CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

NOVEMBER 2001

BROWN AND CALDWELL

Professional Engineering Consultants

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COVERDWG 06-10-01 TBreder

DRAWING LIST

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2	G2	SYMBOLS AND ABBREVIATIONS
3	C1	SITE PLAN AND SURVEY CONTROL
4	C2	SITE PIPING PLAN
5	C3	INFLUENT GRAVITY SEWER PLAN AND PROFILE
6	C4	SITE GRADING AND PAVING PLAN
7	C5	MANHOLE DETAILS
8	C6	YARD PIPING DETAILS – 1
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42	S102	BUILDING FOUNDATION PLAN AND DETAILS
43	S103	GRADE LEVEL PLAN
44	S104	ROOF FRAMING PLAN
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49	M2	PIPE SUPPORTS, PIPE RACKS AND HANGERS
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51	M4	PIPE PENETRATION
52	M101	WETWELL, VALVE VAULT AND METER VAULT – PLAN AND SECTION
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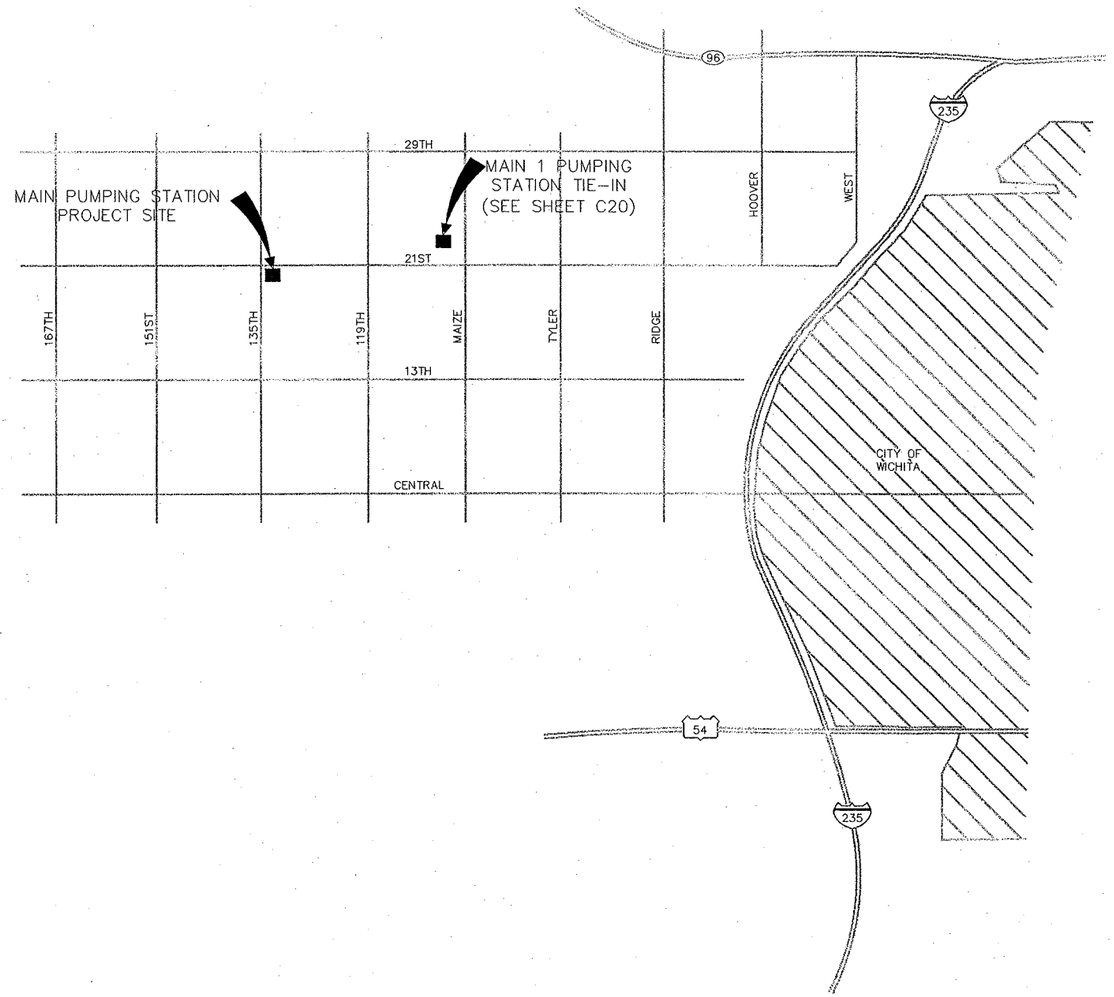
FINAL PLANS



LOCATION MAP

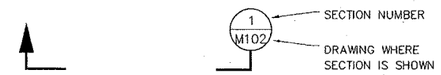
DRAWING NUMBERING SYSTEM

(1) THE DRAWINGS ARE SUBDIVIDED BY GENERAL TYPE AS FOLLOWS:

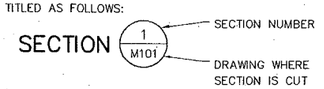
- G GENERAL
- C CIVIL
- P PROCESS DIAGRAM
- A ARCHITECTURAL
- S STRUCTURAL
- M MECHANICAL
- E ELECTRICAL
- I INSTRUMENTATION

CROSS REFERENCING SYSTEM

1. SECTION CUTS ARE IDENTIFIED AS FOLLOWS:



2. SECTIONS ARE TITLED AS FOLLOWS:



3. DETAILS ARE IDENTIFIED AS FOLLOWS:

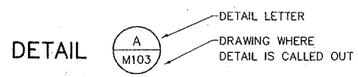
A. BY NOTE: "SEE DETAIL B/M5"

--B IS DETAIL LETTER

--M5 IS DRAWING WHERE DETAIL IS SHOWN

B. BY CIRCLING AREA TO BE DETAILED AND LEADERING OUT TO AN ENLARGED DETAIL OF THE CIRCLED AREA.

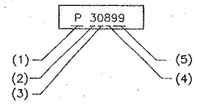
4. DETAILS ARE TITLED AS FOLLOWS:



5. NOTES LISTED ELSEWHERE ON THE DRAWINGS ARE KEY NOTES.

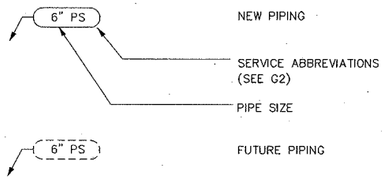
EQUIPMENT NUMBERING SYSTEM

MAJOR ITEMS OF MECHANICAL, ELECTRICAL, AND INSTRUMENTATION EQUIPMENT ARE IDENTIFIED BY A CODED NUMBERING SYSTEM, CONSISTING OF ONE TO FOUR LETTERS FOLLOWED BY A NUMBER WHICH IS UNIQUE TO THAT PARTICULAR ITEM. EQUIPMENT NUMBERS ARE DEPICTED IN THE FOLLOWING MANNER:



(1) EQUIPMENT PREFIX -- SEE EQUIPMENT PREFIX LIST ON DRAWING G2
(2) PLANT IDENTIFICATION (3)
(3) PROCESS AREA WITHIN THE PLANT (0)
(4) SUBSYSTEM WITHIN AN AREA OF THE PLANT
(5) EQUIPMENT NUMBER

PIPING IDENTIFICATION SYSTEM



GENERAL NOTES

1. THE NOTE IN THE TITLEBLOCK OF THIS DRAWING WHICH READS "TWO INCHES AT FULL SCALE" APPEARS ON DRAWINGS FOR IDENTIFICATION OF SCALE DISTORTIONS ON HALF SIZE DRAWINGS AND DRAWING REPRODUCTIONS. IT SHALL MEAN THAT THE DRAWING IS FULL SIZE AND THE DRAWING SCALES ACCURATE WHEN THE LENGTH OF THIS LINE IS TWO INCHES. IF THE LENGTH IS OTHER THAN TWO INCHES, DRAWING SCALES MUST BE ADJUSTED ACCORDINGLY.
2. ABBREVIATIONS USED IN THIS CONTRACT DOCUMENT CONFORM TO ANSI Y1.1, UNLESS NOTED OTHERWISE ON DRAWINGS. SEE DRAWING G2 FOR ADDITIONAL ABBREVIATIONS.

BROWN AND CALDWELL
McCLELLAND VAN SICKLE & PERRY
Professional Engineering Consultants

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 11/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
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DESIGNED BY DWC
CHECKED BY DAM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

GENERAL

LOCATION MAP AND REFERENCING SYSTEM

CADFILE G18253m51
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. G

SHEET

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PATH: (bcden01) P:\CAD\WICHITA\18253\

STRUCTURAL/ARCHITECTURAL SYMBOLS

- LAB 501 — ROOM NUMBER
- (1234) — DOOR NUMBER
- L-2 — LOUVER NUMBER
- X — WINDOW MARK
- HANDRAIL
- CONCRETE BLOCK
- BRICK OR CAST IRON
- TERRAZZO OR ARTIFICIAL STONE
- TILE
- GRATING SPAN
- CHECKER PLATE
- STEEL OR STAINLESS STEEL
- ALUMINUM
- WOOD
- RIGID INSULATION
- BATT INSULATION
- NEOPRENE
- CONCRETE
- GRAVELLED AREAS (PLAN VIEW)
- EXISTING CONCRETE
- PRECAST CONCRETE
- MORTAR, GROUT OR PLASTER
- OPENING OR DEPRESSION IN SLAB OR WALL
- OPENING WITH GRATING COVER
- OPENING WITH CHECKER PLATE COVER
- REINFORCEMENT IN SECTION
- REINFORCEMENT PLAN OR ELEVATION
- EXISTING EQUIPMENT OR MATERIALS TO BE REMOVED
- ROCK OR GRAVEL
- NATURAL GROUND OR FINISH GRADE
- EXPANSIVE CLAY STONE BEDROCK
- FINISH GRADE OR, IF ADJACENT TO CLAY STONE, INDICATES NON-EXPANSIVE CLAY

GENERAL/CIVIL SYMBOLS

- FH — FIRE HYDRANT
- BURIED VALVE
- MH — MANHOLE
- BENCHMARK
- YARD HYDRANT
- CO — CLEAN OUT AND DESIGNATION
- CB — CATCH BASIN OR INLET
- 5110 — EXISTING GRADE CONTOURS
- 5110 — FINISH GRADE CONTOURS
- X 5110.5 — GRADE SPOT ELEVATION
- 5110.5 / 5110.5 — TOP OF CURB ELEVATION GUTTER ELEVATION
- SWALE OR DITCH
- EXPANSION JOINT
- EQUIPMENT DRAIN
- FLOOR DRAIN
- FLOOR CLEANOUT
- VENT
- DUMMY CONSTRUCTION JOINT CONCRETE PAVEMENT
- MATCH LINE
- EXISTING EQUIPMENT OR STRUCTURES
- PROPERTY LINE OR MATCH LINE
- CENTER LINE
- FENCE
- CONCRETE CURB AND GUTTER
- A.C. PAVEMENT (PLAN)
- SIDEWALK
- 3:1 — SLOPE (3 HORIZ. TO 1 VERT.)
- EMBANKMENT

EQUIPMENT PREFIXES

AD	AIR DRYER
AHU	AIR HANDLING UNIT
B	BLOWER
BPV	BACK PRESSURE VALVE
C	COMPRESSOR
CFR	CHEMICAL FEEDER
CV	CONTROL VALVE
DPR	DAMPER
DU	DRIVE UNIT
EF	EXHAUST FAN
F	FILTER
FC	FURNACE AND CONDENSOR
GEN	GENERATOR
GUH	GAS UNIT HEATER
HEX	HEAT EXCHANGER
HTR	HOTWATER HEATER
MAU	MAKE-UP AIR UNIT
MME	MISCELLANEOUS MECHANICAL EQUIPMENT
MXR	MIXER
ORT	ODOR REDUCTION TOWER
P	PUMP
PCV	PRESSURE CONTROL VALVE
PNL	PANEL
SMP	SUMP PUMP
SV	SOLENOID VALVE
T	TANK
TCV	TEMPERATURE CONTROL VALVE
UH	UNIT HEATER

ELECTRICAL

SEE DRAWINGS E1 AND E2 FOR ELECTRICAL ABBREVIATIONS

INSTRUMENTATION

AE	ANALYZER ELEMENT
DPE	DIFFERENTIAL PRESSURE ELEMENT
FE	FLOW ELEMENT
FI	FLOW INDICATOR
FIT	FLOW INDICATOR TRANSMITTER
FSL	FLOW SWITCH LOW
LBE	BUBBLER PANEL
LC	LEVEL CONTROLLER
LCP	LOCAL CONTROL PANEL
LE	LEVEL ELEMENT
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH HIGH
LSL	LEVEL SWITCH LOW
LSM	LEVEL SWITCH MEDIUM
PE	PRESSURE ELEMENT
PI	PRESSURE INDICATOR
PIT	PRESSURE INDICATING TRANSMITTER
PSL	PRESSURE SWITCH LOW
PT	PRESSURE TRANSFORMER
TE	TEMPERATURE ELEMENT
TI	TEMPERATURE INDICATOR
TW	THERMOWELL
*V	SUPPLIED BY VENDOR

MECHANICAL ABBREVIATIONS

AAV	AUTO AIR VENT
AF	AIR FILTER
ARV	AIR RELEASE VALVE
BARO	BAROMETRIC
BF	BLIND FLANGE
BFP	BACK FLOW PREVENTER
BFV	BUTTERFLY VALVE
BLV	BALL VALVE
CKV	CHECK VALVE
CWO	CHAIN WHEEL OPERATOR
DISCH	DISCHARGE
ELL	ELBOW
EXC	EXCHANGER
FC	FLUSHING CONNECTION
FLG	FLANGE
FLR	FLOOR
FM	FLOW METER
FRP	FIBER REINFORCED PLASTIC
FW	FIELD WELD
GTV	GATE VALVE
ISO	ISOMETRIC
MPL	MOBILE PIG LAUNCHER
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OF	OVERFLOW
PE	PRESSURE ELEMENT
PI	PRESSURE INDICATOR
PNL	PANEL
PRV	PRESSURE RELIEF VALVE
PS	PRESSURE SWITCH
PGV	PLUG VALVE
RECIRC	RECIRCULATION
SED	SEDIMENTATION
SS	STAINLESS STEEL
THD	THREADED
TOP	TOP OF PIPE
WS	WATER SURFACE

PIPING ABBREVIATIONS

BFL	LOW PRESSURE BOILER FEEDWATER
CA	COMPRESSED AIR
CD	CHEMICAL DRAIN
CL	CONDENSATE LOW PRESSURE
D	DRAIN
FO	FUEL OIL
HW	POTABLE HOT WATER
IA	INSTRUMENT AIR
OF	OVERFLOW
PD	PUMPED DRAINAGE
RWP	RAINWATER PIPE
RSG	RAW SEWAGE GRAVITY
RSH	RAW SEWAGE HIGH PRESSURE
RSL	RAW SEWAGE LOW PRESSURE
SA	SERVICE AIR
SD	SANITARY DRAIN
STD	STORM DRAIN
TD	TANK DRAIN
V	VENT
VC	CHEMICAL VENT
VP	PETROLEUM VENT
1W	POTABLE WATER (CITY WATER)
2W	NONPOTABLE CITY WATER

HVAC ABBREVIATIONS

ACU	AIR CONDITIONING UNIT
AHU	AIR HANDLING UNIT
BD	BALANCING DAMPER
BLR	BOILER
BOD	BOTTOM OF DUCT
BOX	REHEAT BOX
CDR	CONDENSING UNIT
CHR	CHILLER EVAPORATOR
D, DPR	DAMPER
EA	EXHAUST AIR
EG	EXHAUST GRILLE
F	FAN
FA	FOUL AIR
FAD	FOUL AIR DUCT
FAP	FOUL AIR PIPE
FDC	FLEXIBLE DUCT CONNECTOR
OSA	OUTSIDE AIR
RA	RETURN AIR
RG	RETURN GRILLE
RTU	ROOF TOP AC UNIT
SA	SUPPLY AIR
SD	SUPPLY DIFFUSER
TA	TRANSFER AIR
TG	TRANSFER AIR GRILLE
UH	UNIT HEATER
VP	VELOCITY PORT

DRAINAGE ABBREVIATIONS

CO	CLEANOUT
D	DRAIN
ED	EQUIPMENT DRAIN
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
RD	ROOF DRAIN
SCD	SCUPPER DRAIN
SD	SANITARY DRAIN
T	TRAP
V	VENT
VTR	VENT THROUGH ROOF
WCO	WALL CLEANOUT
YCO	YARD CLEANOUT

MISCELLANEOUS ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
BM	BEAM
BO	BOTTOM OF
EA	EACH
EF	EACH FACE
EW	EACH WAY
EWEF	EACH WAY EACH FACE
FF	FINISH FLOOR
FS	FAR SIDE
FTG	FOOTING
KO	KNOCK OUT
NIC	NOT IN CONTRACT
NS	NEAR SIDE
OC	ON CENTER
PT	PRESSURE TREATED
R	RISERS
REINF	REINFORCING
S	SINK
SH	SHOWER
SS	STAINLESS STEEL or SERVICE SINK
T.O.	TOP OF
T.O.C.	TOP OF CONCRETE
T.O.G.	TOP OF GRATING
T.O.W.	TOP OF WALL
T	TREADS
UNO	UNLESS NOTED OTHERWISE
WC	WATER CLOSET
WF	WATER FOUNTAIN
WWF	WELDED WIRE FABRIC

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BROWN AND CALDWELL

SUBMITTED: [signature] DATE: 11/01

APPROVED: [signature] DATE: 11/01

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"--SCALE ACCORDINGLY)

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CHECKED BY DAM
CHECKED BY

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

GENERAL

SYMBOLS AND ABBREVIATIONS

CADFILE G18253m52
DATE 08-02-01
OPERATOR TBreder

DRAWING NO. G2

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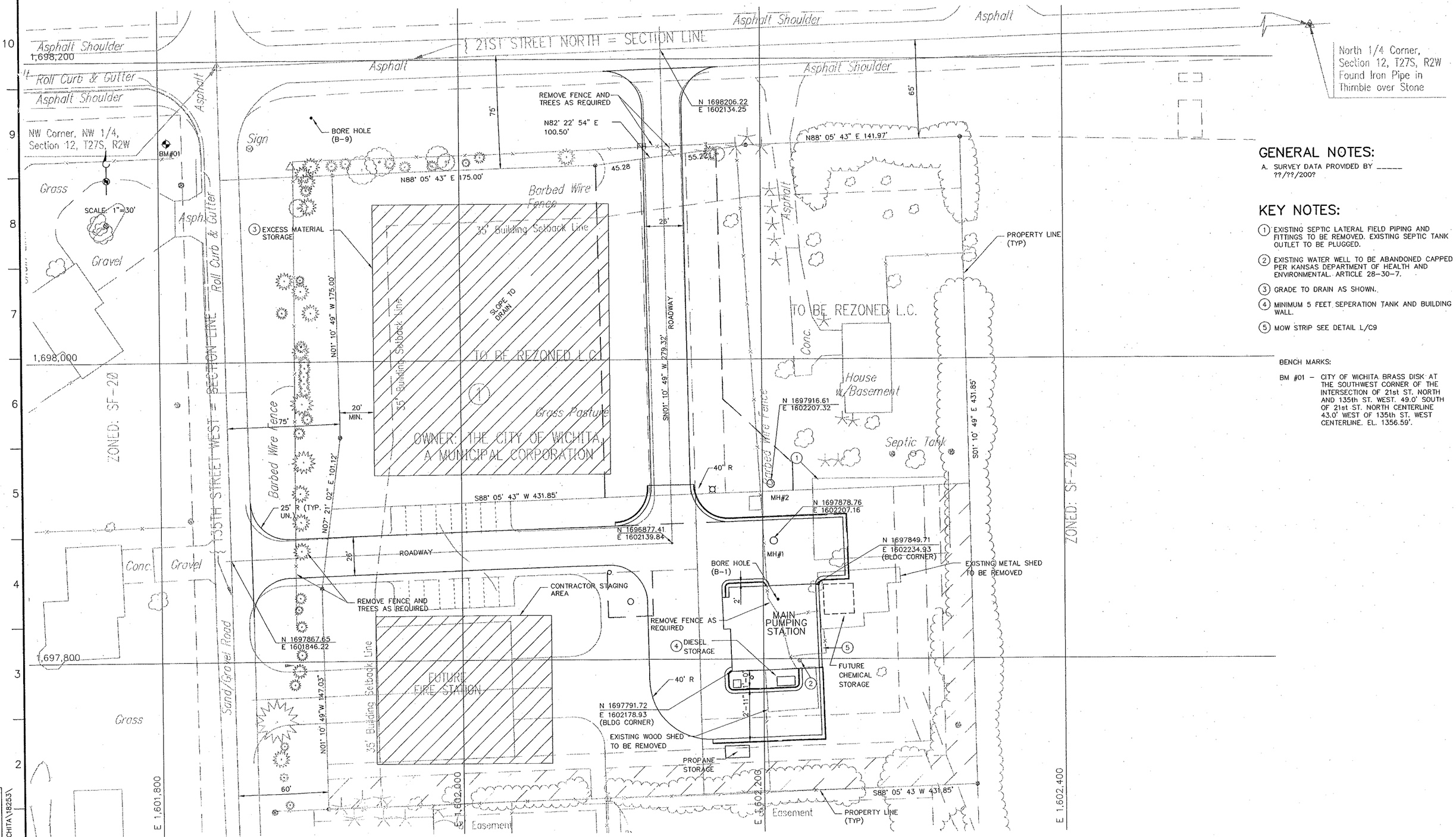

GENERAL NOTES:

A. SURVEY DATA PROVIDED BY _____ ??/??/200?

KEY NOTES:

1. EXISTING SEPTIC LATERAL FIELD PIPING AND FITTINGS TO BE REMOVED. EXISTING SEPTIC TANK OUTLET TO BE PLUGGED.
2. EXISTING WATER WELL TO BE ABANDONED CAPPED PER KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENTAL. ARTICLE 28-30-7.
3. GRADE TO DRAIN AS SHOWN.
4. MINIMUM 5 FEET SEPERATION TANK AND BUILDING WALL.
5. MOW STRIP SEE DETAIL L/C9

BENCH MARKS:

BM #01 – CITY OF WICHITA BRASS DISK AT THE SOUTHWEST CORNER OF THE INTERSECTION OF 21st ST. NORTH AND 135th ST. WEST. 49.0' SOUTH OF 21st ST. NORTH CENTERLINE 43.0' WEST OF 135th ST. WEST CENTERLINE. EL. 1356.59'.

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Professional Engineering Consultants
McCLOUGHAN VAN SICKLE & PERRY
BROWN AND CALDWELL

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15931
11/16/01
KANSAS

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

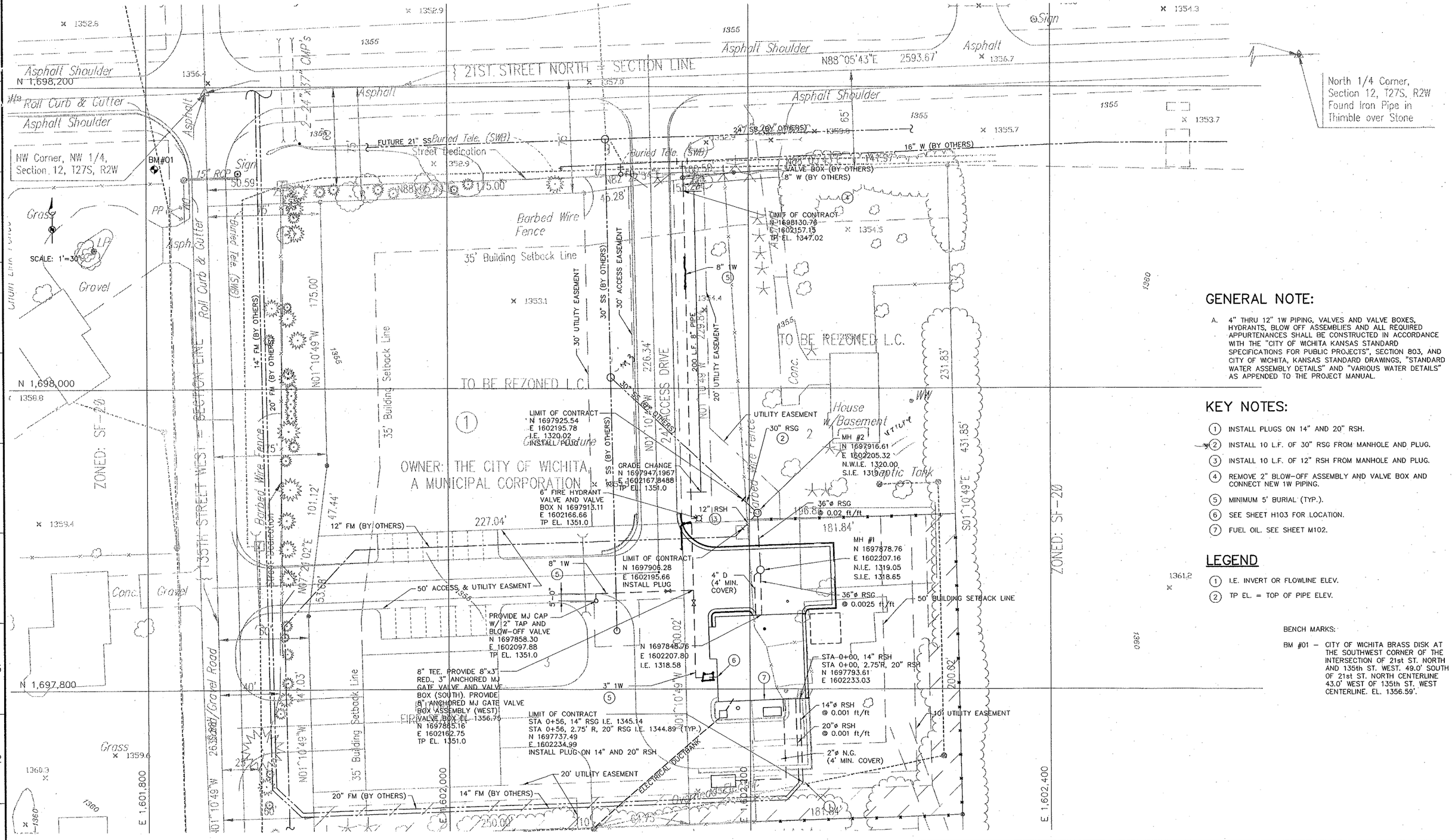
CIVIL

SITE PLAN AND SURVEY CONTROL

CADFILE C18253m55
DATE 11-06-01
OPERATOR TBreder

DRAWING NO. C1

SHEET NUMBER 3 OF



GENERAL NOTE:

A. 4" THRU 12" 1W PIPING, VALVES AND VALVE BOXES, HYDRANTS, BLOW OFF ASSEMBLIES AND ALL REQUIRED APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "CITY OF WICHITA KANSAS STANDARD SPECIFICATIONS FOR PUBLIC PROJECTS", SECTION 803, AND CITY OF WICHITA, KANSAS STANDARD DRAWINGS, "STANDARD WATER ASSEMBLY DETAILS" AND "VARIOUS WATER DETAILS" AS APPENDED TO THE PROJECT MANUAL.

KEY NOTES:

1. INSTALL PLUGS ON 14" AND 20" RSH.
2. INSTALL 10 L.F. OF 30" RSG FROM MANHOLE AND PLUG.
3. INSTALL 10 L.F. OF 12" RSH FROM MANHOLE AND PLUG.
4. REMOVE 2" BLOW-OFF ASSEMBLY AND VALVE BOX AND CONNECT NEW 1W PIPING.
5. MINIMUM 5' BURIAL (TYP.).
6. SEE SHEET H103 FOR LOCATION.
7. FUEL OIL. SEE SHEET M102.

LEGEND

1. I.E. INVERT OR FLOWLINE ELEV.
2. TP EL. = TOP OF PIPE ELEV.

BENCH MARKS:

BM #01 – CITY OF WICHITA BRASS DISK AT THE SOUTHWEST CORNER OF THE INTERSECTION OF 21st ST. NORTH AND 135th ST. WEST. 49.0' SOUTH OF 21st ST. NORTH CENTERLINE AND 43.0' WEST OF 135th ST. WEST CENTERLINE. EL. 1356.59'.

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Professional Engineering Consultants
McCLURAGE VAN SICKLE & PERRY
BROWN AND CALDWELL

SUBMITTED: _____ DATE: 1/12/2001
APPROVED: _____ DATE: 00/00/01
BROWN AND CALDWELL
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

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CITY OF WICHITA

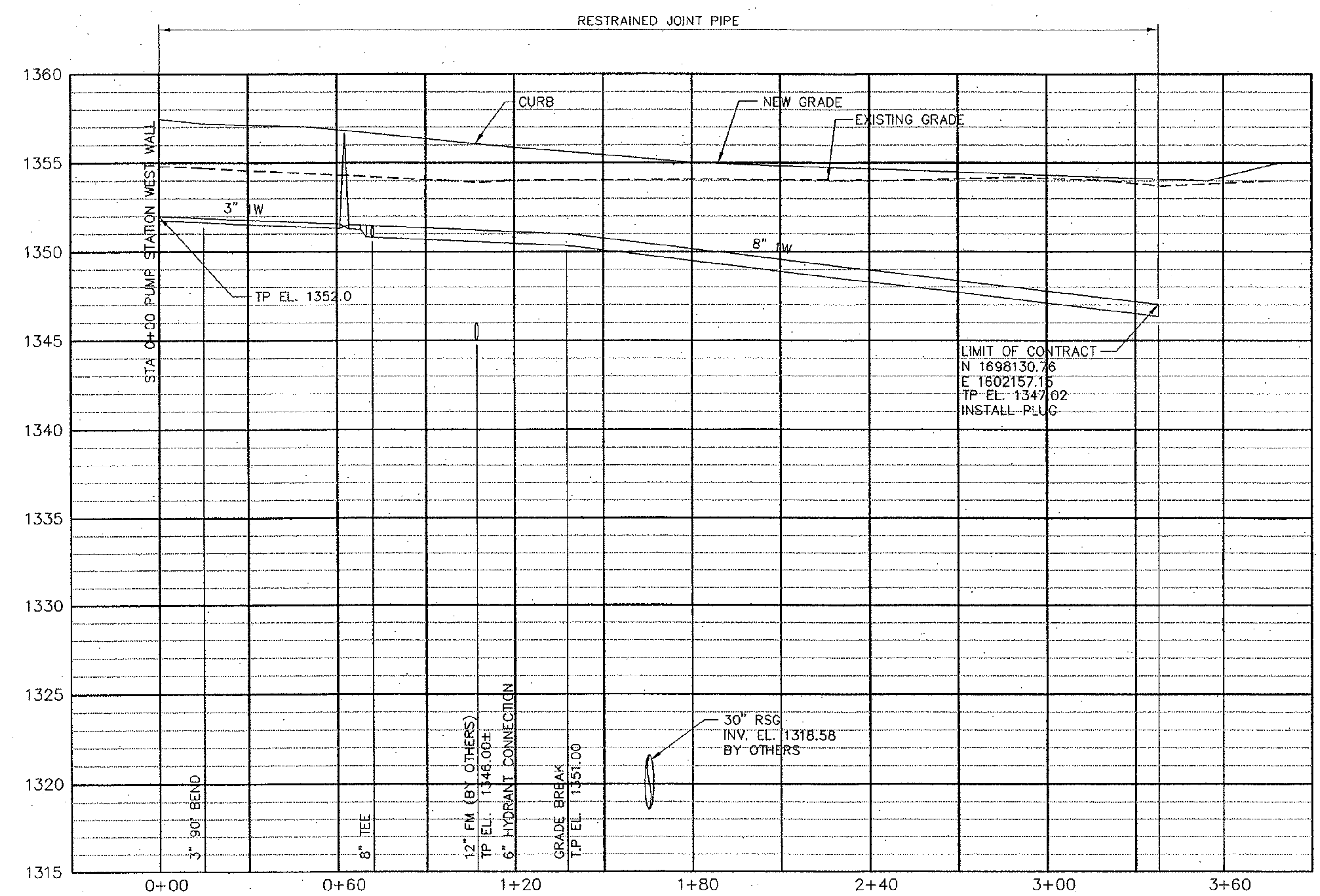
NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

CIVIL

SITE PIPING PLAN

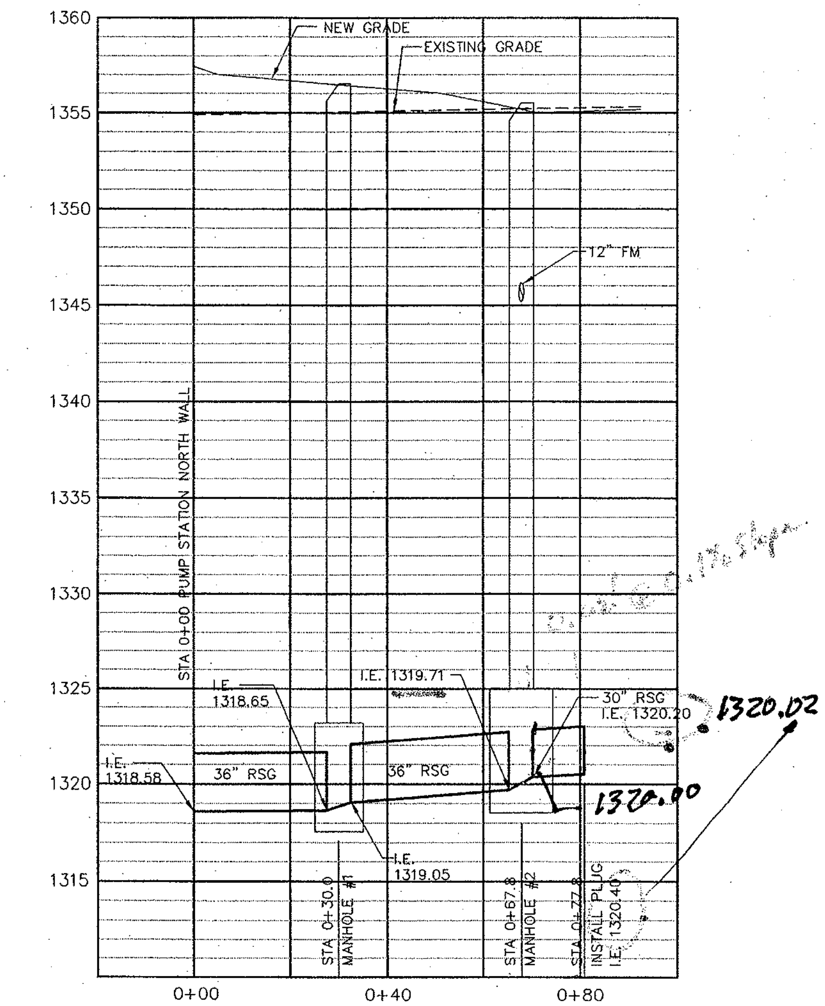
CADFILE C18253m56
DATE 08-02-01
OPERATOR TBreder
DRAWING NO. C2
SHEET NUMBER 4 OF 79

NOTES:
1. SEE DETAIL A/C6 FOR TYPICAL TRENCH SECTION.
2. BEDDING TYPE FOR RSG SHALL BE TYPE 5 PER DETAIL A/C8.



PROFILE

1"=30' HORIZ
1"=5' VERT



PROFILE

1"=20' HORIZ
1"=5' VERT

McCLUGGAGE VAN SICKLE & PERRY
BROWN AND CALDWELL

SUBMITTED: [signature] PROJECT MANAGER DATE: 11/01
APPROVED: [signature] BROWN AND CALDWELL DATE: 11/01
APPROVED: DATE:

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

CIVIL

INFLUENT GRAVITY SEWER PLAN AND WATERLINE PROFILE

CADFILE C18253m61
DATE 11-16-01
OPERATOR JHealy

DRAWING NO.
C3

SHEET NUMBER
5 OF 79

WICHTBLK
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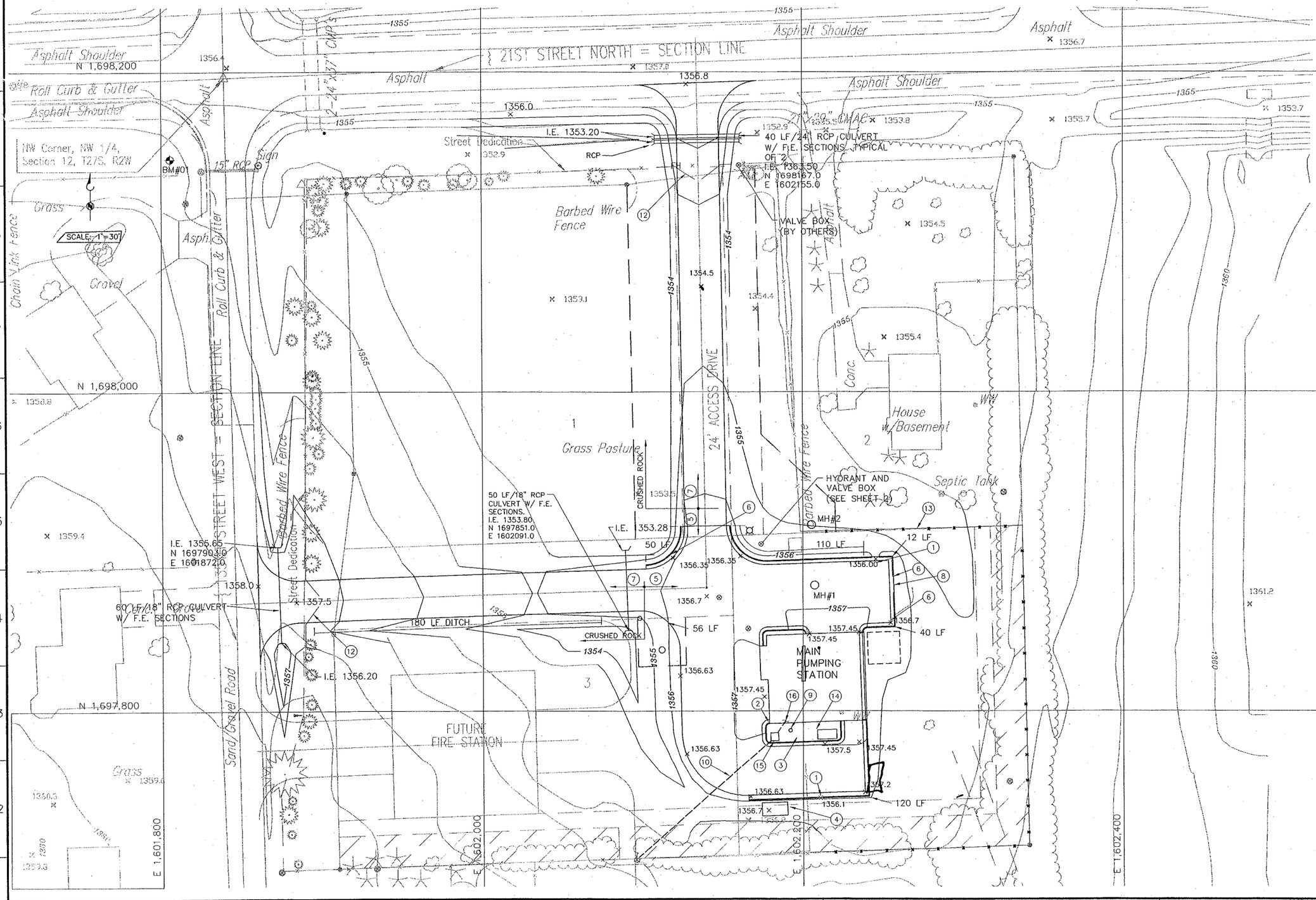


GENERAL NOTES:

A. 100 YEAR FLOOD EL. 1350.00.

B. UNLESS OTHERWISE NOTED, ALL DISTURBED AREAS SHALL RECIEVE TOPSOIL AND SEED AS SPECIFIED.

KEY NOTES:

(1) CURB OPENING. SEE DETAIL F/C8

(2) EXTEND CURB AND GUTTER TO BUILDING WALL. PROVIDE EXPANSION STRIP.

(3) CRUSHED STONE OVER GEOTEXTILE. SEE DETAIL H/C8

(4) 8'x16' PROPANE STORAGE PAD. SEE DETAIL C/C8

(5) TYPE A ROAD. SEE DETAIL D/C8. (TYP.)

(6) ROLLED CURB AND GUTTER. SEE DETAIL A/C8. (TYP.)

(7) CRUSHED ROCK ROAD. SEE DETAIL E/C8. (TYP.)

(8) 10' WIDE CURB OPENING WITH TRANSITIONS PER DETAIL G/C8

(9) ANTENNA TOWER. SEE DETAIL B/E6 AND SPECIFICATION SECTION 17170 FOR ADDITIONAL INFORMATION.

(10) PROVIDE A 4" WIDE BY 48" DEEP TRENCH FROM THE UTILITY POWER POLE TO THE TRANSFORMER PAD. AFTER SEDGWICK COUNTY ELECTRIC COOPERATIVE HAS INSTALLED THE TRANSFORMER PRIMARY FEEDERS. BACKFILL THE TRENCH.

(11) SEE DRAWING E100 FOR CONDUIT AND RACEWAY REQUIREMENTS FROM TRANSFORMER PAD TO SWITCHBOARD SB30901. SEE DRAWING E105 FOR SWITCHBOARD LOCATION.

(12) STEEL FRAME GATE. SEE SPECIFICATION.

(13) WIRE FENCE. SEE DETAIL K/C8

(14) FUEL OIL STORAGE TANK.

(15) UTILITY TRANSFORMER.

(16) TO SWITCHBOARD. SEE DRAWING E105 FOR CONTINUATION.

LEGEND

(1) I.E. INVERT OR FLOWLINE ELEV.

BENCH MARKS:

BM #01 – CITY OF WICHITA BRASS DISK AT THE SOUTHWEST CORNER OF THE INTERSECTION OF 21st ST. NORTH AND 135th ST. WEST. 49.0' SOUTH OF 21st ST. NORTH CENTERLINE 43.0' WEST OF 135th ST. WEST CENTERLINE. EL. 1356.59'.

WICHTBLK | MPS-BASE

PATH: (bcden01) P:\CAD\OWICHITA\18253\

Professional Engineering Consultants

McCLOSKEY VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED:	DATE: 11/01	
APPROVED:	DATE: DD/MM/01	PROJECT MANAGER BROWN AND CALDWELL
APPROVED:	DATE:	

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY
DESIGNED BY
CHECKED BY PRELIM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER DAVID A. MYERS 15931 11/16/01 KANSAS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

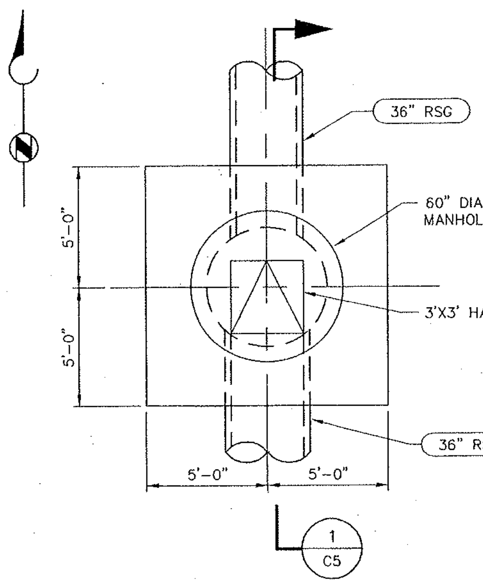
CIVIL

SITE GRADING, PAVING, AND DRAINAGE PLAN

CADFILE C18253m54
DATE 08-02-01
OPERATOR TBreder

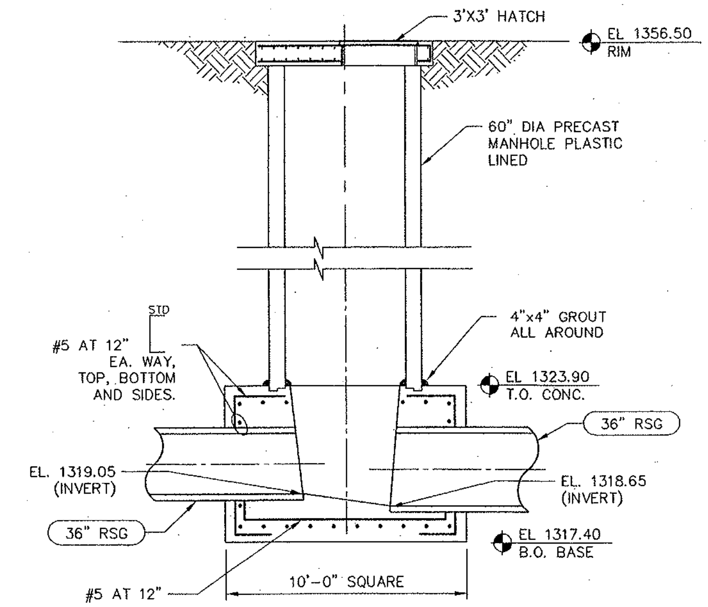
DRAWING NO. C4

SHEET NUMBER 6 OF 79



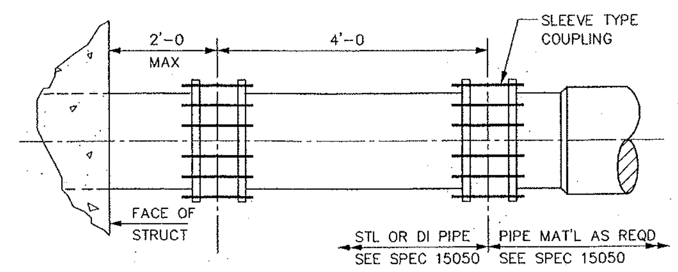
BASE PLAN – MANHOLE No.1

SCALE: 1/4"=1'-0"

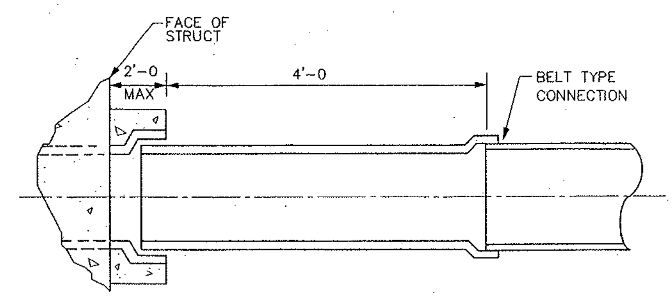


SECTION 1/C5

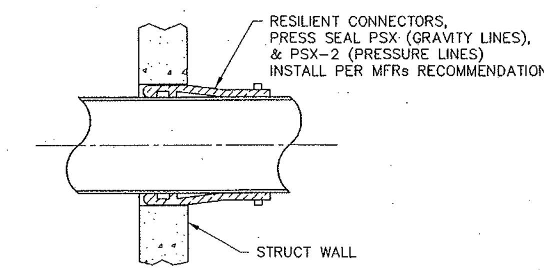
SCALE: 1/4"=1'-0"



STEEL/D.I.



CONC./MECH. JT./BELL CONNECTIONS



HDPE/PVC/CPVC

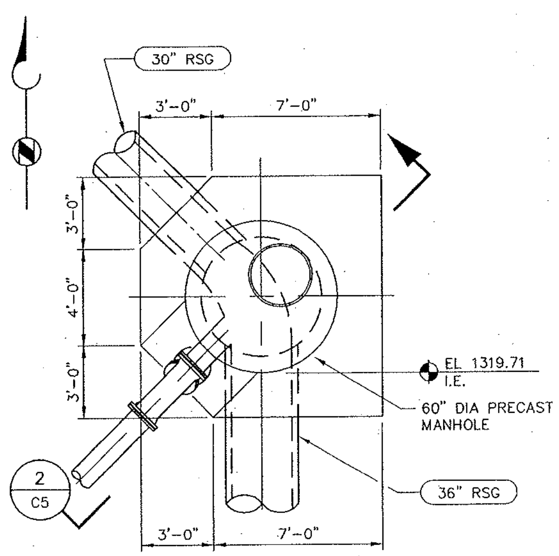
NOTES:

1. STANDARD CONNECTIONS UNLESS OTHERWISE NOTED.

BURIED PIPE AT STRUCTURE

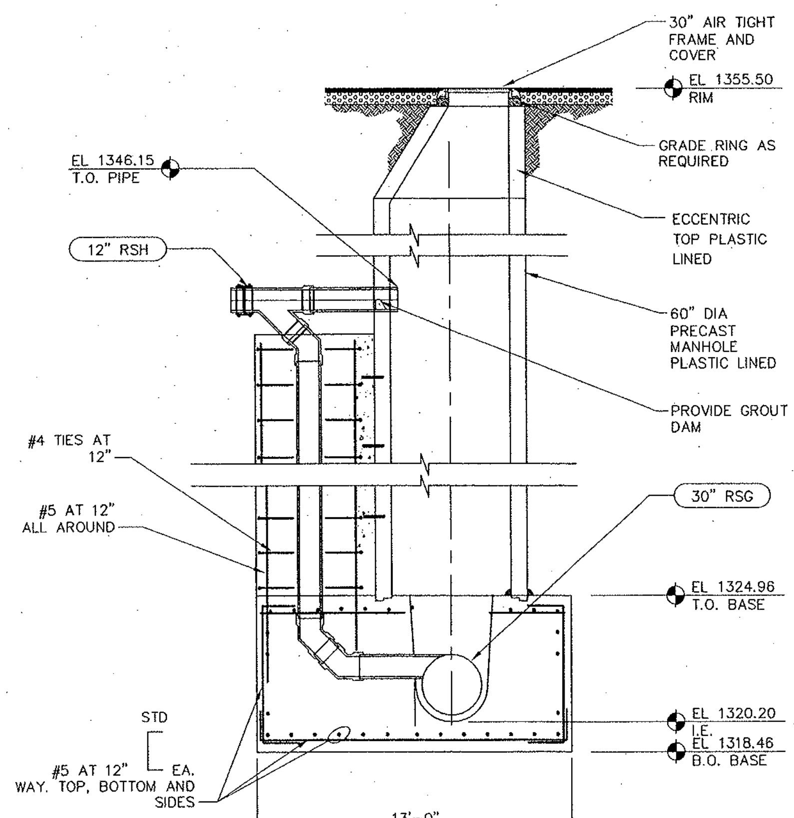
DETAIL E/VAR

NO SCALE



PLAN – MANHOLE No.2

SCALE: 1/4"=1'-0"



NOTE: ITEMS HAVE BEEN ROTATED FOR CLARITY

SECTION 2/C5

SCALE: 1/4"=1'-0"

BROWN AND CALDWELL	LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)	
	FILE 18253	
SUBMITTED: [signature] DATE: 11/01	DRAWN BY TDB	
APPROVED: [signature] BROWN AND CALDWELL DATE: 11/01	DESIGNED BY DCS	
APPROVED: DATE:	CHECKED BY SDMO	
	CHECKED BY	

REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS 15931 — KANSAS — 11/16/01

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

CIVIL

MANHOLE DETAILS

CADFILE C18253m57
DATE 11-06-01
OPERATOR TBreder

DRAWING NO. C5

SHEET NUMBER 7 OF 79

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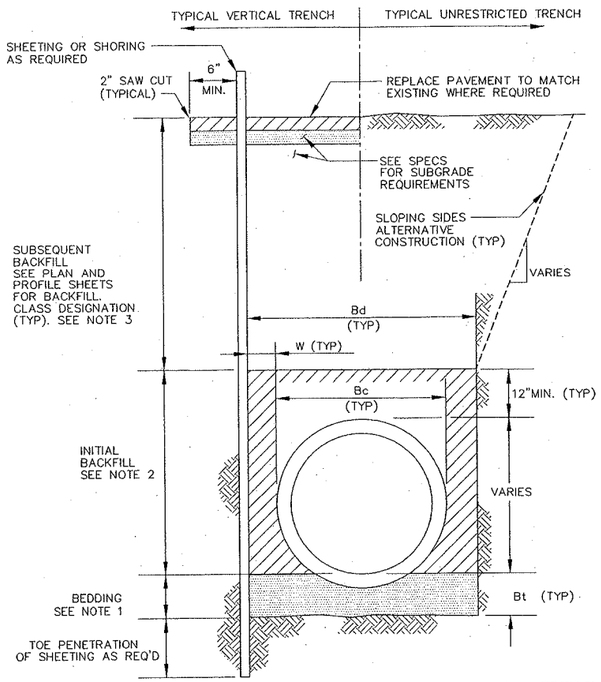
WICHTBLK



TYPICAL TRENCH SECTION

DETAIL A/VAR.

NO SCALE

NOTES:

1. FOR BEDDING TYPES SEE DETAIL A/C8.
2. INITIAL BACKFILL: SEE TABLE A, SECTION 02200.
3. SUBSEQUENT BACKFILL: SEE TABLE A, SECTION 02200.

TYPICAL TRENCH LIMITATIONS:

Bd =WIDTH FROM BOTTOM TO 12" ABOVE PIPE
W =CLEARANCE TO WALL, EXCLUDING SHEETING, I.E. TO EARTH
D =PIPE INSIDE DIAMETER, I.E. NOMINAL PIPE SIZE
Bc =PIPE OUTSIDE DIAMETER
Bt =DEPTH OF BEDDING FROM INVERT OF PIPE TO BOTTOM OF TRENCH

D, IN.	W MIN, IN.	Bd MAX, IN.	Bt MIN, IN.
0–6	6	Bc+24	3
8–24	8	Bc+24	6
27–60	12	Bc+36	12
OVER 60	18	Bc+42	12

BROWN AND CALDWELL
McCLOUGAGE VAN SICKLE & PERRY
Professional Engineering Consultants

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 11/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY TDB
DESIGNED BY DCS
CHECKED BY DAM
CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

CIVIL

YARD PIPING DETAILS – 1

CADFILE C18253m58
DATE 11–13–01
OPERATOR TBreder

DRAWING NO.
C6

SHEET NUMBER
8 OF 79

WICHTBLK
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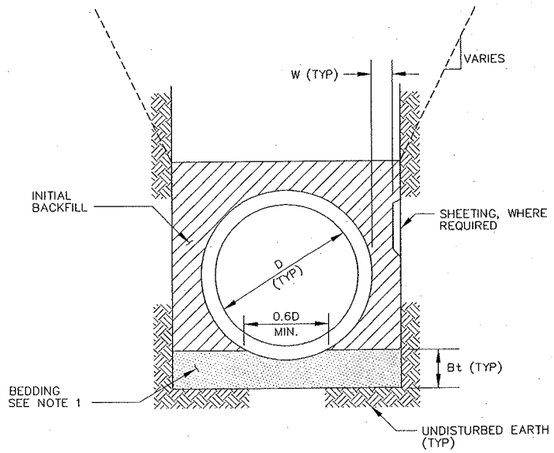
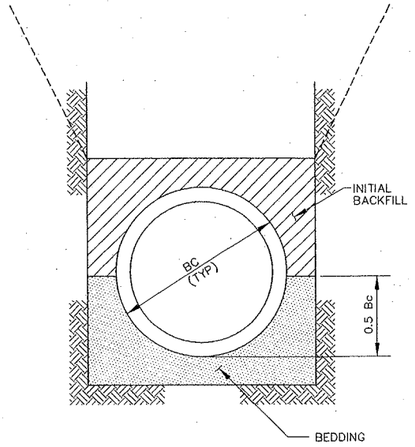
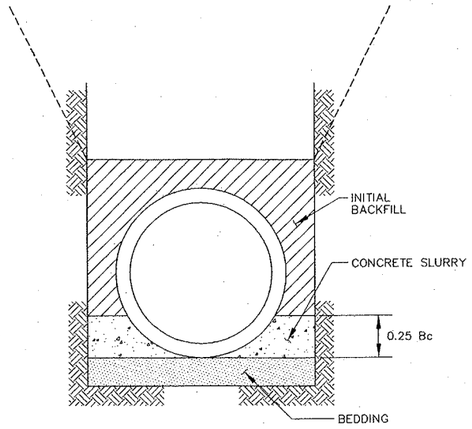


TYPE 1
(L.F.=1.4)



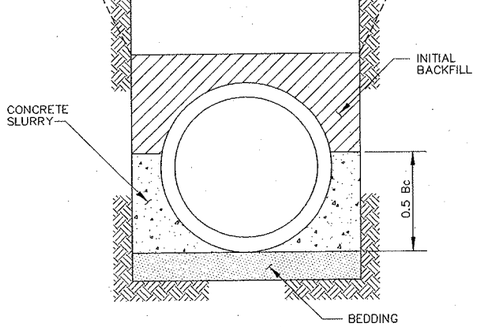
TYPE 2
(L.F.=1.9)



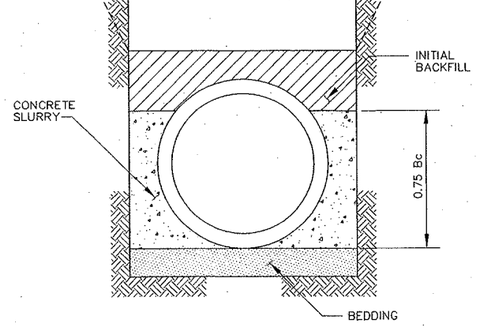
TYPE 3
(L.F.=1.9)

NOTES:

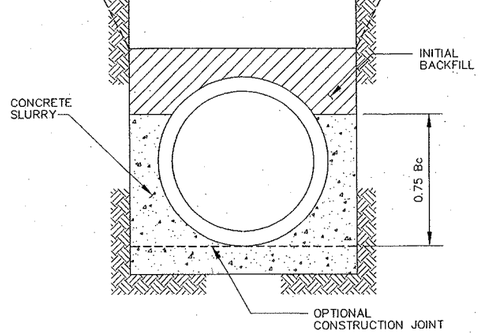
1. BEDDING: SEE TABLE A, SEC. 02200 FOR MATERIAL PER PIPE TYPE. CONTRACTOR MAY USE MIN. 3 SACK CONCRETE AS AN ALTERNATIVE.
2. CONCRETE SLURRY IS CLASS E CONCRETE. SEE PARAGRAPH 03300-2.02A.
3. BEDDING/BACKFILL TYPE (L.F.) SHALL BE USED WHERE SPECIFIED ON LAYOUT DRAWINGS.
4. BEDDING SHALL BE BLOCKED OUT OR EXCAVATED AT BELLS.
5. FOR TYPICAL TRENCH LIMITATIONS, SEE DETAIL A/C6.



TYPE 4
(L.F.=2.3)



TYPE 5
(L.F.=2.7)



TYPE 6
(L.F.=3.2)

BEDDING TYPES

DETAIL A/VAR.

NO SCALE

BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01

APPROVED: _____ DATE: 11/01

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY TDB
DESIGNED BY DCS
CHECKED BY DAM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/14/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

CIVIL

YARD PIPING DETAILS – 2

CADFILE C18253m59
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. C7

SHEET NUMBER 9 OF 79

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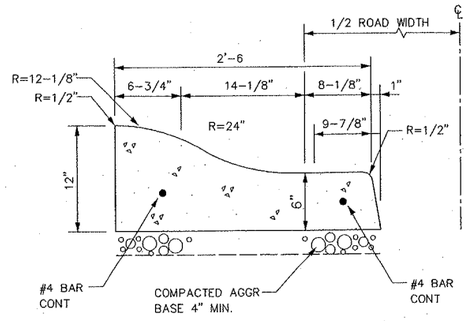
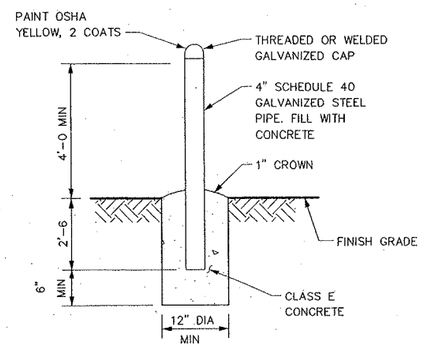


TYPICAL ROLLED CURB AND GUTTER

DETAIL A/VAR

NO SCALE



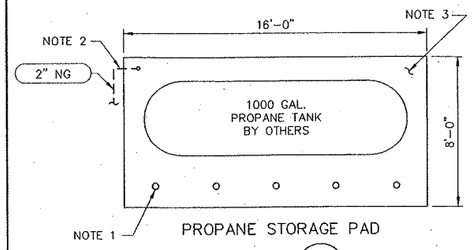
GUARD POST

DETAIL B/VAR

NO SCALE

NOTES:

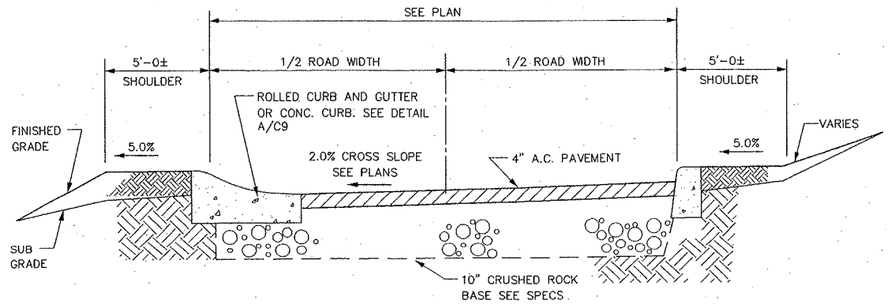
1. GUARD POST. TYP. SEE DETAIL B/C9.
2. 2" NG PIPE. EXTEND TO 4' ABOVE GRADE OR AS REQUIRED BY PROPANE PROVIDE. CAP SECURELY.
3. CRUSHED STONE LANDSCAPING FINISH. SEE DETAIL H/C9.



PROPANE STORAGE PAD

DETAIL C/C9

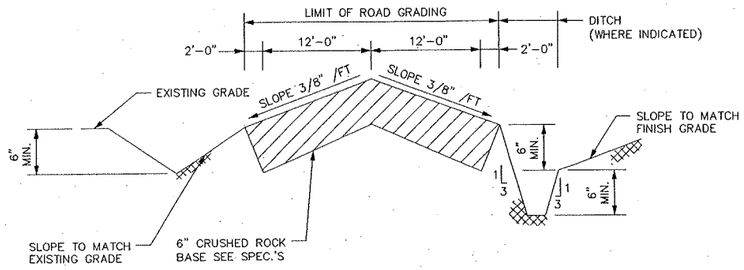
SCALE: 1/4" = 1'-0"



TYPE A ROAD

DETAIL D/VAR

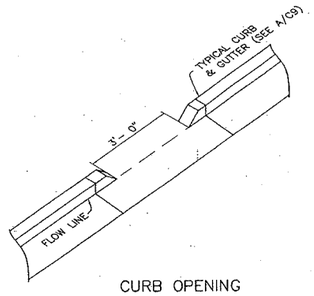
NO SCALE



CRUSHED ROCK ROADWAY

DETAIL E/VAR

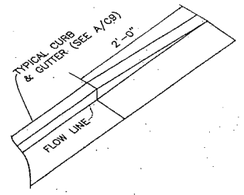
NOT TO SCALE



CURB OPENING

DETAIL F/VAR

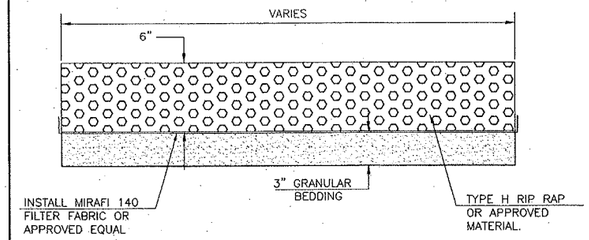
NO SCALE



CURB TRANSITION

DETAIL G/VAR

NO SCALE



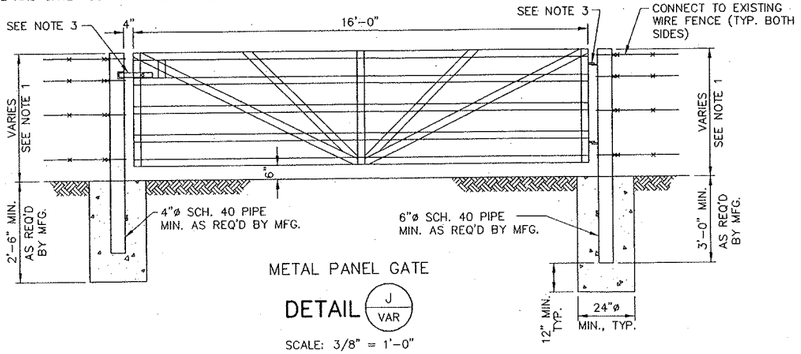
LANDSCAPING FINISH

DETAIL H/VAR

NO SCALE

NOTES:

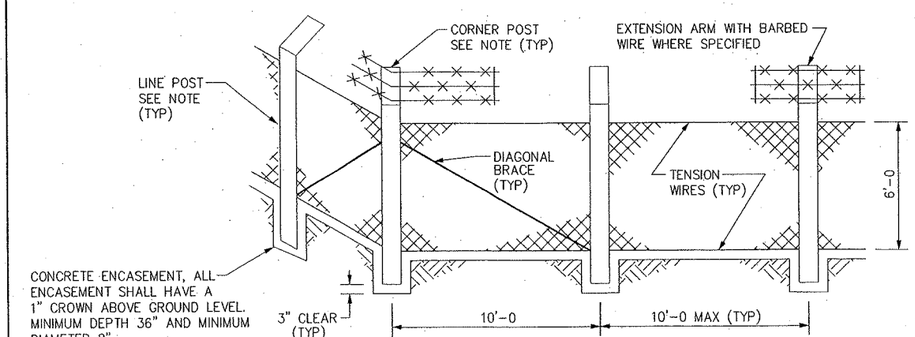
1. POST HEIGHT SHALL BE THE SAME AS REQUIRED FOR THE ADJACENT FENCE.
2. CONSTRUCT AN END OR STRESS PANEL ON EACH SIDE OF GATE.
3. HINGES AND LOCKS SHALL BE INSTALLED AS SPECIFIED BY GATE MANUFACTURER.
4. GATE AND GATE POST TO BE GALVANIZED.



METAL PANEL GATE

DETAIL J/VAR

SCALE: 3/8" = 1'-0"

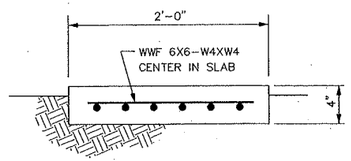


CHAIN LINK FENCE

DETAIL K/VAR

NO SCALE

NOTE:
PROVIDE POST CAP WHERE EXTENSION ARM WITH BARBED WIRE IS NOT SPECIFIED.



NOTES:

1. PROVIDE SAND CHAIRS TO HOLD WWF AT MID-DEPTH.
2. PROVIDE CRACK CONTROL JOINTS NOT GREATER THAN 4' SPACING.

MOW STRIP

DETAIL L/VAR

NO SCALE

Professional Engineering Consultants

McCLELLAND VAN SICKLE & PARKS

BROWN AND CALDWELL

SUBMITTED: _____ DATE: 1/22/01

APPROVED: _____ DATE: 11/01

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253

DRAWN BY STD

DESIGNED BY DWC

CHECKED BY DAM

CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15931 — 11/14/01 — KANSAS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

CIVIL

TYPICAL PAVING AND GRADING DETAILS

CADFILE C18253m62
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. C8

SHEET NUMBER 10 OF 79

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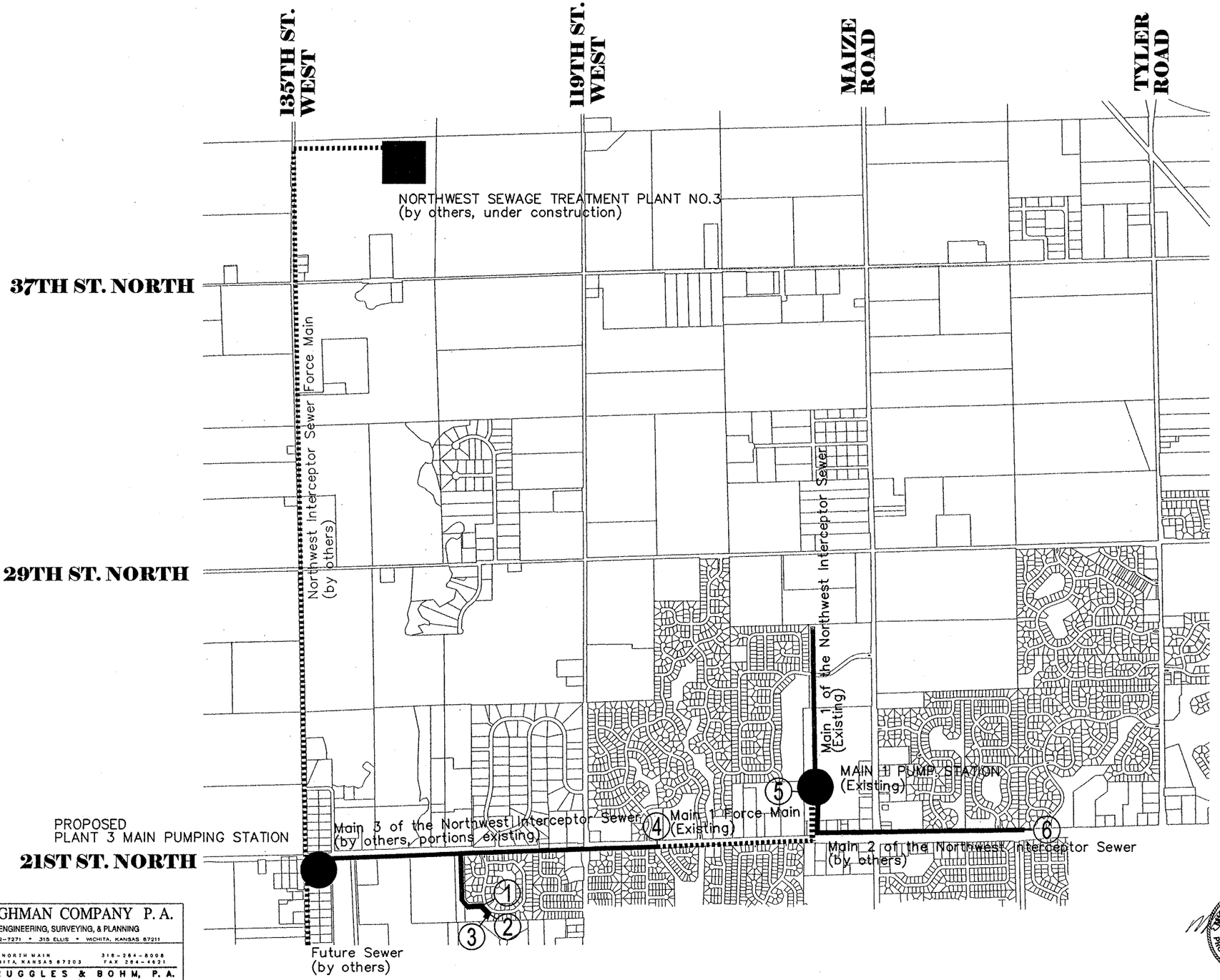

SCALE: 1" = 1000'

DIVERSIONS SHALL BE COMPLETED AFTER THE PROPOSED MAIN PUMP STATION IS OPERATIONAL. CONTRACTOR SHALL PERFORM THE DIVERSIONS IN SEQUENTIAL ORDER BEGINNING WITH "1" AND PROCEEDING NUMERICALLY THROUGH "6". THE CONTRACTOR SHALL COORDINATE THE DIVERSIONS WITH OTHER CONTRACTORS THAT WILL BE CONSTRUCTING THE MAIN 2 (FLOW DIVERSION NO. 6) AND MAIN 3 (FLOW DIVERSION NO. 1 THRU 4) PROJECTS. NO ADDITIONAL PAYMENT WILL BE MADE FOR ANY COORDINATION EFFORTS REQUIRED TO COMPLETE THE DIVERSIONS.

(1) = FLOW DIVERSION NUMBER

MICHAEL D. KEY — LICENSED — 13944 — 11/16/01 — KANSAS — PROFESSIONAL ENGINEER

JERROLD F. BRADLEY JR. — LICENSED — 15076 — 11/16/01 — KANSAS — PROFESSIONAL ENGINEER

WILLIAM P. BAILEY — 15020 — 11-16-2001 — PROFESSIONAL ENGINEER

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 * 315 ELLIS * WICHITA, KANSAS 67211

SRB
924 NORTH MAIN, WICHITA KANSAS 67203, 316-264-8008, FAX 264-4621
SAVOY, RUGGLES & BOHM, P.A.
ENGINEERING & SURVEYING

Professional Engineering Consultants
McCLELLAND VAN SICKLE & PERRY
BROWN AND CALDWELL

SUBMITTED: _____ PROJECT MANAGER DATE: _____
APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY PEC
DESIGNED BY PEC
CHECKED BY
CHECKED BY

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

CITY OF WICHITA

NORTHWEST SEWAGE TREATMENT PLANT NO. 3 MAIN PUMPING STATION

CIVIL

SANITARY SEWER FLOW DIVERSIONS

CADFILE
DATE 11-20-01
OPERATOR

DRAWING NO. C20

SHEET NUMBER 11 OF 77

DSN#: MDK OPER: CSL SCALE: 1=1000.00
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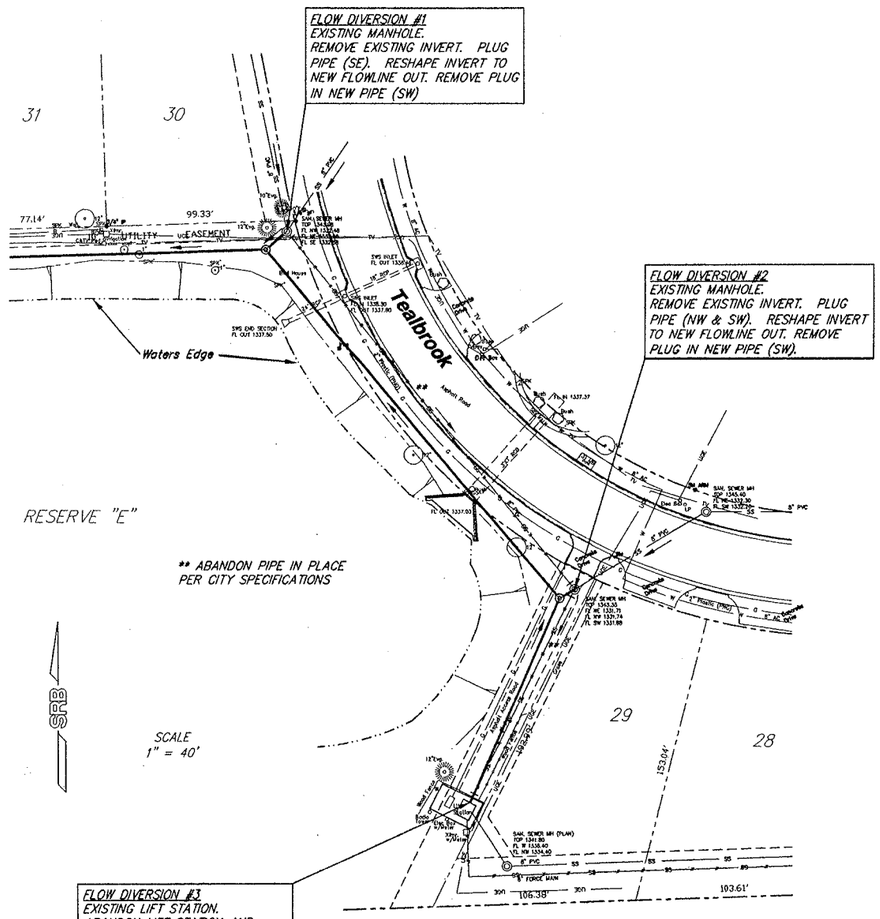
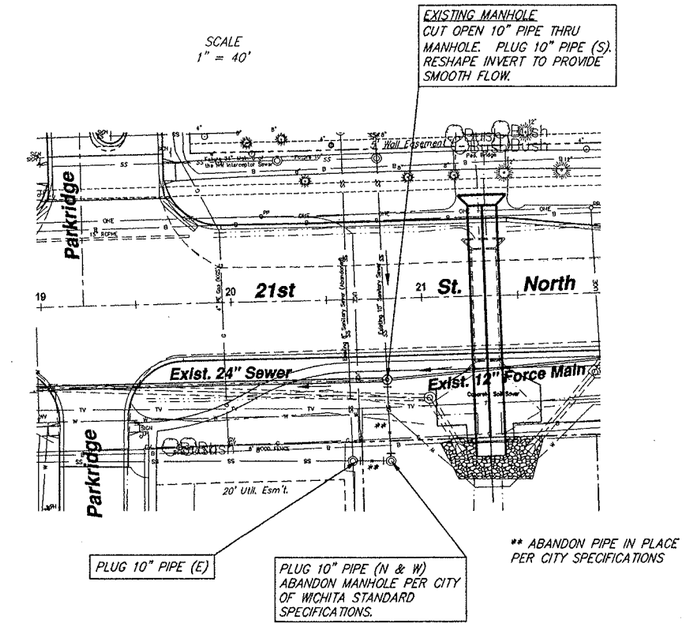
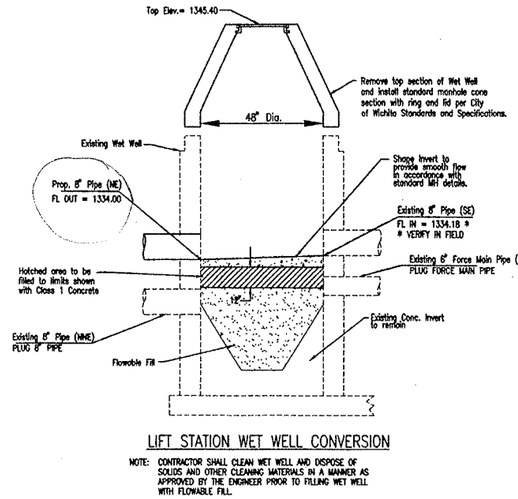


Flow Diversion #1, #2, #3



Flow Diversion #4



LIFT STATION WET WELL CONVERSION

NOTE: CONTRACTOR SHALL CLEAN WET WELL AND DISPOSE OF SOLIDS AND OTHER CLEANING MATERIALS IN A MANNER AS APPROVED BY THE ENGINEER PRIOR TO FILLING WET WELL WITH FLOWABLE FILL

SEE SHEET C20 FOR KEY MAP OF FLOW DIVERSIONS AND REQUIRED SEQUENCING

MICHAEL WILLIAM SWAB — LICENSED NO. 15629 — 11-16-2001 — KANSAS PROFESSIONAL ENGINEER

SRB 924 NORTH MAIN WICHITA, KANSAS 67203 316-264-8008 FAX 264-4621
SAVOY, RUGGLES & BOHM, P. A.
ENGINEERING & SURVEYING

Professional Engineering Consultants
McCLURKIN VAN BOSS & PERRY
BROWN AND CALDWELL

SUBMITTED: _____ PROJECT MANAGER DATE: _____
APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY SRB/PEC
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REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

CITY OF WICHITA

NORTHWEST SEWAGE TREATMENT PLANT NO. 3
MAIN PUMPING STATION

CIVIL

FLOW DIVERSIONS NO. 1, 2, 3 AND 4

CADFILE
DATE 11-20-01
OPERATOR

DRAWING NO. C21

SHEET NUMBER 12 OF 77

DSNR: MDK OPER: CSL SCALE: 1=40.00
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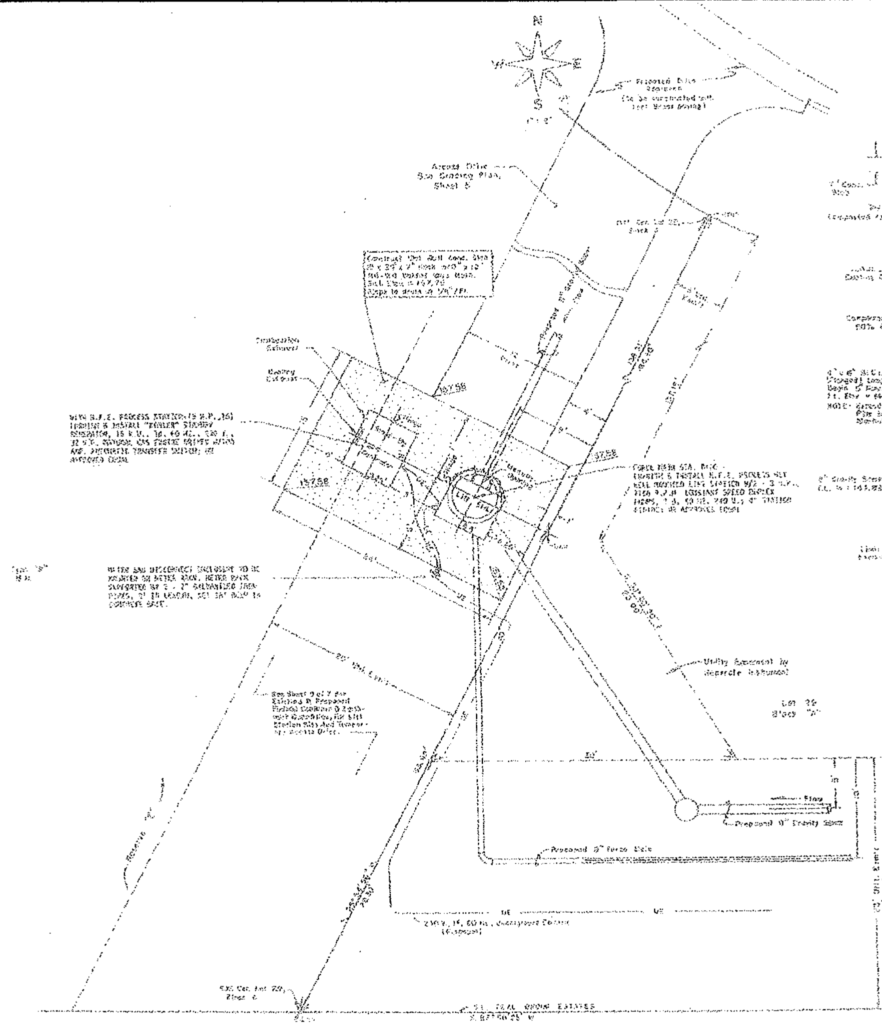
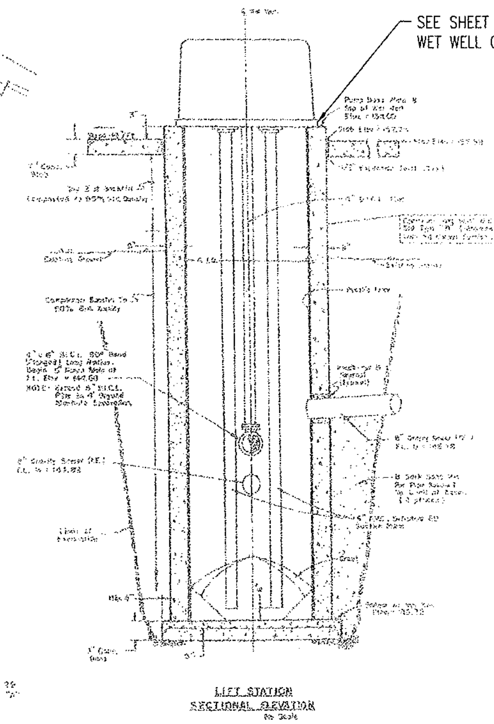




NOTES

1. WHERE PIPE IS DESIGNATED FOR ABANDONMENT, THE CONTRACTOR SHALL SEAL BOTH ENDS OF PIPE WITH 3' LONG CONCRETE PLUGS. SAND BACKFILL INSIDE THE PIPES IS NOT REQUIRED FOR PIPES 12" DIAMETER OR LESS.

2. MANHOLE RINGS AND COVERS, CHECK VALVES, PLUG VALVES, ACCESS HATCHES, GUIDE RAILS, PUMPS, DISCONNECT SWITCHES, AUTOMATIC TRANSFER SWITCH, GENERATOR, FLOAT SWITCHES, AND ENCLOSURES TO BE SALVAGED BY CONTRACTOR TO THE CITY.

3. PRIOR TO ANY LIFT STATION OR FORCE MAIN ABANDONMENT OR REMOVAL, THE CONTRACTOR SHALL GIVE 48 HOURS (MIN.) NOTICE TO THE CITY. CONTACT MR. ROB YOUNKIN, WWSD, CITY OF WICHITA, KANSAS (316) 268-4555.

4. CONTRACTOR SHALL NOT DIVERT ANY SEWAGE FLOW THROUGH NEW PIPE OR MANHOLES UNTIL TESTING HAS BEEN COMPLETED AND ACCEPTED.

5. CONTRACTOR SHALL VISIT THE LIFT STATION SITE AND BECOME FAMILIAR WITH THE EXISTING LIFT STATION AND EQUIPMENT AND SUBSEQUENT ABANDONMENT/CONVERSION.

6. CONTRACTOR SHALL COORDINATE TRANSFORMER AND METER REMOVAL AND ABANDONMENT OF UTILITY SERVICE LINES WITH THE UTILITY COMPANIES.

ABANDONMENT/CONVERSION NOTES

1. PRIOR TO BEGINNING ANY SALVAGE/DEMOLITION/CONVERSION WORK, THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES AND REQUEST THAT ALL UTILITY SERVICE BE DISCONNECTED. ANY COSTS INCURRED BY THE UTILITY COMPANIES SHALL BE PAID BY THE CONTRACTOR.

2. LIFT STATION CONCRETE PAD AND THE ACCESS DRIVE SHALL BE REMOVED BY THE CONTRACTOR.

3. SALVAGED ITEMS SHALL BE CLEANED AND STOCKPILED ON SITE FOR THE ENGINEERS INSPECTION. ACCEPTABLE ITEMS SHALL BE DELIVERED BY THE CONTRACTOR TO A LOCATION APPROVED BY THE CITY ENGINEER.

4. FOLLOWING THE SALVAGE OPERATIONS, THE AIR RELEASE VALVE MANHOLE SHALL BE DEMOLISHED TO AN ELEVATION OF 4 FEET (MIN.) BELOW THE ADJACENT GROUND LINE.

5. CONCRETE RUBBLE, OTHER DEBRIS, AND UNSALVAGEABLE MATERIALS SHALL BE DISPOSED AS APPROVED AND DIRECTED BY THE CITY ENGINEER.

6. STRUCTURES REMAINING BELOW THE 4 FOOT DEMOLITION LEVEL MAY BE PARTIALLY BACKFILLED WITH THE DEMOLISHED MATERIALS. THE TOP 4 FEET OF BACKFILL SHALL BE AN APPROVED EARTH MATERIAL, FREE OF DEBRIS AND COMPACTED TO 90% OF ASTM D698.

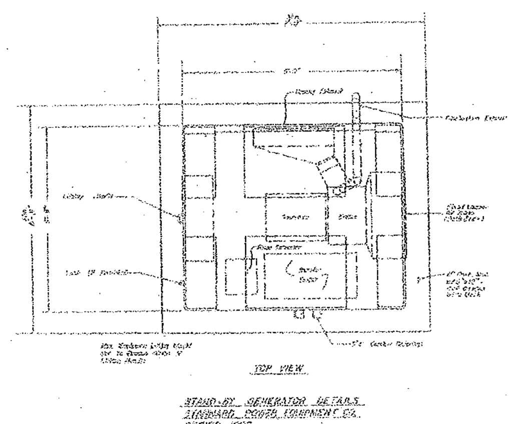
7. AFTER BACKFILLING AND MANHOLE CONVERSION, THE ENTIRE SITE DISTURBED BY DEMOLITION AND CONSTRUCTION SHALL BE CLEARED OF ALL DEBRIS, CONCRETE RUBBLE, ETC. AND GRADED TO DRAIN.

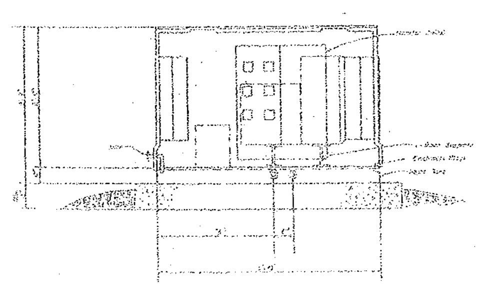
8. FOLLOWING SITE GRADING, THE CONTRACTOR SHALL SEED ALL AREAS DISTURBED BY HIS OPERATIONS PER SPECIFICATIONS.

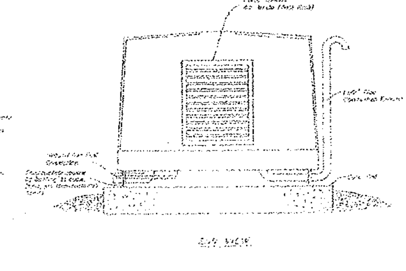
9. LIFT STATION SHALL REMAIN IN SERVICE UNTIL PROPOSED MAIN PUMP STATION IS COMPLETED AND PUT INTO SERVICE.

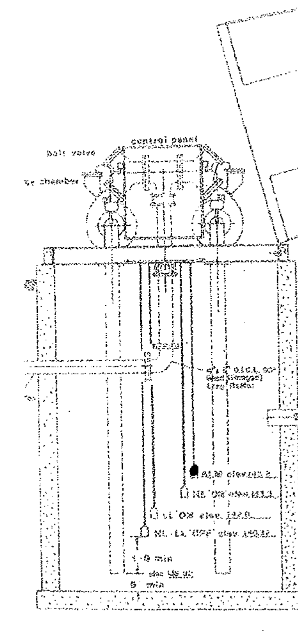
Alm - 143.8 (1187.6)

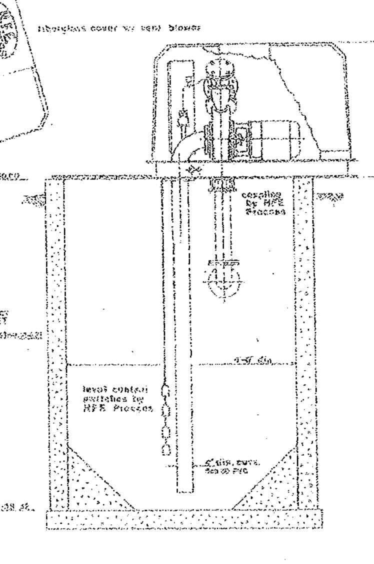
1321

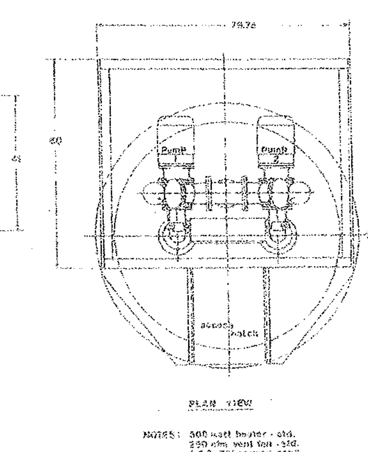












SEE SHEET C23 FOR FORCE MAIN ABANDONMENT

SEE SHEET C20 FOR KEY MAP OF FLOW DIVERSIONS AND REQUIRED SEQUENCING

MICHAEL WILLIAM STUMP, LICENSED PROFESSIONAL ENGINEER, 15629, KANSAS, 11-16-2001

SRB 924 NORTH MAIN, WICHITA, KANSAS 67203 316-264-8008 FAX 264-4621
SAVOY, RUGGLES & BOHM, P.A. ENGINEERING & SURVEYING
McCLUGGAGE VAN SICKLE & PERRY — Professional Engineering Consultants
BROWN AND CALDWELL

SUBMITTED: ______ PROJECT MANAGER DATE: ______
APPROVED: ______ BROWN AND CALDWELL DATE: ______
APPROVED: ______ DATE: ______

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

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ZONE	REV.	DESCRIPTION	BY	DATE	APP.

REVISIONS

CITY OF WICHITA

NORTHWEST SEWAGE TREATMENT PLANT NO. 3 MAIN PUMPING STATION

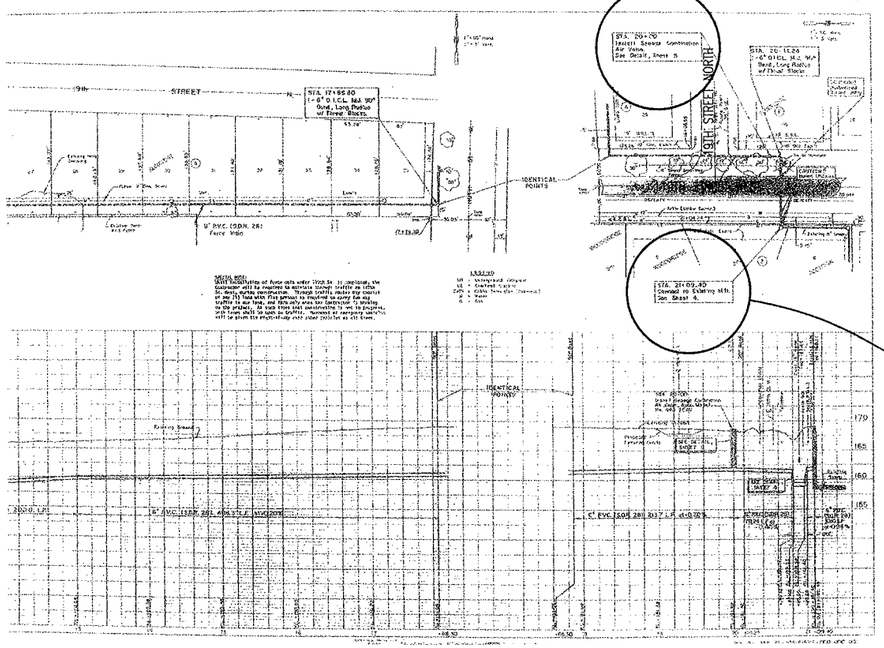
CIVIL

FLOW DIVERSION NO. 3
LIFT STATION ABANDONMENT

CADFILE
DATE 11-20-01
OPERATOR

DRAWING NO. C22

SHEET NUMBER 13 OF 77



AIR RELEASE MH
STRUCTURE TO BE ABANDONED IN ACCORDANCE
WITH ABANDONMENT/CONVERSION NOTES ON
SHEET C22.

REMOVE, CLEAN AND SALVAGE SEWAGE COMBINATION
AIR VALVE TO CITY OF WICHITA.

PLUG 6" PIPE

PLUG 6" PIPE

MH TO REMAIN IN SERVICE

6" FM TO BE ABANDONED IN PLACE

FORCE MAIN ABANDONMENT

LIFT STATION
TO BE ABANDONED

FORCE MAIN TO BE ABANDONED IN PLACE

FORCE MAIN RECIEVING MH
TO BE ABANDONED

SEE SHEET C23 FOR
FORCE MAIN ABANDONMENT

SEE SHEET C20 FOR
KEY MAP OF FLOW DIVERSIONS
AND REQUIRED SEQUENCING

MICHAEL WILLIAM STUMP
15629
11-16-2001

DSNR: MDK OPER: CSL SCALE: 1=200.00
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924 NORTH MAIN
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ENGINEERING & SURVEYING

Professional Engineering Consultants
McCLUGGAGE VAN SICKLE & PERRY
BROWN AND CALDWELL

SUBMITTED: ____________ DATE: –
PROJECT MANAGER
APPROVED: ____________ DATE: –
BROWN AND CALDWELL
APPROVED: ____________ DATE: –

LINE IS 2 INCHES
AT FULL SIZE
(IF NOT 2"–SCALE ACCORDINGLY)

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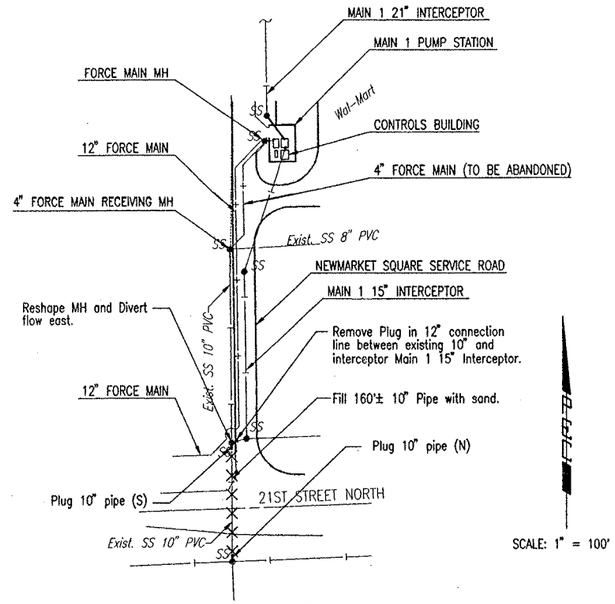
ZONE	REV.	DESCRIPTION	BY	DATE	APP.

CITY OF WICHITA

NORTHWEST SEWAGE
TREATMENT PLANT NO. 3
MAIN PUMPING STATION

CIVIL
FLOW DIVERSION NO. 3
FORCE MAIN ABANDONMENT

CADFILE
DATE 11-20-01
OPERATOR
DRAWING NO.
C23
SHEET NUMBER
14 OF 77

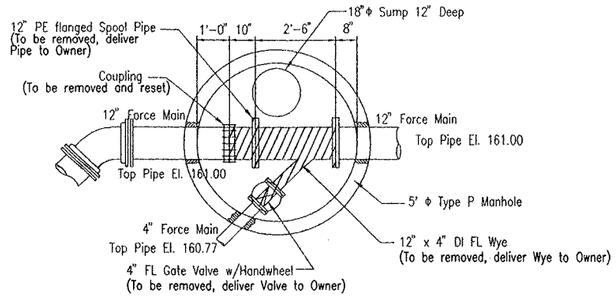


MAIN 1 PUMP STATION FINAL CONNECTION

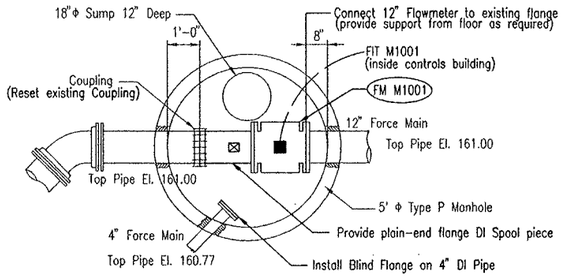
THE RECENTLY CONSTRUCTED MAIN 1 PUMP STATION IS LOCATED NORTH OF 21ST STREET NORTH AND WEST OF MAIZE ROAD ALONG THE EAST SIDE OF THE SERVICE ROAD WEST OF THE NEW WAL-MART STORE. THE CONTRACTOR SHALL COORDINATE THE OFF PEAK HOURS SHUTDOWN OF THE MAIN 1 PUMP STATION AND REMOVE THE 12"X4" FLANGED WYE AND 4" FLANGED GATE VALVE FROM THE FORCE MAIN MANHOLE LOCATED IMMEDIATELY WEST OF THE PUMP STATION GATE IN THE CONCRETE DRIVEWAY APPROACH. THE CONTRACTOR SHALL REMOVE THE FLANGED WYE FROM THE FORCE MAIN MANHOLE AND SHALL FURNISH AND INSTALL A NEW FULL PIPE FLOW METER IN ACCORDANCE WITH THE SPECIFICATIONS SHOWN HERE. THE FORCE MAIN MANHOLE SHALL BE THOROUGHLY CLEANED UPON COMPLETION OF ALL WORK. THE FLOW METER TRANSMITTER SHALL BE REMOTELY LOCATED IN THE MAIN 1 PUMP STATION CONTROLS BUILDING. POWER AND CONTROL CONDUITS FROM THE FORCE MAIN MANHOLE TO THE CONTROLS BUILDING ARE ALREADY IN PLACE FOR THE NECESSARY WIRING . THE 4" FORCE MAIN (APPROX. 165 L.F.) SHALL BE ABANDONED IN PLACE. IT SHALL BE FLUSHED CLEAN WITH WATER AND BOTH ENDS SHALL BE SEALED WITH GASKETED BLIND FLANGES. THE CONTRACTOR SHALL OPEN THE 4" FORCE MAIN RECEIVING MANHOLE AND REMOVE THE 4" D.I. PIPE AND 45° BEND BELOW THE FLANGED TEE. THE FLANGED TEE SHALL REMAIN IN PLACE IN THE RECEIVING MANHOLE AND THE OPEN ENDS SHALL BE SEALED WITH GASKETED BLIND FLANGES.

THE LUMP SUM PRICE BID FOR "MAIN 1 PUMP STATION FINAL CONNECTION" SHALL INCLUDE THE COST FOR FURNISHING AND INSTALLING THE FLOW METER, ELECTRICAL WIRING, JUNCTION BOXES, MOUNTING BRACKETS, CONTROLS, PIPE, PIPE FITTINGS AND ANY OTHER INCIDENTALS NECESSARY TO COMPLETE THE FLOW METER INSTALLATION AND 4" FORCE MAIN ABANDONMENT.

NOTE: THE CONTRACTOR SHOULD BE AWARE THAT THE EXISTING 12" FORCE MAIN MAY CONTAIN RAW SEWAGE THAT HAS BEEN ALLOWED TO BECOME SEPTIC AND POTENTIALLY DANGEROUS IN CONFINED SPACES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO INSURE THE SAFETY OF ALL PERSONNEL INVOLVED IN THIS WORK.



REMOVAL



PROPOSED

⊠ = Denotes Pipe Support

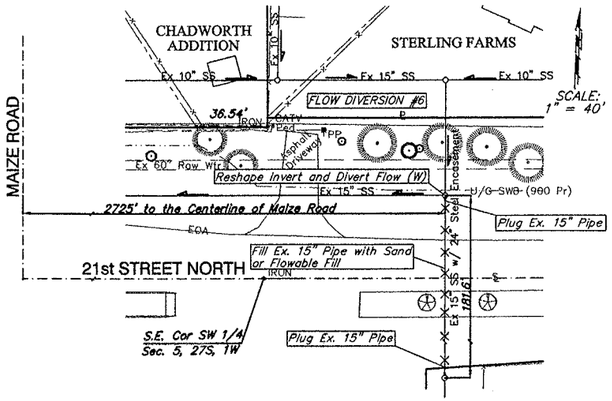
FORCE MAIN TIE-IN MANHOLE DETAILS

NOTES: PROVIDE AND INSTALL MAGMETER WITH REMOTE MOUNTED SIGNAL CONVERTER IN ACCORDANCE WITH SECTION 17212-TRANSMITTERS.

PROVIDE AND INSTALL POWER AND CONTROL CABLE IN EXISTING CONDUIT AS NECESSARY FOR COMPLETE OPERATION AND FUNCTION OF THE MAGMETER.

PROVIDE PROGRAMMING OF THE EXISTING DIRECTLOGIC 205 PLC TO ADDRESS THE MAGMETER SIGNALS. AN ANALOG INPUT MODULE EXISTS IN THE PUMP STATION CONTROL PANEL, WITH AN INPUT SLOT RESERVED FOR THE MAGMETER SIGNAL.

THE PROGRAMMING AND CONTROL OF THE MAIN 1 PUMP STATION IS INDEPENDENT OF THE MAIN PUMP STATION CONTROL SYSTEM. THE CITY OF WICHITA WILL BE RESPONSIBLE FOR MODIFICATIONS TO THE TELEMETRY SYSTEM AT THE MAIN 1 PUMP STATION.



FLOW DIVERSION NO. 6

FLOW DIVERSION NO. 5

SEE SHEET C20 FOR KEY MAP OF FLOW DIVERSIONS AND REQUIRED SEQUENCING

MICHAEL D. KAUL LICENSED KANSAS 13944 11/16/01 PROFESSIONAL ENGINEER

CRAIG D.F. BRADLEY LICENSED KANSAS 15076 11/16/01 PROFESSIONAL ENGINEER

BAUGHMAN COMPANY P. A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 * 315 ELLIS * WICHITA, KANSAS 67211

BROWN AND CALDWELL
McCLELLAND VAN SICKLE & PERRY
Professional Engineering Consultants

SUBMITTED: _____ DATE: _____ PROJECT MANAGER
APPROVED: _____ DATE: _____
APPROVED: _____ DATE: _____

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CITY OF WICHITA

NORTHWEST SEWAGE TREATMENT PLANT NO. 3
MAIN PUMPING STATION

CIVIL

FLOW DIVERSION NO. 5 AND 6

CADFILE
DATE 11-20-01
OPERATOR
DRAWING NO. C24
SHEET NUMBER 15 OF 77

DSNR: MDK OPER: CSL SCALE: 1=100.00
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VALVE AND ACTUATOR SYMBOLS

N.O. NORMALLY OPEN
N.C. NORMALLY CLOSED

- GATE VALVE (OPEN / CLOSED)
- PLUG VALVE
- BALL VALVE
- GLOBE VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- DOUBLE LEAF CHECK VALVE
- BALL CHECK VALVE
- DIAPHRAGM VALVE
- NEEDLE VALVE
- PRESSURE RELIEF VALVE (SPRING LOADED)
- FLOAT VALVE
- BACKFLOW PREVENTER
- HOSE BIB
- GAGE OR ROOT VALVE
- MUD VALVE

F.O. FAIL OPEN
F.C. FAIL CLOSED

- THREE WAY VALVE (W/TYPICAL FAIL POSITION) (F.O.)
- PRESSURE REDUCING VALVE
- BACK PRESSURE REDUCING VALVE
- SOLENOID OPERATED VALVE (S)
- PISTON OPERATED VALVE
- FLAP GATE
- FLOAT
- TELESCOPIC VALVE (WITH MANUAL SHUT-OFF)
- AIR RELIEF VALVE
- SUCTION DIFFUSER
- PUMP DISCHARGE VALVE
- BALANCING VALVE

PRIMARY ELEMENT SYMBOLS

- ORIFICE PLATE
- VENTURI OR FLOW TUBE
- FLUME
- RUPTURE DISC
- DIAGRHAM SEAL WITH ISOLATION VALVE
- CONCENTRIC CHEMICAL SEAL
- PRESSURE INDICATOR (PI)
- MAGNETIC FLOW ELEMENT (M)
- FLOW ELEMENT
- FLOW ELEMENT
- DIFFERENTIAL PRESSURE ELEMENT (DP)

PROCESS DEVICE SYMBOLS

- STRAINER – STANDARD OR BASKET
- REDUCER OR INCREASER
- DRAIN (D)
- SEPARATOR
- FILTER
- CAP OR PLUG
- BLIND FLANGE
- UNION
- QUICK DISCONNECT COUPLING
- DIFFUSER
- INLET AIR FILTER-SILENCER
- SILENCER
- ROTAMETER
- SLIDE GATE (SG) (NORMALLY OPEN)
- SLIDE GATE (SG) (NORMALLY CLOSED)
- SLUICE GATE (SLG) (NORMALLY OPEN)
- SLUICE GATE (SLG) (NORMALLY CLOSED)
- SLIDE PLATE (SP)
- STOP LOG (SL)
- HEAT TRACE CABLE (T, HTR)
- SPRAY NOZZLE
- SIGHT GLASS
- FLEX CONNECT
- VELOCITY PORT (VP)

GENERAL NOTES:

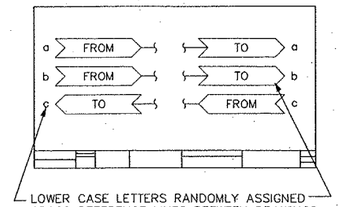
1. PROCESS AND INSTRUMENTATION DIAGRAMS (P&IDs) ARE PROCESS FLOW GUIDES. THEY DO NOT NECESSARILY REFLECT THE ACTUAL SPACE RELATIONSHIP OR ORIENTATION OF SOME ITEMS. P&IDs ARE NOT TO BE INTERPRETED AS PLUMBING SCHEMATICS.
2. *V INDICATES VENDOR SUPPLIED PACKAGE
3. *P INDICATES PRE PURCHASED PACKAGE
4. REFER TO EQUIPMENT SPECIFICATION SECTION AND PROCESS CONTROL STRATEGIES IN SPECIFICATION SECTION 17200 FOR EQUIPMENT CONTROL STRATEGY.

PROCESS AND SIGNAL LINE SYMBOLS

- MAIN PROCESS FLOW (WITH TYPICAL DIRECTION OF FLOW SHOWN)
- SECONDARY PROCESS FLOW
- INSTRUMENT SUPPLY, PROCESS TAPS
- EQUIPMENT BOUNDARY
- EXISTING
- FUTURE
- 3W — PROCESS OR INSTRUMENTATION PIPING CONNECTION. 3 WATER SHOWN.

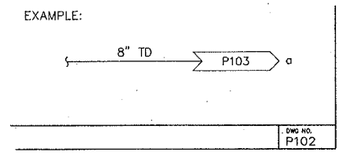
DRAWING CROSS-REFERENCE SYMBOLOGY FOR PROCESS AND SIGNAL LINES

LINE CROSS REFERENCE SYMBOL LOCATION IDENTIFICATION LETTERS

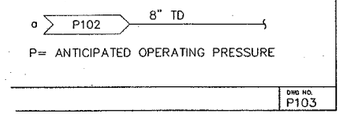


LOWER CASE LETTERS RANDOMLY ASSIGNED CROSS REFERENCE LINES BETWEEN DRAWINGS. (ONLY WHERE MULTIPLE LINES REFERENCE THE SAME DRAWING).

EXAMPLE:



8" TD LINE COMES FROM CURRENT DWG P-3 AND WILL CONTINUE ON DWG P-4



P= ANTICIPATED OPERATING PRESSURE

8" TD LINE COMES FROM DWG P-3 AND WILL CONTINUE ON DWG P-4

MECHANICAL EQUIPMENT IDENTIFICATION

PREFIX 1 = PLANT 1
PREFIX 2 = PLANT 2
PREFIX 3 = PLANT 3

PRIMARY SLUDGE PUMPS } EQUIPMENT NAME

SEE DWG G2 FOR EQUIPMENT PREFIXES

P 21351
P 21352 } EQUIPMENT NUMBERS

SPEC: 11355 — SPECIFICATION REFERENCE
TYPE: RECESSED — EQUIPMENT TYPE
Q: 500 GPM — CAPACITY
HEAD: 62 FEET — DISCHARGE PRESSURE RATING
HP: 25 — MOTOR HORSE POWER

MISCELLANEOUS MECHANICAL EQUIPMENT SYMBOLS

- CENTRIFUGAL PUMP
- SUBMERSIBLE SUMP PUMP
- VERTICAL PUMP
- PROGRESSING CAVITY PUMP
- PISTON SLUDGE PUMP
- AXIAL FLOW PUMP
- METERING PUMP
- CENTRIFUGAL BLOWER OR FAN
- SPIRAL HEAT EXCHANGER
- VARIABLE FREQUENCY DRIVE (ELEC) (VFD)
- ELECTRIC MOTOR (M)
- LIQUID RING OR ROTARY SCREW BLOWER OR COMPRESSOR
- INJECTOR
- MIXERS
- VERTICAL MIXER
- GRINDER

Professional Engineering Consultants
McCLELLAND VAN SICKLE & PERRY
BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 11/01
APPROVED: _____ DATE:

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FILE 18253
DRAWN BY STD
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CHECKED BY DAM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15931 — 11/16/01 — KANSAS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

PROCESS AND INSTRUMENTATION

PIPING AND MECHANICAL SYMBOLS

CADFILE P18253m52
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. **P1**

SHEET NUMBER 16 OF 79

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INSTRUMENTATION SYMBOLS

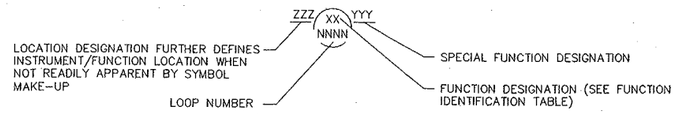
PRIMARY ELEMENT SYMBOLS

- RUPTURE DISC
- DIAPHRAGM SEAL WITH ISOLATION VALVE
- CONCENTRIC CHEMICAL SEAL
- PI — PRESSURE INDICATOR (MECHANICAL)
- M — MAGNETIC FLOW ELEMENT
- DP — DIFFERENTIAL PRESSURE ELEMENT
- CHEMICAL SEAL WITH ISOLATION VALVE PER SPEC SECTION 15050
- PROPELLER FLOW METER
- T — THERMAL MASS FLOW ELEMENT
- INSERTION TYPE TEMPERATURE ELEMENT
- NON-INSTRUSIVE TYPE TEMPERATURE ELEMENT

MISCELLANEOUS

- P — TYPE 1 PURGE OR FLUSHING DEVICE (SEE DETAIL G/M4)
- QUICK-CONNECT FITTING
- 3-WAY PNEUMATIC PILOT VALVE
- S — PISTON OPERATOR W/SOLENOID PILOT
- PISTON OPERATOR W/POSITIONER
- SONIC LEVEL PROBE
- CAPACITANCE LEVEL PROBE

INSTRUMENT SYMBOL DESIGNATION



FUNCTION IDENTIFICATION

FIRST LETTER(S)		SUCCEEDING LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A ANALYSIS		ALARM		
B BURNER (FLAME)				
C CONDUCTIVITY			CONTROL	
D DENSITY	DIFFERENTIAL			
E POTENTIAL (ELEC)		PRIMARY ELEMENT		
F FLOW RATE	RATIO			
G FIRE, SMOKE		GLASS		
H HAND				HIGH
I CURRENT (ELEC)		INDICATE		
J POWER	SCAN			
K TIME	TIME RATE CHANGE		CONTROL STATION	
L LEVEL		PILOT LIGHT		LOW
M MOISTURE	MOMENTARY			MIDDLE
N HYDROGEN-ION				
O DISSOLVED OXYGEN		ORIFICE		
P PRESSURE		TEST CONNECTION		
Q QUANTITY	INTEGRATE			
R RADIATION		RECORD		
S SPEED, FREQUENCY	SAFETY		SWITCH	
T TEMPERATURE			TRANSMIT	
U MULTIVARIABLE		MULTIFUNCTION	MULTI FUNCTION	MULTI FUNCTION
V VIBRATION			VALVE, DAMPER	
W WEIGHT, FORCE		WELL		
X UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	
Y EVENT, STATUS			RELAY, COMPUTE	
Z POSITION			MISC. ACTUATOR	

WICHTBLK

PATH: (3oden01) P:\CAD\OMCHITA\18253\

BROWN AND CALDWELL
McCLELLAND VAN SICKLE & PERRY
Professional Engineering Consultants

SUBMITTED: _____ (PROJECT MANAGER) DATE: 11/01
APPROVED: _____ (BROWN AND CALDWELL) DATE: 11/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY STD
DESIGNED BY STD
CHECKED BY DAM
CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

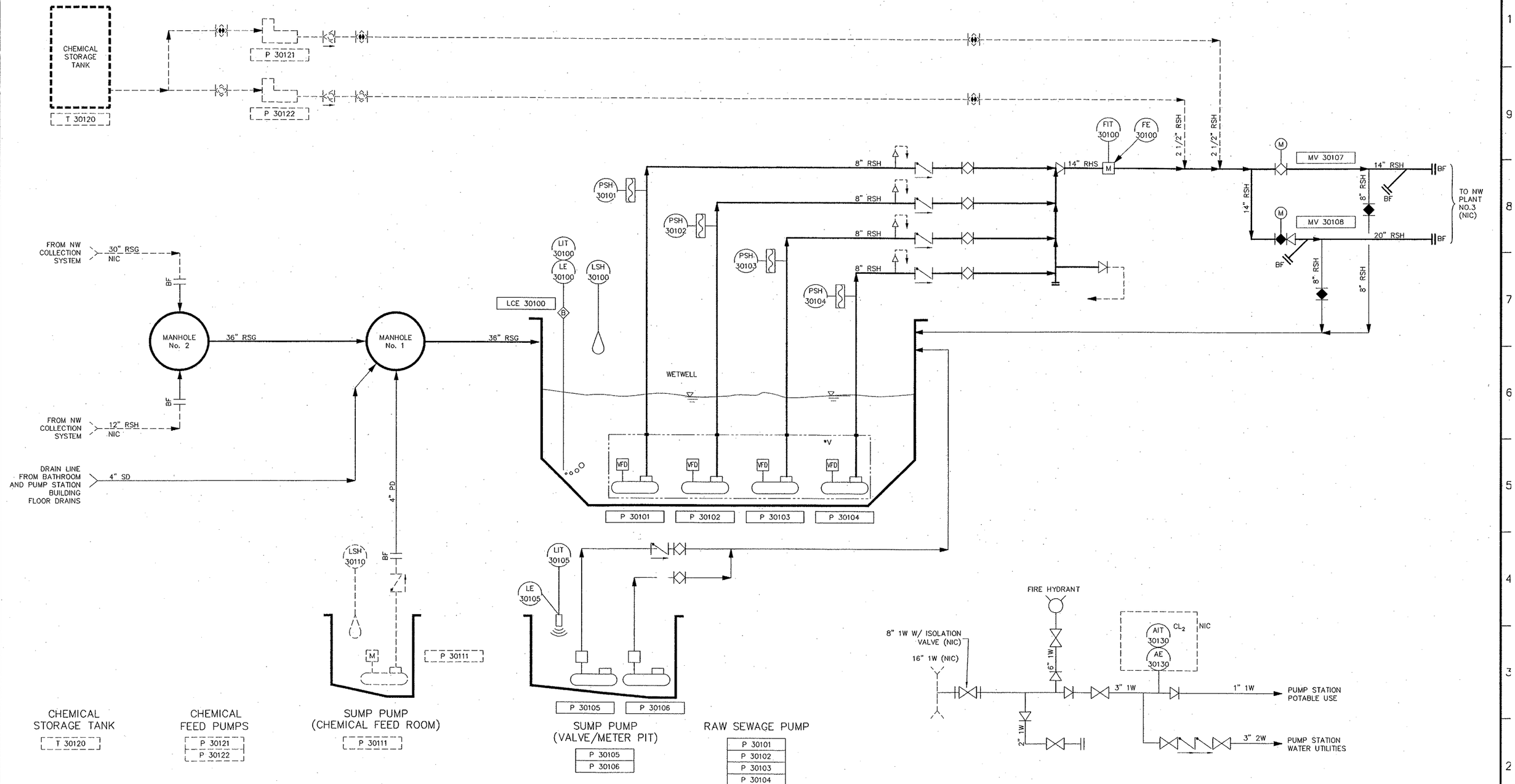
PROCESS AND INSTRUMENTATION

PROCESS AND INSTRUMENTATION SYMBOLS AND ABBREVIATIONS

CADFILE P18253m51
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. P2

SHEET NUMBER 17 OF 79



CHEMICAL STORAGE TANK
T 30120

CHEMICAL FEED PUMPS
P 30121
P 30122

SUMP PUMP (CHEMICAL FEED ROOM)
P 30111

SUMP PUMP (VALVE/METER PIT)
P 30105
P 30106

RAW SEWAGE PUMP
P 30101
P 30102
P 30103
P 30104

BROWN AND CALDWELL

SUBMITTED: DATE: 11/01
APPROVED: DATE: 11/01
APPROVED: DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"–SCALE ACCORDINGLY)

FILE 18253
DRAWN BY GAM
DESIGNED BY DWC/DCS
CHECKED BY DAM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

PROCESS AND INSTRUMENTATION

PUMPING SYSTEM

CADFILE P18253m53
DATE 11-13-01
OPERATOR TBreder

DRAWING NO.
P101

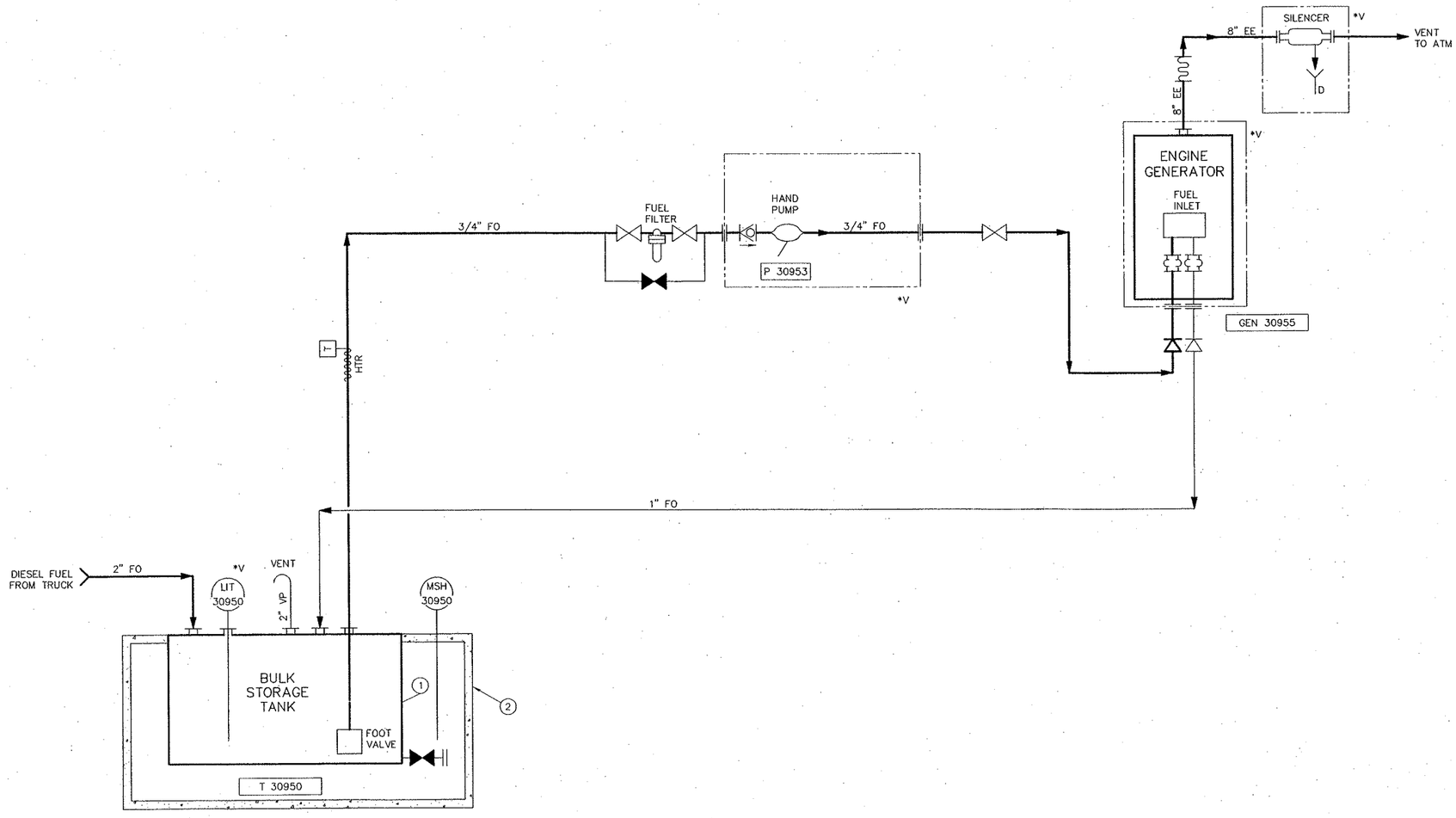
SHEET NUMBER 18 OF 79

PATH: (bcden01) P:\CAD\OWICHITA\18253\
WICHTBLK

KEY NOTES:

(1) HEAT TRACE AND INSULATE TANK.

(2) STORAGE TANK AND CONCRETE SECONDARY CONTAINMENT SYSTEM AS SPECIFIED.



BROWN AND CALDWELL	LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)	REVISIONS
SUBMITTED: DATE: 11/01	FILE 18253	ZONE / REV. / DESCRIPTION / BY / DATE / APP.
APPROVED: DATE: 11/01	DRAWN BY GAM	0 ISSUED FOR BID
APPROVED: DATE:	DESIGNED BY DWC	
	CHECKED BY DAM	
	CHECKED BY	

REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15931 — 11/16/01 — KANSAS

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

PROCESS AND INSTRUMENTATION

GENERATOR SYSTEM

CADFILE P18253m54
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. P102

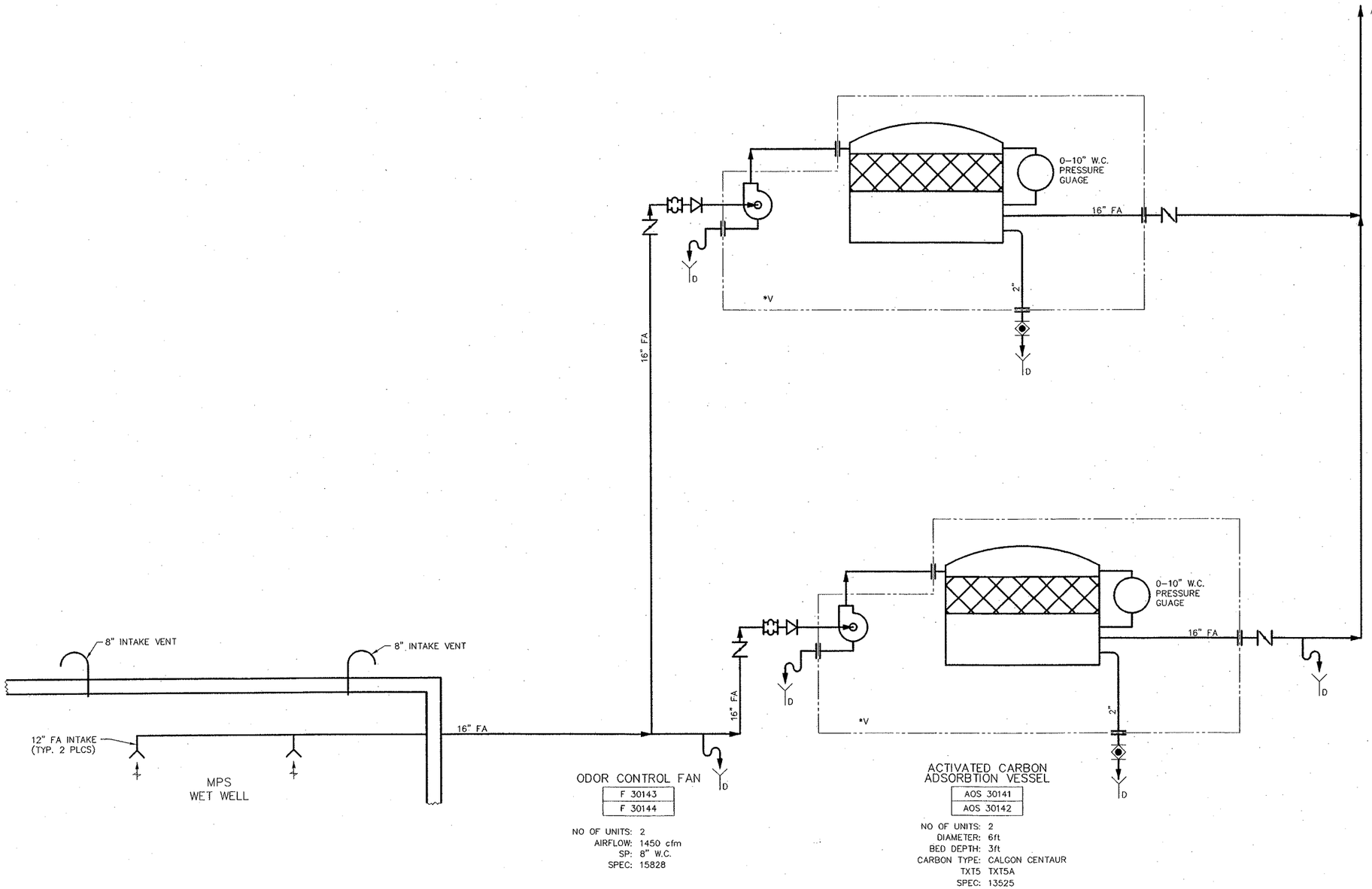
SHEET NUMBER 19 OF 79

WICHTBLK
PATH: (oden01) P:\CAD\WICHITA\18253\

NOTES:

*V – VENDOR SUPPLIED PACKAGE SYSTEM.

VESSELS SHALL BE FLOODABLE. PROVIDE ISOLATION VALVES FOR ALL CONNECTIONS.



Professional Engineering Consultants

McCLURG ACE VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED: [signature] DATE: 11/01

APPROVED: [signature] DATE: 11/01

APPROVED: DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"–SCALE ACCORDINGLY)

FILE 18253

DRAWN BY GAM

DESIGNED BY SJD

CHECKED BY DAM

CHECKED BY

REGISTERED PROFESSIONAL ENGINEER DAVID A. MYERS 15931 11/16/01 KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

PROCESS AND INSTRUMENTATION DIAGRAM

ODOR CONTROL

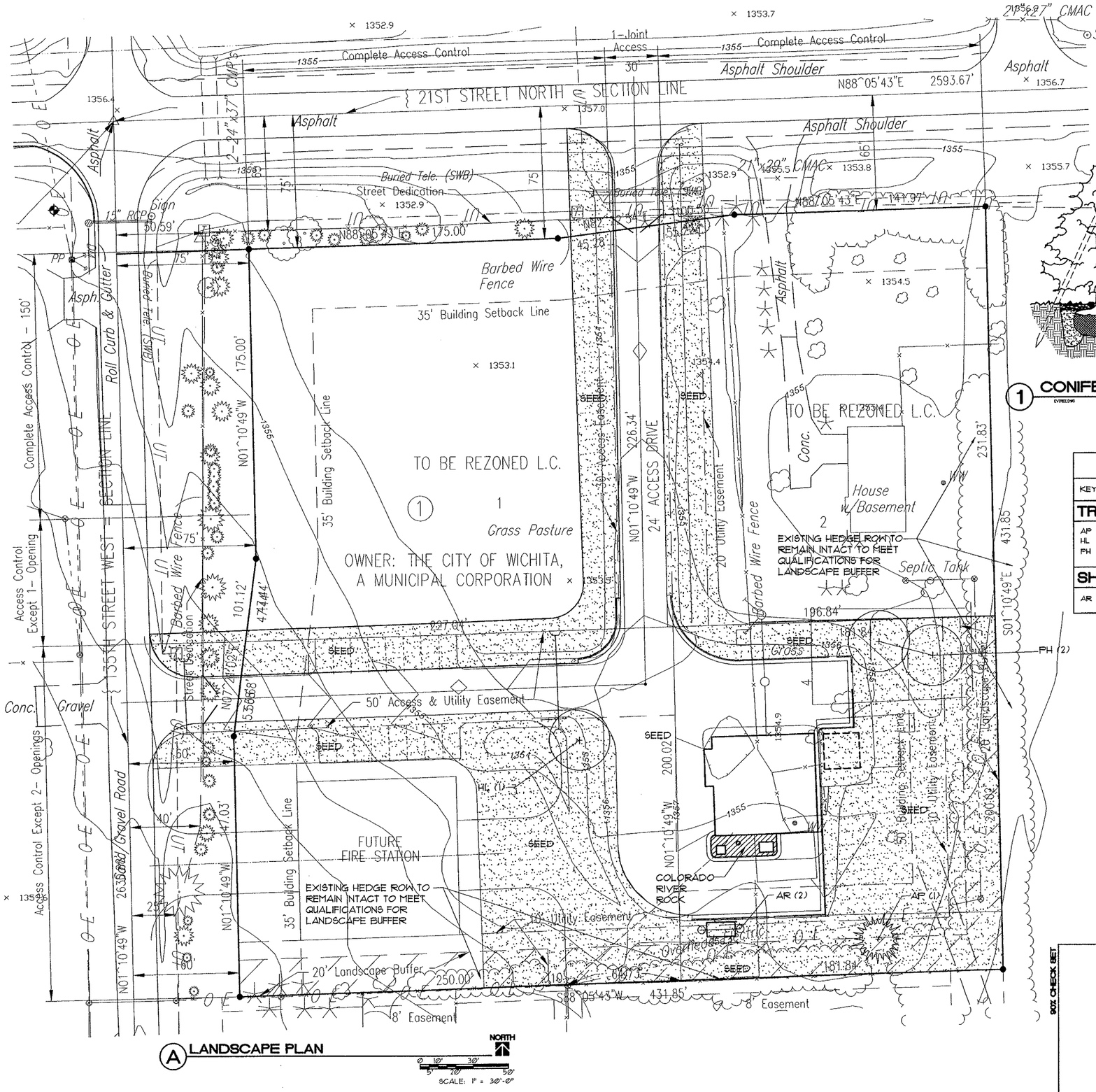
CADFILE H18253m52
DATE 11–13–01
OPERATOR TBreder

DRAWING NO. P103

SHEET NUMBER 20 OF 79

WICHTBLK

PATH: (3cden01) P:\CAD\OWICHITA\18253\



Ⓐ LANDSCAPE PLAN

SCALE: 1" = 30'-0"

① CONIFEROUS TREE PLANTING

EVTREE.DWG

1/2" = 1'-0"

② TREE PLANTING

DECTREE.DWG

3/8" = 1'-0"

PLANT LIST

KEY	QTY.	COMMON NAME	BOTANICAL NAME	SIZE	COND.
TREES					
AP	1	AUSTRIAN PINE	PINUS NIGRA	6' HT.	B & B
HL	1	SUNBURST HONEYLOCUST	GLEDITSIA TRIACANTHOS 'SUNBURST'	1 1/2" CAL.	B & B
PH	2	PRAIRIE PRIDE HACKBERRY	CELTIS OCCIDENTALIS 'PRAIRIE PRIDE'	1 1/2" CAL.	B & B
SHRUBS					
AR	2	ARNOLD RED HONEYSUCKLE	LONICERA TATARICA 'ARNOLD RED'	5 GAL.	CONT.

LANDSCAPE NOTES:

1. NO SUBSTITUTIONS SHALL BE ALLOWED WITHOUT APPROVAL.
2. QUANTITIES IN THE PLANT LIST ARE FOR INFORMATION ONLY. CONTRACTOR SHALL VERIFY.
3. ALL PLANT LOCATIONS ARE APPROXIMATE, ADJUST AS NECESSARY TO AVOID CONFLICTS.
4. ALL ROCK MULCH AREAS ARE TO RECEIVE A LAYER OF PERMEABLE WEED BARRIER RE:SPECS
5. ANY ROCK MULCH AREAS ADJACENT TO WALKS OR CURBING SHALL HAVE THE GRADE LOWERED TO A SUFFICIENT DEPTH TO ALLOW THE TOP OF THE MULCH TO MATCH THE TOP OF WALK OR CURBING.
6. ALL ROCK MULCH AREAS ARE TO RECIEVE 2" MINIMUM DEPTH OF COLORADO RIVER ROCK.
7. TURF SEED SHALL BE "CODY" BUFFALOGRASS RE: SPECS.
8. SEEDED AREAS INDICATED ON DRAWINGS ARE DIAGRAMMATIC ONLY, ALL DISTURBED AREAS ARE TO BE SEEDED, INCLUDING STAGING AREAS.
9. WHEN CLAY SOIL IS ENCOUNTERED IN THE ESTABLISHMENT OF THE LAWN OR THE INSTALLATION OF PLANT MATERIAL, SOIL SHALL BE IMPROVED IN ACCORDANCE WITH STANDARD TRADE PRACTICE. i.e. ADDITION OF LIME, GYPSUM, ETC.
10. REFERENCE SPECIFICATIONS FOR ADDTIONAL PLANTING MIX ADDITIVES.
11. EXISTING HEDGE ROWS ARE NOT TO BE DISTURBED. ANY TREES REMOVED SHALL BE REPLACED AT A RATIO OF 2:1 WITH TREES OF MAXIMUM SIZE AVAILABLE AND VARIETY TO MATCH TREES REMOVEDAT NO COST TO THE OWNER.

STEPHEN M. PERRY
15
11/13/01

McCLUGGAGE VAN SICKLE & PERRY

90% CHECK SET

CITY OF WICHITA

NORTHWEST SEWER TREATMENT
MAIN PUMPING STATION

Professional Engineering Consultants, P.A.

BROWN AND CALDWELL

No.	Revision	By	Date

NORTHWEST SEWER IMPROVEMENTS PROGRAM MANAGEMENT
MAIN PUMPING STATION

LANDSCAPE PLAN

303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	Job No. 99114.01	Sht. **SP1.1** of 00
Drawn by	Date AUGUST 9, 2001	

CODE REVIEW

PROJECT NAME: NORTHWEST SEWAGE TREATMENT FACILITY: MAIN PUMP STATION

MAIN PUMP STATION BUILDING:

OCCUPANCY TYPE: F-1

ALLOWABLE FLOOR AREA AND HEIGHT FOR F-1 USE
GROUP: 8,000 S.F./2 STORIES.
ACTUAL: 1650 S.F. (ENCLOSED)
2825 S.F. (INCLUDING PORTICO)

CONSTRUCTION TYPE: V-N

OCCUPANT LOAD: 17
NUMBER OF EXITS REQUIRED: 1
NUMBER OF EXITS PROVIDED: 6
MAX. TRAVEL DISTANCE W/O SPRINKLER SYSTEM: 200'

EXTERIOR WALL AND OPENING PROTECTION- TABLE 5-A
BEARING WALLS- ONE-HOUR LESS N/C THAN 20 FEET.
NR, N/C ELSEWHERE.

OPENING-NOT PERMITTED LESS THAN 5 FEET.
PROTECTED LESS THAN 10 FEET.

TYPE OF CONSTRUCTION-FIRE RESISTIVE REQUIREMENTS-TABLE 6-A

BEARING WALLS-EXTERIOR	-N
BEARING WALLS-INTERIOR	-N
STRUCTURAL FRAME	-N
PARTITION-PERMANENT	-N
SHAFT ENCLOSURES	1
FLOOR AND FLOOR-CLGS.	-N
ROOF AND ROOF-CLGS.	-N

FIRE EXTINGUISHERS: 2 SHOWN

CODES/REGULATIONS

1997 UNIFORM BUILDING CODE
1997 UNIFORM MECHANICAL CODE
1994 UNIFORM PLUMBING CODE
1994 UNIFORM FIRE CODE
1993 NFPA-70 ELECTRICAL CODE
LATEST EDITION OF NATIONAL ELECTRIC CODE
LATEST EDITIONS OF NFPA OF APPLICABLE SECTIONS
AMERICANS WITH DISABILITIES ACT (ADA) WHERE APPLICABLE

NOTE:

These buildings are to be constructed in compliance with all local, city, state or federal government building codes. In addition, all covenants, codes and restrictions (CCR) must be complied with relative to construction and building locations. In all instances where no apparent codes prevail, same shall be constructed in compliance with, but not limited to: ACI, AISC, ASHRAE, ASTM, AWSC, UBC, NEA, NFPA and OSHA.

NOTE:

All Wichita, Kansas Ordinances and adopted building codes must be complied with as required. Any changes to the construction documents, presented for plan review and building permit, are required to be submitted for approval prior to installation.

GENERAL REQUIREMENTS

STANDARD ITEMS

1. REQUIRED INSPECTIONS: REINFORCING STEEL OR STRUCTURAL FRAMEWORK OF ANY PART OF ANY BUILDING OR STRUCTURE SHALL NOT BE COVRED OR CONCEALED WITHOUT RECEIVING INSPECTION APPROVAL BY THE OFFICE OF CENTRAL INSPECTION. IN ADDITION TO REQUIRED ELECTRICAL, MECHANICAL AND PLUMBING INSPECTIONS, THE BUILDING PERMIT HOLDER OR HIS AGENT SHALL REQUEST THE OFFICE OF CENTRAL INSPECTION TO MAKE THE FOLLOWING CALLED BUILDING CONSTRUCTION INSPECTIONS:
   A. FOUNDATION INSPECTION PRIOR TO THE POURING OF CONCRETE.
   B. FRAME INSPECTION AFTER PIPES, CHIMNEYS AND VENTS ARE INSTALLED BUT PRIOR TO CONCEALING THE FRAMEWORK.
   C. INSULATION AND WALLBOARD INSPECTION.
   D. FINAL INSPECTION PRIOR TO OCCUPANCY OF BUILDING.
2. APPROVED PLANS: A SET OF BUILDING PLANS AND SPECIFICATIONS APPROVED BY THE OFFICE OF CENTRAL INSPECTION AND MARKED "FIELD COPY" SHALL BE KEPT ON THE PROJECT DURING CONSTRUCTION UNTIL FINAL INSPECTION APPROVAL HAS BEEN MADE.
3. PLAN MODIFICATIONS: CHANGES MADE, DURING CONSTRUCTION OF A PROJECT, THAT AFFECT EXITING, WALL CONFIGURATION AND STRUCTURAL ELEMENTS THAT ARE NOT JUST "COSMETIC", REQUIRE REVISED PLANS TO BE SUBMITTED TO THE OFFICE OF CENTRAL INSPECTION FOR REVIEW AND APPROVAL. THE ARCHITECT OR ENGINEER OF RECORD MUST SEAL ALL REVISED PLANS.
4. DOOR HARDWARE: ALL DOORS REQUIRED FOR EGRESS (EXIT DOORS) SHALL BE INSTALLED WITH APPROVED HARDWARE AS LISTED BELOW:
   A. EXIST DOORS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OF EFFORT. FOR EXCEPTION ON THE MAIN EXTERIOR EXIT SEE UBC SECTION 1003.3.1.8.
   B. MANUALLY OPERATED EDGE- OR SURFACE-MOUNTED FLUSH BOLTS AND SURFACE BOLTS ARE PROHIBITED. SEE UBC SECTION 1003.3.1.8.
   C. HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL BE EASY TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE. LEVER-OPERATED MECHANISMS, PUSH-TYPE MECHANISMS AND U-SHAPED MECHANISMS ARE ACCEPTABLE DESIGNS.
5. STORM WATER: SECTION 16.32.010 OF THE CODE OF THE CITY OF WICHITA REGARDING STORM WATER POLLUTION PREVENTION REQUIRES THAT "BEST MANAGEMENTS PRACTICES" ARE REQUIRED ON ALL CONSTRUCTION SITES. THE OWNERS OF CONSTRUCTION SITES SHALL ENSURE THAT BEST MANAGEMENT PRACTICES ARE USED TO CONTROL AND REDUCE THE DISCHARGE OF POLLUTANTS INTO THE MS4 AND WATERS OF THE UNITED STATES TO THE MAXIMUM EXTENT POSSIBLE UNDER THE CIRCUMSTANCES. CONTACT CHRIS CARRIER WITH ANY QUESTIONS AT 316-268-4497.
6. POST THE BUILDING ADDRESS WITH A MINIMUM OF 3 INCH NUMBERS ON A CONTRASTING BACKGROUND THAT IS VISIBLE FROM THE STREET.

GENERAL REQUIREMENTS

FIRE DEPARTMENT REQUIREMENTS

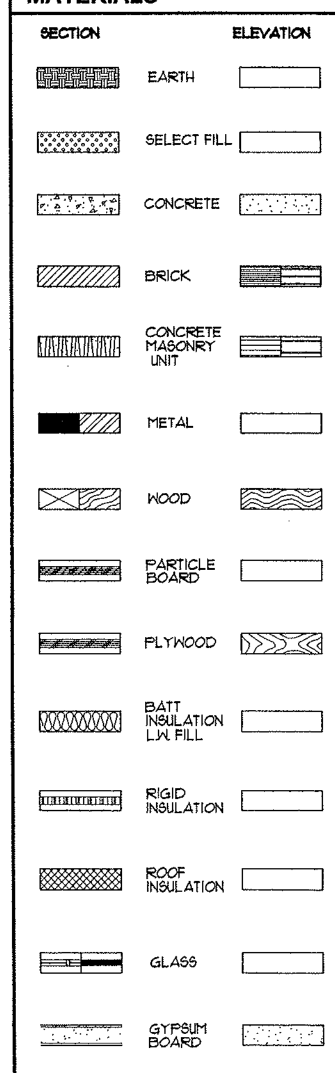
1. PROVIDE FIRE EXTINGUISHERS AS REQUIRED BY THE UNIFORM FIRE CODE, MINIMUM REQUIRED IS A 20A-10BC EXTINGUISHER WITH A MAXIMUM TRAVEL DISTANCE OF 75 FEET.

ABBREVIATIONS

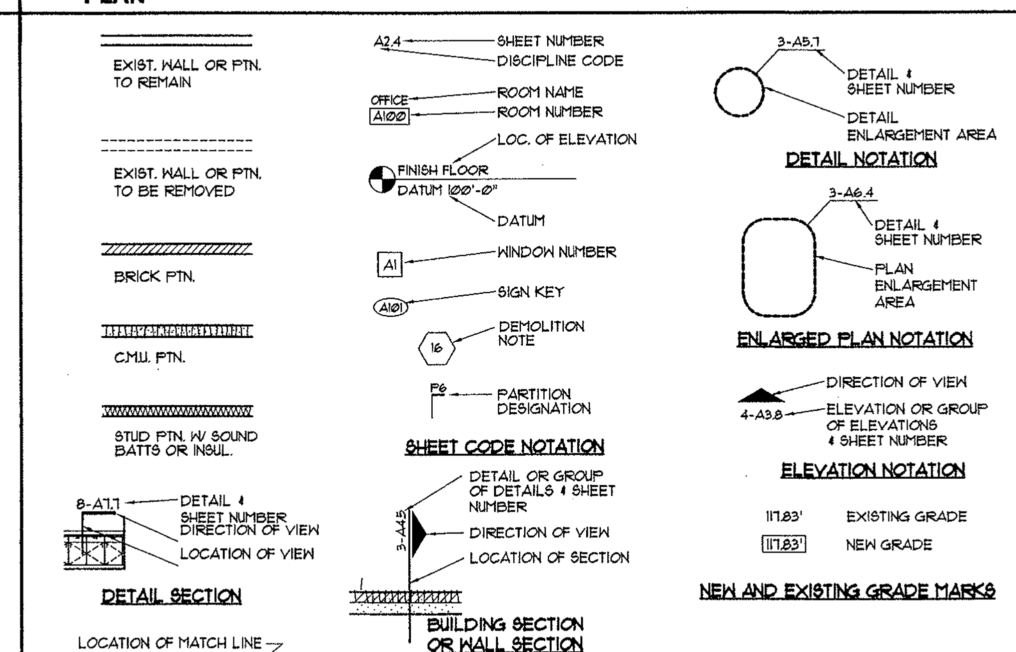
A	
@	AT
∠	ANGLE
ABV.	ABOVE
A/C	AIR CONDITIONING
ACOUS. T.	ACOUSTICAL TILE
ADJ.	ADJACENT
ADJUST.	ADJUSTABLE
A.F.F.	ABOVE FINISH FLOOR
A.H.U.	AIR HANDLING UNIT
ALT.	ALTERNATE
ALUM.	ALUMINUM
ANC.	ANCHOR
ANC. B.	ANCHOR BOLT
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
ASPH. T.	ASPHALT TILE
ASSYS.	ASSEMBLIES
B	
BD. , BRD.	BOARD
B.L.	BRICK LEDGE
BLDG.	BUILDING
BLK.	BLOCK
BLW.	BELOW
BM.	BEAM
B.M.	BENCH MARK
BOTT.,BTM.	BOTTOM
BRG.	BEARING
BRK.	BRICK
BUR.	BUILT UP ROOF
C	
℄	CENTER LINE
[	CHANNEL
C.	COURSES (BRICK, ETC.)
CAB.	CABINET
C.B.	CHALK BOARD
CEMENT	CEMENT
C.F.	CUBIC FEET
C.G.	CORNER GUARD
C.I.	CAST IRON
C.J.	CONTROL JOINT
CKT.	CIRCUIT (ELECTRIC)
C.L.	CENTER LINE
CLG.	CEILING
CLR.	CLEAR
C.M.P.	CORRUGATED METAL PIPE
C.M.U.	CONCRETE MASONRY UNIT
CNTR.	COUNTER
C.O.	CLEAN OUT
COL.	COLUMN
COMP.	COMPOSITION
CONC.	CONCRETE
COND.	CONDITION
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
C.O.R.	CONTRACTING OFFICER'S REPRESENTATIVE
C.R.	COLD-ROLLED
CSK.	COUNTERSUNK
CSWK.	CASEWORK
C.T.	CERAMIC TILE
CTR.	CENTER
CNTR. FLG.	COUNTER FLASHING
D	
DBL.	DOUBLE
DEMO.	DEMOLITION
DEPT.	DEPARTMENT
D.F.	DRINKING FOUNTAIN
DIAM. , ø	DIAMETER
DIM.	DIMENSION
DISP.	DISPENSER
DN.	DOWN
DO. , "	DITTO
DR.	DOOR
D.S.	DOWNSPOUT
DTL.	DETAIL
DWG.	DRAWING
DWR.	DRAWER
E	
E.	EAST
EA.	EACH
E. ANC.	EXPANSION ANCHOR
E.C.	ELECTRICAL CONTRACTOR
E.J.	EXPANSION JOINT
ELEC.	ELECTRICAL
ELEV.	ELEVATION
ENCL.	ENCLOSURE
ENTR.	ENTRANCE
EQ.	EQUAL
EQMT.	EQUIPMENT
E.R.	EXHAUST REGISTER
ETC.	ET CETERA
EX. , EXIST.	EXISTING
EXP.	EXPANSION
EXT.	EXTERIOR
F	
F.A.	FRESH AIR
F.C.U.	FAN COIL UNIT
F.D.	FLOOR DRAIN
FDN.	FOUNDATION
F.E.	FIRE EXTINGUISHER
F.E.C.	FIRE EXTINGUISHER CABINET
F.H.	FLATHEAD
FIN.	FINISH
FIN. FL.	FINISH FLOOR
FL.	FLOOR
FLG.	FLASHING
F.O.F.	FACE OF FOUNDATION
F.P.	FIREPROOFING
F.S.	FULL SIZE / FLOOR SINK
FT., '	FOOT/FEET
FTG.	FOOTING
FUT.	FUTURE
F.V.	FIELD VERIFY
G	
GA.	GAUGE
GALV.	GALVANIZED
G.B.	GRAB BAR
G.C.	GENERAL CONTRACTOR
G.I.	GALVANIZED IRON
G.L.	GRADE LINE
GR.	GRADE
G.T.	GLAZED TILE
GYP.	GYPSUM
H	
H.C.	HOLLOW CORE
HD.	HEAD
HD. WD.	HARDWOOD
HDWE.	HARDWARE
HGT., HT.	HEIGHT
H.K.	HOUSEKEEPING
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
H.P.	HIGH POINT
I	
I.D.	INSIDE DIAMETER
INT.	INTERIOR
INSUL.	INSULATION
J	
JST.	JOIST
JT.	JOINT
K	
KIT.	KITCHEN
K.P.	KICK PLATE
L	
L.	LENGTH
LAV.	LAVATORY
LB	POUND
L.F.	LINEAR FEET
LOC.	LOCATION
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
L.P.	LOW POINT
LV.	LOUVER
L.W.	LIGHT WEIGHT
M	
MAS.	MASONRY
MATL.	MATERIAL
MAX.	MAXIMUM
M.B.	MACHINE BOLT
M.C.	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MFR.	MANUFACTURER
M.H.	MAN HOLE
MIN.	MINIMUM
MISC.	MISCELLANEOUS
M.L.	METAL LATH
MLDG.	MOULDING
M.O.	MASONRY OPENING
M.S.	METAL STUD
M.T.	METAL THRESHOLD
MTD.	MOUNTED
MTL.	METAL
MTR.	MOTOR
N	
N.	NORTH
N.A.	NOT APPLICABLE
N.C.	NORMALLY CLOSED
N.F.R.	NO FINISH REQUIRED
N.I.C.	NOT IN CONTRACT
N.O.	NORMALLY OPEN
#, NO.	NUMBER
NOM.	NOMINAL
NON-COM.WD.	NON-COMBUSTIBLE WOOD
N.T.S.	NOT TO SCALE
O	
O. TO O.	OUT TO OUT
O.A.	OVER ALL
OBS.	OBSCURE
O.C.	ON CENTERS
O.D.	OUTSIDE DIAMETER
OFF.	OFFICE
OPNG.	OPENING
OPP.	OPPOSITE
P	
Φ	PHASE
PL (symbol)	PLATE
P & M	PATCH AND MATCH
PART.	PARTIAL
P.C.	PLUMBING CONTRACTOR
P.L.	PLASTIC LAMINATE
PLAS.	PLASTER
PLBG.	PLUMBING
P.L.F.	POUNDS PER LINEAR FOOT
PLYWD.	PLYWOOD
P.O.C.	POINT OF CONNECTION
PR.	PAIR
PREFAB.	PREFABRICATED
PRESS.	PRESSURE
P.S.F.	POUNDS PER SQUARE FOOT
P.S.I.	POUNDS PER SQUARE INCH
PT.	POINT
PTD.	PAINTED
PTN.	PARTITION
PVC	POLY VINYL CHLORIDE
Q	
Q.T.	QUARRY TILE
R	
R.	RISER
R.A.	RETURN AIR
R., RAD.	RADIUS
R.D.	ROOF DRAIN
RE.	REFER
RECPT.	RECEPTACLE
REF.	REFERENCE
REFG.	REFRIGERATOR
REFL.	REFLECTED
REG.	REGULAR
REINF.	REINFORCING
REQ.	REQUIRED
REV.	REVERSE
R.G.	RETURN GRILL
R.L.	ROOF LEADER
RM.	ROOM
R.O.	ROUGH OPENING
RUST.	RUSTICATION
S	
SL (symbol)	STEEL LINE
□, SQ.	SQUARE
SAN. S.	SANITARY SEWER
S.	SOUTH
S.C.	SOLID CORE
SCHED.	SCHEDULE
SECT.	SECTION
S.D.R.	STANDARD DIMENSION RATIO
S.F.	SQUARE FEET
SHT.	SHEET
SIM.	SIMILAR
SP.	SPACES
SPEC.	SPECIFICATIONS
S.R.	SUPPLY REGISTER
S.S.	STORM SEWER
S.S.R.	STANDING SEAM ROOF
SST.	STAINLESS STEEL
STAG.	STAGGERED
STD.	STANDARD
STL.	STEEL
STRUCT.	STRUCTURAL
SUSP.	SUSPENDED
S.Y.	SQUARE YARD
SYM.	SYMMETRICAL
T	
T.	TREAD
T.B.	TACK BOARD
T.O.W.	TOP OF WALL
TEL.	TELEPHONE
TEMP.	TEMPERED
TERR.	TERRAZZO
T. & G.	TONGUE AND GROOVE
THK.	THICK
THLD.	THRESHOLD
TYP.	TYPICAL
U	
U.H.	UNIT HEATER
U.L.	UNDERWRITER'S LABORATORY
U.N.O.	UNLESS NOTED OTHERWISE
U.V.	UNIT VENTILATOR
V	
V.C.T.	VINYL COMPOSITION TILE
V.C.P.	VITRIFIED CLAY PIPE
VERT.	VERTICAL
VEST.	VESTIBULE
VOL.	VOLUME
V.T.R.	VENT THRU ROOF
V.W.C.	VINYL WALL COVERING
W	
W.	WEST
W.	WIDTH
W/	WITH
W.C.	WATER CLOSET
WD.	WOOD
WDW.	WINDOW
W.H.	WATER HEATER
W.I.	WROUGHT IRON
WNSCT.	WAINSCOT
W/O.	WITHOUT
W.P.	WATERPROOF
W.P.	WHITE PINE
W.P.	WORKING POINT
WT.	WEIGHT
WTR.	WATER
W.W.F.	WELDED WIRE FABRIC
Y	
YD	YARD

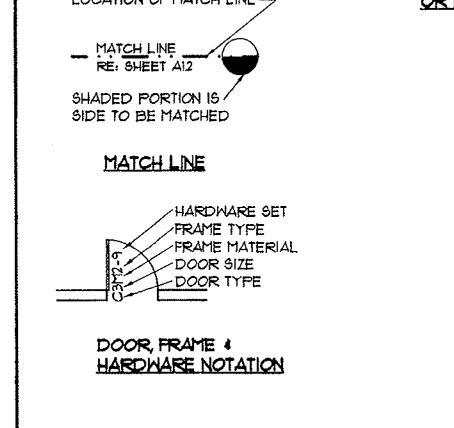
SYMBOLS

MATERIALS



PLAN





GENERAL NOTES

1. ALL DIMENSIONS SHOWING MASONRY WALL THICKNESSES ARE NOMINAL.
2. REFER TO ARCH. ELEVATIONS FOR EXTERIOR WALL CONTROL JOINT LOCATIONS.
3. COORDINATE SIZES AND LOCATIONS OF HOUSEKEEPING PADS W/ MECHANICAL AND ELECTRICAL EQUIPMENT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO BEGINNING WORK AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
5. REFER TO STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR RELATED INFORMATION.
6. PROVIDE BLOCKING IN WALLS AS REQUIRED FOR FURNISHINGS AND EQUIPMENT. VERIFY LOCATIONS OF BLOCKING WITH MANUFACTURERS OF SAID EQUIPMENT AND FURNISHINGS.
7. PROVIDE ESCUTCHEON PLATE AT ALL PIPE, CONDUIT, ETC. PENETRACTIONS AT EXPOSED LOCATIONS. (TYP.)
8. SITE ELEVATION 1357.50 = ARCHITECTURAL ELEVATION 100'-0"

JEFFREY W. WEFFORD
LICENSED
4387
11/15/01
KANSAS
PROFESSIONAL ARCHITECT

McCLUGGAGE VAN SICKLE & PERRY

CITY OF WICHITA

NORTHWEST SEWER TREATMENT
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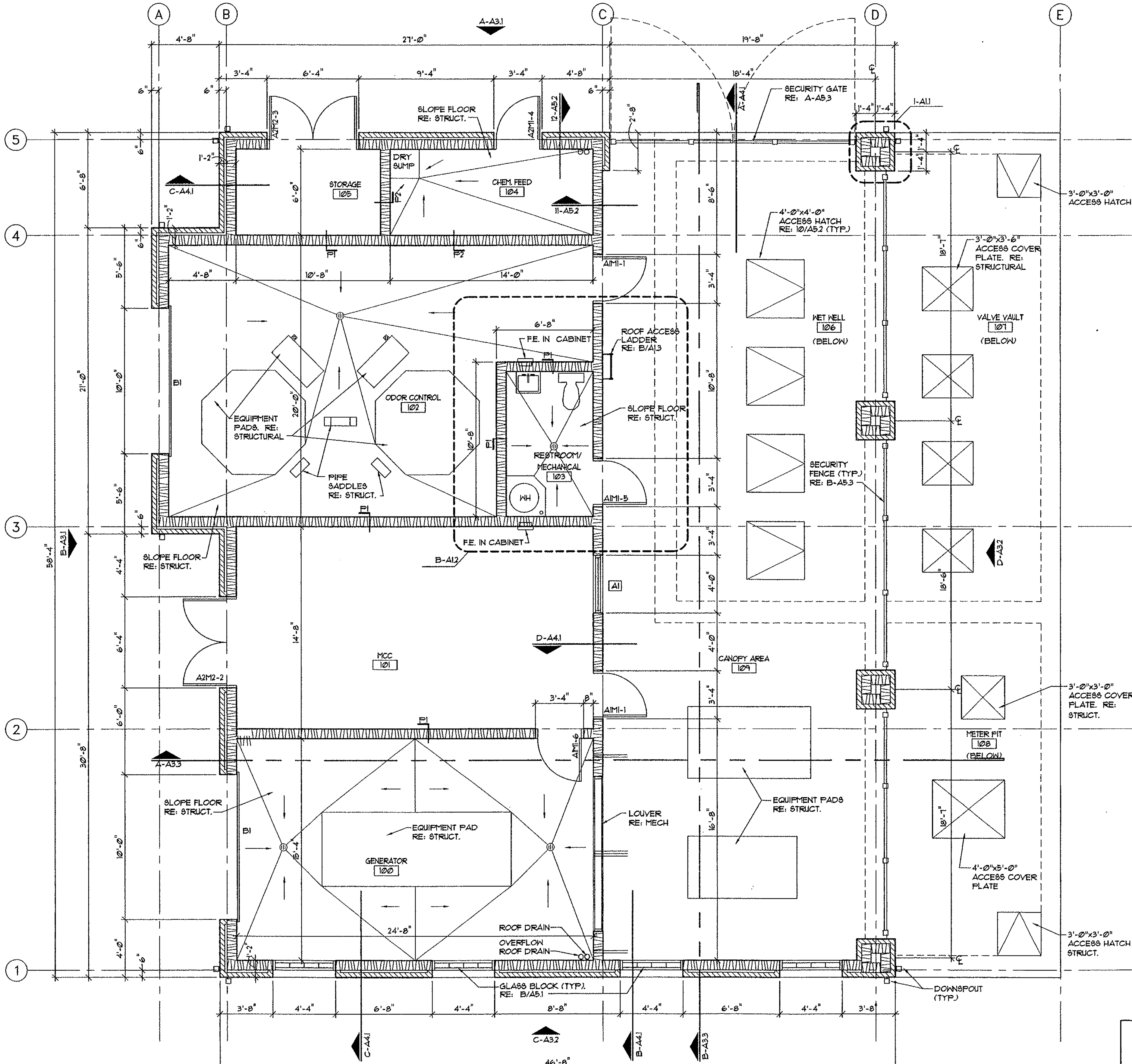
MAIN PUMPING STATION

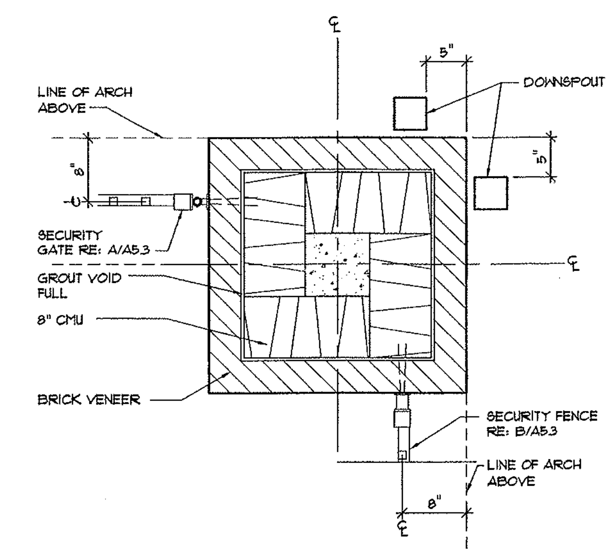
CODE REVIEW, ABBREVIATIONS AND SYMBOLS

303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	Job No. 99114.01	Sht. A0.1 of 13
Drawn by	Date NOVEMBER 15, 2001	



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



1 COLUMN DETAIL 1" = 1'-0"

CITY OF WICHITA

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MAIN PUMPING STATION

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BROWN AND CALDWELL

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No.	Revision	By	Date

NORTHWEST SEWER IMPROVEMENTS PROGRAM MANAGEMENT
MAIN PUMPING STATION

FLOOR PLAN

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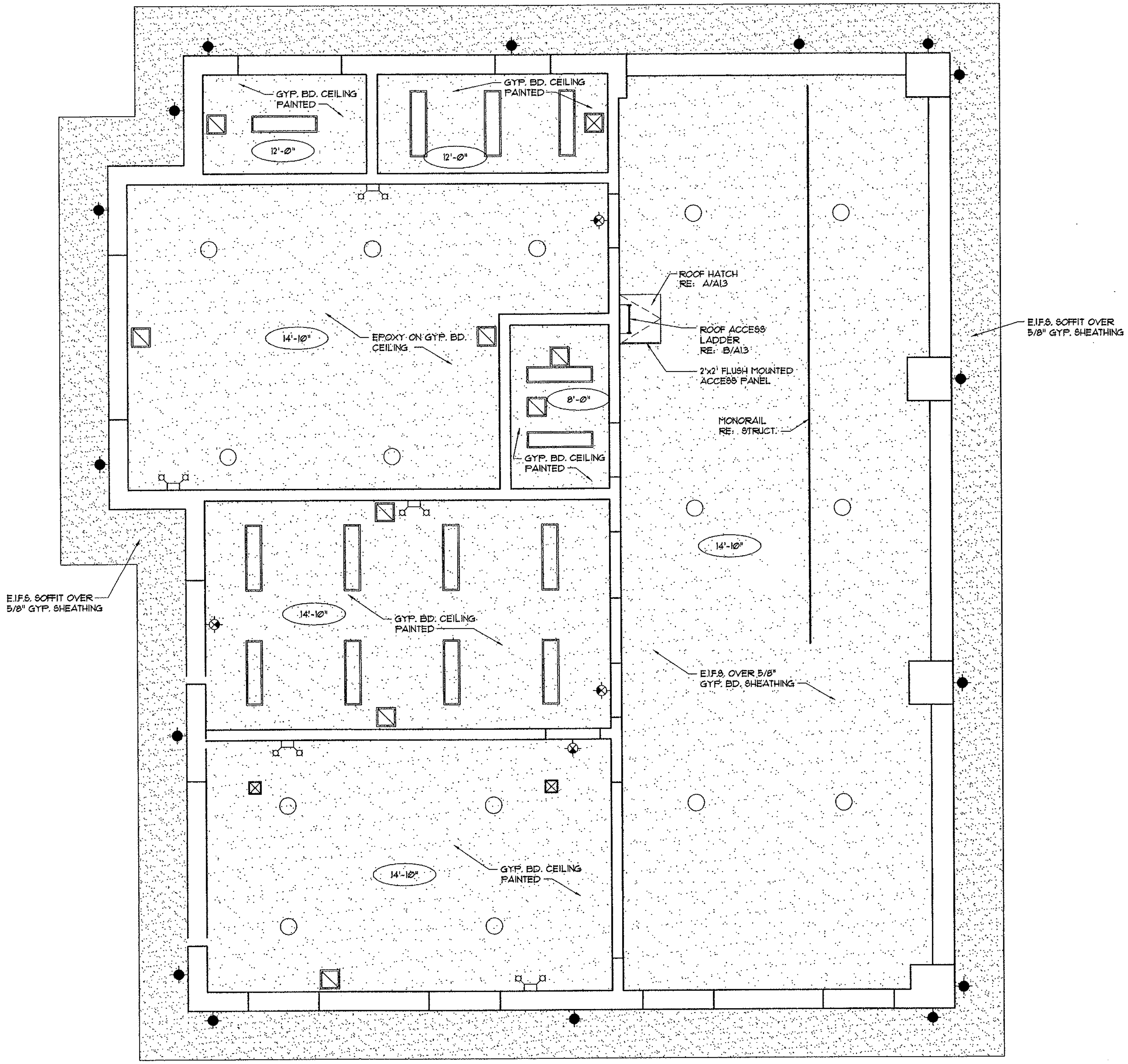


(A) REFELCTED CEILING PLAN

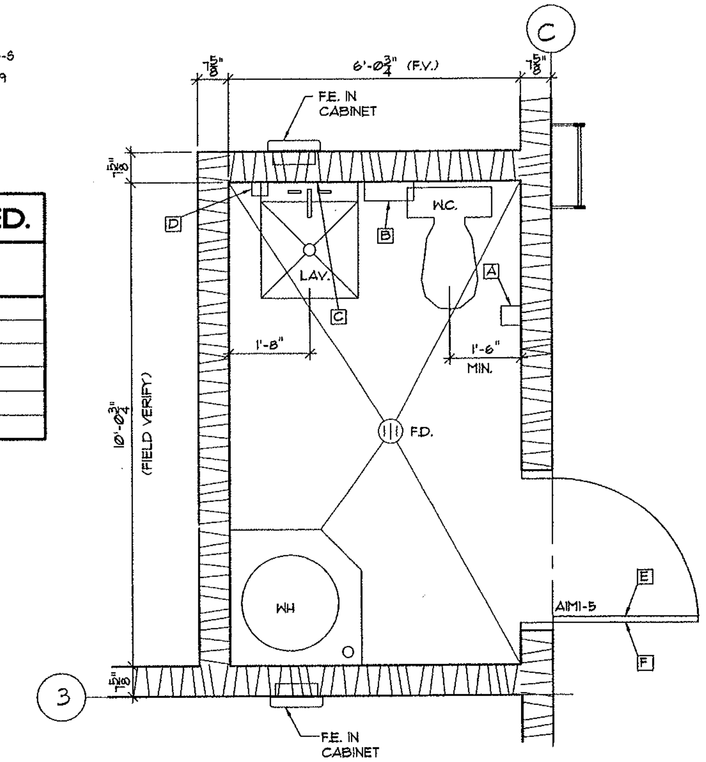
A-A1CLG.DWG 1/4" = 1'-0"

A. SURFACE MOUNTED TOILET TISSUE DISPENSER, EQUAL TO ASI 7305-5
B. SURFACE MOUNTED PAPER TOWEL DISPENSER, EQUAL TO ASI 0209
C. STAINLESS STEEL CHANNEL FRAME MIRROR, EQUAL TO ASI 0620
D. SOAP DISPENSER, EQUAL TO ASI 0351
E. COAT HOOK, EQUAL TO ASI 7345
F. TOILET SIGN

TOILET ACCESSORY SCHED.

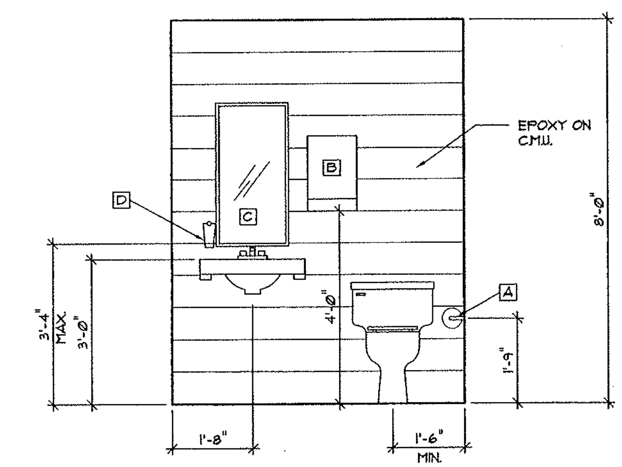
ROOM NO.	TOILET ACCESSORY A	B	C	D	E	F	REMARKS
RESTROOM	1	1	1	1	1	1	

NOTES:
1. REFERENCE MECHANICAL FOR TOILET FIXTURES.



(B) ENLARGED RESTROOM PLAN

1/2" = 1'-0"



(C) INTERIOR ELEVATION

1/2" = 1'-0"

CEILING SYMBOL LEGEND

	GRILL RE: MECHANICAL
	1'x4' FLUOR. SURFACE MOUNTED FIXTURE
	EXTERIOR LIGHT FIXTURE (WALL MOUNTED)
	EXIT LIGHT (WALL MOUNTED)
	BATTERY PACK EMERGENCY LIGHT FIXTURE

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CEILING PLAN TOILET DETAILS

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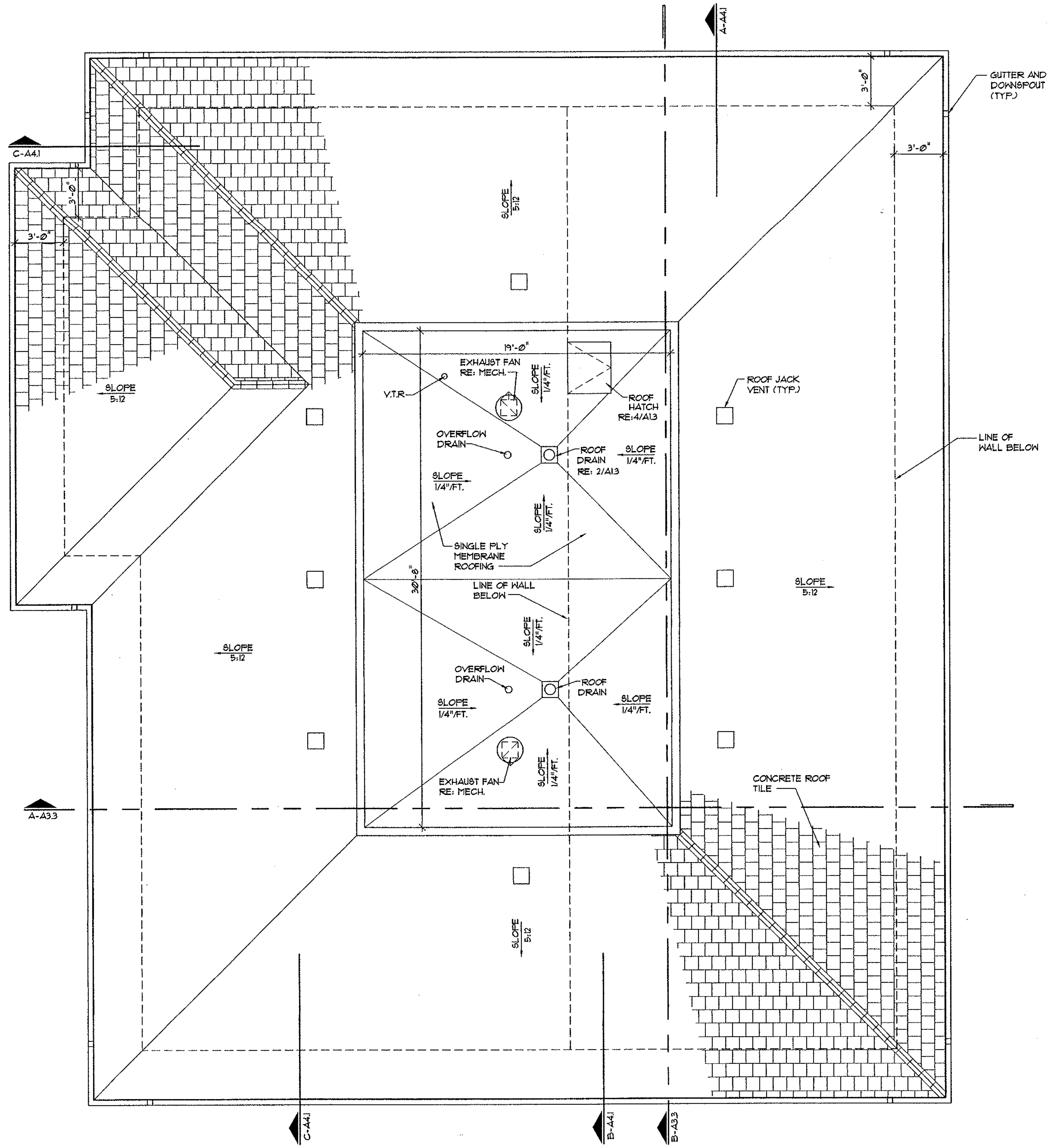
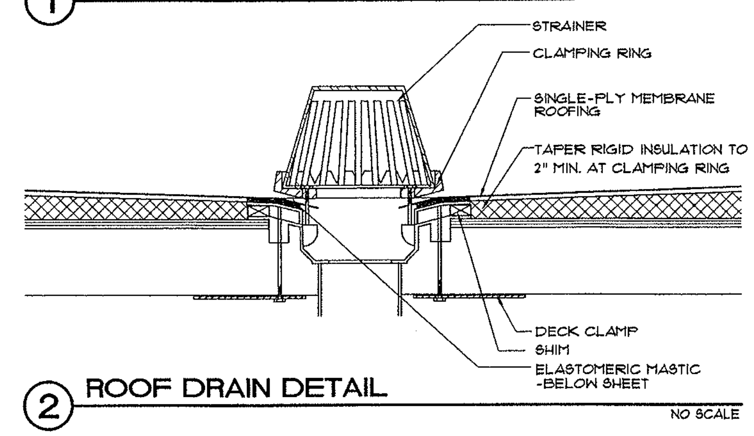
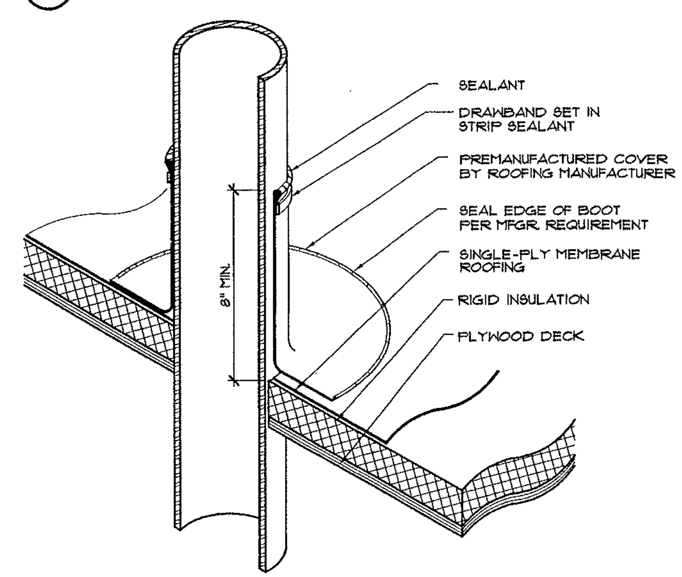


Ⓐ ROOF PLAN 1/4" = 1'-0"

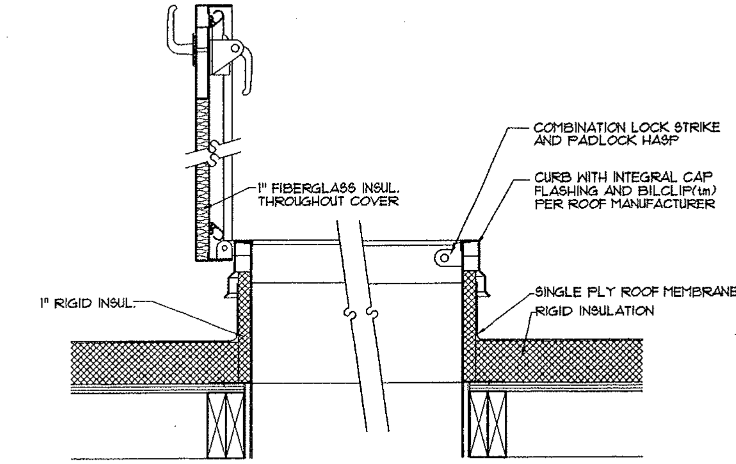
① NOT USED



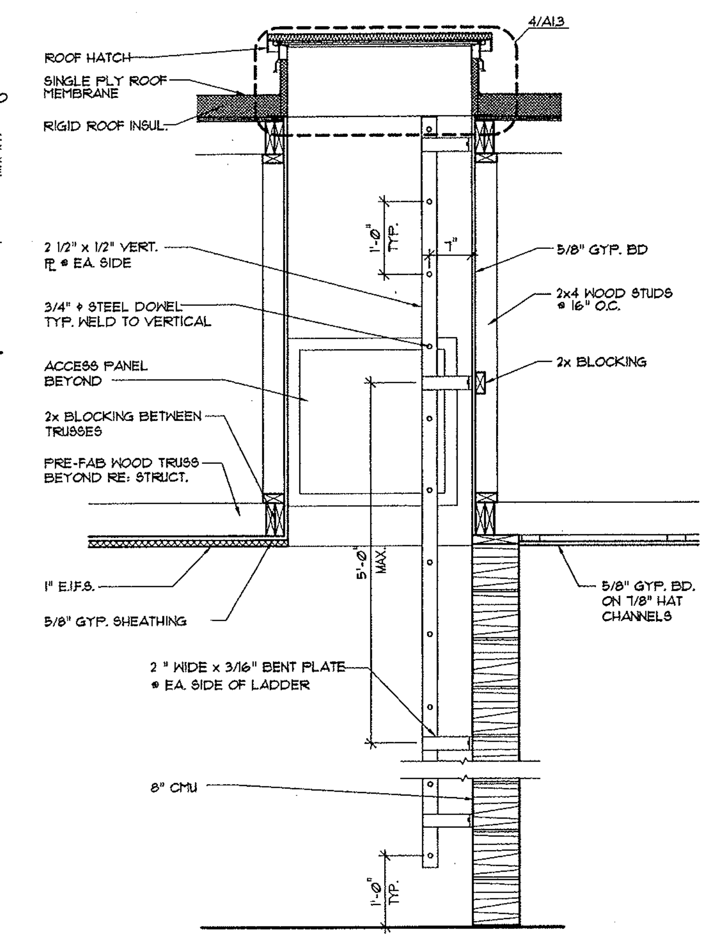
② ROOF DRAIN DETAIL NO SCALE



③ PIPE FLASHING DETAIL N.T.S.



④ ROOF HATCH DETAIL 1 1/2" = 1'-0"



Ⓑ SECTION @ ROOF ACCESS LADDER 3/4" = 1'-0"

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ROOF PLAN AND DETAILS

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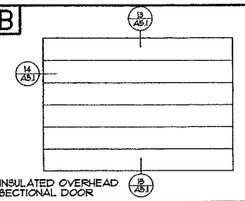
DOOR SCHEDULE

A

1¾" HOLLOW METAL

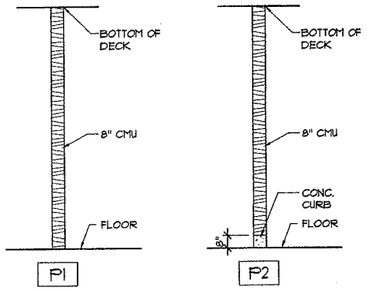
B



INSULATED OVERHEAD SECTIONAL DOOR

NO.	SIZE	REMARKS	NO.	SIZE	REMARKS
1	3'-Ø"x7'-2"		1	10'-Ø" H x12'-Ø" H	ELECTRIC
2	3'-Ø"x7'-10"				

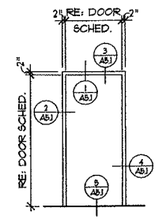
PARTITION SCHEDULE



ROOM FINISH SCHEDULES

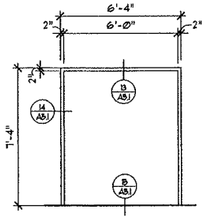
RM. NO.	ROOM NAME	FLOOR: EPOXY, LIGHT TRAFFIC	FLOOR: CEMENTUFF	FLOOR: EPOXY - MODERATE ABUSE	FLOOR: NO FINISHES REQUIRED	BASE: PAINT WALL FINISH	BASE: EPOXY - LIGHT TRAFFIC - 8" CONC. CURB	BASE: EPOXY WALL FINISH	BASE: NO FINISHES REQUIRED	WALLS: NORTH FINISH: PAINT	WALLS: NORTH FINISH: EPOXY	WALLS: NORTH FINISH: NO FINISHES REQUIRED	WALLS: NORTH SUBSTRATE: CMU	WALLS: NORTH SUBSTRATE: CONCRETE	WALLS: NORTH SUBSTRATE: NONE	WALLS: EAST FINISH: PAINT	WALLS: EAST FINISH: EPOXY	WALLS: EAST FINISH: NO FINISHES REQUIRED	WALLS: EAST SUBSTRATE: CMU	WALLS: EAST SUBSTRATE: CONCRETE	WALLS: EAST SUBSTRATE: NONE	WALLS: SOUTH FINISH: PAINT	WALLS: SOUTH FINISH: EPOXY	WALLS: SOUTH FINISH: NO FINISHES REQUIRED	WALLS: SOUTH SUBSTRATE: CMU	WALLS: SOUTH SUBSTRATE: CONCRETE	WALLS: SOUTH SUBSTRATE: NONE	WALLS: WEST FINISH: PAINT	WALLS: WEST FINISH: EPOXY	WALLS: WEST FINISH: NO FINISHES REQUIRED	WALLS: WEST SUBSTRATE: CMU	WALLS: WEST SUBSTRATE: CONCRETE	WALLS: WEST SUBSTRATE: NONE	CEILING MAT.: GYP. BD. PAINTED	CEILING MAT.: EPOXY ON GYP. BD.	CEILING MAT.: E.I.F.S. ON 5/8" GYP. BD. SHEATHING	CEILING MAT.: CONCRETE	HT.	REMARKS
		1	2	3	4	1	2	3	4	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	4		
100	GENERATOR		2			1				1			1			1			1			1			1			1			1						14'-10"	
101	MCC		2			1				1			1			1			1			1			1			1			1						14'-10"	
102	ODOR CONTROL			3				3			2		1			2			1			2			1			1			2						14'-10"	
103	RESTROOM/MECHANICAL	2						3			2		1			2			1			2			1			1			2						8'-Ø"	
104	CHEM. FEED	1					2				2		1			2			1			2			1			1			2						12'-Ø"	
105	STORAGE		2			1				1			1			1			1			1			1			1			1						12'-Ø"	
106	WET WELL				4				4			3		2			3			2			3			2			2			4				4		
107	VALVE VAULT				4				4			3		2			3			2			3			2			2			4				4		
108	METER PIT				4				4			3		2			3			2			3			2			2			4				4		
109	CANOPY AREA				4			3	4			3			3			3	2		1			2			1						3				14'-10"	

HOLLOW METAL FRAME SCHEDULE



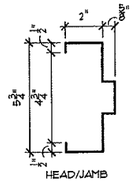
M1

HOLLOW METAL PROFILE A



M2

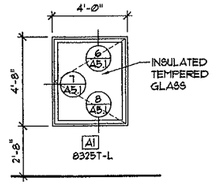
HOLLOW METAL PROFILE A



HEAD/JAMB

PROFILE A

ALUMINUM FRAME SCHEDULE



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NORTHWEST SEWER IMPROVEMENTS PROGRAM MANAGEMENT
MAIN PUMPING STATION

SCHEDULES

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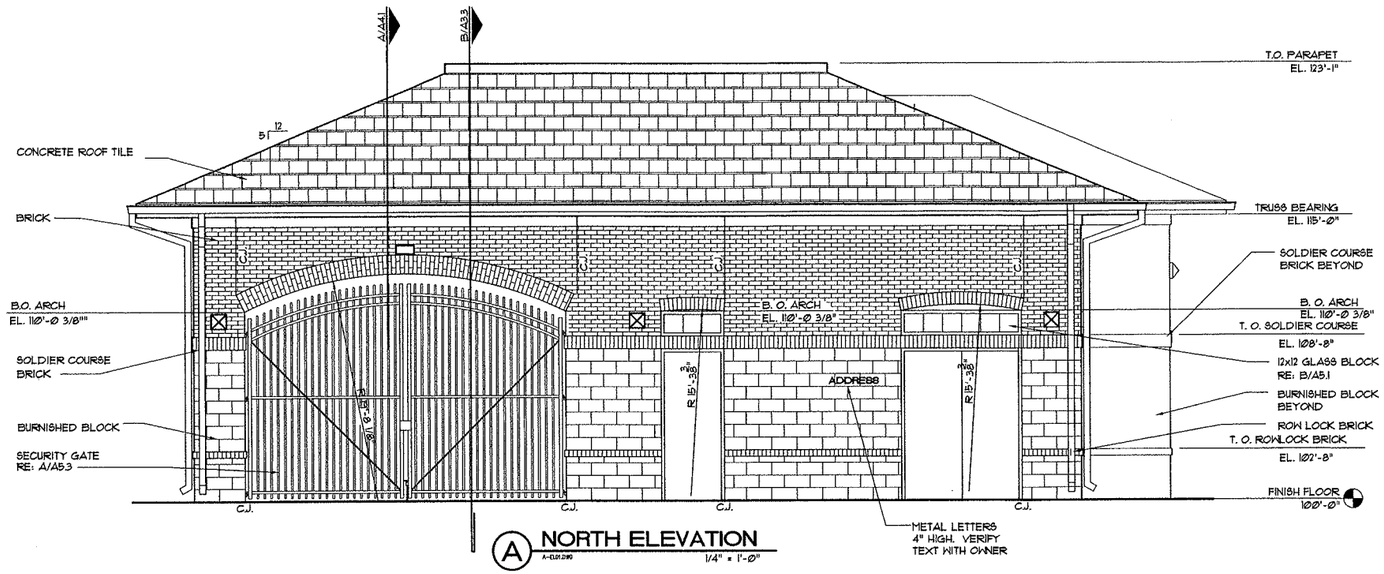
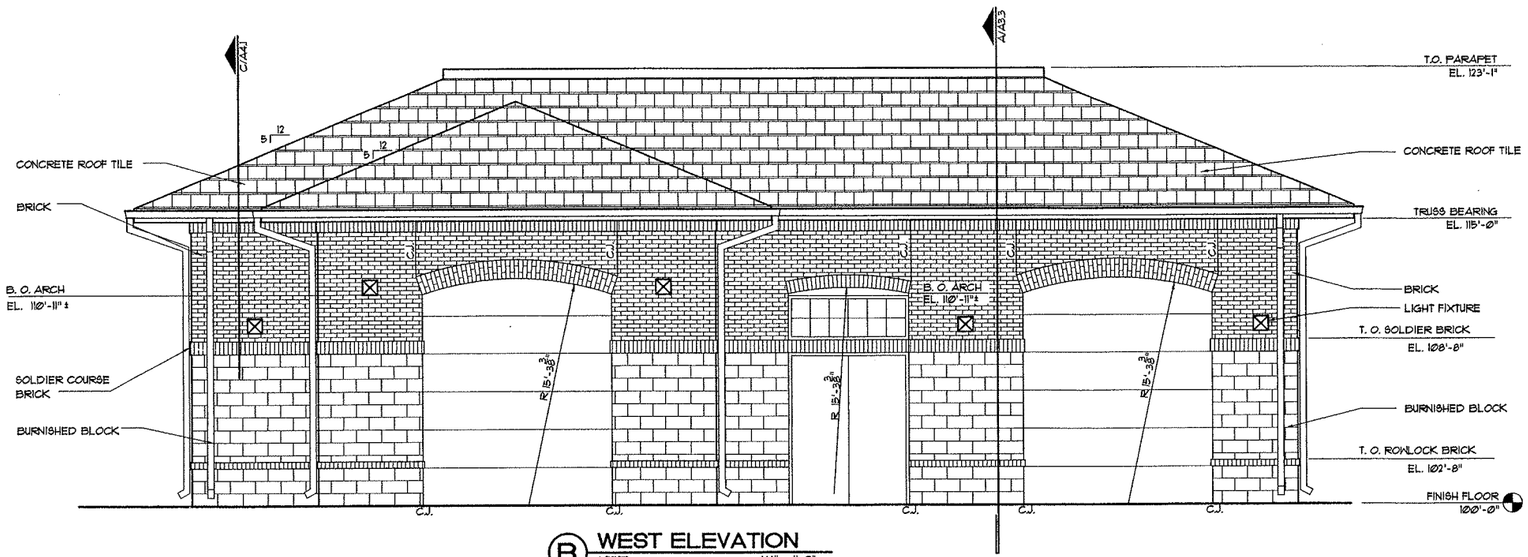


A NORTH ELEVATION

A-ELEV.DWG

1/4" = 1'-0"



B WEST ELEVATION

A-ELEV.DWG

1/4" = 1'-0"

JEFFREY W. WELCH
LICENSED
4387
11/15/01
KANSAS
PROFESSIONAL ARCHITECT

McCLUGGAGE VAN SICKLE & PERRY

CITY OF WICHITA

NORTHWEST SEWER TREATMENT
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NORTHWEST SEWER IMPROVEMENTS PROGRAM MANAGEMENT
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EXTERIOR ELEVATIONS

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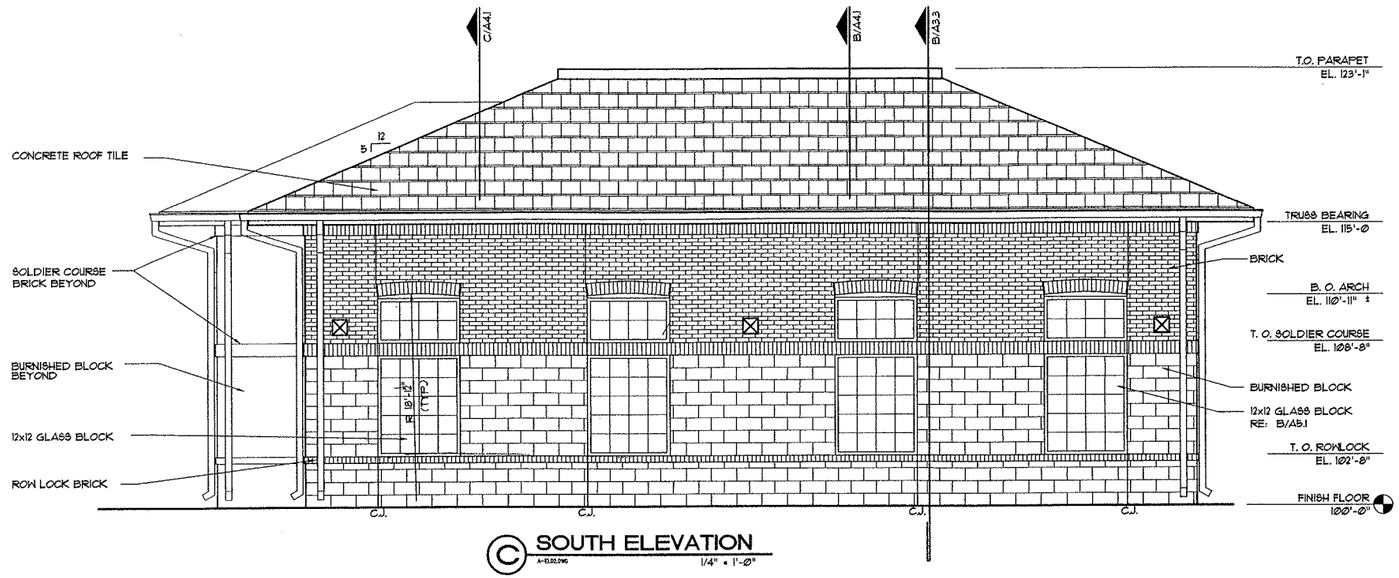
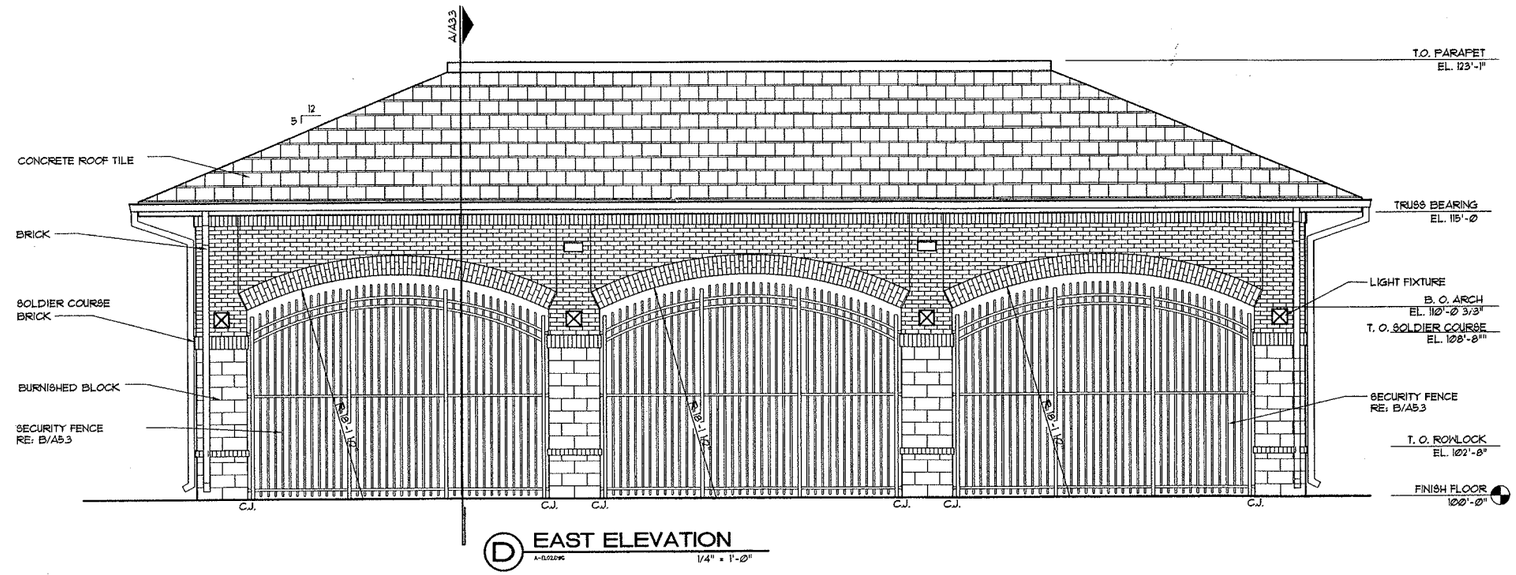


C SOUTH ELEVATION

A-13.02.DWG 1/4" = 1'-0"



D EAST ELEVATION

A-13.02.DWG 1/4" = 1'-0"

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EXTERIOR ELEVATIONS

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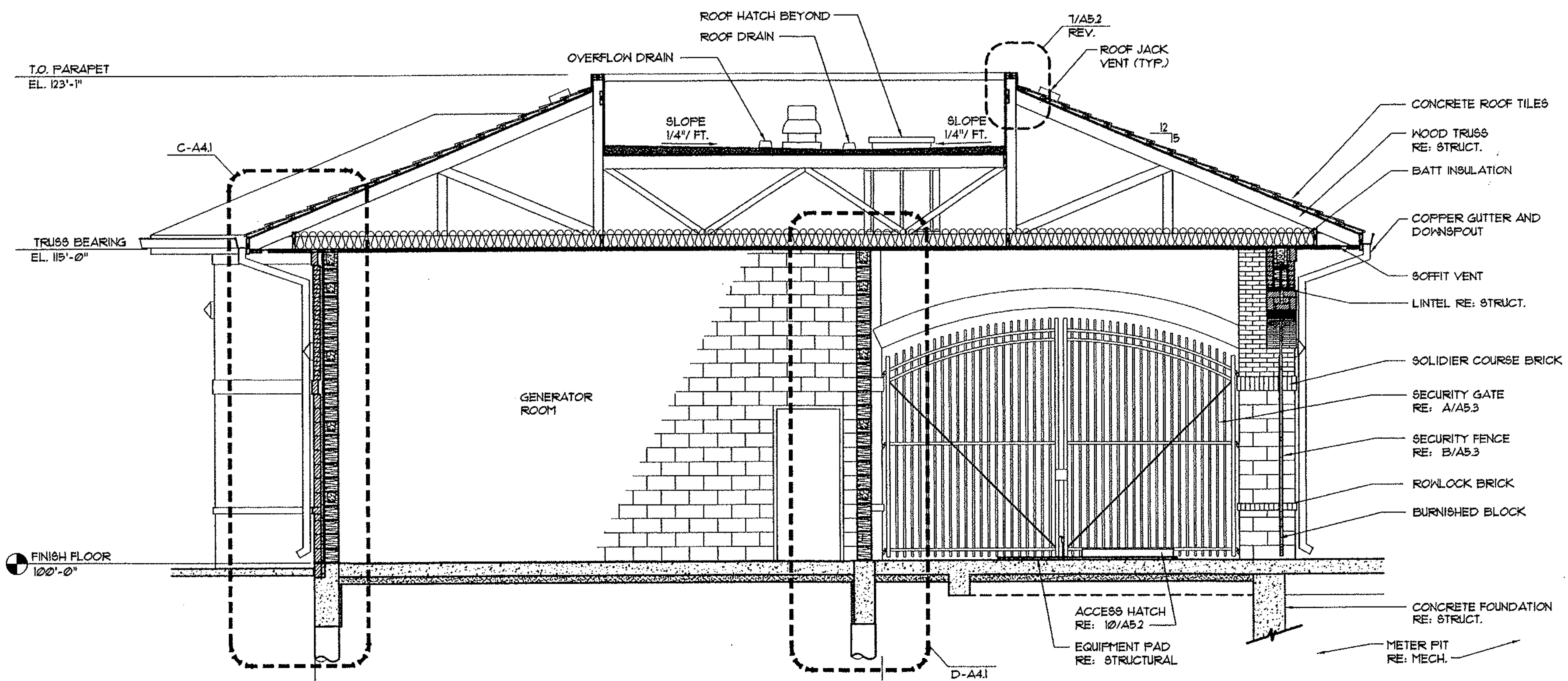
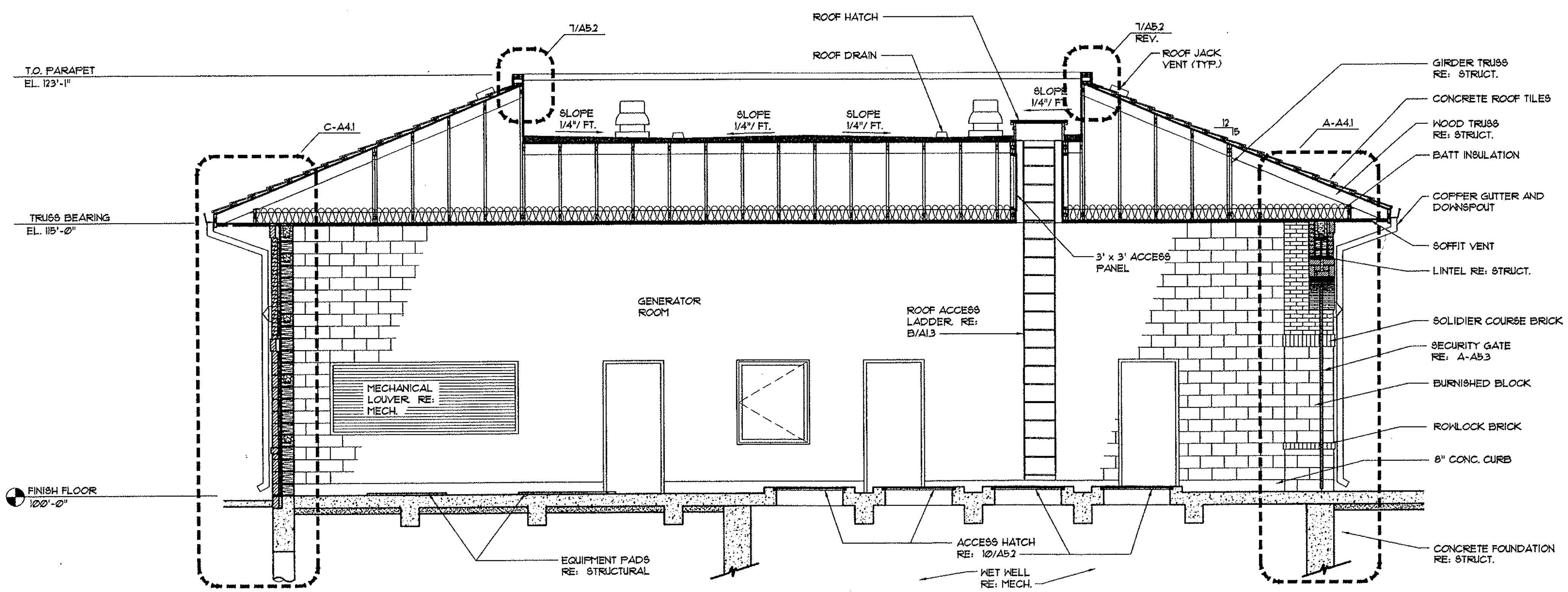


A BUILDING SECTION
A-SC01.DWG 1/4" = 1'-0"



B BUILDING SECTION
A-SC01.DWG 1/4" = 1'-0"

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CITY OF WICHITA

NORTHWEST SEWER TREATMENT
MAIN PUMPING STATION

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NORTHWEST SEWER IMPROVEMENTS PROGRAM MANAGEMENT
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BUILDING SECTIONS

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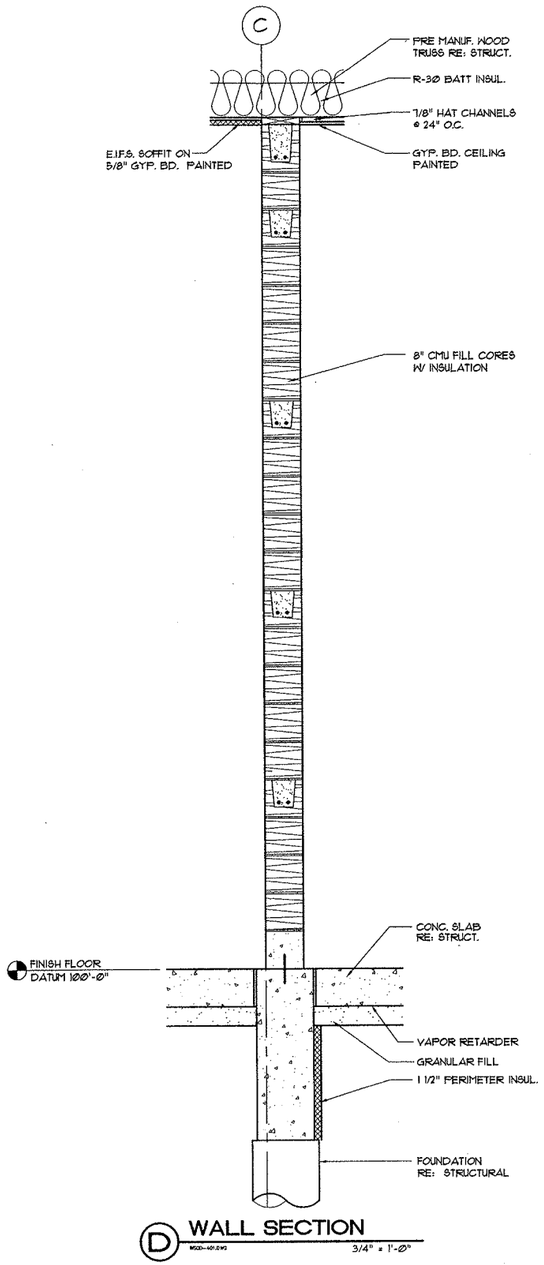
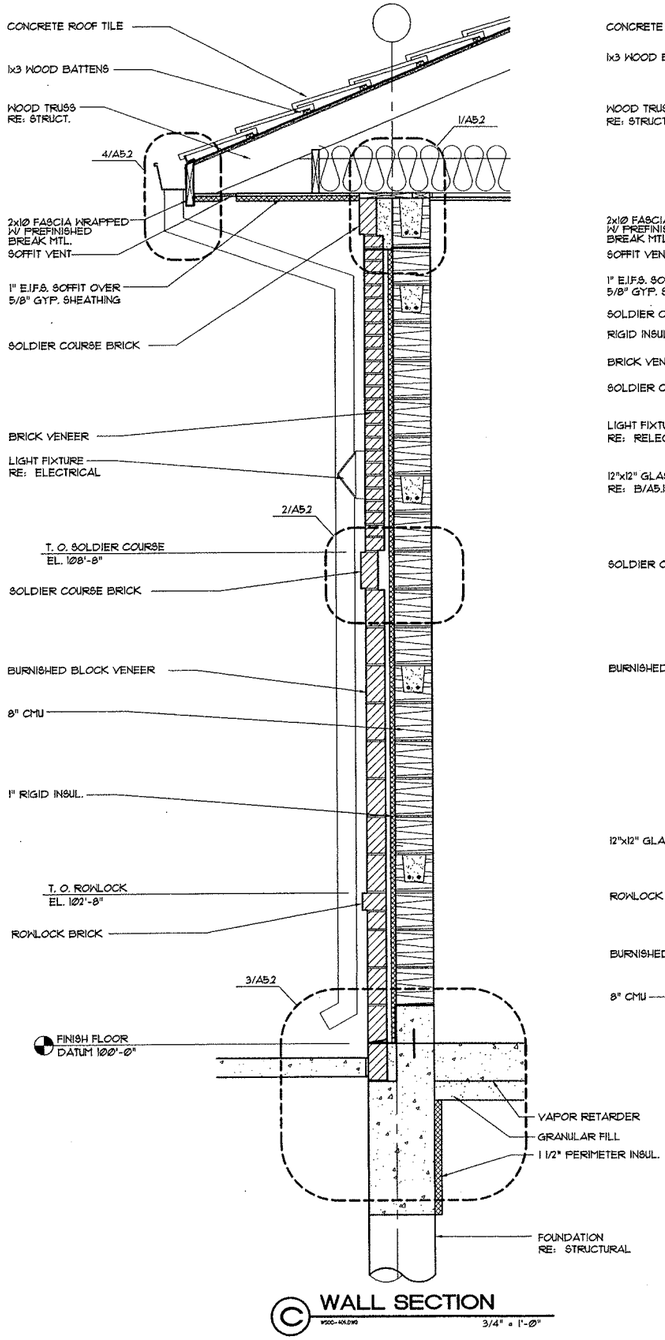
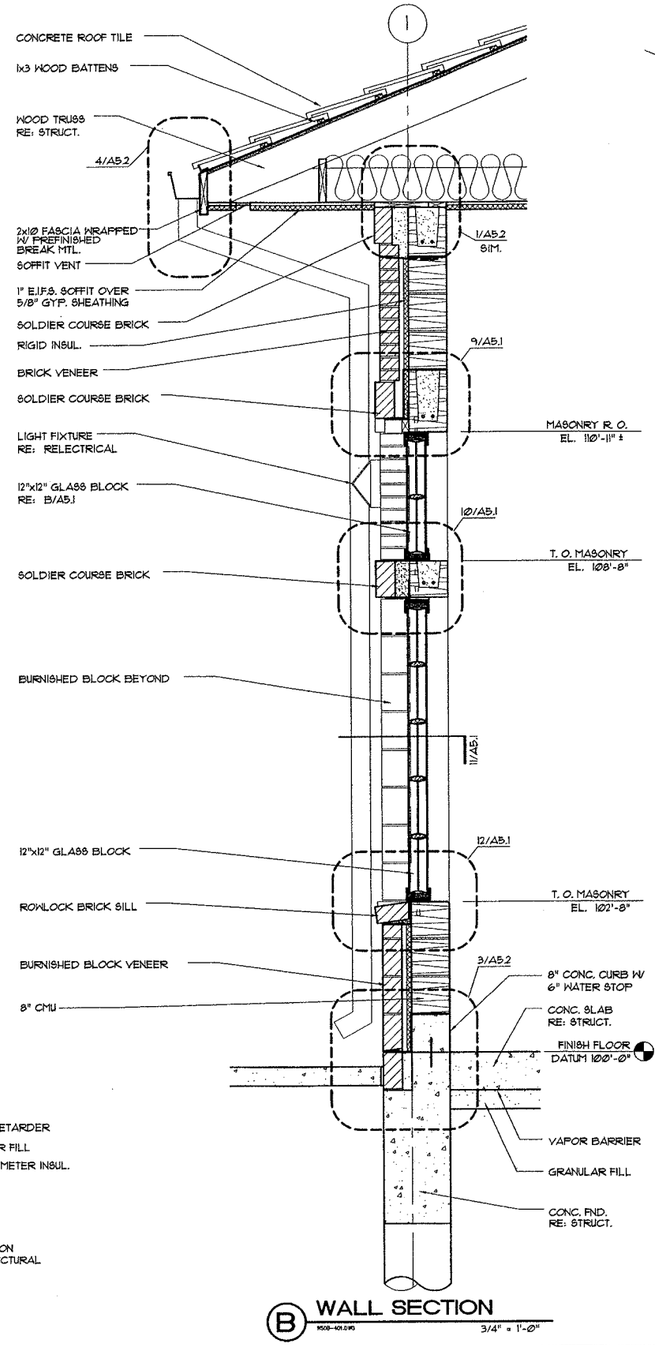


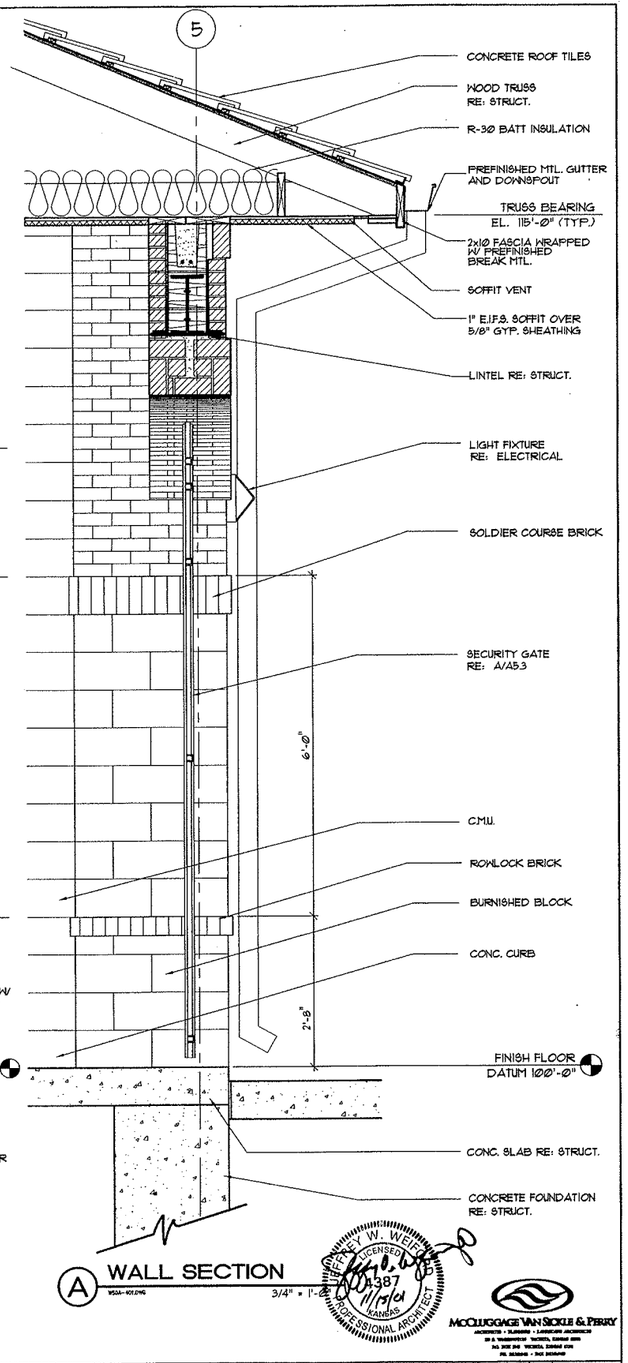
D WALL SECTION
W500-401.DWG
3/4" = 1'-0"



C WALL SECTION
W500-401.DWG
3/4" = 1'-0"



B WALL SECTION
W500-401.DWG
3/4" = 1'-0"



A WALL SECTION
W500-401.DWG
3/4" = 1'-0"

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WALL SECTIONS

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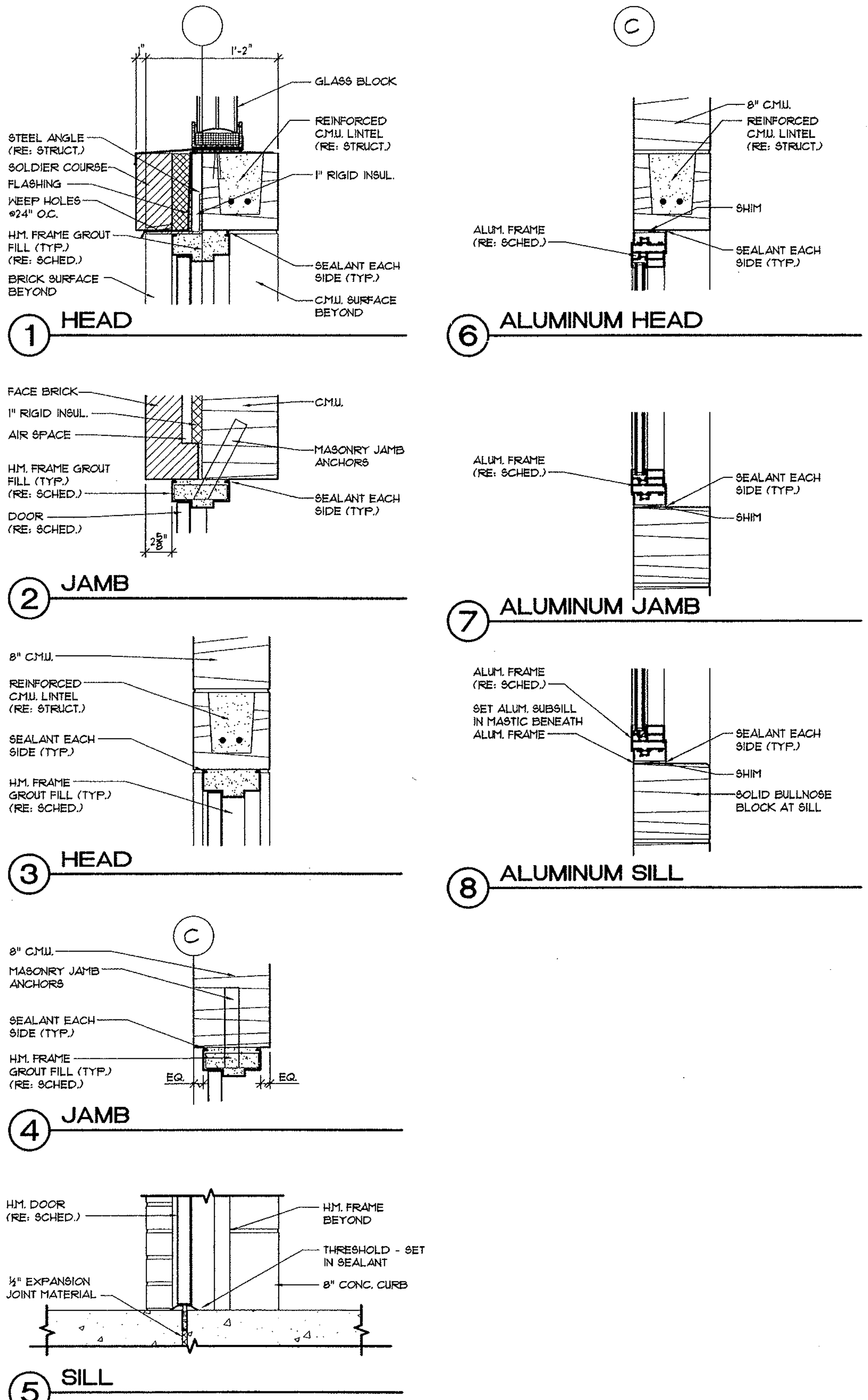
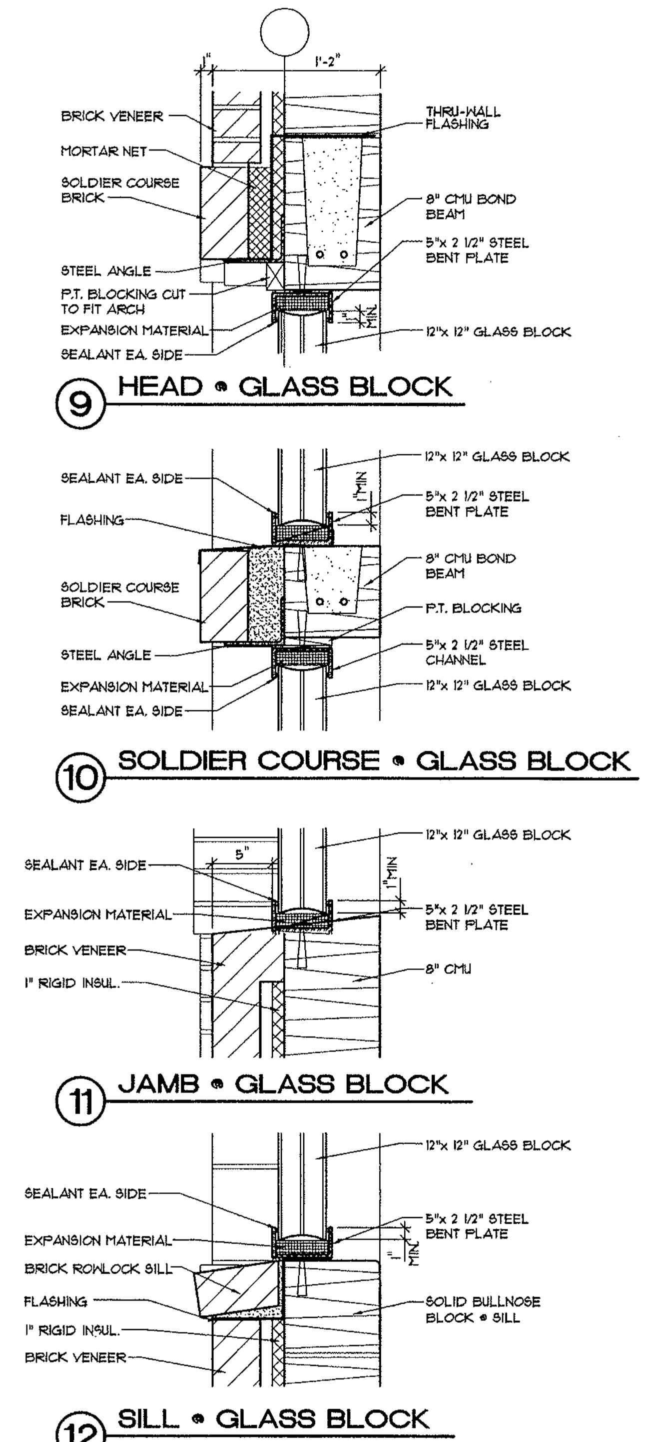
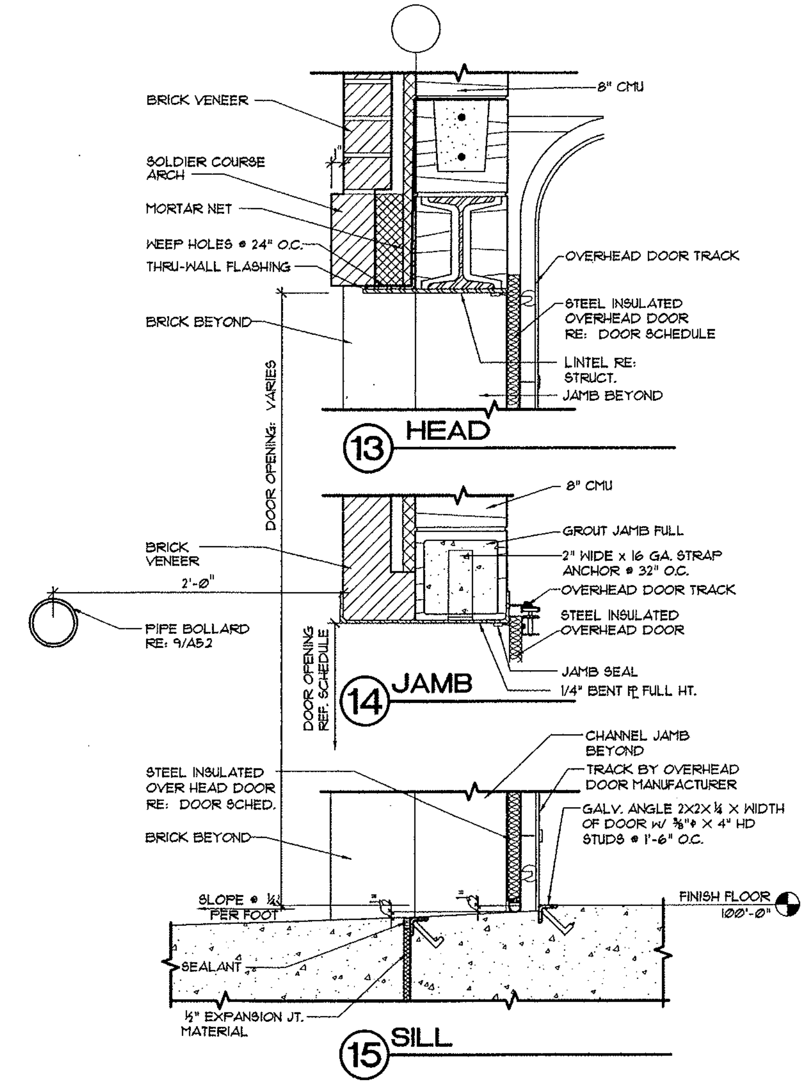


A DOOR AND WINDOW DETAILS
A501.dwg 1 1/2" = 1'-0"



B GLASS BLOCK DETAILS
A501.dwg 1 1/2" = 1'-0"



C OVERHEAD / SECTIONAL DOOR DETAILS
1 1/2" = 1'-0"

JEFFREY W. WEI... LICENSED 4387 KANSAS PROFESSIONAL ARCHITECT 11/10/01

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DOOR AND WINDOW DETAILS

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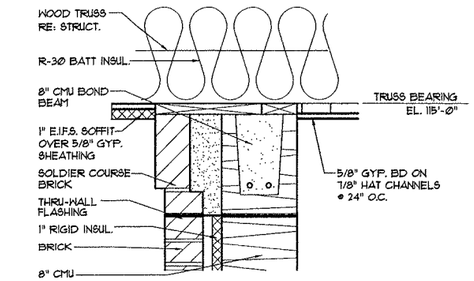
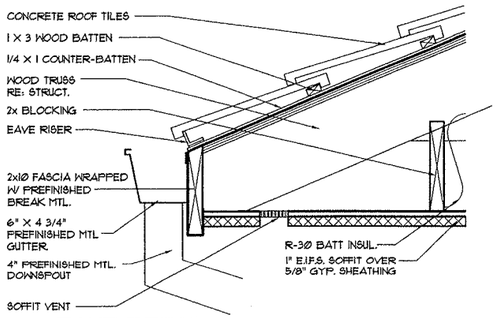


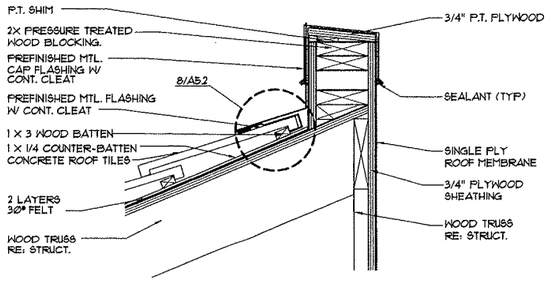
1 DETAIL AT SOFFIT

1 1/2" = 1'-0"



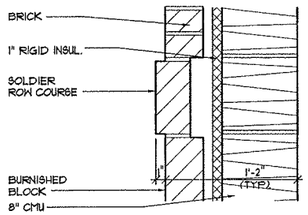
4 EAVE DETAIL

1 1/2" = 1'-0"



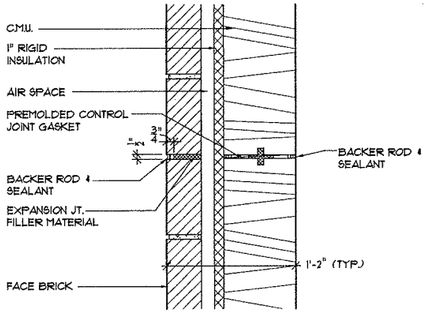
7 PARAPET DETAIL

1 1/2" = 1'-0"



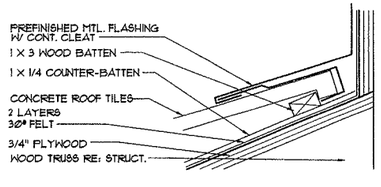
2 DETAIL AT SOLDIER COURSE

1 1/2" = 1'-0"



5 CONTROL JOINT AT BRICK

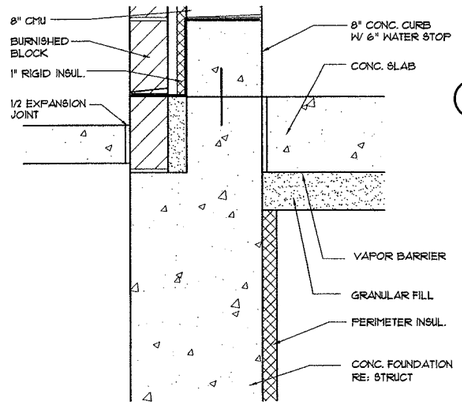
1 1/2" = 1'-0"



8 FLASHING DETAIL

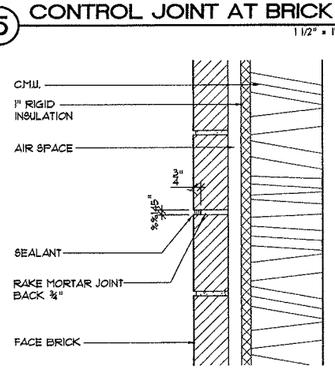
3" = 1'-0"

10 NOT USED



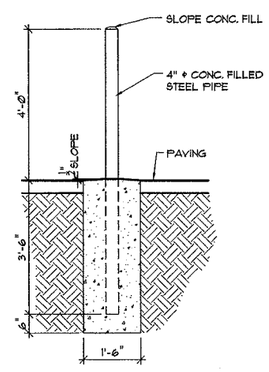
3 FOUNDATION DETAIL

1 1/2" = 1'-0"



6 FALSE CONTROL JOINT AT BRICK

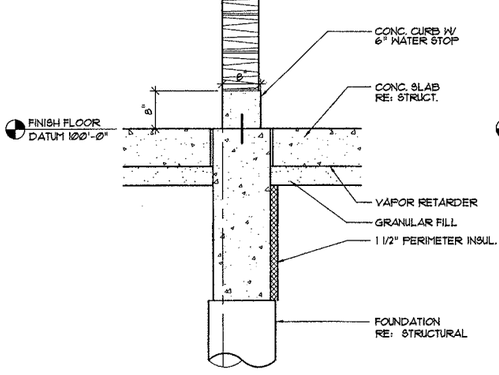
1 1/2" = 1'-0"



9 TYP. PIPE BOLLARD DETAIL

0708-007

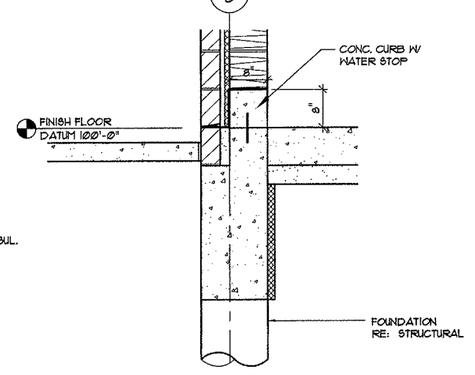
1/2" = 1'-0"



11 CURB @ CHEM FEED 104

11.DWG

3/4" = 1'-0"



12 CURB @ CHEM FEED 104

9000-401.DWG

3/4" = 1'-0"

JEFFREY W. WEIR
LICENSED
10387
11/15/01
KANSAS
PROFESSIONAL ARCHITECT

McCLUGGAGE VAN SICKLE & PERRY

CITY OF WICHITA

NORTHWEST SEWER TREATMENT
MAIN PUMPING STATION

Professional Engineering Consultants, P.A.

BROWN AND CALDWELL

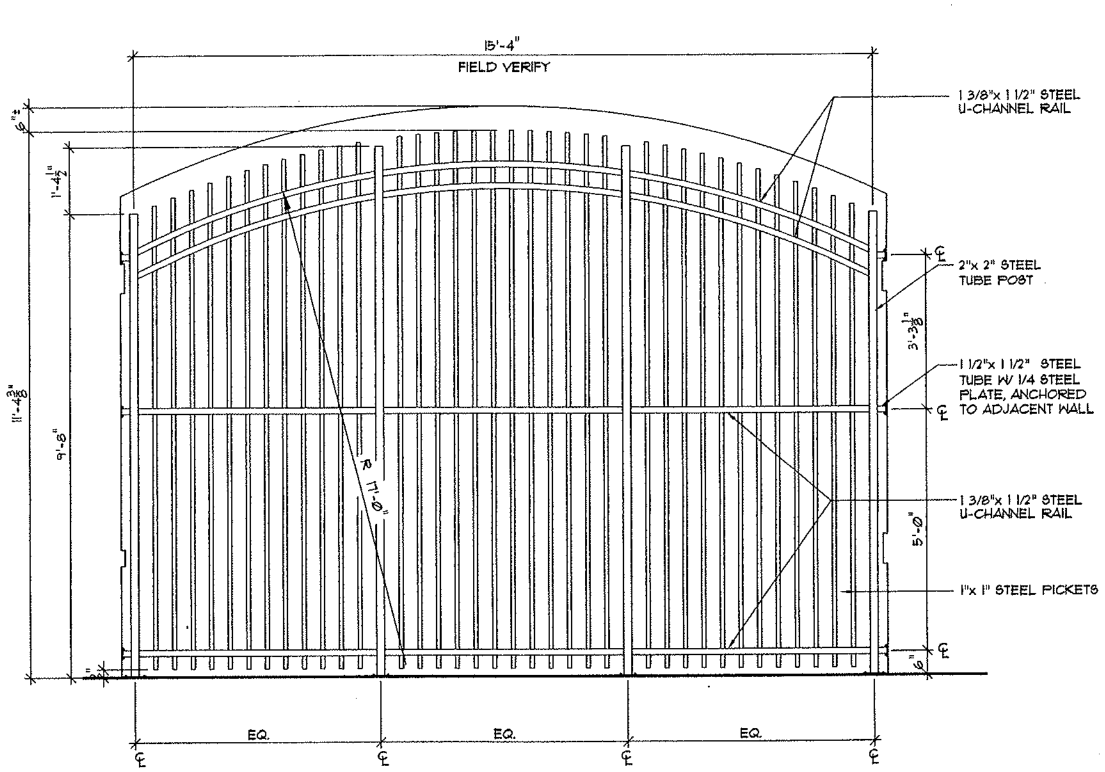
No.	Revision	By	Date

NORTHWEST SEWER IMPROVEMENTS PROGRAM MANAGEMENT
MAIN PUMPING STATION

DETAILS

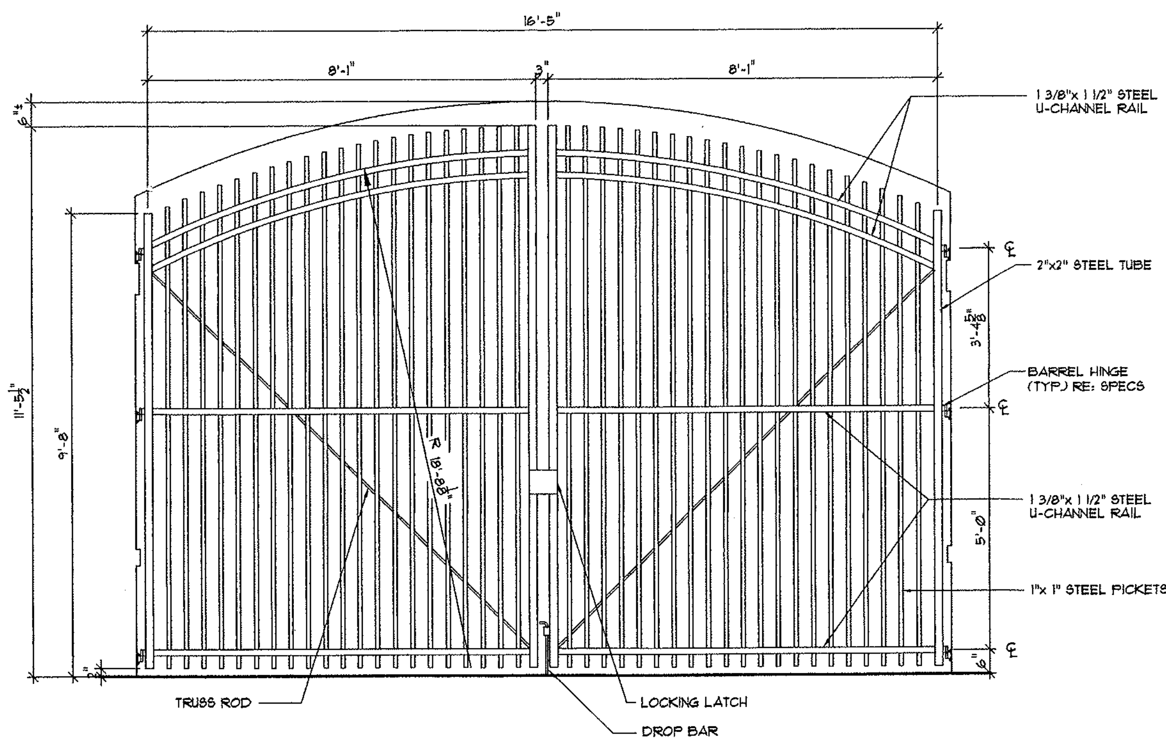
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

Designed by	Job No. 99114.01	Sht. A5.2 of 13
Drawn by	Date NOVEMBER 15, 2001	



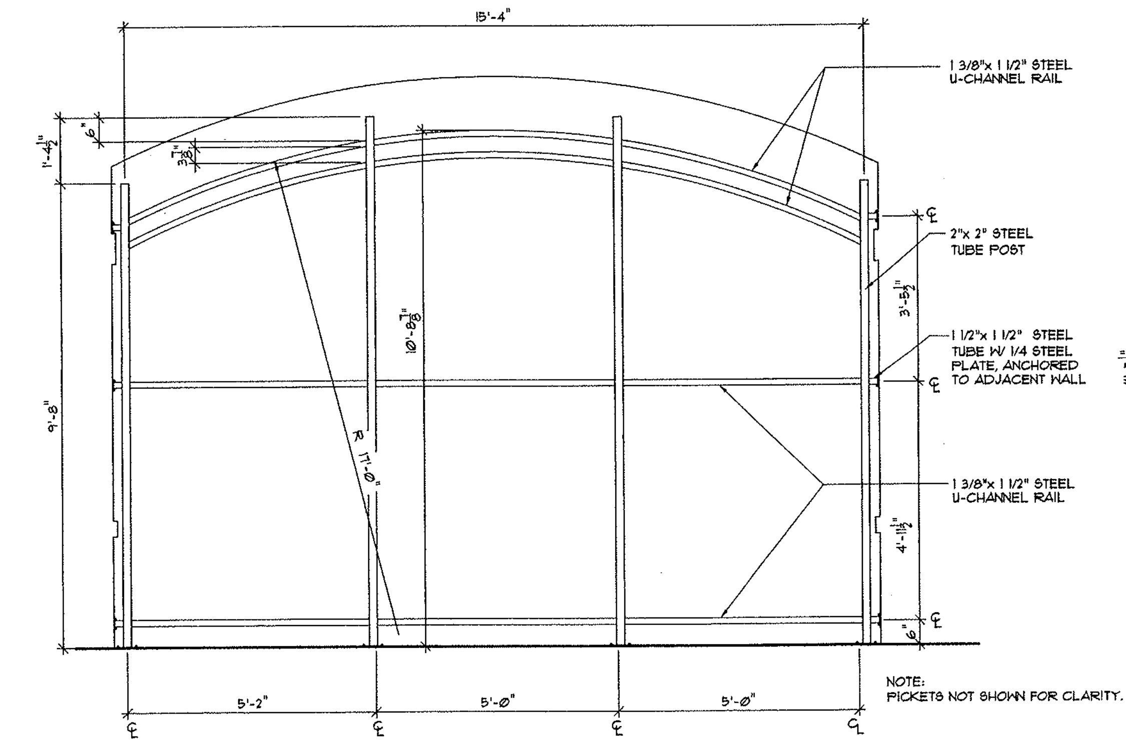
B SECURITY FENCE ELEVATION

1/2" = 1'-0"



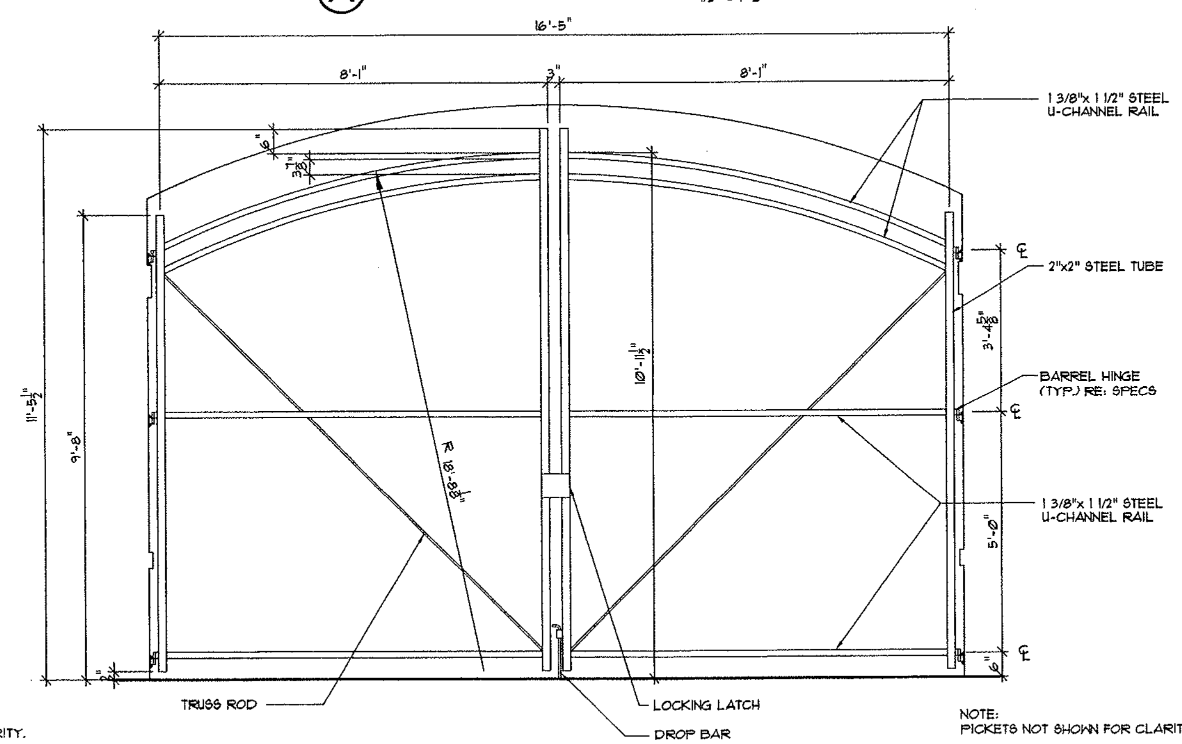
A SECURITY GATE ELEVATION

1/2" = 1'-0"



D SECURITY FENCE FRAMING

1/2" = 1'-0"



C SECURITY GATE FRAMING

1/2" = 1'-0"

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NORTHWEST SEWER TREATMENT
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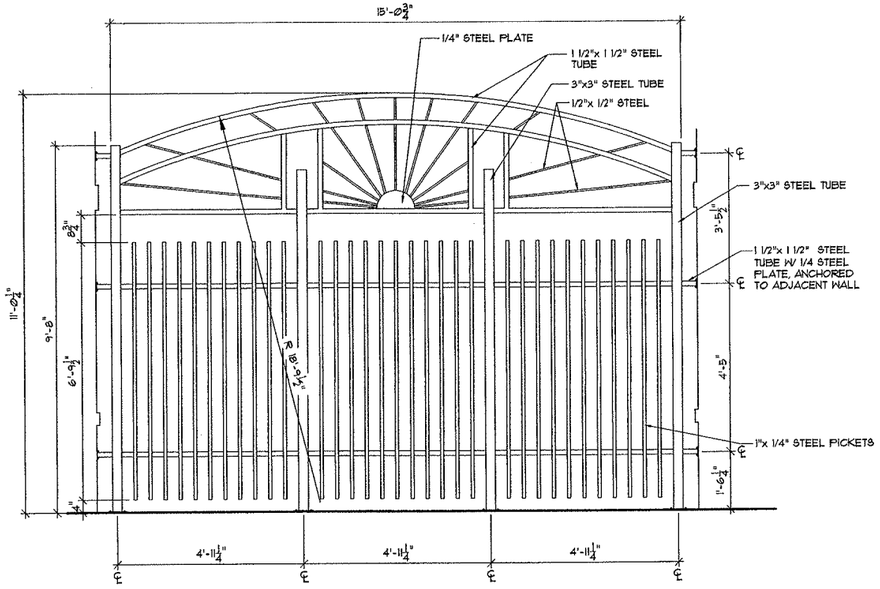
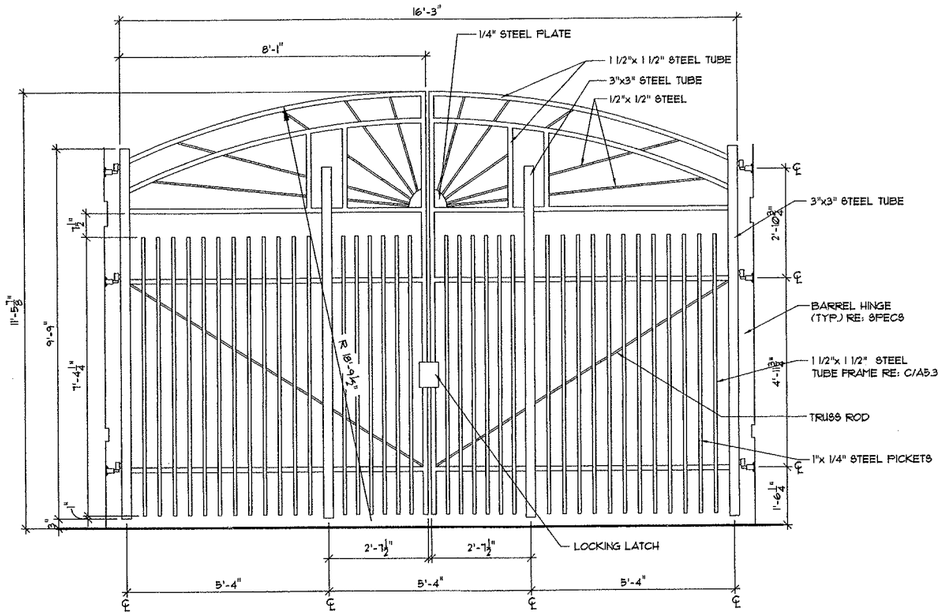
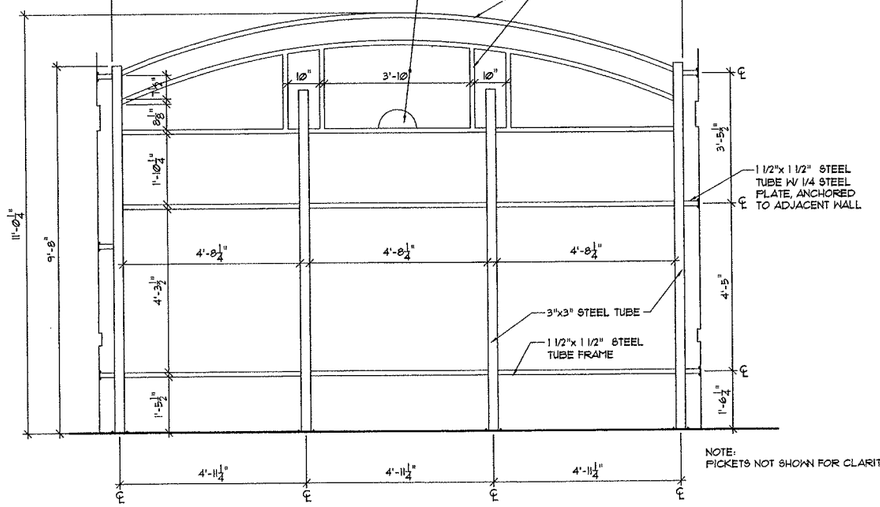
Designed by	Job No. 99114.01	Sht. A5.3 of 13
Drawn by	Date NOVEMBER 15, 2001	



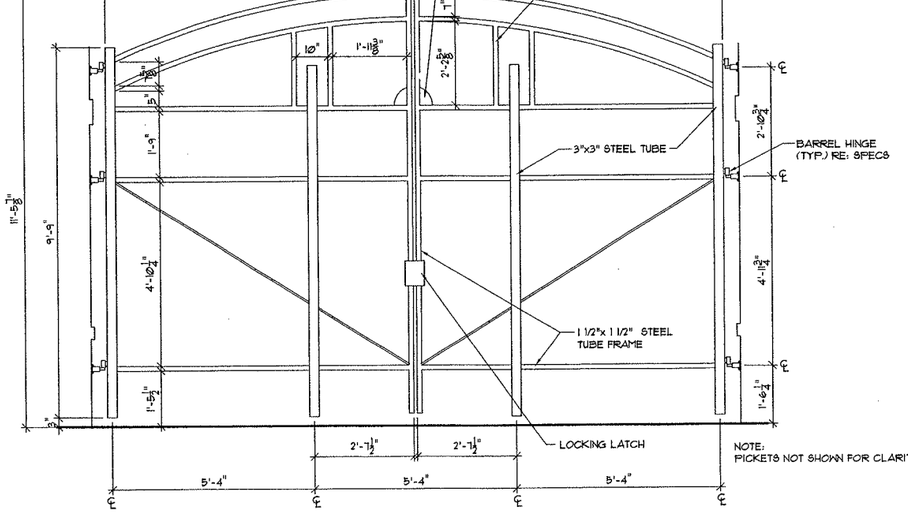
B SECURITY FENCE ELEVATION
503A.DWG
1/2" = 1'-Ø"



A SECURITY GATE ELEVATION
503A.DWG
1/2" = 1'-Ø"



D SECURITY FENCE FRAMING
503A.DWG
1/2" = 1'-Ø"



C SECURITY GATE FRAMING
503A.DWG
1/2" = 1'-Ø"

McCLUGGAGE VAN SICKLE & PERRY

CITY OF WICHITA

NORTHWEST SEWER TREATMENT
MAIN PUMPING STATION

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NORTHWEST SEWER IMPROVEMENTS PROGRAM MANAGEMENT
MAIN PUMPING STATION

SECURITY FENCE DETAILS ALTERNATE #2

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Designed by		Job No. 99114.01	Sht. A5.4 of 13
Drawn by		Date NOVEMBER 15, 2001	

GENERAL

G1. SCOPE
THESE NOTES ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.

G2. APPLICABLE SPECIFICATIONS AND CODES
CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE UNIFORM BUILDING CODE AS AMENDED BY THE CITY OF WICHITA. THE ABOVE SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR THE FOLLOWING NOTES ARE MORE RESTRICTIVE.

G3. ALTERNATIVE DESIGNS
THE STRUCTURAL SYSTEMS AND DETAILS ON THESE PLANS ARE THE PRIORITY DESIGN. ALTERNATIVE SYSTEMS AND DETAILS MAY BE USED IF THE CONTRACTOR SUBMITS PLANS WITH SUBSTANTIATING CALCULATIONS AND TEST DATA, AND IF THE ALTERNATIVE PLANS ARE ACCEPTED BY THE CONSTRUCTION MANAGER.

G4. DIMENSIONS
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

G5. PROVISIONS FOR EQUIPMENT
DETAILS OF MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES, PIPING, AND EMBEDMENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

G6. CONSTRUCTION LOADS
STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON COMPLETED STRUCTURES. DURING CONSTRUCTION, STRUCTURES SHALL BE PROTECTED BY BRACING AND BALANCING WHEREVER EXCESSIVE LOADS MAY OCCUR.

G7. DESIGN LIVE LOADS

A. FLOOR AREAS:
  1. MCC FLOORS – 150 PSF (PLUS MCC LOADS, OR 250 PSF WHICHEVER IS GREATER
  2. MAIN LEVEL EXTERIOR SLAB ON GRADE AREAS – 250 PSF OR AASHTO H20 TRUCK LOADS (WHICHEVER IS GREATER)
  3. MECHANICAL EQUIPMENT ROOMS – 100 PSF
  4. SIDEWALKS – 250 PSF

B. GRATINGS, CHECKERED PLATES, AND HATCHES – SAME LOADINGS AS ADJACENT FLOOR AREAS
C. STAIRS – 100 PSF
D. WALKWAYS – 150 PSF
E. ROOFS – 20 PSF PLUS 15 PSF GROUND SNOW LOAD AT PARAPETS.
F. WIND – 80 MPH. EXPOSURE C UNIFORM BUILDING CODE
G. SEISMIC – ZONE 0 UNIFORM BUILDING CODE
H. LATERAL EARTH PRESSURE
  (1) ON-SITE SAND, SILTY SAND 35 PCF (ACTIVE), 50 PCF (AT-REST)
  (2) CLAYEY SAND, SANDY CLAY 45 PCF (ACTIVE, 60 PCF (AT-REST)

G8. DRAINAGE SURFACES
SLOPE DRAINAGE SURFACE UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/4" PER FOOT EXCEPT WHERE NOTED OTHERWISE ON THE PLANS.

G9. FLOOR DRAINS
SLOPE FLOOR TO DRAIN AT ELEVATIONS NOTED. SEE MECHANICAL DRAWINGS FOR SIZES AND TYPES.

G10. FOUNDATION DESIGN BASED ON ALLIED LABORATORIES GEOTECHINCAL STUDY NO. 72-49452-5-147 DATED 8/18/00 SUPPLEMENTED ON 9/26/00 AND SUBSEQUENT LETTERS.

CONCRETE

C1. APPLICABLE CODE
CONCRETE CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ACI 301 SPECIFICATIONS FOR BUILDINGS.

C2. REINFORCING STEEL DETAILS
ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI-315), LATEST EDITION.

C3. DESIGN STRENGTHS

A. CONCRETE, Fc = 4000 PSI ULTIMATE COMPRESSIVE STRESS AT 28 DAYS AND AS OTHERWISE SPECIFIED.
B. REINFORCING STEEL, ASTM A615, GR.60, EXCEPT FOR TIES, STIRRUPS, AND BARS NOTED ON DRAWINGS TO BE FIELD BENT, WHICH SHALL BE GRADE 40. BARS TO BE WELDED SHALL BE GRADE 40 OR ASTM A706.

C4. CONCRETE COVER
CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS WITH MINIMUM COVER OF ONE BAR DIAMETER.

A. CONCRETE CAST AGAINST EARTH – 3 INCHES.
B. CONCRETE TO BE IN CONTACT WITH LIQUID – 2 INCHES UNLESS OTHERWISE NOTED.
C. CONCRETE TO BE IN CONTACT WITH EARTH OR WEATHER.
  1. BARS GREATER THAN #5 – 2 INCHES.
  2. BARS #5 OR LESS – 1-1/2 INCHES.
D. CONCRETE NOT TO BE EXPOSED TO GROUND, WEATHER, OR LIQUID.
  1. BEAMS AND COLUMNS – 1-1/2 INCHES.
  2. SLABS, WALLS, AND JOISTS – 1 INCH.

C5. MINIMUM REINFORCEMENT
CONCRETE CONSTRUCTION SHALL BE REINFORCED CONCRETE EXCEPT WHERE PLAIN CONCRETE IS INDICATED ON THE DRAWINGS. UNLESS OTHERWISE NOTED, MINIMUM TEMPERATURE AND SHRINKAGE STEEL SHALL BE PROVIDED IN ACCORDANCE WITH ACI-350 OR LATEST REVISION

MASS CONCRETE SHALL BE REINFORCED WITH #5 @ 15" EW MINIMUM IN ALL FACES.

C6. ADDED TOP STEEL IN SLABS, EXCEPT AS NOTED ON DRAWINGS WHERE BEAMS OR WALLS ARE PARALLEL TO MAIN REINFORCING IN SLAB, PROVIDE #4 @ 18" TOP OF SLAB NORMAL TO BEAM OR WALL, AND EXTEND BARS 2'-0" BEYOND FACE OF BEAM OR WALL. WHEN SLAB IS ON ONE SIDE ONLY, TERMINATE BARS WITH STANDARD HOOK ON SIDE AWAY FROM SLAB.

C7. EXTRA ACCESSORY BARS
IN ADDITION TO NORMAL ACCESSORIES USED TO HOLD REINFORCING STEEL FIRMLY IN POSITION, EXTRA ACCESSORY BARS SHALL BE USED AS FOLLOWS:

A. IN SLABS #5 RAISER BARS AT 36" O.C. MAXIMUM TO SUPPORT TOP REINFORCING STEEL.
B. IN WALLS WITH TWO CURTAINS #3 U OR Z SHAPE SPACERS AT 6 FEET O.C. E.W.

C8. UNLESS INDICATED OTHERWISE, ALL REINFORCEMENT LAP SPLICES SHALL SATISFY THE LENGTHS IN THE FOLLOWING TABLE. LAP SPLICES FOR WHICH THE FOLLOWING TABLE IS NOT APPLICABLE SHALL BE AS SHOWN ON THE DRAWING OR SHALL BE REFERRED TO THE ENGINEER FOR DETERMINATION OF THE REQUIRED LENGTH.
LAP SPLICES SHALL NOT BE MADE AT POINTS OF MAXIMUM STRESS AS DETERMINED BY THE ENGINEER. LAP SPLICES FOR CONTINUOS SLAB OR LOGINTUDINAL BEAM BARS SHALL BE LOCATED IN THE MIDDLE 1/3 OF THE SPAN FOR TOP BARS AND CENTERED OVER THE SUPPORT FOR THE BOTTOM BARS.

WALLS AND SLABS-LAP SPLICE SCHEDULE FOR GRADE 60 REINFORCEMENT
(ALL LENGHTS SHOWN ARE IN INCHES)

BAR SIZE		#3	#4	#5	#6	#7	#8	#9	#10	#11
2" COVER	REGULAR BARS	16	16	19	23	33	37	46	57	68
	TOP BARS	16	20	24	29	42	48	60	74	89
1" COVER	REGULAR BARS	16	16	22	31	50	62	76	92	108
	TOP BARS	16	20	29	40	64	81	98	119	141

LAP SPLICE SCHEDULE NOTES
A CONCRETE IS NORMAL WEIGHT CONCRETE WITH A MINIMUM CONCRETE COMPRESSIVE STRENGTH=4000 PSI.
B MINIMUM BAR SPACING IS 6".
C A TOP BAR IS A HORIZONTAL BAR WHERE MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST DIRECTLY BELOW THE BAR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.
D FOR EPOXY-COATED REINFORCEMENT, MILTIPLY THE TABULATED VALUES BY 1.5 FOR 'REGULAR BARS' AND 1.3 FOR 'TOP BARS'.
E LAP SPLICE LENGTHS FOR BEAMS SHALL BE AS SHOWN IN THE TABLE ON THE STANDARD BEAM ELEVATION.

C9. RESTRICTED BAR ANCHORAGE
IN CASES WHERE REINFORCING BARS CANNOT BE EXTENDED AS FAR AS REQUIRED DUE TO THE LIMITED EXTENT OF THE ADJACENT CONCRETE STRUCTURE, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND END IN STANDARD HOOKS.

C10. STANDARD HOOKS
BARS ENDING IN A RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF TABLE 1 OF ACI-315.

C11. SLOPING SLABS
MONOLITHIC SLABS WITH TOPS THAT ARE SLOPED SHALL HAVE BOTTOMS SLOPED THE SAME AMOUNT, MAINTAINING A UNIFORM SLAB THICKNESS, UNLESS OTHERWISE SHOWN.

C12. GROUND SUPPORTED SLABS
CONCRETE SLABS SUPPORTED BY GROUND, UNLESS OTHERWISE NOTED, SHALL BE 4" THICK REINFORCED WITH 4 X 4 – 6/6 WWF AT MID-DEPTH OF SLAB AND DOWELED ALONG THE EDGE OF SLAB TO ALL ADJACENT WALLS, COLUMNS, AND FOUNDATIONS WITH #4 DOWELS X 2'-0" THAT LAP 1'-0" WITH WWF AND EXTEND INTO WALLS, COLUMNS, AND FOUNDATIONS AT LEAST 9". IF SLAB IS DESIGNATED AS "ISOLATED SLAB" ON DRAWINGS, OMIT DOWELS AND SUBSTITUTE 3/8" THICK PREFORMED RESIN BONDED CORK JOINT FILLER TO ISOLATE THE SLAB FROM CONTACT WITH THE STRUCTURE ALONG ITS PERIMETER. (SEE CIVIL DRAWINGS)

C13. CHAMFERS
EXCEPT AS OTHERWISE REQUIRED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS. RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.

C14. ANCHOR BOLTS
USE OF ANCHOR BOLTS SHALL BE IN ACCORDANCE WITH DETAIL A/S3.

STEEL

ST1. APPLICABLE CODE
STEEL CONSTRUCTION SHALL CONFORM TO SPECIFICATIONS AND STANDARDS PRESENTED IN THE LATEST EDITION OF AISC STEEL CONSTRUCTION MANUAL.

ST2. MATERIAL
STRUCTURAL STEEL ROLLED SHAPES, INCLUDING PLATES AND ANGLES, SHALL BE ASTM A36. CYLINDRICAL SHAPES SHALL BE ASTM A53. TUBE SHAPES SHALL BE ASTM A500, GRADE B. BOLTS, INCLUDING ANCHOR BOLTS, SHALL BE ASTM A307. STAINLESS STEEL SHAPES SHALL BE ASTM A276, TYPE 316.

ST3. WELDING
WELDING SHALL BE DONE BY A CERTIFIED WELDER IN ACCORDANCE WITH AISC AND AWS CODES FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION.

ST4. ENCASED STEEL
STEEL COMPLETELY ENCASED IN CONCRETE SHALL NOT BE GALVANIZED OR PAINTED AND SHALL HAVE A CLEAN SURFACE FOR BONDING TO CONCRETE.

ST5. HEADED ANCHOR STUDS (HAS)
HEADED ANCHOR STUDS SHALL BE ATTACHED TO STRUCTURAL ELEMENTS WITH A WELDING MACHINE APPROVED BY THE STUD MANUFACTURER IN ACCORDANCE WITH THE MANUFACTURER'S WELDING SPECIFICATIONS.

MODIFICATION OF CONCRETE PRIOR TO CONSTRUCTION

M1. SCOPE
THE FOLLOWING NOTES ON MODIFICATION OF EXISTING CONCRETE ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.

M2. TIE TO EXISTING STRUCTURE
WHERE "TIE TO EXISTING STRUCTURE" IS INDICATED, CONTRACTOR SHALL STRAIGHTEN AND SANDBLAST DOWELS AND WELD SPLICE WITH NEW REINFORCEMENT AS DETAILED ON THE DRAWINGS OR AS DIRECTED BY THE CONSTRUCTION MANAGER, OR SHALL PROVIDE DOWELS AS INDICATED ON THE DRAWINGS.

M3. JOINT PREPARATION
EXISTING CONCRETE SURFACES TO BE JOINED WITH NEW CONCRETE SHALL BE THOROUGHLY CLEANED BY SANDBLASTING AND COATED WITH EPOXY BONDING COMPOUND JUST PRIOR TO PLACEMENT OF NEW CONCRETE.

M4. JOINT TREATMENT
SURFACES EXPOSED TO VIEW SHALL BE NEATLY SAW CUT TO A DEPTH OF 1/2" PRIOR TO REMOVING THE EXISTING CONCRETE UNLESS NOTED OTHERWISE IN THE DRAWINGS. HIDDEN SURFACES SHALL RECEIVE A TOOLED JOINT BETWEEN NEW AND EXISTING CONCRETE.

M5. DOWELING
DOWELS SHALL BE GROUTED BY COATING THE DRILLED HOLES AND DOWELS WITH EPOXY BONDING COMPOUND AND INSERTING THE DOWELS INTO THE HOLES. EPOXY GROUT SHALL BE FORCED INTO HOLES TO FILL THE VOIDS. SEE DETAIL C/S4 AND SPECIFICATIONS. HOLES SHALL BE THOROUGHLY CLEANED AND BLOWN OUT WITH COMPRESSED AIR PRIOR TO PLACING EPOXY.

M6. WATERSTOPS
WHERE WATERSTOP BETWEEN NEW AND EXISTING CONCRETE IS REQUIRED, CONTRACTOR SHALL PREPARE SMOOTH CONCRETE SURFACE AND APPLY PREFORMED PLASTIC ADHESIVE WATER-STOP IN ACCORDANCE WITH WATERSTOP MANUFACTURER'S RECOMMENDATIONS.

M7. VERIFY EXISTING DIMENSIONS
STRUCTURAL DIMENSIONS RELATED TO OR CONTROLLED BY EXISTING STRUCTURES SHALL BE VERIFIED IN FIELD BY THE CONTRACTOR PRIOR TO CONCRETE WORK. (SEE NOTES E AND F THIS SHEET)

ELEVATIONS

E1. DATUM
ELEVATIONS ARE BASED ON USGS. SEE DWGS G101 AND G102.

E2. GENERAL
WHERE ELEVATIONS ARE GIVEN AS DOUBLE DIGIT NUMBERS SUCH AS 63.00, THIS SHALL MEAN 1263.00. WHERE GIVEN AS TRIPLE DIGIT NUMBERS SUCH AS 263.00, THIS SHALL MEAN 1263.00

E3. VERIFY EXISTING ELEVATIONS
ALL ELEVATIONS NOTED FOR EXISTING CONSTRUCTION ARE APPROXIMATE. (SEE NOTE M7)

FIELD VERIFICATION OF EXISTING CONSTRUCTION

F1. GENERAL
DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION ARE SHOWN FOR BIDDING ONLY.

F2. VERIFICATION REQUIRED
CONTRACTOR SHALL THOROUGHLY INSPECT AND SURVEY EXISTING CONSTRUCTION TO VERIFY DIMENSIONS, ELEVATIONS, ETC. WHICH AFFECT THE WORK SHOWN ON THE DRAWINGS.

F3. REPORTING DISCREPANCIES
REPORT ANY VARIATIONS OR DISCREPANCIES TO THE OWNER BEFORE PROCEEDING.

PRECAST CONCRETE

PC1. DESIGN
ALL PRECAST CONCRETE MEMBERS SHALL BE DESIGNED BY THE PRECAST SUPPLIER TO SATISFY THE REQUIREMENTS SHOWN ON THE DRAWINGS, IN ADDITON TO LOADS IMPOSED BY TRANSPORT AND PLACEMENT

PC2. CONCRETE STRENGTH
ALL MEMBERS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5000 PSI

MASONRY

MA1. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90, GRADE N, TYPE I, WITH ULTIMATE COMPRESSIVE STRENGTH, f'm, OF 1,500 PSI.

MA2. MORTAR SHALL BE IN ACCORDANCE WITH TABLE 24-A OF U.B.C. TYPE S AND SHALL HAVE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 1800 PSI. GROUT SHALL BE IN ACCORDANCE WITH PARA. 2403 (S) OF THE U.B.C. AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.

MA3. UNLESS OTHERWISE SPECIFIED, SPECIAL INSPECTION SHALL BE PROVIDED FOR ALL MASONRY WORK.

MA4. MINIMUM LAP SPLICE SHALL BE 40 BAR DIAMETERS OR 24", WHICHEVER IS GREATER.

MA5. CELLS CONTAINING REINFORCING STEEL, ANCHOR BOLTS, CONCRETE STUD ANCHORS AND MISCELLANEOUS EMBEDDED ITEMS SHALL BE FILLED SOLID WITH GROUT.

MA6. ALL CELLS SHALL BE GROUTED, UNLESS NOTED OTHERWISE.

MA7. MINIMUM REINFORCEMENT AS FOLLOWS UNLESS NOTED OTHERWISE:

12" BLOCKS: 2-#4 VERT. AT 24" O.C.
2-#4 HORIZ. AT 48" O.C.

8" BLOCKS: 1-#4 VERT. AT 24" O.C.
2-#4 HORIZ. AT 48" O.C.

MA8. PROVIDE DOWELS INTO FOOTING TO MATCH VERTICAL REINFORCEMENT, MINIMUM LAP 24 INCHES.

MA9. BEND HORIZONTAL REINFORCEMENT 24 INCHES AT WALL INTERSECTIONS AND CORNERS.

MA10. PROVIDE ADDITIONAL 2-#4 BARS AT JAMBS OF ALL OPENINGS. VERTICAL BARS SHALL BE FULL HEIGHT OF WALL. HORIZONTAL BARS SHALL BE IN LINTEL BLOCKS AND EXTEND A MINIMUM OF 24" BEYOND OPENING. SOLID GROUT 24" AROUND ALL OPENINGS.

MA11. FOR MASONRY WALL OPENING LOCATIONS, SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.

ALUMINUM

A1. APPLICABLE CODE
ALUMINUM CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ALUMINUM CONSTRUCTION MANUAL OF THE ALUMINUM ASSOCIATION.

A2. MATERIAL
UNLESS OTHERWISE INDICATED, STRUCTURAL ALUMINUM, SHALL BE ALLOY 6061-T6 AS SPECIFIED IN ASTM B-308.

A3. ALUMINUM IN CONTACT WITH CONCRETE
WHERE ALUMINUM IS IN CONTACT WITH CONCRETE OR MASONRY SURFACES, CONTACT SURFACES SHALL BE COATED WITH HEAVY ALKALI-RESISTANT BITUMINOUS PAINT.

McCLUGGAGE VAN SICKLE & PERRY
Professional Engineering Consultants
BROWN AND CALDWELL

SUBMITTED: [signature] PROJECT MANAGER DATE: 11/01
APPROVED: [signature] BROWN AND CALDWELL DATE: 11/01
APPROVED: DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)
FILE 18253
DRAWN BY TDB
DESIGNED BY SWH
CHECKED BY SWH/DAM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER DAVID A. MYERS 15931 11/16/01 KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

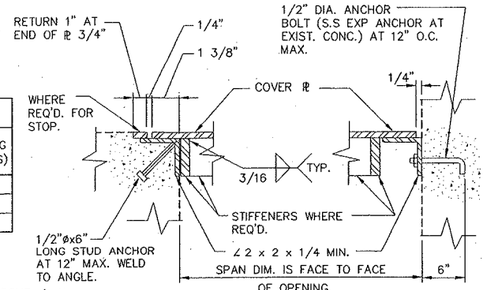
CITY OF WICHITA
NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

STRUCTURAL
GENERAL STRUCTURAL NOTES

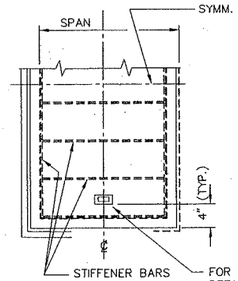
CADFILE S18253m55
DATE 11-15-01
OPERATOR JHealy
DRAWING NO. S1
SHEET NUMBER 35 OF 79

WICHTRLK
PATH: ...\CAD\OWICHITA\18253\

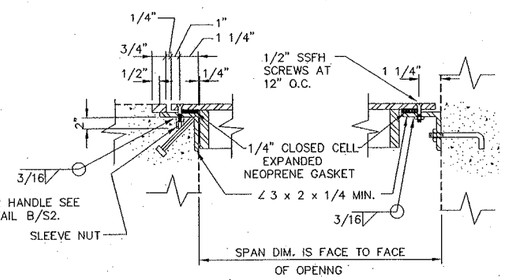
MINIMUM REQUIREMENTS FOR COVER PLATES			
MAX. SPAN	PLATE THICKNESS (INCHES)	BAR SIZE (INCHES)	SPACING (INCHES)
2'-0	1/4	–	–
5'-0	1/4	3/8 x 2	12
7'-0	1/4	3/8 x 2	12



LOOSE COVER PLATE AND SUPPORTS



COVER PLATE PLAN



(SEE SECTION 1 FOR DETAILS AND INFORMATION NOT SHOWN)
BOLTED COVER PLATE AND SUPPORTS

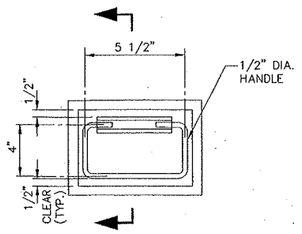
NOTES

1. USE SECTION 1 FOR LOOSE COVER PLATE.
   USE SECTION 2 FOR BOLTED COVER PLATE.

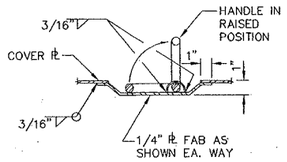
COVER PLATE DETAILS

DETAIL A VAR

NO SCALE



PLAN

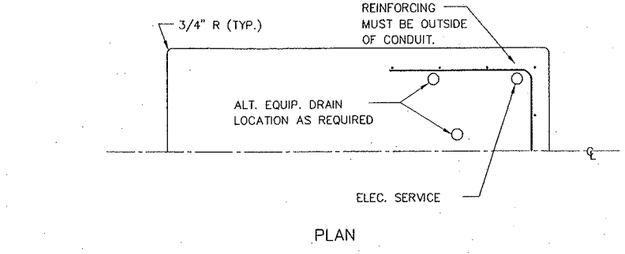


SECTION

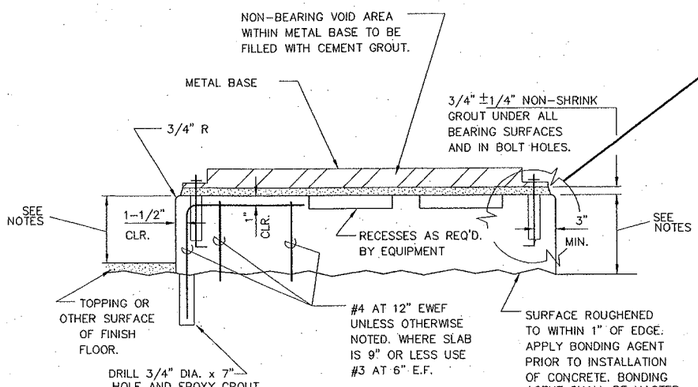
COVER PLATE LIFTING HANDLE

DETAIL B VAR

NO SCALE



PLAN

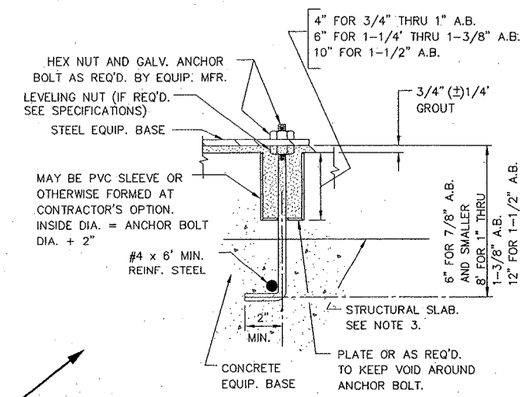


ELEVATION

TYPICAL EQUIPMENT PAD

DETAIL C VAR

NO SCALE



ANCHOR BOLTS SHALL BE MIN. SIZE SHOWN OR LONGER AS REQ'D. BY EQUIPMENT MANUFACTURER.

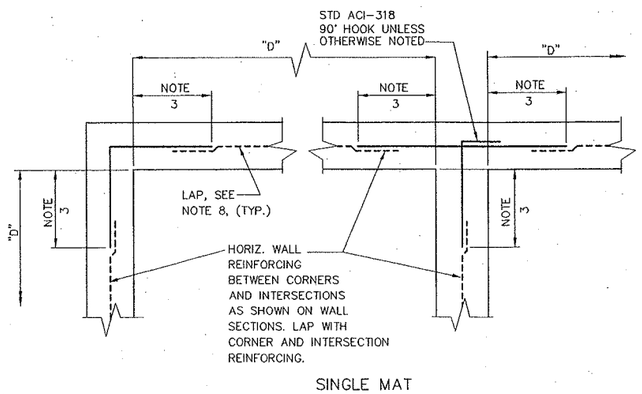
ANCHOR BOLT DETAIL

NOTES:

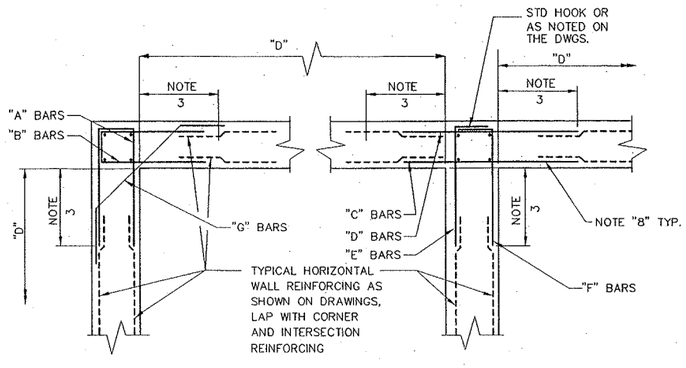
1. ALL EQUIPMENT, INCLUDING TANKS SHALL HAVE A CONC. EQUIP. BASE TO SUIT. EXCEPT AS SPECIFICALLY NOTED ON THE DWGS., BASE SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE EQUIP. MFR. AND AS APPROVED BY THE CONST. INSPECTOR. SEE MECH. DWGS.
2. ANCHOR BOLTS SHALL BE SIZED FOR THE EQUIPMENT LOAD PLUS SEISMIC LOADS (SEISMIC ZONE NOTED ON DWG. S1).
3. ANCHOR BOLTS SHALL PENETRATE STRUCTURAL SLAB AS REQ'D. TO MEET MINIMUM EMBEDMENT SPECIFIED. EPOXY DOWEL TO EXIST. SLAB.
4. DRILLED HOLES WITH A.B. SET IN NON SHRINK GROUT OR ADHESIVE GROUT INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS MAY BE USED IN LIEU OF HOOKED BOLT. EXPANSION SHELL TYPE BOLTS SHALL NOT BE USED.
5. 3 1/2" OR LENGTH OF EQUIPMENT ANCHOR BOLT LESS 3" MIN WHICHEVER IS GREATER.
6. REINF. PADS UP TO 4" THK. W/ #3 @ 12" O.C. E.W. REINF PADS THICKER THAN 4" W/ #4 @ 12" O.C. E.W., 2" BELOW TOP OF SLAB, U.N.O.

NOTES

1. TYPICAL HORIZONTAL WALL CORNER AND INTERSECTION REINFORCING LAYOUT IS SHOWN TO AVOID CONGESTION AND PERMIT PROPER PLACEMENT. FOR SIZE AND SPACING SEE PLANS. ALL HORIZONTAL REINFORCING AT CORNERS AND INTERSECTIONS SHALL BE FABRICATED AND INSTALLED WITH SPLICES LOCATED WHERE SHOWN REGARDLESS OF BAR SIZE AND SPACING.
2. WHERE THE CORNER OR INTERSECTION REINFORCING SIZE AND SPACING IS NOT SHOWN, NOTED OR TABULATED ON THE PLANS, THE SIZE AND SPACING SHALL BE THE SAME AS THE WALL HORIZONTAL REINFORCING SHOWN ON THE WALL SECTIONS OR AS NOTED FOR THE REINFORCING BETWEEN THE CORNERS OR INTERSECTIONS.
3. EXCEPT WHERE OTHERWISE SHOWN ON THE DRAWINGS, THE LENGTH INDICATED AS "NOTE 3" SHALL BE THE LESSER OF D/4, 10 FEET, OR 1.0 TIMES THE HEIGHT OF THE WALL, EXCEPT THAT IN NO CASE SHALL IT BE LESS THAN 2.0 FEET.
4. "D" LENGTH OF WALL PARALLEL TO THE BAR LENGTH IN QUESTION.
5. UNLESS OTHERWISE NOTED, "G" BARS ARE THE SAME SIZE AND SPACING AS THE HORIZONTAL REINFORCING AND ONLY USED AT WALL THICKNESSES 20" AND THICKER.
6. UNLESS OTHERWISE NOTED, "A" AND "B" BARS ARE THE SAME SIZE AND SPACING AND, "E" AND "F" BARS ARE THE SAME SIZE AND SPACING.
7. UNLESS OTHERWISE NOTED, "C" AND "D" BARS ARE THE SAME SIZE AND SPACING AS THE HORIZONTAL REINFORCING SHOWN ON THE WALL SECTIONS.
8. EXCEPT WHERE OTHERWISE SHOWN ON THE DWGS., THE LAP LENGTH INDICATED AS NOTE "8" SHALL BE EQUAL TO ONE LAP LENGTH AS REQ'D BY THE GENERAL STRUCTURAL NOTES.



SINGLE MAT



DOUBLE MAT

TYPICAL CORNER AND INTERSECTION REINFORCING

DETAIL D VAR

NO SCALE

Professional Engineering Consultants

McCLELLAND VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01

APPROVED: _____ DATE: 11/01

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY TDB
DESIGNED BY STD
CHECKED BY SWH/DAM
CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

STRUCTURAL

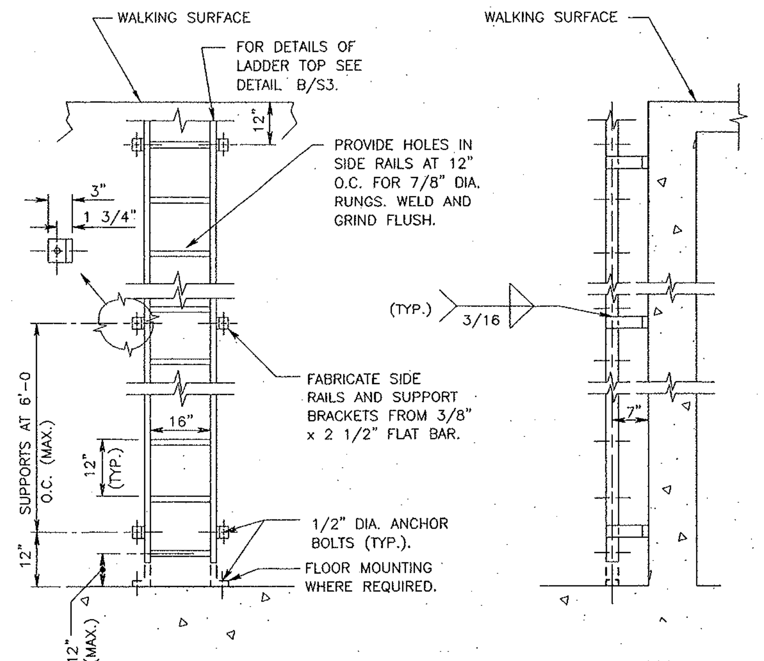
TYPICAL STRUCTURAL DETAILS – 1

CADFILE S18253m56
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. S2

SHEET NUMBER 36 OF 79

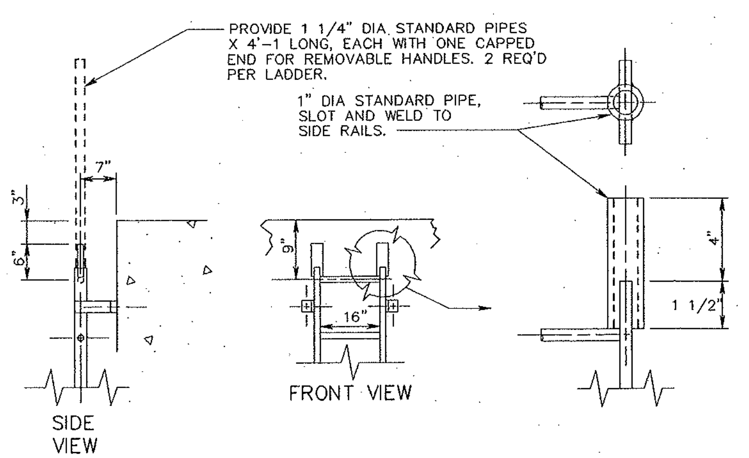
WICHTBLK
PATH: (bcden01) P:\CAD\WICHITA\18253\



METAL LADDER

DETAIL (A/VAR)

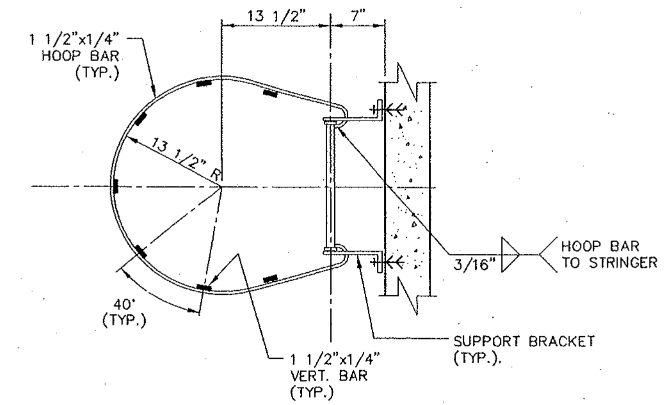
NO SCALE



TOP OF LADDER UNDER GRATING OR COVER PLATE

DETAIL (B/VAR)

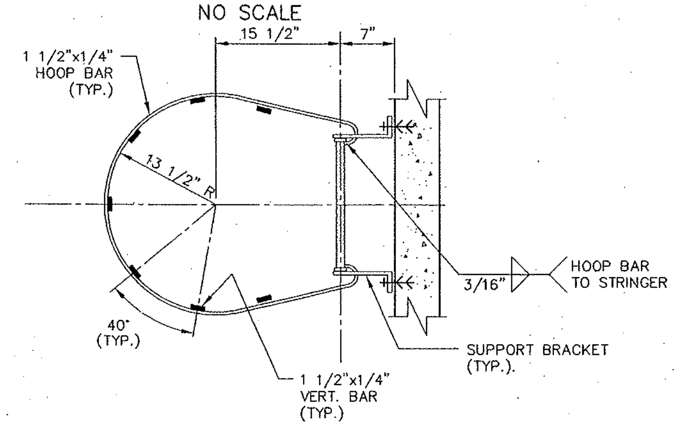
NO SCALE



TYP. TOP OR INTERMEDIATE HOOP

SECTION (1/–)

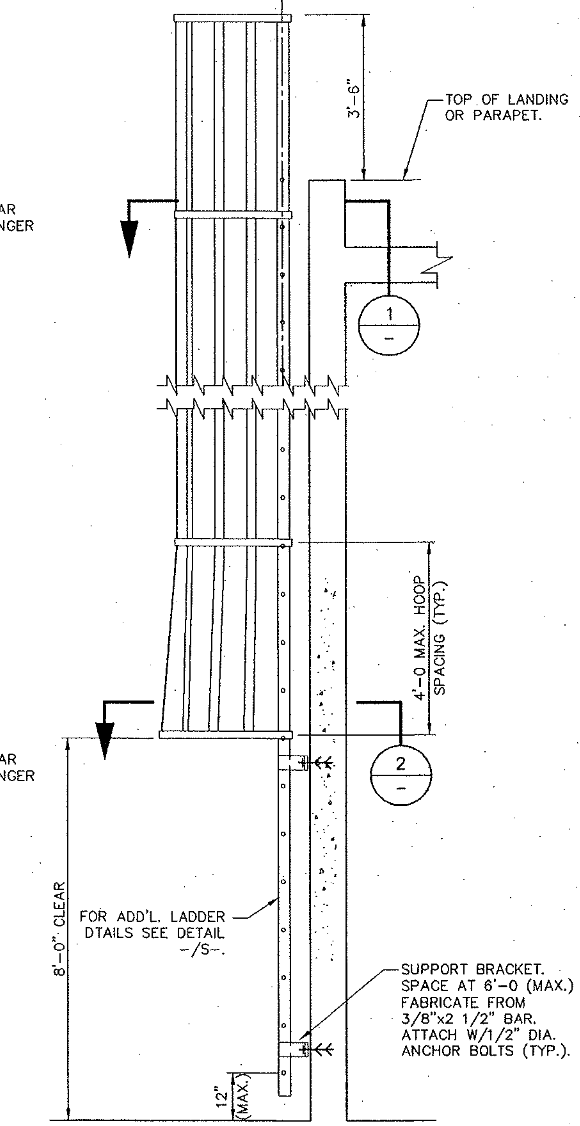
NO SCALE



BOTTOM HOOP

SECTION (2/–)

NO SCALE



ELEVATION

LADDER WITH SAFETY CAGE

DETAIL (C/VAR)

NO SCALE

BROWN AND CALDWELL	LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)	
SUBMITTED: ______ DATE: 11/01	FILE	18253
APPROVED: ______ DATE: 11/01	DRAWN BY	STD
APPROVED: ______ DATE: ______	DESIGNED BY	STD
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REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

STRUCTURAL

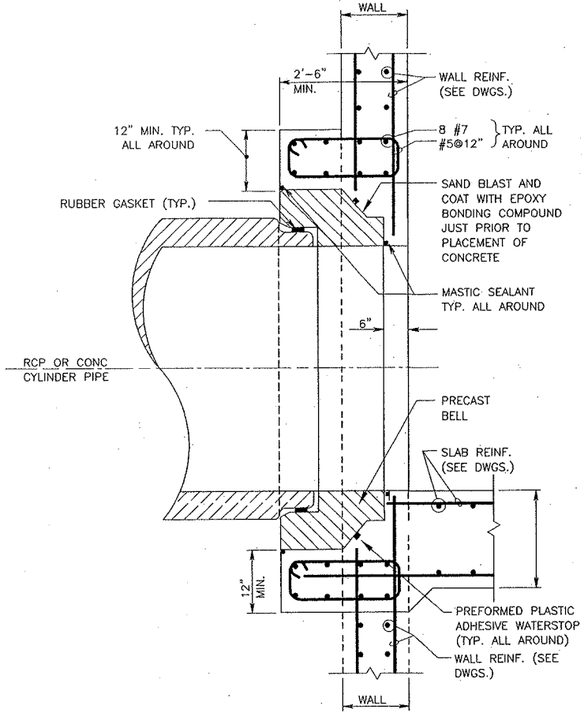
TYPICAL STRUCTURAL DETAILS – 2

CADFILE S18253m57
DATE 11-15-01
OPERATOR JHealy

DRAWING NO. S3

SHEET NUMBER 37 OF 79

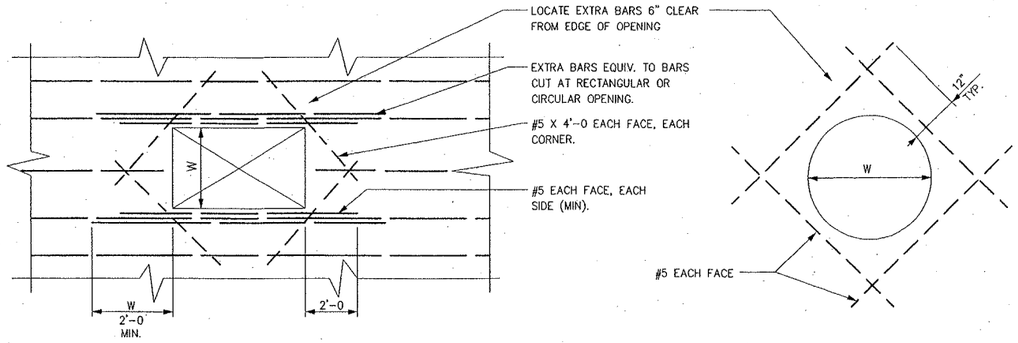
WICHTBLK PATH: P:\CAD\DWICHITA\18253\



RCP PIPE CONNECTION AT CONCRETE WALL

DETAIL A/VAR

NO SCALE



REINFORCEMENT AT SLAB AND WALL OPENINGS

FOR CIRCULAR OPENING

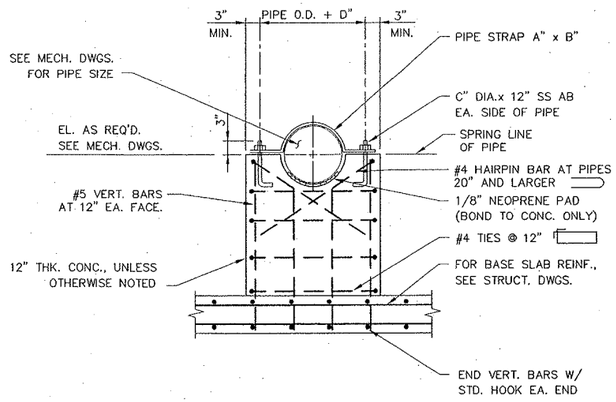
NOTES

1. TRANSVERSE REINFORCEMENT NOT SPECIFIED, BUT SHALL BE TREATED IN SAME MANNER AS BARS SHOWN.
2. W = DIMENSION OF OPENING PERPENDICULAR TO BARS CUT. W = DIAMETER FOR CIRCULAR OPENINGS.
3. SEE ARCHITECTURAL DRAWINGS FOR SLAB AND WALL OPENINGS NOT SPECIFIED ON STRUCTURAL DRAWINGS.
4. SUPPLEMENTARY REINFORCING MAY BE OMITTED ONLY WHERE OPENING IS FRAMED BY BEAMS OR WALLS.
5. SUPPLEMENTARY REINFORCING IS NOT REQUIRED WHEN SPECIFIED REINFORCING IS NOT CUT.

REINFORCEMENT AT SLAB AND WALL OPENINGS

DETAIL B/VAR

NO SCALE



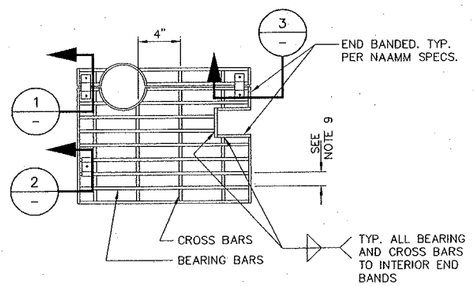
(SEE TABLE B FOR DIMENSIONS)

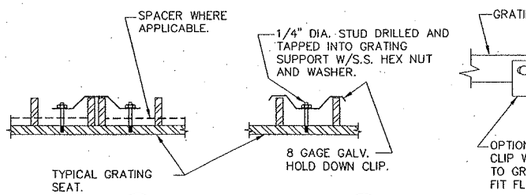
TABLE B				
PIPE SIZE	DIMENSIONS			
	A	B	C	D
6"to12"	1/4"	2"	3/4"	3"
14"to18"	1/4"	4"	3/4"	3"
20"to36"	3/8"	5"	3/4"	3"
42"to54"	3/8"	6"	1"	4"
60"to72"	3/8"	6"	1 1/8"	4"

TYPICAL PIPE SADDLE

DETAIL C/VAR

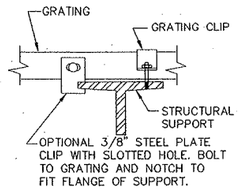
NO SCALE





SECTION 1/– NO SCALE

SECTION 2/– NO SCALE



SECTION 3/– NO SCALE

GRATING SCHEDULE (6)		
BEARING BAR SIZE		CLEAR SPAN
FIBERGLASS (7)	ALUMINUM	
1"x I=.328	1 x 3/16	2'-6
1 1/4"x I=.544	1 1/4 x 3/16	3'-6
1 1/2"x I=.928	1 1/2 x 3/16	4'-0
2"x I=1.676	1 3/4 x 3/16	5'-0
2"x I=1.676	2 x 3/16	5'-6
	2 1/4 x 3/16	6'-6
	2 1/2 x 3/16	7'-0

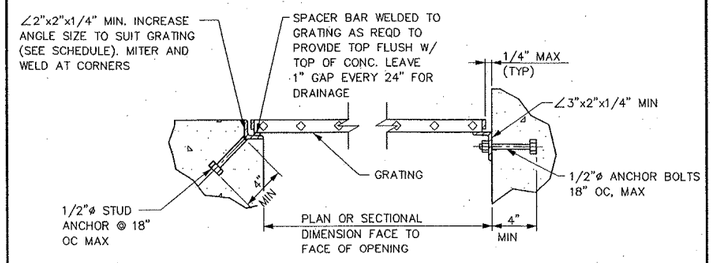
NOTES:

1. GRATING SHALL CONFORM TO THE METAL BAR GRATING MANUAL OF NAAMM, UNLESS OTHERWISE SPECIFIED. GRATING SHALL BE ALUMINUM UNLESS NOTED OTHERWISE.
2. GRATING SHALL BE SWAGED AND FORGED.
3. WHERE BOLTED GRATING IS SPECIFIED. PROVIDE 4 GRATING CLIPS APPROX. 4" FROM THE CORNERS OF EACH PIECE. ADJACENT PIECES MAY BE ANCHORED WITH ONE CLIP AND 2 STUDS (SEE SECTION 1).
4. GRATING SHALL BE REMOVABLE.
5. CLEAR SPAN SHALL BE PLAN DIMENSION. FACE TO FACE OF OPENING.
6. GRATING SCHEDULE IS SUITABLE FOR DESIGN LIVE LOADS OF 250 PSF OR LESS.
7. I IS MINIMUM MOMENT OF INERTIA REQUIRED (INCHES^4/LIN. FT.) FOR FIBERGLASS.
8. END BAND TO BE 1/4" LESS THAN GRATING DEPTH.
9. 1 3/16" AT ALUMINUM. 1 1/2" AT FIBERGLASS.

GRATING SCHEDULE AND CONNECTION DETAILS

DETAIL D/VAR

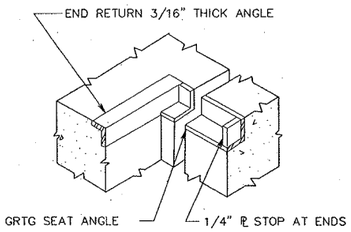
NO SCALE



GRATING SUPPORT AT CONCRETE

DETAIL F/VAR.

NO SCALE



GRATING SUPPORT END RETURN

DETAIL F/VAR.

NO SCALE

PATH: (ucden01) P:\CAD\WICHITA\18253\

WICHTBLK

BROWN AND CALDWELL

McCULLOUGH VAN SICKLE & PERRY

Professional Engineering Consultants

SUBMITTED: DAVID A. MYERS PROJECT MANAGER BROWN AND CALDWELL DATE: 11/01

APPROVED: DATE: 11/01

APPROVED: DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253

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DESIGNED BY STD

CHECKED BY SWH/DAM

CHECKED BY

REGISTERED PROFESSIONAL ENGINEER DAVID A. MYERS 15931 11/16/01 KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

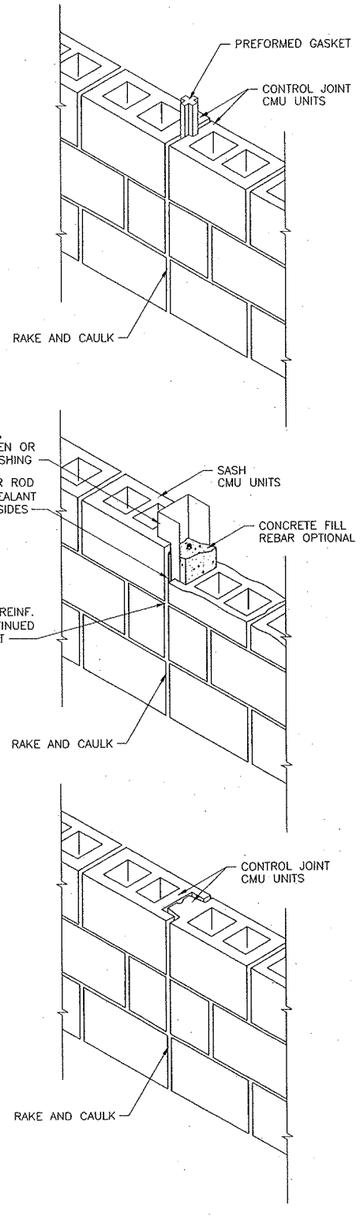
STRUCTURAL

TYPICAL STRUCTURAL DETAILS – 3

CADFILE S18253m61
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. S4

SHEET NUMBER 38 OF 79



TYP. MASONRY CONTROL JOINTS

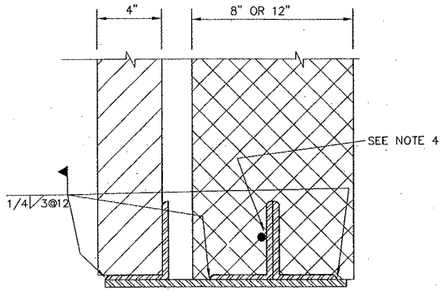
DETAIL A/VAR

NO SCALE

LINTEL SCHEDULE			
WIDTH OF OPENING	VENEER LINTEL SIZE	8" OR 12" CMU LINTEL SIZE	BEARING EACH END
3'-6" OR LESS	L3 1/2x3 1/2x1/4	DBL L3 1/2x3 1/2x1/4	4"
OVER 3'-6" THRU 5'-6"	L3 1/2x3 1/2x1/4	DBL L4x3 1/2x1/4 (LLV)	6"
OVER 5'-6" THRU 7'-6"	L4x3 1/2x1/4 (LLV)	W8x18	6"
OVER 7'-6" THRU 9'-6"	L5x3 1/2x1/4 (LLV)	W8x18	6"
OVER 9'-6" THRU 10'-6"	L5x3 1/2x5/16 (LLV)	W8x24	8"
OVER 10'-6" THRU 12'-6"	L6x3 1/2x5/16 (LLV)	W8x28	8"
OVER 12'-6" THRU 14'-6"	L6x3 1/2x5/16 (LLV)	W12x26	10"

NOTES FOR LINTEL SCHEDULE

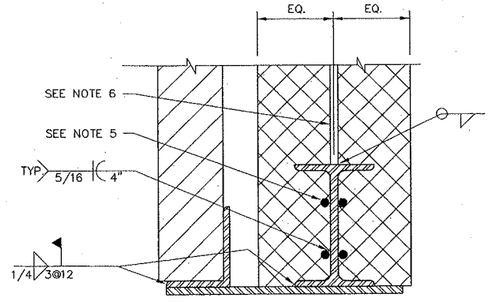
1. OMIT BOTTOM PLATE AT WALLS W/O VENEER W/ OPENINGS 3'-6" AND LESS.
2. PROVIDE BOTTOM PLATE x FULL LENGTH OF OPENING LESS 1/2". PLATES SHALL BE 1/4" THICK AND 1/2" LESS THAN WALL THICKNESS.
3. REFER TO DETAIL E/S7 FOR ADD'L WALL CONSTRUCTION REQUIREMENTS.
4. FOR OPENINGS OVER 3'-6" AND UP TO 7'-6", PROVIDE 1-#5x1'-6" LONG. EXTEND BAR 1'-0" BEYOND END OF BEAM AND GROUT INTO MASONRY LIKE BOND BEAM REINFORCEMENT.
5. AT OPENINGS OVER 7'-6" WIDE, WELD 2-#5x5'-0" (ASTM A706) TOP AND BOTTOM OF BEAM, WEB AS SHOWN. EXTEND BARS 4'-6" BEYOND END OF BEAM AND GROUT INTO MASONRY LIKE BOND BEAM REINFORCEMENT.
6. PROVIDE 1-#5x3'-0" @ 2'-0" O.C. IN FULLY GROUTED CELL TO LAP W/ STANDARD WALL REINF. ADD #5 LAP BAR, FULL HT. AT CELLS W/O VERT. WALL REINF.

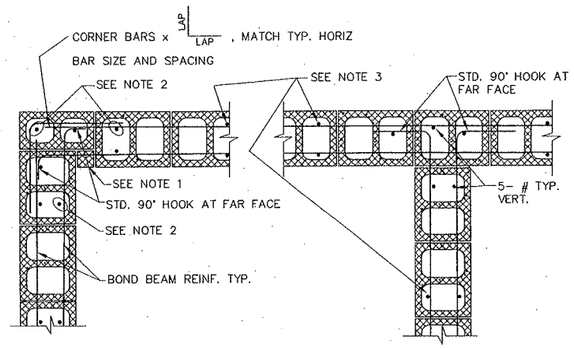


LOOSE LINTEL SCHEDULE

DETAIL B/VAR

NO SCALE





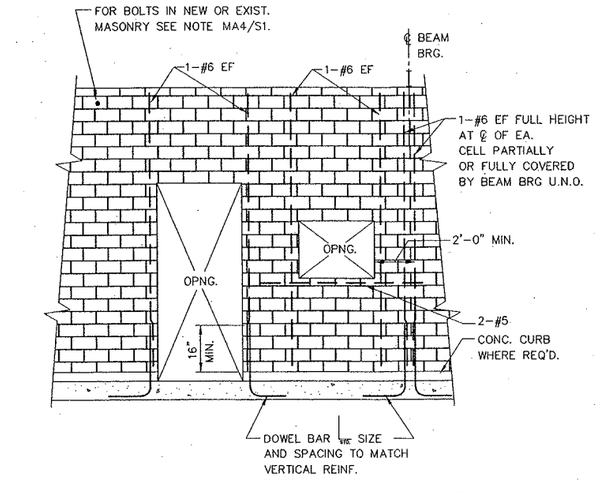
NOTES FOR MASONRY REINFORCEMENT

1. 4"x4"x8" CMU UNIT ON END AT 12" CMU WALL CORNER.
2. 7- #TYP VERTS. LOCATE WITHIN HORIZ BARS AT CORNERS ONLY.
3. TYP. VERT. BARS AT 1/2" CLEAR. USE SPACERS.

REINFORCING AT MASONRY WALL INTERSECTIONS

DETAIL C/VAR

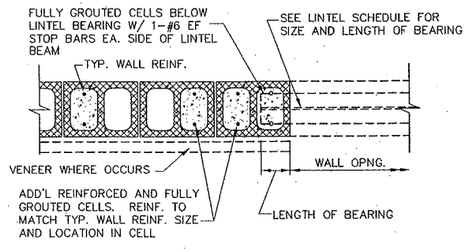
NO SCALE



TYPICAL CONCRETE BLOCK MASONRY REINFORCEMENT AT OPENINGS

DETAIL D/VAR

NO SCALE

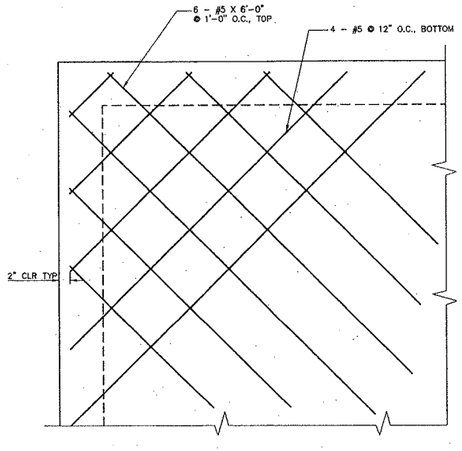


WIDTH OF OPENING	# OF ADD'L REINF. CELLS @ EACH SIDE
5'-6" OR LESS	1
OVER 5'-6" BUT LESS THAN 8'-6"	2
OVER 8'-6" BUT LESS THAN 12'-6"	3
OVER 12'-6" BUT LESS THAN 15'-6"	4

ADD'L REINF. AT SIDES OF CMU WALL OPENINGS

DETAIL E/VAR

NO SCALE



ADDITIONAL STRUCTURAL SLAB CORNER BAR DETAIL

DETAIL F/VAR.

NO SCALE

BROWN AND CALDWELL
McCLELLAND VAN SICKLE & PERRY
Professional Engineering Consultants

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 11/01
PROJECT MANAGER
BROWN AND CALDWELL
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY STD
DESIGNED BY STD
CHECKED BY SWH/DAM
CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/14/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

STRUCTURAL

TYPICAL STRUCTURAL DETAILS - 4

CADFILE S18253m62
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. S5

SHEET NUMBER 39 OF 79

WICHTBLK
PATH: (occden01) P:\CAD\WICHITA\18253\

SIDE OF SLAB OR WALL	TANK [3,4] OR CHANNEL	ATMOS-PHERE	DRY INTERIOR
EARTH	GS / W [1] / F	G [2] / W / F	G / W / F
TANK [3,4] OR CHANNEL	GS / W [1] / GS	GS / W [1] / GS	G / W [1] / GS
ATMOS-PHERE	SEE ABOVE	GS / – / GS	G [2] / – / G [2]
DRY INTERIOR	SEE ABOVE	SEE ABOVE	G [2] / – / G [2]

EXAMPLE:
CONSTRUCTION JOINT WITH EARTH ON ONE SIDE AND A DRY INTERIOR ON THE OTHER SHALL BE CONSTRUCTED AS FOLLOWS: JOINT SHALL HAVE A GROOVE ON THE DRY INTERIOR SIDE AND BE FLUSH ON THE EARTH SIDE. A WATERSTOP SHALL BE BUILT INTO THE JOINT. SEE DETAIL E/S5.

F = FLUSH
G = GROOVE
GS = GROOVE WITH SEALANT
W = WATERSTOP

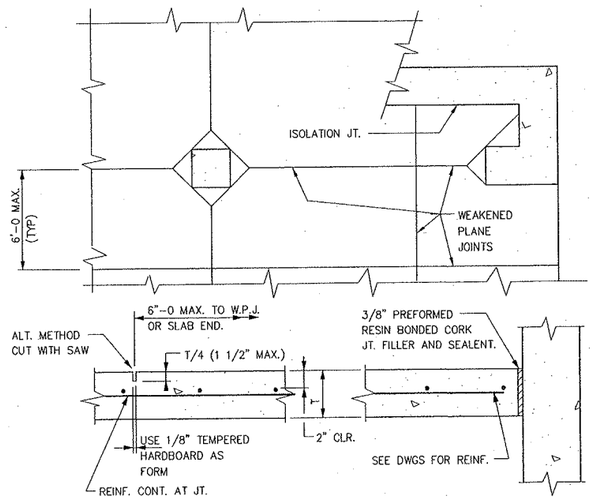
1. EXTEND WATERSTOP TO TOP OF WALL.
2. EXTEND GROOVE FROM 12" BELOW FINISHED GRADE TO TOP OF WALL.
3. VERTICAL CONSTRUCTION JOINTS IN WALLS OF CIRCULAR TANKS WITHOUT PRESTRESSING SHALL HAVE A GROOVE WITH SEALANT ON BOTH SIDES.
4. PROVIDE WATERSTOPS AT ALL TANK FLOOR SLABS.

CONSTRUCTION JOINTS SHALL CONFORM TO THE ABOVE TABLE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. CONSTRUCTION JOINTS, WATERSTOPS, GROOVES AND SEALANT ARE NOT SHOWN ON THE DRAWINGS AND SHALL BE LOCATED BY THE CONTRACTOR ON THE DRAWINGS SUBMITTED TO THE CONSTRUCTION MANAGER PRIOR TO FABRICATION OF REINFORCEMENT.

CONSTRUCTION JOINT TABLE

DETAIL A/VAR

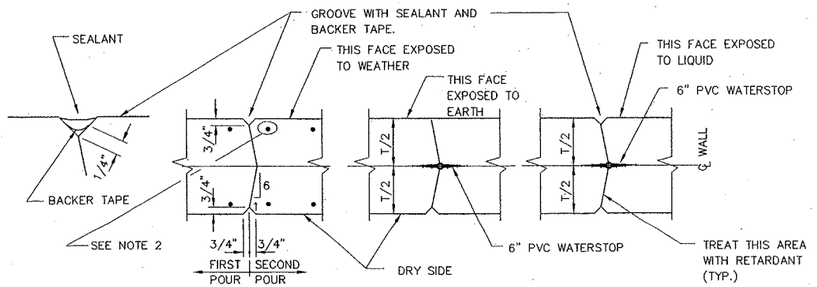
NO SCALE



ISOLATION AND WEAKENED PLANE JOINT AT 6" OR LESS FLOOR SLABS ON GRADE

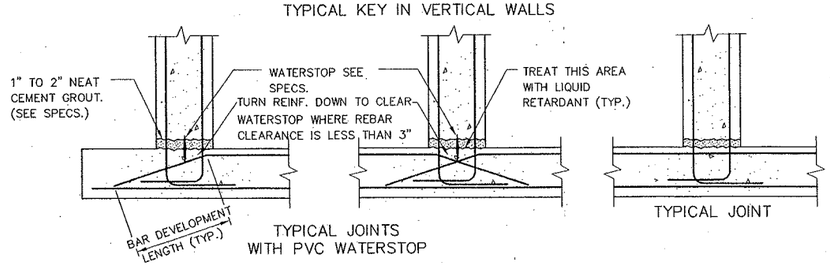
DETAIL D/VAR

NO SCALE



NOTE: 1. WALLS WHICH ARE DRY ON EACH SIDE OR EXPOSED TO WEATHER ON EACH SIDE MAY HAVE WATERSTOP AND SEALANT OMITTED.
2. PROVIDE 200% OF REINF. PARALLEL TO JOINT FOR FIRST 4'-0" OF SECOND POUR.

TYPICAL KEY IN VERTICAL WALLS



(FOR ADDITIONAL INFORMATION SEE CONSTRUCTION JOINT TABLE ON DWG S5.)
(FOR WATERSTOP DETAIL AT FACE OF EXISTING CONCRETE SEE DETAIL D/S5.)

TYPICAL JOINT DETAILS

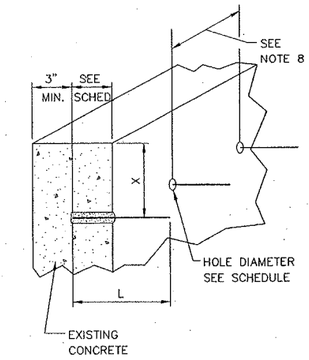
DETAIL B/VAR

NO SCALE

ADHESIVE ANCHOR SCHEDULE						
BAR OR ROD DIA.	MAXIMUM DRILL SIZE AND MINIMUM HOLE DEPTH [1,2,3,4,7,8]				MINIMUM EDGE DISTANCE [5] (X)	MINIMUM TOTAL REINF. BAR LENGTH (L) [6]
	REINFORCING BAR		THREADED ROD			
	EPOXY ADHESIVE	ADHESIVE CAPSULE	EPOXY ADHESIVE	ADHESIVE CAPSULE		
3/8"	5/8" x 6"	1/2" x 6"	7/16" or 1/2" x 6"	15/32" x 6"	4 1/2"	18"
1/2"	3/4" x 7"	5/8" x 8"	9/16" or 5/8" x 7"	9/16" x 7"	6"	24"
5/8"	7/8" x 9"	13/16" x 9"	11/16" or 3/4" x 9"	11/16" x 9"	6 3/4"	29"
3/4"	1" x 11"	1" x 12"	13/16" or 7/8" x 11"	7/8" x 10"	9"	36"
7/8"	1 1/8" x 13"	1 1/8" x 14 1/2"	15/16" or 1" x 13"	1" x 11"	11"	45"
1"	1 1/4" x 16"	1 1/4" x 16"	1 1/8" x 16"	1 1/8" x 14"	12"	57"
1 1/8"	1 1/2" x 17"	1 1/2" x 18"	1 1/4" x 17"	1 1/4" x 16"	13 1/2"	70"
1 1/4"	1 3/4" x 19"	1 3/4" x 21"	1 1/2" x 19"	1 1/2" x 19"	15 3/4"	87"

NOTES

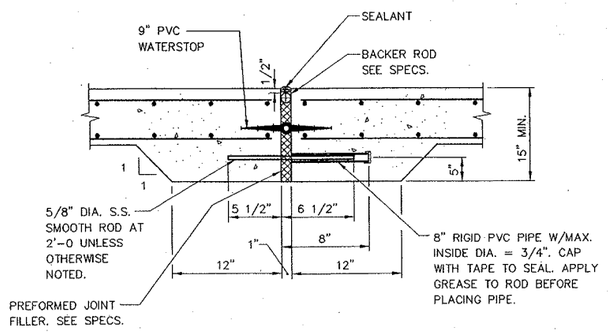
1. DRILL SIZE NOTED FOR BIDDING ONLY. USE ADHESIVE MANUFACTURER'S RECOMMENDED DRILL SIZE. HOLE DEPTH SHALL BE AS SHOWN IN THIS TABLE, EXCEPT WHERE NOTED OTHERWISE ON THE DRAWINGS.
2. VALUES ARE BASED ON CONTINUOUS LOADING AT TEMPERATURES BELOW 110 DEGREES F FOR A307, A36, A304 AND A316 STAINLESS STEEL, OR A615-GR60 STEEL IN 4000 PSI CONCRETE. FOR 3000 PSI CONCRETE, INCREASE HOLE DEPTH 10 PERCENT. FOR HIGH STRENGTH STEEL, INCREASE HOLE DEPTH IN PROPORTION TO TENSILE STRENGTH, BUT USE 25 PERCENT INCREASE MINIMUM.
3. BAR OR ROD TO PENETRATE AND BE COATED WITH ADHESIVE TO FULL DEPTH OF HOLE.
4. SEE SPECIFICATIONS FOR PRODUCT AND INSTALLATION REQUIREMENTS.
5. MINIMUM EDGE DISTANCES FOR FULL WORKING LOAD TO BE EQUAL TO OR GREATER THAN HOLE DEPTH. CONSULT ADHESIVE MANUFACTURER.
6. INDICATES BAR LENGTH REQUIRED TO PROVIDE FULL LAP WITH EQUIVALENT REINFORCING BAR IN NEW CONCRETE.
7. DEPTH OF HOLE NOT TO EXCEED CONCRETE THICKNESS LESS 3". DOWEL DIAMETER TO BE LIMITED ACCORDINGLY.
8. MINIMUM SPACING REQUIRED TO OBTAIN FULL WORKING LOAD = HOLE DEPTH, UNLESS NOTED OTHERWISE BY ADHESIVE MANUFACTURER.



TYPICAL ADHESIVE ANCHORED BAR OR THREADED ROD

DETAIL C/VAR

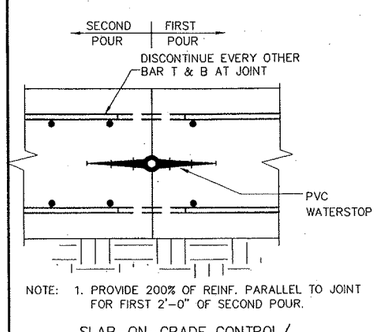
NO SCALE



TYPICAL-SLAB-ON GRADE EXPANSION JOINT

DETAIL E/VAR

NO SCALE

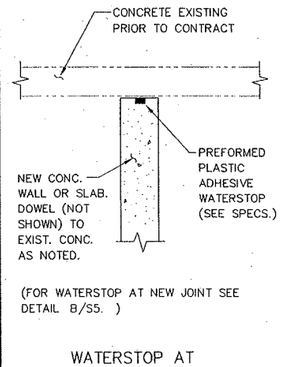


NOTE: 1. PROVIDE 200% OF REINF. PARALLEL TO JOINT FOR FIRST 2'-0" OF SECOND POUR.

SLAB-ON-GRADE CONTROL/ CONSTRUCTION JOINT

DETAIL F/VAR

NO SCALE

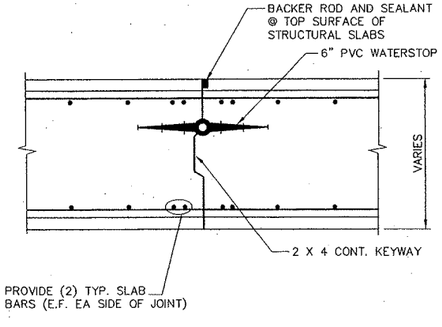


(FOR WATERSTOP AT NEW JOINT SEE DETAIL B/S5.)

WATERSTOP AT EXISTING CONCRETE

DETAIL G/VAR

NO SCALE



STRUCTURAL SLAB CONSTRUCTION JOINT

DETAIL H/VAR

NO SCALE

BROWN AND CALDWELL
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Professional Engineering Consultants

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LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"--SCALE ACCORDINGLY)

FILE 18253
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DESIGNED BY STD
CHECKED BY SWH/DAM
CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS					
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	0	ISSUED FOR BID			

CITY OF WICHITA

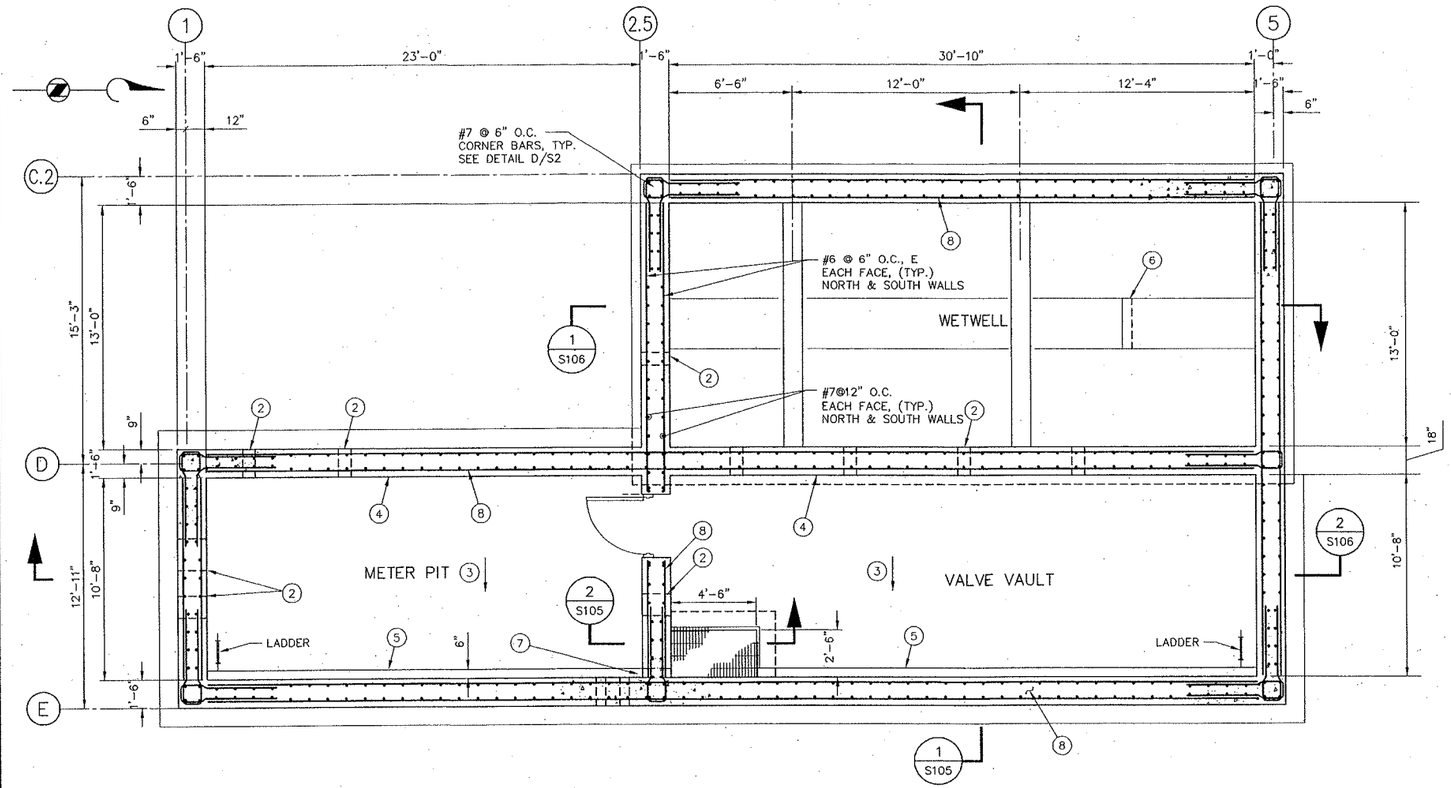
NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

STRUCTURAL

TYPICAL STRUCTURAL DETAILS – 5

CADFILE S18253m64
DATE 11-15-01
OPERATOR GMajok
DRAWING NO. S6
SHEET NUMBER 40 OF 79

PATH: (ocden01) P:\CAD\WICHITA\18253\
WICHTBLK



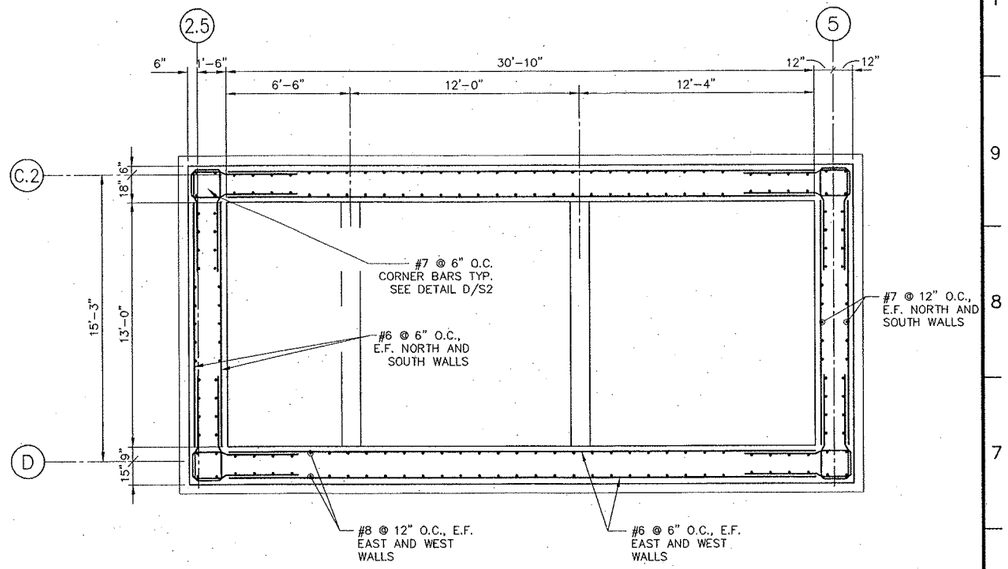
PLAN AT EL. 1345.50

WETWELL, VALVE VAULT AND METER PIT

SACLE: 1/4"=1'-0"

KEY NOTES:

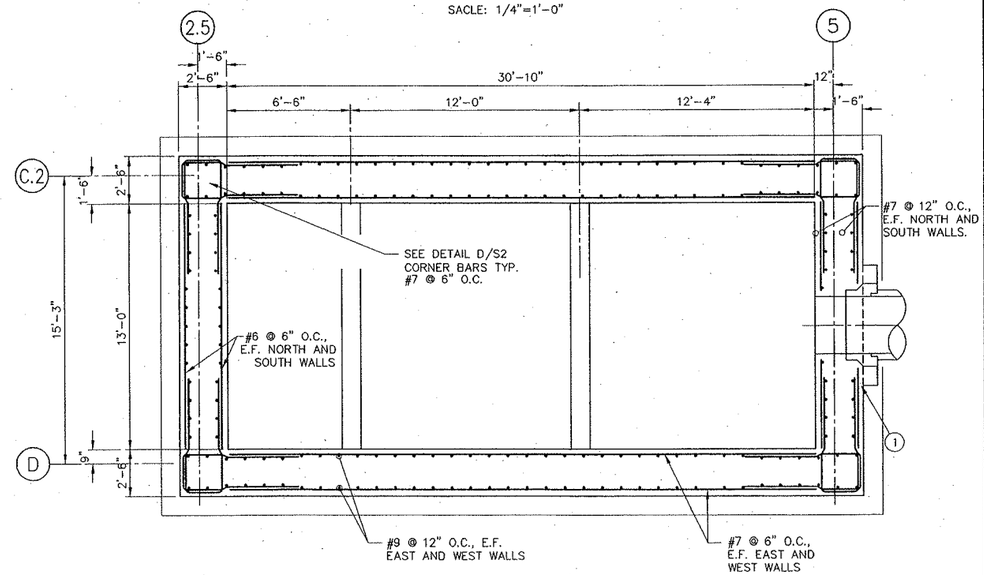
1. SEE DETAIL A/S4 FOR PIPE CONNECTION AND ADDITIONAL REINFORCING.
2. PIPE PENETRATIONS. PROVIDE ADDITIONAL REINF. PER DETAIL B/S4.
3. SLOPE FLOOR TO DRAIN TROUGH.
4. FLOOR HIGH POINT ELEVATION = 1316.65.
5. DRAIN TROUGH RIM ELEVATION = 1365.50.
6. 2" DEEP x 6" WIDE BLOCK-OUT IN FLOOR TO PROVIDE KEY FOR FILLET CONCRETE. SEE SECTION 1/S106.
7. PROVIDE BLOCKOUT IN WALL FOR DRAIN TORUGH.
8. SEE SECTIONS FOR REINF.



PLAN AT EL. 1341.51

WETWELL

SACLE: 1/4"=1'-0"



PLAN AT EL. 1333.32

WETWELL

SACLE: 1/4"=1'-0"

S_WWPLAN

WICHTBLK

PATH: (bcden01) F:\CAD\OWCHITA\18253\

BROWN AND CALDWELL

McCLELLAND VAN SICKLE & PERRY — Professional Engineering Consultants

SUBMITTED: _____ DATE: 11/01

APPROVED: _____ PROJECT MANAGER, BROWN AND CALDWELL DATE: 11/01

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
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REVISIONS

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

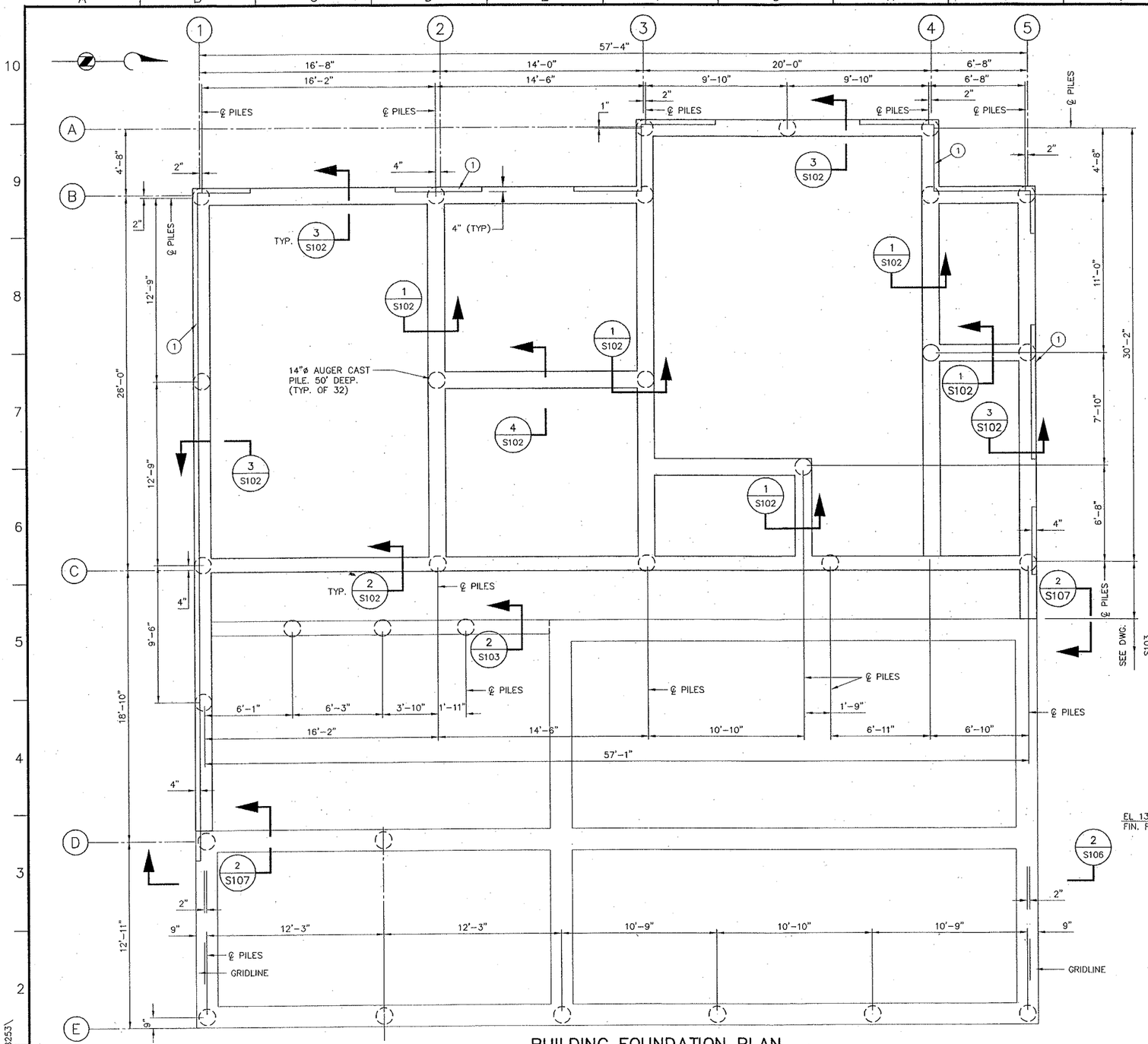
STRUCTURAL

WETWELL, VALVE VAULT AND METER PIT PLANS

CADFILE S18253m58
DATE 11-15-01
OPERATOR TLockwood

DRAWING NO. S101

SHEET NUMBER 41 OF 79

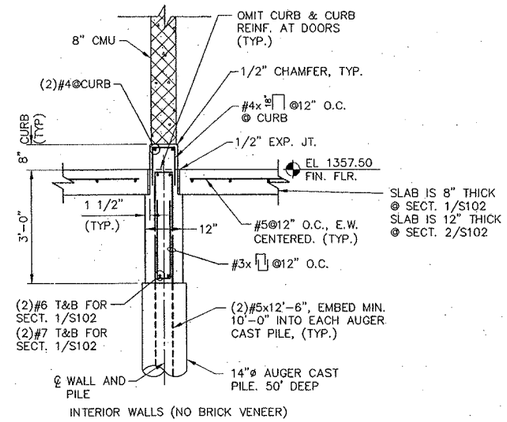


BUILDING FOUNDATION PLAN

SCALE: 1/4"=1'-0"

KEY NOTES:

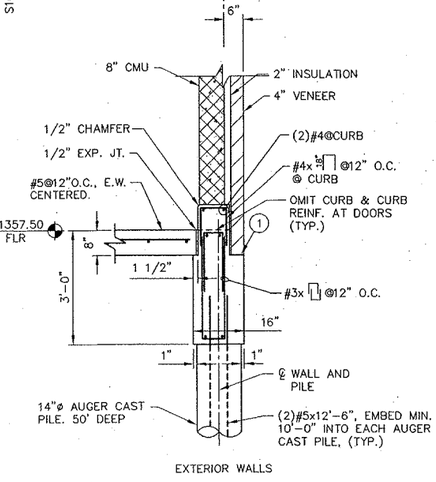
(1) 4" WIDE BY 8" DEEP BRICK LEDGE. DISCONTINUE AT DOOR OPENINGS.



INTERIOR WALLS (NO BRICK VENEER)

SECTION 1/S102 2/S102

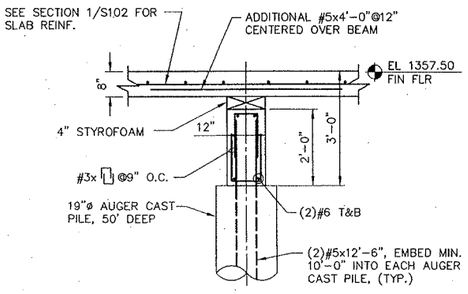
SCALE: 1/2"=1'-0"



EXTERIOR WALLS

SECTION 3/S102

SCALE: 1/2"=1'-0"



SECTION 4/S102

SCALE: 1/2"=1'-0"

PATH: (bodenO1) F:\CAD\OWICHITA\18253\

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Professional Engineering Consultants

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LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

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15931
11/16/01
KANSAS

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

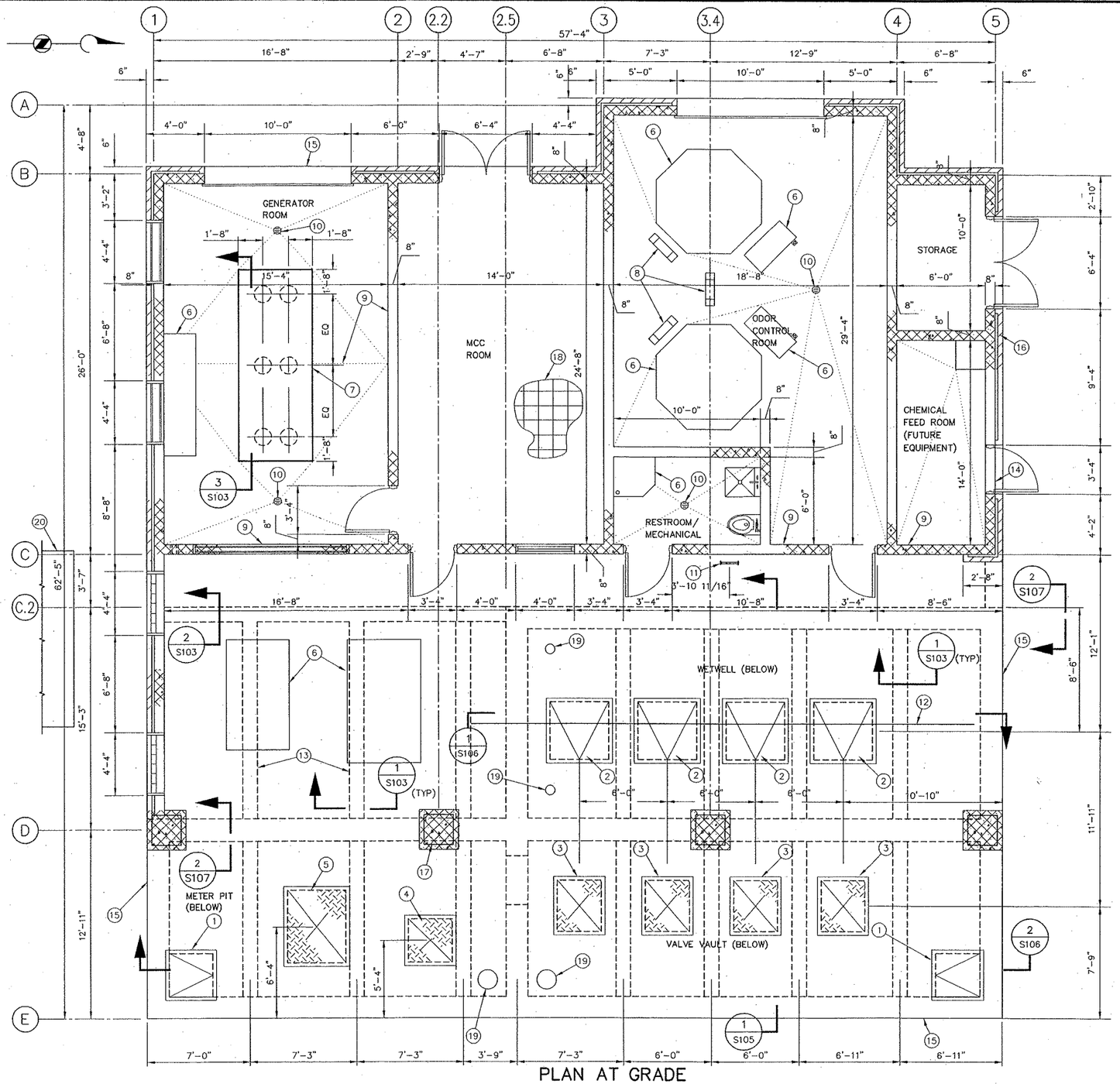
STRUCTURAL

BUILDING FOUNDATION PLAN AND DETAILS

CADFILE S18253m54
DATE 11-16-01
OPERATOR TLockwood

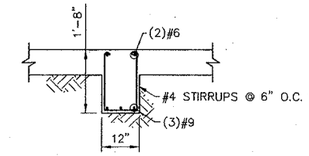
DRAWING NO. S102

SHEET NUMBER 42 OF 79



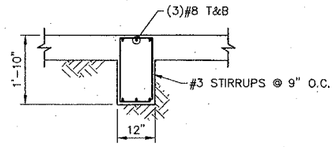
PLAN AT GRADE

SCALE: 1/4"=1'-0"



SECTION 1/S103

SCALE: 1/2"=1'-0"

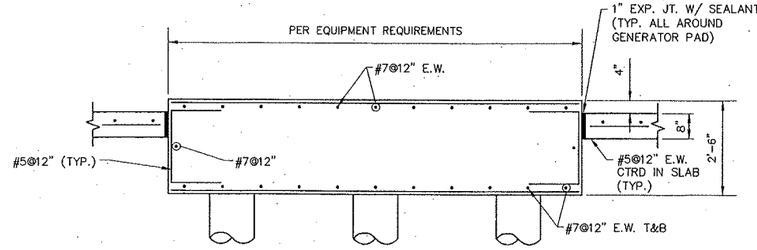


SECTION 2/S103

SCALE: 1/2"=1'-0"

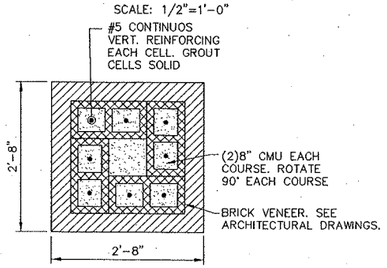
KEY NOTES:

1. 3'-0"x3'-0" ACCESS HATCH. DESIGN FOR H-20 LOADING.
2. 4'-0"x4'-0" PUMP ACCESS HATCH. DESIGN FOR H-20 LOADING.
3. 3'-0"x3'-6" BOLTED AND GASKETED COVER PLATE FOR VALVE ACCESS. SEE DETAIL A/S2. DESIGN FOR H-20 LOADING.
4. 3'-0"x3'-0" BOLTED AND GASKETED COVER PLATE FOR FLOW METER ACCESS. SEE DETAIL A/S2. DESIGN FOR H-20 LOADING.
5. 4'-0"x5'-0" BOLTED AND GASKETED COVER PLATE FOR VALVE ACCESS. SEE DETAIL A/S2. DESIGN FOR H-20 LOADING.
6. CONCRETE EQUIPMENT PAD. SEE DETAIL C/S2. SIZE PER EQUIPMENT REQUIREMENTS.
7. GENERATOR PAD. SIZE PER EQUIPTMENT MANUFACTURER'S RECOMMENDATIONS. SEE SECTION 3/S103.
8. CONCRETE PIPE SADDLE. SEE DETAIL C/S4.
9. FLOOR PERIMETER AND HIGH POINT ELEVATION = 1357.50.
10. FLOOR DRAIN RIM ELEVATION = 1357.33.
11. LADDER TO ROOF. SEE DWG. S104 AND DETAIL A/S3.
12. MONORAIL ABOVE. SEE DWG S107 FOR PLANS AND DETAILS.
13. BEAMS BELOW SLAB.
14. PROVIDE 4" HIGH AND 8" WIDE CONCRETE CURB ALL AROUND CHEMICAL ROOM. USE 1/2 BLOCK STARTER COURSE FOR MASONRY. SEE DETAIL D/S5.
15. BITUMINOUS COATING ON ALL SUBGRADE EXTERIOR SURFACES.
16. SEE ARCHITECTURAL DRAWINGS FOR MASONRY CONTROL JOINT LOCATIONS AND DETAILS.
17. 24"x24" SQ. MASONRY COLUMN. SEE DETAIL A/S103 (TYPICAL 4 PLACES).
18. FOR SLAB REINF. SEE SECTIONS 1, 2, & 3 DN DRAWING S102.
19. PIPE PENETRATION. SEE MECHANICAL DRAWINGS.
20. STORAGE TANK PAD. SEE DETAIL D/M102.



SECTION 3/S103

SCALE: 1/2"=1'-0"



DETAIL A/S103

SCALE: 3/4"=1'-0"

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REVISIONS

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

STRUCTURAL

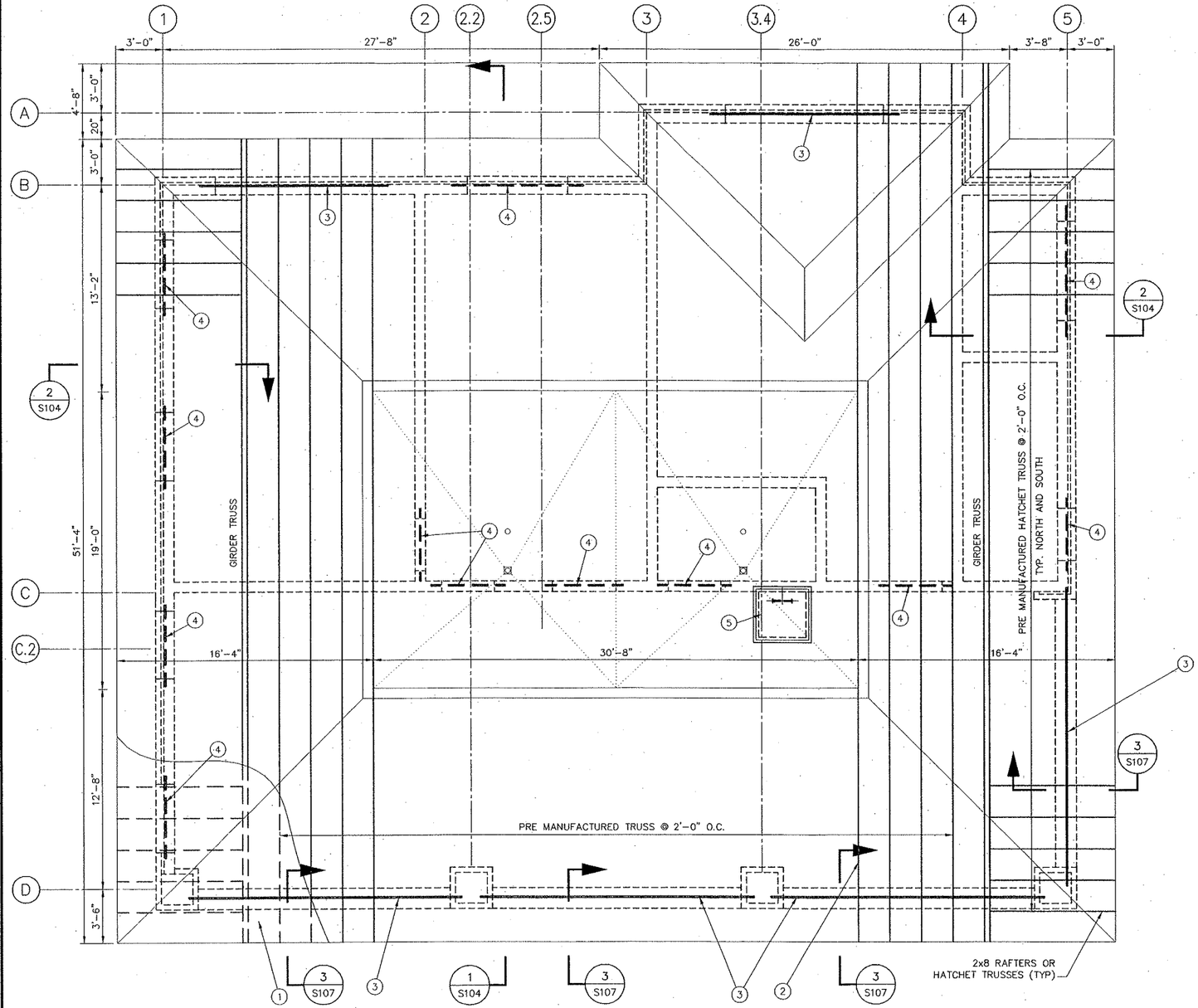
GRADE LEVEL PLAN

CADFILE S18253m52
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. S103

SHEET NUMBER 43 OF 79

PATH: (bcden01) P:\CAD\OMCHITA\18253\ WICHTBLK S_GRDPLAN

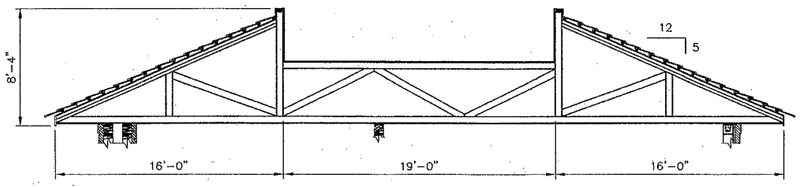


ROOF FRAMING PLAN

SCALE: 1/4"=1'-0"

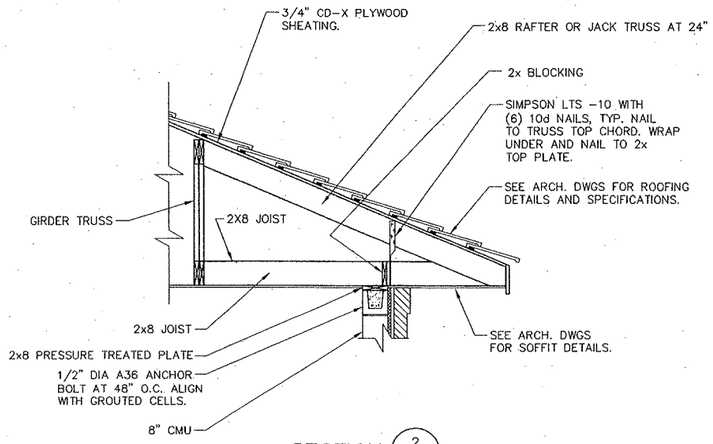
KEY NOTES:

1. 3/4" CD-X PLYWOOD SHEATHING WITH 10d NAILS AT 4" O.C. ROOF BOUNDARY, 6" O.C. @ PLYWOOD EDGES AND 12" O.C. @ FIELD. BLOCKING IS REQUIRED. 2x4 ON EDGE. MIN.
2. TRUSS MANUFACTURER SHALL BE RESPONSIBLE FOR TOP AND BOTTOM CHORD BRACING. TRUSS TOP CHORD BRACING MAY ALSO BE USED AS EDGE BLOCKING FOR SHEATHING.
3. FOR LINTEL ABOVE ARCH OPENING SEE SECTION 3/S107.
4. SEE S107 FOR CMU LINTEL DETAILS.
5. 2'-6"x3'-0" BILCO ROOF SCUTTLE (MODEL "S" OR EQUAL).



SECTION 1/S104

SCALE: 3/16"=1'-0"



SECTION 2/S104

SCALE: 1/2"=1'-0"

PATH: (acden01) P:\CAD\OWICHITA\18253\ WICHTBLK S_ROOFPLAN S_ROOFSEC

Professional Engineering Consultants — McCLELLAND VAN SICKLE & PERRY — BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01

APPROVED: _____ DATE: 11/01

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
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DESIGNED BY SWH/MC
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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

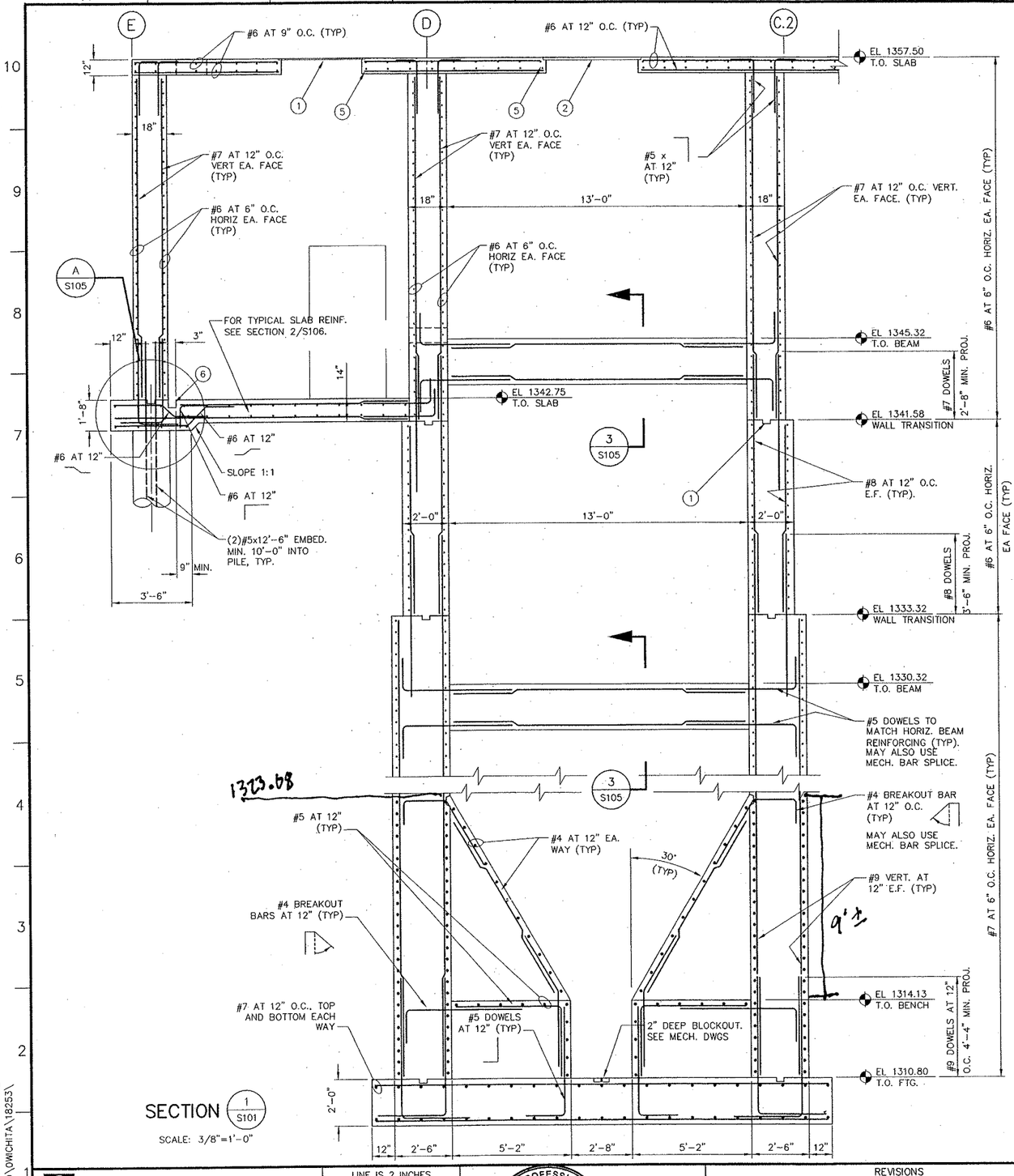
STRUCTURAL

ROOF FRAMING PLAN

CADFILE S18253m53
DATE 11-13-01
OPERATOR TBreder

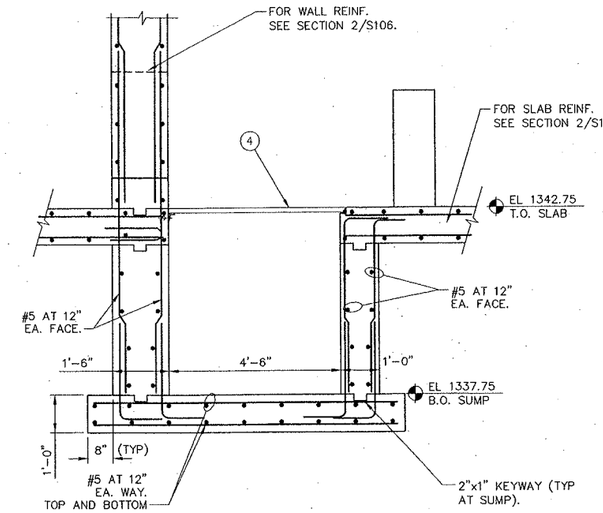
DRAWING NO. S104

SHEET NUMBER 44 OF 79



SECTION 1/S101

SCALE: 3/8"=1'-0"



SECTION 2/S101

SCALE: 1/2"=1'-0"

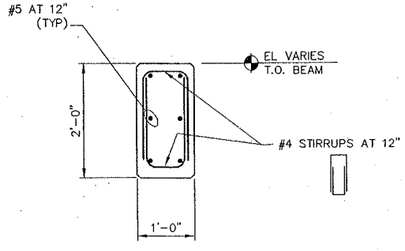
KEY NOTES:

1. 2x4 KEYWAY (TYP WHERE INDICATED).
2. BOLTED AND GASKETED COVER PLATE. SEE DETAIL A/S2.
3. BILCO HATCH. SEE SPECIFICATIONS.
4. ALUMINUM GRATING. SEE DETAIL A/S2.
5. PROVIDE ADDITIONAL REINF. AT OPENINGS PER DETAIL B/S4.
6. DRAIN TROUGH. SEE PLAN FOR ELEVATIONS AND SLOPE.

3.33 + d

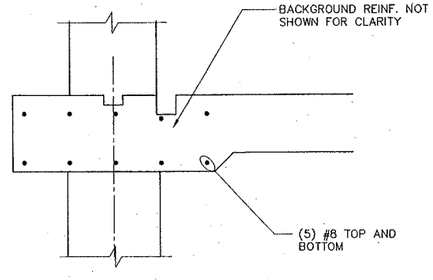
5.1' 30° d

d = 8.95'



SECTION 3/S105

SCALE: 3/4"=1'-0"



DETAIL A/S105

SCALE: 3/4"=1'-0"

PATH: (ocden01) P:\CAD\WMCHITA\18253\S_WWSEC\WICHTBLK

BROWN AND CALDWELL

SUBMITTED: DATE: 11/01

APPROVED: DATE: 11/01

APPROVED: DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253

DRAWN BY TDB

DESIGNED BY SWH/EC

CHECKED BY SWH/DAM

CHECKED BY

REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15931 — 11/16/01 — KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

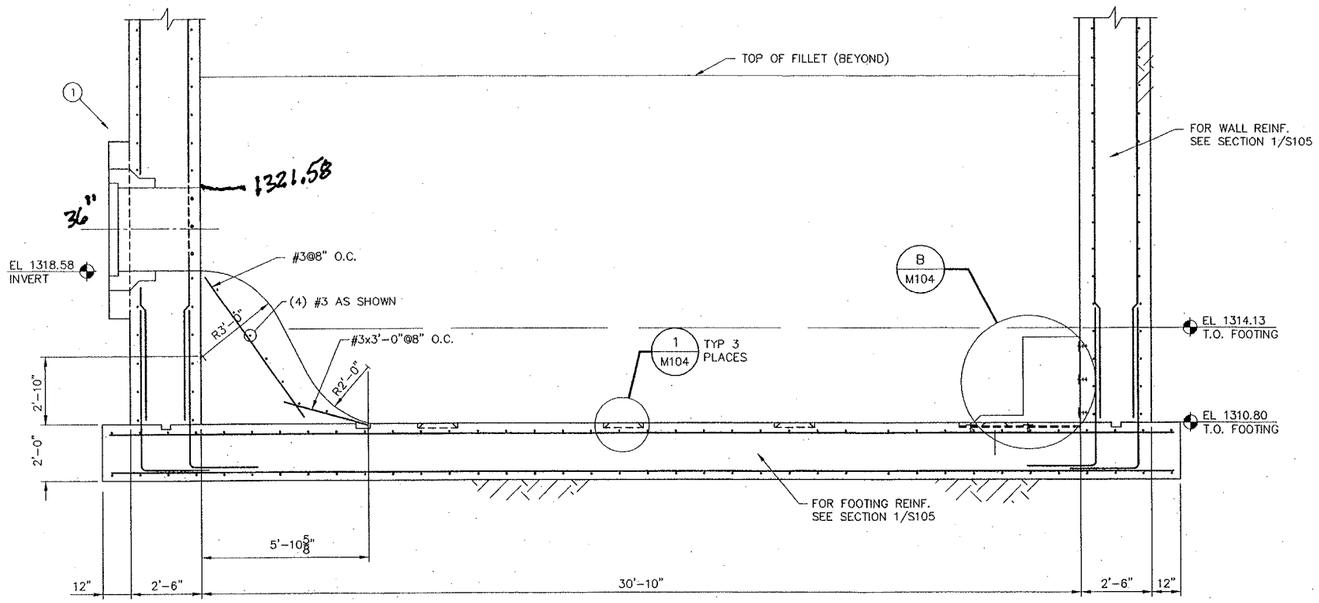
STRUCTURAL

SECTIONS AND DETAILS – 1

CADFILE S18253m51
DATE 11-15-01
OPERATOR TLockwood

DRAWING NO. S105

SHEET NUMBER 45 OF 79

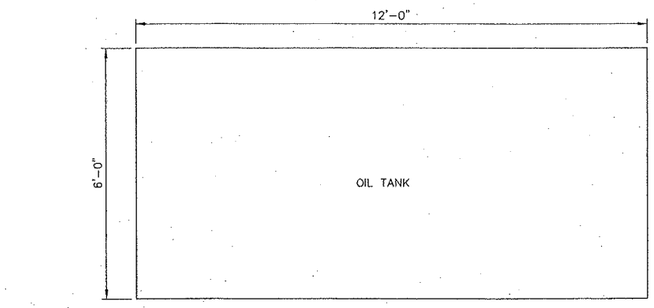


SECTION 1/S101

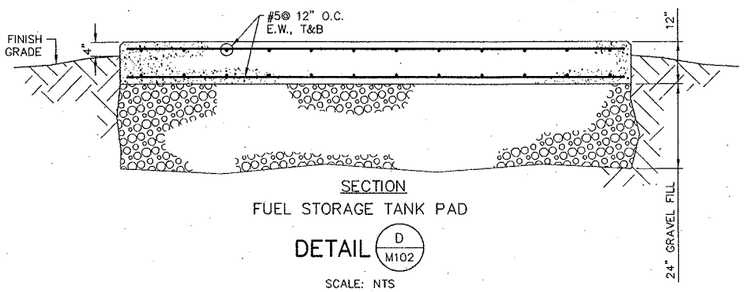
SCALE: 3/8"=1'-0"

KEY NOTES:

1. FOR PIPE CONNECTION TO WALL SEE DETAIL C/S3.
2. LADDER. SEE DETAIL A/S3.



PLAN

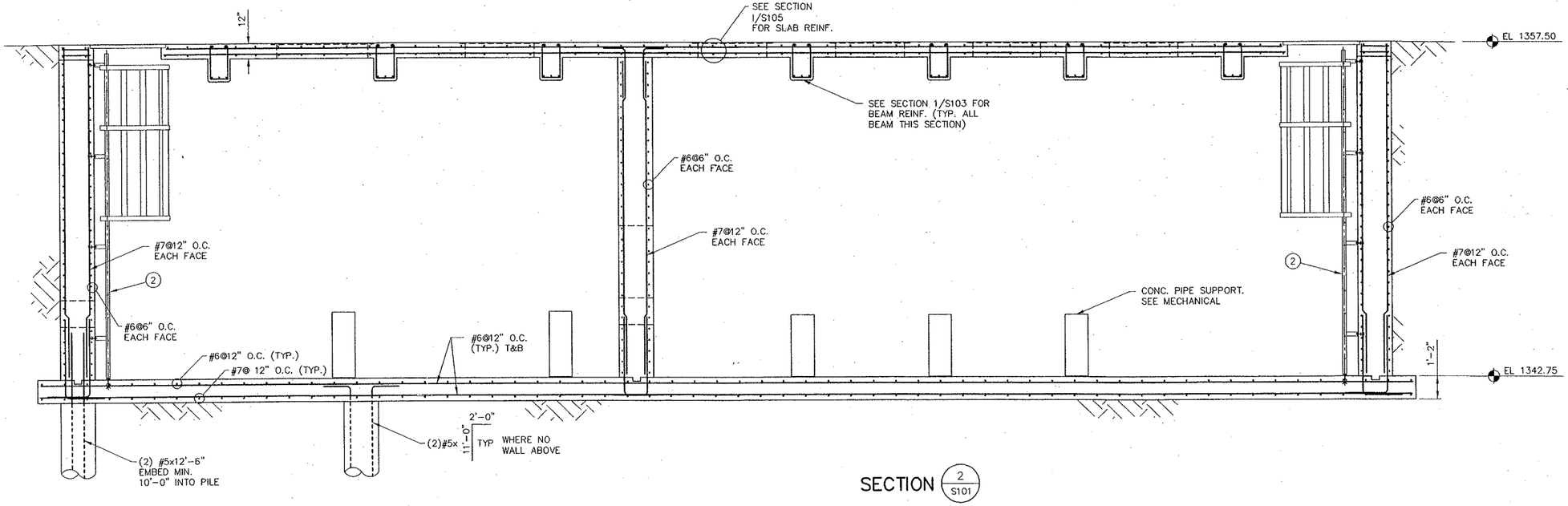


SECTION

FUEL STORAGE TANK PAD

DETAIL D/M102

SCALE: NTS



SECTION 2/S101

SCALE: 3/8"=1'-0"

S_WWSEC

WICHTBLK

PATH: (bcdsn01) P:\CAD\WICHITA\18253\

Professional Engineering Consultants

McCLURG AGE VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED:		DATE: 11/01
APPROVED:	PROJECT MANAGER BROWN AND CALDWELL	DATE: 11/01
APPROVED:		DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"–SCALE ACCORDINGLY)

FILE 18253
DRAWN BY TDB
DESIGNED BY SWH/EC
CHECKED BY SWH/DAM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

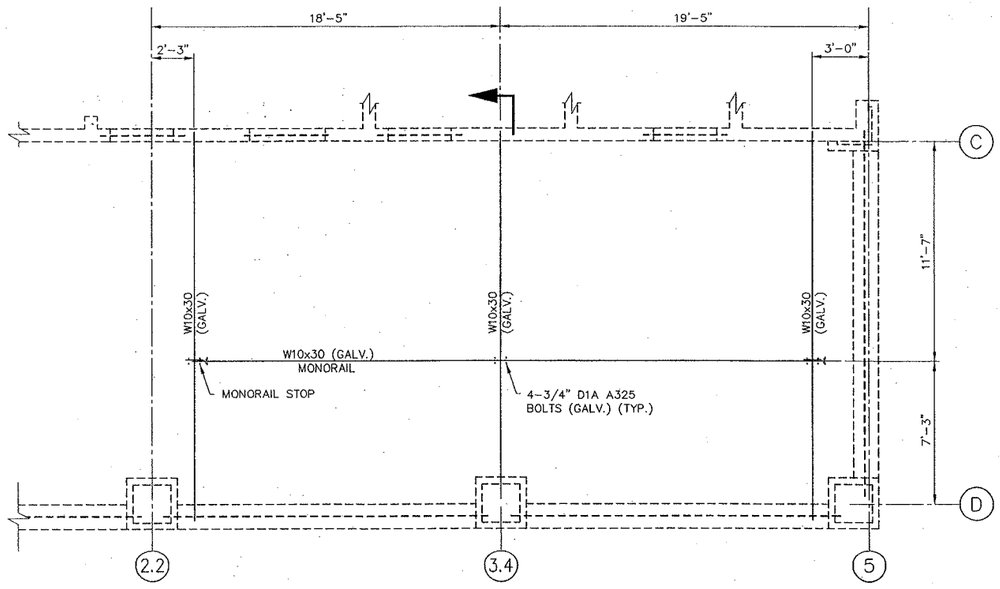
STRUCTURAL

SECTIONS AND DETAILS – 2

CADFILE S18253m59
DATE 11–13–01
OPERATOR TBreder

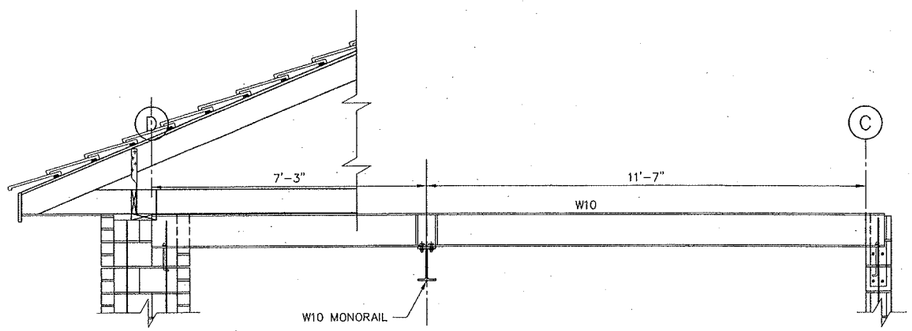
DRAWING NO. S106

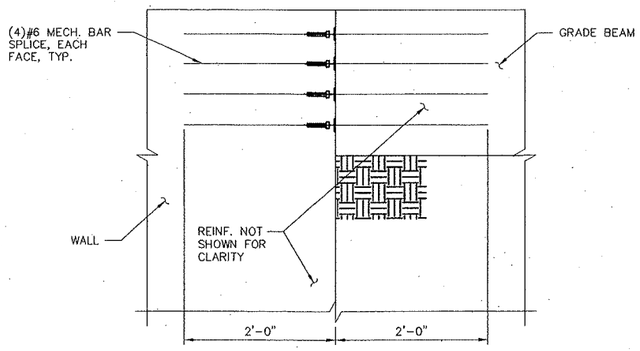
SHEET NUMBER 46 OF 79



SECTION (1 / S107)

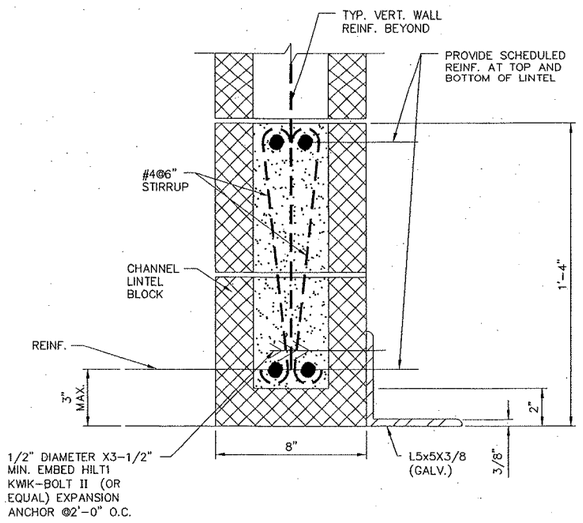
SCALE: 3/8"=1'-0"





ELEVATION (2 / S103 — 2 / S102)

SCALE: 1"=1'-0"



NOTE:

1. PROVIDE REINF. AS INDICATED AT ALL OPENINGS, BOTH INTERIOR AND EXTERIOR WALLS.
2. PROVIDE 8" MIN. BEARING AT EACH SIDE OF CLEAR SPAN UNLESS OTHERWISE NOTED

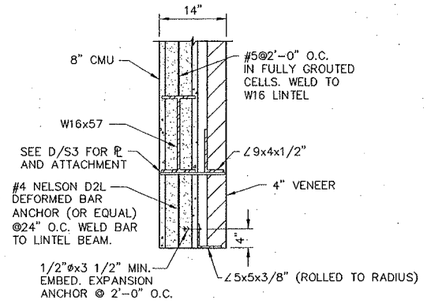
CMU LINTEL REINFORCING SCHEDULE

DETAIL (A / S104)

SCALE: 3" = 1'

KEY NOTES:

(1) X



SECTION (3 / S104)

SCALE: 3/4"=1'-0"

Professional Engineering Consultants — McCLELLAND VAN SICKLE & PERRY — BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 11/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY TDB
DESIGNED BY SWH/MC
CHECKED BY SWH/DAM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15931 — 11/16/01 — KANSAS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

STRUCTURAL

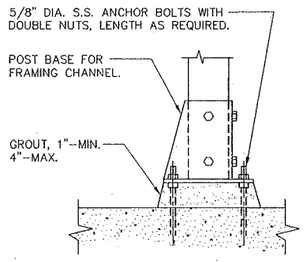
MONORAIL PLAN AND SECTIONS

CADFILE S18253m63
DATE 11-13-01
OPERATOR TBreder

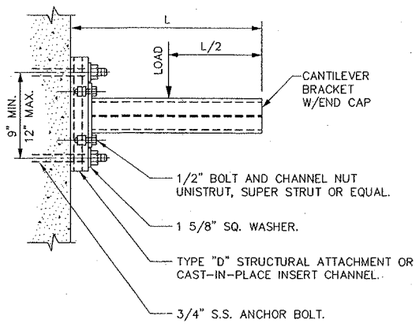
DRAWING NO. S107

SHEET NUMBER 47 OF 79

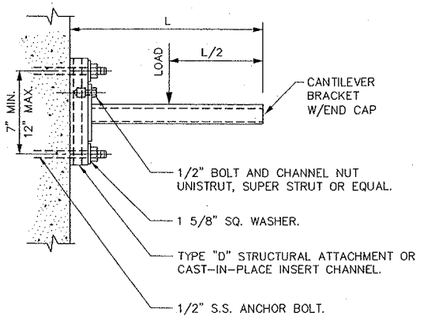
PATH: (bcden01) P:\CAD\WICHITA\18253\S_MONPLAN\WICHTBLK



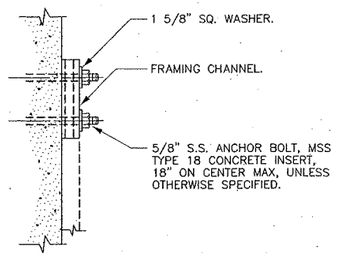
TYPE A
STRUCTURAL ATTACHMENT



TYPE B
STRUCTURAL ATTACHMENT



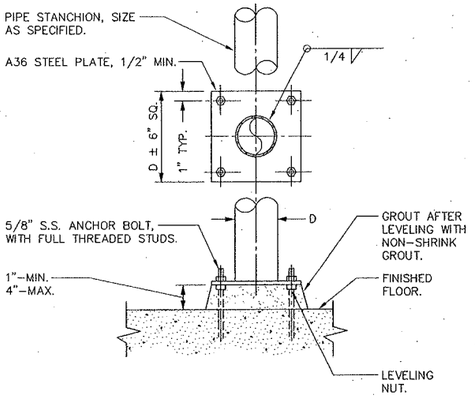
TYPE C
STRUCTURAL ATTACHMENT



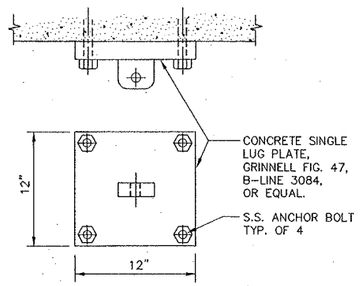
TYPE D
STRUCTURAL ATTACHMENT

GENERAL PIPE HANGER AND SUPPORT SYSTEM NOTES:

1. SEE SPECIFICATION SECTION 15050 FOR DESIGN OF PIPE SUPPORTS SYSTEM.
   SEE SPECIFICATION SECTION 15096 FOR PIPE HANGER & SUPPORTS.
   SEE SPECIFICATION SECTION 15097 FOR SEISMIC RESTRAINTS FOR PIPING.
   SEE SPECIFICATION SECTION 15098 FOR EXPANSION CONTROL SYSTEM.
2. THE MATERIAL PRESENTED ON THIS DRAWING IS FOR REFERENCE USE. SOME OF THE DETAILS AND INFORMATION PRESENTED ON THE PIPE SUPPORT SYSTEM DRAWINGS (M1, M2, AND M3) MAY NOT BE REQUIRED AS PART OF THIS CONTRACT.
3. FOR EXISTING CONCRETE, NEW PRECAST CONCRETE, OR NEW CONCRETE MASONRY UNITS, USE SURFACE MOUNT FRAMING CHANNEL, STRUCTURAL ATTACHMENT TYPE "D" FOR ALL CAST–IN–PLACE CONCRETE. CONCRETE PLACED UNDER THIS CONTRACT, USE EMBEDDED CONCRETE INSERT FRAMING CHANNEL, WITH END CAPS.
4. PIPE SUPPORT AND HANGER BRACKET COMPONENTS MAY BE INTERCHANGED WHERE COMPATIBLE AND APPROPRIATE.
5. THE CONTRACTOR SHALL NOT USE EPOXY ADHESIVE ANCHOR BOLTS OR EXPANSION ANCHORS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE CONSTRUCTION MANAGER, UNLESS OTHERWISE SPECIFIED.
6. THE CONTRACTOR SHALL LOCATE HANGERS & SUPPORTS TO ENSURE THAT CONNECTIONS TO EQUIPMENT, TANKS, ETC, ARE SUBSTANTIALLY FREE FROM LOADS TRANSMITTED BY THE PIPING.
7. CAST FITTINGS WITH FOOT–TYPE SUPPORTS ARE PROHIBITED.
8. WHERE PIPING IS CONNECTED TO EQUIPMENT, VALVES, PIPING ASSEMBLY, ETC, THAT WILL REQUIRE REMOVAL FOR MAINTENANCE, THE PIPING SHALL BE SUPPORTED IN SUCH A MANNER THAT TEMPORARY SUPPORTS SHALL NOT BE NECESSARY FOR THIS PROCEDURE.

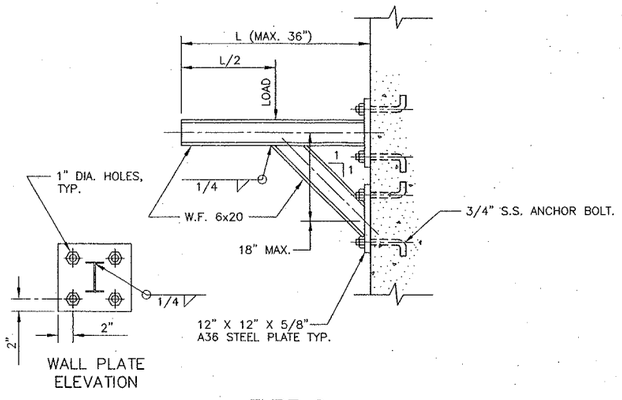


TYPE E
STRUCTURAL ATTACHMENT

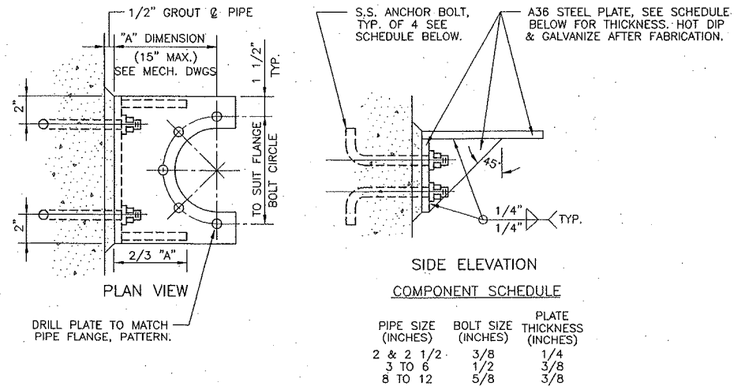


ATTACH ROD TO STEEL PLATE WITH FORGED STEEL CLEVIS GRINNELL FIG. 299, B–LINE FIG. B3201 OR EQUAL.

TYPE F
STRUCTURAL ATTACHMENT



TYPE G
STRUCTURAL ATTACHMENT



COMPONENT SCHEDULE

PIPE SIZE (INCHES)	BOLT SIZE (INCHES)	PLATE THICKNESS (INCHES)
2 & 2 1/2	3/8	1/4
3 TO 6	1/2	3/8
8 TO 12	5/8	3/8

TYPE H
STRUCTURAL ATTACHMENT

BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 11/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"–SCALE ACCORDINGLY)

FILE 18253
DRAWN BY STD
DESIGNED BY STD
CHECKED BY DAM
CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

MECHANICAL

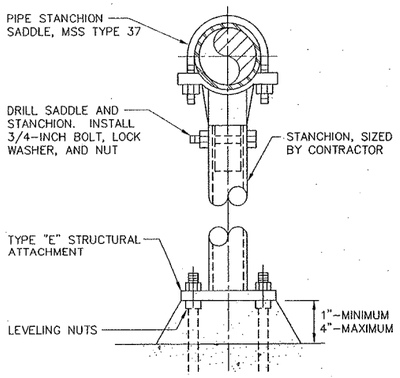
PIPE HANGER, STRUCT. ATTACHMENTS, AND SUPPORT SYSTEMS

CADFILE M18253m53
DATE 11–13–01
OPERATOR TBreder

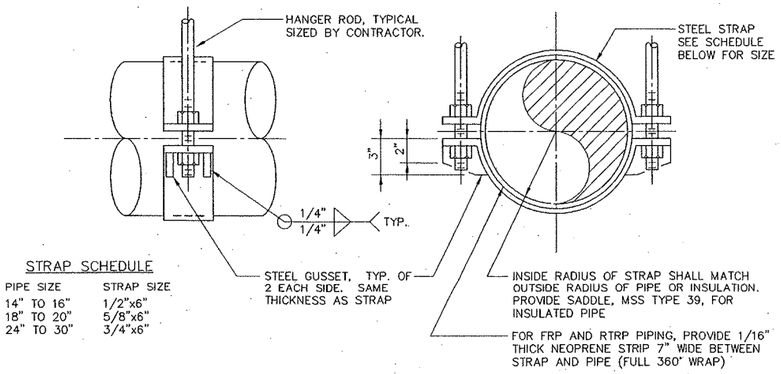
DRAWING NO. M1

SHEET NUMBER 48 OF 79

WICHTBLK
PATH: (bcden01) P:\CAD\OWICHITA\18253\



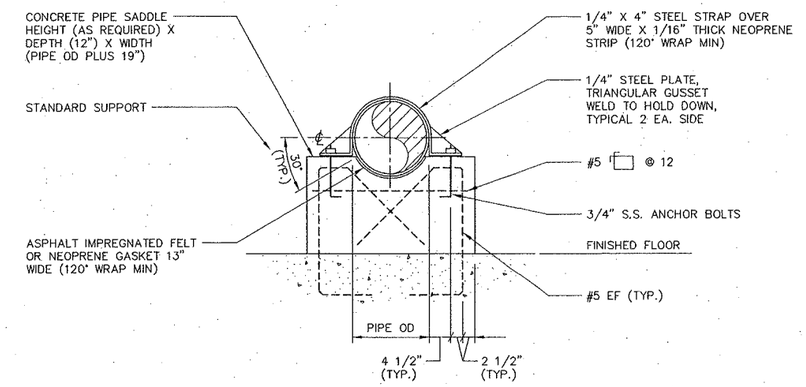
TYPE 10 PIPE SUPPORT
3" THROUGH 12" PIPE



STRAP SCHEDULE

PIPE SIZE	STRAP SIZE
14" TO 16"	1/2"x6"
18" TO 20"	5/8"x6"
24" TO 30"	3/4"x6"

TYPE 23
PIPE HANGER
14" THROUGH 30" PIPE



TYPE 24
CONCRETE SADDLE PIPE SUPPORT

BROWN AND CALDWELL
McCLUGGAGE VAN SICKLE & PERRY
Professional Engineering Consultants

SUBMITTED: _____ DATE: 1/12/01
APPROVED: _____ DATE: 01/12/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY STD
DESIGNED BY STD
CHECKED BY DAM
CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

MECHANICAL

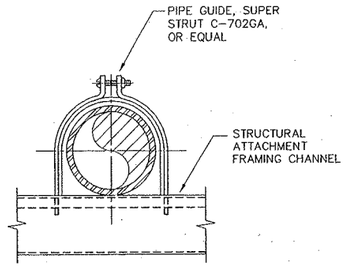
PIPE SUPPORTS, PIPE RACKS AND HANGERS

CADFILE M18253m54
DATE 11-13-01
OPERATOR TBreder

DRAWING NO.
M2

SHEET NUMBER
49 OF 79

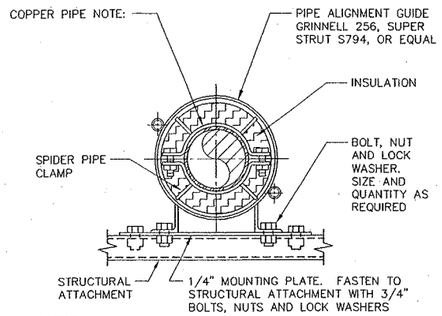
WICHTBLK
PATH: (bcden01) P:\CAD\OWICHITA\18253\



NOTES:

1. THIS GUIDE SHALL NOT BE USED FOR INSULATED PIPE.

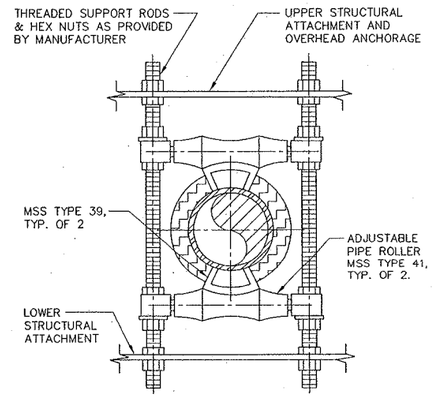
TYPE G1 PIPE GUIDE
1/2" THROUGH 6" PIPE



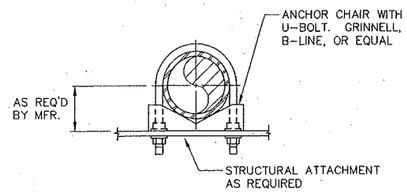
NOTES:

1. THIS GUIDE SHALL BE USED FOR PRIMARY AND INTER-MEDIATE GUIDES FOR ALL SYSTEMS WITH 4 OR MORE GUIDES BETWEEN ANCHORS AND EXPANSION JOINTS.
2. WHEN USED WITH COPPER PIPE, PROVIDE FULL 360° WRAP OF 1/16 INCH THICK NEOPRENE. BOND NEOPRENE TO PIPE WITH COMPATIBLE WATERPROOF ADHESIVE.

TYPE G2 PIPE GUIDE
3/4" THROUGH 12" PIPE



TYPE G3 PIPE GUIDE
3/4" THROUGH 12" PIPE



NOTES:

1. WHEN USED WITH COPPER PIPE, PROVIDE FULL 360° WRAP OF 1/16 INCH THICK NEOPRENE. BOND NEOPRENE TO PIPE WITH COMPATIBLE WATERPROOF ADHESIVE. PROTECT NEOPRENE WITH A FULL 360° METAL SHIELD. PROJECT SHIELD 1/2 INCH BEYOND CHAIR ON EACH SIDE AND EXTEND NEOPRENE 1/2 INCH BEYOND SHIELD ON EACH SIDE.

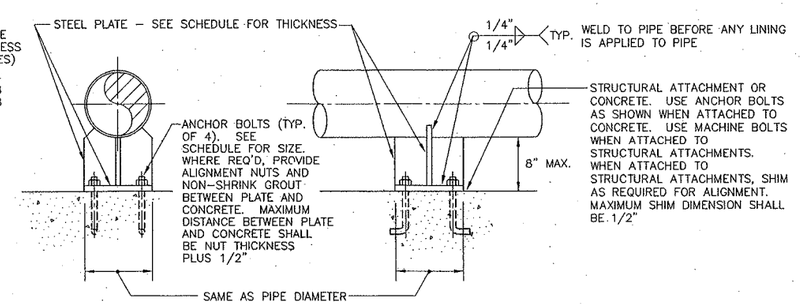
TYPE A1 PIPE ANCHOR
4" THROUGH 12" PIPE

GENERAL GUIDE/ANCHOR NOTES:

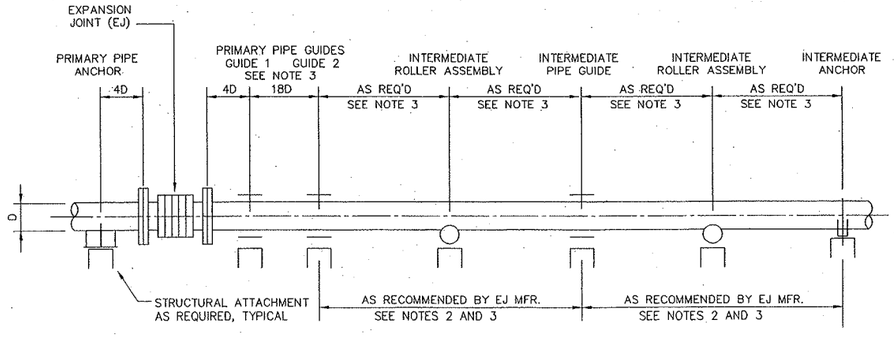
1. SEE GENERAL HANGER & SUPPORT SYSTEM NOTES M1.
2. THE FIRST AND SECOND PIPE GUIDES FROM EXPANSION JOINT'S FREE END SHALL BE LOCATED AT A MAXIMUM OF FOUR AND EIGHTEEN PIPE DIAMETERS RESPECTIVELY. INTERMEDIATE PIPE GUIDES SHALL BE LOCATED AS RECOMMENDED BY THE EXPANSION JOINT MANUFACTURER AND EJMA STANDARDS.
3. INTERMEDIATE ROLLER ASSEMBLIES SHALL BE INSTALLED AS DETERMINED BY THE CONTRACTOR. PRIMARY AND INTERMEDIATE GUIDES SHALL BE INSTALLED IN COMBINATION WITH THE INTERMEDIATE ROLLER ASSEMBLIES SO THE PIPE GUIDES SHALL NOT SUPPORT ANY OF THE PIPES WEIGHT BUT SHALL MERELY GUIDE THE PIPE'S EXPANSION.
4. FOR "L", "Z" AND "U" CONFIGURATIONS OF PIPING BETWEEN ANCHORS, PIPE GUIDES SHALL BE PROVIDED AS RECOMMENDED BY BY EXPANSION JOINT MANUFACTURER AND EJMA STANDARDS.
5. COMPONENT SCHEDULES AND TABLES ARE FOR REFERENCE "ONLY". CONTRACTOR SHALL PROVIDE ALL SUPPORT SIZING PER SPECIFICATION 15096.
6. SECTIONS OF EXPANSION CONTROLLED PIPING BETWEEN ANCHORS SHALL BE PROVIDED WITH ONE PIPE ANCHOR, ONE EXPANSION JOINT, AND PIPE GUIDES AND ROLLERS AS REQUIRED. SEE DETAIL "A" BELOW.

COMPONENT SCHEDULE

PIPE SIZE (INCHES)	BOLT SIZE (INCHES)	PLATE THICKNESS (INCHES)
2 & 2 1/2	3/8	1/4
3 TO 6	1/2	3/8
8 TO 12	5/8	3/8



TYPE A3 PIPE ANCHOR
2" THROUGH 12" PIPE



SEE GENERAL NOTES THIS DWG.

TYPICAL EXPANSION JOINT INSTALLATION

DETAIL A/VAR

Professional Engineering Consultants
McCLURG AGE VAN SICKLE & PERRY
BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/12/01
APPROVED: _____ DATE: 11/14/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"–SCALE ACCORDINGLY)

FILE 18253
DRAWN BY STD
DESIGNED BY STD
CHECKED BY DAM
CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15931 — 11/16/01 — KANSAS

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

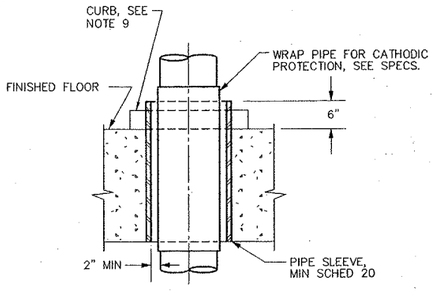
NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

MECHANICAL

PIPE ANCHORS AND GUIDES

CADFILE M18253m55
DATE 11-13-01
OPERATOR TBreder
DRAWING NO. M3
SHEET NUMBER 50 OF 79

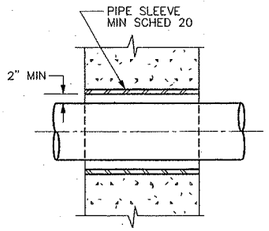
WICHTBLK
PATH: (bcden01) P:\CAD\OWICHITA\18253\



FOR FLOORS
TYPE A PIPE PENETRATION

DETAIL A/VAR

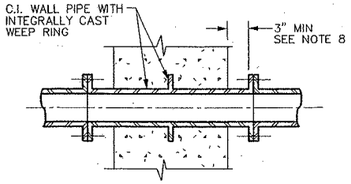
NO SCALE



FOR WALLS
TYPE B PIPE PENETRATION

DETAIL B/VAR

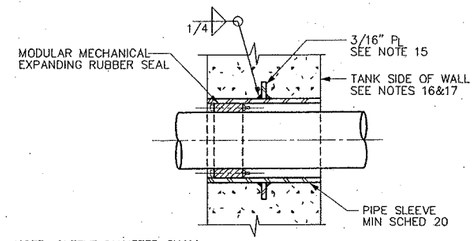
NO SCALE



FOR WALLS
TYPE F PIPE PENETRATION

DETAIL C/VAR

NO SCALE



NOTE: SLEEVE DIAMETER SHALL BE AS RECOMMENDED BY THE MECHANICAL SEAL MANUFACTURER.

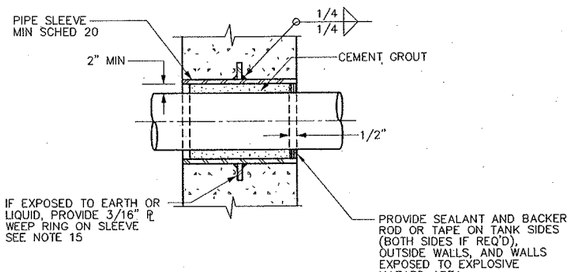
FOR NEW WALLS
TYPE D PIPE PENETRATION

DETAIL D/VAR

NO SCALE

PIPE PENETRATION NOTES:

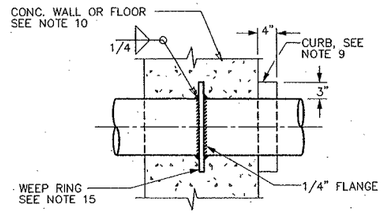
1. WHERE PIPES PASS THROUGH WALLS, FLOORS, OR CEILINGS, PENETRATIONS SHALL CONFORM TO TABLE, EXCEPT AS OTHERWISE SPECIFIED.
2. IN TABLE, "TANK" SHALL MEAN ANY PART OF A STRUCTURE CONTAINING LIQUID, OR IN CONTACT WITH THE EARTH.
3. IN TABLE, "PASSAGE" SHALL MEAN ROOM, GALLERY, TUNNEL OR SIMILAR ENCLOSURE.
4. IN TABLE, WATER SURFACE, "WS" SHALL MEAN AN ELEVATION 9 INCHES ABOVE MAXIMUM WATER SURFACE SHOWN.
5. ALL STEEL SLEEVES SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
6. IN CONDITION 5, TYPE D,E,H,J, OR K SHALL BE USED WHERE ONE SIDE CONTAINS EXPLOSION PROOF EQUIPMENT, WHERE FLOODING IS POSSIBLE, OR WHERE SPECIFIED.
7. SEAL FLANGES SHALL BE DRILLED TO 150 POUND STANDARD, EACH JOINT SHALL BE GASKETED.
8. WHERE SPECIFIED, CAST IRON FLANGES MAY BE INSTALLED FLUSH WITH WALL AND TAPPED FOR STUDS.
9. PROVIDE CURB WHERE PENETRATING FLOOR, CURB SHALL BE 3" HIGH BY 4" WIDE. SEE DETAIL F/S4.
10. PROVIDE A MINIMUM OF 3" CLEARANCE BETWEEN REINFORCING STEEL AND FERROUS METAL PENETRATIONS.
11. FLEXIBLE JOINTS SHALL BE PROVIDED FOR UNDERGROUND PIPING AS SPECIFIED.
12. RESTRAINED FLEXIBLE COUPLINGS FOR STEEL PIPE SHALL BE DESIGNED FOR 100 PSI LINE PRESSURE IN ACCORDANCE WITH AWWA MANUAL M11, FIGURE 19.15, AND 19.16 AND TABLE 19.17 SHALL BE UTILIZED.
13. INSULATION SHALL NOT EXTEND THROUGH SLEEVES, UNLESS OTHERWISE SPECIFIED.
14. WHERE CAST IRON PIPE IS EMBEDDED IN CONCRETE AT AN EXPANSION JOINT, USE DETAIL J/M5.
15. WEEP RINGS SHALL HAVE A MINIMUM DIAMETER EQUAL TO THE PIPE DIAMETER PLUS 3 INCHES.
16. "TANK SIDE OF WALL" SHALL MEAN SIDE OF WALL NORMALLY EXPOSED TO LIQUID, EARTH, OR OUTSIDE ATMOSPHERE.
17. SEAL WITH MASTIC SEALANT WHERE WALL IS EXPOSED TO LIQUID, EARTH, OR AN EXPLOSION HAZARD AREA.



FOR NEW WALLS
TYPE E PIPE PENETRATION

DETAIL E/VAR

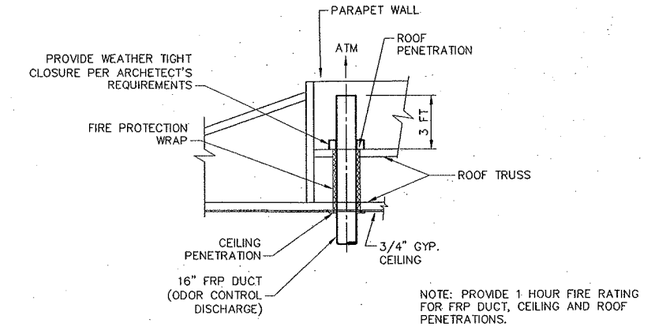
NO SCALE



FOR WALLS, FLOORS AND CEILINGS
TYPE K PIPE PENETRATION

DETAIL F/VAR

NO SCALE



NOTE: PROVIDE 1 HOUR FIRE RATING FOR FRP DUCT, CEILING AND ROOF PENETRATIONS.

FIRE RESISTANT PENETRATION

DETAIL G/VAR

NO SCALE

PIPE PENETRATION TYPES

	CONDITION		TYPE		
	FROM	TO	STEEL PIPE	CAST IRON	PLASTIC PIPE
1	TANK	TANK BELOW W.S.	D,E,H, OR K	D,E,F,G, OR J	D OR E
2	TANK	TANK ABOVE W.S.	D OR E	D OR E	D OR E
3	PASSAGE	TANK BELOW W.S.	E,H, OR K	E,F,G, OR J	E
4	PASSAGE	TANK ABOVE W.S.	A,C,D, OR E	A,C,D, OR E	A,C,D, OR E
5	PASSAGE	PASSAGE	B OR C SEE NOTE 6	B OR C SEE NOTE 6	B OR C SEE NOTE 6
6	PASSAGE	OUTSIDE WALL	D OR E	D,E, OR G	D OR E
7	PASSAGE	ROOF	AS SHOWN		
8	TANK	OUTSIDE WALL	D,E, OR F	D,E,F, OR G	D OR E

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Professional Engineering Consultants
McCLELLAND VAN SICKLE & PERRY
BROWN AND CALDWELL

SUBMITTED: [signature] DATE: 11/01
APPROVED: [signature] DATE: 11/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY STD
DESIGNED BY STD
CHECKED BY DAM
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REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01

ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

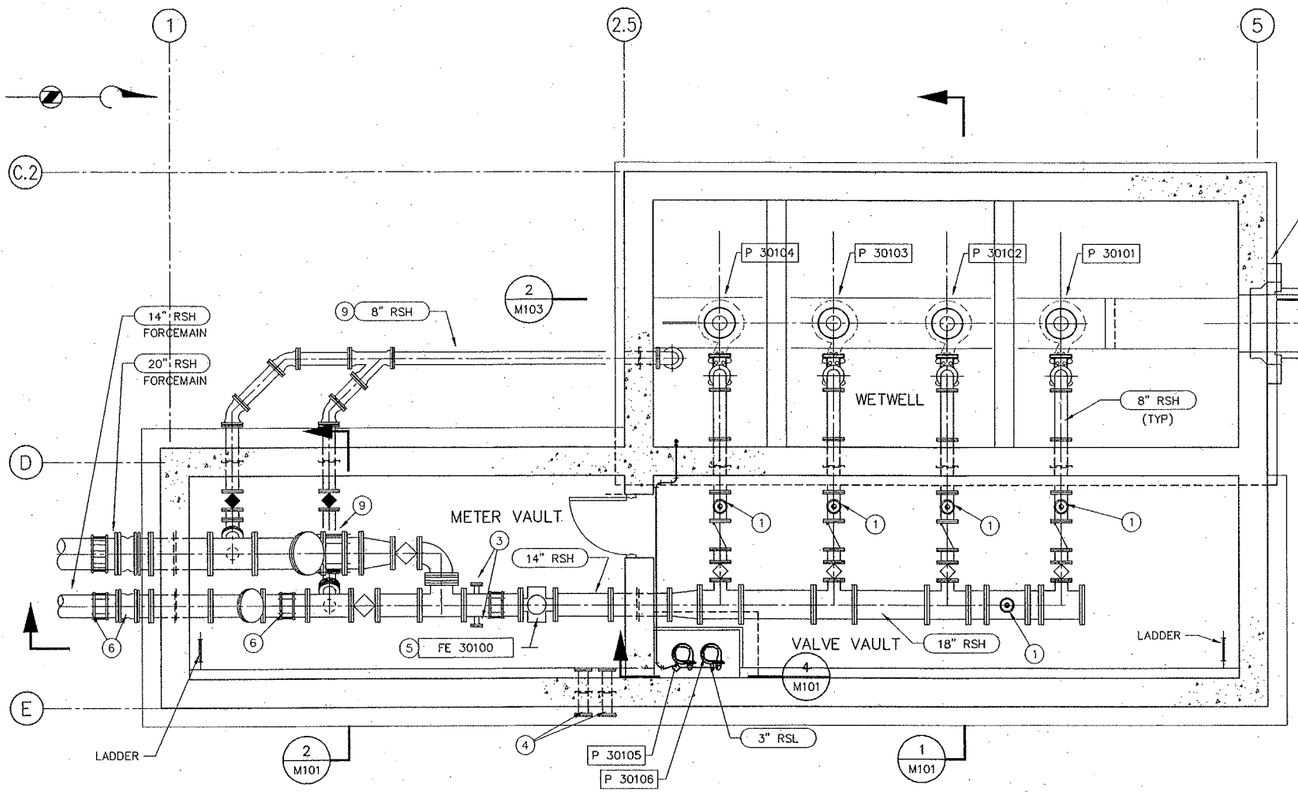
MECHANICAL

PIPE PENETRATIONS

CADFILE M18253m56
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. M4

SHEET NUMBER 51 OF 79

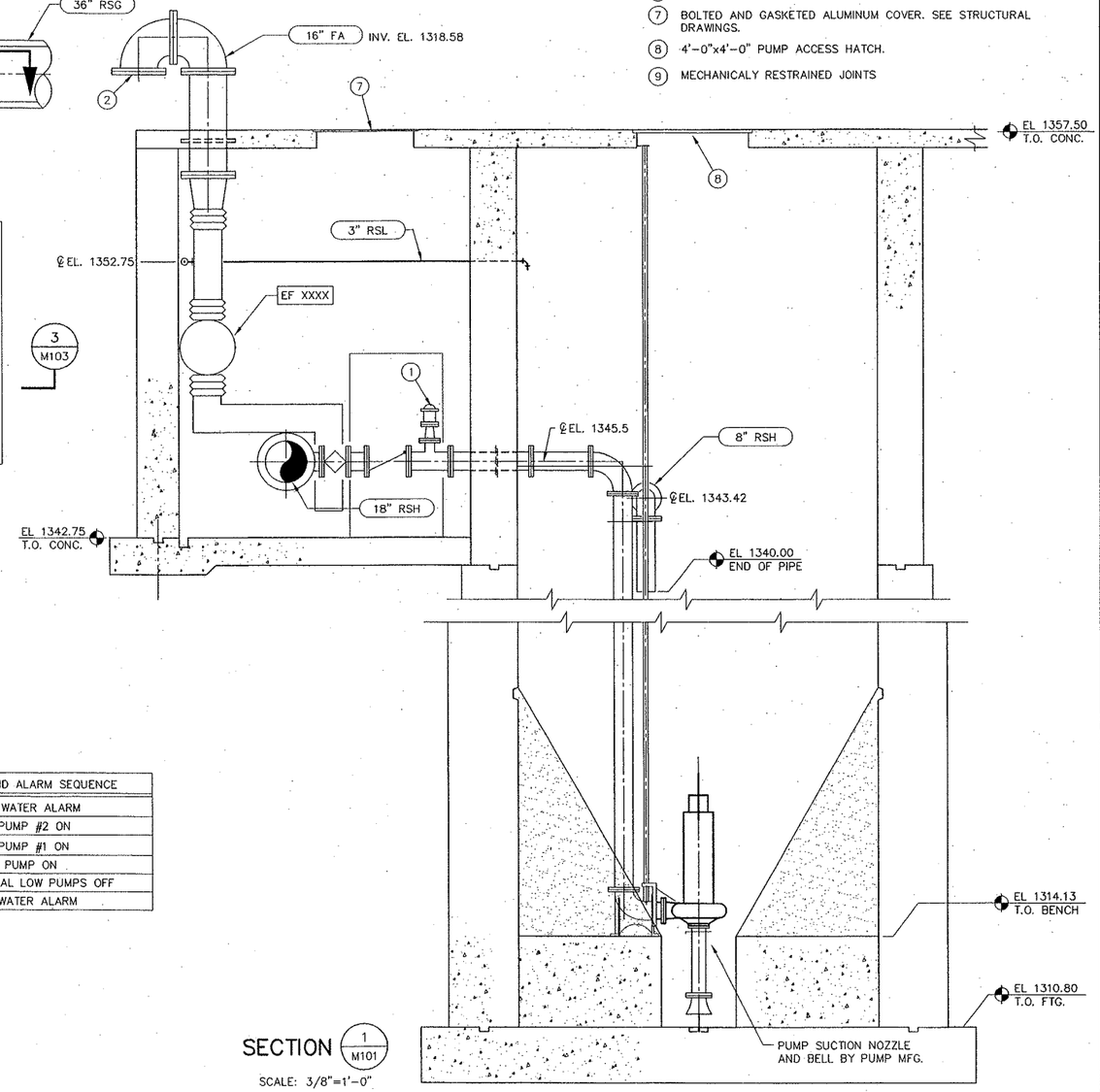


PLAN AT WETWELL, VALVE VAULT AND METER VAULT

SCALE: 1/4"=1'-0"

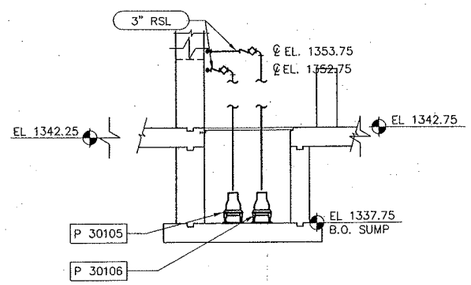
KEY NOTES:

1. RELIEF VALVE.
2. PROVIDE STAINLESS STEEL BIRD SCREEN (1/4"x1/4" OPENINGS).
3. PROVIDE 2 1/2" FLANGED TAP AT SPRING LINE OF PIPE. PROVIDE BLIND FLANGE.
4. PROVIDE 6" WALL PENETRATION. EXTEND 4" MIN. BEYOND FACE OF WALL. CENTERLINE EL. 1354.50. PROVIDE GASKET AND BLIND FLANGE EACH END.
5. PROVIDE FLANGED SPOOL PIECE TO BE USED IN PLACE OF METER. LOCATE IN PIT AND PROVIDE STORAGE BLOCKS.
6. PROVIDE DRESSER TYPE COUPLING. TYPICAL WHERE SHOWN.
7. BOLTED AND GASKETED ALUMINUM COVER. SEE STRUCTURAL DRAWINGS.
8. 4'-0"x4'-0" PUMP ACCESS HATCH.
9. MECHANICALY RESTRAINED JOINTS



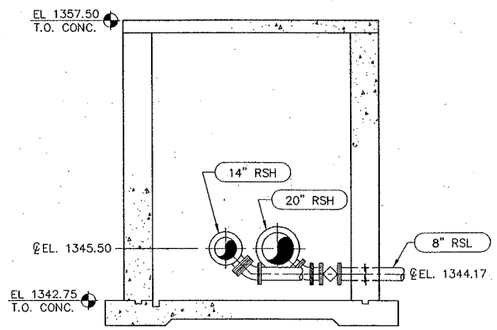
SECTION 1 / M101

SCALE: 3/8"=1'-0"



SECTION 4 / M101

SCALE: 1/4"=1'-0"



SECTION 2 / M101

SCALE: 1/4"=1'-0"

PUMP OPERATION AND ALARM SEQUENCE
EL. 1321.08 – HIGH WATER ALARM
EL. 1320.48 – LAG PUMP #2 ON
EL. 1320.28 – LAG PUMP #1 ON
EL. 1320.08 – LEAD PUMP ON
EL. 1319.48 – NORMAL LOW PUMPS OFF
EL. 1318.50 – LOW WATER ALARM

BROWN AND CALDWELL

McCLELLAND VAN SICKLE & PERRY — Professional Engineering Consultants

SUBMITTED: _____ PROJECT MANAGER DATE: 11/01

APPROVED: _____ BROWN AND CALDWELL DATE: 11/01

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"–SCALE ACCORDINGLY)

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REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15931 — 11/16/01 — KANSAS

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ZONE	REV.	DESCRIPTION	BY	DATE	APP.
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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

MECHANICAL

WETWELL, VALVE VAULT AND METER VAULT – PLAN AND SECTION

CADFILE m18253m51
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. M101

SHEET NUMBER 52 OF 79

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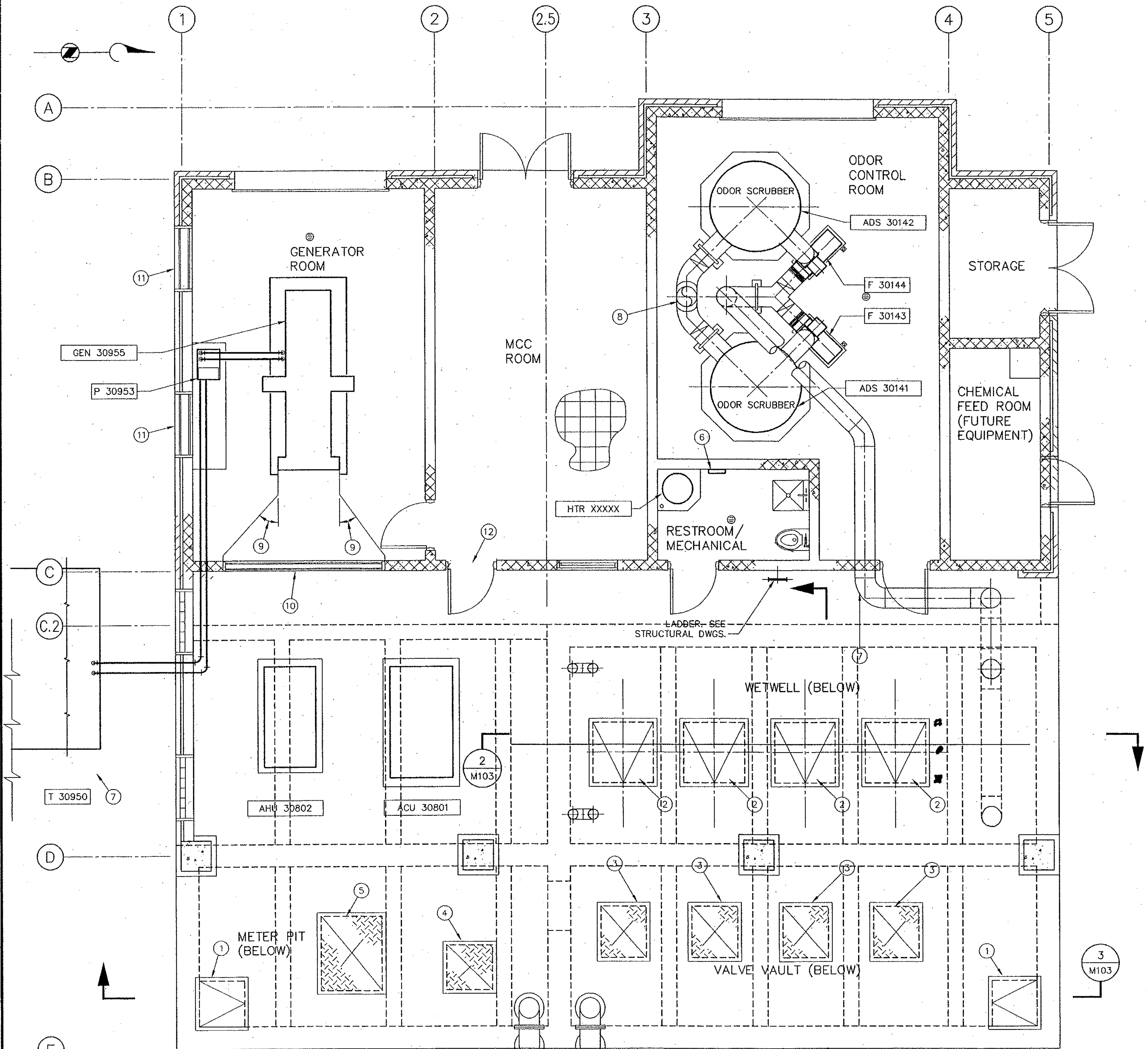
M_WWPLAN
M_WWSEC
S_WWSEC

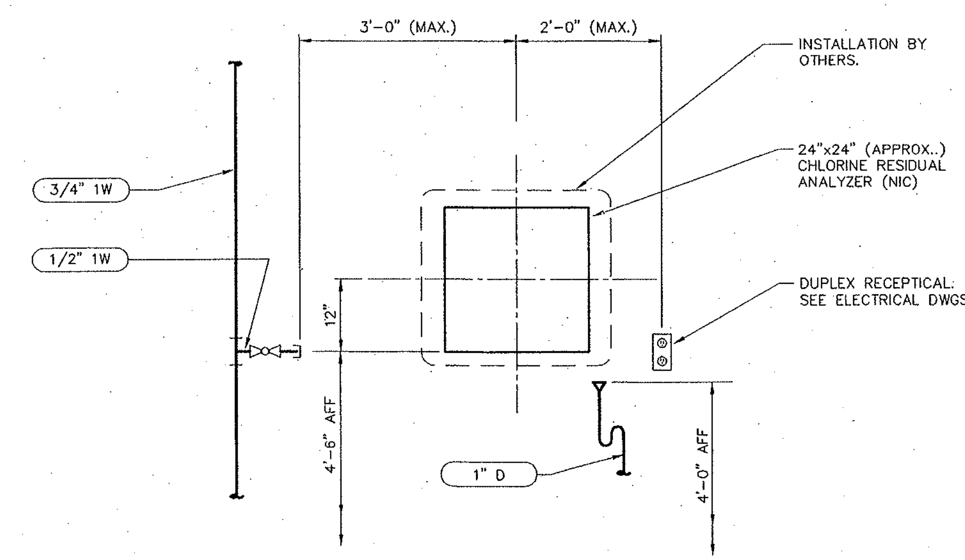


PLAN AT GRADE

SCALE: 1/4"=1'-0"

KEY NOTES:

1. 3'-0"x3'-0" ACCESS HATCH.
2. 4'-0"x4'-0" PUMP ACCESS HATCH.
3. 3'-0"x3'-6" BOLTED AND GASKETED COVER PLATE FOR VALVE ACCESS. SEE STRUCTURAL DRAWINGS.
4. 3'-0"x3'-0" BOLTED AND GASKETED COVER PLATE FOR FLOW METER ACCESS. SEE STRUCTURAL DRAWINGS.
5. 4'-0"x5'-0" BOLTED AND GASKETED COVER PLATE FOR VALVE ACCESS. SEE STRUCTURAL DRAWINGS.
6. CHLORINE ANALYZER. SEE DETAIL A/M102.
7. FUEL STORAGE TANK. SEE DETAILS C/M104 AND D/M104.
8. FA DUCT TO ROOF.
9. EXHAUST DUCT TO LOUVERS. COORDINATE EQUIPMENT LOCATION TO MAINTAIN AN ANGLE OF 45° OR LESS.
10. EXHAUST LOUVERS, AS SPECIFIED.
11. INLET LOUVERS, AS SPECIFIED.
12. 24"W X 12"H RETURN GRILL CENTERED OVER DOOR AT 8'-0" ABOVE FINISHED FLOOR.



NOTE: ALL PIPING AND POWER COMPONENTS SHALL BE LOCATED ON THE SAME WALL IN PROXIMITY TO ANALYZER.

CHLORINE RESIDUAL ANALYZER

DETAIL A/M102

SCALE: 3/4"=1'-0"

BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE	18253
DRAWN BY	TDB
DESIGNED BY	DWC
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CHECKED BY	

SUBMITTED: DATE: 11/01
APPROVED: BROWN AND CALDWELL DATE: 11/01
APPROVED: DATE:

REGISTERED PROFESSIONAL ENGINEER DAVID A. MYERS 15931 11/16/01 KANSAS

REVISIONS

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	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

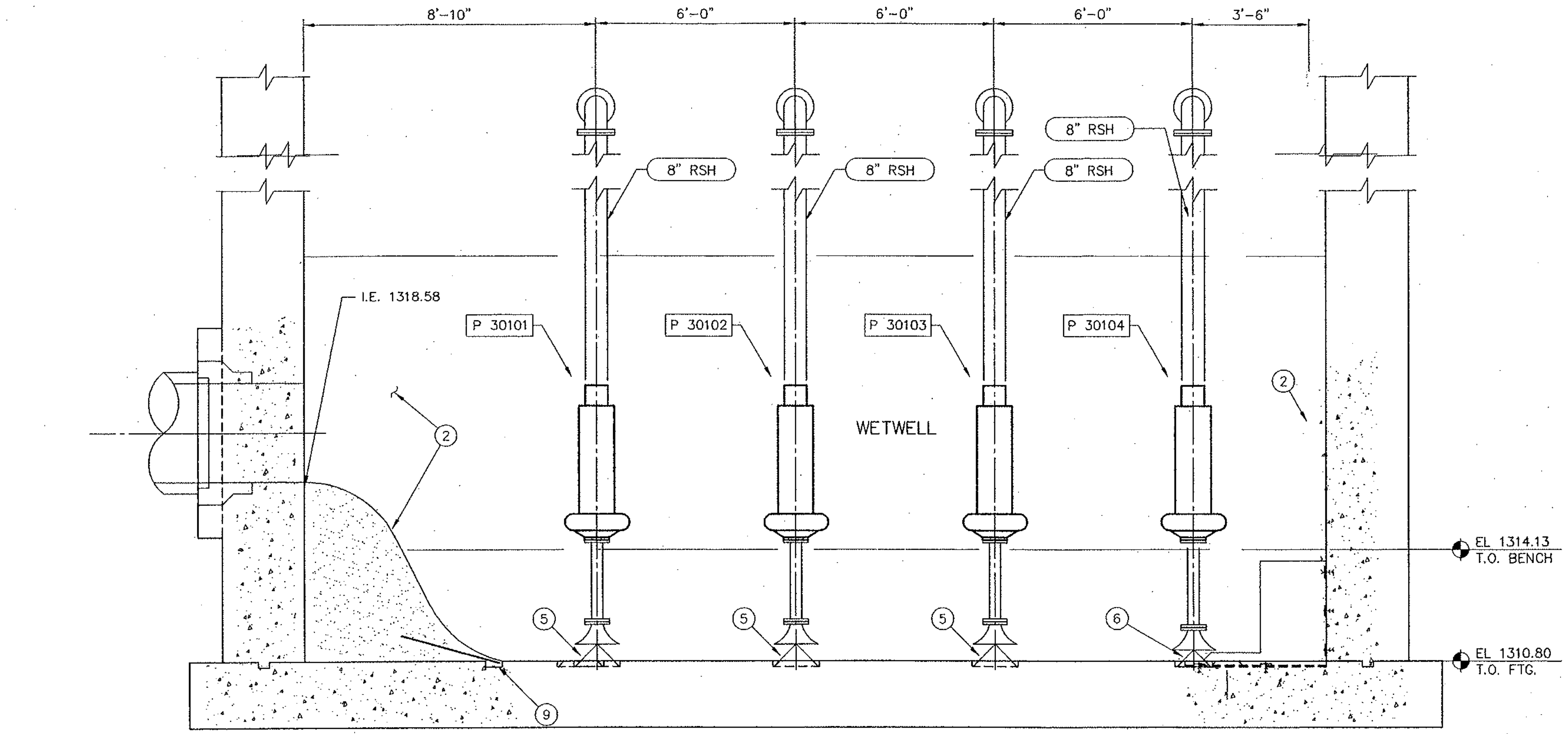
MECHANICAL

GRADE LEVEL PLAN

CADFILE m18253m52
DATE 11-15-01
OPERATOR JHealy

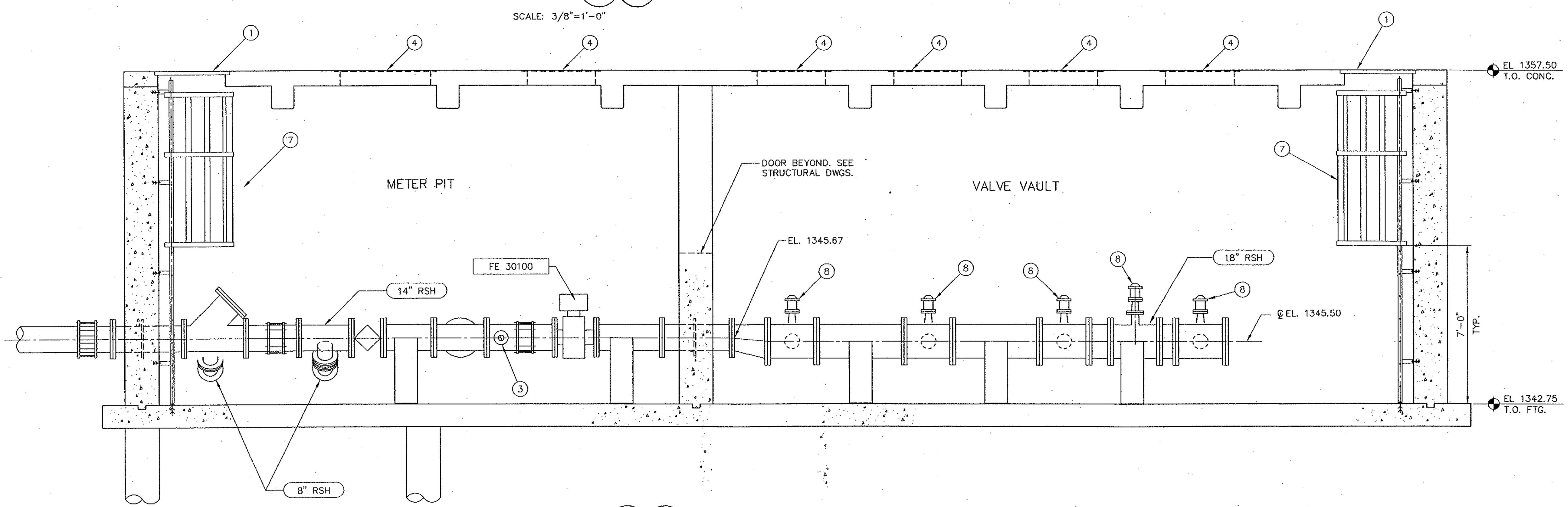
DRAWING NO. M102

SHEET NUMBER 53 OF 79



SECTION 2/M101 2/M102

SCALE: 3/8"=1'-0"



SECTION 3/M101 3/M102

SCALE: 3/8"=1'-0"

KEY NOTES:

1. ACCESS HATCH.
2. SEE STRUCTURAL DWGS FOR RAMP, FILLET, AND LINING CONSTRUCTION.
3. PROVIDE 3" TAP WITH BLIND FLANGE. TYP NEAR SIDE AND FAR SIDE OF PIPE.
4. BOLTED AND GASKETED ACCESS PLATE. SEE PLAN AND STRUCTURAL DRAWING.
5. FLOOR MOUNTED VANE. SEE DETAIL A/M104.
6. STAINLESS STEEL ANTI-VORTEX PLATE AND CONE. SEE DETAIL B/M104.
7. FALL PROTECTION CAGE. SEE DETAIL C/S3.
8. RELIEF VALVE.
9. 2"X6" BLOCKOUT IN FLOOR TO PROVIDE KEY FOR FILLET CONCRETE. SEE SHEET S101.

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BROWN AND CALDWELL

SUBMITTED: PROJECT MANAGER DATE: 11/01

APPROVED: BROWN AND CALDWELL DATE: 11/01

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REVISIONS

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

MECHANICAL

WETWELL, VALVE VAULT AND METER PIT SECTIONS

CADFILE m18253m57
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. M103

SHEET NUMBER 54 OF 79

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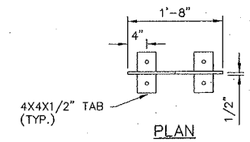
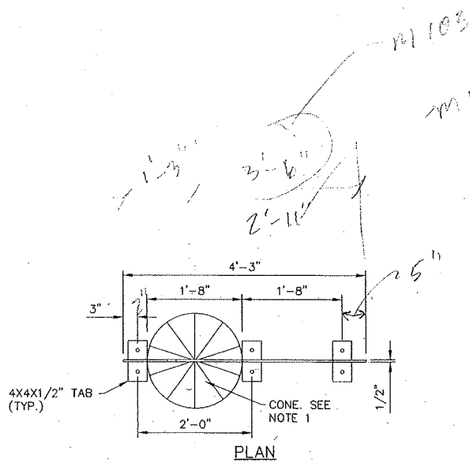
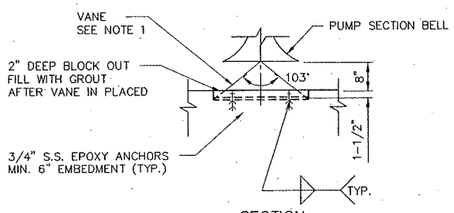


PLAN



PLAN



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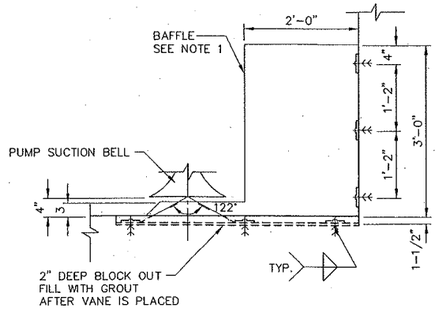


SECTION

NOTE 1: VANE, CONE AND BAFFLE SHALL BE 1/2" 304 S.S. PLATE.

FLOOR VANE

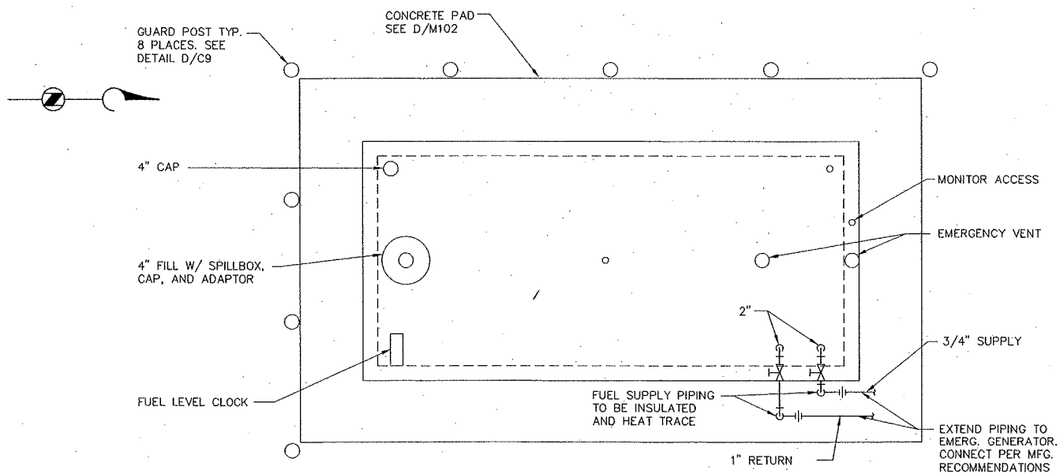
DETAIL A / M103

SCALE: 3/4"=1'-0"

CONE AND BAFFLE

DETAIL B / M103

SCALE: 3/4"=1'-0"



DIESEL FUEL STORAGE TANK

DETAIL C / M102

NO SCALE

BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01

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15831
11/16/01
KANSAS

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

MECHANICAL

WETWELL, VALVE VAULT SECTION AND DETAILS

CADFILE m18253m58
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. M104

SHEET NUMBER 55 OF 79

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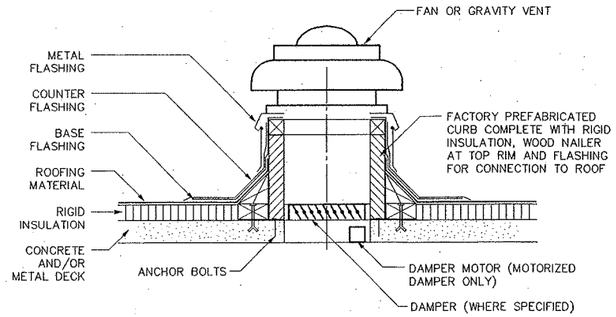
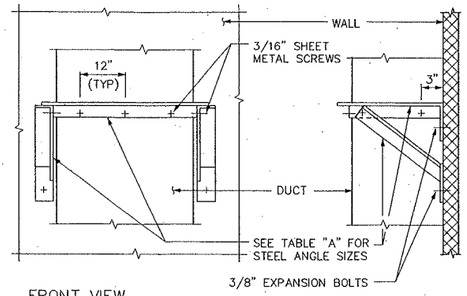


EXHAUST FAN OR GRAVITY VENT MOUNTING

DETAIL A VAR

NO SCALE



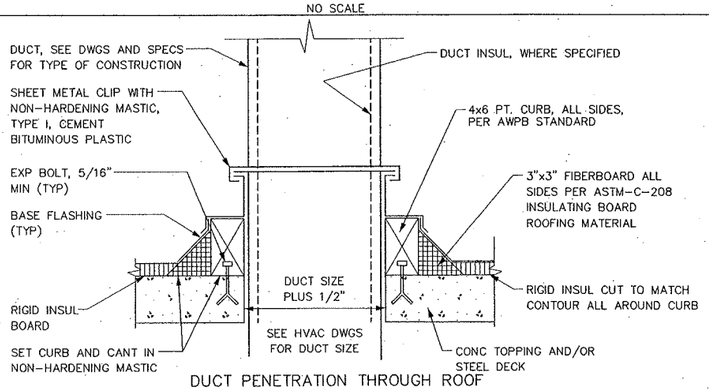
VERTICAL DUCT SUPPORT AT WALL

DETAIL B VAR

NO SCALE

TABLE A

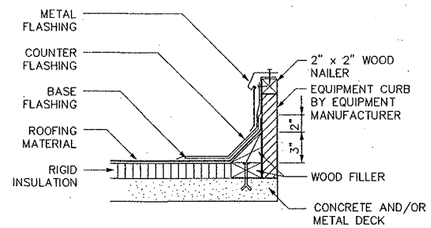
ANGLE SIZING, INCHES	
DUCT SIZE	ANGLE SIZE
36 x 18	1-1/2 x 1-1/2 x 1/8
48 x 24	1-1/2 x 1-1/2 x 1/8
60 x 30	1-1/2 x 1-1/2 x 1/8
OVER 60	2 x 2 x 1/8



DUCT PENETRATION THROUGH ROOF

DETAIL C VAR

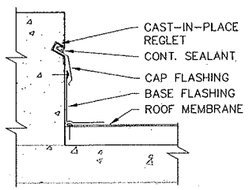
NO SCALE



EQUIPMENT CURB

DETAIL D VAR

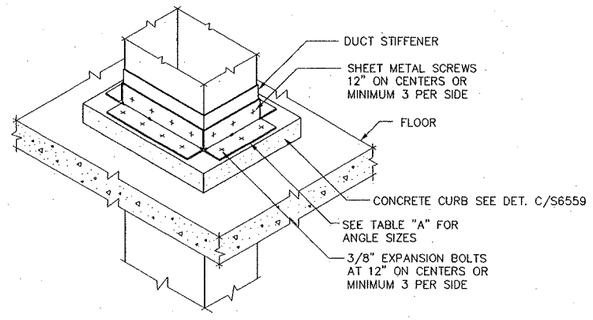
NO SCALE



CONCRETE MOUNTING CURB

DETAIL E VAR

NO SCALE



VERTICAL DUCT SUPPORT AT FLOOR

DETAIL F VAR

NO SCALE

GENERAL HVAC NOTES:

A. ALL VENTILATION SYSTEM DUCTWORK CONSTRUCTION DETAILS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION, (SMACNA) "LOW PRESSURE DUCT CONSTRUCTION STANDARDS" FOR 1 INCH W.C. PRESSURE CLASS.

B. ALL HANDLING CONDITIONED AIR DUCTS SHALL BE INSULATED. DUCTWORK INSULATION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.

C. DUCT SUPPORTS SHALL BE IN ACCORDANCE WITH SMACNA STANDARDS AND DETAILS. WHERE PIPING IS SUPPORTED IN CONJUNCTION WITH DUCTWORK, SUPPORTS SHALL BE SIZED IN ACCORDANCE WITH THE PIPE SUPPORT DETAILS AND THE DUCTWORK TRAPEZE SUPPORTED FROM THE PIPE RACK.

D. LOCATE ALL CEILING GRILLES SYMMETRICALLY IN CENTER AND ALIGNED IN CEILING TILE GRID PATTERN. COORDINATE LIGHTING LOCATIONS.

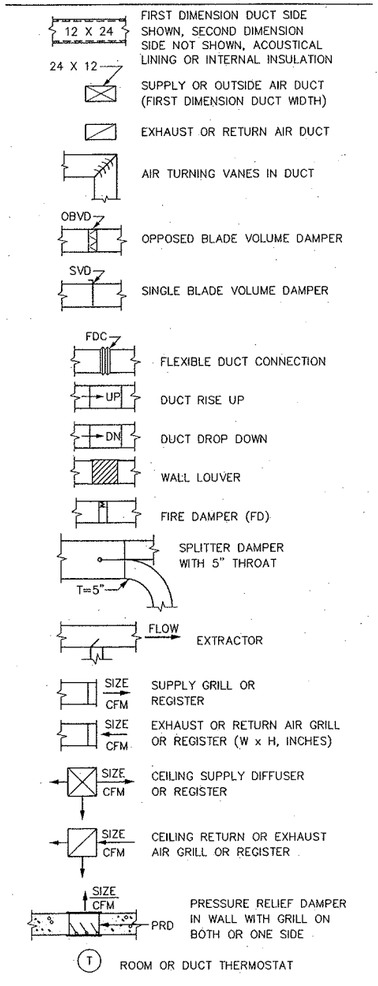
E. IF DUCT DIMENSIONS SHOWN CONFLICT WITH AVAILABLE SPACE, DUCT DIMENSIONS MAY VARY, BUT MUST EQUAL CROSS SECTIONAL AREA OF SIZES SHOWN.

F. ALL BALANCING DAMPERS ARE TO BE INSTALLED IN ACCESSIBLE LOCATIONS.

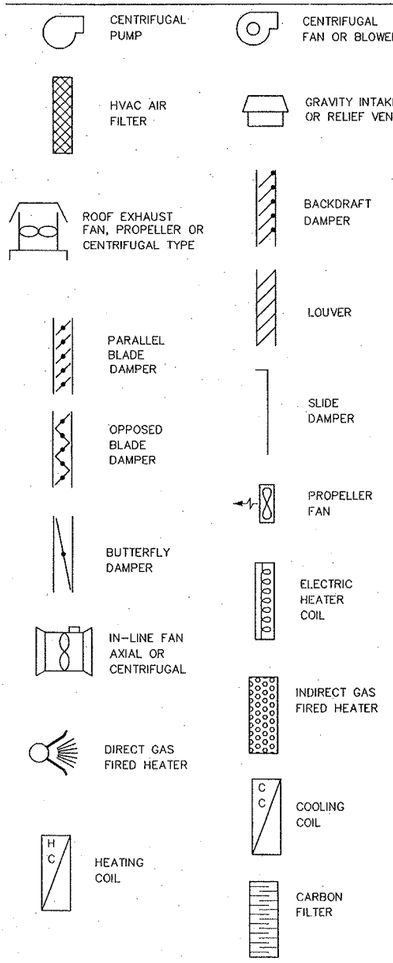
G. FOR HVAC ABBREVIATIONS SEE DWG G2.

H. PROVIDE 2"ø VELOCITY PORTS (VP) ON THE SUCTION AND DISCHARGE OF EACH FAN & CAP.

STANDARD HVAC DESIGNATIONS



MECHANICAL SYMBOLS



BROWN AND CALDWELL

McCULLOUGH VAN SICKLE & PERRY

Professional Engineering Consultants

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

HVAC

HAVC STANDARD DETAILS AND SYMBOLS

CADFILE H18253m54
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. H1

SHEET NUMBER 56 OF 79

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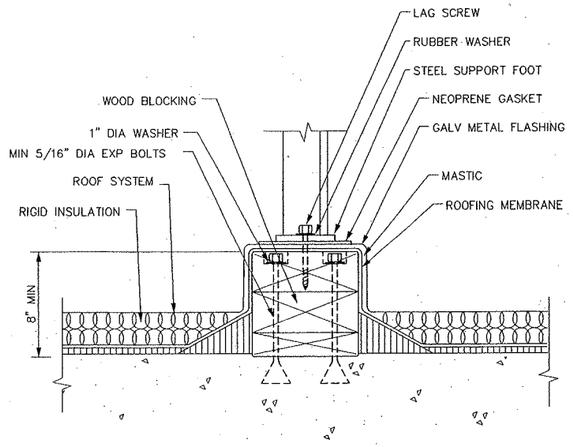
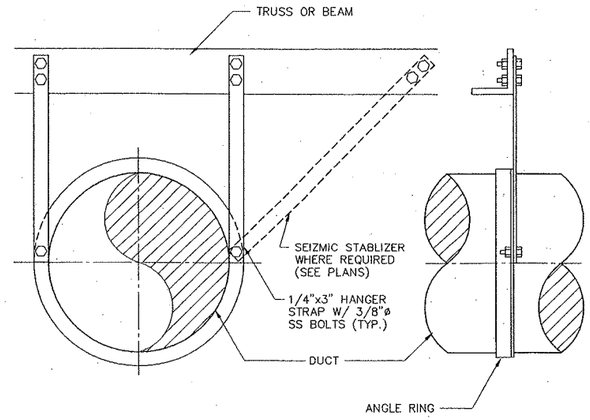


MOUNTING SUPPORT FOR CONCRETE ROOF

DETAIL A/VAR

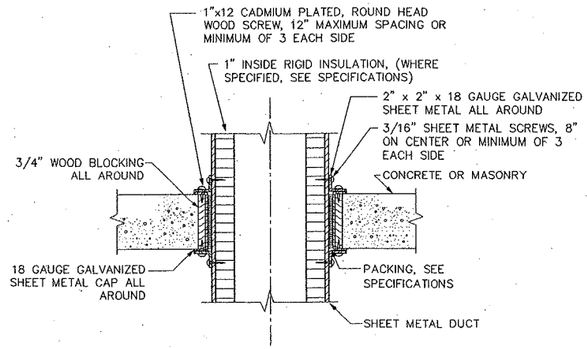
NO SCALE



DUCT HANGER

DETAIL B/VAR

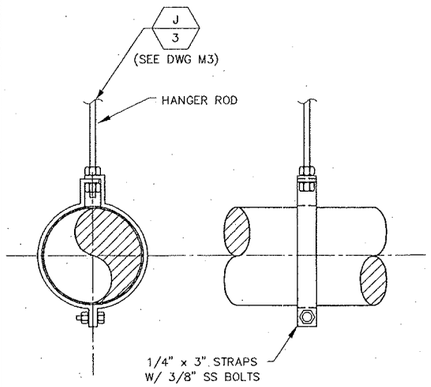
NO SCALE



DUCT PENETRATION THROUGH
EXTERIOR CONCRETE OR MASONRY WALLS

DETAIL C/VAR

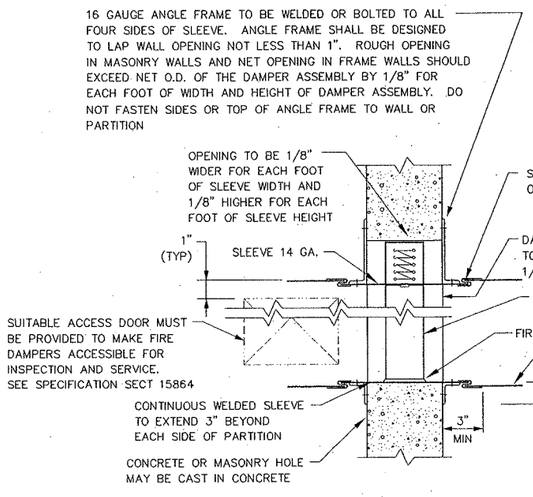
NO SCALE



ROUND DUCT HANGER

DETAIL D/VAR

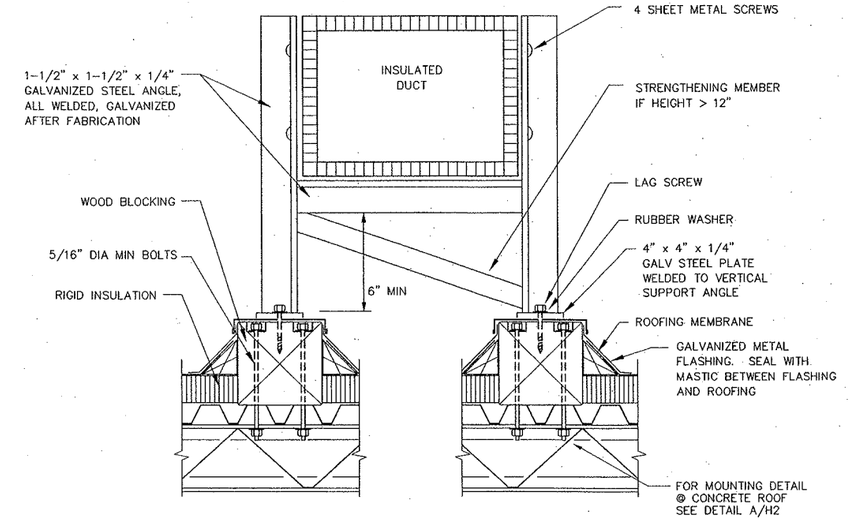
NO SCALE



FIRE DAMPER MOUNTING
THROUGH CONCRETE OR MASONRY

DETAIL E/VAR

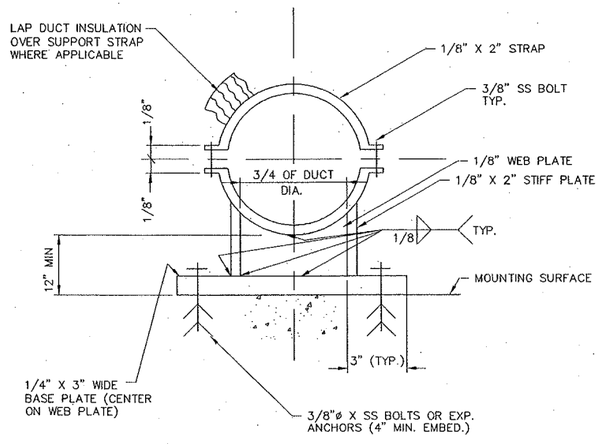
NO SCALE



ROOFTOP RECTANGULAR DUCT SUPPORT
STEEL TRUSS ROOF

DETAIL F/VAR

NO SCALE



ALL MATERIAL TO BE ALUMINUM UNLESS NOTED OTHERWISE

ROUND DUCT SUPPORT

DETAIL G/VAR

NO SCALE

Professional Engineering Consultants

McCLURG VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01
PROJECT MANAGER
APPROVED: _____ DATE: 11/01
BROWN AND CALDWELL
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY STD
DESIGNED BY SDJ/DWC
CHECKED BY DAM
CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

HVAC

TYPICAL DETAILS – 1

CADFILE H18253m55
DATE 11-13-01
OPERATOR TBreder

DRAWING NO.
H2

SHEET NUMBER
57 OF 79

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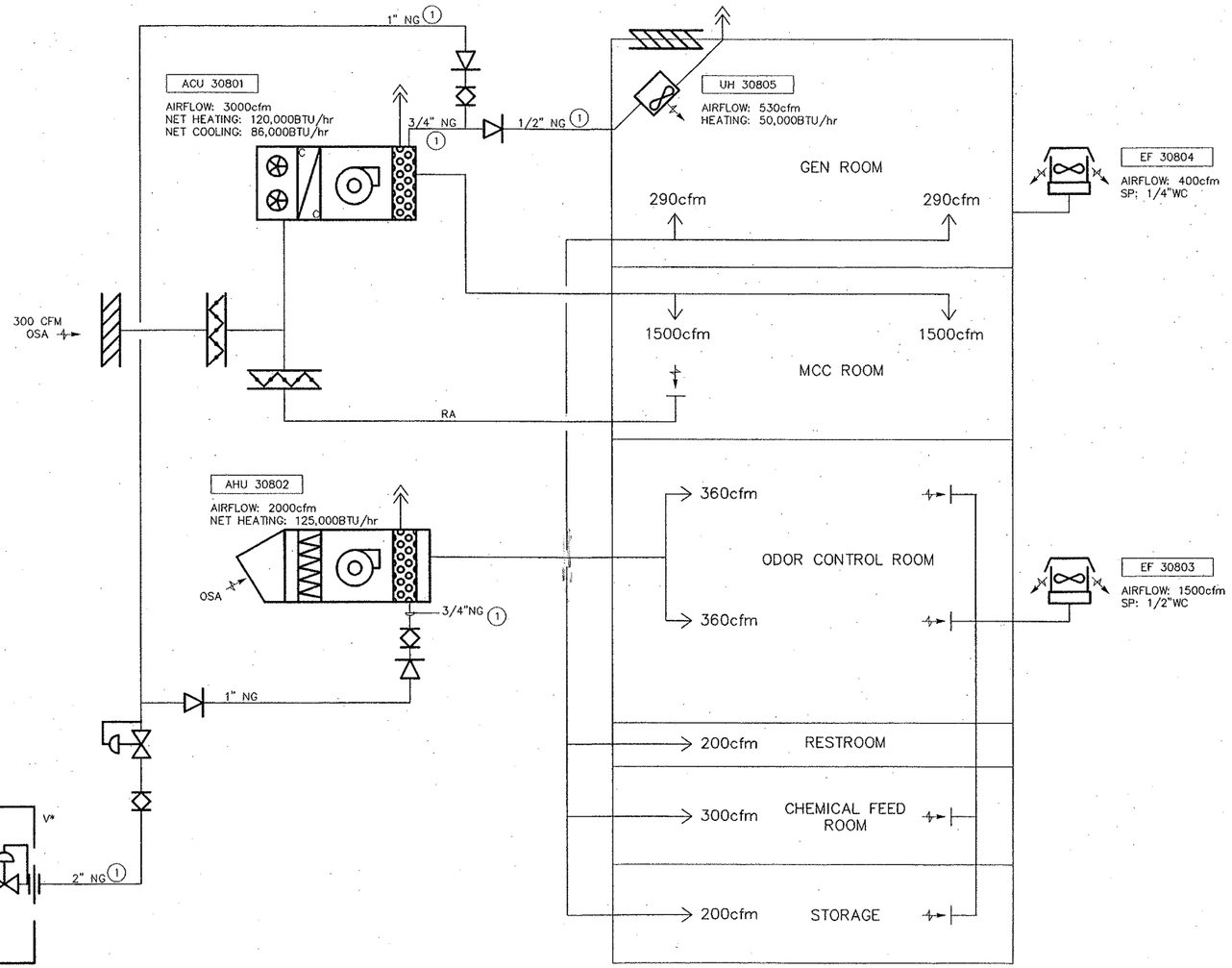
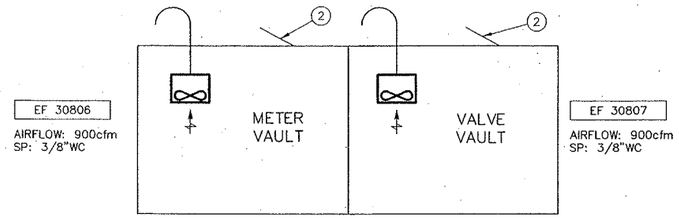
NOTES:

1. PROPANE PROVIDED IN LIEU OF NATURAL GAS (NG). ALL DEVICES SHALL BE READILY CONVERTABLE TO NG.
2. INLET FLOW PATH THROUGH OPEN HATCH.
3. SHEETMEDAL CONTRACTOR TO PROVIDE BALANCING DAMPERS IN ALL DUCT LEGS.





BROWN AND CALDWELL
McCLUGAGE VAN SICKLE & PERRY
Professional Engineering Consultants

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 11/01
APPROVED: _____ DATE: _____

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FILE 18253
DRAWN BY GAM
DESIGNED BY SJD
CHECKED BY DAM
CHECKED BY _____

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

HVAC

HVAC SCHEMATIC

CADFILE H18253m51
DATE 11-13-01
OPERATOR TBreder

DRAWING NO.
H101
SHEET NUMBER
58 OF 79

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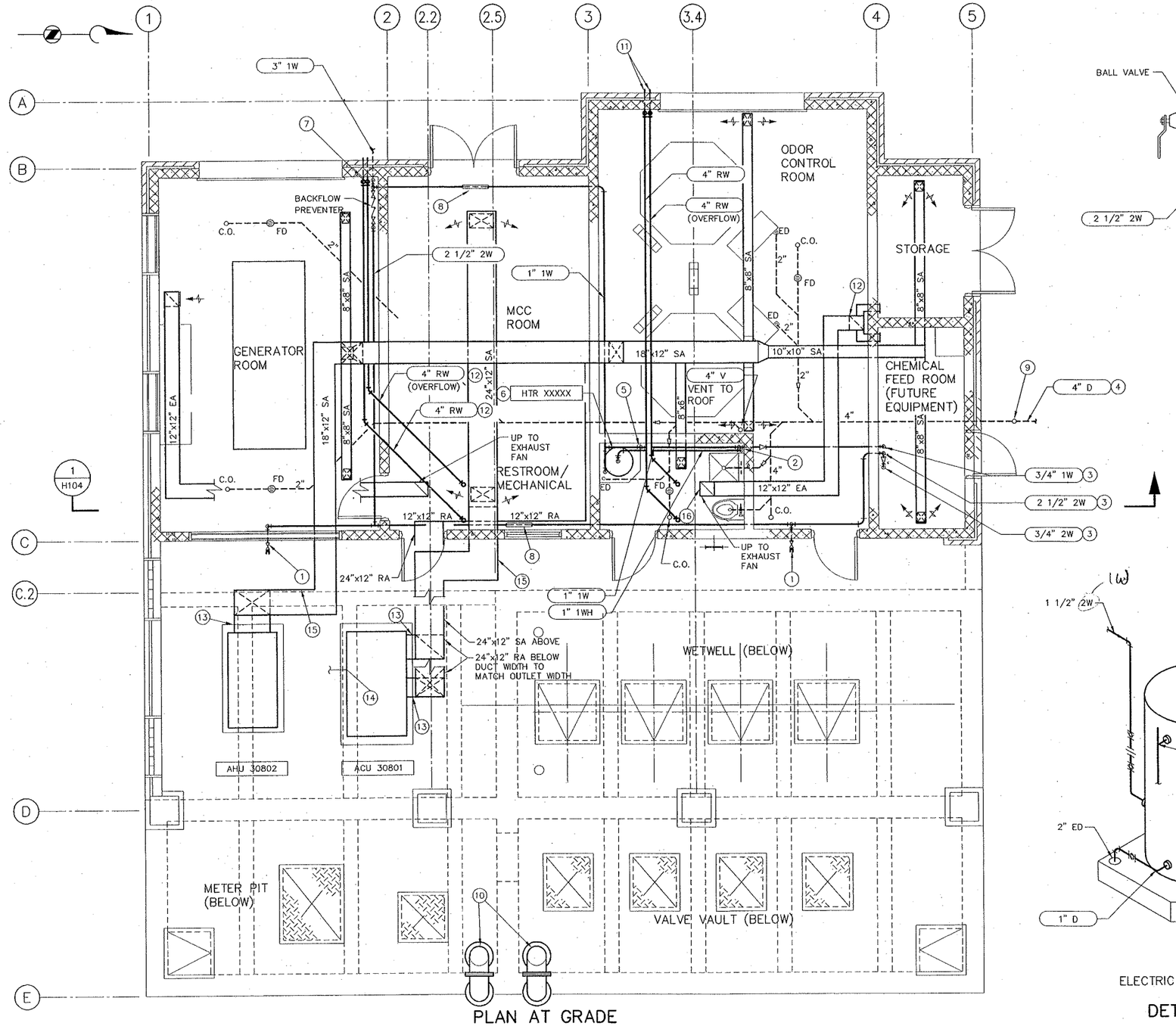
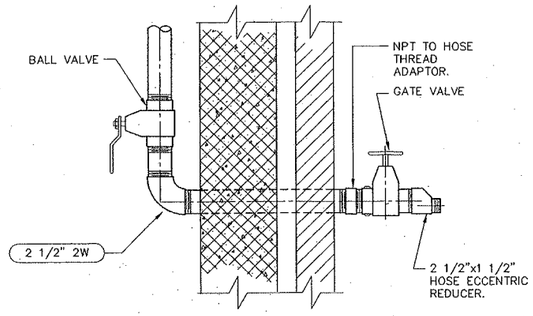


PLAN AT GRADE

SCALE: 1/4"=1'-0"



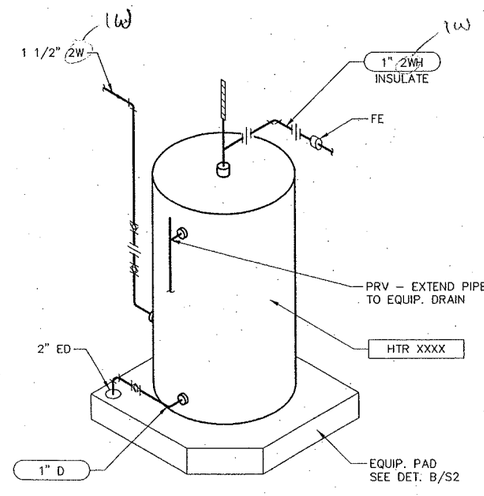
FIRE WATER NOZZLE

DETAIL A / H103

SCALE: 3/4"=1'-0"

KEY NOTES:

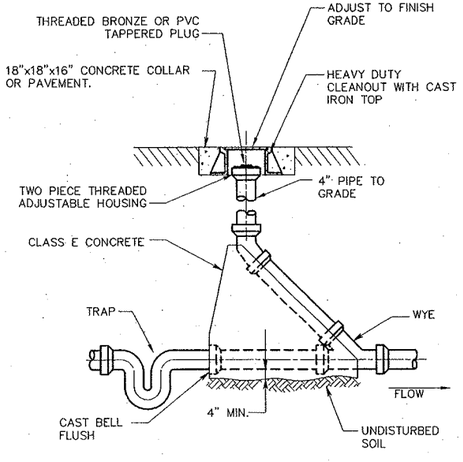
1. FIRE WATER NOZZLE. SEE DETAIL A/H103.
2. ROUTE 1" 2WH TO SINK. ROUTE 1" 2W TO SINK AND TOILET.
3. ENDTEND TO 42" ABOVE FINISHED FLOOR. PROVIDE ISOLATION VALVE AND PLUG OR CAP.
4. ROUTE TO MANHOLE 1. SEE SHEET 2.
5. EXTEND 1" 1W TO CHLORINE ANALYZER SEE DETAIL A/M102.
6. SEE DETAIL B/H103.
7. REDUCE TO 1" AND PROVIDE ISOLATION VALVE IN VERTICAL.
8. ALL PIPING IN MCC ROOM SHALL BE DOUBLE WALLED.
9. COMBINATION TRAP/CLEANOUT. SEE DETAIL C/H103.
10. EXHAUST FAN DISCHARGE. SEE DETAIL A/H104.
11. ROUTE RAIN WATER PIPE THROUGH WALL APPROX. 12" ABOVE FINISHED GRADE. PROVIDE CONCRETE SPLASH BLOCK.
12. RAIN WATER PIPING SHALL BE ROUTED ABOVE FINISHED CEILING IN AREA OF MCC ROOM
13. DUCT FLEXIBLE CONNECTION.
14. COOLING COIL CONDENSATE DRAIN.
15. MINIMUM DUCT HEIGHT 10' ABOVE GRADE TO BOTTOM OF DUCT.
16. CONNECT RESTROOM VENT TO EXHAUST DUCT RISER.



ELECTRIC WATER HEATER

DETAIL B / H103

SCALE: 3/4"=1'-0"



COMBINATION TRAP/CLEANOUT

DETAIL C / H103

NO SCALE

Professional Engineering Consultants

BROWN AND CALDWELL

McCLUGGAGE VAN SICKLE & PERRY

SUBMITTED: _____ DATE: 11/01

APPROVED: _____ DATE: 11/01

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY TDB
DESIGNED BY SJD/DWC
CHECKED BY DAM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15631 — 11/8/01 — KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

HVAC

HVAC AND PLUMBING PLAN

CADFILE H18253m53
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. H103

SHEET NUMBER 59 OF 79

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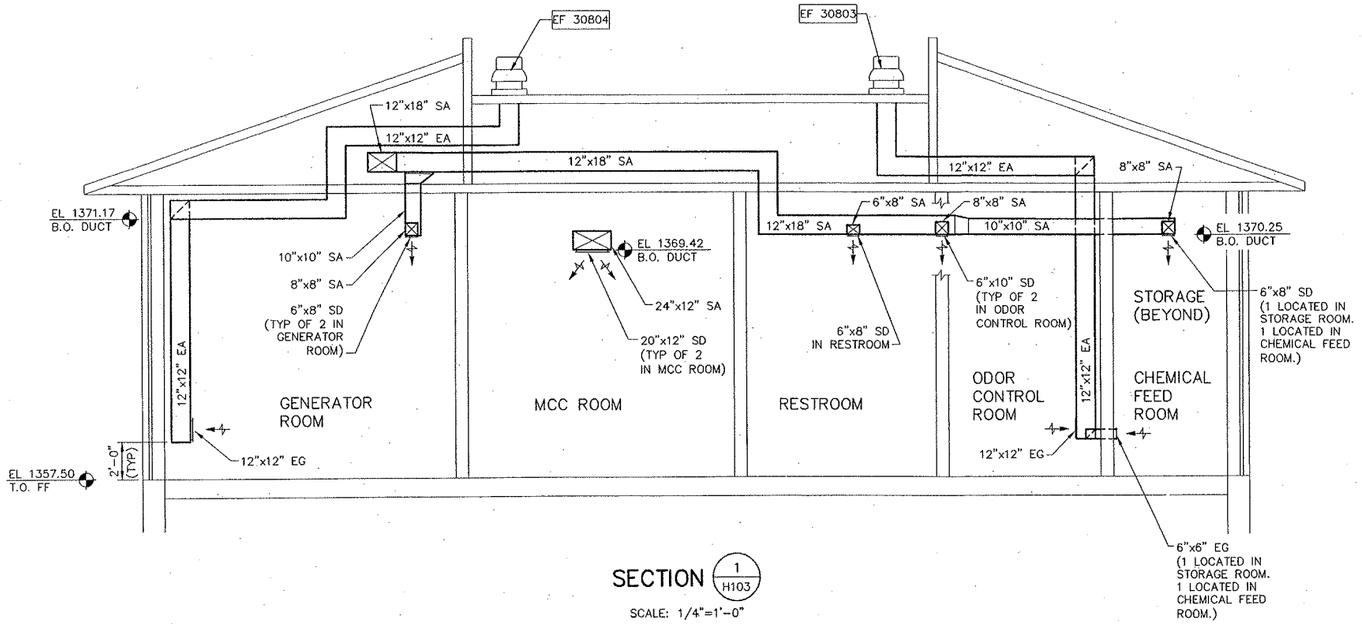
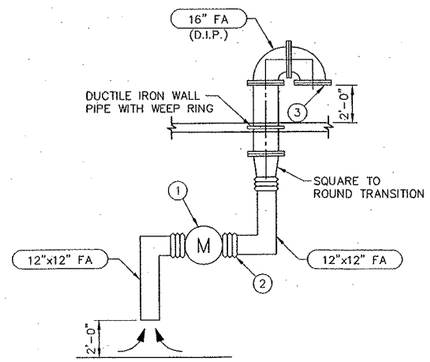


SECTION 1/H103

SCALE: 1/4"=1'-0"

KEY NOTES:

1. CENTRIFUGAL SQUARE INTAKE FAN EX. 30806 EX. 30807.
2. DUCT FLEXIBLE CONNECTION JOINT. (TYP.)
3. PROVIDE 304 STAINLESS STEEL 1/2" EXPANDED METAL SCREEN BETWEEN BOLTED FLANGES.



VAULT/METER PIT VENTILATION

DETAIL A/H103

NTS

PATH: (bcden01) P:\CAD\OWCHITA\18253\ WICHTBLK S_GRDPLAN H-P_GRDPLAN

Professional Engineering Consultants

McCLURG VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED: DATE: 11/01

APPROVED: DATE: 11/01

APPROVED: DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY TDB
DESIGNED BY SJD/DWC
CHECKED BY DAM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

HVAC

HVAC SECTION AND DETAIL

CADFILE H18253m56
DATE 11-13-01
OPERATOR TBreder

DRAWING NO. H104

SHEET NUMBER 60 OF 79

PLAN DRAWINGS:

CIRCUIT AND RACEWAY SYMBOLS:

- RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL BELOW CEILING, EXPOSED UON.
- RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL. CONCEALED IN WALL OR ABOVE CEILING UON.
- RACEWAY OR WIRING SYSTEM IN OR UNDER FLOOR, OR CONCEALED IN OR BEHIND STRUCTURE OR EQUIPMENT, OR CONDUIT ROUTED BELOW GRADE IN CONCRETE ENCASEMENT.
- HOME RUN; DESIGNATIONS INDICATE A ONE-LINE DIAGRAM OR PANELBOARD SCHEDULE REFERENCE
- MCC 8101 — EXAMPLE: HOMERUN TO MOTOR CONTROL CENTER MCC 8101. REFER TO ONE-LINE FOR CABLE AND RACEWAY REQUIREMENTS.
- RACEWAY OR WIRING SYSTEM TURNED TOWARD THE VIEWER (UP ON PLAN DRAWINGS)
- RACEWAY OR WIRING SYSTEM TURNED AWAY FROM THE VIEWER (DOWN ON PLAN DRAWINGS)
- RACEWAY OR WIRING SYSTEM CHANGE IN ELEVATION OR DISTANCE FROM VIEWER
- CONDUIT STUB AND CAP
- SHH23 — SIGNAL (S) OR LOW VOLTAGE (L), HANDHOLE (HH) OR MANHOLE (MH) WITH DESIGNATION. EXAMPLE: SIGNAL HANDHOLE NUMBER 23.
- JB 2700A — JUNCTION BOX WITH OPTIONAL IDENTIFIER.
- JUNCTION BOX, WALL MOUNTED.
- TB 1035 — TERMINAL BOX WITH OPTIONAL IDENTIFIER EXAMPLE: TERMINAL BOX #1035

GROUNDING SYMBOLS:

- GROUND ROD
- GROUND ROD AND WELL
- GROUND CONNECTION
- G — G — GROUNDING CONDUCTOR
- G — EQUIPMENT GROUND PLATE

GENERAL LINEWORK:

- NEW WORK
- OR — EXISTING TO REMAIN
- NEW WORK BY OTHER DISCIPLINES
- EXISTING TO BE REMOVED
- NEW EQUIPMENT OR PACKAGE BOUNDARY
- (1) — KEY NOTE DESIGNATOR. REFERENCE CORRESPONDING KEY NOTE ON THE DRAWING

TELEPHONE/DATA SYSTEM SYMBOLS:

GENERAL:
UNLESS OTHERWISE NOTED, TELEPHONE AND DATA OUTLETS SHALL BE MOUNTED AT SAME HEIGHT AS RECEPTACLES.

- EXTERNAL LINE OR PLANT PHONE SYSTEM OUTLET
- TELEPHONE/DATA OUTLET

LIGHTING SYMBOLS:

NOTE: LIGHTING FIXTURE SHAPES AND SCALE ARE REPRESENTED WHERE POSSIBLE. THE EXAMPLES SHOWN BELOW ARE TYPICAL APPLICATIONS.

- A / 8'6" — FIXTURE TYPE IDENTIFIER. TYPE APPLIES TO FIXTURES OF THE SAME SHAPE WITHIN A ROOM OR AN AREA U.O.N. REFER TO LIGHTING FIXTURE SCHEDULE
- MOUNTING HEIGHT, FLOOR TO BOTTOM OF FIXTURE, IF LEFT BLANK, FIXTURE SHALL BE MOUNTED AT HEIGHT INDICATED IN THE FIXTURE SCHEDULE.

FLUORESCENT FIXTURES:

- RECESSED OR SURFACE MOUNTED FIXTURE
- SUSPENDED PENDANT MOUNTED FIXTURE

INCANDESCENT/HID FIXTURES:

- RECESSED, SURFACE OR PENDANT
- WALL MOUNTED
- DIRECTIONAL LIGHT
- POLE-MOUNTED AREA LIGHT. ONE POLE AND TWO FIXTURES SHOWN.
- EMERGENCY LIGHTING UNIT, SELF-CONTAINED

EXIT LIGHTS. DARK QUADRANTS INDICATE FACES ILLUMINATED:

- SURFACE ON CEILING
- WALL MOUNTED.
- WITH DIRECTIONAL ARROWS

LIGHTING CONTROL AND CIRCUITING:

- 3a / N — LIGHTING CIRCUIT IDENTIFIER: INDICATES CIRCUIT NUMBER AND ASSOCIATED SWITCH. FOR EXAMPLE, 3a INDICATES A FIXTURE POWERED FROM CIRCUIT 3 AND SWITCHED BY SWITCH a.

EMERGENCY LIGHTING FIXTURES, FIXTURES WITH EMERGENCY BALLASTS, AND FIXTURES IDENTIFIED WITH AN 'N' SHALL BE PROVIDED WITH AN UNSWITCHED POWER SOURCE.

CONTRACTOR SHALL PROVIDE ALL CONDUIT AND CONDUCTORS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

- PCU — PHOTOELECTRIC CONTROL UNIT

DISTRIBUTION EQUIPMENT SYMBOLS:

GENERAL:
APPROXIMATE SHAPE AND SCALE REPRESENTED WHERE POSSIBLE HOWEVER EXACT SIZE AND NUMBER OF SECTIONS IS ESTIMATED

- FLOOR-STANDING DISTRIBUTION ASSEMBLY, SUCH AS A SWITCHBOARD, TRANSFORMER, OR MOTOR CONTROL CENTER
  - MCC1100 — EQUIPMENT NUMBER (EXAMPLE)
- WALL-MOUNTED DISTRIBUTION ASSEMBLY, SUCH AS PANELBOARD, MOTOR STARTER PANEL, OR TERMINAL CABINET
  - DP 1200 — EQUIPMENT NUMBER (EXAMPLE)

WIRING DEVICE SYMBOLS:

SWITCHES

GENERAL:
UNLESS OTHERWISE NOTED WIRING DEVICES SHALL BE WALL MOUNTED. FOR MOUNTING HEIGHT SEE SPECS.

- $ — SINGLE POLE SWITCH.
- $$ — GANGED SWITCHES---IN COMMON BOX, WITH COMMON WALL PLATE
- $a/3 — SWITCH SUPERSCRIPT MODIFIER. LOWER CASE LETTER. INDICATES CIRCUIT CONTROLLED---a,b,c,etc. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: 1a, 4b, etc.

SWITCH SUBSCRIPT MODIFIER. UPPER CASE LETTER OR NUMBER:

2	=	DOUBLE POLE
3	=	THREE WAY
4	=	FOUR WAY
K	=	KEY OPERATED
M	=	HORSEPOWER RATED MANUAL STARTER
MC	=	MOMENTARY CONTACT, THREE POSITION
MS	=	MANUAL (MOTOR) STARTER OR SWITCH
R	=	RHEOSTAT (DIMMER, SPEED CONTROL)
F	=	FLUSH MOUNTED

RECEPTACLES:

- 3 / GF — 20 AMP RECEPTACLE; SINGLE STROKE – SINGLE DOUBLE STROKE – DUPLEX.

RECEPTACLE MODIFIERS:

3	=	CIRCUIT NUMBER
C	=	CLOCK HANGER
GF	=	GROUND FAULT CIRCUIT INTERRUPTER
F	=	FLUSH MOUNTED
IG	=	ISOLATED GROUND

- 480V RECEPTACLE
- 10-50R — SPECIAL RECEPTACLE. RATING OR NEMA CONFIGURATION AS SHOWN. EXAMPLE: NEMA 10-50R, 125/250V 3 POLE 3 WIRE, 50 AMP, NON-GROUNDING TYPE.
- RECESSED FLOOR RECEPTACLE---ANY RECEPTACLE INSIDE A SQUARE. eg DUPLEX
- SURFACE FLOOR RECEPTACLE---ANY RECEPTACLE INSIDE A TRIANGLE. eg DUPLEX
- GANGED RECEPTACLES---IN COMMON BOX, WITH COMMON WALL PLATE. eg DUPLEX

MOTOR AND EQUIPMENT SYMBOLS:

- (M) — MOTOR
- MOTOR STARTER, INDIVIDUAL---NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY
- COMBINATION MOTOR STARTER---NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY
- 100A — DISCONNECT, NON-FUSED. 30A, 3 POLE UON. 100A, 3P RATING INDICATED
- F — FUSED DISCONNECT: CLASS R FUSES UON.
- FIELD INSTRUMENT
- CONTROL STATION. CONFIGURATION ACCORDING TO CONTROL DIAGRAMS.
- HS 1311 — EQUIPMENT DESIGNATOR

GENERAL ABBREVIATIONS:

NOTES:

1. IN GENERAL, ABBREVIATIONS USED IN ELECTRICAL DRAWINGS ARE IN ACCORDANCE WITH ANSI Y1.1-1972. ABBREVIATIONS ON THIS SHEET ARE IN ADDITION, OR ARE AMENDMENTS TO ANSI Y1.1-1972 AND ABBREVIATIONS DEFINED ON OTHER DRAWINGS. IN CASE OF CONFLICT THESE ABBREVIATIONS SHALL TAKE PRECEDENCE.
2. THE FOLLOWING ABBREVIATIONS ARE NOT TO BE CONFUSED WITH EQUIPMENT NUMBERING PREFIXES LISTED ON DRAWING G2 OR OTHER CONTRACT DOCUMENTS.

A, AMP	AMP(S), AMPERE(S)	ICOM	INTERCOM	P	POLE, PHASE
AC	ALTERNATING CURRENT	ID	INSIDE DIAMETER	PB	PUSHBUTTON, PULLBOX
ACC	AREA CONTROL CENTER	IMC	INDIVIDUAL MOTOR CONTROLLER	PCP	PROCESS CONTROL PANEL
AFF	ABOVE FINISHED FLOOR	IMC	INTERMEDIATE METAL CONDUIT	PF	POWER FACTOR
AHAP	AS HIGH AS POSSIBLE	INS	INCANDESCENT	PGRS	PLASTIC COATED GALVANIZED RIGID STEEL
AIC	AMPS INTERRUPTING CAPACITY, SYMM.	INTLK	INTERLOCK	PH	PHASE
AL	ALUMINUM	INST	INSTANTANEOUS	PL	PLATE
ARCH	ARCHITECT(URAL)	I/O	INPUT-OUTPUT	PLC	PROGRAMMABLE LOGIC CONTROLLER
ARV	AUTOTRANSFORMER REDUCED VOLTAGE STARTER			PMM	POWER METERING MODULE
ASYM	ASYMMETRICAL	JB	JUNCTION BOX	PNL	PANEL
AUTO	AUTOMATIC			PR	PAIR
AUX	AUXILIARY			PRI	PRIMARY
AWG	AMERICAN WIRE GAUGE	KCMIL	1000 CIRCULAR MIL	PT	POTENTIAL TRANSFORMER
		KV	KILOVOLT	PVC	POLYVINYL CHLORIDE
		KVA	KILOVOLT-AMPERE	PWR	POWER
BC	BARE COPPER	KVAR	KILOVOLT-AMPERE REACTIVE		
BLDG	BUILDING			QSB	QUARTZ STANDBY
BOT	BOTTOM	KW	KILOWATT		
		KWH	KILOWATT-HOUR		
				RECPT	RECEPTACLE
C	CONDUCTOR, CONDUIT			REF	REFERENCE
CB	CIRCUIT BREAKER	L	LONG	REQD	REQUIRED
CKT	CIRCUIT	LCP	LOCAL CONTROL PANEL	RE STL	REINFORCING STEEL
CLG	CEILING	LFS	LIQUIDTIGHT FLEXIBLE STEEL	RMS	ROOT MEAN SQUARE
CM	CENTIMETERS	LHH	LOW VOLTAGE HANDHOLE	RTD	RESISTANCE TEMPERATURE DETECTOR
CND	CONDUIT	LMH	LOW VOLTAGE MANHOLE		
C.O.	CONDUIT ONLY, SPARE	LP	LIGHTING PANEL OR LEGEND PLATE	RTU	REMOTE TERMINAL UNIT
COMP	COMPUTER	LT	LONG TIME		
CONC	CONCRETE	LTG	LIGHTING	SCH	SCHEDULE
CPT	CONTROL POWER TRANSFORMER	LV	LOW VOLTAGE	SCR	SILICON CONTROLLED RECTIFIER
CNTL	CONTROL			SEC	SECONDARY
CT	CURRENT TRANSFORMER			SEL	SELECTOR
CU	COPPER	M	METER	SH	SHIELDED
		MA	MILLIAMPERE	SHH	SIGNAL HANDHOLE
DB	DUCT BANK, DIRECT BURIAL	MBS	MANUAL BYPASS SWITCH	SPEC	SPECIFICATION
		MCC	MOTOR CONTROL CENTER	SPKR	SPEAKER
DC	DIRECT CURRENT, DATA CABLE	MCP	MOTOR CIRCUIT PROTECTOR	SS	STAINLESS STEEL
		MDP	MESSAGE DISPLAY PANEL	SSOL	SOLID STATE OVERLOAD RELAY
DCU	DISTRIBUTED CONTROL UNIT	MECH	MECHANICAL	ST	SHORT TIME
DET	DETAIL	MFR	MANUFACTURE(R)	SUB	SUBSTATION
DIAG	DIAGRAM	MH	MANHOLE	SW	SWITCH
DISC	DISCONNECT	MH	METAL HALIDE	SWBD	SWITCHBOARD
DP	DISTRIBUTION PANEL	MIC	MICROPHONE	SWGR	SWITCHGEAR
DWG	DRAWING	MIS	MANAGEMENT INFORMATION STATION	SYMM	SYMMETRICAL
		MISC	MISCELLANEOUS	SYS	SYSTEM
		MM	MILLIMETER		
EA	EACH	MMH	MEDIUM VOLTAGE MANHOLE	TB	TERMINAL BOX
ECP	EQUIPMENT CONTROL PANEL	MOV	MOTOR OPERATED VALVES	TEL	TELEPHONE
		MTS	MANUAL TRANSFER SWITCH	TEMP	TEMPERATURE
EL	ELEVATION	MV	MILLIVOLT, MEDIUM VOLTAGE	TFR	TRANSFORMER
ELEC	ELECTRIC(AL)	MVMC	MEDIUM VOLTAGE MOTOR CONTROL	TRI	TRIAD
EMER	EMERGENCY			TV	TELEVISION
ENCL	ENCLOSURE/ENCLOSED			TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
EPI	EMERGENCY POWER INTERLOCK	N/A	NOT APPLICABLE	TYP	TYPICAL
EQUIP	EQUIPMENT	N.C.	NORMALLY CLOSED		
EX	EXISTING	NEUT,N	NEUTRAL		
		NF	NON-FUSED	U/G	UNDERGROUND
FDR	FEEDER	NIC	NOT IN CONTRACT	UON	UNLESS OTHERWISE NOTED
FL	FLUORESCENT	N.O.	NORMALLY OPEN	UPS	UNINTERRUPTABLE POWER SUPPLY
FLA	FULL LOAD AMPS	NO.	NUMBER		
FLEX	FLEXIBLE CONDUIT	NOM	NOMINAL		
F.O.	FAIL OPEN	NP	NAMEPLATE	V	VOLT
FO	FIBER OPTIC	NTS	NOT TO SCALE	VA	VOLTAMPERE
FUT	FUTURE			VAR	VOLTAMPERE REACTIVE
		OC	ON CENTER	VC	VACUUM CONTACTOR
GDR	GROUNDING RESISTOR	OCC	OPERATION CONTROL CENTER		
GEC	GROUND ELECTRODE CONDUCTOR	OD	OUTSIDE DIAMETER	XFMR	TRANSFORMER
GF	GROUND FAULT	OH	OVERHEAD	XMTR	TRANSMITTER
GFI	GROUND FAULT INTERRUPTER	OIS	OPERATOR INTERFACE STATION		
GND, G	GROUND	OT	OILTIGHT	W	WATT, WIRE, WIDE
GRS	GALVANIZED, RIGID STEEL	OWS	OPERATOR WORKSTATION	W/	WITH
				W/O	WITHOUT
				WP	WEATHERPROOF
H	HIGH				
HGT	HEIGHT			XP	EXPLOSIONPROOF
HH	HANDHOLE				
HID	HIGH INTENSITY DISCHARGE			Z	IMPEDANCE
HP	HORSEPOWER				
HPS	HIGH PRESSURE SODIUM				
HTR	HEATER				
HV	HIGH VOLTAGE				
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING				
HZ	HERTZ (CYCLES PER SECOND)				

W\CH\TBLK

PATH: (boden01) P:\CAD\OWCHITA\18253\

Professional Engineering Consultants — BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01 (PROJECT MANAGER, BROWN AND CALDWELL)
APPROVED: _____ DATE: 11/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY
DESIGNED BY
CHECKED BY PRELIM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15931 — 11/16/01 — KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

ELECTRICAL

SYMBOLS AND ABBREVIATIONS

CADFILE E8253001
DATE 03-06-01
OPERATOR GMajak

DRAWING NO. E1

SHEET NUMBER 61 OF 79

CONTROL DIAGRAMS:

LINEWORK:

- CONDUCTORS CONNECTED
- CONDUCTORS NOT CONNECTED

MISCELLANEOUS:

- MCP — MAGNETIC-ONLY CIRCUIT BREAKER (MCP)
- 15 AMP — CIRCUIT BREAKER, THERMAL-MAGNETIC UNLESS OTHERWISE NOTED
- FU 2B, 15 AMP — FUSE WITH SIZE AND OPTIONAL IDENTIFICATION.
- FU 3/15 AMP — FUSE WITH BLOWN FUSE INDICATOR.
- DISCONNECT SWITCH.
- MTR — MOTOR (PHASES AS REQUIRED)
- SOLENOID VALVE
- 250W — SPACE HEATER, WATTAGE AS INDICATED.
- 480V / 250VA / 120V — CONTROL TRANSFORMER. PRIMARY AND SECONDARY VOLTAGE SHOWN. SIZE OPTIONAL.
- 50/5 — CURRENT TRANSFORMER. PRIMARY/SECONDARY TURNS RATIO SHOWN (OPTIONAL).
- HORN
- POWER FACTOR CORRECTION CAPACITOR
- MOTOR CONTROLLER FIELD TERMINATION POINT
- PLC I/O POINT

INDICATORS:

SHOWN WITH OPTIONAL LEGEND
X = LENS COLOR
A = AMBER, B = BLUE, G = GREEN, R = RED, W = WHITE

- STATUS — DIRECT CONNECTION
- X1, STATUS — PUSH TO TEST, TEST BUS TERMINAL SHOWN, SHOWN WITH TERMINALS (OPTIONAL)
- TEST, STATUS — REMOTE TEST, TEST BUS TERMINAL SHOWN
- STATUS, DESCRIPTION — BACK-LIT PUSHBUTTON SHOWN WITH TERMINALS (OPTIONAL) OPTIONAL IDENTIFIER SHOWN EXAMPLE : PUSHBUTTON HS 1234

COILS:

SHUNT

- C — LTG CKT #1

a) CONTACTOR COILS WITH OPTIONAL DESCRIPTION OR REF.
EXAMPLE: CONTACTOR COIL FOR LTG CKT #1
C = CONTACTOR, LIGHTING OR GENERAL USE
F = FAST OR FORWARD
IC = ISOLATION CONTACTOR
M = MAIN OR LINE
MO = MOTOR OPERATOR
R = RUN OR REVERSE
S = SLOW OR START
T = TRIP COIL
1M = FIRST MAIN OR WYE
2M = SECOND MAIN OR DELTA

- 10 CR — AUTO ENABLE

b) RELAY COILS WITH NUMERIC PREFIX AND OPTIONAL DESCRIPTION OR REF. EXAMPLE: CONTROL RELAY 10 USED AS AUTO ENABLE.
CR = CONTROL RELAY
LR = LATCHING RELAY
MR = MACHINE TOOL RELAY
TR = TIMING RELAY

- 9 TR — ON or OFF DELAY, RANGE x to xx SEC/MIN, SET AT x SEC/MIN

c) TIME DELAY COIL WITH NUMERIC PREFIX, DELAY ACTION, AND OPTIONAL TIMING RANGE AND SETTING.
EXAMPLE: TIME DELAY RELAY 9TR.

- U / L, 8 LR — d) MECHANICALLY LATCHED RELAY WITH UNLATCH COIL
- SV — SOLENOID VALVE
- SSOL — SOLID STATE OVERLOAD RELAY
- OL — THERMAL OVERLOAD RELAY

METER

- H — METER WITH ALPHA IDENTIFIERS:
  H = ELAPSED TIME
  A = AMMETER
  V = VOLTMETER

MAIN CONTACTS:

- M, SIZE 3 — AIR-BREAK CONTACTOR, NEMA SIZE OPTIONAL.
- M, SIZE 5 — VACUUM CONTACTOR, NEMA SIZE OPTIONAL.
- M — REDUCED VOLTAGE SOLID STATE STARTER COIL

SWITCH OR INTERLOCK CONTACTS:

SHOWN WITH TERMINALS (OPTIONAL)

NORMALLY OPEN (NO) / NORMALLY CLOSED (NC)

- 12CR / 9CR — LINE 12 / LINE 25 — CONTROL RELAY CONTACTS WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION.
- 3TR TC / 4TR TO — LINE 43 / LINE 44 — ON DELAY (DELAY ON COIL ENERGIZATION) RELAY CONTACTS WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION.
  TC = NORMALLY OPEN, TIME CLOSE.
  TO = NORMALLY CLOSED, TIME OPEN.
- 5TR TO / 6TR TC — LINE 45 / LINE 46 — OFF DELAY (DELAY ON COIL DE-ENERGIZATION) RELAY CONTACTS WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION.
  TO = NORMALLY OPEN, TIME OPEN.
  TC = NORMALLY CLOSED, TIME CLOSE.
- 5TR INST / 6TR INST — LINE 45 / LINE 46 — TIME DELAY RELAY INSTANTANEOUS CONTACTS WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION.

SWITCHES: (SHOWN WITH OPTIONAL LOCATION REFERENCE)

NORMALLY OPEN (NO) / NORMALLY CLOSED (NC)

- 5ZS / 1ZS, VALVE FV0101 — LIMIT: FREE
- 3ZS / 7ZS, VALVE FV0101 — LIMIT: HELD
- FS3 / FS3, AT PIPE — FLOW
- TS1 / TS1, AT WELL — TEMPERATURE
- PS1 / PS1, AT TANK — PRESSURE
- LS5 / LS5, AT SUMP / AT SUMP — LEVEL
- WS2 / WS2, AT DRIVE — FORCE OR TORQUE
- SPEED CONTROL POTENTIOMETER
- HSxxx / HSxxx, AT PNLxxx / AT PNLxxx — MANUAL: MOMENTARY PUSHBUTTON
- STOP, AT DRIVE — MANUAL: MUSHROOM HEAD MOMENTARY PUSHBUTTON
- OFF / ON, DESCRIPTION — MANUAL: MAINTAINED PUSHBUTTON OR ROCKER SWITCH
- 1 / 2, OX, AT PNLXXXX — MANUAL: SELECTOR SWITCH 2 POSITION MAINTAINED
  SWITCH POSITION
  X = CLOSED CONTACT
  0 = OPEN CONTACT
- 1 / 2, XO / OX, AT PNLXXXX — MANUAL: SELECTOR SWITCH 2 POSITION SPRING RETURN TO RIGHT
  SWITCH POSITION
  X = CLOSED CONTACT
  0 = OPEN CONTACT
- 1 / 2 / 3, XOO / OOX, AT PNLXXXX — MANUAL: SELECTOR SWITCH 3 POSITION
  SWITCH POSITION
  X = CLOSED CONTACT
  0 = OPEN CONTACT

ONE LINE DIAGRAMS:

- 1 — CIRCUIT ROUTED TO UNDERGROUND DUCTBANK, NUMBER INDICATES CIRCUIT IDENTIFIER USED IN DUCTBANK SCHEDULES.
- INCOMING POWER SUPPLY
- CABLE TERMINATION. STRESS CONES WITH SHIELDED CABLES.
- LIGHTNING ARRESTOR
- SURGE ARRESTOR
- BUS DUCT OR BUSWAY
- STAB OR PULL-APART CONNECTION.
- 52A, 200A — AIR CIRCUIT BREAKER: TRIP AND OPTIONAL I.D. SHOWN.
- 400A, LSIG — AIR CIRCUIT BREAKER; TRIP SETTING AND SOLID STATE TRIP FEATURES SHOWN:
  L = LONG DELAY
  S = SHORT DELAY
  I = INSTANTANEOUS
  G = GROUND FAULT
- 52-G1, E, 1000A TRIP, 1200A FRAME — POWER CIRCUIT BREAKER (AIR, OIL, OR GAS) FRAME AND TRIP SETTING AND OPTIONAL I.D. SHOWN
- 100A — DISCONNECT OR ISOLATING SWITCH: CONTINUOUS RATING SHOWN. 30A, 3P UON
- F, OR, 100E, 200A — FUSED SWITCH: FUSE AND SWITCH CONTINUOUS RATINGS SHOWN
- TFR, 1500 KVA, 13.2 KV - 480V, 3ø, 4W — POWER TRANSFORMER. DESIGNATION, SIZE, PRIMARY AND SECONDARY VOLTAGES, AND WINDING CONFIGURATION SHOWN.
- WINDING CONFIGURATION: DELTA
- WYE (GROUNDED)
- 3, 4160V - 120V — POTENTIAL TRANSFORMER PRIMARY AND SECONDARY VOLTAGES AND WINDINGS SHOWN. QUANTITIES SHOWN.
- 250/5, 3 — CURRENT TRANSFORMER: RATIO, QUANTITIES SHOWN.
- PMM — POWER METERING MODULE
- xS — METER SWITCH, xS:
  AS = AMMETER SWITCH
  VS = VOLTMETER SWITCH
  FS = FREQUENCY SWITCH
- 0 - 1000 AMPS, A — METER, WITH OPTIONAL RANGE:
  A = AMMETER
  W = WATTMETER
  KWH= KILOWATT-HOUR METER
  F = FREQUENCY METER
  VAR= VAR METER
  V = VOLTMETER
- 64 N, 3 — ANSI C37.2 DEVICE. QUANTITIES SHOWN.
- 600kW, 60 Hz, 480V, 3ph,4W — GENERATOR WITH WINDING CONFIGURATION VOLTAGE, POWER, FREQUENCY SHOWN. POWER FACTOR OPTIONAL.
- 50AMP/10sec, CGR — NEUTRAL GROUNDING RESISTOR: AMPS/TIME RATING SHOWN
- K — KIRK KEY INTERLOCK
- 5 — MOTOR, HORSEPOWER SHOWN
- MTS10, 60A, 3P — POWER TRANSFER SWITCH. DESIGNATION, AMP RATING AND CONFIGURATION SHOWN.
  MTS = MANUAL TRANSFER SWITCH
  ATS = AUTOMATIC TRANSFER SWITCH
- 1 — AIR BREAK CONTACTOR, FVNR U.O.N.
  NEMA SIZE 1 INDICATED
  FVR = FULL VOLTAGE, REVERSING STARTER
  RVNR = REDUCED VOLTAGE STARTER
  2S2W = TWO SPEED, TWO WINDING STARTER
- GROUND ELECTRODE
- CONTROL STATION CONFIGURATION ACCORDING TO CONTROL DIAGRAMS
- FIELD INSTRUMENT OR DEVICE
- 55 KVAR — POWER FACTOR CORRECTION CAPACITOR. KVAR RATING INDICATED

PROJECT SPECIFIC SYMBOLS:

- NEMA 12 — AREA DESIGNATION. ALL ELECTRICAL WORK WITHIN THIS AREA SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS FOR THE DESIGNATION INDICATED

GENERAL NOTES:

1. SYMBOLS AND ABBREVIATION DRAWINGS ARE GENERAL IN NATURE: NOT ALL SYMBOLS OR ABBREVIATIONS SHOWN ON DRAWINGS E1 AND E2 ARE USED IN SUBSEQUENT DRAWINGS.
2. DEMOLITION WORK SHALL BE IDENTIFIED BY THE LINE WORK INDICATED ON DRAWING E1 OR BY SPECIFIC REFERENCE. REFER TO SPECIFICATION SECTION 16000.

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BROWN AND CALDWELL
McCLUGGAGE VAN SICKLE & PERRY — Professional Engineering Consultants

SUBMITTED: DATE: 11/01
APPROVED: PROJECT MANAGER, BROWN AND CALDWELL DATE: 11/01
APPROVED: DATE:

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FILE 18253
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REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15931 — 11/16/01 — KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

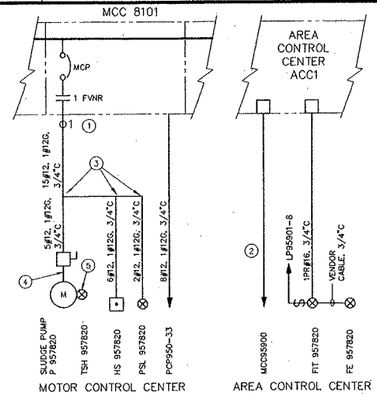
CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

ELECTRICAL

SYMBOLS

CADFILE E8253002
DATE 03-06-01
OPERATOR GMajak
DRAWING NO. E2
SHEET NUMBER 62 OF 79



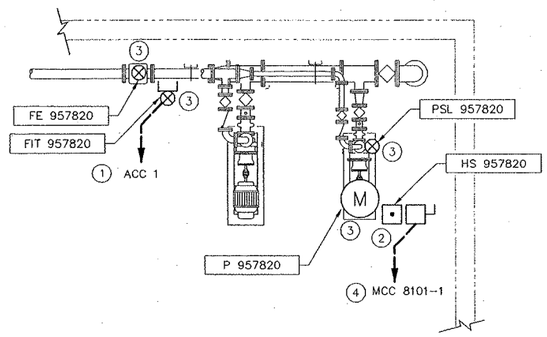
NOTES:

1. HOMERUN DESIGNATION, UTILIZED IN DUCT BANK SCHEDULES, CIRCUIT MCC 8101–1, SHOWN.
2. CIRCUIT REQUIREMENTS INDICATED ON REFERENCED ONE LINE DIAGRAM.
3. DIAGRAMMATIC REPRESENTATION OF RACEWAY REQUIREMENTS. DRAWINGS DO NOT NECESSARILY DEPICT PHYSICAL RELATIONSHIPS OR INTERFACES WITH OTHER EQUIPMENT OR TRADES. PROVIDE ALL OFFSETS, TRANSITIONS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED TO FORM A COMPLETE RACEWAY SYSTEM.
4. CIRCUIT REQUIREMENTS UNCHANGED FROM UPSTREAM CIRCUIT REQUIREMENTS.
5. ANCILLARY COMPONENT INTEGRAL TO MAJOR EQUIPMENT ITEM.

TYPICAL ONE LINE DIAGRAM PRESENTATIONS

DETAIL A TYP

NO SCALE



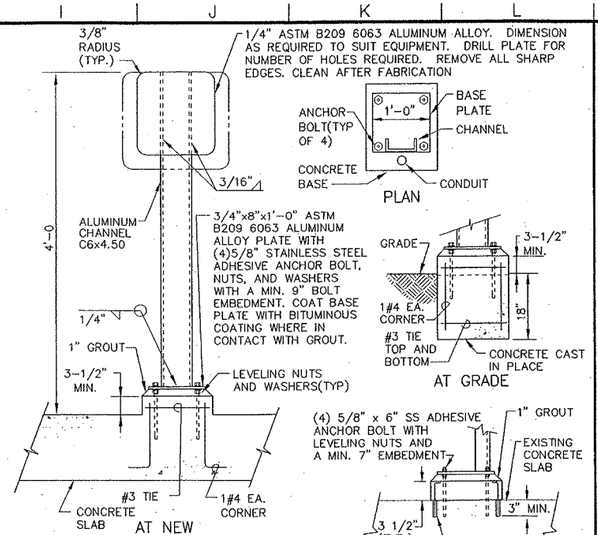
NOTES:

1. HOMERUN DESIGNATOR REFERENCES ONE LINE DIAGRAM. REFER TO ONE LINE DIAGRAM PRESENTATION DETAIL A/E3.
2. REFER TO MOTOR FEED INSTALLATION DETAILS, E/E3, F/E3 AND G/E3 FOR SUPPORT SYSTEM REQUIREMENTS.
3. PLAN DRAWING DEPICTS APPROXIMATE SPATIAL RELATIONSHIP OF ASSOCIATED EQUIPMENT AND DEVICES. REFER TO ONE LINE DIAGRAMS FOR INTERCONNECTING CIRCUIT REQUIREMENTS. REFER TO ONE LINE DIAGRAM PRESENTATION DETAIL A/E3.
4. HOMERUN DESIGNATION, REFER TO REFERENCED ONE LINE DIAGRAM FOR CABLE AND RACEWAY REQUIREMENTS.

TYPICAL PLAN PRESENTATION

DETAIL B TYP.

NO SCALE

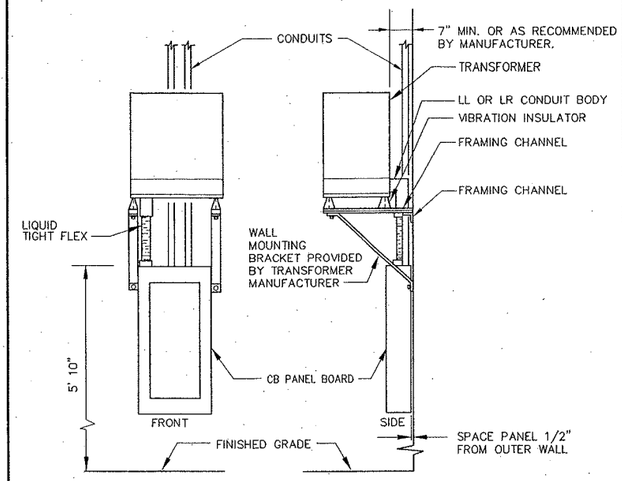


NOTES:
1. CONTROL STATION MOUNTING STAND SHALL BE UTILIZED FOR MOUNTING THE FOLLOWING:
   A. ONE EQUIPMENT ITEM WITH MOUNTING FOOTPRINT LESS THAN 150 IN. SQ.
   B. TWO EQUIPMENT ITEMS WITH MOUNTING FOOTPRINT LESS THAN 130 IN. SQ.
   FOR LARGER OR MORE THAN TWO EQUIPMENT ITEMS SEE DETAIL G/E3
2. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ANCHORAGE MATERIALS AND METHOD REQUIREMENTS.

CONTROL STATION MOUNTING STAND

DETAIL C TYP

NO SCALE

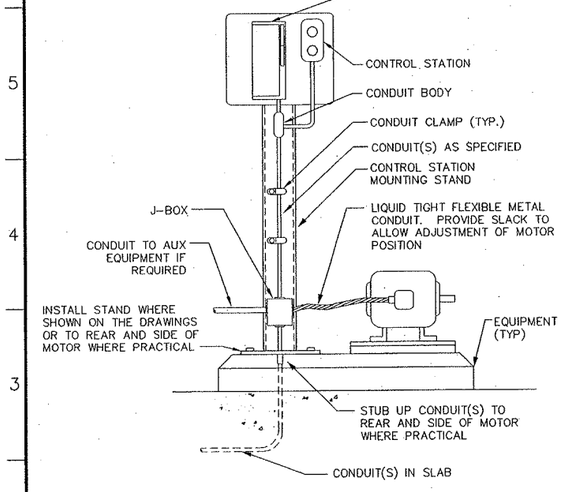


NOTE:
CONTRACTOR SHALL COORDINATE WITH MASONRY SUB–CONTRACTOR TO PROVIDE SOLID GROUTED CELLS AT WALL BRACKET MOUNTS.

TYPICAL SURFACE MOUNTING ASSEMBLY
CIRCUIT BREAKER PANELBOARD AND TRANSFORMER

DETAIL D TYP

NO SCALE



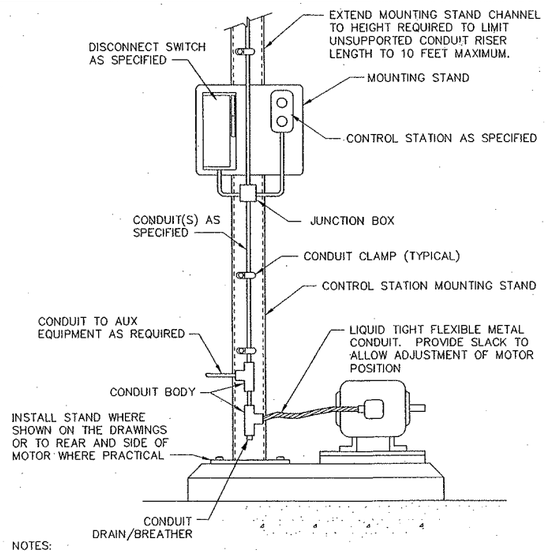
NOTES:

1. MOUNTING STAND REQUIREMENTS VARY WITH EQUIPMENT SIZE. REFER TO DETAIL C/E3.
2. CONDUIT SIZE AND CONFIGURATION VARIES. REFER TO APPLICABLE ONE LINE DIAGRAM.

MOTOR FEED FROM BELOW

DETAIL E TYP

NO SCALE



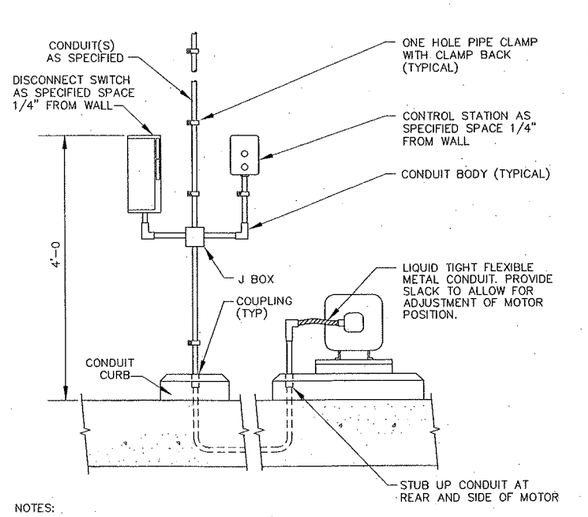
NOTES:

1. MOUNTING STAND REQUIREMENTS VARY WITH EQUIPMENT SIZE. REFER TO DETAIL C/E3.
2. CONDUIT SIZE AND CONFIGURATION VARIES. REFER TO APPLICABLE ONE LINE DIAGRAM.

MOTOR FEED FROM OVERHEAD

DETAIL F TYP

NO SCALE



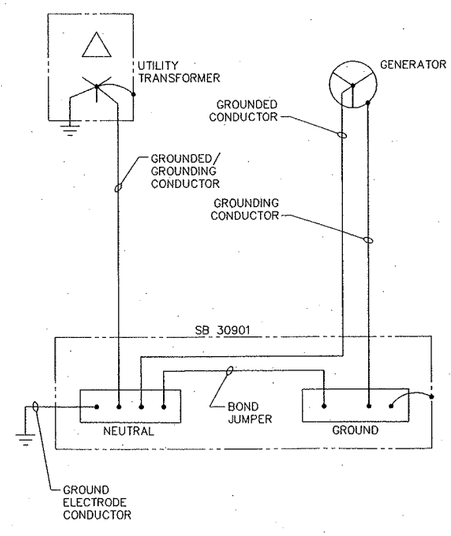
NOTES:

1. CONDUIT SIZE AND CONFIGURATION VARIES. REFER TO APPLICABLE ONE LINE DIAGRAM.

MOTOR FEED FROM ADJACENT WALL

DETAIL G TYP

NO SCALE



SERVICE GROUNDING

DETAIL H TYP

NO SCALE

WICHTBLK

PATH: (bcden01) P:\CAD\WICHITA\18253\

BROWN AND CALDWELL
McCULLOUGH VAN SICKLE & PERRY
Professional Engineering Consultants

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 00/00/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"–SCALE ACCORDINGLY)

FILE 18253
DRAWN BY
DESIGNED BY
CHECKED BY PRELIM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

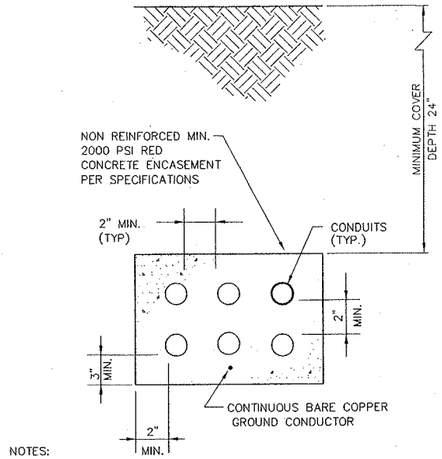
ELECTRICAL

STANDARD DETAILS 1

CADFILE E8253003
DATE 07–02–01
OPERATOR RTanner

DRAWING NO. E3

SHEET NUMBER 63 OF 79



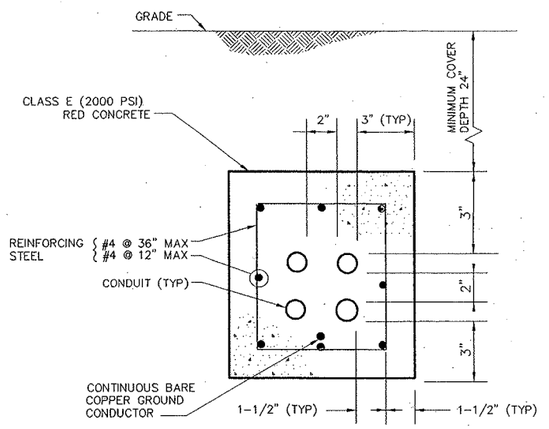
NOTES:

1. BOND GROUND CONDUCTOR TO STRUCTURE, MANHOLE, OR HANDHOLE GROUND ELECTRODE SYSTEM OR GROUND WELL AT DUCT BANK TERMINATION POINTS.
2. REFER TO THE DRAWINGS FOR NUMBER AND SIZE OF CONDUITS.
3. REFER TO SPECIFICATION SECTION 16110 FOR ADDITIONAL DUCT BANK CONSTRUCTION REQUIREMENTS.

TYPICAL NON-REINFORCED CONCRETE ENCASED DUCT BANK

DETAIL A TYP

NO SCALE



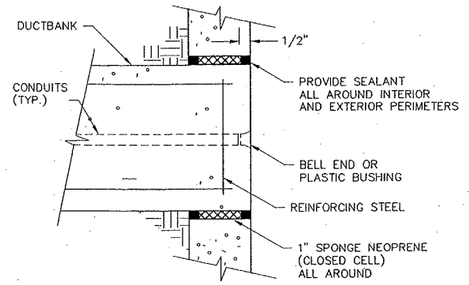
NOTES:

1. BOND GROUND CONDUCTOR TO STRUCTURE, MANHOLE, OR HANDHOLE GROUND ELECTRODE SYSTEM OR GROUND WELL AT DUCT BANK TERMINATION POINTS.
2. REFER TO THE DRAWINGS FOR NUMBER AND SIZE OF CONDUITS.
3. REFER TO SPECIFICATION SECTION 16110 FOR ADDITIONAL DUCT BANK CONSTRUCTION REQUIREMENTS.

TYPICAL REINFORCED CONCRETE ENCASED DUCT BANK
DIMENSIONS ARE MINIMUM

DETAIL B TYP

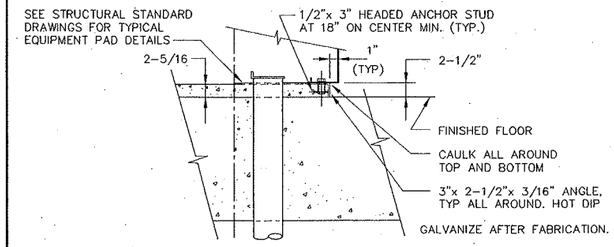
NO SCALE



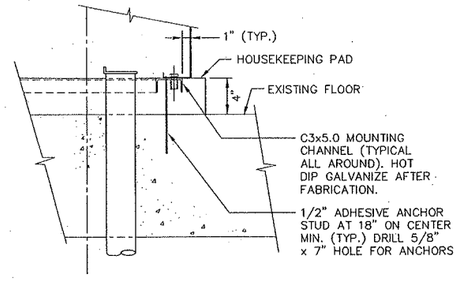
DUCTBANK AT MANHOLES/HANDHOLES

DETAIL C TYP

NO SCALE



CURB MOUNT

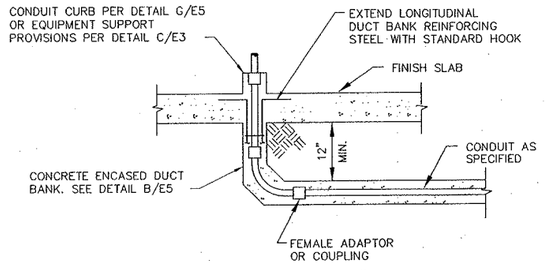


HOUSEKEEPING PAD MOUNT

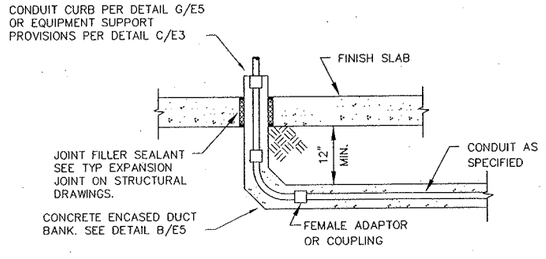
TYPICAL FREESTANDING EQUIPMENT MOUNTING

DETAIL D TYP

NO SCALE



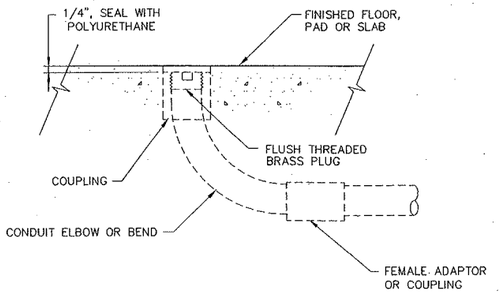
FOR DUCTBANKS IN LESS OF 18" IN WIDTH OR DEPTH



RISERS FROM DUCT BANK
FOR DUCTBANKS IN EXCESS OF 18" IN WIDTH OR DEPTH

DETAIL E TYP

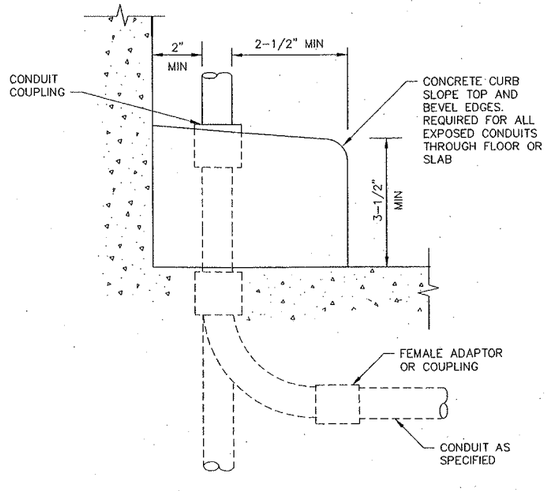
NO SCALE



FLUSH CONDUIT TERMINATION IN SLAB

DETAIL F TYP

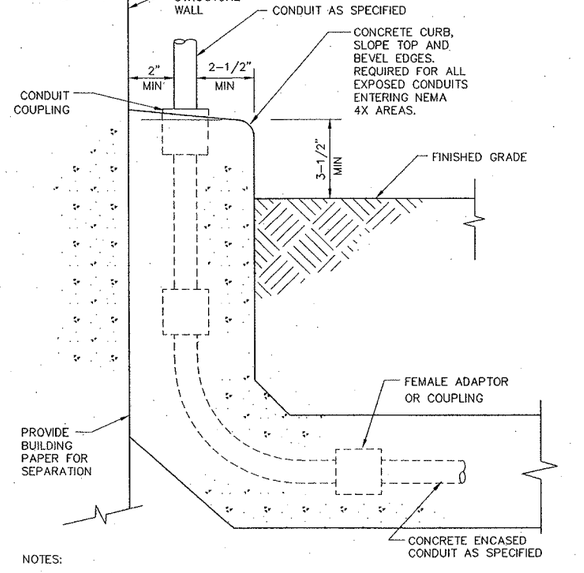
NO SCALE



CONDUIT CURB

DETAIL G TYP

NO SCALE



NOTES:

1. PROVIDE 12" OF LIQUID TIGHT FLEXIBLE CONDUIT FOR CONNECTION TO EQUIPMENT RIGIDLY ATTACHED TO STRUCTURE. THE FLEXIBLE CONDUIT SHALL PROVIDE 1" DIFFERENTIAL MOVEMENT IN ALL DIRECTIONS.

CONDUIT CURB AT FINISHED GRADE

DETAIL H TYP

NO SCALE

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PATH: (bcden01) P:\CAD\OWCHITA\18253\

Professional Engineering Consultants

McCLURG AGE VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED:		DATE: 11/01
APPROVED:	PROJECT MANAGER BROWN AND CALDWELL	DATE: 00A/01
APPROVED:		DATE:

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CHECKED BY PRELIM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
	0	ISSUED FOR BID			

CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

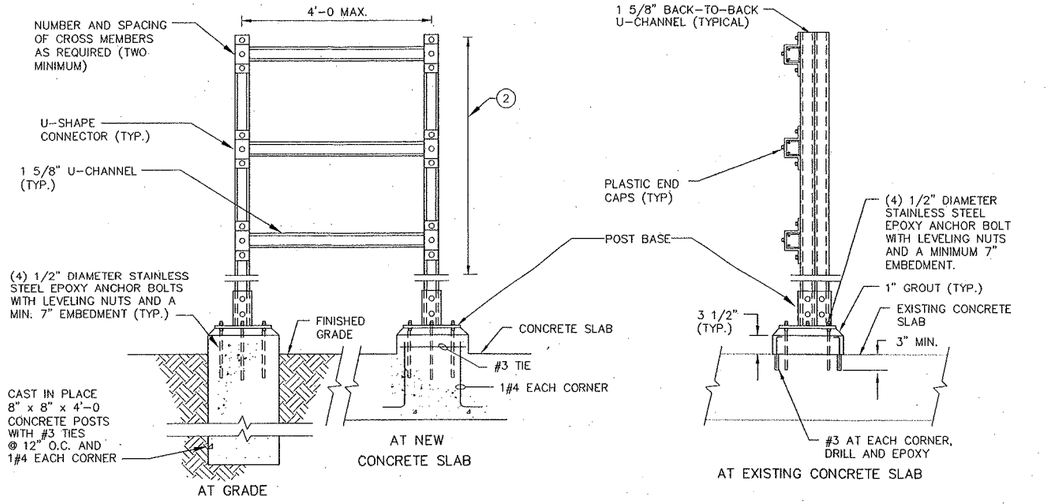
ELECTRICAL

STANDARD DETAILS 2

CADFILE E8253004
DATE 07-02-01
OPERATOR RTanner

DRAWING NO.
E4

SHEET NUMBER
64 OF 79

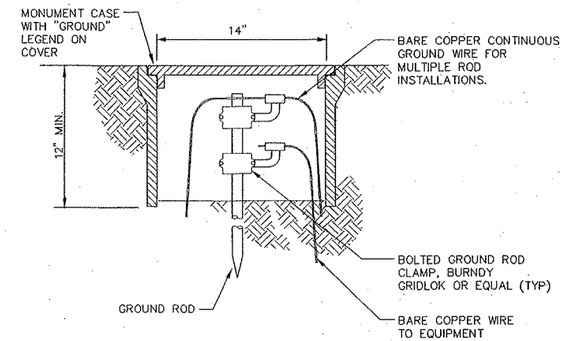


NOTES:

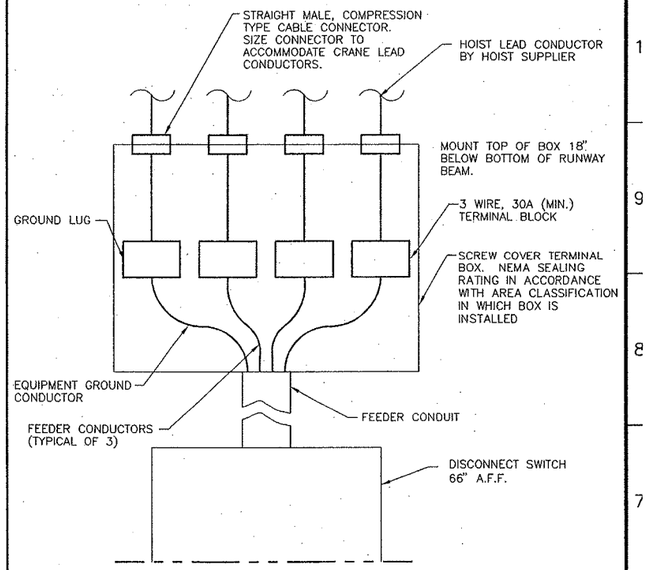
1. EQUIPMENT RACK SHALL BE UTILIZED FOR MOUNTING THE FOLLOWING:
   A. ONE EQUIPMENT ITEM WITH MOUNTING FOOTPRINT GREATER THAN 150 IN^2.
   B. TWO EQUIPMENT ITEMS WITH COMBINED MOUNTING FOOTPRINT GREATER THAN 130 IN^2
   C. THREE OR MORE EQUIPMENT ITEMS.

   WHERE MULTIPLE EQUIPMENT ITEMS WITH SMALL FOOTPRINT AREAS ARE MOUNTED ON THE RACK, A 1/4" PLATE AS USED IN DETAIL C/E3 FOR EQUIPMENT MOUNTING CAN BE UTILIZED SPANNING FROM THE TOP TO THE BOTTOM CROSS MEMBER IN LIEU OF MULTIPLE CROSS MEMBERS.
2. EQUIPMENT SHALL BE MOUNTED SO THAT INDICATION, ADJUSTMENTS, OR OPERATING HANDLES ARE FOUR TO FIVE FEET ABOVE FLOOR OR PLATFORM.
3. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATION FOR ANCHORAGE MATERIALS AND METHOD REQUIREMENTS.
4. MATERIALS AND HARDWARE SHALL CONFORM TO THE REQUIREMENTS OF SPECIFICATION 16000.

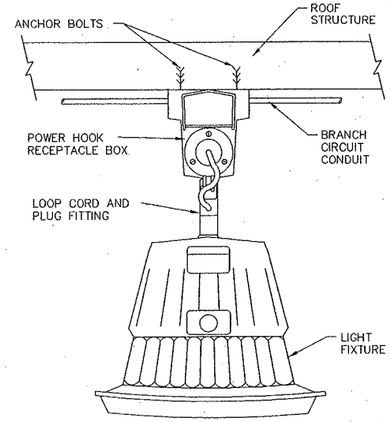
EQUIPMENT RACK
DETAIL A
NO SCALE



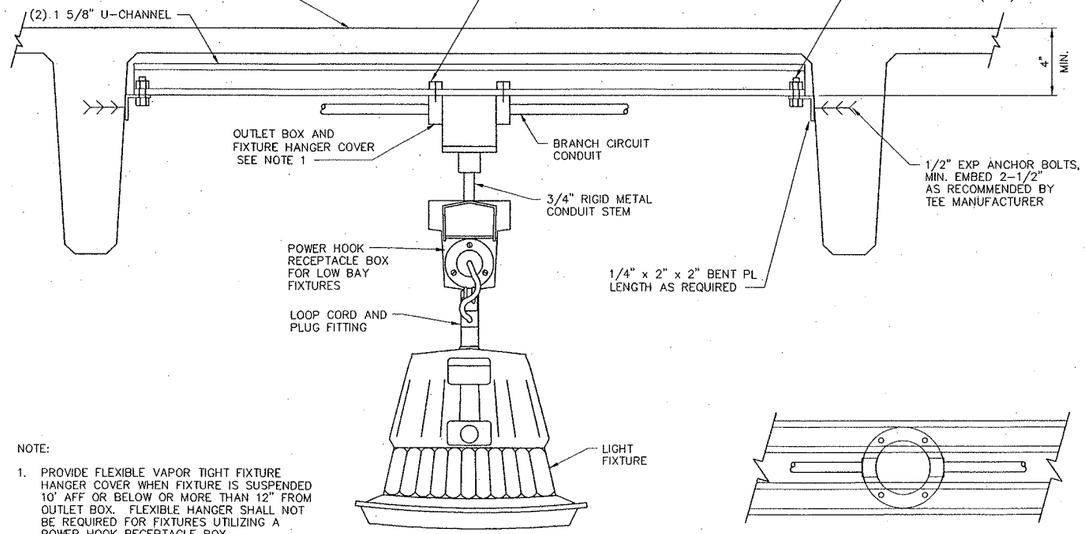
GROUND ROD WELL
DETAIL B TYP
NO SCALE



TROLLEY HOIST TERMINATION BOX
DETAIL C TYP
NO SCALE



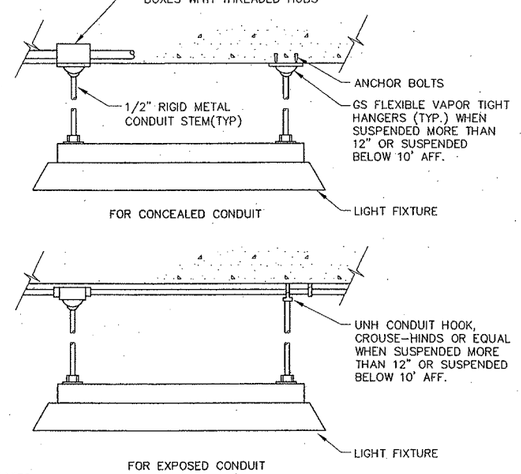
LOW BAY FIXTURE INSTALLATION
DETAIL D TYP
NO SCALE



NOTE:

1. PROVIDE FLEXIBLE VAPOR TIGHT FIXTURE HANGER COVER WHEN FIXTURE IS SUSPENDED 10' AFF OR BELOW OR MORE THAN 12" FROM OUTLET BOX. FLEXIBLE HANGER SHALL NOT BE REQUIRED FOR FIXTURES UTILIZING A POWER HOOK RECEPTACLE BOX.

ROOF TEE PENDANT MOUNT FIXTURE INSTALLATION
DETAIL E TYP
NO SCALE



NOTES:

1. UTILIZE THREADED HUB COVERS FOR RIGID PENDANT INSTALLATIONS.

PENDANT FIXTURE MOUNTING
DETAIL F TYP
NO SCALE

WICHTBLK

PATH: (bcden01) P:\CAD\(WICHITA\18253\

Professional Engineering Consultants
McCLIGGOTT VAN SOCIA & FERRY
BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 11/01
APPROVED: _____ DATE: _____

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CHECKED BY

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/16/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

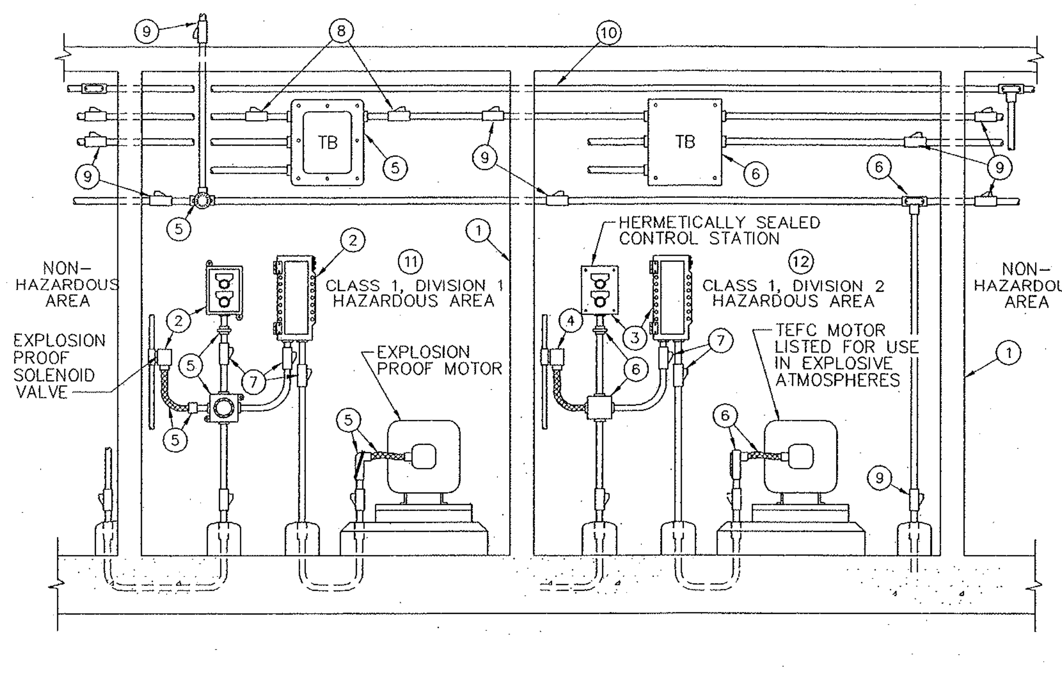
ELECTRICAL

STANDARD DETAILS 3

CADFILE E8253005
DATE 07-03-01
OPERATOR RTanner
DRAWING NO. E5
SHEET NUMBER 65 OF 79

KEY NOTES:

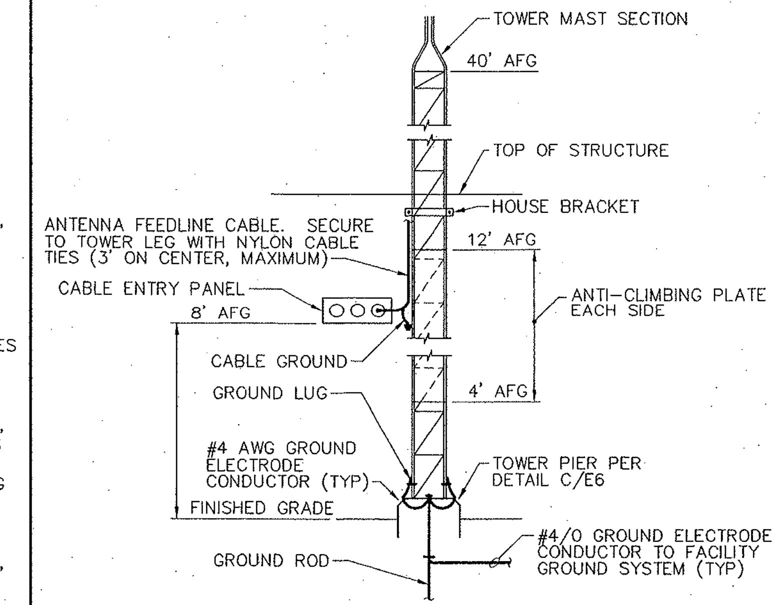
1. BARRIER WALLS NEED NOT BE PRESENT TO REPRESENT THE BOUNDARIES OF CLASS 1, DIVISION 1 HAZARDOUS AREAS, CLASS 1, DIVISION 2 HAZARDOUS AREAS AND NON-HAZARDOUS AREAS. THESE LIMITS MAY BE REPRESENTED BY A DISTANCE AS REQUIRED BY NFPA 820.
2. ALL ENCLOSURES WITHIN CLASS 1, DIVISION 1 HAZARDOUS AREAS SHALL BE NEMA 7 EXPLOSION PROOF.
3. ALL ENCLOSURES WITHIN CLASS 1, DIVISION 2 HAZARDOUS AREAS SHALL BE NEMA 7 EXPLOSION PROOF UNLESS THE CURRENT INTERRUPTING CONTACTS ARE ENCLOSED WITHIN A CHAMBER THAT IS HERMETICALLY SEALED OR IMMERSED IN OIL OR IF THE DEVICES ARE PROVIDED AS INTRINSICALLY SAFE CIRCUITS.
4. ENCLOSURES WITHIN CLASS 1, DIVISION 2 HAZARDOUS AREAS PROVIDED FOR TRANSFORMER WINDINGS, IMPEDANCE COILS, SOLENOIDS, AND OTHER WINDINGS THAT DO NOT INCORPORATE SLIDING OR MAKE-OR-BREAK CONTACTS SHALL BE NEMA 4X.
5. ALL BOXES, FITTINGS AND FLEXIBLE CONNECTIONS WITHIN CLASS 1, DIVISION 1 HAZARDOUS AREAS SHALL BE NEMA 7 EXPLOSION PROOF. ALL BOXES, FITTINGS, AND JOINTS SHALL BE THREADED FOR THE CONNECTION TO CONDUIT.
6. ALL BOXES, FITTINGS AND FLEXIBLE CONNECTIONS WITHIN CLASS 1, DIVISION 2 HAZARDOUS AREAS SHALL BE NEMA 4X UNLESS THEY ARE CONNECTING THE CONDUIT SYSTEM TO AN ENCLOSURE THAT IS REQUIRED TO BE EXPLOSION PROOF. IN THIS SITUATION, THE BOXES, FITTINGS, AND FLEXIBLE CONNECTIONS SHALL BE NEMA 7 EXPLOSION PROOF.
7. IN CLASS 1, DIVISION 1 HAZARDOUS AREAS, CONDUIT SEALS SHALL BE PROVIDED IN ALL CONDUITS ENTERING EXPLOSION PROOF ENCLOSURES UNLESS THE DEVICES WITHIN THE ENCLOSURE ARE HERMETICALLY SEALED OR IMMERSED IN OIL. IN CLASS 1, DIVISION 2 HAZARDOUS AREAS, CONDUIT SEALS SHALL BE PROVIDED IN ALL CONDUITS ENTERING REQUIRED EXPLOSION PROOF ENCLOSURES. CONDUIT SEALS SHALL BE INSTALLED WITHIN 18 INCHES FROM THE ENCLOSURE. ONLY EXPLOSION PROOF UNIONS, COUPLINGS, REDUCERS, ELBOWS, CAPPED ELBOWS, AND CONDUIT BODIES SIMILAR TO L's, T's AND CROSS TYPES THAT ARE NOT LARGER THAN THE TRADE SIZE OF THE CONDUIT SHALL BE PERMITTED BETWEEN THE SEALING FITTING AND THE EXPLOSION PROOF ENCLOSURE.
8. IN CLASS 1, DIVISION 1 HAZARDOUS AREAS, CONDUIT SEALS SHALL BE PROVIDED IN ALL CONDUITS 2 INCHES AND LARGER ENTERING EXPLOSION PROOF ENCLOSURES CONTAINING TERMINALS, SPLICES, OR TAPS.
9. IN CLASS 1, DIVISION 1 AND DIVISION 2 HAZARDOUS AREAS, CONDUIT SEALS SHALL BE PROVIDED WITHIN 10 FEET OF EITHER SIDE OF THE HAZARDOUS AREA BOUNDARY IN ALL CONDUITS ENTERING/LEAVING THE AREA INCLUDING FROM A CLASS 1, DIVISION 1 HAZARDOUS AREA INTO A CLASS 1, DIVISION 2 HAZARDOUS AREA. EXCEPT FOR APPROVED EXPLOSION PROOF REDUCERS AT THE CONDUIT SEAL, THERE SHALL BE NO UNION, COUPLING, BOX OR FITTING BETWEEN THE CONDUIT SEAL AND THE POINT AT WHICH THE CONDUIT ENTERS/LEAVES THE HAZARDOUS AREA.
10. CONDUITS CONTAINING NO UNIONS, COUPLINGS, BOXES OR FITTINGS THAT PASSES COMPLETELY THROUGH THE HAZARDOUS AREAS WITH NO FITTINGS LESS THAN 12 INCHES BEYOND THE BOUNDARIES INTO NON-HAZARDOUS AREAS SHALL NOT REQUIRE CONDUIT SEALS.
11. WHERE CABLES ARE USED IN LIEU OF SINGLE CONDUCTORS, CABLES SHALL BE SEALED AT ALL TERMINATIONS IN CLASS 1, DIVISION 1 HAZARDOUS AREAS AFTER REMOVING THE JACKET AND ANY OTHER COVERINGS SO THAT THE SEALING COMPOUND SURROUNDS EACH INDIVIDUAL CONDUCTOR AND THE OUTER JACKET.
12. WHERE CABLES ARE USED IN LIEU OF SINGLE CONDUCTORS, CABLES SHALL BE SEALED AT THE ENTRANCE TO ENCLOSURES THAT ARE REQUIRED TO BE EXPLOSION PROOF IN CLASS1, DIVISION 2 HAZARDOUS AREAS AFTER REMOVING THE JACKET AND ANY OTHER COVERINGS SO THAT THE SEALING COMPOUND SURROUNDS EACH INDIVIDUAL CONDUCTOR AND THE OUTER JACKET.
13. ALL CONDUIT SEALS IN VERTICAL CONDUIT RUNS SHALL BE PROVIDED WITH AN INTEGRAL DRAIN TO PROVIDE CONTINUOUS, AUTOMATIC DRAINAGE OF CONDENSATION.



HAZARDOUS LOCATION CONDUIT INSTALLATION

DETAIL A

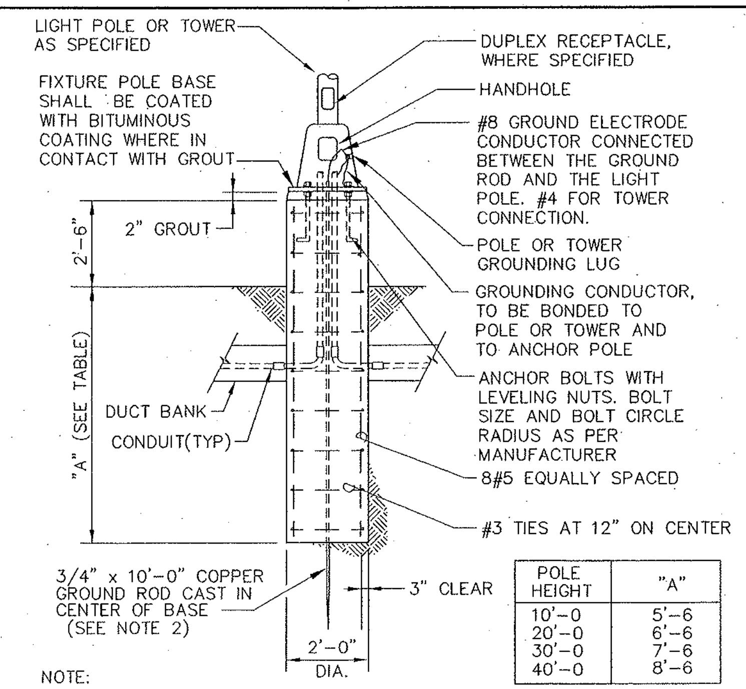
NO SCALE



ANTENNA TOWER INSTALLATION

DETAIL B/VAR

NO SCALE



POLE HEIGHT	"A"
10'-0	5'-6
20'-0	6'-6
30'-0	7'-6
40'-0	8'-6

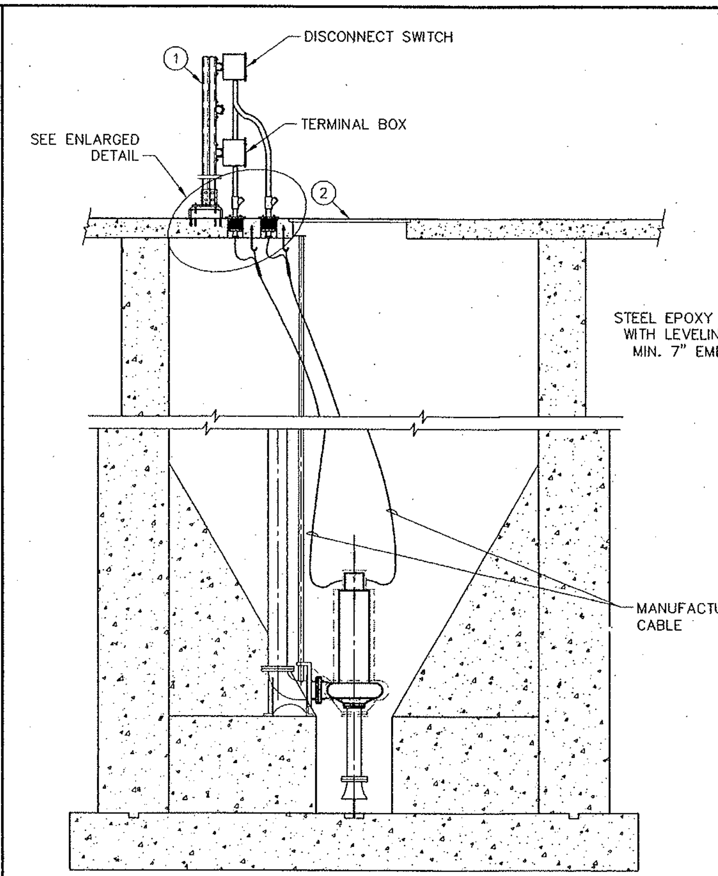
NOTE:

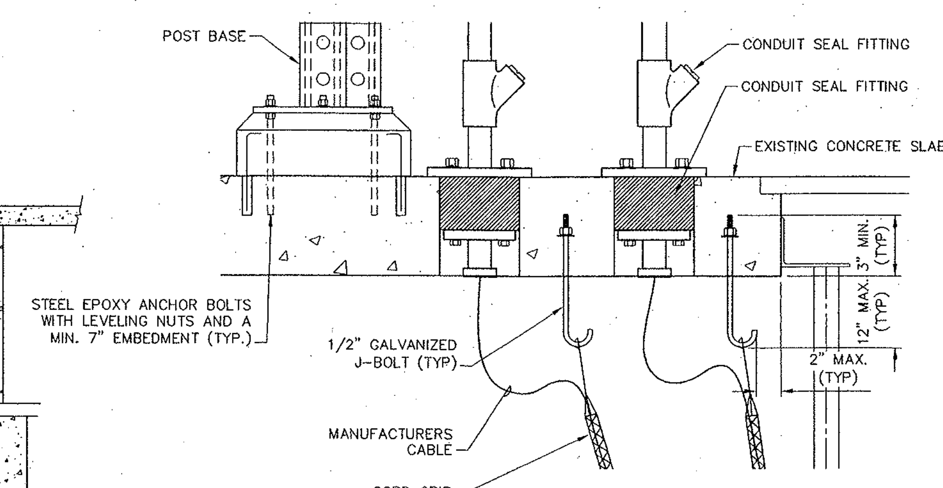
1. FOUNDATION TO BEAR AGAINST ORIGINAL SOIL OR 90% COMPACTED BACKFILL OF APPROVED TYPE
2. USE 3/4" x 20'-0" GROUND ROD FOR 30'-0" AND 40'-0" POLE BASES.

TYPE B – LIGHTING FIXTURE POLE BASE AND ANTENNA TOWER PIER

DETAIL C/VAR

NO SCALE





ENLARGED DETAIL

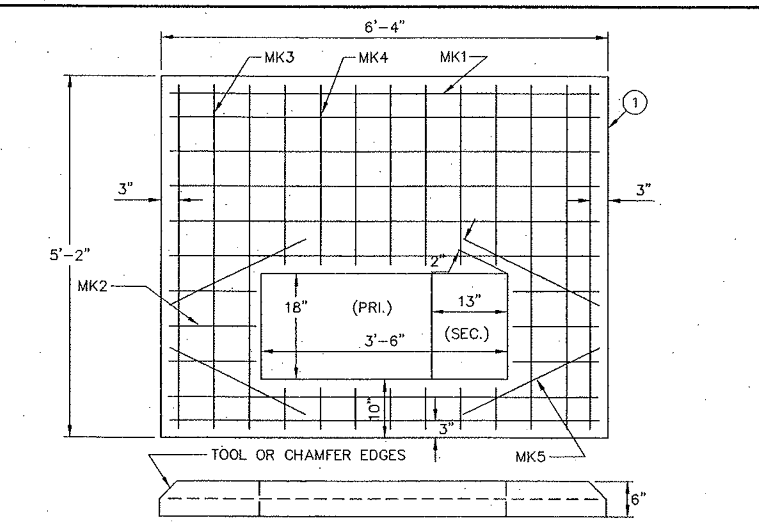
NOTE:

1. EQUIPMENT RACK. SEE DETAIL A/E5.
2. 4'-0"x4'-0" EQUIPMENT HATCH.

TYPICAL SUBMERSIBLE PUMP INSTALLATION

DETAIL D/VAR

NO SCALE



REINFORCING BARS				
MK1	MK2	MK3	MK4	MK5
7#4 70"	4#4 10"	6#4 57"	6#4 28"	4#4 26"

1. CONCRETE TESTING, 3000 POUNDS MIN. PER SQUARE INCH; 4% TO 6 % ENTRAINED AIR, 3/4" MAXIMUM SIZE AGGREGATE.
2. REINFORCING STEEL, ATSM-A615 GRADE 60. PLACE APPROX. 6' O.C. EACH WAY AND SECURELY TIED TOGETHER.
3. MINIMUM CONCRETE COVER OVER REINFORCING STEEL 2 INCHES UNLESS NOTED.
4. WOOD FLOAT FINISH, LEAVING NO DEPRESSIONS.

THREE PHASE TRANSFORMER CONCRETE PAD

DETAIL E/VAR

NO SCALE

BROWN AND CALDWELL

McCLUGGAGE VAN SICKLE & PERRY

SUBMITTED: DATE: 11/01

APPROVED: BROWN AND CALDWELL DATE: 11/01

APPROVED: DATE:

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FILE 18253

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REGISTERED PROFESSIONAL ENGINEER DAVID A. MYERS 15931 11/16/01 KANSAS

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

ELECTRICAL

STANDARD DETAILS 4

CADFILE E8253006
DATE 07-25-01
OPERATOR GMajak

DRAWING NO. E6

SHEET NUMBER 66 OF 79

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LIGHTING FIXTURE SCHEDULE

DESIG.	DESCRIPTION	LAMP NO.	LAMP WATTS	LAMP TYPE	MOUNTING TYPE AND HEIGHT	ELECTRICAL REQUIREMENTS	MANUFACTURER AND CATALOG NO.	DETAIL
A	4' LENGTH GENERAL PURPOSE INDUSTRIAL FLUORESCENT FIXTURE WITH 5-PERCENT UPLIGHT HANGERS FOR MOUNTING AND ENERGY SAVING HPF BALLAST	2	34	FL T8	PENDANT 10' AFF	120 VOLTS	LITHONIA EJA240-120-ES OR APPROVED EQUAL	
B	4' LENGTH, DUST/MOISTURE/CORROSION RESISTANT UL LISTED FOR WET LOCATIONS WITH ENERGY SAVING HPF BALLAST AND WET LOCATION FITTINGS	2	34	FL F40LW/RS/WM	SURFACE	120 VOLTS	LITHONIA DMW240AR120ESWLF OR APPROVED EQUAL	
C	METAL HALIDE, ENCLOSED AND GASKETED FIXTURE FOR CLASS 1, DIVISION 2 HAZARDOUS LOCATIONS, CAST COPPER-FREE ALUMINUM HOUSING, GUARDS, WHITE EPOXY CLAD FINISH, 120V AC AND SUITABLE FOR WET LOCATIONS, HPF BALLAST, IES TYPE V REFRACTOR.	1	100	MH MXR100/U/MED	CEILING	120 VOLTS	CROUSE-HINDS VMVM2C100R5/120 OR APPROVED EQUAL	
D	LOW BAY INDUSTRIAL FIXTURE WITH DIE CAST ALUMINUM HOUSING, ENCLOSED AND GASKETED, CORROSION RESISTANT. FIXTURE SHALL HAVE HPF BALLAST.	1	175	MH MVR175/U	PENDANT 13' AFF	120 VOLTS	LITHONIA TXL 175M A20 120 CR WL SSS SLR OR APPROVED EQUAL	
D1	SAME AS FIXTURE D EXCEPT PROVIDED WITH QUARTZ RESTRIKE AND QUARTZ LAMP.						LITHONIA TXL 175M A20 120 CR QRS WL SSS SLR OR APPROVED EQUAL	
E	METAL HALIDE, EXPLOSION PROOF FIXTURE WITH COPPER FREE CONSTRUCTION SUITABLE FOR CLASS 1, DIVISION 1 NEMA 7 HAZARDOUS AND MARINE LOCATIONS, INTEGRAL HPF BALLAST, FACTORY SEALED,	1	100	MH MXR100/U/MED	CEILING	120 VOLTS	CROUSE-HINDS EVMCX92101 OR APPROVED EQUAL	
F	SELF CONTAINED 6 VOLT EMERGENCY LIGHT WITH LEAD CALCIUM MAINTENANCE FREE BATTERY, SOLID STATE CHARGING, PUSH-TO-TEST BUTTON, MAIN POWER ON PILOT LIGHT AND CAPACITY OF 28 WATTS FOR 1-1/2 HOURS. FIXTURE SHALL BE SUITABLE FOR INSTALLATION IN CORROSIVE AND CLASS 1, DIVISION 2, HAZARDOUS AREAS.	2	8	HALOGEN	WALL 8' AFF		CROUSE-HINDS N2LPS6222	
G	WALL MOUNT HORIZONTAL FLOOD WITH DIE CAST HOUSING AND DOOR FRAME WITH INTEGRAL COOLING RIBS, ONE PIECE REFLECTOR ASSEMBLY, MULTI-FUNCTION SWIVEL AND FIXED HOOD GLARE CONTROL AND BLACK TGIC THERMOSET POLYESTER POWDER COAT FINISH.	1	250	HPS	WALL 13' AFF	120 VOLTS	KIM LIGHTING AFL6/250MH120/BLP/FHZ/BLP OR APPROVED EQUAL	
H	EXTERIOR CAST ALUMINUM ARCHITECTURAL WALL MOUNT, UL LISTED FOR WET LOCATIONS, VANDAL RESISTANT, BLACK POWDER COAT FINISH.	1	70	MH	WALL 9'-6" AFF	120 VOLTS	FC LIGHTING FCW1050-120 -70MH-BK OR APPROVED EQUAL	
J	EXHAUST FAN-LIGHT VENTILATION FIXTURE WITH 100 CFM AIR DELIVERY THROUGH 4 INCH ROUND DUCT.	1	100	INCANDESANT	RECESSED	120 VOLTS	NUTONE 8663RP	

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McCLOSKEY VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01

APPROVED: _____ DATE: 00/00/01

APPROVED: _____ DATE: _____

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FILE 18253

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DAVID A. MYERS
15931
11/16/01
KANSAS

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

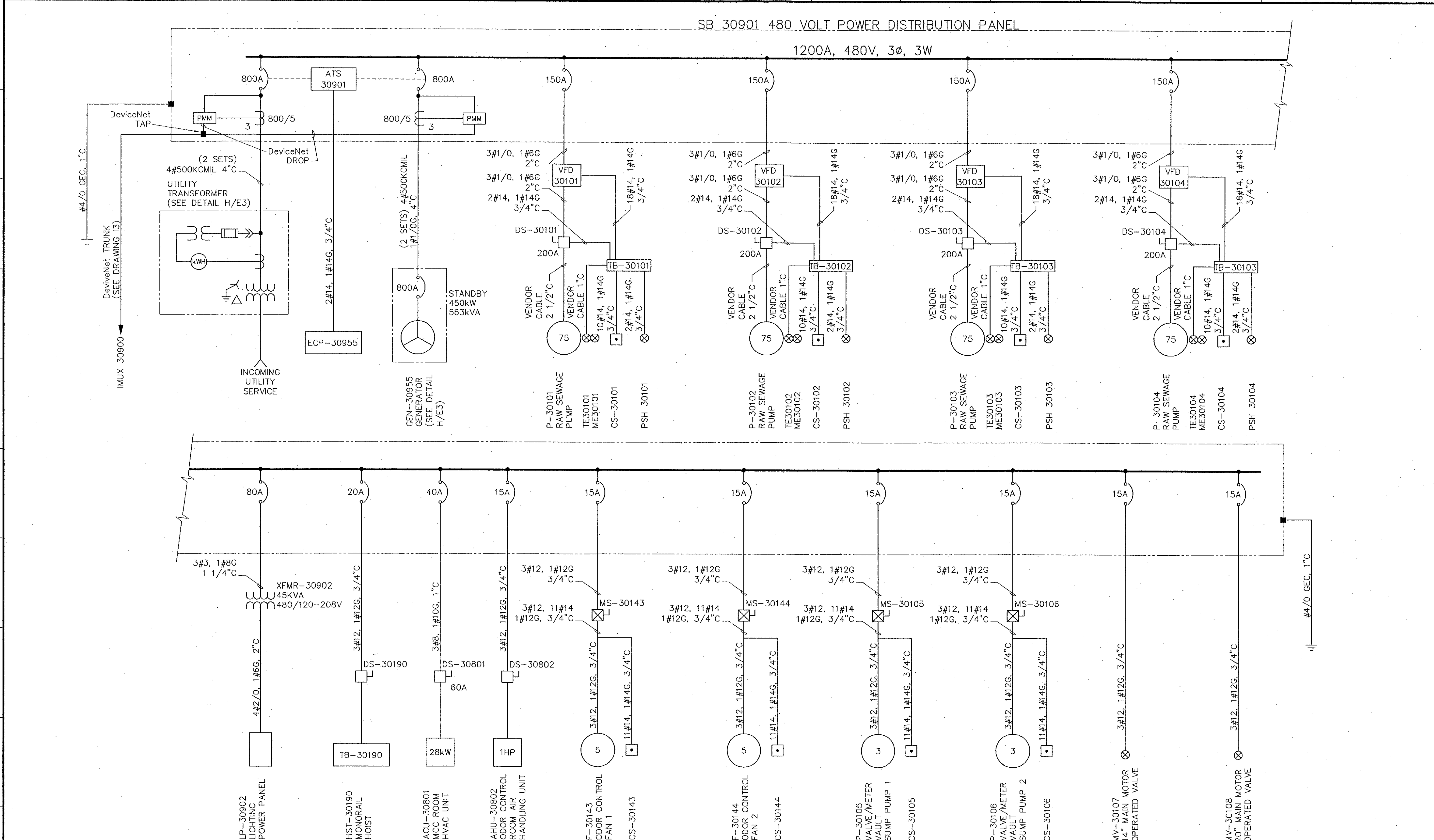
ELECTRICAL

LIGHTING FIXTURE SCHEDULE

CADFILE E8253102
DATE 07-02-01
OPERATOR RTanner

DRAWING NO.
E7

SHEET NUMBER
67 OF 79



BROWN AND CALDWELL
McCLELLAND VAN SICKLE & PERRY

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE	18253
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DESIGNED BY	SAM
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SUBMITTED: DATE: 11/01
APPROVED: BROWN AND CALDWELL DATE: 11/01
APPROVED: DATE:

REGISTERED PROFESSIONAL ENGINEER DAVID A. MYERS 15931 12/16/01 KANSAS

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATION

ELECTRICAL

ONE LINE DIAGRAM

CADFILE e18253m51
DATE 07-02-01
OPERATOR RTonner

DRAWING NO. E100

SHEET NUMBER 68 OF 79

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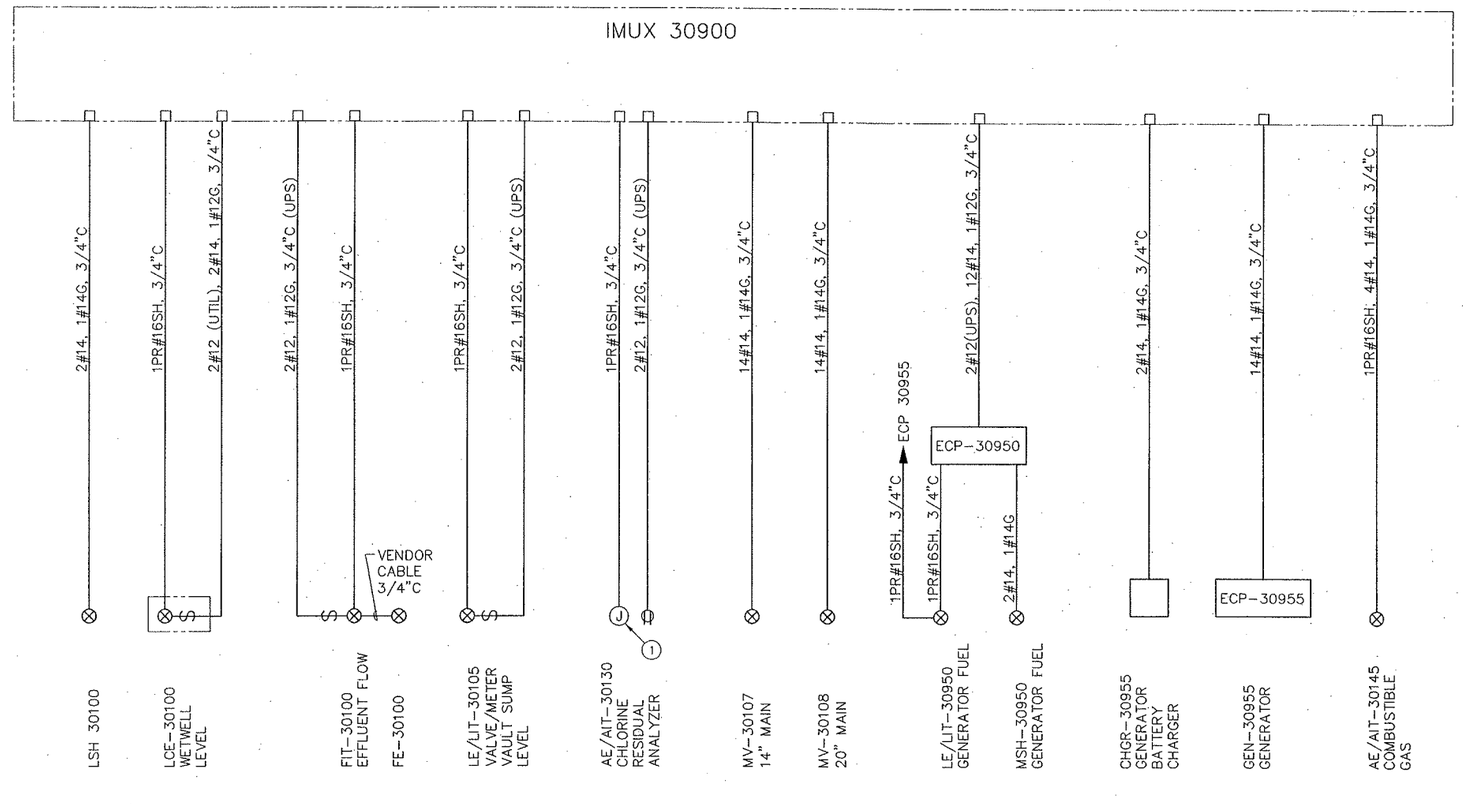
PATH: (bcden01) P:\CAD\WICHITA\18253\



KEY NOTES:

(1) DEVICE NOT IN CONTRACT. LOCATE JUNCTION BOX AND RECEPTACLE TO ACCOMODATE EQUIPMENT. REFERENCE DRAWING M102. PROVIDE SIGNAL CABLE OF SUFFICIENT LENGTH TO CONNECT TO FUTURE ANALYZER, COIL AND STOW IN JUNCTION BOX.

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PATH: (bcden01) P:\CAD\WICHITA\18253\

Professional Engineering Consultants

McCLELLAND VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED: DAVID A. MYERS DATE: 11/01

APPROVED: BROWN AND CALDWELL DATE: 11/01

APPROVED: DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

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NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

ELECTRICAL

IMUX 30900 ONE-LINE DIAGRAM

CADFILE E8253107
DATE 07-02-01
OPERATOR RTanner

DRAWING NO.
E101

SHEET NUMBER
69 OF 79

LP 30902

LOCATION: MCC ROOM
NOTES:
DATE: 11/16/01

VOLTAGE: 208/120V 3PH, 4W
BUS: 200A
MAIN: 175A CB
LOAD: 32.85 KVA

MOUNTING: SURFACE
ENCLOSURE: NEMA 1
RATING: 22KAIC

LOAD IN KVA				WIRE	BKR	CKT		BKR	WIRE		LOAD IN KVA		
7.3	3.1	6.7		SIZE	A/P	NO.		A/P	SIZE	CIRCUIT DESCRIPTION	3.7	2.6	2.4
0.89			GENERATOR RM LIGHTING	12	20/1	1	2	20/1	12	MCC GENERATION RM RECPT	1.08		
	0.83		MCC RM LIGHTING	12	20/1	3	4	20/1	12	ODOR, RSTRM, CHEM, STOR RM RECPT		0.9	
		0.8	ODOR CONTROL LIGHTING	12	20/1	5	6	20/1	12	ODOR, RSTRM, CHEM, STOR RM RECPT			0.9
1.26			ABOVE WETWELL & HVAC RM LIGHTING	12	20/1	7	8	20/1	12	OUTSIDE RECPT, MTR PIT VALVE VAULT	0.9		
	0.86		EXTERIOR FLOOD LIGHTING	12	20/1	9	10	20/1	12	OUTSIDE RECPT, MTR PIT VALVE VAULT		0.72	
		0.8	EXTERIOR WALL LIGHTING	12	20/1	11	12	20/1	12	GENERATOR RM EF 30804 AND UH 30805			1
0.07			EXTERIOR WALL LIGHTING	12	20/1	13	14	20/1	12	VLV/MTR VAULT EF 30806 AND EF 30807	1.4		
	0.9		WET WELL LIGHTING	12	20/1	15	16	20/1	12	ODOR CONTROL RM EF 30803		0.9	
		0.6	STOR, CHEM FEED & RESTRM LIGHTING	12	20/1	17	18	20/1	10	CHGR-30955 GENERATOR BATT. CHRGR			0.5
0.53			VALVE VAULT AND METER PIT LIGHTING	12	20/1	19	20	20/1		SPARE	0		
	0.53		VALVE VAULT AND METER PIT LIGHTING	12	20/1	21	22	20/1		SPARE		0	
		4.5	HTR 30808 WATER HEATER	10	30/1	23	24	20/1		SPARE			0
4.5						25	26	20/1	12	HEAT PNL - FUEL BULK STORAGE	0.32		
	0		SPARE		20/1	27	28	20/1	12	HT TRACE - FUEL TO/FROM BULK STOR		0.08	
		0				29	30						0
0						31	32				0		
	0					33	34					0	
		0				35	36						0
0						37	38				0		
	0					39	40					0	
		0				41	42						0

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McCLURG/VAN SICKLE & PERRY
BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01
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APPROVED: _____ DATE: _____

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11/16/01
KANSAS

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

ELECTRICAL

PANEL SCHEDULE

CADFILE E8253103
DATE 07-03-01
OPERATOR RTanner

DRAWING NO.
E102

SHEET NUMBER
70 OF 79

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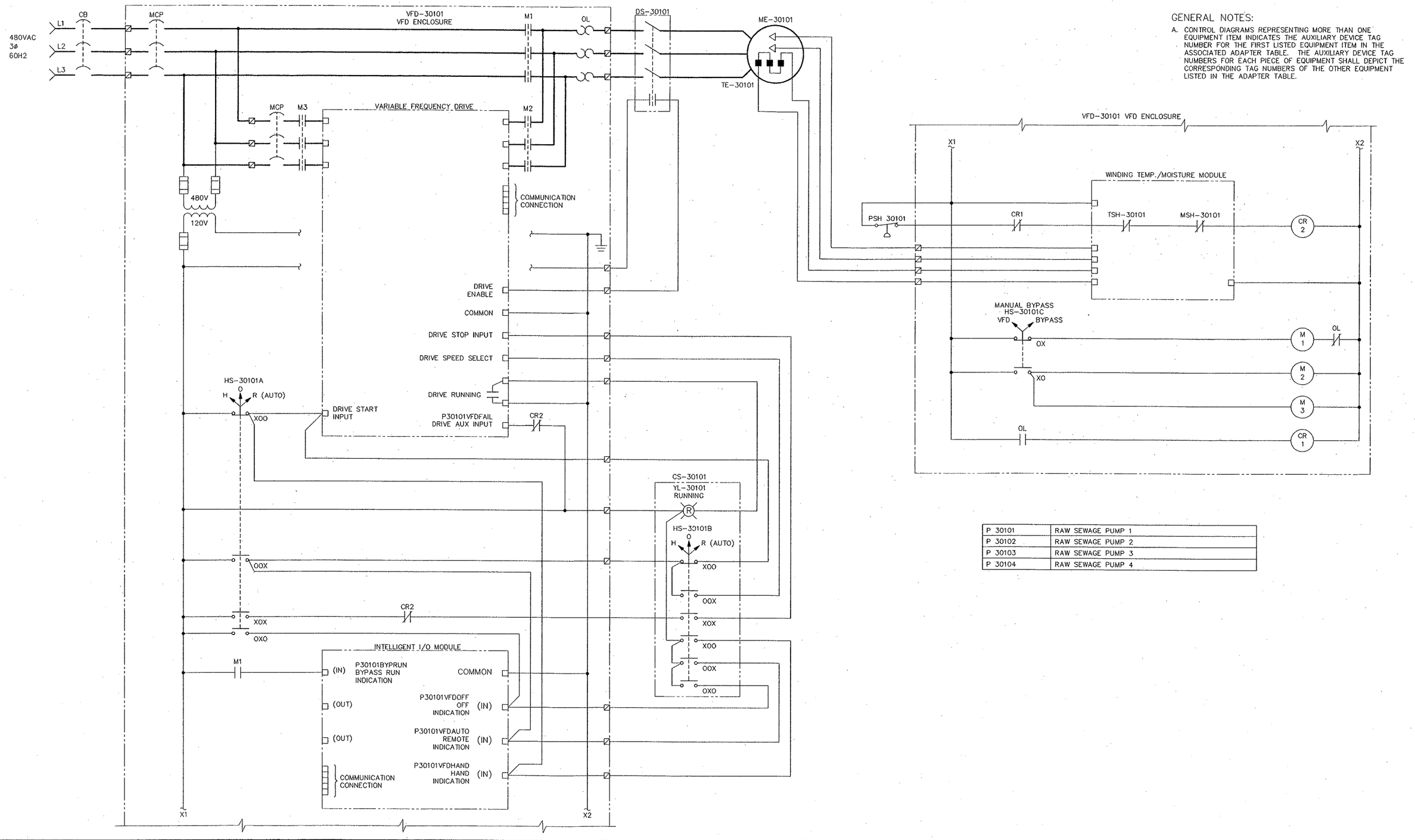

GENERAL NOTES:

A. CONTROL DIAGRAMS REPRESENTING MORE THAN ONE EQUIPMENT ITEM INDICATES THE AUXILIARY DEVICE TAG NUMBER FOR THE FIRST LISTED EQUIPMENT ITEM IN THE ASSOCIATED ADAPTER TABLE. THE AUXILIARY DEVICE TAG NUMBERS FOR EACH PIECE OF EQUIPMENT SHALL DEPICT THE CORRESPONDING TAG NUMBERS OF THE OTHER EQUIPMENT LISTED IN THE ADAPTER TABLE.

P 30101	RAW SEWAGE PUMP 1
P 30102	RAW SEWAGE PUMP 2
P 30103	RAW SEWAGE PUMP 3
P 30104	RAW SEWAGE PUMP 4

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PATH: (bcden01) P:\CAD\WICHITA\18253\

Professional Engineering Consultants

McCLELLAND VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01
PROJECT MANAGER BROWN AND CALDWELL

APPROVED: _____ DATE: 11/01

APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

FILE 18253
DRAWN BY
DESIGNED BY
CHECKED BY PRELIM
CHECKED BY

REGISTERED PROFESSIONAL ENGINEER
DAVID A. MYERS
15931
11/14/01
KANSAS

REVISIONS					
ZONE	REV.	DESCRIPTION	BY	DATE	APP.
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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

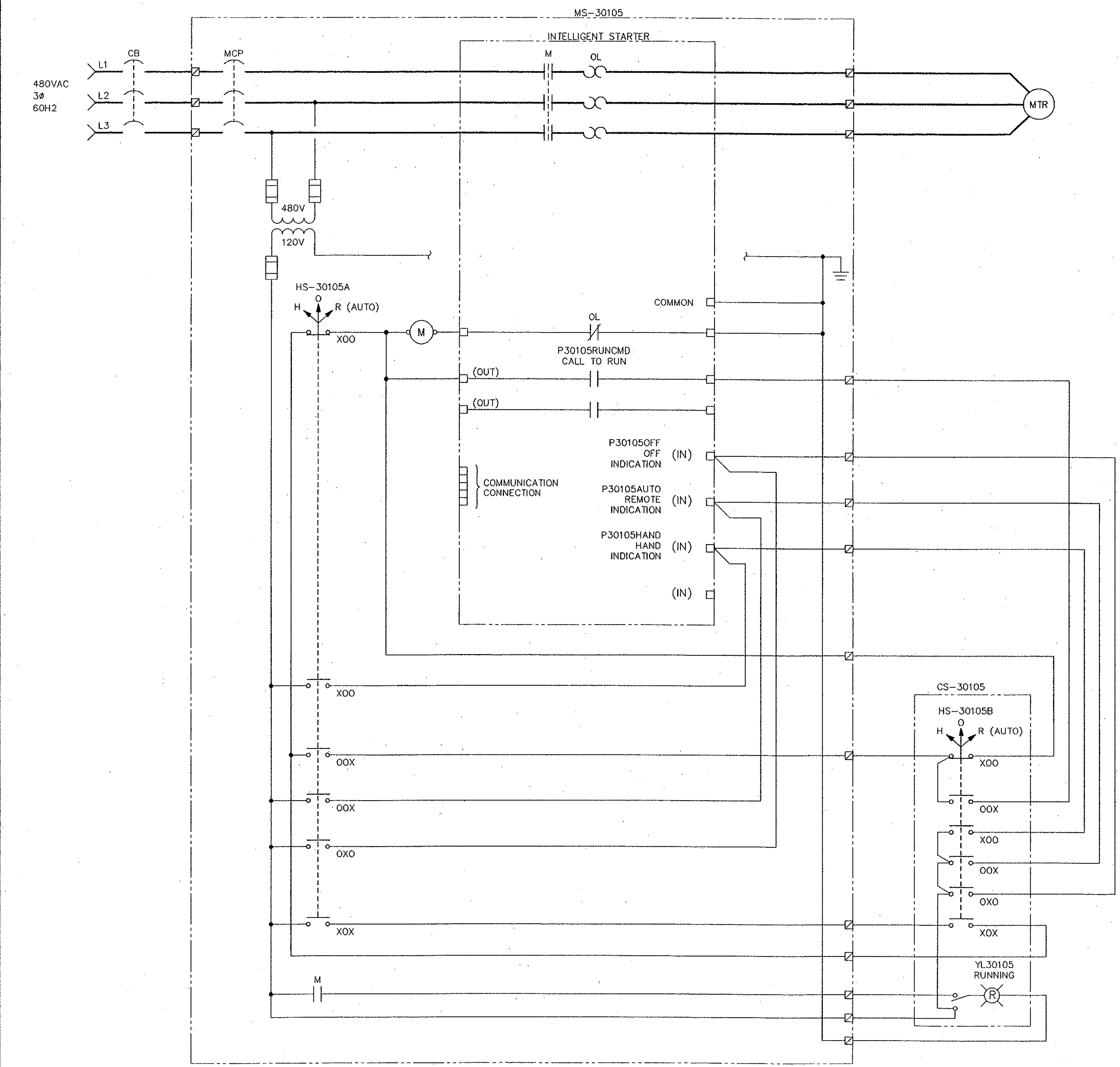
ELECTRICAL

CONTROL DIAGRAM 1

CADFILE E8253105
DATE 07-02-01
OPERATOR RTanner

DRAWING NO.
E103

SHEET NUMBER
71 OF 79



P 30105	VALVE/METER VAULT SUMP PUMP 1
P 30106	VALVE/METER VAULT SUMP PUMP 2
P 30143	ODOR CONTROL FAN 1
P 30144	ODOR CONTROL FAN 2

GENERAL NOTES:

A. CONTROL DIAGRAMS REPRESENTING MORE THAN ONE EQUIPMENT ITEM INDICATES THE AUXILIARY DEVICE TAG NUMBER FOR THE FIRST LISTED EQUIPMENT ITEM IN THE ASSOCIATED ADAPTER TABLE. THE AUXILIARY DEVICE TAG NUMBERS FOR EACH PIECE OF EQUIPMENT SHALL DEPICT THE CORRESPONDING TAG NUMBERS OF THE OTHER EQUIPMENT LISTED IN THE ADAPTER TABLE.

McCLUGGAGE VAN SICKLE & PERRY
Professional Engineering Consultants
BROWN AND CALDWELL

SUBMITTED: DATE: 11/01
APPROVED: PROJECT MANAGER BROWN AND CALDWELL DATE: 11/01
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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

ELECTRICAL

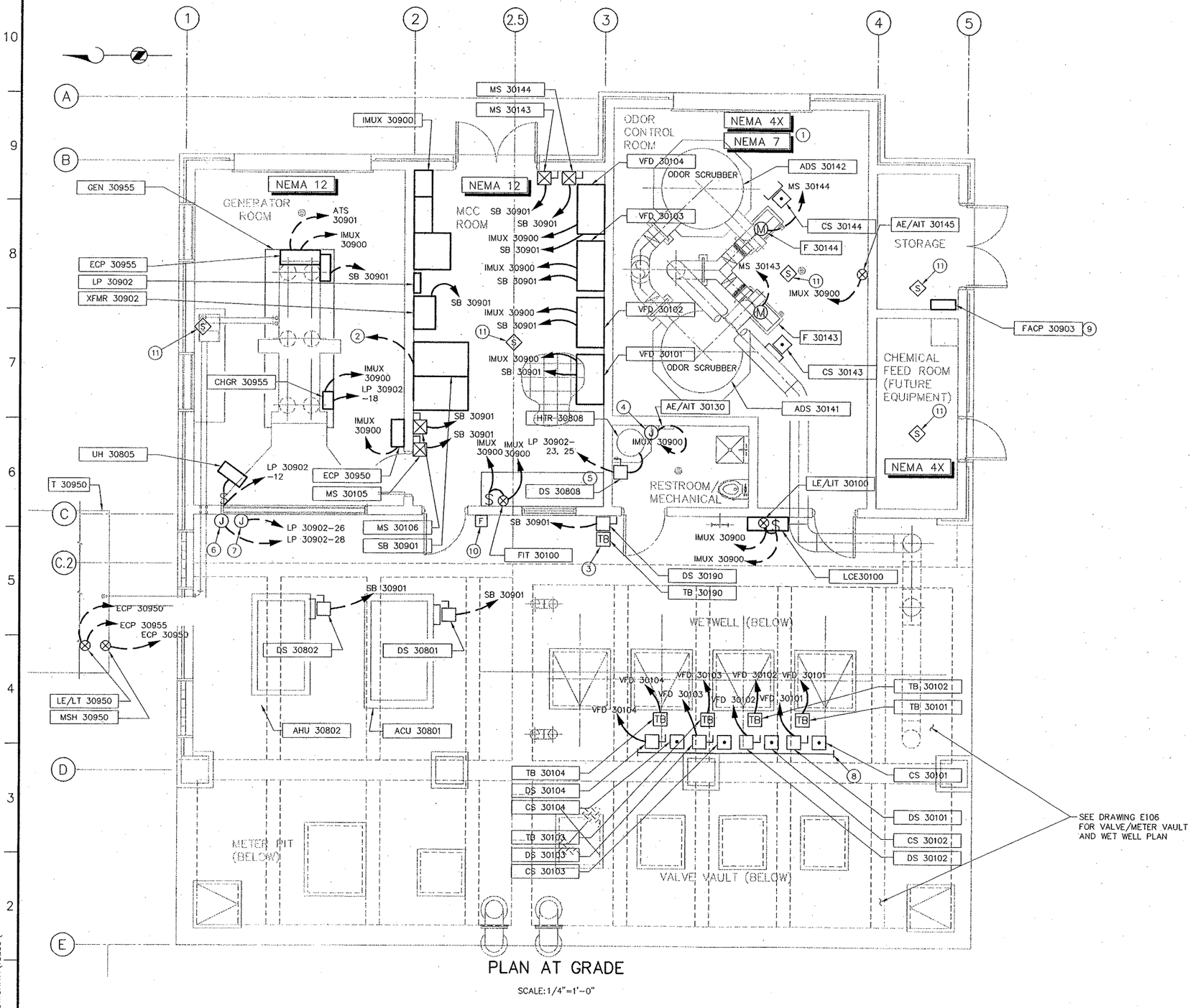
CONTROL DIAGRAM 2

CADFILE E8253106
DATE 06-28-01
OPERATOR RTanner

DRAWING NO. E104

SHEET NUMBER 72 OF 79

WICHTBLK
PATH: (bcden01) P:\CAD\OWICHITA\18253\



PLAN AT GRADE

SCALE: 1/4"=1'-0"

KEY NOTES:

1. THE ENVELOPE 3 FOOT OUT FROM FANS, DAMPERS, FLEXIBLE CONNECTIONS, FLANGES, PRESSURIZED UNWELDED DUCT WORK AND ODOR CONTROL VESSELS SHALL BE CLASSIFIED AS A CLASS 1, DIVISION II HAZARDOUS AREA. THE REMAINING AREA SHALL BE CLASSIFIED A SHOWN.
2. TO UTILITY TRANSFORMER. SEE DRAWING C4 FOR CONTINUATION.
3. LOCATE TERMINAL BOX AT A FEASIBLE LOCATION AS DIRECTED BY THE HOIST MANUFACTURER. EXTEND THE CONDUIT AND THE CONDUCTORS FROM THE TERMINAL BOX TO THE MANUFACTURER'S HOIST TERMINAL POINTS AND TERMINATE AS REQUIRED BY THE MANUFACTURER.
4. LOCATE AS REQUIRED TO ACCOMMODATE CHLORINE RESIDUAL ANALYZER. SEE DRAWING M102.
5. PROVIDE 30A DISCONNECT SWITCH FOR WATER HEATER.
6. LOCATE JUNCTION BOX ADJACENT TO FUEL STORAGE TANK HEATER CONTROLLER. EXTEND CONDUIT AND WIRE FROM THE JUNCTION BOX TO THE CONTROLLER AND CONNECT AS REQUIRED BY THE MANUFACTURER.
7. LOCATE JUNCTION BOX ADJACENT TO FUEL LINES TO/FROM BULK STORAGE TANK. EXTEND CONDUIT AND WIRE FROM JUNCTION BOX TO HEAT TRACE CONTROLLER AND CONNECT AS REQUIRED BY THE MANUFACTURER.
8. SEE DETAIL A/E5 FOR MOUNTING STAND DETAIL. CONDUITS TO/FROM VARIABLE FREQUENCY DRIVES SHALL BE ROUTED IN THE ROOF TRUSSES. SEE DETAIL B/E5 FOR ADDITIONAL INSTALLATION REQUIREMENTS.
9. FIRE ALARM CONTROL PANEL PER SPECIFICATION 16185. CONDUIT SHALL BE PROVIDED TO EACH FIRE ALARM SYSTEM COMPONENT AS REQUIRED BY THE MANUFACTURER. CABLE SHALL BE PROVIDED BY THE FIRE ALARM SYSTEM SUPPLIER. A SIGN SHALL BE PLACED ON THE EXTERIOR OF THE STORAGE ROOM DOOR THAT READS "FIRE ALARM PANEL INSIDE". A SIGN SHALL BE PLACED ADJACENT TO THE FIRE ALARM PANEL THAT READS " LOCAL ALARM ONLY – CALL FIRE DEPARTMENT".
10. FIRE ALARM SYSTEM MANUAL PULL STATION PER SPECIFICATION SECTION 16185.
11. FIRE ALARM SYSTEM AREA SMOKE DETECTOR PER SPECIFICATION SECTION 16185.

PATH: (bcden01) P:\CAD\OWICHITA\18253\ WICHTBLK S_GRDPLAN M_GRDPLAN

BROWN AND CALDWELL
McCLUGGAGE VAN SICKLE & PERRY
Professional Engineering Consultants

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 11/01
APPROVED: _____ DATE:

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

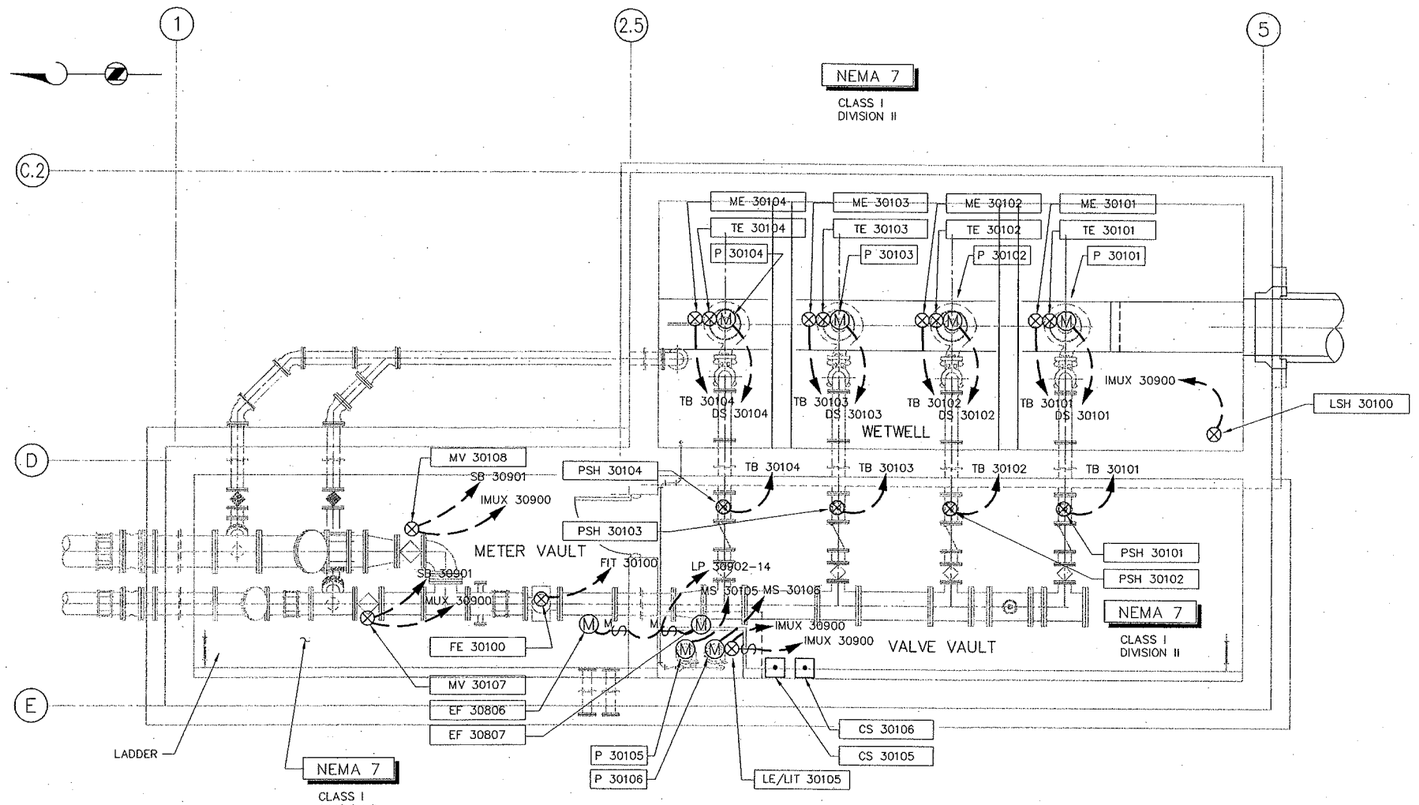
ELECTRICAL

POWER PLAN

CADFILE E8253108
DATE 07-24-01
OPERATOR GMajok

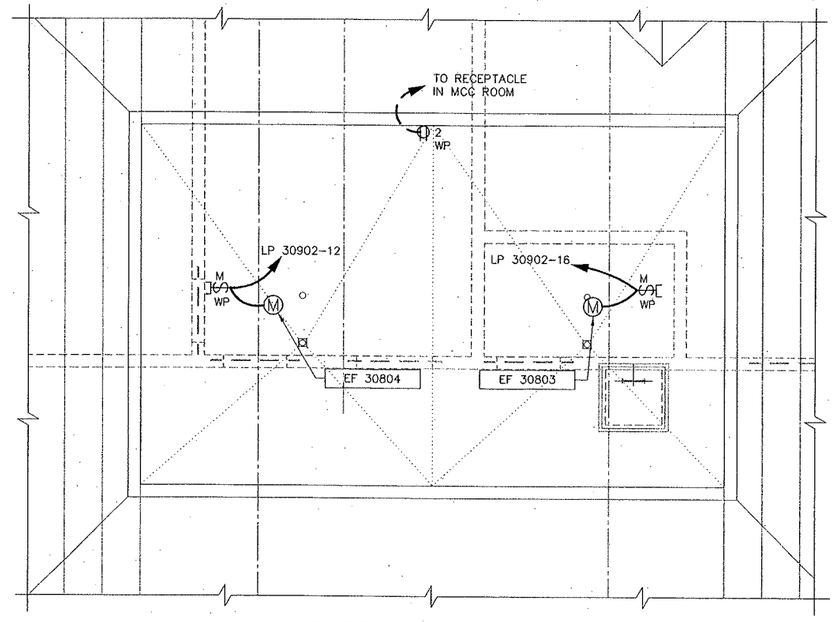
DRAWING NO. E105

SHEET NUMBER 73 OF 79



PLAN AT WETWELL, VALVE VAULT AND METER VAULT

SACLE: 1/4"=1'-0"



PARTIAL ROOF PLAN

SACLE: 1/4"=1'-0"

S_ROOFPLAN
S_WWSEC
M_WWSEC
M_WWPLAN
S_WWPLAN
WICHTBLK

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BROWN AND CALDWELL

SUBMITTED: _____ DATE: 11/01
APPROVED: _____ DATE: 11/01
APPROVED: _____ DATE: _____

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

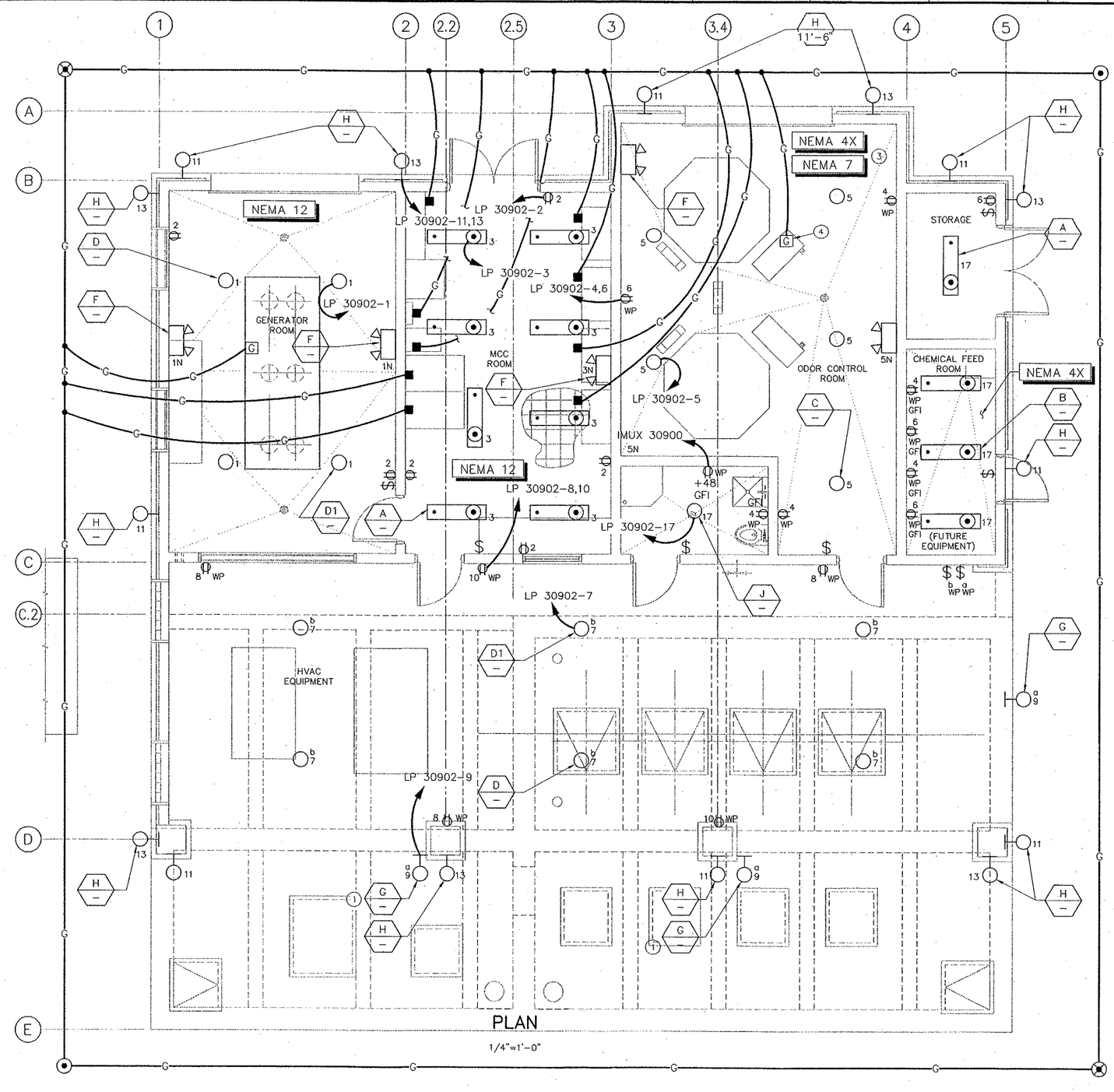
ELECTRICAL

WETWELL, VALVE/METER VAULT, ROOF – POWER PLAN AND SECTION

CADFILE E8253109
DATE 08-06-01
OPERATOR GMajak

DRAWING NO.
E106

SHEET NUMBER
74 OF 79



PLAN

1/4"=1'-0"

KEY NOTES:

1. MOUNT ABOVE TYPE H FIXTURES.
2. LOCATE AS REQUIRED TO ACCOMMODATE CHLORINE RESIDUAL ANALYZER. SEE DWG. M102.
3. THE ENVELOPE 3 FOOT OUT FROM FANS DAMPERS, FLEXIBLE CONNECTIONS, FLANGES, PRESSURIZED UNWELDED DUCTWORK AND ODOR CONTROL VESSELS SHALL BE CLASSIFIED AS A CLASS I, DIVISION II HAZARDOUS AREA. THE REMAINING AREA SHALL BE CLASSIFIED AS SHOWN.
4. TYPICAL GROUND CONNECTION AT EQUIPMENT. REFERENCE SPECIFICATION SECTION 16450.

WICHTBLK

S_GRDPLAN

PATH: (bcden01) P:\CAD\OWCHITA\18253\

BROWN AND CALDWELL

McCLOWAGE VAN SICKLE & PERRY

SUBMITTED: DATE: 11/01

APPROVED: DATE: 11/01

APPROVED: DATE:

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"-SCALE ACCORDINGLY)

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15931
11/16/01
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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

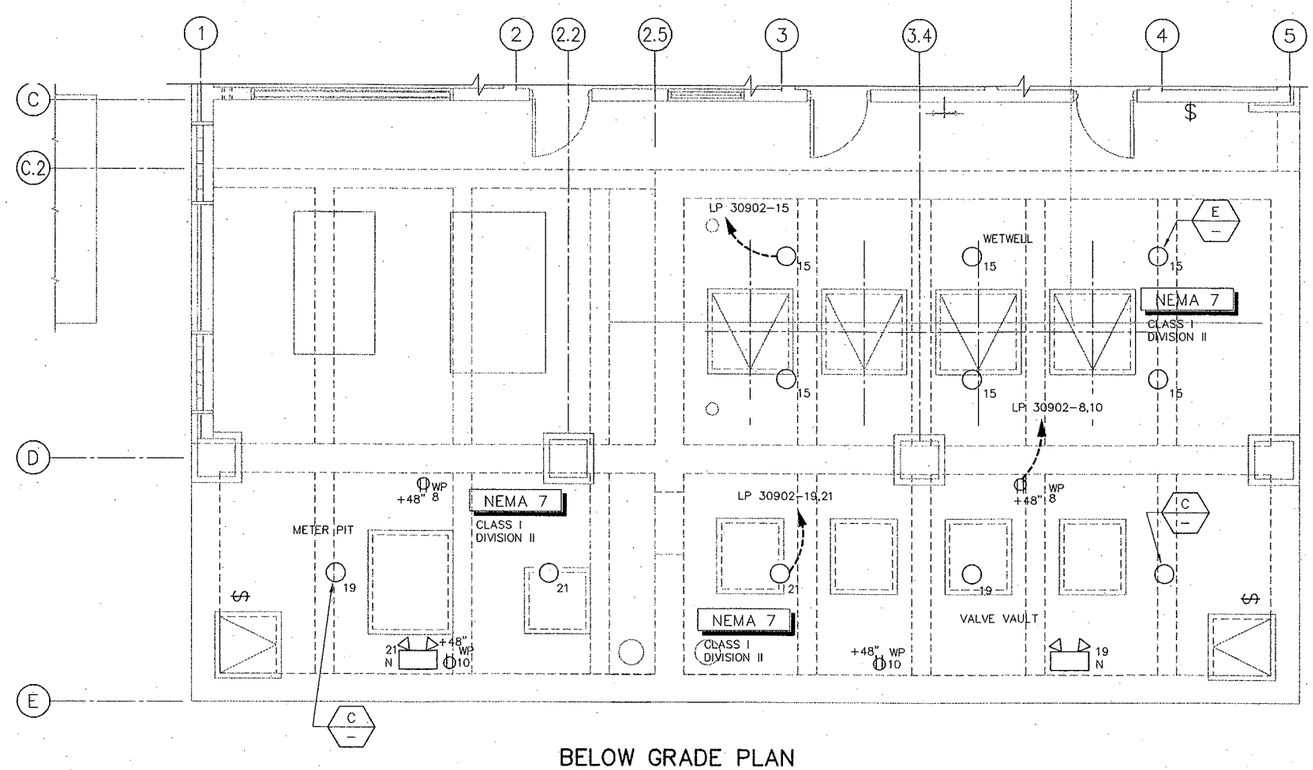
ELECTRICAL

LIGHTING AND GROUNDING PLAN

CADFILE E8253100
DATE 05-31-01
OPERATOR GMajok

DRAWING NO. E107

SHEET NUMBER 75 OF 79



BELOW GRADE PLAN

1/4"=1'-0"

Professional Engineering Consultants	McCLELLAND VAN SICKLE & PERRY	BROWN AND CALDWELL
SUBMITTED:	DATE: 11/01	
APPROVED:	DATE: 11/01	
APPROVED:	DATE:	

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15931
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NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

ELECTRICAL

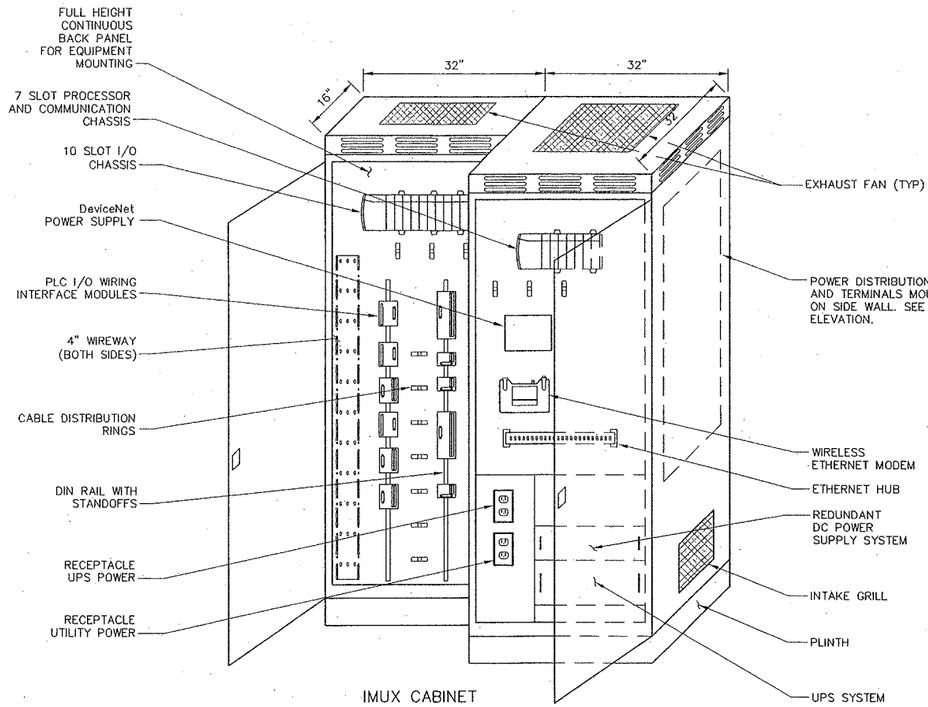
WETWELL, VALVE/METER VAULT LIGHTING PLAN

CADFILE E8253101
DATE 03-21-01
OPERATOR GMajak

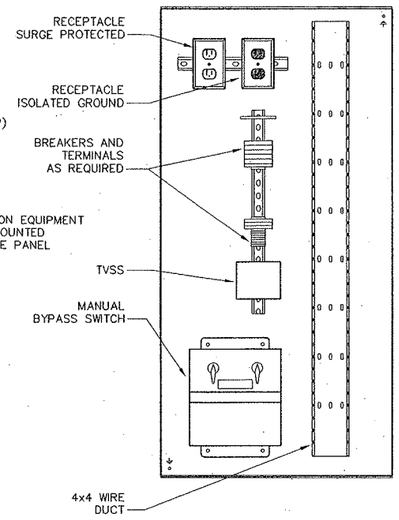
DRAWING NO.
E108

SHEET NUMBER
76 OF 79

PATH: (bcden01) P:\CAD\OWCHITA\18253\
S_GRDPLAN
WICHTBLK



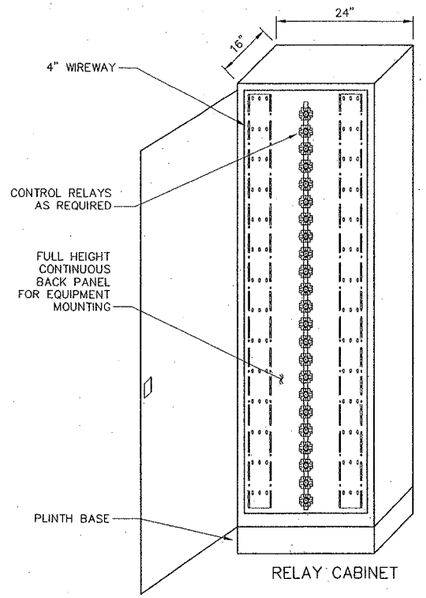
IMUX CABINET



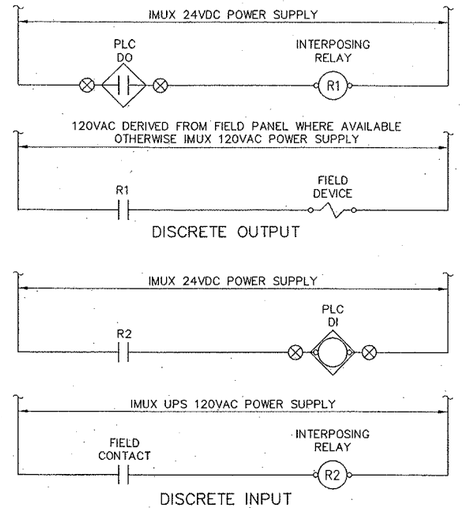
TYPICAL SIDE PANEL ELEVATION

DETAIL A/VAR

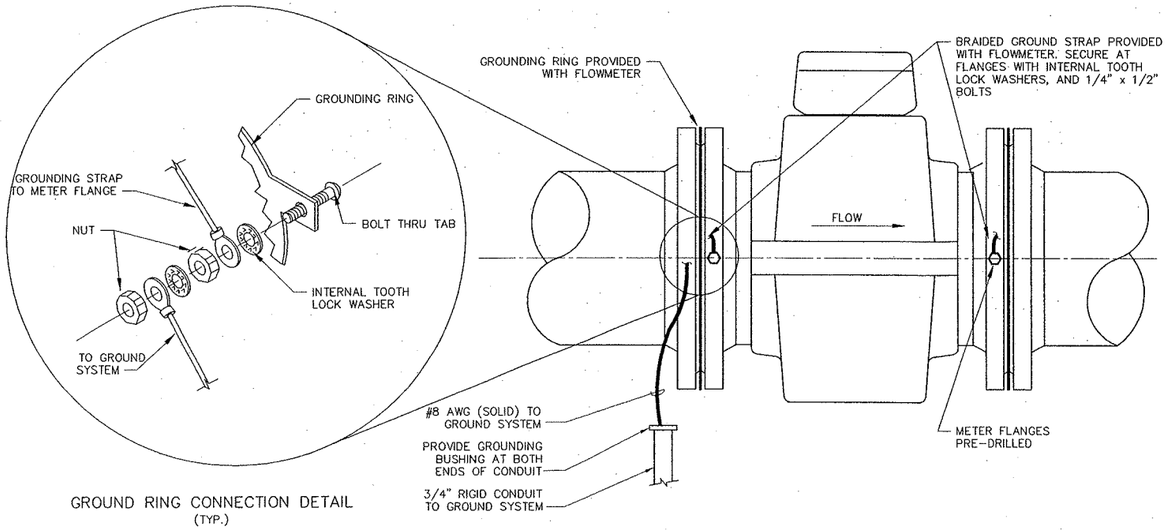
NO SCALE



RELAY CABINET



TYPICAL RELAY PANEL WIRING

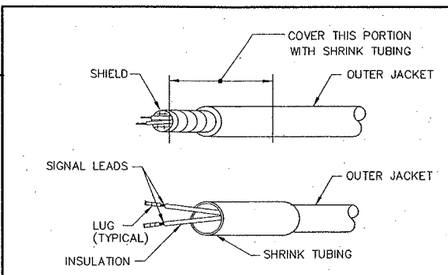


GROUND RING CONNECTION DETAIL (TYP.)

GROUNDING AT FLOWMETER

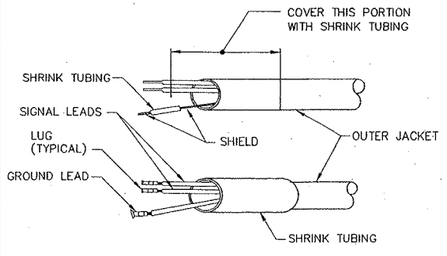
DETAIL B/VAR

NO SCALE



TERMINATION OF SHIELDED CONTROL CABLE

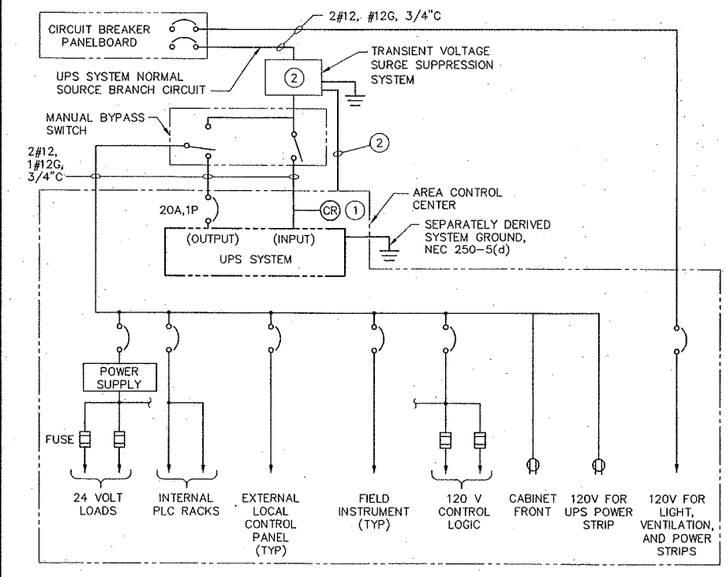
SHIELD NOT GROUNDED AT TERMINATION



SHIELD GROUNDED AT TERMINATION

DETAIL C/TYP

NO SCALE



NOTES:
1. POWER FAILURE RELAY OUTPUT CONTACTS SHALL BE WIRED TO PRODUCE AN "ACC POWER SUPPLY FAILURE" ALARM. (OPEN ON ALARM)
2. TVSS SYSTEM STATUS SIGNAL CIRCUIT. ROUTE CONDUCTORS IN 3/4" CONDUIT TO PROCESS CONTROL PANEL WITH POWER CIRCUIT CONDUCTORS.

TYPICAL UPS SYSTEM/ ACC POWER WIRING

DETAIL D/TYP

NO SCALE

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McCLELLAND VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED:	DATE: 11/01	
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APPROVED:	DATE:	

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FILE 18253
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REGISTERED PROFESSIONAL ENGINEER — DAVID A. MYERS — 15831 — 11/16/01 — KANSAS

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

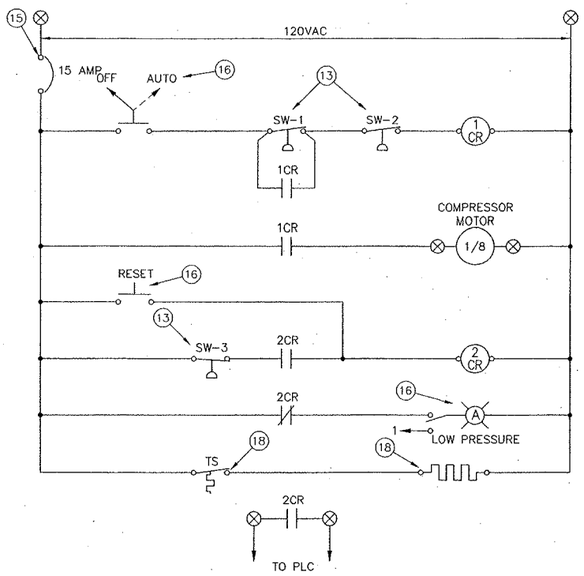
INSTRUMENTATION

STANDARD DETAILS

CADFILE 18253100
DATE 07-25-01
OPERATOR GMajak

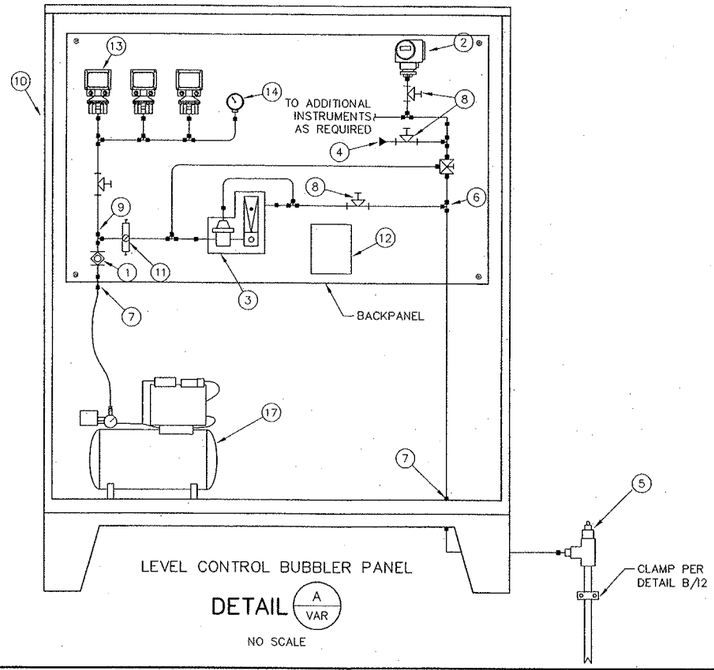
DRAWING NO. 11

SHEET NUMBER 77 OF 79



SW-1 CLOSES AT 50 PSIG DECREASING
SW-2 OPENS AT 70 PSIG INCREASING
SW-3 OPENS AT 45 PSIG DECREASING

BUBBLER AIR COMPRESSOR CONTROL DIAGRAM



LEVEL CONTROL BUBBLER PANEL

DETAIL A/VAR

NO SCALE

GENERAL NOTE:

A. THE EQUIPMENT LIST CONTAINS MAJOR EQUIPMENT NEEDED FOR INSTALLATION OF THE DEVICES PROVIDED BUT DOES NOT NECESSARILY INCLUDE ALL ITEMS NEEDED FOR A COMPLETE INSTALLATION.

EQUIPMENT LIST:

(1) BALL VALVE

(2) MONITORING PRESSURE TRANSMITTER(S).

(3) AIR PURGE ROTAMETER ASSEMBLY.

(4) CLAIBRATION/TEST PORT.

(5) BUBBLE PIPE: SEE DETAIL C/12, REFER TO MECHANICAL DRAWINGS.

(6) PURGE VALVE.

(7) BULKHEAD UNION.

(8) NEEDLE VALVE.

(9) 1/4" 316 STAINLESS STEEL TUBING AND FITTINGS.

(10) FREE STANDING PANEL IN ACCORDANCE WITH SPECIFICATION 17211 INSTRUSPEC LCE AND 17110. PROVIDE NAMEPLATES MECHANICALLY ATTACHED TO THE BACK PANEL FOR THE FOLLOWING:

A. SERVICE AIR PORT.
B. PURGE LINE PORT.
C. STATIC PRESSURE PORT.
D. PURGE METER.
E. PRESSURE TRANSMITTERS.
F. PURGE VALVE INDICATING EA POSITION.
G. CALIBRATION/TEST PORT.
H. BUBBLER PANEL IDENTIFICATION.
I. AIR SET.

(11) ADJUSTABLE AIR SET.

(12) BUBBLER SYSTEM PURGE INSTRUCTIONS.

(13) COMPRESSOR CONTROL PRESSURE SWITCHES.

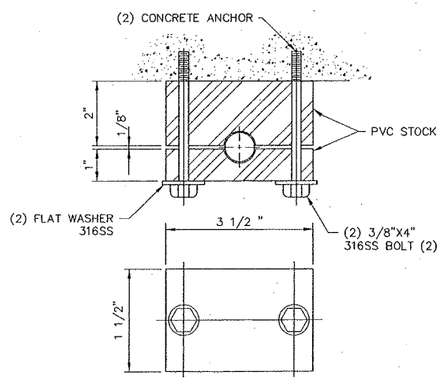
(14) DOOR MOUNTED PRESSURE GAUGE.

(15) DIN RAIL MOUNTED CIRCUIT BREAKER IN ACCORDANCE WITH DIVISION 16 SPSECIFICATIONS.

(16) SELECTOR SWITCH, INDICATING LIGHT, AND PUSHBUTTON IN ACCORDANCE WITH DIVISION 16 SPECIFICATIONS. CONTROL AND INDICATING DEVICES SHALL BE DOOR MOUNTED.

(17) COMPRESSOR AND TWO GALLON RECEIVING TANK, THOMAS MODEL 607CA22. COMPRESSOR SHALL BE MOUNTED TO THE FLOOR OF THE ENCLOSURE WITH VIBRATION ISOLATERS. ONE SPARE COMPRESSOR AND RECEIVER TANK SHALL BE PROVIDED.

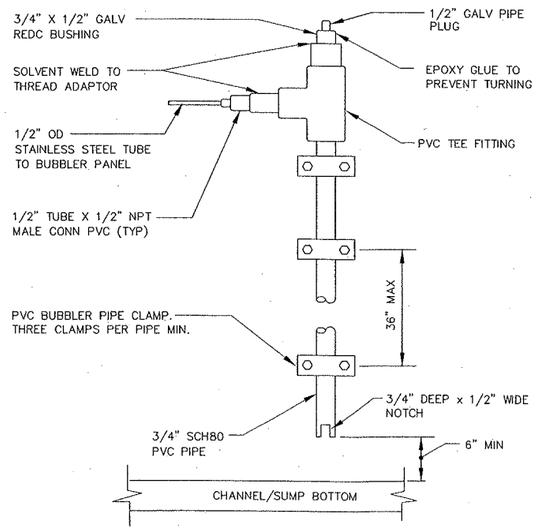
(18) THERMOSTATICALLY CONTROLLED STRIP HEATER SHALL BE PROVIDED IN OUTDOOR ENCLOSURES.



PIPE CLAMP

DETAIL B/VAR

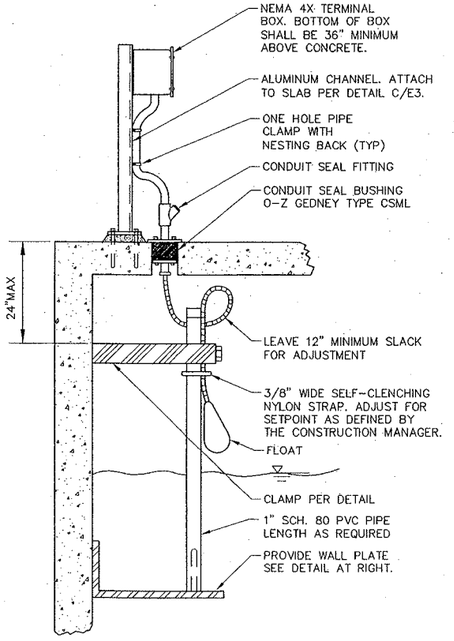
NO SCALE



BUBBLE PIPE ASSEMBLY

DETAIL C/VAR

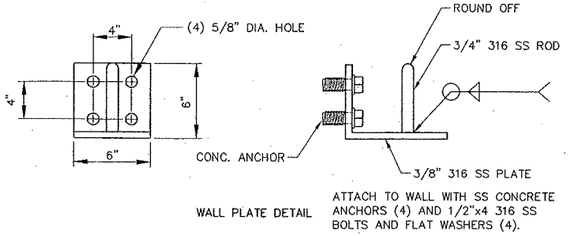
NO SCALE



DIRECT ACTIND FLOAT SWITCH

DETAIL D/VAR

NO SCALE



WALL PLATE DETAIL

ATTACH TO WALL WITH SS CONCRETE ANCHORS (4) AND 1/2"x4 316 SS BOLTS AND FLAT WASHERS (4).

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Professional Engineering Consultants

McCLUGGAGE VAN SICKLE & PERRY

BROWN AND CALDWELL

SUBMITTED: _____ PROJECT MANAGER DATE: 11/01

APPROVED: _____ BROWN AND CALDWELL DATE: 11/01

APPROVED: _____ DATE: _____

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS
MAIN PUMPING STATION

INSTRUMENTATION

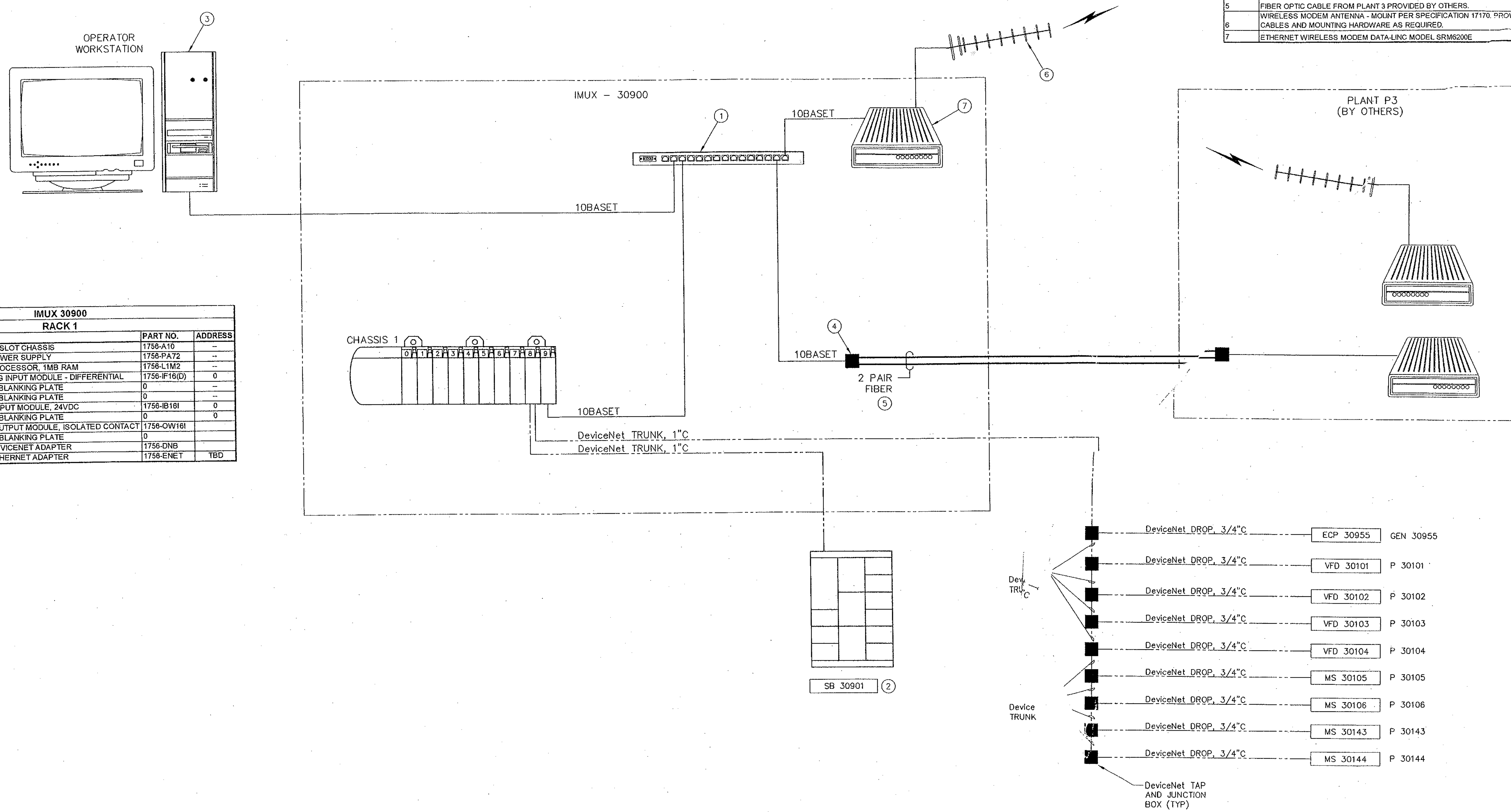
STANDARD DETAILS 2

CADFILE 18253102
DATE 08-07-01
OPERATOR GMajak

DRAWING NO. 12

SHEET NUMBER 78 OF 79

KEYNOTES	
1	ETHERNET HUB, PROVIDED UNDER SPECIFIATION SECTION 17320
2	SEE SWITCHBOARD ONE-LINE DIAGRAMS AND SPECIFICATIONS FOR DETAILED DEVICE CONNECTION INFORMATION.
3	COMPUTER OPERATOR WORKSTATION, PROVIDED UNDER SPECIFICATION SECTION 17320
4	ETHERNET FIBER-OPTIC ADAPTER PHOENIX DIGITAL MODEL OCM-ETH-13-P-D-ST-ACV.
5	FIBER OPTIC CABLE FROM PLANT 3 PROVIDED BY OTHERS.
6	WIRELESS MODEM ANTENNA - MOUNT PER SPECIFICATION 17170. PROVIDE CABLES AND MOUNTING HARDWARE AS REQUIRED.
7	ETHERNET WIRELESS MODEM DATA-LINC MODEL SRM6200E



IMUX 30900			
RACK 1			
ITEM NO.	DESCRIPTION	PART NO.	ADDRESS
	CONTROL LOGIX 10-SLOT CHASSIS	1756-A10	--
	CONTROL LOGIX POWER SUPPLY	1756-PA72	--
0	CONTROL LOGIX PROCESSOR, 1MB RAM	1756-L1M2	--
1	8-CHANNEL ANALOG INPUT MODULE - DIFFERENTIAL	1756-IF16(D)	0
2	SPARE SLOT WITH BLANKING PLATE	0	--
3	SPARE SLOT WITH BLANKING PLATE	0	--
4	16-POINT DIGITAL INPUT MODULE, 24VDC	1756-IB16I	0
5	SPARE SLOT WITH BLANKING PLATE	0	0
6	16-POINT DIGITAL OUTPUT MODULE, ISOLATED CONTACT	1756-OW16I	
7	SPARE SLOT WITH BLANKING PLATE	0	
8	CONTROL LOGIX DEVICENET ADAPTER	1756-DNB	
9	CONTROL LOGIX ETHERNET ADAPTER	1756-ENET	TBD

BROWN AND CALDWELL

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2"–SCALE ACCORDINGLY)

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CHECKED BY PRELIM
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SUBMITTED: DATE: 11/01
APPROVED: BROWN AND CALDWELL DATE: 08AP01
APPROVED: DATE:

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CITY OF WICHITA

NORTHWEST SEWER IMPROVEMENTS MAIN PUMPING STATI(

INSTRUMENTATION

IMUX 30900 PROCESS CONTROL SYSTEM ARCHITECTURE

CADFILE 18253101
DATE 08-07-01
OPERATOR GMajal:
DRAWING NO I3
SHEET NUMBER 79 OF 79

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