

B. ALL WALL, CORNER, PENDANT, AND UNDER CANOPY MOUNTING HEIGHTS SHALL BE COORDINATED WITH THE OWNER AND SECURITY CONSULTANT PRIOR TO ROUGH-IN.

C. SECURITY CONTRACTOR SHALL PROVIDE CAMERAS, MOUNTING HARDWARE, AND ANY OTHER COMPONENTS AND/OR HARDWARE REQUIRED FOR A COMPLETE INSTALLATION.

D. REFERENCE VIDEO SURVEILLANCE CAMERA SCHEDULES, FLOOR PLANS, AND SPECIFICATIONS FOR ADDITIONAL INSTRUCTIONS.

E. CABLE FEED-THROUGH MOUNT FOR CAMERA. NO EXPOSED CABLE WILL BE ALLOWED. SECURITY CONTRACTOR TO COORDINATE MOUNTING HEIGHT WITH ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.

08 NOTES — NOT TO SCALE

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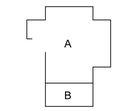

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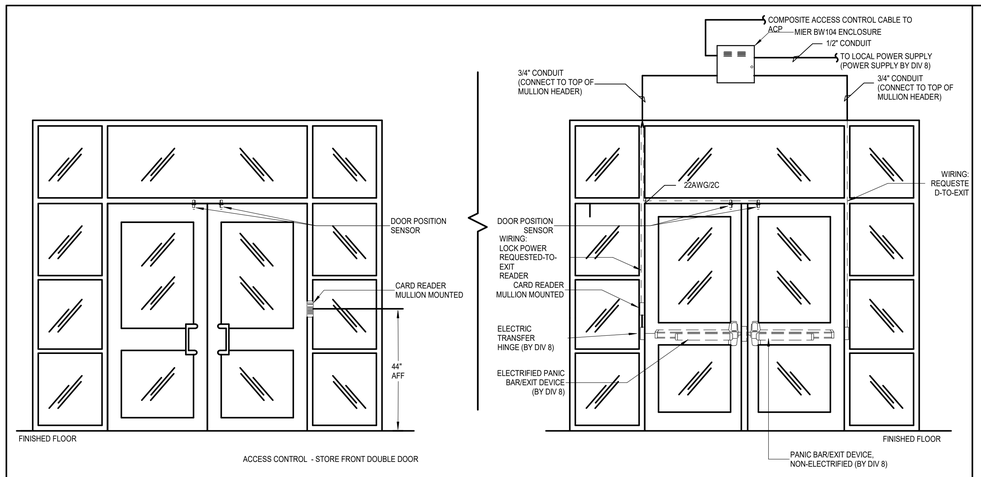
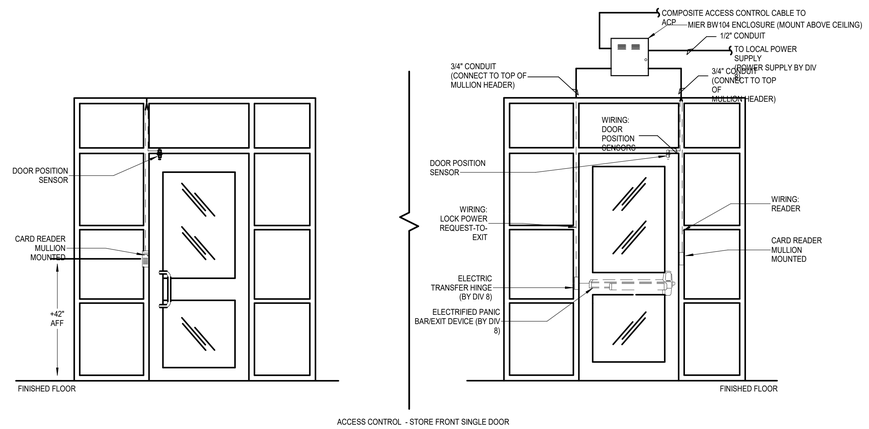
TECHNOLOGY DETAILS

PLAN NORTH



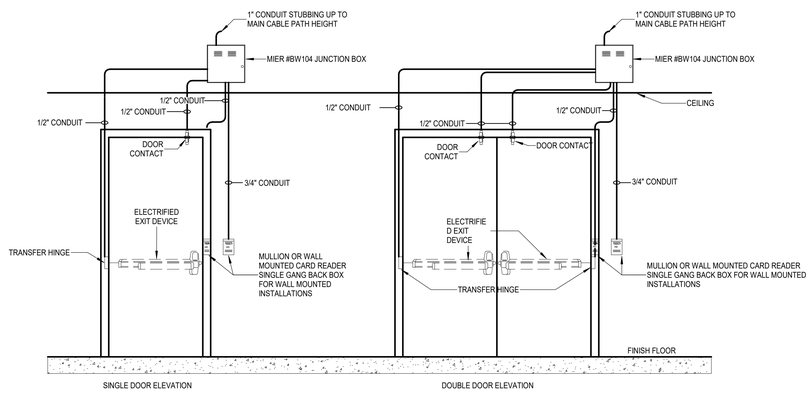
01 ACCESS CONTROL - STORE FRONT DOUBLE DOOR

NOT TO SCALE



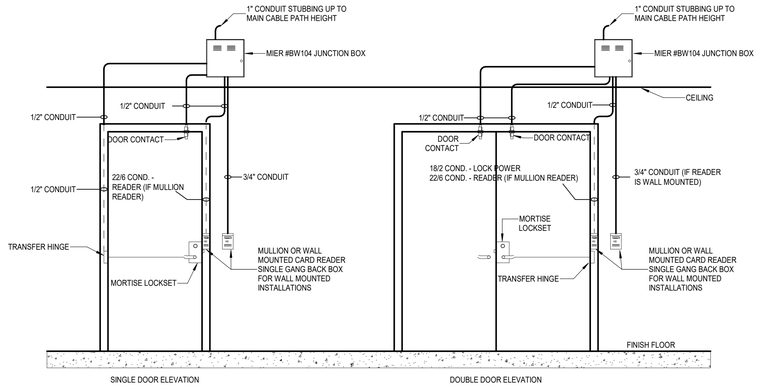
02 ACCESS CONTROL - STORE FRONT SINGLE DOOR

NOT TO SCALE



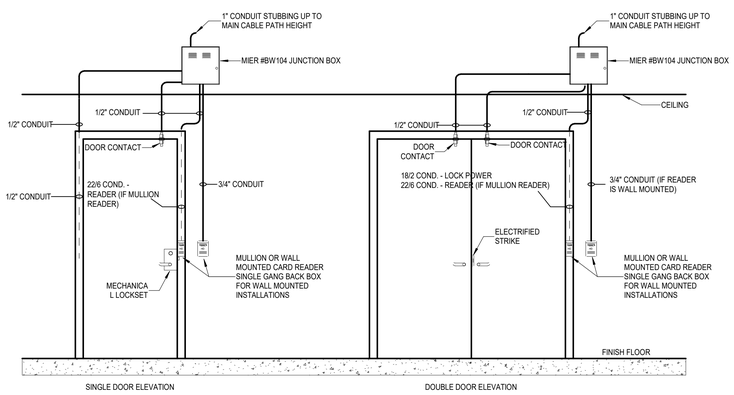
03 ACCESS CONTROL - EXIT DEVICE DOOR ELEVATION

NOT TO SCALE



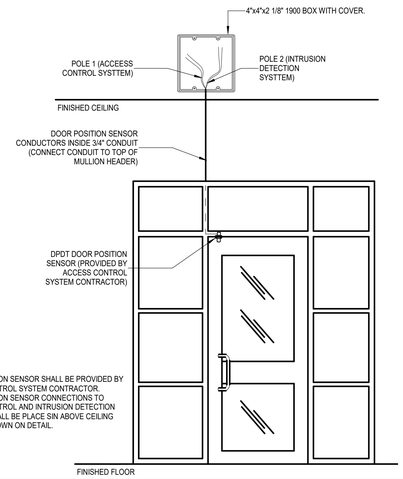
04 ACCESS CONTROL - MORTISE LOCK DOOR ELEVATION

NOT TO SCALE



05 ACCESS CONTROL - ELECTRIFIED STRIKE DOOR ELEVATION

NOT TO SCALE



NOTES:

1. DOOR POSITION SENSOR SHALL BE PROVIDED BY ACCESS CONTROL SYSTEM CONTRACTOR.
2. DOOR POSITION SENSOR CONNECTIONS TO ACCESS CONTROL AND INTRUSION DETECTION SYSTEMS SHALL BE PLACE SIN ABOVE CEILING 1900 BOX SHOWN ON DETAIL.

06 DOOR POSITION SENSOR ELEVATION

NOT TO SCALE

CONSULTANTS

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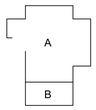

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TECHNOLOGY DETAILS

PLAN NORTH