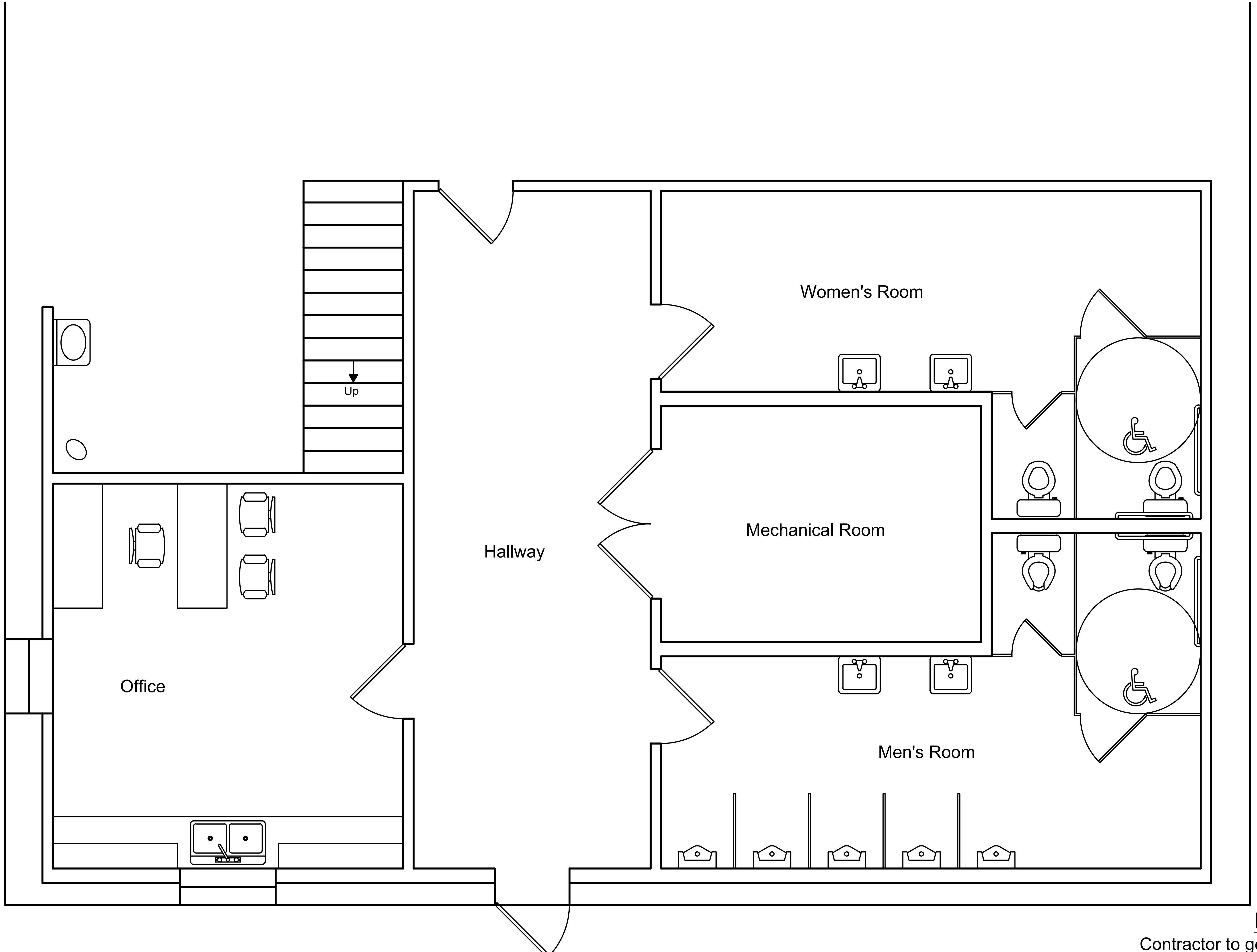


Scale : $\frac{1}{4}$"=1'-0"

Note

Contractor to generate material list.
DD6 will purchase all material

PROJECT LOCATION

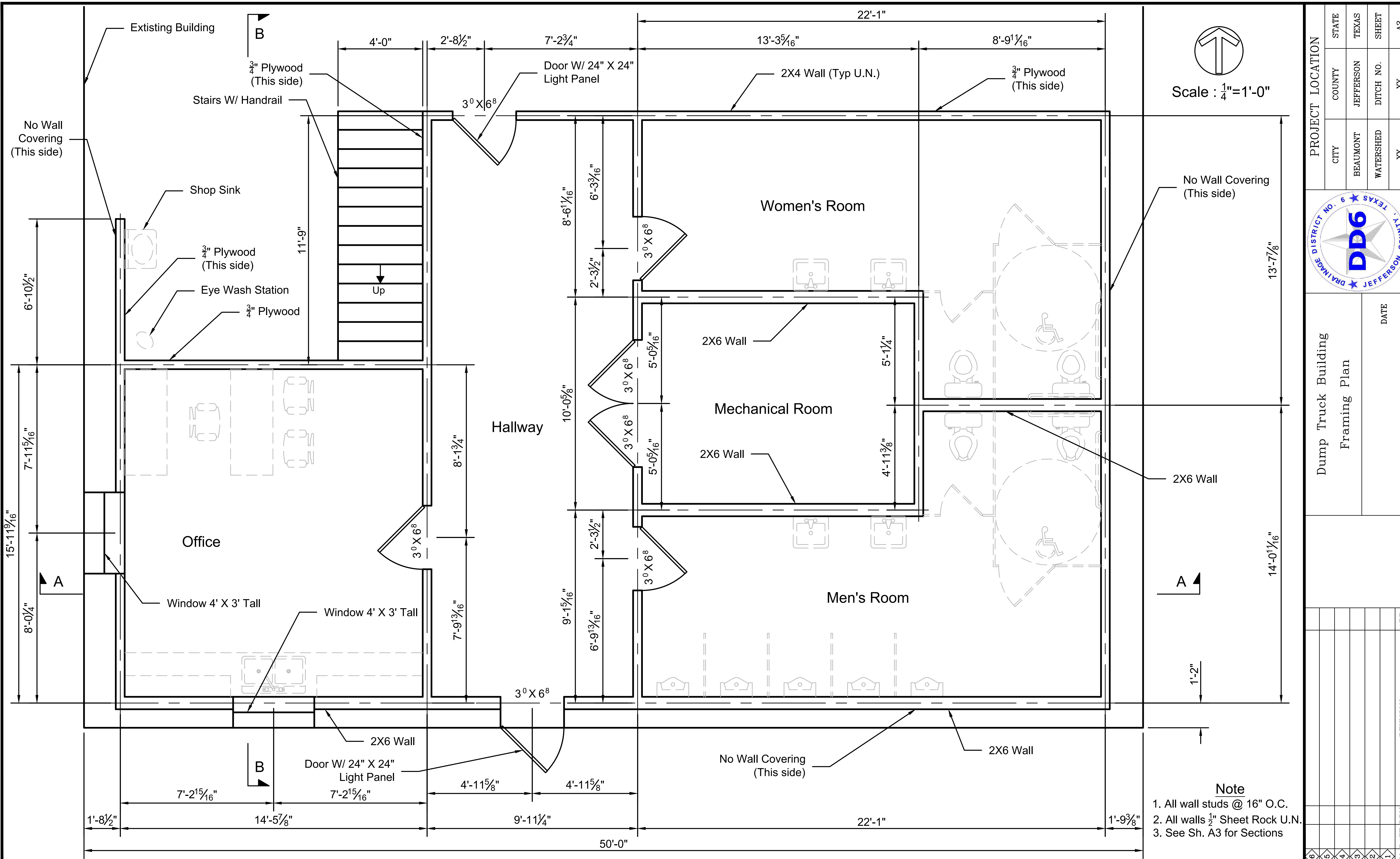
STATE	TEXAS	SHEET	A1
COUNTY	JEFFERSON	DITCH NO.	XX
CITY	BEAUMONT	WATERSHED	XX

DRAINAGE DISTRICT NO. 6 ★ TEXAS, JEFFERSON COUNTY ★ DD6

Dump Truck Building
Floor Plan

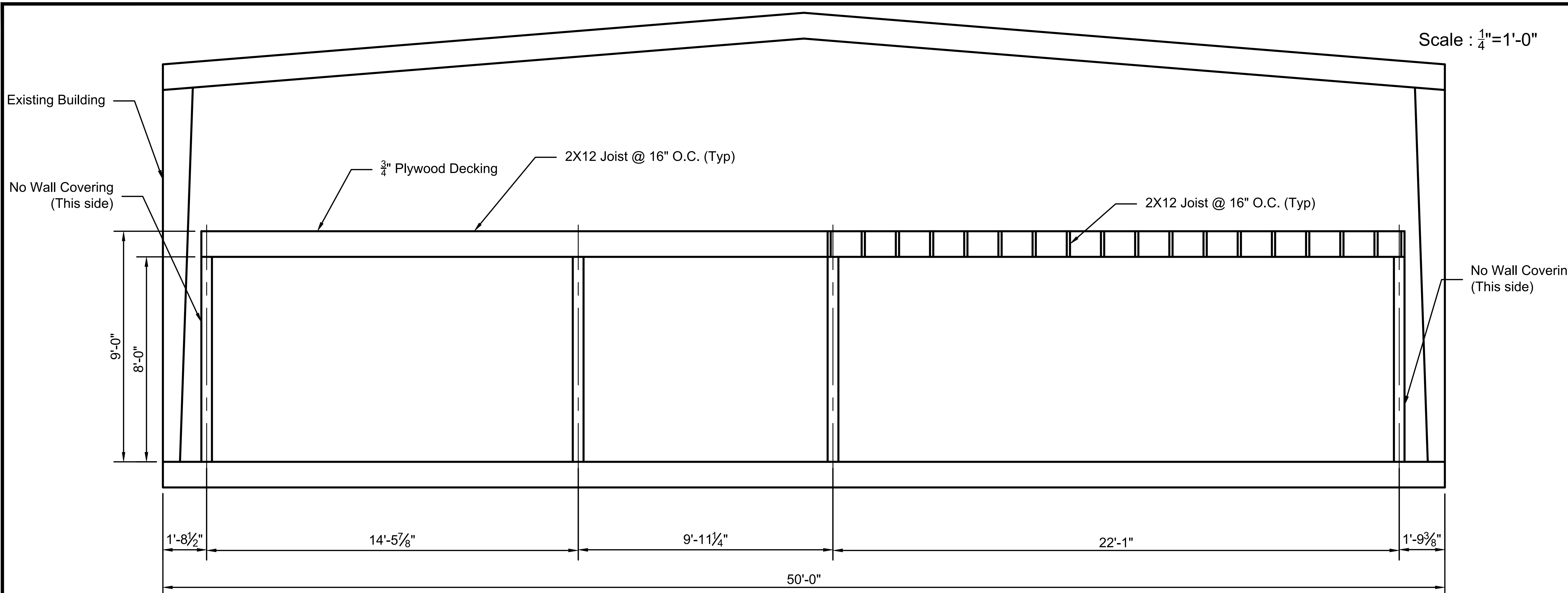
DATE

NO.	DATE	DRN	REVISION	APP.
1				
2				
3				
4				
5				
6				

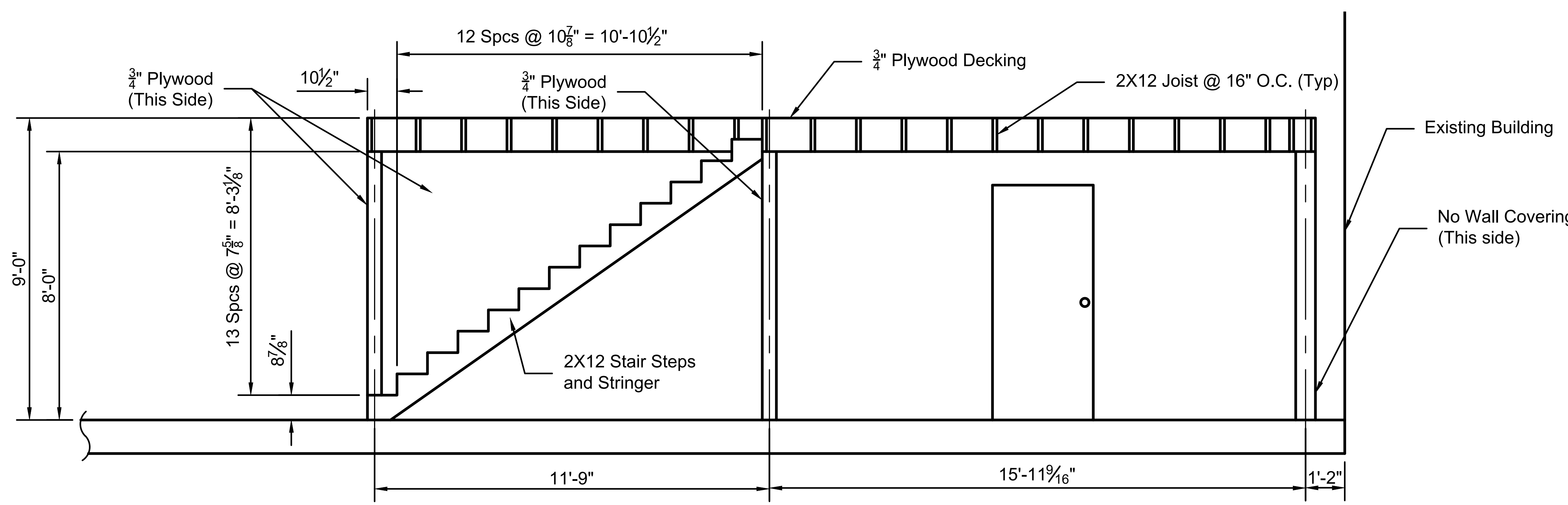


Existing Building
B
4'-0"
2'-8½"
7'-2¾"
22'-1"
13'-3⁵⁄₁₆"
8'-9¹¹⁄₁₆"
¾" Plywood (This side)
Door W/ 24" X 24" Light Panel
2X4 Wall (Typ U.N.)
¾" Plywood (This side)
Scale : ¼"=1'-0"
Stairs W/ Handrail
3⁰X6⁸
No Wall Covering (This side)
Shop Sink
¾" Plywood (This side)
Eye Wash Station
¾" Plywood
Up
11'-9"
6'-10½"
8'-6¹¹⁄₁₆"
6'-3¾"
2'-3½"
Women's Room
3⁰X6⁸
No Wall Covering (This side)
13'-7⅛"
2X6 Wall
5'-0⁵⁄₁₆"
5'-1¼"
Mechanical Room
10'-0⅝"
Hallway
2X6 Wall
4'-11⅜"
7'-11⁵⁄₁₆"
8'-1¾"
15'-11⁹⁄₁₆"
2X6 Wall
Office
2'-3½"
14'-0¹¹⁄₁₆"
A
A
Window 4' X 3' Tall
Window 4' X 3' Tall
8'-0¼"
7'-9¹³⁄₁₆"
9'-1⁵⁄₁₆"
6'-9¹³⁄₁₆"
Men's Room
1'-2"
3⁰X6⁸
2X6 Wall
2X6 Wall
Door W/ 24" X 24" Light Panel
No Wall Covering (This side)
B
7'-2¹⁵⁄₁₆"
7'-2¹⁵⁄₁₆"
4'-11⅝"
4'-11⅝"
1'-8½"
14'-5⅞"
9'-11¼"
22'-1"
1'-9⅜"
50'-0"
Note
1. All wall studs @ 16" O.C.
2. All walls ½" Sheet Rock U.N.
3. See Sh. A3 for Sections
PROJECT LOCATION
STATE TEXAS
SHEET A2
COUNTY JEFFERSON
DITCH NO. XX
CITY BEAUMONT
WATERSHED XX
DRAINAGE DISTRICT NO. 6 TEXAS JEFFERSON COUNTY
DD6
Dump Truck Building Framing Plan
DATE
APP.
REVISION
NO. DATE DRN.

Scale : $\frac{1}{4}$"=1'-0"



Section A-A



Section B-B

PROJECT LOCATION

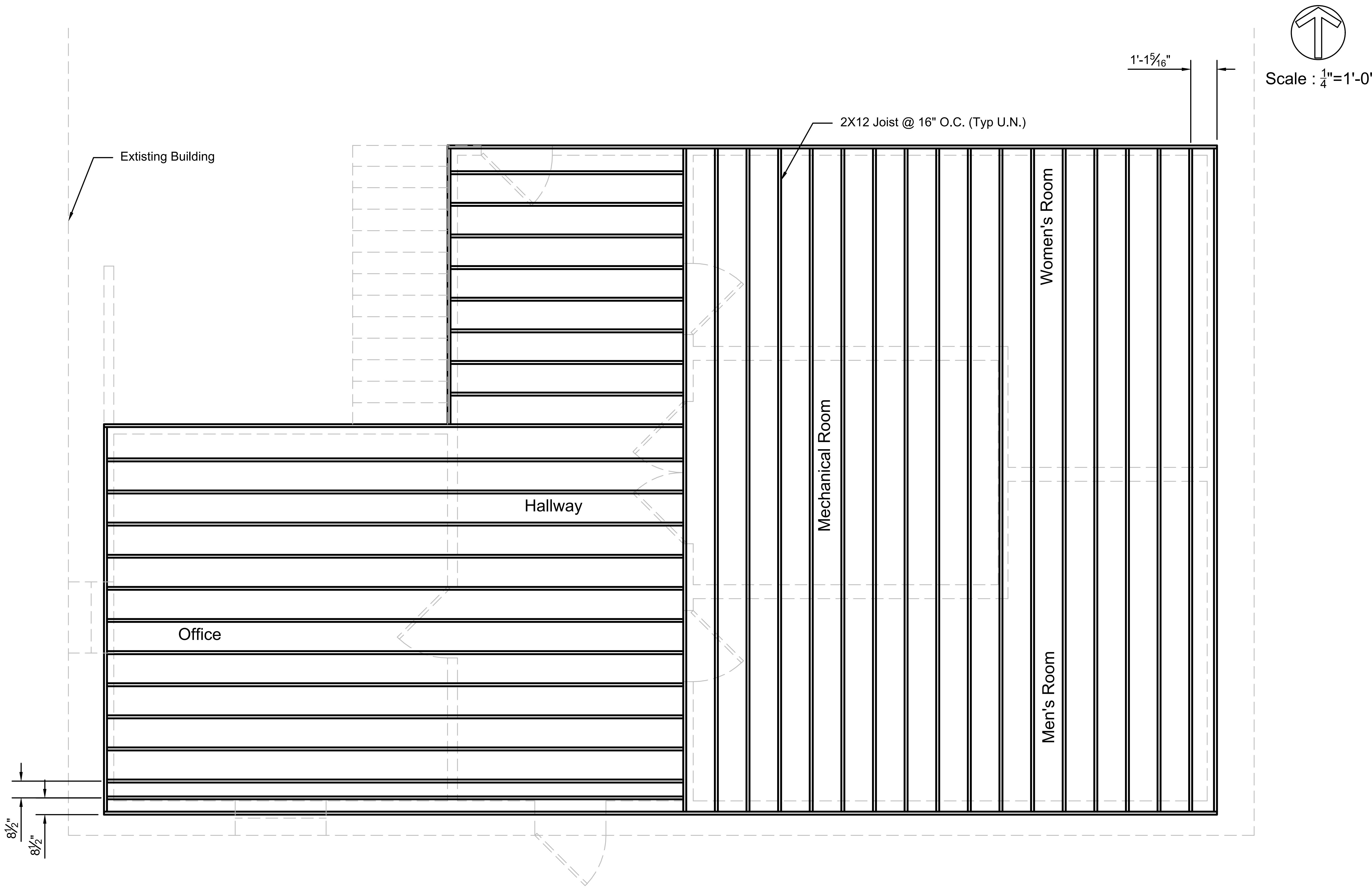
STATE	TEXAS	SHEET	A3
COUNTY	JEFFERSON	DITCH NO.	XX
CITY	BEAUMONT	WATERSHED	XX

DRAINAGE DISTRICT NO. 6 ★ TEXAS ★ JEFFERSON COUNTY
DD6

Dump Truck Building
Section Views

DATE

NO.	DATE	DRN	REVISION	APP.
6				
5				
4				
3				
2				
1				



PROJECT LOCATION

STATE	TEXAS	SHEET	A4
COUNTY	JEFFERSON	DITCH NO.	XX
CITY	BEAUMONT	WATERSHED	XX

Dump Truck Building
Ceiling/2nd Floor Joist Layout

DATE

NO.	DATE	DRN	REVISION	APP.
1				
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ELECTRICAL SYMBOLS

1 / E-1	REFERENCE TO DETAIL AND SHEET NUMBER
	FLUSH MOUNTED PANEL
	SURFACE MOUNTED PANEL
	EQUIPMENT SUPPLIED BY DIVISION 16
	EQUIPMENT SUPPLIED BY OTHER DIVISIONS
	FLUORESCENT LIGHT FIXTURE
	EMERGENCY FLUORESCENT LIGHT FIXTURE
	CEILING/CANOPY MOUNTED LIGHT FIXTURE
	WALL MOUNTED LIGHT FIXTURE
	CEILING MOUNTED EXIT LIGHT FIXTURE
	WALL MOUNTED EXIT LIGHT FIXTURE
	NEUTRAL CONDUCTOR
	PHASE CONDUCTOR
	GROUND CONDUCTOR
	SWITCH LEG AND/OR BRANCH CIRCUIT
	BRANCH CIRCUIT
	HOME RUN TO PANELBOARD
— UOF —	UNDERGROUND OPTIC FIBER
—UEF—	UNDERGROUND ELECTRICAL FEEDER
— EC —	EMPTY CONDUIT
—UEP—	UNDERGROUND ELECTRICAL PRIMARY
—OEP—	OVERHEAD ELECTRICAL PRIMARY
— FC —	FUTURE CONDUIT
$	SWITCH, 48" AFF
$3	THREE-WAY SWITCH, 48" AFF
D$3	THREE-WAY DIMMER SWITCH, 48" AFF
D$OS	OCCUPANCY SENSOR DIMMER SWITCH, 48" AFF
$OS	OCCUPANCY SENSOR SWITCH WITH OVER RIDE 48" AFF GREENGATE DUAL TECH ONW-D
OS$3	3-WAY OCCUPANCY SENSOR SWITCH WITH OVER RIDE 48" AFF, GREENGATE DUAL TECH ONW-D
$DS	GREENGATE DIGITAL SWITCH, 48" AFF
$P	SWITCH WITH PILOT LIGHT, 48" AFF
$4	FOUR-WAY SWITCH, 48" AFF
$D	DIMMER SWITCH, 48" AFF
$K	KEY SWITCH, 48" AFF
$3K	THREE-WAY KEY SWITCH, 48" AFF
$M	MOTOR RATED SWITCH
OS	CEILING MOUNTED OCCUPANCY SENSOR EQUAL TO GREENGATE OAC-DT DUAL TECH. OXC-P-2MHO-R
PC	LOW VOLTAGE PHOTOCELL GREENGATE DLC-PD-OT
PP	EATON SP20-RD4-120/277 HEAVY DUTY SWITCHPACK POWER PACK
$MS	MOMENTARY OVERRIDE SWITCH GMDS-W
OS LV	EATON LINE VOLTAGE CEILING OCCUPANCY SENSOR OAC-U-M-MICROSET ULTRASONIC
	MOTOR
	DISCONNECT SWITCH
	MOTOR STARTER
	COMBINATION MOTOR STARTER/DISC. SWITCH
	DUPLEX RECEPTACLE. 18" AFF
S	DUPLEX RECEPTACLE. 18" AFF (DEDICATED FOR SOUND SYSTEM)
00"	DUPLEX RECEPTACLE WITH MOUNTING HEIGHT
IG	ISOLATED GROUND DUPLEX RECEPTACLE
WP	WEATHER PROOF DUPLEX RECEPTACLE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER DUPLEX RECEPTACLE
C	CEILING MOUNTED DUPLEX RECEPTACLE
F	FLOOR MOUNTED DUPLEX RECEPTACLE
	DOUBLE DUPLEX RECEPTACLE
IG	ISOLATED GROUND DOUBLE DUPLEX RECEPTACLE
	FLOOR MOUNTED DOUBLE DUPLEX RECEPTACLE
	PEDESTAL MOUNTED DUPLEX RECEPTACLE
	SPECIAL PURPOSE CONNECTION/OUTLET
	SINGLE SPECIAL PURPOSE RECEPTACLE, 18" AFF
J	JUNCTION BOX
J 00"	JUNCTION BOX WITH MOUNTING HEIGHT
C	CEILING MOUNTED CAMERAS
	TELEPHONE ADMINISTRATIVE HANDSET
	DATA OUTLET, 18" AFF
2	DATA OUTLET WITH NUMBER OF CABLE DROPS, 18" AFF
00"	DATA OUTLET WITH MOUNTING HEIGHT COMBINATION OF DATA AND VIDEO OUTLETS, 18" AFF
2	DATA/VOICE OUTLET WITH NUMBER OF CABLE DROPS, 18" AFF
	DATA/VOICE OUTLET, 18" AFF
00"	DATA/VOICE OUTLET WITH MOUNTING HEIGHT
WA	WIRELESS ACCESS POINTS
CB	INTERCOM CALL BUTTON/PHONE, 48" AFF
ML	MAG LOCKS
PB	PUSH BUTTON DOOR RELEASE
GB	GLASS BREAK DETECTION
MD	MOTION DETECTOR
S	CEILING MOUNTED SPEAKER
S 00"	WALL MOUNTED SPEAKER WITH MOUNTING HEIGHT
S 00"	WALL MOUNTED WEATHERPROOF SPEAKER, 168" AFF
S	CEILING MOUNTED LOCAL SOUND REINFORCEMENT CLUSTER SPEAKER
G	FIRE ALARM PULL STATION WITH GUARD, 48" AFF
F	FIRE ALARM AUDIO/VISUAL DEVICE, 80" AFF
F	CEILING MOUNTED FIRE ALARM AUDIO/VISUAL DEVICE
V	FIRE ALARM VISUAL DEVICE, 80" AFF
V	CEILING MOUNTED FIRE ALARM VISUAL DEVICE
	CEILING MOUNTED HEAT DETECTOR
	CEILING MOUNTED SMOKE DETECTOR
G	CEILING MOUNTED SMOKE DETECTOR WITH GUARD
SD	DUCT MOUNTED SMOKE DETECTOR
F	FIRE ALARM EXTERIOR HORN, 108" AFF
R	FIRE ALARM SHUT DOWN RELAY
KB	FIRE ALARM KNOX BOX, 48" AFF
M	FLOOR MOUNTED MICROPHONE
PB	DOOR BELL PUSH BUTTON SWITCH, 48" AFF
B	DOOR BELL CHIMES, 90" AFF

GENERAL NOTES

1. PERFORM INSTALLATION IN ACCORDANCE WITH THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), THE OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA), AND APPLICABLE LOCAL ORDERS. EQUIPMENT SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL).
2. PROVIDE AND MAINTAIN A CLEAR WORKING SPACE ABOUT ELECTRIC EQUIPMENT (SWITCHBOARDS,PANELBOARDS, ETC.) IN ACCORDANCE WITH NEC ARTICLES 110.26 AND 110.34.
3. USE 600 VAC CIRCUIT BREAKERS IN 480V AND 480Y/277V SWITCHBOARDS, PANELBOARDS AND MOTOR CONTOL CENTERS.
4. PROVIDE CIRCUIT BREAKERS WITH UL LISTED INTERRUPTING RATING (RMS SYMMETRICAL AMPERES) GREATER THAN THE AVAILABLE FAULT CURRENT SHOWN ON THE ELECTRICAL DRAWINGS AND OR IN COMING RATING.
5. PROVIDE PADLOCKING PROVISIONS FOR EACH TWO- AND THREE-POLE CIRCUIT BREAKER.
6. BOND RACEWAYS AND THE FRAMES AND ENCLOSURES OF MOTORS, BREAKERS, SWITCHES, AND OTHER ELECTRICAL EQUIPMENT TO THE BUILDING GROUNDING SYSTEM. INSTALL AN INSULATED EQUIPMENT GROUND CONDUCTOR IN EACH RACEWAY OR CONDUIT. SIZE EQUIPMENT GROUND CONDUCTOR IN ACCORDANCE WITH NEC TABLE 250.122.
7. IDENTIFY NEW BRANCH CIRCUITS AT THE PANEL AND AT THE LOAD OUTLET, RECEPTACLE AND SWITCH. IDENTIFY THE PURPOSE OF INDIVIDUAL CIRCUIT BREAKERS, SAFETY SWITCHES AND MOTOR STARTERS BY MEANS OF NAMEPLATES AS INDICATED.
8. ROUTE CONDUITS TO SUIT EQUIPMENT AND BUILDING STRUCTURE. LIMIT THE USE OF ELECTRICAL METALLIC TUBING (EMT) TO AREAS WHERE IT WILL NOT BE SUBJECT TO PHYSICAL DAMAGE OR CORROSION. USE INTERMEDIATE METAL CONDUIT (IMC) OR RIGID GALVANIZED STEEL CONDUIT (RGS) FOR WORK EMBEDDED IN CONCRETE OR EXPOSED TO PHYSICAL DAMAGE. USE MINIMUM 3/4 INCH CONDUIT EXCEPT AS FOLLOWS: 1/2" CONDUIT MAY BE USED FOR 20 AMP GENERAL LIGHT AND POWER CIRCUITS AND FOR CONTROL CIRCUITS; 3/8" FLEXIBLE METAL CONDUIT MAY BE USED TO CONNECT LIGHT FIXTURES IN SUSPENDED CEILINGS. USE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR FLEXIBLE CONNECTIONS TO EQUIPMENT IN MECHANICAL ROOMS OR OUTDOORS. FLEXIBLE CONDUIT SHALL NOT BE USED FOR HOME RUNS OR BRANCH CIRCUITS, FOR FIXTURE USE ONLY WITH IN 6 FOOT LENGTHS.
9. SEAL AROUND CONDUIT PENETRATIONS THROUGH INTERIOR WALLS AND FLOORS SEPARATING AREAS TO RESTORE ORIGINAL FIRE RATING; USE A UL CLASSIFIED FIRE SEALANT. SEAL PENETRATIONS THROUGH ROOF AND EXTERIOR WALLS TO MAKE WATERPROOF. REQUEST INSPECTION OF FIRE SEALS BY ELECTRICAL INSPECTOR FROM AUTHORITY HAVING JURISDICTION BEFORE AND AFTER PLACEMENT OF FIRE SEAL MATERIALS.
10. USE 12 AWG OR LARGER CONDUCTORS FOR POWER WIRING. USE 14 AWG STRANDED CONDUCTORS FOR CONTROL WIRING UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS.
11. ARRANGE CONNECTIONS FOR SINGLE PHASE CIRCUITS TO ACHIEVE THREE PHASE LOAD BALANCE WITHIN 20% OF THE AVERAGE PHASE LOAD CURRENT. UNGROUNDED CONDUCTORS USING A COMMON NEUTRAL MUST ORIGINATE FROM DIFFERENT PHASES.
12. TEST CONDUCTORS FOR CONTINUITY AND FREEDOM FROM SHORTS AND UNINTENTIONAL GROUNDS.
13. REPAIR AREAS DAMAGED DURING CONSTRUCTION TO MATCH ADJACENT AREAS WITH RESPECT TO BOTH COLOR AND FINISH.
14. KEEP JOB SITE IN AN ORDERLY CONDITION AND AT PROJECT COMPLETION, REMOVE ALL WASTE. LEAVE THE JOB SITE IN A CONDITION ACCEPTABLE TO THE OWNER AND CONSTRUCTION MANAGER.
15. IF A CONFLICT ARISES BETWEEN THE FIELD CONDITIONS AND THESE GENERAL ELECTRICAL REQUIREMENTS, CONTACT THE PROJECT LEADER FOR DIRECTIONS.
16. COORDINATE ALL WORK WITH OTHER TRADES.
17. SEE ARCHITECTS DRAWINGS FOR EXACT LOCATION OF ALL LIGHT FIXTURES.
18. ELECTRICAL CONTRACTOR TO MAKE ALL FINAL ELECTRICAL CONNECTIONS TO ELECTRICAL AND MECHANICAL EQUIPMENT.
19. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL MOTOR STARTERS AND THERMAL UNITS EXCEPT THOSE FURNISHED AS PART OF PACKAGED AIR CONDITIONING EQUIPMENT.
20. CONTRACTOR SHALL INSTALL RIGID METAL CONDUIT WRAPPED WITH 3-M CORROSIVE RESISTANT TAPE WHEN CONVERTING FROM UNDERGROUND OR UNDER SLAB PVC CONDUIT TO ABOVE GROUND METAL CONDUIT.

ELECTRICAL NOTES

E1 COORDINATE EXACT LOCATION OF ALL LIGHT FIXTURES WITH ACTUAL CEILING GRID/GYP BOARD SYSTEMS AND STRUCTURES. REFERENCE ARCHITECTURAL REFLECTED CEILING/STRUCTRAL PLAN, SECTIONS AND ELEVATIONS.

E2 EXHAUST FANS SUSPENDED ABOVE REST ROOMS PLATFORM AREA. VERIFY EXACT LOCATION WITH DIV.15 EXHAUST FANS TO OPERATE WITH TOILET LIGHTING OC-SENSORS SWITCHING VERIFY EXACT INSTALLATION REQUIREMENTS BEFORE INSTALLING.

E3 ROUGH-IN AND MAKE FINAL CONNECTIONS TO EQUIPMENT SPECIFIED IN OTHER DIVISIONS, OR FURNISHED BY OWNER. FIELD CONFIRM WITH EQUIPMENT SUPPLIER OR INSTALLER EXACT REQUIREMENTS PRIOR TO BIDDING AND INSTALLATIONS.

E4 INSTALL HAND DRYER TYPE EXCEL MODEL XLERATOR XL-W (WHITE) 1500WATT 120V. USE FLEXIBLE TYPE CONDUIT WITH REMOVABLE TYPE CONDUCTORS ROUTE FROM JUNCTION BOX ABOVE WALL TO BACK OF HAND DRYER. FLEXIBLE TYPE CONDUIT WITH NON-REMOVEABLE CONDUCTORS NOT ACCEPTABLE. VERIFY EXACT COLOR AND MOUNTING REQUIREMENTS WITH ARCHITECT.

E5 FURNISH AND INSTALL GREENGATE RELAY CONTROL PANEL WITH PHOTO CONTROL TO OPERATE EXTERIOR LIGHTING. REFERENCE LIGHTING PANELS FOR CIRCUITS TO ROUTE THROUGH RELAY PANELS INDICATED. INSTALL PHOTO ELECTRIC CONTROLS AT 11'-0" AFF OR AS REQUIRED TO FACE NORTH. PHOTO ELECTRIC CONTROL TO OPERATE WITH RELAY PANEL.

E6 VERIFY EXACT LOCATION AND REQUIREMENTS OF FIRE ALARM CONTROL PANEL WITH FIRE ALARM SYSTEM INSTALLER BEFORE INSTALLING POWER AND CONDUIT SYSTEM. FIRE ALARM SYSTEM INSTALLER TO PROVIDE FIRE ALARM CONTROL PLANS INDICATING A COMPLETE FIRE ALARM CONTROL SYSTEM WITH BID TO GENERAL CONTRACTOR INCLUDING REQUIRED ADDITIONAL BOXES AND CONDUIT SYSTEM. PLANS TO BE PROVIDED TO THE COUNTY FOR APPROVAL. FIRE ALARM CONTROL PANEL TO BE TYPE SEIMENS.

E7 ALL EXHAUST FANS (120V/1ø) ARE SPECIFIED WITH FACTORY INSTALLED DISCONNECT SAFETY SWITCH MOTOR STARTERS ARE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. THERMOSTATS, FAN INTERLOCKS AND HVAC CONTROLS ARE ALL PROVIDED AND INSTALLED UNDER DIVISION 15. CONFIRM WITH DIVISION 15 AND MECHANICAL SCHEDULES.

E8 ALL LOCATIONS OF ELECTRICAL AND TECHNOLOGY DEVICES MUST BE CONFIRM WITH ARCHITECTURAL SECTIONS, ELEVATIONS, MILLWORKS AND CASEWORK PRIOR TO MAKE FINAL INSTALLATIONS. ALL CHANGES DUE TO CONFLICT OF LOCATIONS AND/OR LACK OF ARCHITECTURAL SHEETS COORDINATION SHALL BE MADE WITHOUT ADDITIONAL

E9 COORDINATE AND CONFIRM HORSEPOWER RATING OF ALL MECHANICAL EQUIPMENT WITH DIVISION 15 MECHANICAL SCHEDULES PRIOR TO ORDERING AND INSTALLATIONS OF DISCONNECT SAFETY SWITCHES, MOTOR STARTERS OR COMBINATION MOTOR STARTERS, BREAKERS/CONDUCTORS AND CONDUIT.

E10 ALL CONDUIT PENETRATIONS AT FIRE RATED WALLS MUST BE PROVIDED WITH SCHEDULE 40 GALVANIZED CONDUIT SLEEVE SECURED TO PARTITION WITH GROUT AND CAULK ANNULAR SPACE BETWEEN CONDUIT AND SLEEVE WITH FIRE RETARDANT SEALANT. WHERE CONDUIT IS EXPOSED AT FINISHED WALLS, PROVIDE FLUSH MOUNTED SLEEVE AND STAINLESS STEEL ESCUTCHEON PLATES. AT NON-FIRE RATED INTERIOR WALLS, CAULK ANNULAR SPACE BETWEEN CONDUIT AND SLEEVE WITH 1 LB. DENSITY FIBERGLASS AND SEAL ENDS WITH DOW CORNING 732 RTV.

E11 PRIOR TO SUBMITTING A BID FOR THE SPECIFIED WORK, THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE TO IDENTIFY ALL EXISTING CONDITIONS AFFECTING INSTALLATION OF NEW ELECTRICAL SYSTEM.

E12 ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND SHALL BE FOLLOWED AS CLOSELY AS THE ACTUAL CONSTRUCTION WILL PERMIT. DETAILS ARE SUBJECT TO THE REQUIREMENTS OF ORDINANCES, STRUCTURAL AND ARCHITECTURAL CONDITIONS. CAREFULLY COORDINATE EXISTING CONDITIONS WITH NEW INSTALLATION OF ELECTRICAL WORK AND FURNISH ALL FITTINGS AND ACCESSORIES REQUIRED TO GIVE SATISFACTORY OPERATION.

E13 ALL ELECTRICAL SYSTEM INSTALLATIONS SHALL COMPLY WITH THE MOST RECENT VERSIONS OF THE NATIONAL ELECTRICAL CODE, LOCAL CODES AND ALL APPLICABLE LAWS, RULES, REGULATIONS AND ORDINANCES OF ALL GOVERNING CODES AND AUTHORITIES.

E14 INSTALL HUBBELL PG STYLE 24"X36" PULL BOX WITH CASKETED TRACTOR GRADE COVER PLATE OR EQUAL. REFERENCE SHEET ES-1 FOR LOCATION OF PULL BOXES.

E15 COORDINATE WITH ENTERGY AT 1-800-840-4478 FOR UTILITY COMPANY REQUIREMENTS RELATED TO NEW UNDERGROUND ELECTRICAL SECONDARY SERVICE ENTRANCE AND SERVICE RACK REQUIREMENTS. OWNER WILL PAY ANY FEES PAYABLE TO ENTERGY. REQUEST FOR THIS WORK MUST BE SUBMITTED AT LEAST TWO WEEKS PRIOR TO WHEN WORK IS TO BEGIN.

ELECTRICAL ABBREVIATIONS

1PH	SINGLE-PHASE	FACP	FIRE ALARM CONTROL PANEL	RCP	REFLECTED CEILING PLAN
1P	SINGLE POLE	FLA	FULL LOAD AMPS	RECPT	RECEPTACLE
3PH	THREE-PHASE	FLEX	FLEXIBLE METALLIC CONDUIT	RM	ROOM
4W	FOUR-WIRE	FLUOR	FLUORESCENT	SD	SMOKE DETECTOR
A/C UNIT	AIR CONDITIONING UNIT	G OR GND	GROUND	TC	TIME CLOCK
A/E	ARCHITECT/ENGINEER	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TEL	TELEPHONE
AC	ALTERNATING CURRENT OR ARMORED CABLE	HID	HIGH INTENSITY DISCHARGE	TYP	TYPICAL
		HP	HORSEPOWER	V	VOLT
ACC	ACCESSIBLE	HZ	HERTZ	VA	VOLT AMPERE
AFF	ABOVE FINISHED FLOOR	J-BOX	JUNCTION BOX	WP	WEATHERPROOF
AFG	ABOVE FINISHED GRADE	MCA	MINIMUM CIRCUIT AMPS	XFMR	TRANSFORMER
AHJ	AUTHORITIES HAVING JURISDICTION	MCB	MAIN CIRCUIT BREAKER	A	AMPERES
AIC	AMPERE INTERRUPTING CAPACITY	DPL	DISTRIBUTION PANEL LOW VOLTAGE	AIC	AMPS INTERRUPTING CURRENT
ALT	ALTERNATE	MECH	MECHANICAL	AFF	ABOVE FINISH FLOOR
AMP	AMPERE	MOCP	MAXIMUM OVERCURRENT PROTECTION	C	CONDUIT
ARCH	ARCHITECT	MLO	MAIN LUGS ONLY	CU	COPPER
CLG	CEILING	NEC	NATIONAL ELECTRICAL CODE	SACP	SECURITY ALARM CONTROL PANEL
GC	GENERAL CONTRACTOR	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION	IG	ISOLATED GROUND
CKT	CIRCUIT			KVA	KILOVOLT-AMPS
DWG	DRAWING	NEUT OR N	NEUTRAL	MCB	MAIN CIRCUIT BREAKER
DW	DISHWASHER	NFPA	NATIONAL FIRE PROTECTION	MLO	MAIN LUGS ONLY
E.C.	ELECTRICAL CONTRACTOR	NTS	NOT TO SCALE	FD	FUSED DISCONNECT/ SAFETY SWITCH
ELEC	ELECTRIC OR ELECTRICAL	PC	PHOTOELECTRIC CELL	NFD	NON-FUSED DISCONNECT/ SAFETY SWITCH
ELEV	ELEVATOR	UPDC	UNDERGROUND PHONE/DATA CONDUIT	ø	PHASE
EMT	ELECTRICAL METALLIC TUBING	UOF	UNDERGROUND OPTIC FIBER	UC	UNDER COUNTER
ENCL	ENCLOSURE	UEF	UNDERGROUND ELECTRICAL FEEDER		
WH	WATER HEATER	PED	PEDESTAL		
EXIST OR EX	EXISTING	PH	PHASE		
		PNL	PANEL		
		REM	REMAIN		

PROJECT LOCATION

STATE	TEXAS	SHEET	E1
COUNTY	JEFFERSON	DITCH NO.	XX
CITY	BEAUMONT	WATERSHED	XX

DRAINAGE DISTRICT NO. 6 ★ TEXAS ★ JEFFERSON COUNTY DD6

Dump Truck Building
Electrical Notes

DATE

NO.	DATE	DRN	REVISION	APP.
1				
2				
3				
4				
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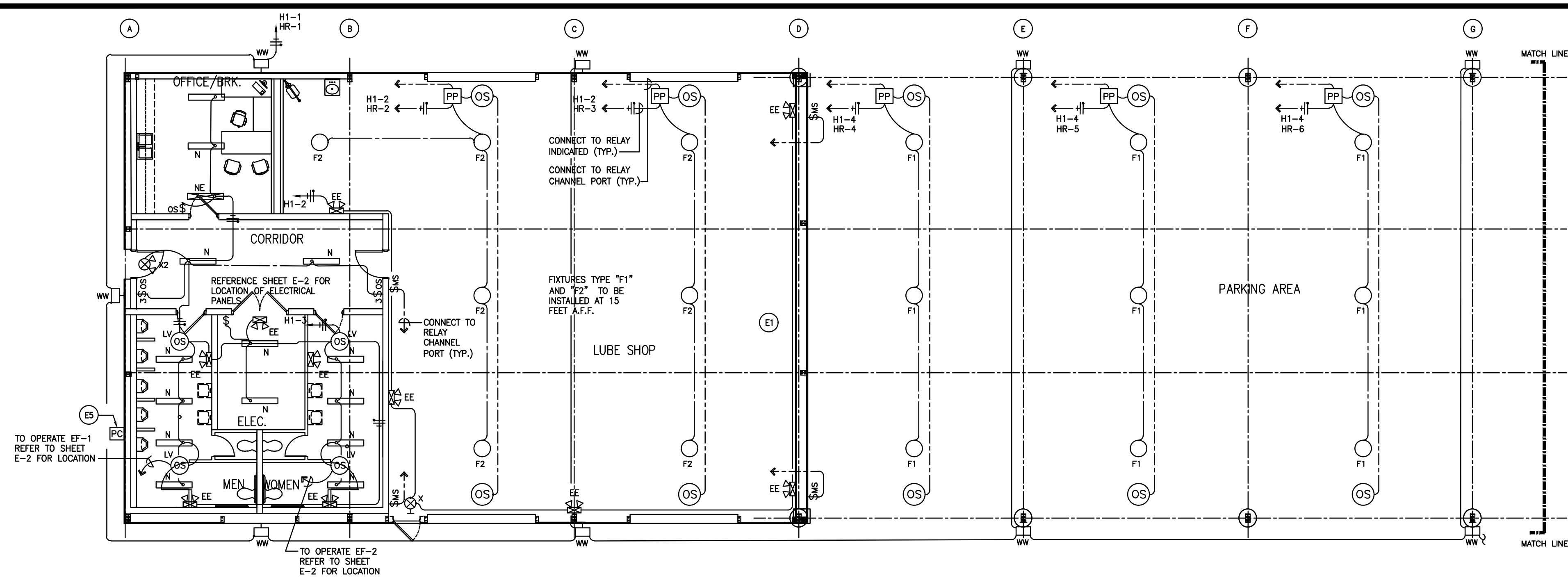
6				



A

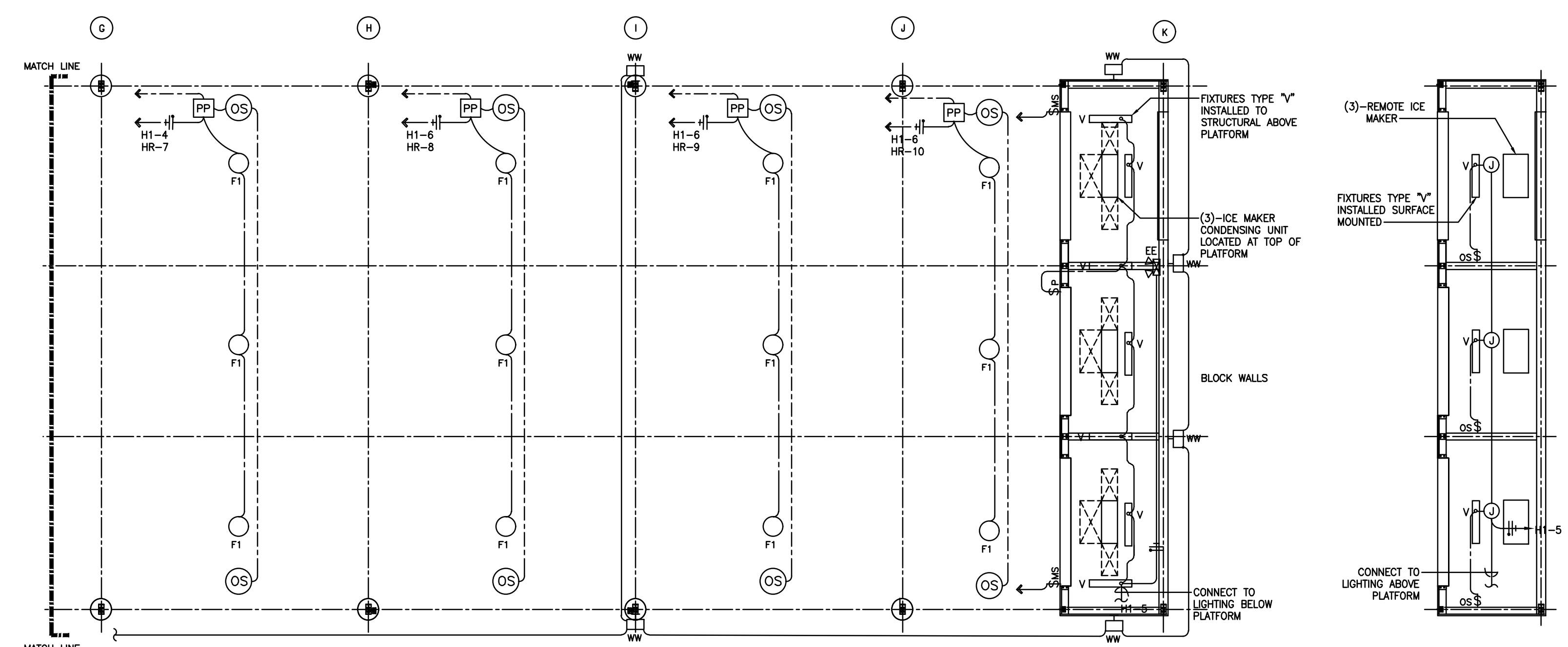
Scale : NTS

LIGHT FIXTURE SCHEDULE

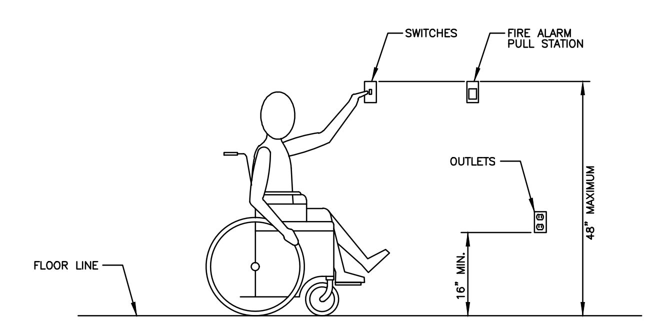
Label	Catalog Number	Description	Lamp	Voltage
F1	METALUX SSLED-LD5-12-W-UNV-L840-CD1-U	LED ROUND HIGH BAY. TO OPERATE WITH CEILING MOUNTED OC-SENSORS SWITCH PER BAY WITH OVER-RIDE MOMENTARY SWITCH FOR ALL ON/OFF	85.3W LED 4000K	120/277
F2	METALUX SSLED-LD5-18-W-UNV-L840-CD1-U	LED ROUND HIGH BAY. TO OPERATE WITH CEILING MOUNTED ENTRY OC-SENSORS SWITCH. WITH OVERRIDE MOMENTARY SWITCH FOR ALL ON/OFF	133.8W LED 4000K	120/277
N	METALUX 4NLW4040C	COMMERCIAL LED WRAPAROUND SURFACE MOUNTED	38W LED 4000K	120/277
NE	METALUX 4NLW4040C-EL14W	SAME AS FIXTURE TYPE (N) EXCEPT PROVIDED WITH EMERGENCY BATTERY PACK.	38W LED 4000K	120/277
V	METALUX 4VT3-LD5-4-W-UNV-L840-CD1-U	4 FOOT INDUSTRIAL LED VAPORTITE FIXTURE. TO OPERATE WITH EXTERIOR LOW VOLTAGE PHOTOCELL	31.32W LED 4000K	120/277
WW	LUMARK XTOR6B-W	SURFACE MOUNT LOW-PROFILE LED WALL PACK	58W LED 4000K	120/277
EE	SURE-LITE XR6C-LED	WALL MOUNT LED EMERGENCY LIGHT FIXTURE WITH 90MIN SEALED NICKEL CADMIUM BATTERY, WHITE METAL HOUSING.	300 LUMENS 1.6W INPUT POWER	120/277
X	SURELITES APX7R	SELF POWERED LED EXIT SIGN PROVIDE HARDWARE AS REQUIRED PROVIDE CHEVRONS AND EXTRA FACE PLATES WHERE INDICATED	LED	120/277
X2	SURELITES APC7R	EXIT SIGN WITH LED EMERGENCY HEADS - PROVIDE MTG HARDWARE AS REQUIRED	LED	120/277

NOTES:

1. ALL EMERGENCY BATTERY PACKS ARE FACTORY INSTALLED AND UL LISTED. EMERGENCY FIXTURES LABELED "E" TO OPERATE LED LAMPS OPERATING OF BATTERY PACK. EMERGENCY FIXTURES LABELED "EN" HARD WIRE EMERGENCY LAMPS AS NIGHT LIGHT.
2. LED FIXTURES WITH INTEGRAL LED ARRAYS SHALL PROVIDE IES LM-80 PERFORMANCE DATA WHICH DOCUMENT PROJECTED LUMEN DEPRECIATION. ALL LED DRIVERS SHALL BE SUPPLIED BY LIGHT FIXTURE MANUFACTURER. ALL FIXTURES SHALL BE SERVICEABLE FROM THE BOTTOM OF THE FIXTURE AND MANUFACTURER MUST GUARANTEE REPLACEMENT ARRAYS AND DRIVERS FOR A MINIMUM OF 10 YEARS.
3. SUBSTITUTION MUST BE APPROVED BY ARCHITECT/ENGINEER TEN (10) WORKING DAYS PRIOR TO BID DATE. PROVIDE PROOF, VIA PRODUCT "CUT SHEETS" WITH PHOTOMETRIC/FOORCANDLE CALCULATIONS, THAT THE SUBSTITUTE PRODUCT IS EQUIVALENT OR SUPERIOR TO THE PRODUCT ORIGINALLY SPECIFIED.
4. ALL STEEL PARTS PAINTED AFTER FABRICATION AND WITH 90%+ PAINT REFLECTANCE ON INTERIOR.
5. ANY PROPOSED EQUAL FIXTURE OR CONTROL SUBSTITUTIONS SHALL BE SUBMITTED 10 DAYS PRIOR TO BID DAY, ACCOMPANIED BY DETAILED SPECIFICATION CUT SHEETS AND PHOTOMETRIC CALCULATIONS OF EVERY AREA WHERE THE PROPOSED SUBSTITUTION FIXTURE IS LOCATED, INCLUDING MAX-MIN, AVE-MIN, FOOT-CANDLE LEVELS & RATIOS CALCULATED AT A 30" WORK PLANE. ANY MISSING DATA SHALL DEEM THE PROPOSED ALTERNATE/SUBSTITUTE FIXTURE OR CONTROLS, UNACCEPTABLE AND REJECTED WITHOUT FURTHER CONSIDERATION.
6. ALL FIXTURES WITH CROSSHATCHING SHALL BE WITH EMERGENCY BATTERY PACK CIRCUIT. CIRCUIT SO THAT SWITCHING DOES NOT DISCONNECT BATTERY PACK CHARGER.
7. VERIFY FIXTURE FINISH OR COLOR WITH ARCHITECT PRIOR TO FIXTURE ORDER AND SUBMITTAL VERIFY CEILING TYPES AND PROVIDE FLANGE KIT FOR GYP BOARD TYPE CEILINGS. FIXTURES LABELED WITH "F" WITH IN THE PREFIX TO BE PROVIDED WITH FLANGE KIT. (TYPICAL)
8. PROVIDE SINGLE POLE SINGLE THROW SWITCH FOR EACH ROOM OR SPACE, TO SWITCH FIXTURE OR GROUPS OF FIXTURES. PROVIDE 3WAY AND 4WAY SWITCHES AS REQUIRED FOR AREAS WHERE MORE THAN ONE SINGLE POLE SINGLE THROW SWITCH IS SHOWN TO CONTROL A FIXTURE OR FIXTURES. ALL CORRIDORS SHALL HAVE A MINIMUM OF TWO THREE-WAY SWITCHES AND AN ADDITIONAL THIRD FOUR-WAY SWITCH FOR INTERSECTING CORRIDORS. SWITCHING SHALL MEET THIS MINIMUM REQUIREMENT WHETHER SHOWN OR NOT. VERIFY ALL SWITCH LOCATIONS PRIOR TO ROUGH-IN WITH ARCHITECT, OWNER, AND ENGINEER WHEN THIS MINIMUM REQUIREMENT IS EFFECTIVE AND NO LOCATIONS OR SOME LOCATIONS ARE SHOWN. REQUIREMENTS TYPICAL OF LOW VOLTAGE AND DIGITAL SWITCHING.
9. ALL LIGHTING FIXTURES SHOWN IN EXTERIOR LOCATIONS OR NON-HEATED SPACES SHALL BE WITH DAMP OR WET LOCATION AND ZERO DEGREE BALLAST.
10. PRIOR TO SUBMITTING BID FOR WORK CONTRACTOR SHALL VERIFY CEILING TYPE WITH "ARCHITECTURAL REFLECTED CEILING PLAN" AND PROVIDE LIGHTING FIXTURE WITH APPROPRIATE MOUNTING HARDWARE AND ACCESSORIES COMPATIBLE WITH CEILING TYPE AND PER MOUNTING REQUIREMENTS. CONTRACTOR SHALL INCLUDE ALL COST FOR MOUNTING ACCESSORIES IN HIS ORIGINAL BID. LACK OF COORDINATION AND VERIFYING WILL BE AT NO COST TO THE OWNER, ARCHITECT/ENGINEER.



B



C MOUNTING HEIGHTS

NOT TO SCALE

PROJECT LOCATION

STATE	TEXAS	SHEET	E2
COUNTY	JEFFERSON	DITCH NO.	XX
CITY	BEAUMONT	WATERSHED	XX

DRAINAGE DISTRICT NO. 6 ★ TEXAS ★ JEFFERSON COUNTY

DD6

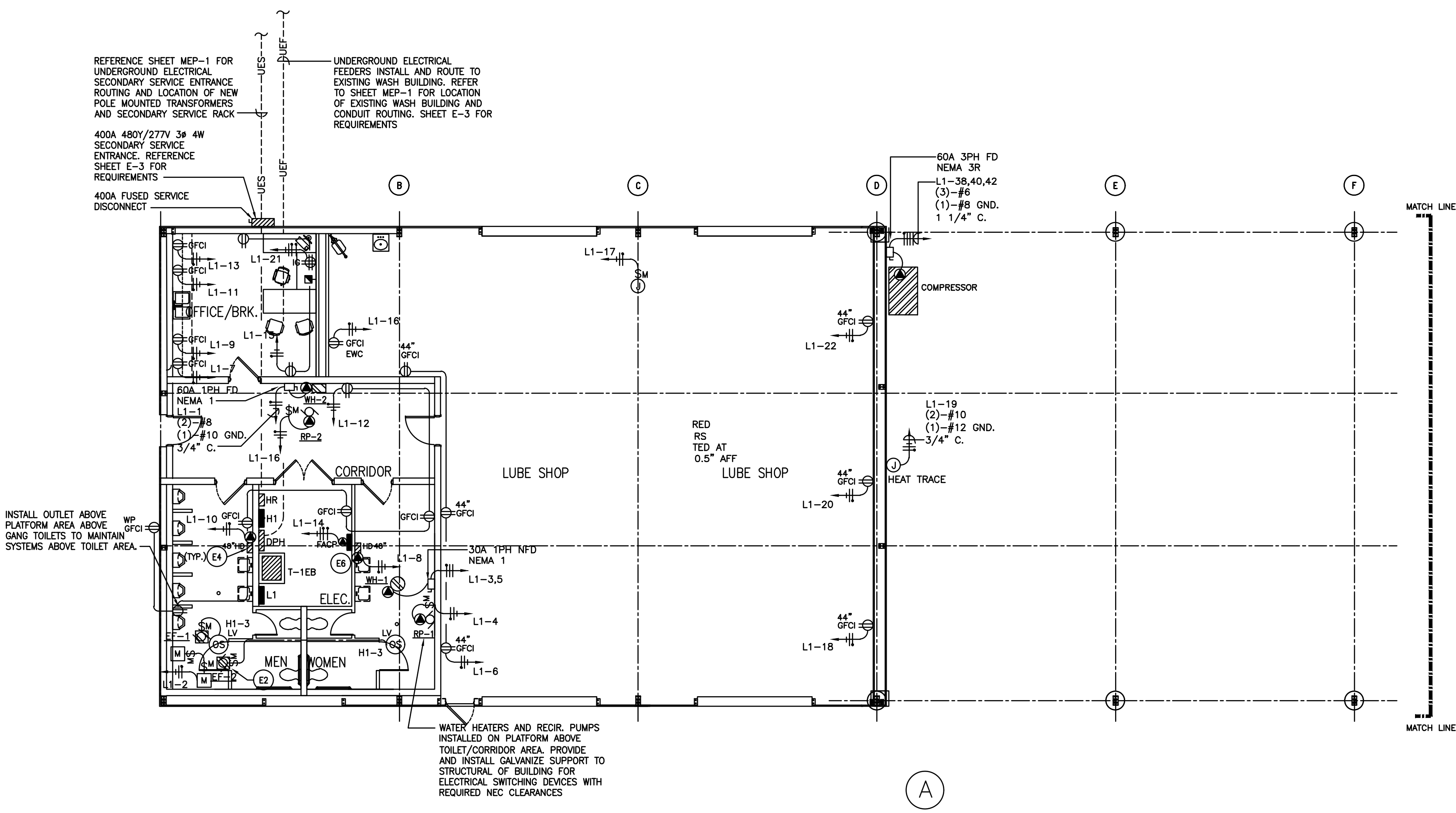
Dump Truck Building

Electrical Plan and Schedule

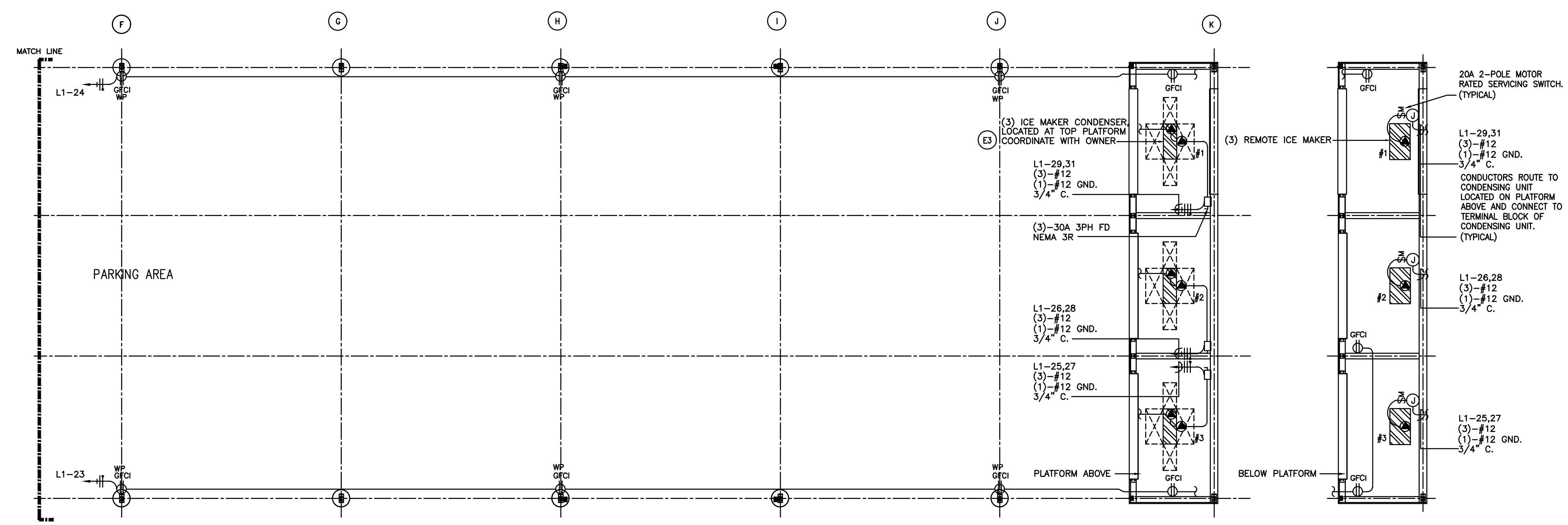
DATE

NO.	DATE	DRN	REVISION	APP.
1				
2				
3				
4				
5				
6				

Scale : NTS



A



B

PROJECT LOCATION

STATE	TEXAS	SHEET	E3
COUNTY	JEFFERSON	DITCH NO.	XX
CITY	BEAUMONT	WATERSHED	XX

Dump Truck Building
Electrical Plan

DATE

NO.	DATE	DRN	REVISION	APP.
1				
2				
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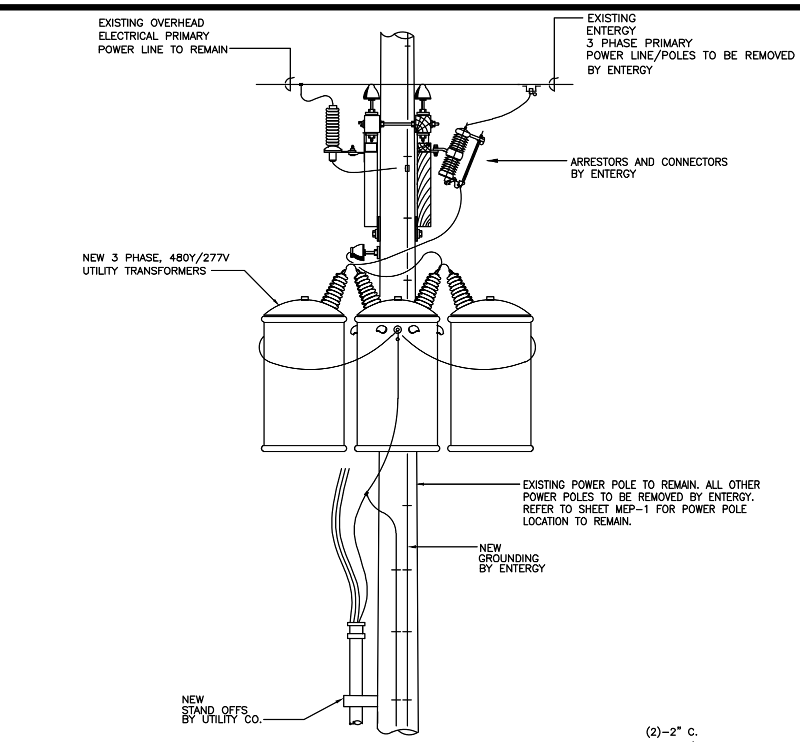
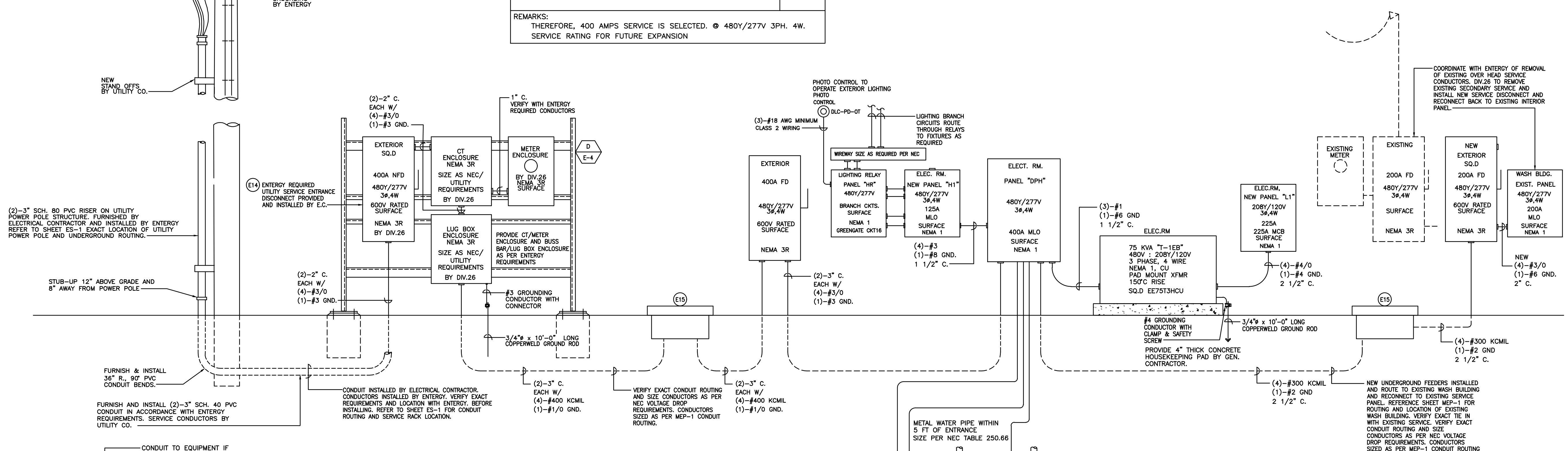
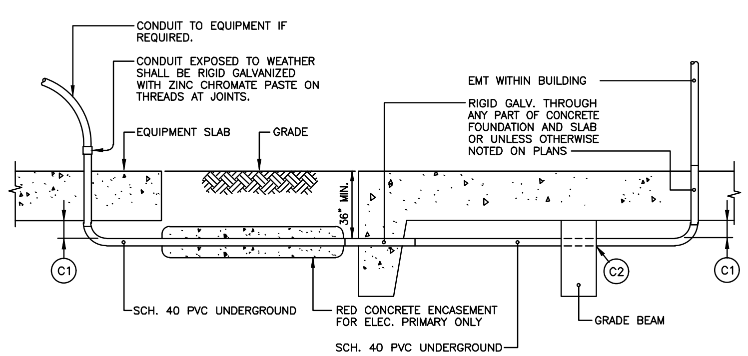
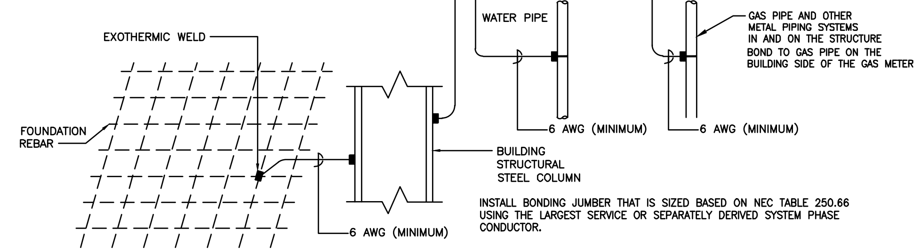
6				



ELECTRICAL LOAD ANALYSIS	
LOADS	KVA
1.) LIGHTING LOADS (NEC 220-13)	5.458
2.) RECEPTACLE LOADS (NEC 220-13) A.) DEDICATED LOAD = 127.323 KVA B.) CONNECTED LOAD = 3.780 KVA C.) DEMAND FACTORS (100% OF THE FIRST 10 KVA + 50% OF THE REMAINDER (10 KVA + 3.780 KVA x 0.50 = 1.890 KVA) D.) TOTAL LOAD = 127.323 + 1.890 = 129.213 KVA	129.213
3.) MOTOR AND HVAC LOADS (NEC 440-33) A.) HVAC = 19.121 KVA B.) 25% OF THE HIGHEST MOTOR = 2.284 KVA C.) TOTAL LOAD = 19.121 KVA + 2.284 KVA = 21.405 KVA	21.405
4.) TOTAL CALCULATED DEMAND LOAD = 187.740 AMPS	156.076
REMARKS: THEREFORE, 400 AMPS SERVICE IS SELECTED. @ 480Y/277V 3PH. 4W. SERVICE RATING FOR FUTURE EXPANSION	







ELECTRICAL RISER ONE-LINE DIAGRAM (A)
NOT TO SCALE

NOTES:

(C1) ALL CONDUITS MUST BE BURIED A MINIMUM OF 2" IN THE FILL MATERIAL BELOW THE CONCRETE SLAB. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ALL TRADES. CONFIRM COMPACTION/FILL REQUIREMENTS WITH GENERAL CONTRACTOR.

(C2) PROVIDE SLEEVES WITH MAXIMUM SIZE ALLOWED WILL BE 8 INCHES DIAMETER AND WILL BE PLACED NO CLOSER THAN 12 INCHES CENTER TO CENTER IN EITHER DIRECTION. CONFIRM WITH STRUCTURAL DRAWINGS THE EXACT REQUIREMENTS. SLEEVES MUST BE GALVANIZED STEEL.

CONDUIT ROUTING REQUIREMENTS (B)
NOT TO SCALE

PROJECT LOCATION		
CITY	COUNTY	STATE
BEAUMONT	JEFFERSON	TEXAS
WATERSHED	DITCH NO.	SHEET
XX	XX	E4

DRAINAGE DISTRICT NO. 6 ★ JEFFERSON COUNTY, TEXAS ★ DD6

Dump Truck Building
Electrical Details

DATE

NO.	DATE	DRN	REVISION	APP.
6				
5				
4				
3				
2				
1				

EXIST. PANEL "DPH"

		TYPE: GE SPECTRA SERIES	MOUNTING: SURFACE
BUS: MLO	AMP RATING: 400A	VOLT: 208Y/120VAC WITH GROUND BAR	PHASE: 3 WIRE: 4 60 Hz	FEED: TOP
MAIN BREAKER: NONE	NEMA 1 – CU BUS	SHORT CIRCUIT RATING: 100K AIC	LOCATION: INTERIOR

CKT NO.	SERVING	LOAD (KVA)	BREAKER TRIP	BREAKER P	A ø	B ø	C ø	BREAKER P	BREAKER TRIP	LOAD (KVA)	SERVING	CKT NO.
1	TRANSFORMER "T-1EB" 75KVA		125	3	●			3	200		EXISTING WASH BUILDING	2
3	" (PANEL "L1")		–	–		●		–	–		" 83.200	4
5	" 48.433		–	–			●	–	–		"	6
7	PANEL "H1"		100	3	●			3	30		PAC-1 **	8
9	" 6.000		–	–		●		–	–		" 19.121	10
11	"		–	–			●	–	–		"	12
13	SPACE				●						SPACE	14
15	"					●					"	16
17	"						●				"	18

A ø = KVA B ø = KVA C ø = KVA

TOTAL LOAD 200.000 KVA

CURRENT 241.000 AMPS

NOTE: ** HACR TYPE BREAKER

NEW PANEL "H1"

		TYPE: SQ. D NF	MOUNTING: SURFACE
BUS: MLO AMP RATING: 125A	VOLT: 480Y/277VAC WITH GROUND BAR	PHASE: 3 WIRE: 4 60 Hz	FEED: BOTTOM
MAIN BREAKER: NONE	NEMA 1 – CU BUS	SHORT CIRCUIT RATING: 35K AIC	LOCATION: ELECT. RM.

CKT NO.	SERVING	LOAD (KVA)	BREAKER TRIP	BREAKER P	A ø	B ø	C ø	BREAKER P	BREAKER TRIP	LOAD (KVA)	SERVING	CKT NO.
1	LIGHTS, EXTERIOR, *(HR-1)	1.014	20	1	●			1	20	0.821	LIGHTS, LUBE SHOP (HR-2, HR-3) *	2
3	LIGHTS, TOILETS, OFFICE, CORR. ELECT.	1.000	20	1		●		1	20	1.330	LIGHTS, PARKING BAY (HR-4 – HR-7) *	4
5	LIGHTS, ICE MAKER/LANDING	0.400	20	1			●	1	20	0.893	LTS, PARKING BAY (HR-8 – HR-10) *	6
7	SPARE		20	1	●			1	20		SPARE	8
9	"		20	1		●		1	20		"	10
11	"		20	1			●	1	20		"	12
13	SPACE				●						SPACE	14
15	"					●					"	16
17	"						●				"	18
19	"				●						"	20
21	"					●					"	22
23	"						●				"	24
25	"				●						"	26
27	"					●					"	28
29	"						●				"	30

NOTE: * ROUTE THROUGH LIGHTING RELAY PANEL "HR" TO OPERATE WITH LIGHTING RELAY CONTROL SWITCHING.

A ø = KVA B ø = KVA C ø = KVA

TOTAL LOAD 6.000 KVA

CURRENT 7.220 AMPS

RELAY CABINET CIRCUIT SCHEDULE

480/277VAC, 1 PHASE
NEMA 1
16 S GREENGATE CK16 RELAY CARD, 20A, UP TO 480VAC

PANEL LOCATION: ELEC. ROOM
PANEL DESCRIPTION: 16 Relay Cabinet: Master CM – 277 – 480 16 Std Relays
CATALOG NUMBER: GREENGATE CKT16
PANEL FEED: INDIVIDUAL CIRCUITED
PANEL ID: HR
MOUNTING: Surface

RELAY NO.	TYPE	CONTROL EM	LUMANET CHANNEL	VAC	LOAD WATTS	CIRCUIT DESCRIPTION	FIXTURE TYPE	RELAY NO.	TYPE	CONTROL EM	LUMANET CHANNEL	VAC	LOAD WATTS	CIRCUIT DESCRIPTION	FIXTURE TYPE
1	S		----	277	870	EXTERIOR (H1-1)	LED	2	S		----	277	390	LUBE SHOP (H1-2)	LED
3	S		----	277	255	LUBE SHOP (H1-2)	LED	4	S		----	277	255	PARKING (H1-4)	LED
5	S			277	255	PARKING (H1-4)	LED	6	S		----	277	255	PARKING (H1-4)	LED
7	S			277	255	PARKING (H1-4)	LED	8	S		----	277	255	PARKING (H1-6)	LED
9				277	255	PARKING (H1-6)	LED	10	S		----	277	255	PARKING (H1-6)	LED
11								12							
13								14							
15								16							

NOTES:

1. ULTRASONIC CEILING MOUNT SENSORS SHOULD BE LOCATED A MINIMUM OF SIX (6) FEET FROM HVAC SUPPLY/RETURN VENTS.
2. EMERGENCY FIXTURES OPERATING WITH CIRCUIT OPERATING WITH RELAY SWITCHING TO BE SPICED IN WIREWAY AND ROUTE TO NON-SWITCHED EMERGENCY FIXTURES, BATTERY PACKS, EIXTS, NIGHT LIGHTS. PROVIDE IN-LINE FUSE AT EMERGENCY FIXTURE.
3. CONTRACTOR IS RESPONSIBLE FOR PROPER SENSITIVITY AND TIME DELAY SETTINGS FOR NON-ADAPTIVE PRODUCTS, FOLLOWING THE MANUFACTURER'S RECOMMENDED PLACEMENT, AND FIELD VERIFICATION OF CIRCUITS WITH RESPECT TO POWER PACK PLACEMENT.
4. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF REQUIRED NUMBER OF POWER PACKS:
   A. ONE POWER PACK IS REQUIRED FOR EACH CONTROLLED CIRCUIT.
   B. EACH POWER PACK CAN SUPPLY UP TO 150mA. REFER TO INSTALLATION GUIDE FOR MAXIMUM NUMBER OF SENSORS CONNECTED TO POWER PACK.
   C. IF MULTIPLE CIRCUITS ARE TO BE CONTROLLED BY A SINGLE SENSOR, AUXILIARY RELAYS MAY BE USED IN CONJUNCTION WITH A POWER PACK.
5. SENSORS MOUNTED OVER DOORWAYS SHOULD BE PLACED ONE (1) FOOT INSIDE THRESHOLD.
6. PROVIDE COPY OF PANEL SCHEDULE TO MANUFACTURE.

PANEL "L1"

		TYPE: SQD. NQ	MOUNTING: SURFACE
BUS: MCB AMP RATING: 225A	VOLT: 208Y/120VAC WITH GROUND BAR	PHASE: 3 WIRE: 4 60 Hz	FEED: BOTTOM
MAIN BREAKER: 225 AMP	NEMA 1 – CU BUS	SHORT CIRCUIT RATING: 30K AIC	LOCATION: ELEC. RM.

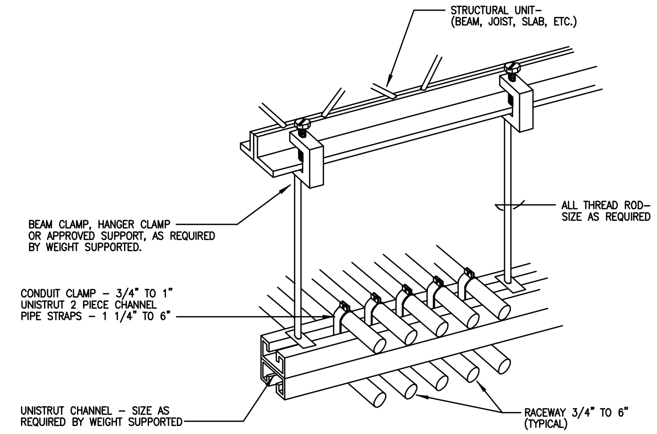
CKT NO.	SERVING	LOAD (KVA)	BREAKER TRIP	BREAKER P	A ø	B ø	C ø	BREAKER P	BREAKER TRIP	LOAD (KVA)	SERVING	CKT NO.
1	WATER HEATER WH-2	3.572	40	1	●			1	20	0.500	MOTORIZED DAMPERS	2
3	WATER HEATER WH-1		20	2		●		1	20	0.530	RECIR. PUMP RP-1	4
5	" 2.381		–	–			●	1	20	0.540	RECS. SHOP	6
7	REC. OFFICE/BREAK RM.	0.360	20	1	●			1	25	1.744	HAND DRYER	8
9	REC. OFFICE/BREAK RM.	0.360	20	1		●		1	25	1.744	HAND DRYER	10
11	REC. OFFICE/BREAK RM.	0.360	20	1			●	1	20	0.540	RECS. TOILETS, CORR., ELECT. EXTERIOR	12
13	REC. OFFICE/BREAK RM.	0.360	20	1	●			1	20	0.500	FIRE ALARM CONTROL PANEL, "FACP" *	14
15	REC. OFFICE/BREAK RM.	0.360	20	1		●		1	20	0.530	RECIR. PUMP RP-2	16
17	HEATER CONTROLS	0.500	20	1			●	1	20	0.720	REC. SHOP	18
19	HEAT TRACE	1.200	30	1	●			1	20	0.720	REC. SHOP	20
21	RECS. OFFICE/BREAK RM.	0.720	20	1		●		1	20	0.720	REC. SHOP	22
23	RECS. PARKING, ICE MAKER RMS.	1.080	20	1			●	1	20	0.900	RECS. PARKING, ICE MAKER RMS.	24
25	ICE MAKER #3 **		20	2	●			2	20		ICE MAKER #2 **	26
27	" 3.000		–	–		●		–	–		" 3.000	28
29	ICE MAKER #1 **		20	2			●	1	30	1.200	HEAT TRACE	30
31	" 3.000		–	–	●			1	20		SPARE	32
33	SPARE		20	1		●		1	20		"	34
35	"		20	1			●	1	20		"	36
37	SPACE				●			3	60		AIR COMPRESSOR	38
39	"					●		–	–		" 17.292	40
41	"						●	–	–			42

NOTE: * LOCK TYPE BREAKER
** HACR TYPE BREAKER

A ø = KVA B ø = KVA C ø = KVA

TOTAL LOAD 48.433 KVA

CURRENT 134.441 AMPS

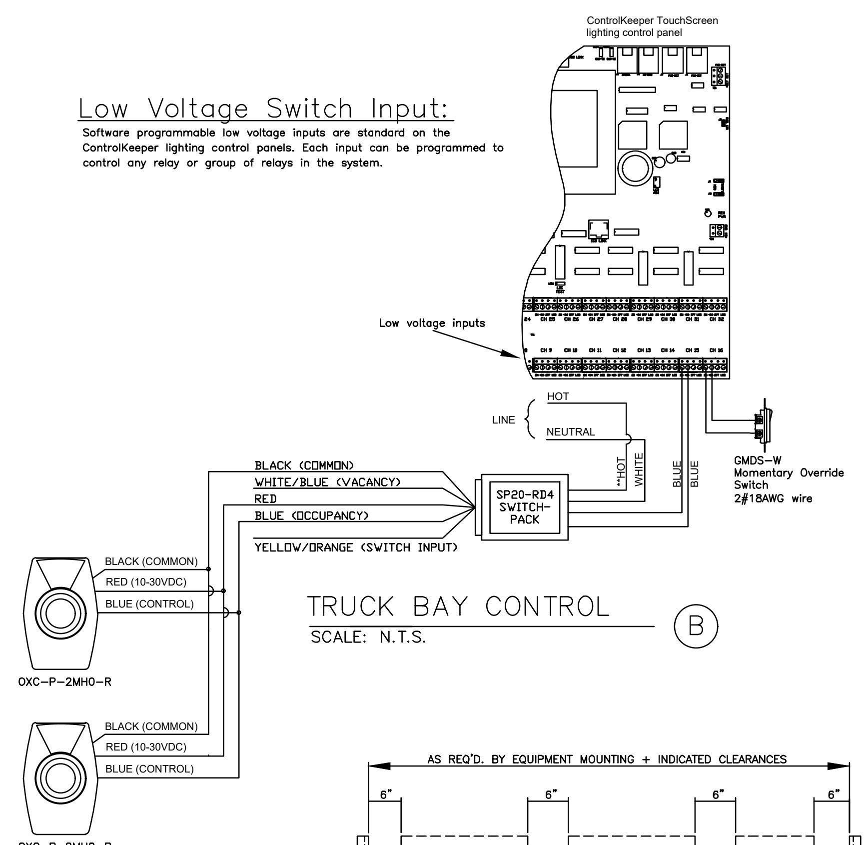


TYPICAL CONDUIT RACK (A)

NOT TO SCALE

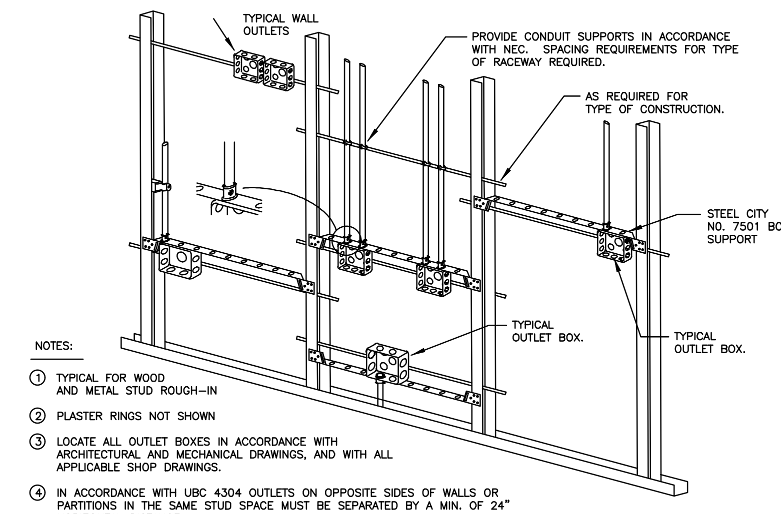
Low Voltage Switch Input:

Software programmable low voltage inputs are standard on the ControlKeeper lighting control panels. Each input can be programmed to control any relay or group of relays in the system.



TRUCK BAY CONTROL (B)

SCALE: N.T.S.

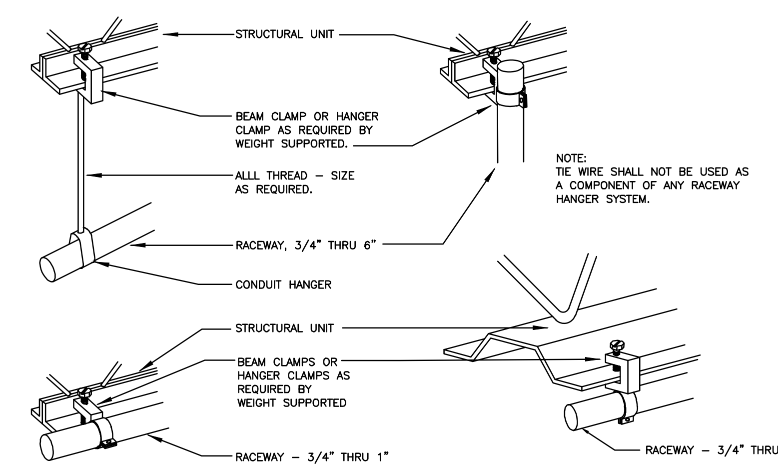


NOTES:

1. TYPICAL FOR WOOD AND METAL STUD ROUGH-IN
2. PLASTER RINGS NOT SHOWN
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH UBC 4304 OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 24" HORIZONTAL DISTANCE.

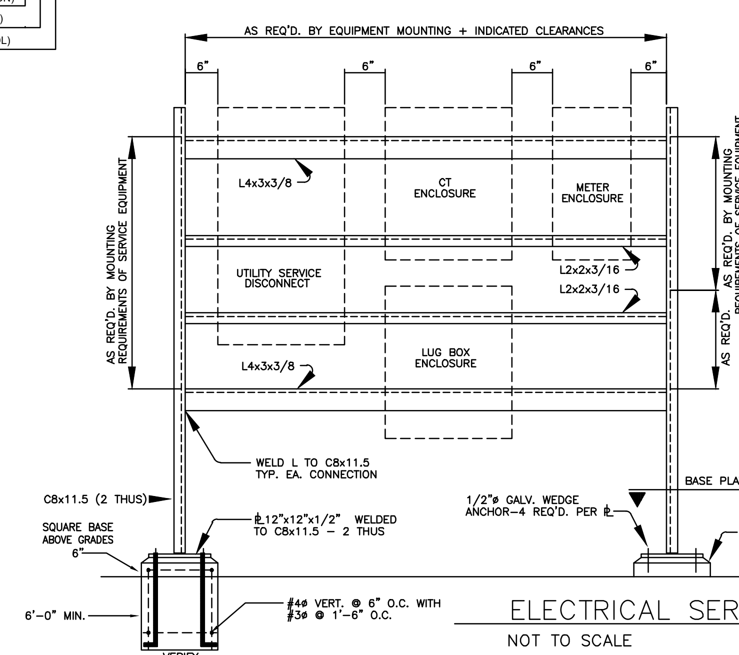
TYPICAL ROUGH-IN REQUIREMENTS (C)

NOT TO SCALE



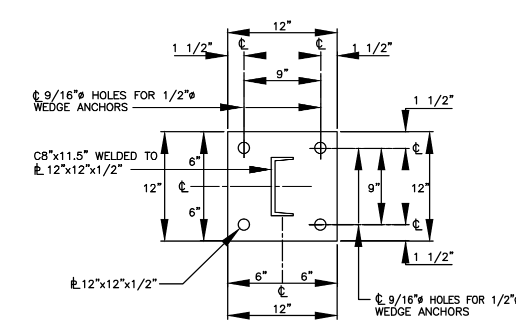
TYPICAL RACEWAY SUPPORT METHODS (D)

NOT TO SCALE



ELECTRICAL SERVICE RACK SUPPORT (D)

NOT TO SCALE



BASE PLATE

NOT TO SCALE

PROJECT LOCATION		
STATE	TEXAS	SHEET E5
COUNTY	JEFFERSON	DITCH NO. XX
CITY	BEAUMONT	WATERSHED XX

DRAINAGE DISTRICT NO. 6 ★ JEFFERSON COUNTY, TEXAS ★ DD6

Dump Truck Building
Electrical Details

DATE

NO.	DATE	DRN	REVISION	APP.
6				
5				
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SECTION 26010

GENERAL ELECTRICAL REQUIREMENTS

1.01 REQUIRED CONTRACTOR QUALIFICATIONS

A. The Contractor for this work shall be a specialist in this field, having the organization to provide trained, experienced and skilled personnel required to construct a practical working system.

B. Be able to provide evidence of having contracted for and installed systems of comparable size and type to the systems specified herein.

1. Systems submitted as previous experience shall have served their Owners satisfactorily for not less than 3 years.

1.02 EXISTING CONDITIONS AND RELATION WITH OTHER TRADES

A. Prior to submitting a proposal for work required for this project.

1. Visit the site to observe all existing conditions affecting installation.

B. Study all matters and conditions of the Project and relations to all divisions of work.

1. Coordinate with other divisions of work to provide a complete and functioning Systems in accordance with Project Documents.

2. Notify Engineer of conflicts in ample time to prevent unwarranted changes in any work.

C. Provide coordination drawings of any and all systems necessary for coordination with other divisions of work.

D. Request all shop drawings and product data in ample time to permit proper installation of the systems and to prevent unwarranted delays in the Project construction schedule.

1.03 MATERIALS AND WORKMANSHIP

A. All materials and equipment shall be new and of the specified grade and quality, provided by reputable manufacturers regularly engaged in the production of such materials and equipment.

B. Work shall be executed and all materials installed in accordance with the best practice of the trades in a thorough, workmanlike manner, presenting a neat appearance when completed.

C. With exceptions as specified and/or indicated on the Drawings; install, connect, erect, use, clean and condition manufactured materials and equipment per Manufacturer's current printed instructions and recommendations.

D. The design is based on the equipment scheduled; therefore, equipment furnished by other Manufacturers named in the Specifications shall have prior approval of the Architect/Engineer.

E. The commercially standard items of equipment, and the specified names mentioned herein are intended to identify standards of quality and performance necessary for the proper functioning of the Work.

1.04 DRAWINGS AND SPECIFICATIONS

A. Electrical Drawings are diagrammatic and shall be followed as closely as the actual construction will permit. Details are subject to the requirements of ordinances, structural and architectural conditions. Carefully coordinate existing conditions with new installation of electrical work and furnish all fittings and accessories required to give satisfactory operation.

B. Should changes in work be required to make work specified in this Division conform to the Project as it is constructed or to make it conform with requirements of governing Codes and authorities:

1. Submit request for direction before proceeding with work.

C. All changes due to poor workmanship and/or coordination shall be made without additional expense to the Owner.

D. Contractor shall visit the site, verify all existing items indicated on the drawings and in the specifications and become familiar with existing conditions, hazards, actual formations and local requirements prior to Bid and installation. Each proposal shall reflect all costs occasioned by existing conditions. The lack of specific information on drawings in respect to existing site conditions shall not be reason for extra charges after Contract is signed.

1.05 CODES, PERMITS, AND FEES

A. Comply with the most recent versions of all applicable laws, rules, regulations, and ordinances of all governing Codes and Authorities.

B. Modifications required by the above said authorities shall be made without additional charge to the owner.

C. Where alterations to and deviations from the Contract Documents are required by said authority, report the requirements and secure approval before starting work.

D. Obtain all applicable permits and pay all fees charged by above authorities.
E. Where Contract Document requirements are in excess of code requirements and are permitted under the code, the Contract Documents shall govern.

SECTION 26011

SUPPORTS, SLEEVES, FASTENERS AND HANGERS

1.01 GENERAL REQUIREMENTS

A. All equipment and conduit shall be installed in a neat and workmanlike manner by skilled mechanics having prior experience in installing such systems.

B. Adhere to the general routing of the conduit systems as shown on drawings.

C. Coordinate exact location of equipment and routing the conduit systems with all elements of the building construction to avoid conflicts.

D. Provide supports or fasteners suitable for the weight of equipment, which requires permanent attachment.

E. Use methods and devices recommended by the equipment manufacturer.

F. Fasteners shall be compatible with the material into which they are applied.

G. All methods and devices shall be approved by all applicable codes and regulations.

1.02 SECURING AND SUPPORTING OF CONDUIT

A. Support conduit

1. At intervals not greater than 7 feet and within three feet of bends, outlets and junction box.

2. With channel support with conduit fittings on vertical runs.

3. In accordance with NEC

B. Where a number of conduits are run exposed and parallel

1. Group and support by trapeze hangers and secure with conduit clamps.

2. Machine screws, bolts, or welded studs on metal surfaces.

3. Wood screws on a wood construction.

C. Use electro-galvanized or cadmium plated steel bolts, threaded rods, nuts, washers and screw.

D. Perforated strap is not approved as hanger material.

1.03 SURFACE MOUNTED SWITCHES, PANELS, PULL BOXES

A. Provide fasteners suitable for the surface or structure and weight of device.

1.04 CONDUIT SLEEVES AND ESCUTCHEONS

A. Provide schedule 40 PVC sleeves:

1. Where conduit penetrates exterior wall construction.

a. Seal space watertight with Butyl rubber sealant and provide stainless steel escutcheons.

2. Provide galvanized sleeves where conduit penetrates fire rated walls to deck.

a. Caulk annular space with fire retardant silicone foam where fire rated.

b. Pack with fiberglass insulation and seal airtight where non-fire rated return air plenum wall extends to deck.

3. Provide escutcheon plates with tamperproof set screws where penetrations are exposed to view.

B. Provide formed stainless steel or cast brass escutcheon plates where piping penetrations are exposed to view on exterior wall surface and interior unoccupied spaces.

C. In finished interior spaces exposed to view, provide nickel brass or chrome plated escutcheons.

D. Secure all escutcheons to pipe with tamper-proof set screws.

SECTION 26014

TRENCHING AND BACKFILLING

1.01 GENERAL

A. Stake out routing of the excavation by actual field measurements.

B. Set required lines and levels.

C. The Drawings indicate all known information related to existing surface and sub-surface obstructions affecting the areas of work. This information is not guaranteed.

D. Notify Architect/Engineer of unexpected sub-surface conditions and discontinue work in affected area until notification to resume work.

1.02 UTILITIES

A. Prior to beginning excavation, locate all underground utilities occurring in work areas.

1. Request from the Owner any and all information on utilities not shown on the Drawings.

2. Notify Architect/Engineer of unexpected utilities and conditions and request direction prior to continuing work in affected areas.

B. Maintain, extend or reroute all existing utilities required to remain and pass through the work area.

C. Do not disrupt or disconnect existing active utilities without proper coordination and scheduling with the Architect, Engineer and Owner.

D. Cap, plug or seal abandoned utilities in areas of excavation.

1. As shown on the Civil Drawings.

2. As directed by the Owner.

1.03 PROTECTION

A. Protect existing utilities during excavation.

B. Grade excavation top perimeter to prevent surface water run-off and loose soil from falling into excavation.

C. Protect excavation to prevent cave-in.

D. Protect conduit at all times by securely plugging ends.

E. Pile surface materials to be reused separate from general excavation materials.

1. Do not pile materials in locations that will endanger work or obstruct roads, drives and walk-ways.

2. Keep drainage channels clear and provide additional means of drainage if required.

1.04 PREPARATION

A. Identify required lines, levels, contours and datum.

1.05 EXCAVATION

A. Cut trenches sufficient in width to allow adequate clearance for installation and inspection of work.

B. Remove lumped soil, rock and unfavorable debris.

C. Correct unauthorized excavation at no additional expense to the Owner.

D. If necessary, compact sub-grade surfaces to density requirements for backfill material.

1.06 BACKFILLING

A. Verify stockpiled fill to be reused.

B. Verify areas to be backfilled are free of water and debris.

C. Verify work in trench is complete, approved, tested and ready for covering.

D. Fill over excavated areas under pipe bearing surfaces as directed by the Architect/Engineer.

E. Backfill trench as soon as practical after completion, inspection and testing of installed work.

F. Backfill systematically as soon as possible to allow maximum time for natural settlement.

G. Carefully deposit select backfill of sand or dry friable soil in the trench equally on both sides of piping to provide consistent density.

1. Continuous layers not exceeding 6" loose depth to an elevation of 12" above piping.

2. Compact under and sides of pipe to provide a solid backing for external pipe surfaces.

3. Compact fill to density of undisturbed trench sides.

4. Repeat process to maintain the 12" elevation.

H. Place and compact common fill in continuous layers not exceeding 8".

I. Remove surplus fill materials from site and leave stockpiled areas free of excess.

J. Provide for deficiencies in quantity of backfill material or for filling depressions caused by settlement.

K. Maintain favorable moisture content of backfill material to attain required compaction density.

1.07 UNSUITABLE CONDITIONS FOR LAYING CONDUIT

A. Do not install work in water or when weather or trench conditions are unfavorable for the specified installations and fill procedures.

SECTION 26021

CORRECTIONS AND ROUTINE MAINTENANCE DURING WARRANTY PERIOD

1.01 GENERAL

A. The Guarantee and Warranty period is for 12 months after Substantial Completion of the Project.

1.02 CORRECTIONS

A. The Owner will notify the Contractor of any failure or observed defects in the system during this period.

B. Corrections to the work during this period and during regular working hours shall be at no additional cost to the Owner.

1. Response time shall be no longer than the day following the call from the Owner.

C. During this period, emergency service shall be available to the Owner on a 24 hour everyday basis.

D. Overtime work, if requested by the Owner, will be reimbursed at the difference between regular and premium labor at the Contractor's current standard hourly billing rate for contract customers.

E. Procedures for corrections are as follows:

1. Prior to commencing corrections, determine from the Owner any special requirements necessary to conform to his established policy for work on premises.

2. When the service technician arrives at the Project, notify the Owner's authorized representative.

3. Upon completion of the corrective work, file a signed copy of the service report with:

a. The Owner's authorized representative.

4. If corrective work requires more than one day to complete, notify the Owner and provide an estimate of the completion date.

1.03 ROUTINE MAINTENANCE

A. During the warranty period, provide normal maintenance service recommended by the Manufacturer at no additional cost to the Owner.

B. Procedures for routine maintenance are as follows:

1. Prior to commencement the service technician shall notify the Owner's authorized representative.

2. Upon completion of work, file a copy of maintenance work items performed with the Owner's representative.

PROJECT LOCATION

STATE	TEXAS	SHEET	E6
COUNTY	JEFFERSON	DITCH NO.	XX
CITY	BEAUMONT	WATERSHED	XX

Dump Truck Building
Electrical Notes

DATE

NO.	DATE	DRN	REVISION	APP.
6				
5				
4				
3				
2				
1				

SECTION 26025

OWNERS MANUALS

1.01 GENERAL

A. Manuals to include product and equipment data and related information necessary for the Owner's maintenance and operation of all products and systems provided in the Contract.

1.02 MANUAL CONTENTS

A. Provide the following information, neatly typewritten in the front of each manual or each volume of the manual if more than one binder is required:

1. Contractor's name, responsible principal, address and telephone number.

2. Table of contents identifying each product or item required to be included; indexed to content of the volume.

3. List each product with the name, address and telephone number of the Subcontractor or installer.

4. Provide index tabs separating each product or item of equipment required.

a. Arrange in order as indicated in the typed Table of Contents.
B. Product and Equipment Data

1. Include only information that is pertinent to the specific product or item of equipment.

2. Annotate each sheet to identify the specific product or item installed.

a. Clearly identify all data applicable to installation.

b. Delete references to inapplicable information.

3. Supplement product data with written text and/or drawings as necessary to clearly illustrate required maintenance and operation of products in the systems.

a. Indicate relations or component parts of equipment and systems.

4. Contents for each product and unit of equipment shall include:

a. Complete list and commercial numbers of replaceable parts.

b. Function of equipment, normal operating characteristics and limiting conditions.

c. Special operating instructions.

d. Manufacturer's operating and maintenance instructions.

e. Manufacturer's guide to troubleshooting and repair.

C. Provide copies of all warranties, bonds and service contracts.

1. Indicate procedures in event of failures.

2. Indicate conditions that may afford the validity of warranties or bonds.

3. Prepare warranties using the same phraseology as the Specifications.

4. Indicate the starting warranty date for each warranted item.

D. Provide any and all additional information as necessary to provide the Owner with a complete understanding of the products, equipment and system's furnished in the contract.

1.03 OWNER'S INSTRUCTION

A. Prior to the final inspection of the project. Provide an on-site training session with the Owner's personnel to explain systems and instruct on proper operating and maintenance.

B. Schedule date and time of training session with the Owner authorized personnel, the Architect and the Engineer.

C. Allocate a minimum of eight consecutive hours for the training session.

1. Provide training during the Owner's regular working hours unless instructed otherwise by the Owner.

D. Use the Owner's Manual as a basis of instruction and to familiarize the Owner with contents and order of manuals.

E. Demonstrate to the Owner; start-up, operation, shutdown and maintenance of the installed systems and equipment.

F. At conclusion of the training session, have the attending Owner's personnel sign a certificate to certify:

1. That he has been adequately instructed in the systems.

2. That all demonstrations have been conducted successfully.

3. That content of Owner's manuals were reviewed and used as the basis of instruction.

G. Insert a copy of certificates in the Owner's Manuals.

H. If the Owner's personnel, at completion of the training session, are not satisfied that they have received adequate instruction and demonstration:

1. Notify the Architect/Engineer.

1.04 SUBMITTAL REVIEW PROCEDURE FOR MANUALS

A. After all required shop drawings, product data and samples have been received back from the Architect/ Engineer, with their stamp of approval indicating " No Exception Taken":

1. Submit three complete copies of the manual for review by the Architect/Engineer.

2. Manuals will be reviewed and returned with comments for corrections.

B. Resubmit to the Architect/Engineer, three corrected copies of the Manual in final form, one day after final inspection.

C. The Contractor will be notified of any omissions or deviation requiring corrections.

D. Corrections will be made by the Contractor in the office of the Architect/Engineer. Manuals will not be re-transmitted.

1.05 FORM FOR MANUALS

A. Prepare in the form of an instructional manual for use by Owner.

B. Format and media:

1. Insert all material in commercial quality 3-ring binders.

2. Label cover of binder "Owner's Manual" with Project title.

3. When multiple binders are used, catalog contents into related consistent groupings and identify on front cover of binders.

4. Provide all required text typewritten on 8 1/2"x 11" white, commercial bond paper.

5. Fold larger drawings to size of text pages and insert in pre-punched folder with reinforced binders.

6. Index tabs to be the fly leaf type with typed identification of product on tab.

SECTION 26027

ELECTRICAL SYSTEMS AND EQUIPMENT IDENTIFICATION

1.01 GENERAL

A. Label and identify all disconnect switches, panels, transformers, contactors, remote control switches and all electrical equipment.

B. Distribution panel boards and motor control centers shall have engraved labels on each switch, circuit breaker or starter.

C. Branch circuit panels shall have nameplates with identification as shown on drawings and with voltage and phase. Panel shall have the circuits labeled individually by means of a typewritten directory installed on the door of the panel board.

D. Switches shall be identified by the load served.

E. Outlets provided for future equipment shall have engraved stainless steel cover plates indicating voltage and phases.

F. Provide permanent identification of all wiring.

1.02 NAMEPLATES

A. Fabricate of laminated engraved black core white plastic, etched or photo-anodized metal with 1/4" high letters.

B. Secured to equipment with escutcheon pins, self-tapping or machine screws that are removable only by mechanical means.

1.03 SPECIFIED MARKERS

A. Provide a specified marker on each wire in conduit including pull wires:

1. Where runs are interrupted in junction boxes.

2. Terminated in panels, boxes, outlets and equipment.

3. In pull boxes.

4. Showing circuit number and identification.

SECTION 26030

ELECTRICAL SYSTEMS TESTING

1.01 GENERAL

A. Provide the services of trained electrical technician to make tests and evaluations to determine that the electrical system in installed and adjusted for successful operation.

B. Provide required testing equipment in good working order and comply with the requirements of the applicable industry standards.

C. Testing shall be done in accordance with:

1. Manufacturer's printed testing procedures

2. ANSI standards

3. NEMA standards

1.02 REQUIRED TESTS AND PROCEDURES

A. Tests shall be complete and results approved before final inspection is begun.

B. Test the grounding system for the steel building. Ground resistance shall not exceed 25 OHMS.

C. Each complete device connected shall test free from short circuits and grounds and have an insulation resistance between conductors and ground, based on maximum load, not less than required by the latest edition of the National Electrical Code.

D. Test the grounding of the electrical systems neutral. Ground resistance shall not exceed 10 OHMS.

E. Test feeder cables 1/0 and larger with a 1000 volt DC megger. Insulation resistance shall be not less than 25 MEGOHMS.

F. Test the equipment grounds for each feeder. Ground resistance shall not exceed 25 OHMS.

G. Verify all fuses and thermal elements for mechanical equipment are sized properly and coordinated with the Mechanical Division and that spare fused are left in their respective enclosures.

H. Contractor shall check all bus connections in switchgear and panel boards to assure that they are torqued to the manufacturer's specifications.

I. All devices shall be in alignment and properly anchored.

J. The interiors of all enclosures are free of debris.

K. All outlet boxes, junction boxes, and enclosures are provided with covers.

L. All equipment is properly labeled and identified.

M. Verify all conduit, junction boxes and power has been provided for systems to be installed by others.

SECTION 26040

SHOP DRAWINGS AND PRODUCT DATA (SUBMITTALS)

1.01 GENERAL

A. Prepare all Submittals as required by the Contract Documents.

B. The term Submittal shall refer to all:

1. Shop Drawings.

2. Coordination Drawings.

3. Product Data.

C. Where required by the Contract Documents, provide submittals for review by the Architect/Engineer.

1.02 SHOP DRAWINGS

A. Where required, show actual physical dimensions of work and identify exact locations with dimensions from adjacent permanent structure or work.

1.03 CONTRACTOR'S RESPONSIBILITIES

A. Review all submittals prior to transmittal to determine:

1. Physical dimensions.

2. Field construction criteria and field measurements.

3. Conformance with the Contract Documents.

B. At submission, notify the Architect/Engineer in writing of any deviations from the requirements of the Contract Documents.

C. Do not begin work or fabrication of products for which Submittals are required until Submittals have been reviewed by Architect/Engineer and approved and returned to the Contractor.

D. Contractor's responsibility for deviations in Submittals is not relieved whether the Engineer reviews Submittals or not, unless Engineer gives written acceptance of specific deviations on reviewed Submittals.

E. Contractor's responsibility for errors and omissions in Submittals is not relieved whether Engineer reviews Submittals or not.

F. Submittals shall show sufficient data to indicate complete compliance with the Contract Documents.

1.04 SUBMISSION REQUIREMENTS

A. Provide Submittals promptly and a sequence to avoid delay in the Work.

B. Submit two copies of required Submittals which will be retained by the Architect and Engineer, along with the additional copies required by the Contractor.

C. Provide a transmittal letter with all Submittals containing the following information:

1. Date of submission.

2. Project title.

3. Contractor's name and address.

4. Quantity of each Submittal included.

5. Identification of each Submittal included.

D. Provide each Submittal with the following information:

1. Identification of Submittal contents.

2. Identification of any deviations from the Contract Documents.

3. Contractor's signed and dated stamp of approval.

4. The name of the:

a. Contractor

b. Subcontractor

c. Supplier

d. Manufacturer

1.05 CONTRACTOR'S STAMP OF APPROVAL

A. Contractor shall stamp and sign each document certifying to the review of the products, field measurements and construction criteria, and coordination of the information within the Submittal with requirements of the Work and of the Contract Documents.

B. Contractors stamp of approval on any submittal shall constitute a representation to the Architect and Engineer that Contractor has either determined and verified all dimensions, field construction criteria, materials and similar data or assumes full responsibility for doing so, and that Contractor has reviewed or coordinated each Submittal with the requirements of the Contract Documents.

C. Do not deliver any Submittals to the Engineer that do not bear the Contractor's stamp of approval and signature.

D. Submittals delivered to the Engineer without the Contractor's stamp of approval will not be processed.

1.06 ENGINEER'S REVIEW OF SUBMITTALS

A. The Engineer will review all Submittals transmitted, providing the Contractor has properly identified and stamped Submittals.

B. The Engineer will return Submittals for:

1. Re-submission if so indicated.

2. Contractor corrections if required.

3. Distribution if approved.

C. Review and approval of Submittals will not extend to design data reflected in Submittals, which is peculiarly within the special expertise of the Contractor or any party directly with the Contractor.

D. Engineer's review and approval is only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents.

E. Engineer's review shall not extend to review of quantities, dimensions, weights or gauges, fabrication processes or coordination with other trades.

SECTION 26041

PROJECT RECORD DOCUMENTS

1.01 PROJECT RECORD DOCUMENTS

A. Maintain one set of Contract Documents as a record. Store documents separately from those used for construction.

B. Keep documents current and record all deviations from Drawings, actual routing, etc.; do not permanently conceal any work until required information has been recorded.

C. At completion of the Project, include a copy of the Final Record Drawings in each of the Owner's Manuals.

SECTION 26090

CONDUCTOR SYSTEMS – 600 VOLT RATING

1.01 CONDUCTORS

A. All conductors shall be of soft drawn annealed copper having a conductivity of not less than 98% of that of pure copper. Conductors shall be standard code gauge in size, insulated, and shall have insulation rated for use at 600 volts.

1. Branch circuit conductors unless noted otherwise - code gauge type "THW", "THWN", "XHHW", stranded conductor.

2. Approved by NEC for the environment.

3. Bear the UL label.

4. All conductors, #6 or larger, shall be stranded. Main service conductors, feeders and sub-feeders shall be "RHW" or "THW".

B. Motor circuit conductors shall be continuous throughout their entire length.

C. Splices and joints in branch circuit wiring shall be made only in accessible junction boxes and shall be made with compression type solderless connectors

D. Branch circuits shall be of such size that the drop in potential to the farthest point on the circuit shall not exceed 2%.

E. Minimum wire sizes – #12AWG

F. All wiring for this Project is sized based upon copper current carrying capacity.

1.02 CONNECTIONS

A. Connectors of the nonmetallic screw type are not approved.

B. Connections for electrical and mechanical security:

1. No. 8 wire and larger made with forged copper pressure connectors.

2. No. 10 wire and smaller made with indent type splice caps or electrical spring connectors (3M Thrist Lock).

3. Cover joints with sufficient plastic tape of caps to insure insulating value equal to that of the conductor insulation itself.

4. Pad sharp corners and voids to prevent damage.

1.03 COLOR CODING

A. Throughout the system, all conductors shall be identified as to phase and voltage of system by color coding in accordance with NEC 210-5.

1. Neutral of different voltage systems must be of different color.

2. All circuit conductors of the same color - connected to the same feeder conductor throughout the installation.

B. Conductors # 6 and smaller - the color of the insulation covering.
C. Color coding of wire larger than No. 6 AWG and other types of wire accomplished by means of self-adhesive, wrap around type markers of solid colors.

1. Mark each wire at panel boards, junction boxes, pull boxes, outlets, and disconnects switches.

2. Color Code

120/208		277/408	
A	black	A	brown
B	red	B	purple
C	blue	C	yellow
N	white	N	gray
G	green	G	green
SL	pink	SL	pink

D. The grounding conductors shall be green or bare for all systems.

PROJECT LOCATION

STATE	TEXAS	SHEET	E7
COUNTY	JEFFERSON	DITCH NO.	XX
CITY	BEAUMONT	WATERSHED	XX

Dump Truck Building
Electrical Notes

DATE

NO.	DATE	DRN	REVISION	APP.
1				
2				
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4				
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SECTION 26100

CONDUIT SYSTEMS

1.01 GENERAL

A. Install conduit systems as shown on the Drawing with installation and all components of the system:

1. U.L. Labeled

2. Conforming to local codes and the National Electric Code.

B. Adhere to the general routing of the conduit systems as shown on the Drawings.

1. Verify routing with existing conditions.

C. Install all conduit in the most direct, neat and workmanlike manner, employing only skilled mechanics.

1. Install conduit to conserve building space and not interfere with use of space.

D. Hold horizontal and vertical conduit as close as possible to walls, ceilings as to occupy the minimum space consistent with the proper requirements for service of adjacent elements.

E. Conduit terminations at panel board, pull boxes or outlet boxes:

1. Secured in place by locknuts inside and outside

2. Provided with approved bushings

F. Join rigid conduit with standard couplings according to the manufacturer's recommendations.

1.02 CONDUIT

A. All conduit shall be new and shall bear the inspection label of the Underwriter's Laboratories, Inc.

B. Conduit indoors – electrical metallic tubing – (EMT)

1. Cold rolled steel tubing, zinc coated inside and out.

2. Fittings – U.L. approved and meeting same requirements as EMT.
a. Compression type.
b. Cast metal not approved.

C. Conduit underground – schedule 40 PVC with PVC fittings and solvent welded joints.

1. PVC long radius elbows shall be used in each change of direction.

2. Sealed watertight at both ends.

3. Depth of burial in accordance with NEC.

4. In a red dyed concrete envelope with 4" of encasement on all sides for primary electrical conduits only.

5. Encasement not required for electrical secondary conduits. Use direct burial tape for electrical secondary conduits.

D. Flexible Metal Conduit

1. Connections to vibrating or motorized equipment shall be made with hot dipped flexible conduit for motors or equipment located indoors. Flexible liquid type shall be compatible with the flexible conduit shall also be used for equipment being served on roof. Connections shall be compatible with the flexible conduit used Liquid type conduit shall also be used in Class 1, Division 2, locations.

E. Conduit through slab shall be galvanized.

F. Exposed exterior conduits shall be rigid steel schedule 40, mild steel pipe zinc coated inside and out. Fittings meet same requirements as for rigid steel

G. Flexible metal conduit shall not be used for home runs or branch circuits. Shall only be used for fixture use only in 6 foot lengths from junction box. Shall not be used (daisy chained) from fixture to fixture.

1.03 INSTALLATION

A. In suspended ceilings, support conduit runs from structure, not ceiling system construction.

B. All conduit shall be concealed unless definitely shown otherwise.

C. Cap or plug conduit ends upon completion of the run until the wire is pulled.

D. Swab out conduit to remove moisture and debris before wires are pulled in.

E. Completely install each conduit run prior to pulling conductors.

F. Route all exposed conduits parallel or perpendicular to building lines.

G. Alter conduit routing to avoid structural obstructions, minimizing crossovers.

1.04 MINIMUM CONDUIT SIZES

A. Branch circuit (except "Home Run"): 1/2"

B. "Home Run": 3/4"

C. Switch leg: 1/2"

1.05 RACEWAY CONTINUITY

A. Assure the electrical continuity of all metal conduit systems.

1.06 MISCELLANEOUS CONDUIT SYSTEMS

A. Provide a system of empty conduit and boxes for television, telephone and computer data systems wiring and cabling.

1. As shown on the drawings.

2. Confirm requirements with respective systems installer.

3. Respective system installer shall provide any additional conduit systems if required during the construction phase at no cost to the owner.

B. Provide a complete system of empty conduit and boxes for reception of other systems as specified or shown on the drawings.

1. Confirm exact requirements and location prior to installation.

C. Size conduit as shown on the drawings or as specified.

1. Minimum size conduit 3/4".

D. Leave a continuous, identified nylon cord in each empty conduit.

E. Conduit types as specified in this section.

SECTION 26103

GROUNDING OF ELECTRICAL SYSTEMS

1.01 GENERAL

A. Grounding of the electrical systems shall conform to the requirements of the National Electrical Code and other governing local codes.

B. Ground effectively and permanently:

1. All conduit systems.

2. All electrical equipment

3. The neutral conductor

C. Reference Standards

1. ANSI/IEEE STANDARD 142 – RECOMMENDED PRACTICE FOR GROUNDING OF INDUSTRIAL AND COMMERCIAL POWER SYSTEMS

2. ANSI/UL 467 – SAFETY STANDARD FOR GROUNDING AND BONDING EQUIPMENT

1.02 GROUNDING ELECTRODE

A. Provide a U.L. listed, 3/4" x 10'-0" long copper clad grounding electrode.

B. Utilize U.L. listed grounding electrode connectors and approved thermal fusion methods.

C. Driven with top of electrode at grade.

D. The total resistance shall not exceed 10 OHMS for service entrance grounds and 25 OHMS for equipment grounds.

1. Provide a longer electrode, additional electrodes, or deep driven sectional electrodes as required until the specified ground resistance is obtained.

2. The minimum distance between electrodes shall be 10'-0".

E. Measure the resistance of neutral ground using a megger earth resistance tester not less than 48 hours after the last rainfall.

1.03 GROUNDING FOR SYSTEMS 600 VOLT OR LESS

A. In the service equipment provide a ground bus separate from the neutral bar, bonded with a copper strap to the neutral bar.

B. Connect the grounding electrode conductor between the ground bus and the driven ground electrode.

1. In rigid steel conduit.

C. Install a green insulated grounding conductor as follows:

1. To all weatherproof receptacles.

2. To all isolated ground receptacles.

3. In each section of nonmetallic conduit.

4. With each panel feeder.

5. With each branch circuit with two or three pole breakers.

6. In each surface metal raceway.

7. Domestic cold water service bond.

8. Structural steel bond.

9. Concrete encased electrode.

SECTION 26431

PANELBOARDS

PART 1 GENERAL

A. The requirements of the Contract, Division 1, and Division 16 apply to work in this Section.

1.01 SECTION INCLUDES

A. Low voltage power panel boards

1.02 RELATED SECTIONS

1.02 REFERENCES

A. ANSI/NEMA PB 1, Panel boards

B. ANSI/NFPA 70, National Electrical Code

C. Federal Specification W-C-375, Rev. B, Amend. 1, Circuit Breakers, Molded Case; Branch Circuit and Service

D. Federal Specification W-P 115, Rev. C, Panel, Power Distribution

E. Federal Specification W-S-865 – Heavy Duty Switches

F. UL 489, Molded-Case Circuit Breakers and Circuit-Breaker Enclosures

G. UL 50, Enclosures for Electrical Equipment

H. UL 67, Panel boards

I. UL 98, Enclosed and Dead Front Switches

1.03 DEFINITIONS

A. Over-current Protective Device – Single pole circuit breaker. Example: A 2-pole device is considered 2 protective devices.

1.04 SYSTEM DESCRIPTION

A. Equipment shall be indoor or outdoor as noted on the drawings dead-front, power panel boards for molded-case circuit breakers.

B. Panel boards shall meet service entrance requirements when specified.

C. Panel boards shall have integrated short circuit rating. Fully rated panel rating is that of lowest rated device in panel board. Series rating are for the UL tested main-branch combination.

1.05 SUBMITTALS

A. Manufacturer shall provide copies of following documents to owner for review and evaluation in accordance with general requirements of Division 1 and Division 16:

1. Product Data on specified product;

2. Shop Drawings on specified product;

1.07 PROJECT RECORD DOCUMENTS

1.08 INSTALLATION, OPERATION AND MAINTENANCE DATA

A. Manufacturer shall provide copies of installation, operation and maintenance procedures to owner in accordance with general requirements of Division 1 and Division 16.

1.09 QUALITY ASSURANCE (QUALIFICATIONS)

A. Manufacturer shall have specialized in the manufacture and assembly of low voltage power panel boards for [25] years.

B. Low voltage power panel boards shall be listed and/or classified by Underwriters Laboratories in accordance with standards listed in Article 1.03 of this specification.

1.10 REGULATORY REQUIREMENTS

1.11 MOCK-UPS (FIELD SAMPLES)

1.12 DELIVERY, STORAGE, AND HANDLING

A. Contractor shall deliver, store, protect, and handle products in accordance with recommended practices listed in manufacturer's Installation and Maintenance Manuals.

B. Ship each low voltage power panel board section in individual shipping splits for ease of handling. Each panel board section shall be mounted on shipping skids and wrapped for protection.

C. Contractor shall inspect and report concealed damage to carrier within specified time.

D. Contractor shall store in a clean, dry space. Maintain factory protection or cover with heavy canvas or plastic to keep out dirt, water, construction debris, and traffic.

E. Contractor shall handle in accordance with manufacturer's written instructions to avoid damaging equipment, installed devices, and finish.

1.13 PROJECT CONDITIONS (SITE ENVIRONMENTAL CONDITIONS)

A. Follow (standards) service conditions before, during and after panel board installation.

B. Low voltage power panel boards shall be located in well-ventilated areas, free from excess humidity, dust and dirt and away from hazardous materials. Ambient temperature of area will be between minus 30 and plus 25 degrees C. Indoor locations shall be protected to prevent moisture from entering enclosure.

1.14 SEQUENCING AND SCHEDULING

1.15 WARRANTY

A. Manufacturer warrants equipment to be free from defects in materials and workmanship for 1 year from date of installation or 18 months from date of purchase, whichever occurs first.

1.16 MAINTENANCE SERVICE

1.17 EXTRA MATERIALS

1.18 FIELD MEASUREMENTS

A. Contractor shall make all necessary field measurements to verify that equipment shall fit in allocated space in full compliance with minimum required clearances specified in National Electrical Code.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. SQ.D Electric Company products have been used as the basis for design. Other manufacturers' products of equivalent quality, dimensions and operating features may be acceptable, at the Engineer's discretion, if they comply with all requirements specified or indicated in these Contract documents.

2.02 MANUFACTURED ASSEMBLIES

A. Furnish SQ.D Bolt-On Low Voltage Power Panel boards (or equal) as indicated in drawings.

2.03 COMPONENTS

Refer to Drawings for: actual layout and location of equipment and components; current ratings of devices, bus bars, and components; voltage ratings of devices, components and assemblies; and other required details.

SECTION 26431

PANELBOARDS

A. Enclosures

1. Panel box shall be galvanized code gauge sheet steel with removable end walls.

2. Enclosures shall be surface mounted.

3. Enclosures shall be NEMA 1, 3R or 12 as shown on drawings.

B. Fronts

1. Provide a four piece front to cover wiring gutter and wiring access areas. Provide a lockable hinged door with semi-concealed hinges to cover access to circuit breakers.

2. Hinged door fronts, when specified, shall be provided with a lockable inner door with leaf hinges. An inner door shall cover the circuit protective devices and shall be able to be locked.

3. Door locks shall be SQ.D Valox style 3 point latch.

C. Interiors

1. Panel board interior shall be designed and assembled such that circuit protective devices shall be solidly connected to the distribution panel vertical bus. The bus bars shall be attached to the feeder device by bolts and to the vertical bus by bolts and anti-turn methods.

2. Circuit breaker connectors shall be designed so that circuit breakers may be removed without disturbing adjacent devices.

3 Panel boards shall be rated as indicated in drawings. Main devices shall have maximum rating of 1200 amperes.

4. Panel boards shall have three vertically aligned bus bars.

5. Bus bars shall be copper. The bus bars shall have sufficient cross sectional area to meet UL 67 temperature rise requirements through actual tests. The bus bars shall be standard density rated for 1000 amperes per square inch copper.

6. Bus bars shall be phase-sequenced and rigidly supported by high impact resistant, insulated bus supporting assemblies to prevent vibration or short circuit mechanical damage.

7. Neutral bus shall be [{fully rated}{200 percent rated}] where indicated on the drawings.

8. All solderless terminations shall be suitable for copper UL listed wire or cable and shall be tested and listed in conjunction with appropriate UL standards. Terminations shall be rated for use with conductor ampacity as assigned in the NEC 75 degree C table.

9. Ground wire terminations shall be provided as an optional kit for installation by panel board installer without voiding UL label.

D. Main and Branch Devices

1. Circuit breakers

a. Main and branch circuit breakers shall be quick-make, quick break, and trip indicating, SQ. D Type low voltage molded-case (or equal).

b. Circuit breaker case shall have ON/OFF and International I/O position indicators.

c. Breaker faceplate shall list current rating, UL and IEC certification standards, and AIC ratings.

d. Circuit breakers shall be factory sealed and shall be date coded on breaker case.

e. Breakers shall be UL listed for reverse connection without restrictive line or load markings. Circuit breakers shall be able to mount in any operating position.

f. 3-pole breakers with ampere ratings greater than [150] ampere shall have interchangeable rating plugs.

g. All circuit protective devices shall have the following minimum symmetrical current interrupting capacity 18kA, 25kA, 35kA, 50kA, 65kA or 100kA as indicated on drawings. Interrupting rating of breakers shall not be less than maximum short circuit current available at incoming line terminals as shown on plans.

h. Breakers shall have UL listed series ratings, if specified in drawings.

i. Main breakers and lugs shall be convertible by installer for top or bottom incoming feed.

j. Where indicated on the drawings, the main breaker shall be provided with integral ground fault pick-up and delay settings and adjustable long time, and instantaneous and short time settings.

E. Series Ratings

1. Panel board series-connected ratings shall be attached to the panel board enclosure.

2.04 ACCESSORIES

A. Dual Through-feed lugs

B. Padlocks

C. Grounding bars. (Neutral bus shall have grounding lug for Service Entrance applications.)

D. Exterior mounted equipment label

E. Furnish nameplates for each device as indicated in drawings. Color schemes shall be as indicated on drawings.

2.05 TESTING

2.06 FINISH

A. Standard panel board boxes shall be galvanized (zinc finished) or galvanized.

B. Fronts shall be coated with phosphatized rust inhibitor and finish coated with ANSI 61 light gray baked on powder coat.

C. Screw fasteners shall be zinc coated to retard corrosion.

PART 3 EXECUTION

3.01 EXAMINATION

A. The following procedure shall be performed by the contractor.

1. Verify that low voltage panel boards are ready to install.

2. Verify field measurements are as shown on Drawings.

3. Verify that required utilities are available, in proper location and ready for use.

4. Beginning of installation means installer accepts conditions.

3.02 LOCATION

Specify location and access requirements to meet NEC 110-16.

3.03 INSTALLATION

Additional provisions and editing may be required for this part.

A. Contractor shall install per manufacturer's instructions

B. Contractor shall install required safety labels.

SECTION 26150

DISCONNECT SWITCHES–HEAVY DUTY

1.01 Part 1 General

Section includes:

A. Switches shall be furnished and installed at locations as shown on the drawings. Switches shall be of the type approve, indicated and specified herein.

1.02 References

Switches shall be manufactured in accordance with the following standards:
A. UL 98 - enclosed and dead front switches.

B. NEMA KS 1 - enclosed switches.

C. NEMA 250 - enclosed for electrical equipment.

1.03 Service entrance

A. Switches identified for use as service equipment are to be labeled for this application.

1.04 Drawings

A. Provide outline drawings with dimensions and equipment ratings for voltage, amperage, horsepower and short circuit.

Part 2 Products

2.01 Manufacturers

A. Switches shall be manufactured by General Electric Company.

2.02 Switch interior

A. All switches shall have switchblades which are visible when the switch is off and the cover is open. Type 1, 3R, 4-4X-5 stainless steel, 12.

B. Lugs shall be front removable and UL listed for 60°C or 75° conductors (30-100 ampere), 75° C conductors (type 1, 3R or 4X polyester), copper conductors only (type 12, 12K, type 4-4X-5 SS)

C. 30 through 100-ampere switches shall be equipped with factory installed fuse pullers, type 12, 12K, type 4-4X-5 SS. Type 4 polyester.

D. Switches required for type 12, 12K or type 4-4X-5 SS applications shall have all copper current carrying parts.

E. All current carrying parts shall be plated to resist corrosion.

F. Switches shall have provisions for a field installable electrical interlock.

2.03 Switch mechanism

A. Switch operating mechanism shall be quick-make, quick-break such that, during normal operation or the switch, the operation of the contacts shall not be capable of being restrained by the operating handle after the closing or opening action of the contacts has started.

B. The operating handle shall be an integral part of the box, not the cover, type 1, 3R, 4-4X-5 SS 4X polyester, 12, 12K.

C. Provisions for padlocking the switch in the off position with at least three padlocks shall be provided.

D. The handle position shall travel at least 90° between off and on positions to clearly distinguish and indicate handle position, type 1, 3R, 4-4X-5 SS, 4X polyester, 12, 12K.

E. All switched type 1, 3R, 4-4X-5 SS, 4X polyester, 12, 12K shall have a dual cover interlock mechanism to prevent unintentional opening of the switch cover when the switch is on and prevent turning the switch on when the cover is open. The cover interlock mechanism shall have an externally operated override but the override shall not permanently disable the interlock mechanism. The tool used to override the cover interlock mechanism shall not be required to enter the enclosure in order to override the interlock.

2.04 Switch enclosures

A. Switch covers shall be attached with welded pin-type hinges (type 1, 12, 12K, 4-4X-5 SS), top hinged, attached with removable screws and securable in the open position (type 3R), attached by molded hinges and type 316 SS hinge pins (type 4X polyester), attached by type 316 SS bolts (type 7-9).

B. The enclosure shall be finished with gray baked enamel paint which is electrodeposited on cleaned, phosphate pre-treated steel (type 1), gray baked enamel paint which is electrodeposited on cleaned, phosphate pretreated galvanealed steel (type 3R, 12, 12K), a brush finish on type 304 SS (type 4-4X-5 SS), gray baked enamel on copper free aluminum alloy (type 4X polyester).

C. The operating handle shall be provided with a dual colored, red/black position indication, type 1, 3R, 4-4X-5 SS, 4X polyester, 12, 12K.

D. All switches shall have provisions to accept up to three $\frac{3}{8}$ in. hasp padlocks to lock the operating handle in the off position.

E. Tangential knockouts shall be provided to facilitate ease of conduit entry type 1, 3R, for switches rated 30-200A.

F. Type 12 and 4-4X-5 SS enclosure shall contain no knockouts. Supply watertight hubs hubs as indicated on the plans.

G. Type 4X polyester enclosures shall be provided with polyester conduit hubs for field installation.

H. Type 7/9 enclosures shall be provided with threaded conduit openings in both endwalls.

I. Enclosures for type 3R switches through 200 ampere shall have provisions for interchangeable bolt-on hubs in the top endwall. Hubs shall be general electric B-type hubs sized as indicated on the plans.

J. Cover sealing means for switches rated through 200 amperes shall be quick release trunk latches (type 4-4X-5 SS, 12, 12K), type 316 SS captive screws (type 4X polyester, type 316 SS bolt (type 7/9).

K. Type 7/9 enclosures shall be furnished with a breather and drain kit to allow their use in outdoor applications.

L. Type 12, 4-4X-5 SS enclosures shall be dual rated as type 3R to facilitate their use in outdoor applications.

M. Cover viewing window will be incorporated on 30-200A Nema 12, 12K, 4-4X-5 SS, two or three pole switches.

2.05 Switch ratings

A. Switches shall be horsepower rated for A/C and/or DC as indicated on the plans.

B. The UL listed short circuit current rating of the switches shall be 200,000 RMS symmetrical amperes when used with or protected by class R or class J fuses (30-600 ampere switches employing appropriate fuse rejection schemes). 200,000 RMS symmetrical amperes when used with or protected by class L fuses (800-1200 ampere).

SECIION 16401

ELECTRIC UTILITY SERVICE ENTRANCE

1.01 General

A. The owner will pay all utility company fees/charges to provide the new electrical service.

B. Obtain from the electrical utility company all required information to provide a complete electrical service installation in conjunction with the work performed by the electric utility company.

C. Provide the construction coordination required to effect the utility power connection at the proper time.

D. Coordinate that part of the service installation, construction including metering provisions; provided by the electric utility.

E. Construct the power service entrance in accordance with the requirements of:
1. The electric utility company.
2. The national electric code.
3. Governing local codes.

PROJECT LOCATION

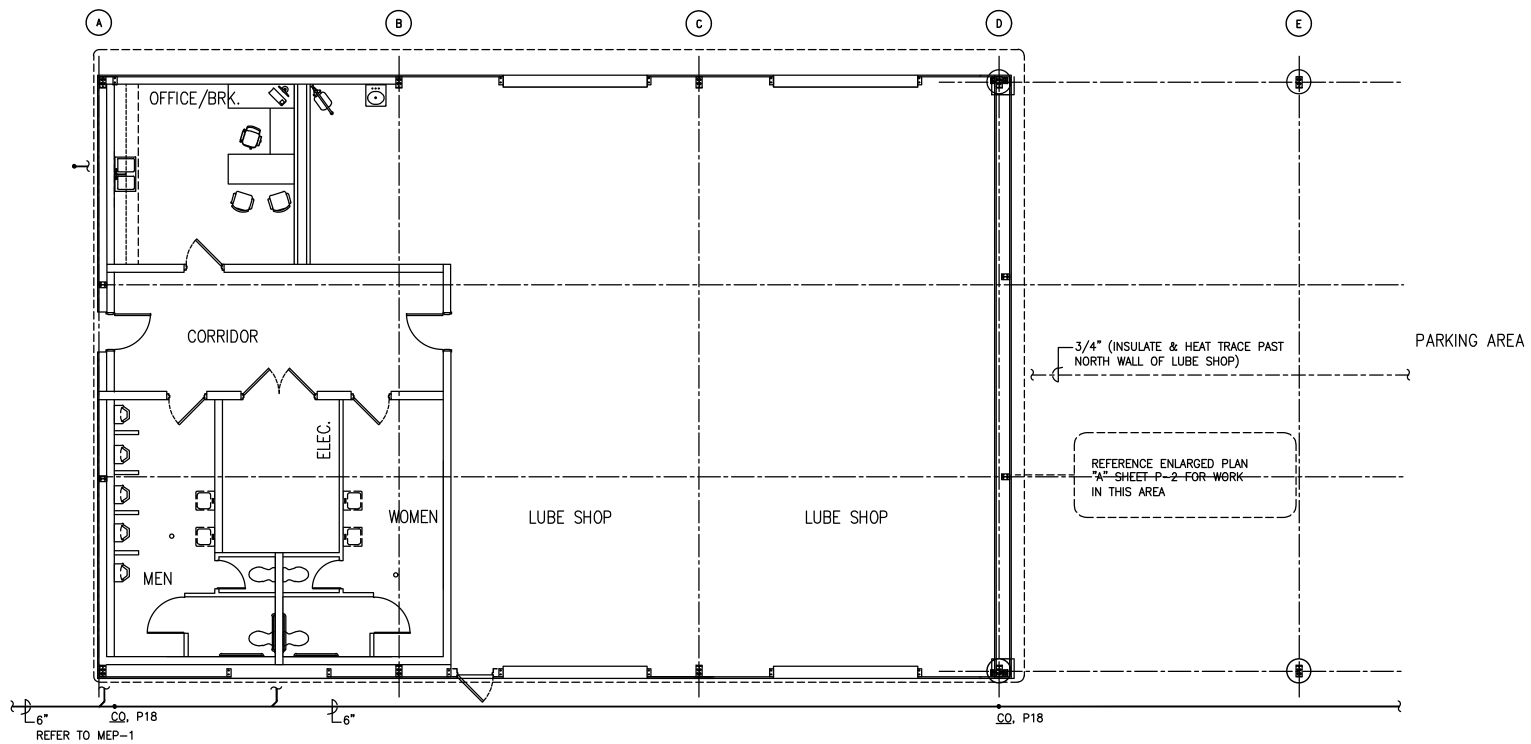
STATE	TEXAS	SHEET	E8
COUNTY	JEFFERSON	DITCH NO.	XX
CITY	BEAUMONT	WATERSHED	XX

Dump Truck Building
Electrical Notes

DATE

NO.	DATE	DRN	REVISION	APP.
6				
5				
4				
3				
2				
1				

Scale : $\frac{1}{8}$"=1'-0"



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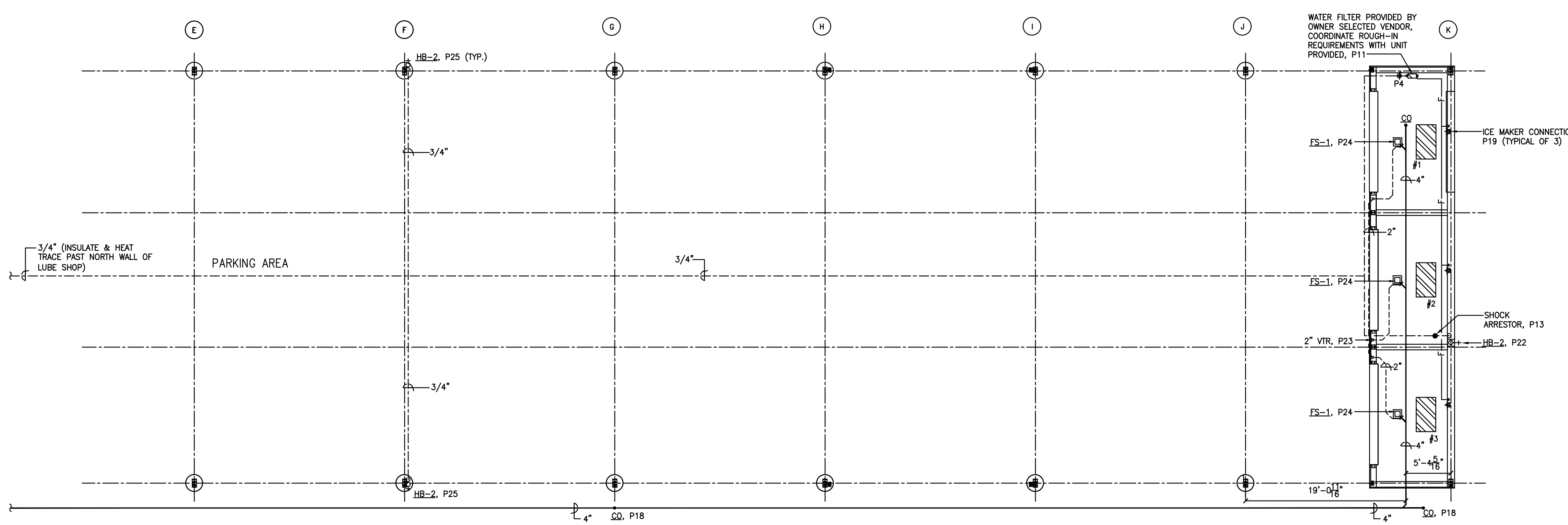


B

NOTE: ALL EXPOSED WATER PIPING, NOT LOCATED IN CONDITIONED (HEATED) SPACE SHALL BE INSULATED AND HEAT TRACED. ROUTE ALL WATER PIPING IN OPEN AREA AS HIGH AS POSSIBLE.

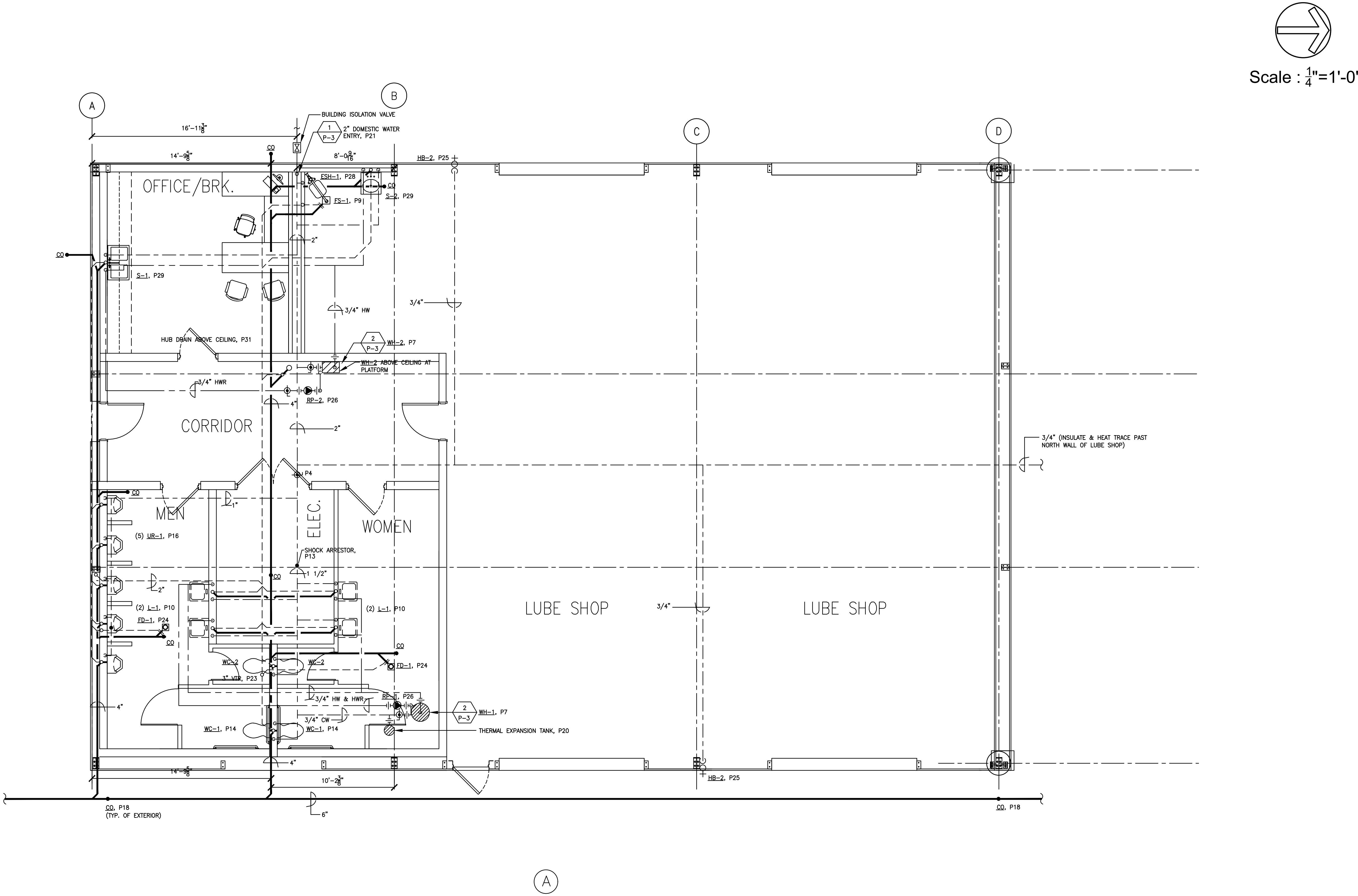
PROJECT LOCATION

CITY	COUNTY	STATE
BEAUMONT	JEFFERSON	TEXAS
WATERSHED	DITCH NO.	SHEET
XX	XX	P1

Dump Truck Building Plumbing Plan

DATE

NO.	DATE	DRN	REVISION	APP.
1				
2				
3				
4				
5				
6				



PROJECT LOCATION

CITY	COUNTY	STATE
BEAUMONT	JEFFERSON	TEXAS
WATERSHED	DITCH NO.	SHEET
XX	XX	P2

Dump Truck Building
Plumbing Plan

DATE

NO.	DATE	DRN	REVISION	APP.
1				
2				
3				
4				
5				
6				

ELECTRIC WATER HEATERS

MARK	RECOVERY		ELECTRIC CONNECTION	MANUFACTURER	MODEL NO.	KW	CONNECTION SIZES			REMARKS
	TANK GALLONS	GPH @ 90° RISE					INLET	OUTLET	DRAIN RELIEF VALVE	
WH-1	10	9	208-1-60	STATE	PCE-10-10MSA	2.0	3/4"	3/4"	3/4"	W/ (1)
WH-2	6	17	120-1-60	STATE	PCE-6-10MSA-3	3.0	3/4"	3/4"	1/2"	W/ (2)

NOTES:

1) SUSPENDED COMMERCIAL LIGHT DUTY WATER HEATER WITH:
   A) AUTOMATIC THERMOSTAT
   B) GLASS LINED TANK
   C) THICK FOAMITE INSULATION
   D) 36" GALVANIZED DRAIN PAN

2) UPRIGHT "PATRIOT" LIGHT DUTY COMMERCIAL HEATER WITH:
   A) FACTORY INSTALLED T&P VALVE
   B) AUTOMATIC THERMOSTAT
   C) ANODE ROD
   D) THICK FOAMITE (POLYUETHANE FOAM) INSULATION

CLEANOUTS

MARK	MANUFACTURER	MODEL NO.	TYPE	REMARKS
C.O.	SIOUX CHIEF	852	HARD FINISHED FLOOR	PVC BODY, ROUND ADJUSTABLE NICKEL BRONZE CORIGATED TOP, PVC CLOSURE PLUG.
C.O.	SIOUX CHIEF	873	FINISHED WALLS	BRASS PLUG, ROUND STAINLESS STEEL ACCESS COVER WITH SCREW.
C.O.	SIOUX CHIEF	852	FINISHED GRADE	PVC BODY AND CLOSURE PLUG WITH ROUND CAST IRON TRACTOR TYPE TOP.
C.O.	SIOUX CHIEF	852-C	CARPETED FLOOR	PVC BODY, ROUND ADJUSTABLE NICKEL BRONZE CORIGATED TOP, PVC CLOSURE PLUG WITH CARPET MARKER.

FLOOR DRAINS/FLOOR SINKS

MARK	MANUFACTURER	MODEL NO.	STRAINER SIZE	REMARKS
FD-1	SIOUX CHIEF	842-36LNQ	6"	NICKEL BRONZE SQUARE RING AND ROUND STRAINER AND VANDAL RESISTANT STAINLESS STEEL SCREWS.
	SIOUX CHIEF	842-83PT		PVC FLANGED ADAPTOR WITH CAST IRON FLASHING COLLAR, GASET SEAL OUTLET, DEEP SEAL P-TRAP WITH TRAP PRIMER CONNECTION.
FD-2	ZURN	Z325	6"	7" DIAMETER INDIRECT WASTE FUNNEL WITH DURA-COATED CAST IRON BODY, PLAST BALL FLOAT, BRONZE BACKWATER VALVE BUSHINGS. PROVIDE GALVANIZED "CAP" TO PREVENT INTRUSION OF STORM WATER.
FS-1	ZURN	ZN1901	----	12" x 12" FLOOR SINK WITH THREE-QUARTER OR HALF GRATE, DOME STRAINER, NICKEL BRONZE TOP - REFERENCE PLANS.

MINIMUM LINE SIZES

FIXTURE	MARK	HOT WATER	COLD WATER	WASTE	VENT
WATER CLOSET	WC-1, WC-2	----	1"	4"	2"
URINAL	UR-1	----	3/4"	2"	2"
LAVATORY	L-1	1/2"	1/2"	2"	1 1/2"
SINK	S-1, S-2	1/2"	1/2"	2"	1 1/2"
DRINKING FOUNTAIN	EDF-1	----	1/2"	2"	1 1/2"
SERVICE SINK	SS-1	1/2"	1/2"	3"	2"
HOSE BIB	HB-1	----	3/4"	----	----
HOSE BIB	HB-2	----	3/4"	----	----
EMERGENCY SHOWER/ EYEWASH	ESH-1	----	1 1/4"	FLOOR SINK	----

HOSE BIB

MARK	MANUFACTURER	MODEL NO.	REMARKS
HB-1	WOODFORD	RB65	3/4" I.P.S. CLOSE COUPLED AUTOMATIC DRAINING, FREEZELESS RECESSED BRASS WALL HYDRANT WITH CHROME FINISH, VACUUM BREAKER, LOCKING DOOR AND KEY OPERATOR.
HB-2	WOODFORD	B65	3/4" I.P.S. CLOSE COUPLED AUTOMATIC DRAINING, FREEZELESS RECESSED BRASS WALL HYDRANT WITH CHROME FINISH, VACUUM BREAKER AND KEY OPERATOR.

RECIRCULATION PUMP

MARK	DUTY	GPM	HEAD (FT.)	HP	MAX. RPM	VOLTAGE	MFG'R.	MODEL	REMARKS
RP-1	HOT WATER	5-60	15	1/6	1750	120-1-60	GRUNDFOS	UPS43-44BFC	W/ (1), (2), (3)
RP-2	HOT WATER	5-60	15	1/6	1750	120-1-60	GRUNDFOS	UPS43-44BFC	W/ (1), (2), (3)

NOTES:

1) 125# WORKING PRESSURE WITH 3/4" NPT FLANGES.
2) ALL BRONZE IN-LINE RECIRCULATION PUMP.
3) 3-SPEED WITH BUILT IN CHECK VALVE.

PLUMBING SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
1 P-1	REFERENCE TO DETAIL AND SHEET NUMBER	FD	FLOOR DRAIN
	POINT OF CONNECTION. NEW TO EXISTING	VTR	VENT THRU ROOF
	EQUIPMENT FURNISHED BY PLUMBING CONTRACTOR		THERMOMETER
	EQUIPMENT FURNISHED BY OTHERS	HB	RECESSED HOSE BIBB
AFF	ABOVE FINISHED FLOOR		DRAIN VALVE WITH HOSE THREAD
U.G.	UNDERGROUND		BALL VALVE
	DOMESTIC COLD WATER		GATE VALVE
	DOMESTIC HOT WATER: 120°F		UNION
	DOMESTIC HOT WATER RETURN	R	RELIEF VALVE
	PIPE RISER DOWN	CO	CLEANOUT IN FLOOR OR GRADE
	PIPE RISER UP		HUB DRAIN
	SHOCK ARRESTOR		VENT LINE
	SOIL OR WASTE LINE		
	RECIRCULATION PUMP		

PLUMBING FIXTURE SCHEDULE

MARK	MODEL NO.	REMARKS
WC-1		
AMERICAN STANDARD	3043.001.020	"MADERA" VITREOUS CHINA LOW CONSUMPTION ELONGATED FRONT RIM, SIPHON JET FLUSH ACTION FLOOR MOUNTED TOILET, COMPLETE. INCLUDES 1 1/2" TOP SPUD AND 2 BOLT CAPS, LESS SEAT. ADA COMPLIANT. TOP OF SEAT IS AT 17 1/2" A.F.F..
CHURCH	9500C	ELONGATED, OPEN FRONT SEAT LESS COVER. (VERIFY COLOR WITH OWNER/ARCHITECT).
SLOAN	111	"ROYAL" EXPOSED, TOP MOUNT MANUALLY OPERATED WATER CLOSET FLUSHOMETER VALVE FOR 1.6 GPF CONSUMPTION.
WC-2		
AMERICAN STANDARD	2599.0001.020	"MADERA" VITREOUS CHINA LOW CONSUMPTION ELONGATED FRONT RIM, SIPHON JET FLUSH ACTION FLOOR MOUNTED TOILET, COMPLETE. INCLUDES 1 1/2" TOP SPUD AND 2 BOLT CAPS, LESS SEAT. ADA COMPLIANT. TOP OF SEAT IS AT 15" A.F.F..
CHURCH	9500C	ELONGATED, OPEN FRONT SEAT LESS COVER. (VERIFY COLOR WITH OWNER/ARCHITECT).
SLOAN	111	"ROYAL" EXPOSED, TOP MOUNT MANUALLY OPERATED WATER CLOSET FLUSHOMETER VALVE FOR 1.6 GPF CONSUMPTION.
UR-1		
AMERICAN STANDARD	6501.010	"WASHBROOK" VITREOUS CHINA WALL HUNG TOP SPUD FLUSH VALVE URINAL, 14" RIM FROM FINISHED WALL, WASHOUT ACTION.
SLOAN	186.1.0	"ROYAL" FLUSHOMETER VALVE, 3/4" ANGLE STOP, 3/4" VACUUM BREAKER, SPUD NUTS AND ESCUTCHEON, SWEAT SOLDER KIT.
WADE	W400	FLOOR SUPPORTED HANGER PLATE CARRIER.
L-1		
AMERICAN STANDARD	0356.015	VITREOUS CHINA WALL HUNG LAVATORY WITH FAUCET HOLES ON 8" CENTERS, ADA COMPLIANT.
CHICAGO	404A-369	FAUCET SHALL BE METAL 8" CENTERS WITH METAL FINISH LEVER HANDLES.
McGUIRE	2165-LK	1/2"x3/8" ANGLE HOT AND COLD WATER SUPPLIES WITH LOOSE KEY STOPS.
McGUIRE	M8872	1 1/4" CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT AND OUTLET TO WALL WITH ESCUTCHEON.
McGUIRE	155WC	ADA COMPLIANT OFFSET CHROME PLATED CAST BRASS TAILPIECE WITH OPEN GRID STRAINER.
BRADLEY	S59-4000A	"NAVIGATOR" MECHANICAL THERMOSTATIC MIXING VALVE.
WADE	W520	FLOOR MOUNTED CONCEALED ARM CARRIER
S-1		
ELKAY	LRAD-3322-60-3	ADA COMPLIANT 33"x22"x6" DEEP DOUBLE COMPARTMENT SELF-RIMMING 18 GA. TYPE 304 STAINLESS STEEL SINK WITH 3-HOLES ON 4" CENTERS.
AMERICAN STANDARD	7830.000	"HERITAGE" TWO-HANDLE WIDE SPREAD LAVATORY FAUCET W/ GOOSENECK SPOUT AND ADA COMPLIANT LEVER HANDLE FAUCETS.
McGUIRE	2165-LK	1/2"x3/8" ANGLE HOT AND COLD WATER SUPPLIES WITH LOOSE KEY STOPS.
McGUIRE	M8912	1 1/2" CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT AND OUTLET TO WALL W/ESCUTCHEON.
McGUIRE	151	CHROME PLATED CAST BRASS TAILPIECE WITH BASKET STRAINER.
S-2		
ADVANCE TASCO	7-P5-50	ONE PIECE DEEP DRAIN TYPE 304 STAINLESS STEEL HAND SINK WITH WALL MOUNTING BRACKET AND OFFSET DESIGN. UNIT PROVIDED WITH LEVEL OPERATED DRAIN AND BUILT-IN OVERFLOW. PROVIDE WITH 4" O.C. SPLASH MOUNTED GOOSENECK FAUCET WITH WRIST BLADE HANDLES. PROVIDED WITH 1 1/2" P-TRAP.
ESH-1		
BRADLEY	S19314 SERIES	COMBINATION DRENCH SHOWER AND HALO EYE/FACE WASH WITH SEPARATE SUPPLY AND WASTE PIPES, HAND ACTIVATION EYEWASH PADDLE, BARRIER FREE OPTIONS.

PLUMBING NOTES

P1 COORDINATE EXACT LOCATION OF ALL MECHANICAL ROOM FLOOR SINKS AND DRAINS WITH HVAC AND ELECTRICAL EQUIPMENT. REFERENCE HVAC AND ELECTRICAL DRAWINGS PRIOR TO ROUGH-IN.

P2 ALL EXTERIOR BRACKETS, CLAMPS AND HANGERS SHALL BE GALVANIZED. COAT ALL ENDS AND WELDS WITH "ZRC" COLD GALVANIZED COMPOUND. PROVIDE SHIELDING AT ALL DISSIMILAR METAL CONTACT.

P3 ALL MISCELLANEOUS INTERIOR BRACKETS SHALL BE "SHOP PRIMED" UNLESS GALVANIZED OR STAINLESS STEEL.

P4 LOCATE FULL PORT BALL VALVES 12" MAXIMUM ABOVE CEILING AND IN LOCATION ACCESSIBLE FOR SERVICE - COORDINATE EXACT LOCATION AND ACCESS PANEL REQUIREMENTS WITH HVAC/LIGHTING DRAWINGS PRIOR TO INSTALLATION.

P5 REFERENCE MINIMUM LINE SIZE SCHEDULE FOR LINE SIZES NOT SHOWN ON PLANS.

P6 PROVIDE 12" AIR CHAMBER FOR DOMESTIC HOT AND COLD WATER PIPING AT SINGLE FIXTURES.

P7 WATER RELIEF DRAIN PIPE TO BE FULL SIZE OF RELIEF VALVE OUTLET. TERMINATE T&P 2" ABOVE FLOOR DRAIN/SINK OR AT HUB DRAIN..

P8 TIE NEW 6" SS INTO EXISTING SANITARY SEWER MANHOLE. FIELD VERIFY EXACT INVERT AND LOCATION PRIOR TO COMMENCEMENT OF WORK.

P9 INSTALL PROSET TRAP GUARD AT ALL FLOOR DRAINS UNLESS NOTED OTHERWISE. COORDINATE EXACT LOCATIONS OF DRAINS W/EQUIPMENT LAYOUT & OWNER.

P10 MOUNT BOTTOM OF ADA COMPLIANT LAVATORY APRONS AT 29" A.F.F. INSULATE P-TRAP, TAILPIECE AND WATER SUPPLIES OF ALL ADA COMPLIANT FIXTURES WITH HANDI-LAV INSULATION.

P11 COLD WATER FILTER FOR FILTERED WATER TO ICE MACHINES PROVIDED AND INSTALLED BY OWNER SELECTED VENDOR. PROVIDE CUT-OFF VALVE AND FLANGES AT FILTER AS REQUIRED. ROUTE FILTERED WATER OVER TO ICE MACHINE CONNECTION BOXES.

P12 PROVIDE NEW COLD WATER CUT-OFF VALVE AT BUILDING WITH CAST IRON TOP WITH "WATER" AND IN CAST IRON HEAVY DUTY BOX.

P13 HYDROTROL SHOCK ARRESTOR EQUAL TO MIFAB SIZE "B" IN CW LINE (12-32 F.U.).

P14 MOUNT TOP OF SEAT OF ADA WATER CLOSET 18" A.F.F. FLUSH OPERATOR SHALL BE FACING "OPEN" SIDE OF STALL.

P15 MOUNT TOP OF SEAT OF STANDARD WATER CLOSET AT 16" A.F.F.

P16 MOUNT URINALS WITH TOP OF BASIN OF STANDARD HEIGHT UNIT AT 24" A.F.F. AND TOP OF BASIN OF ADA UNIT AT 17" A.F.F.

P17 CONNECT TO EXISTING 2" WATER LINE AND ROUTE OVER TO NEW BUILDING. COORDINATE EXACT LOCATION OF TIE-IN WITH REMINGTON WHITT.

P18 PUT TOP OF EXTERIOR CLEANOUTS IN 12" x 12" x 6" THICK CONCRETE PAD FLUSH WITH FINISHED GRADE. LOCATE EXTERIOR CLEANOUTS MAXIMUM 90'-0" O.C.

P19 INSTALL 1/2" DIAMETER ICE MAKER CONNECTION IN RECESSED BOX FOR ICE MAKER. COORDINATE EXACT LOCATION WITH OWNER AND ARCHITECTURAL ELEVATIONS. COORDINATE LOCATION OF FLOOR SINK WITH EQUIPMENT PROVIDED.

P20 THERMAL EXPANSION TANK EQUAL TO WESSELS MODEL TTA5 ASME 2.5 GALLON CAPACITY TANK MOUNTED IN-LINE AT COLD WATER TO WATER HEATER.

P21 FOR COORDINATION/OBSERVANCE OF EXISTING WATER AND SEWER MAIN TAPS, CONTACT: DD6 OR REMINGTON WHITT. FIELD VERIFY EXACT SIZE, DEPTH AND LOCATION IN FIELD. SANITARY SEWER AND VENT PIPING IS SCHEDULE 40 PVC THROUGHOUT. ALL WATER PIPING IS TYPE "M" COPPER WITH HEAT TRACE AND INSULATION. CLEAN AND SANITIZE PER STATE OF TEXAS REQUIREMENTS. OWNER TO MAKE FINAL CONNECTION TO NEW BUILDING ISOLATION VALVE.

P22 INSTALL ALL HOSE BIBS AT 18" A.F.F. COORDINATE EXACT LOCATION WITH OWNER/ARCHITECT.

P23 COORDINATE FLASHING FOR VENTS THRU ROOF WITH ROOFING CONTRACTOR TO KEEP ROOFING WARRANTY INTACT. ROOF CONSISTS OF CONCRETE DECK AND METAL ROOF. SEAL BOTH PENETRATIONS.

P24 INSTALL PROSET TRAP GUARD AT P-TRAP OF ALL FLOOR DRAINS AND FLOOR SINKS.

P25 PROVIDE UNISTRUT AND U-BOLT TO EXPOSED COLUMNS. STRAP HB-2 TYPE HOSE BIBS AND WATER PIPING SECURELY TO COLUMN AND UNISTRUT.

P26 IN-LINE HOT WATER RECIRCULATION PUMP SUSPENDED IN PIPING, AS HIGH AS POSSIBLE IN LOCATION ACCESSIBLE FOR SERVICE. PUMP DE-ENERGIZED AFTER WATER HEATER CUT-OFF. PUMP CONTROLLED BY AQUASTAT, INSTALLED BY PLUMBING CONTRACTOR. RECIRC PUMP SHALL BE ALL BRONZE OR STAINLESS STEEL CONSTRUCTION.

P27 INSTALL FUNNEL DRAIN IN FLOOR DRAIN BODIES IN 4" THICK, 12" X 12" CONCRETE PADS. COORDINATE EXACT LOCATION WITH MECHANICAL EQUIPMENT PROVIDED AND ELEVATION REQUIREMENTS TO INSURE CONDENSATE PIPING SLOPE.

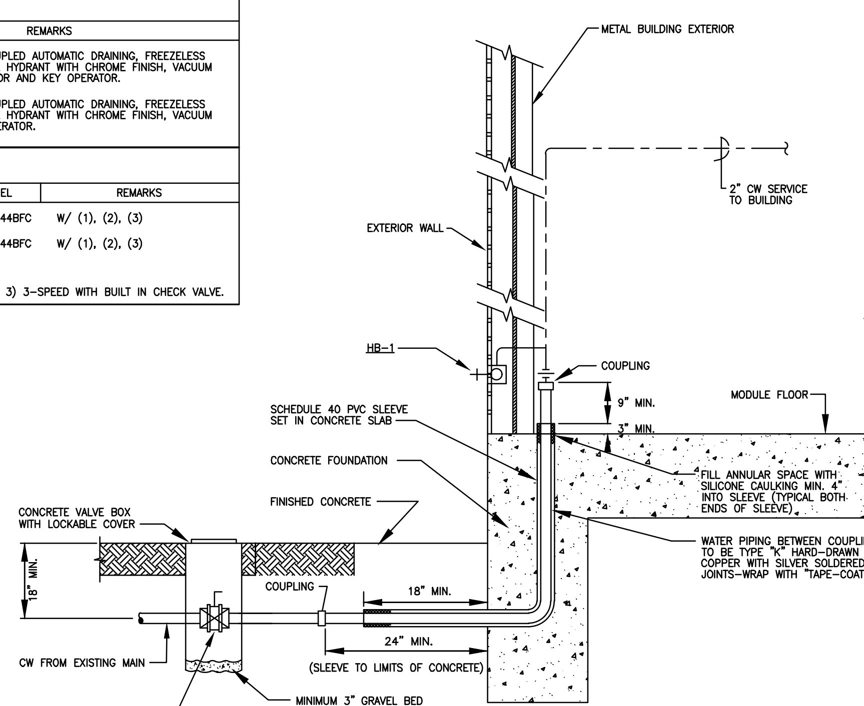
P28 INSTALL ESH-1 WITH FLOOR SINK AT BASE AND 1 1/4" COLD WATER SUPPLY. INSTALL PER MANUFACTURER'S REQUIREMENTS.

P29 VERIFY WITH OWNER FOR ELEVATIONS OF ALL SINKS. AT ADA SINKS, INSULATE P-TRAP, TAILPIECE, AND HOT AND COLD WATER SUPPLIES WITH TRU-BRO "HANDI-LAV" INSULATION KIT, EXCEPT WHERE ARCHITECT PROVIDES FOR INSULATION "APRON" AT KNEE SPACE.

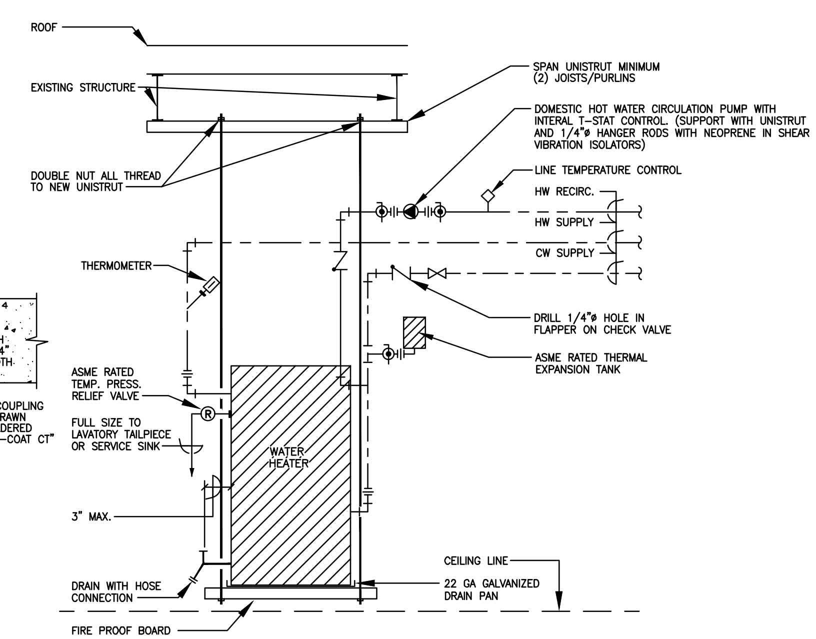
P30 NOT USED

P31 INSTALL HUB DRAIN ABOVE CEILING FOR WH-2 T&P. COORDINATE WITH VENT AND TRAP PRIME P-TRAP

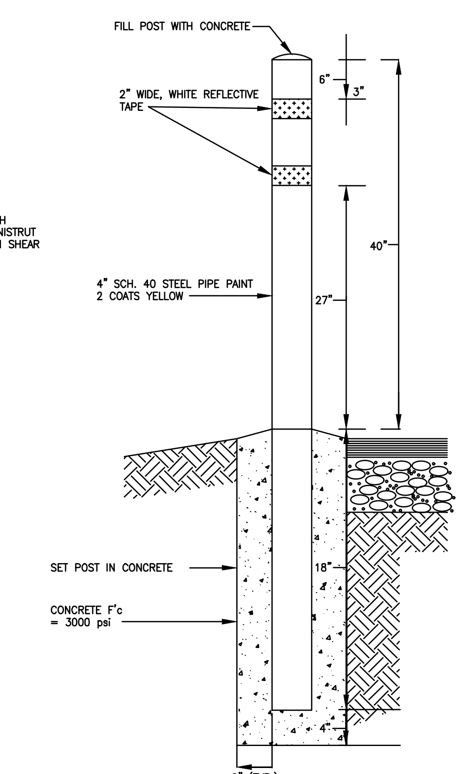
P32 INSTALL NEW FIBERGLASS SANITARY SEWER MANHOLE. COORDINATE EXACT DEPTH, LOCATION AND EXISTING SANITARY SEWER LINES INVERT AND LOCATIONS IN FIELD. CONTACT REMINGTON WHITT. INSTALL MINIMUM 4" THICK CONCRETE APRON WITH IRON RING AND CAST IRON LIB WITH "SANITARY SEWER" CAST ON LID.



1 DOMESTIC WATER ENTRY
NOT TO SCALE



2 SUSPENDED WATER HEATER
NOT TO SCALE



3 BOLLARD DETAIL
NOT TO SCALE

PROJECT LOCATION

STATE	TEXAS	SHEET	P3
COUNTY	JEFFERSON	DITCH NO.	XX
CITY	BEAUMONT	WATERSHED	XX

Dump Truck Building
Plumbing Details and Notes

DATE

NO.	DATE	DRN	REVISION	APP.
6				
5				
4				
3				
2				
1				