MARK-UP COPY

CITY OF AVONDALE

4th STREET WASTEWATER LIFT STATION IMPROVEMENTS

SET NO. ________

City of Avondale

MAYOR
MARIE LOPEZ-ROGERS

VICE MAYOR
CHARLES WOLF P.E.

COUNCIL
JASON EARP
BETTY S. LYNCH
JIM BUSTER
FRANK SCOTT

CITY ENGINEER
CARNELL THURMAN, P.E.
CITY ENGINEER
11465 WEST CIVIC CENTER DRIVE SUITE 120
AVONDALE, ARIZONA
TEL. (623)-478-3270
FAX (623)-478-3812

ENGINEER
ROTHBERG, TAMBURINI & WINSOR, INC.
2999 NORTH 44th STREET, SUITE 330
PHOENIX, AZ 85018
TEL. (602)-954-2387
FAX. (602)-954-8213
CONTACT: DON CHILTON

BENCHMARK INFO

THE VERTICAL DATUM IS BASED UPON A CITY OF AVONDALE BENCHMARK, BEING A 3 INCH MCHD BCHH IN THE INTERSECTION OF LITCHFIELD ROAD AND LOWER BUCKEYE ROAD.
CITY OF AVONDALE ELEVATION = 964.12'

ROTHBERG, TAMBURINI & WINSOR, INC.

Professional Engineers & Consultants
Phoenix, Arizona

JUNE 2006

(REVISION 1)

UTILITY CONFLICT SIGNATURE BLOCK

THESE PLANS HAVE BEEN SUBMITTED TO THE FOLLOWING UTILITY COMPANIES. WHERE THE WORK TO BE DONE CONFLICTS WITH ANY OF THESE UTILITIES, THE CONFLICTS SHALL BE RESOLVED AS SPECIFIED IN THE SPECIAL NOTES AND/OR AS OTHERWISE NOTED ON THESE PLANS. CONFLICTS ARISING DURING THE COURSE OF CONSTRUCTION FROM UNFORESEEN CIRCUMSTANCES SHALL BE REPORTED TO THE INTERESTED UTILITY COMPANY AND BE RESOLVED BY THEM AND THE DESIGN ENGINEER.

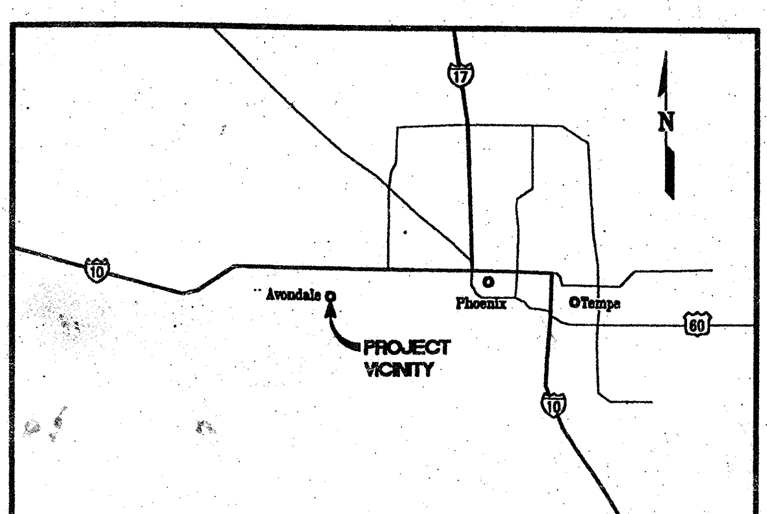
	COMPANY REPRESENTATIVE	DATE	
SALT RIVER PROJECT POWER	AL BAIZEL (602)-236-0840		OH ONLY
ARIZONA PUBLIC SERVICE	BOBBY GARZA (602)-371-7989		OH ONLY
WEST COMMUNICATIONS	MATTHEW PHILLIPS (602)-630-1393		
COX COMMUNICATIONS	SUZANNE HOLAVE (623)-328-3522		
SOUTHWEST GAS	N/A		
S.R.V.W.U.A.	N/A		
ROOSEVELT IRRIGATION DISTRICT	N/A		
EL PASO NATURAL GAS	N/A		
WILTEL COMMUNICATION LLC	N/A		

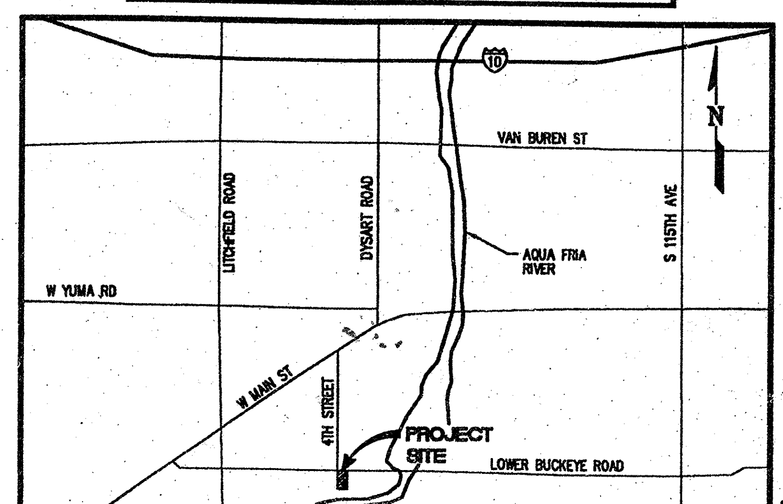
AS-BUILT CERTIFICATION:

I HEREBY CERTIFY THAT THE "AS-BUILT" LOCATIONS SHOWN HEREON WERE PERFORMED BY OR UNDER MY SUPERVISION ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

SIGNATURE ________ DATE ________

INDEX OF SHEETS





APPROVED BY:

CITY ENGINEERING DEPARTMENT ________ DATE ________

THE CITY APPROVES THESE PLANS FOR CONCEPT ONLY AND ACCEPTS NO LIABILITY FOR ERRORS

...IRONMENTAL SERVICES ________ DATE ________

NOTE
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CERTIFICATE NO. 28038 DONALD G. CHILTON ARIZONA, U.S.A.

1-800-STAKE-IT

(08) (G01)B-Cover.dwg H:\7311ch\ JUN 15, 2006 @ 08:40:15 am - (TONYF)

MARK-UP COPY

CITY OF AVONDALE

4th STREET WASTEWATER LIFT STATION IMPROVEMENTS

City of Avondale

ROTHBERG, TAMBURINI & WINSOR, INC.

Professional Engineers & Consultants
Phoenix, Arizona

JUNE 2006

(REVISION 1)

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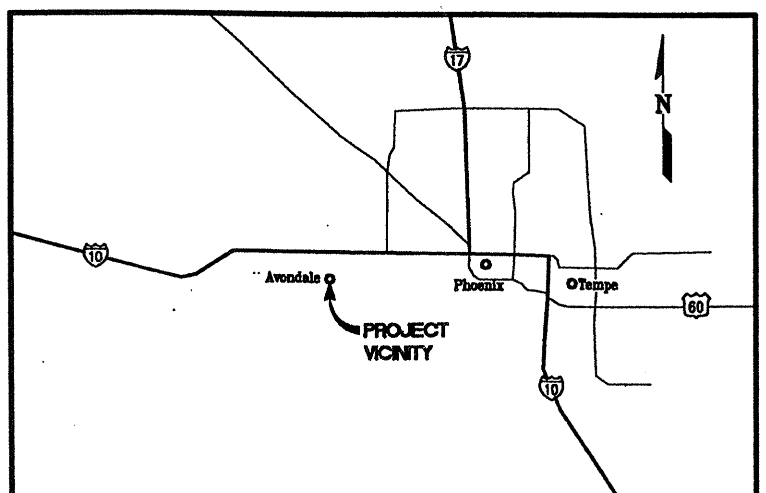

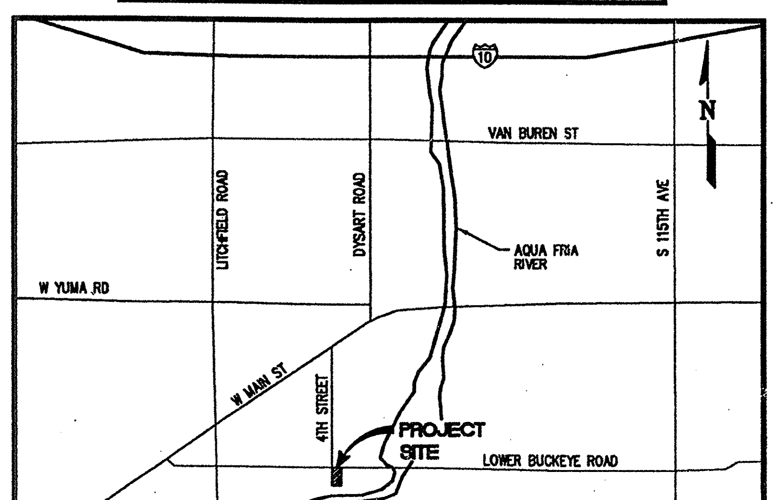

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28038
DONALD C. CHILTON
ARIZONA, U.S.A.

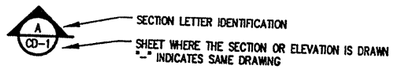
7AM-THUS @ ...
94-B ...

(08) (501)8-Cover.dwg ... JUN 15, 2006 @ 08:40:15 am - (TOWF)

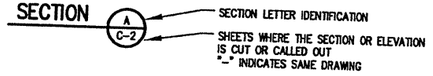
GENERAL ABBREVIATIONS

ABAN	ABANDON
ADJ	ADJUSTABLE, ADJACENT
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
ALT	ALTERNATE
APPROX	APPROXIMATE
ARV	AIR/VACUUM RELEASE VALVE
ASPH	ASPHALT
AWWA	AMERICAN WATER WORKS ASSOCIATION
BFD	BUTTERFLY DAMPER
BLDG	BUILDING
BM	BENCH MARK
BV	BALL VALVE
BLK	BLOCK
BOT	BOTTOM
C	CONDUIT
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CF	CUBIC FEET
CI	CAST IRON
℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CLR	CLEARANCE
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONST	CONSTRUCTION
COR	CORNER
CJ	CONTROL JOINT
CTRS	CENTERS
CU FT	CUBIC FEET
DEFL	DEFLECTION
DEMO	DEMOLITION
DIA,ø	DIAMETER
DIP	DUCTILE IRON PIPE
DN	DOWN
DWG	DRAWING
E	EAST, EASTING, ELECTRIC
EL	ELEVATION
ELEC	ELECTRICAL
EOA	EDGE OF ASPHALT
ESMT	EASEMENT
EW	EACH WAY
EXP BT	EXPANSION BOLT
EXST	EXISTING
FAD	FOUL AIR DUCT
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FES	FLARED END SECTION
FF	FINISH FLOOR
℄	FLOW LINE
FLG	FLANGE
FM	FORCE MAIN
FO	FIBER OPTIC
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET
G	GAS
GA	GUY ANCHOR
GB	GRADE BREAK
GYP BD	GYPSUM BOARD
HP	HORSEPOWER
HWL	HIGH WATER LINE
HORIZ	HORIZONTAL
HWY	HIGHWAY
ID	INSIDE DIAMETER
INSUL	INSULATION
INV	INVERT
INV EL	INVERT ELEVATION
JT	JOINT
L	LEFT
LB	POUND
LF	LINEAR FOOT
LR	LONG RADIUS
LWL	LOW WATER LEVEL
MAX	MAXIMUM
ME	MECHANICAL
MFR	MANUFACTURE
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
N	NORTH, NORTHING
NEG	NEGATIVE
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OE	OVERHEAD ELECTRIC
OH	OVERHEAD ELECTRIC
PC	POINT OF CURVATURE
PERM	PERMANENT
PE	PROPOSED ELECTRIC
PGA	PROPOSED GUY ANCHOR
PL	PLATE
PP	PROPOSED POWER
PPP	PROPOSED POWER POLE
PROJ	PROJECTION
PRV	PRESSURE REDUCING VALVE OR PRESSURE RELIEF VALVE
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RIGHT
RCP	REINFORCED CONCRETE PIPE
REINF	REINFORCE (D) (ING) (MENT)
REQD	REQUIRED
ROW	RIGHT OF WAY
S	SOUTH
SAN	SANITARY SEWER
SCH	SCHEDULE
SEC	SECTION
SF	SQUARE FOOT
SPEC	SPECIFICATION
SS	SANITARY SEWER
SST	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
T&B	TOP AND BOTTOM
TB	THRUST BLOCK
TEMP	TEMPORARY
TH	TEST HOLE
THD	THREAD (ED)
THK	THICK
TYP	TYPICAL
UGE	UNDERGROUND ELECTRICAL
UGT	UNDERGROUND TELEPHONE
UT	UNDERGROUND TELEPHONE
V	VERTICAL
VCP	VITRIFIED CLAY PIPE
WL	WATER LINE
W	WEST, WATER
W/	WITH
W/O	WITHOUT
XSECT	CROSS SECTION

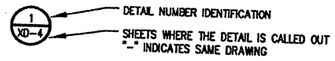
SYMBOLS



SECTION OR ELEVATION MARKER
ARROW INDICATES VIEWING ORIENTATION



SECTION OR ELEVATION TITLE



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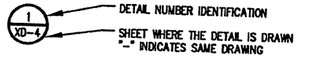


DETAIL MARKER

LEGEND

□ TV PED	EXISTING CABLE PEDESTAL
○ PPP	PROPOSED POWER POLE
⊡ EM	EXISTING ELECTRIC METER
⊡ EV	EXISTING ELECTRIC VAULT
□ XFMR	EXISTING TRANSFORMER
UG G	EXISTING GAS LINE & METER
UT	EXISTING TELEPHONE LINE
SS	EXISTING SANITARY SEWER LINE AND MANHOLE
	PROPOSED SEWER LINE AND MANHOLE
AE	EXISTING OVERHEAD ELECTRIC
PP	PROPOSED NEW UNDERGROUND ELECTRIC
	CONSTRUCTION EASEMENT LINE
	PERMANENT EASEMENT LINE
	PROPERTY LINE
Ⓢ	EXISTING SIGN AND POST
△	SURVEY CONTROL POINT
	GEOTECHNICAL SOIL BORING, SPEC SEC 00220

	EARTH
	GROUT (IN SECTION) OR CRUSHED STONE (IN PLAN)
	GRAVEL, RIPRAP OR STONE
	CONCRETE
	RIGID INSULATION
	BUSHES, TREES
	EXISTING STRUCTURE
	NEW STRUCTURE
	CONCRETE MASONRY UNIT
	DRAINAGE FLOW LINE
X X	EXISTING FENCE
	EXISTING CULVERT
	NEW CULVERT
4321	PROPOSED CONTOUR
4321	EXISTING CONTOUR
	PALM TREE

CERTIFICATE NO. 28038 DONALD G. CHILTON ARIZONA U.S.A.

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
1	6/06	JDC	ALF	ABBREVIATIONS ADDED

DESIGNED BY: JHF
DRAWN BY: HIB
CHECKED BY: DGD
DATE: APRIL 2006
PN: CH-7311-SD

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
ABBREVIATIONS, SYMBOLS & LEGEND

SHEET NO.
G-2

ENGINEERS NOTES:

1. MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION INCLUDING LATEST REVISION AND CURRENT SUPPLEMENTS THEREOF PER THE CITY OF AVONDALE) ARE INCORPORATED INTO THESE PLANS IN THEIR ENTIRETY.

2. ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THESE PLANS SHALL BE IN ACCORDANCE WITH THE MAG STANDARD SPECIFICATIONS AND DETAILS AND CURRENT SUPPLEMENTS THEREOF PER THE CITY OF AVONDALE UNLESS SPECIFIED OTHERWISE ON THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH ALL REQUIRED STANDARD SPECIFICATIONS, DETAILS AND SUPPLEMENTS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS.

3. THE CONTRACTOR IS RESPONSIBLE FOR ALL METHODS, SEQUENCING, AND SAFETY USED DURING CONSTRUCTION UNLESS SPECIFICALLY ADDRESSED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS.

4. THE CONTRACTOR IS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THESE PLANS.

5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL PERMITS REQUIRED TO COMPLETE ALL WORK COVERED BY THESE PLANS.

6. THE QUANTITIES AND SITE CONDITIONS DEPICTED IN THESE PLANS ARE FOR ESTIMATED INFORMATIONAL PURPOSES ONLY. CONTRACTORS SHALL SATISFY THEMSELVES AS TO THE ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS.

7. A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND INTERFERENCE'S, FACILITIES, AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL CALL FOR BLUE STAKE (602-263-1100) TWO WORKING DAYS IN ADVANCE PRIOR TO ANY EXCAVATION.

8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL CONSTRUCTION ACTIVITIES AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.

9. THE CONTRACTOR IS TO VERIFY THE LOCATION AND THE ELEVATIONS OF ALL EXISTING UTILITIES AT POINTS OF CROSSING AND TIE-IN PRIOR TO COMMENCING ANY NEW CONSTRUCTION. SHOULD ANY LOCATION OR ELEVATION VARY FROM THAT SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE CITY.

10. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH OTHER CONTRACTORS WORKING IN THE AREA.

11. CONTRACTOR IS RESPONSIBLE TO COORDINATE WORK WITH WEATHER CONDITIONS. PORTIONS OF THE PROJECT ARE LOCATED IN FLOOD PRONE AREAS AND SUBJECT TO FLOODING AND IT'S ASSOCIATED HAZARD.

12. CONSTRUCTION OF SURFACE IMPROVEMENTS SHALL NOT BEGIN UNTIL CONFLICTING UNDERGROUND UTILITY ISSUES HAVE BEEN RESOLVED.

13. ACCEPTANCE BY THE CITY OF THE COMPLETED IMPROVEMENTS SHALL NOT BE GIVEN UNTIL:

    A) REPRODUCIBLE "AS-BUILT RECORD DRAWINGS" HAVE BEEN SUBMITTED BY AN ARIZONA REGISTERED LAND SURVEYOR AND ACCEPTED BY THE CITY ENGINEER. WHEN THE CITY ENGINEER PROVIDES INSPECTION, THE REGISTERED ENGINEER OR LAND SURVEYOR SHALL CERTIFY THAT STAKING WAS PERFORMED UNDER HIS OR HER SUPERVISION AND THE "PROJECT RECORD" ELEVATIONS AND DIMENSIONS SHOWN ON THE PLANS ARE CORRECTLY STATED.

    B) THE CONTRACTOR'S ARIZONA REGISTERED ENGINEER OR SURVEYOR SHALL CERTIFY IN WRITING AS TO THE ACCURATE LOCATION OF ALL SURVEY MONUMENTS.

    C) ALL IMPROVEMENT WORK IS COMPLETED TO THE SATISFACTION OF THE CITY OF AVONDALE INCLUDING UTILITY ADJUSTMENTS, SURVEY MONUMENTS, SIGN BASES, GRADING, AND ANY REPAIRS OR REPLACEMENTS.

14. ALL ACTUAL POINTS OF PAVEMENT MATCHING AND/OR TERMINATION SHALL BE DETERMINED IN THE FIELD BY THE CITY ENGINEER OR HIS REPRESENTATIVE. REQUIREMENTS FOR PAVING WARPING TO MAINTAIN PROPER DRAINAGE SHALL BE AS DIRECTED BY THE CITY ENGINEER.

15. SUBGRADE AND PAVING OPERATIONS SHALL NOT BEGIN UNTIL ALL UTILITY FRAME AND COVER LOCATIONS HAVE BEEN PROPERLY REFERENCED TO FACILITATE ADJUSTMENTS.

16. SUBSTANTIAL COMPLETION INSPECTIONS AND FINAL INSPECTIONS ARE REQUIRED BY THE OWNER OR OWNER'S AGENT.

17. PORTIONS OF THE PROJECT ARE LOCATED WITHIN THE DESIGNATED WATERS OF THE UNITED STATES AND ARE REGULATED BY THE CLEAN WATER ACT SECTION 404. THE CONTRACTOR MUST COMPLY WITH ALL TERMS AND CONDITIONS OF THE NATIONWIDE PERMIT NO. 12.

28038
DONALD G.
CHILTON

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
GENERAL NOTES

PN: CH-7311-SD | DESIGNED BY: JHF
DATE: APRIL, 2006 | DRAWN BY: HB
 | CHECKED BY: DGD

SHEET NO.
G-3

(003)B-General Notes.dwg H:\7311ch\ JUN 15, 2006 @ 08:57:05 am - (TONYF)

VALVE SYMBOLS

CLOSED / OPEN

- GATE VALVE
- KNIFE GATE VALVE
- PLUG VALVE
- GLOBE VALVE
- BALL VALVE
- BUTTERFLY VALVE
- NEEDLE VALVE
- SWING CHECK VALVE
- PILOT OPERATED PRESSURE REDUCING VALVE W/ DOWN STREAM PRESSURE SETTING
- PILOT OPERATED PRESSURE REDUCING VALVE W/ UP STREAM PRESSURE SETTING
- DIAPHRAGM VALVE
- SPRING PRESSURE RELIEF W/ PRESSURE RELIEF
- SLIDE GATE (SG)
- SLUICE GATE (SLU)
- STOP LOGS (SL)
- WEIR PLATE (WP)
- MUD & FOOT VALVE
- AIR RELEASE VALVE (ARV)
- SOLENOID OR MOTOR (S)
- STOP & WASTE VALVE
- TELESCOPING VALVE
- REDUCER (D)

INSTRUMENTATION LEGEND

- EQUIPMENT LOCATION TAG (1)
- DATA LINK OR SOFTWARE SIGNAL
- ELECTRICAL ANALOG SIGNAL
- ELECTRICAL DISCRETE SIGNAL
- PRIMARY PROCESS SIGNAL
- SECONDARY PROCESS SIGNAL
- PROCESS AIR
- VENDOR SUPPLIED EQUIPMENT
- FUTURE PRIMARY PROCESS SIGNAL
- FUTURE SECONDARY PROCESS SIGNAL
- FUTURE EQUIPMENT
- FUTURE ELECTRICAL SIGNAL

P&ID EQUIPMENT SYMBOLS

DRY PIT / WET PIT

- CENTRIFUGAL PUMPS
- SUBMERSIBLE SUMP PUMP
- PROGRESSING CAVITY PUMP
- GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)
- SINGLE – STAGE BLOWER
- MULTI – STAGE BLOWER
- INLINE GRINDER
- HANDLE OR THROTTLE
- MOTOR OPERATOR (M)
- STATIC INLINE MIXER
- PULSATION DAMPENER
- ULTRASONIC FLOW SENSOR
- PROCESS IDENTIFICATION NUMBER (XX/YY) — NUMBER INDICATES SHEET OF PROCESS OR CONTROL CONTINUATION
- PARSHALL FLUME
- ELECTROMAGNETIC FLOW METER (M)
- PROPELLER FLOW METER
- ANNULAR SEAL
- DIAPHRAGM SEAL
- AUTOMATIC VALVE STATION SOLENOID (AVS)
- ORIFICE PLATE
- SILENCER
- ORP SENSOR
- PRESSURE ELEMENT
- SUSPENDED SOLIDS METER (SSM)
- DOUBLE DISC DIAPHRAGM PUMP (POSITIVE DISPLACEMENT)
- ULTRASONIC LEVEL INDICATOR
- DOOR MOUNTED KEYPAD

P&ID INSTRUMENT SYMBOLS

PROGRAMMABLE LOGIC CONTROL / DATA NETWORK / DISCRETE INSTRUMENTS

- HMI GRAPHICAL DISPLAY FEATURE
- AT MCC OR CONTROL PANEL INACCESSIBLE TO OPERATOR
- AT MCC OR CONTROL PANEL ACCESSIBLE TO OPERATOR
- FIELD LOCATED

ACTUATOR SYMBOLS

- ELECTRIC MOTOR (E XX)
- MANUAL OR CHAIN WHEEL
- SOLENOID (S)

NOTE:
ON LOSS OF PRIMARY POWER (PNEUMATIC OR ELECTRIC)
FO = FAIL OPEN
FC = FAIL CLOSED
FLP = FAIL TO LAST POSITION

ABBREVIATIONS

AI	ANALOG INPUT
AO	ANALOG OUTPUT
CLL	CHLORINE LIQUID
CLS	CHLORINE SOLUTION
CV	CONTROL VALVE
D	DECANT WATER
DCS	DISTRIBUTED CONTROL SYSTEM
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DS	DIGESTED SLUDGE
ETM	ELAPSED TIME METER
FA	FOUL AIR
FC	FAIL CLOSED
FE	FINAL EFFLUENT
FOR	FOWARD/OFF/REVERSE
F/S	FAST/SLOW
GR	GRIT
HOA	HAND–OFF–AUTO
HOR	HAND–OFF–REMOTE
HS	HYDRAULIC SUPPLY
HMI	HUMAN MACHINE INTERFACE
I/O	INPUT/OUTPUT
IAS	INSTRUMENT AIR SUPPLY
L/R	LOCAL/REMOTE
LAN	LOCAL AREA NETWORK
LCP	LOCAL CONTROL PANEL
LOR	LOCAL OFF REMOTE
M/A	MANUAL/AUTO
MCC	MOTOR CONTROL CENTER
ML	MIXED LIQUOR
MLR	MIXED LIQUOR RECYCLE
MMI	MAN MACHINE INTERFACE
MH	MANHOLE
NaOCL	SODIUM HYPOCHLORITE
NPW	NON POTABLE WATER
NS	NITROGEN SUPPLY
NaHSO3	SODIUM BISULFITE
NG	NATURAL GAS
NTU	TURBIDITY
OF	OVER FLOW
OIS	OPERATOR INTERFACE STATION
OL	OVERLOAD
OR	OVERRIDE
OT	OVERTORQUE
O/O	ON/OFF (MAINTAINED)
P/B	PLC/BACKUP (MAINTAINED)
PCP	PROCESS CONTROL PANEL
PE	PRIMARY EFFLUENT
PFS	PRIMARY FINE SCREENINGS
PI	PROCESS INFLUENT
PLC	PROGRAMMABLE LOGIC CONTROLLER
PS	PRIMARY SLUDGE
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RF	RADIO FREQUENCY
RIO	REMOTE INPUT/OUTPUT
RS	RAW SEWAGE
RST	RESET
SBR	SEQUENCING BATCH REACTOR
SD	SANITARY DRAIN
SE	SECONDARY EFFLUENT
SLC	SINGLE LOOP CONTROLLER
SP	SET POINT
SPD	SPEED
SPC	SET POINT CONTROL
S/S	START/STOP (MOMENTARY)
SSS	SOLID STATE SOFT STARTER
SW	SEAL WATER
TPS	THICKENED PRIMARY SLUDGE
TWAS	THICKENED WASTE ACTIVATED SLUDGE
UW	UTILITY/PROCESS WATER
VFD	VARIABLE FREQUENCY DRIVE
WAS	WASTE ACTIVATED SLUDGE
1/2/B	PUMP 1/PUMP 2/BOTH

INSTRUMENT IDENTIFICATION LETTERS
(INSTRUMENT SOCIETY OF AMERICA)

	FIRST – LETTER: MEASURED OR INITIATING VARIABLE		SUCCEEDING – LETTERS: READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONTROL			CONTROL SWITCH	CLOSED
D	USER'S CHOICE	DIFFERENTIAL	SENSOR (PRIMARY ELEMENT)		
E	VOLTAGE				
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	FAILURE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	COMMAND
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

COMMON INSTRUMENT DESIGNATIONS

TAG	DESIGNATION
YL	EQUIPMENT RUNNING STATUS
YS	EQUIPMENT IN AUTO OR REMOTE STATUS
YY	EQUIPMENT RUN COMMAND
UA	EQUIPMENT FAULT STATUS
HC	HAND CONTROL
HS	HAND SWITCH
SI	SPEED INDICATION
SC	SPEED COMMAND
PSL	PRESSURE SWITCH LOW
PSH	PRESSURE SWITCH HIGH
FE	FLOW ELEMENT
FIT	FLOW INDICATOR/TRANSMITTER
ZSO	VALVE POSITION FULL OPEN
ZSC	VALVE POSITION FULL CLOSE
ZSI	VALVE POSITION INDICATOR

PANEL NOMENCLATURE

- CP–XXX: CONTROL PANEL (AREA CONTROL)
- LCP–XXXA: LOCAL CONTROL PANEL (SPECIFICATION PROCESS CONTROL) LETTERS A, B, C DENOTES VENDER SUPPLIED EQUIPMENT
- MCC–XX: MOTOR CONTROL CENTER
- LP–X LIGHTING PANEL

GENERAL NOTES

1. THIS IS A STANDARD LEGEND, THEREFORE NOT ALL OF THIS INFORMATION MAY BE USED ON THIS PROJECT.
2. P & I D INSTRUMENTATION DETAILS DO NOT REPRESENT INSTRUMENTS AND CONTROLS INTEGRAL TO VENDOR SUPPLIED CONTROL PANELS OR EQUIPMENT. SEE EQUIPMENT SPECIFICATIONS FOR THIS INFORMATION.
3. P & I D DOES NOT REPRESENT CONTROL STRATEGIES OR INTERACTIONS. REFERENCE SECTION 16905, CONTROL NARRATIVES, FOR THIS INFORMATION.
4. P & I D DOES NOT REPRESENT EQUIPMENT HARDWIRED INTERLOCK AND ENABLE CIRCUITRY. REFERENCE MCC ELECTRICAL ELEMENTARY SCHEMATICS FOR THIS INFORMATION.

Registered Professional Engineer — CERTIFICATE — 30548 — ZANE E. WILSTERMAN — 4-10-06 — ARIZONA, U.S.A.

DARcor
11811 N. TATUM BLVD
SUITE 2700
PHOENIX, AZ 85028
Ph: (602) 795-2699
Fax: (602) 795-2647

0 — 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

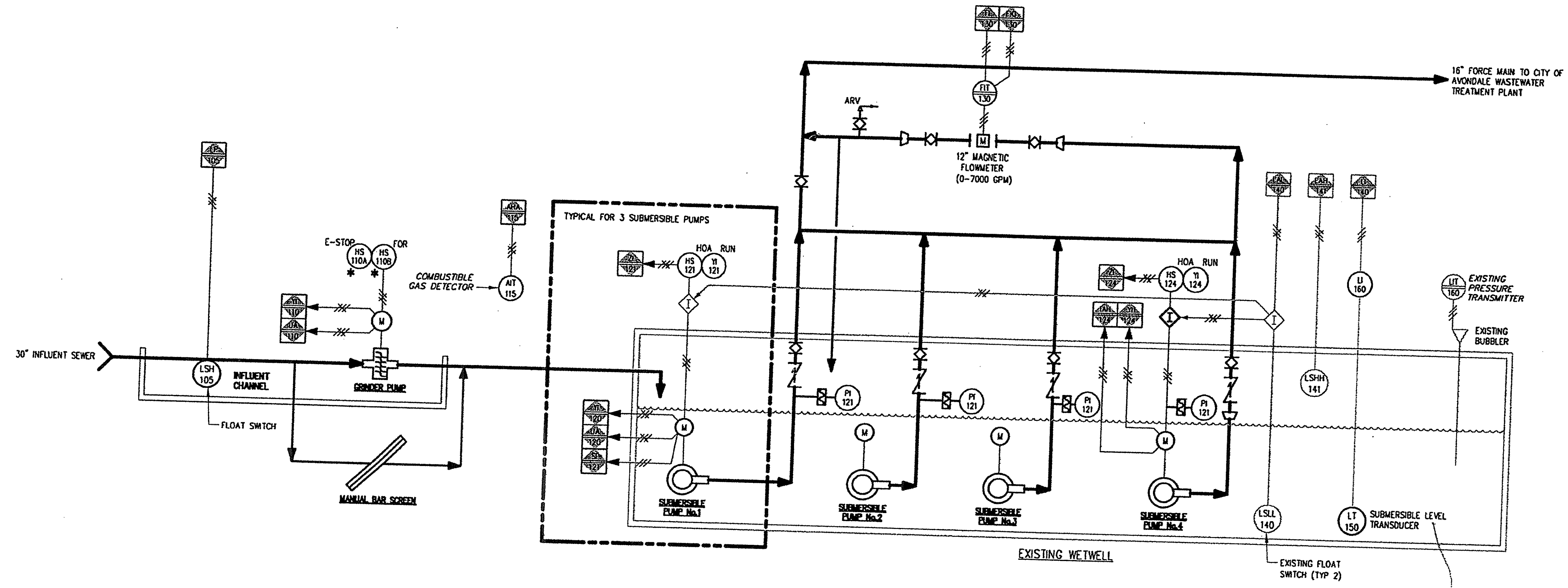
NO.	DATE	DES'D	REVISION DESCRIPTION

DESIGNED BY: ZEW
DRAWN BY: CS
CHECKED BY: DAR
DATE: APRIL 10, 2006
PH: CH-7311-SD

CITY OF AVONDALE
4th STREET LIFT STATION MODIFICATIONS
P&ID SYMBOLS, LEGEND & ABBREVIATIONS

SHEET NO.
G-4

Saved: Jun 16, 2006 File: 04123-G-4.dwg



* INDICATES EQUIPMENT FURNISHED AS PART OF MFR'S PACKAGED MECHANICAL EQUIPMENT

DARcor
11811 N. TATUM BLVD
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PHOENIX, AZ 85028
Ph: (602) 795-2899
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Phoenix, Arizona

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DATE: APRIL 10, 2006 | DRAWN BY: CS
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CITY OF AVONDALE
4th STREET LIFT STATION MODIFICATIONS
LIFT STATION P&ID

SHEET NO.
G-5

Saved: Jun 16, 2006 File: 04123-G-5.dwg

WATER
XX
PI 200
1PRV0001
PI 201
2VLV2011
2FLW2011
NUTRIENT TANK
NUTRIENT EDUCTOR
50 MICRON CARTRIDGE FILTER
1VLV2012
2FLW2012
PI 232
PI 242
VENT
VENT
UPPER IRRIGATION SYSTEM
LOWER IRRIGATION SYSTEM
DRAIN SAMPLE POINT
BIO FILTER No.1
HS 210
HOA
PI 211
BLOWER No.1
FOUL AIR FROM LIFT STATION
HS 220
HOA
PI 221
BLOWER No.2
FIT 225
1FLW2000
OVERFLOW
LSL 250
HUMIDIFICATION VESSEL
RECIRCULATION PUMP
1VLV2012
HUMIDIFIER SKID
PI 233
PI 243
VENT
VENT
BIO FILTER No.2
DRAIN

Saved: Jun 16, 2006 File: 04123-G-6.dwg

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

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DESIGNED BY: ZEW
DRAWN BY: CS
CHECKED BY: DAR
DATE: APRIL 10, 2006
PH: CH-7311-SD

CITY OF AVONDALE
4th STREET LIFT STATION MODIFICATIONS
ODOR CONTROL P&ID

SHEET NO.
G-6

DARcor
11811 N. TATUM BLVD
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PHOENIX, AZ 85028
Ph: (602) 795-2699
Fax: (602) 795-2647

39548
JANE E. WILSTERMAN
6-30-06
ARIZONA, U.S.A.
6-16-06

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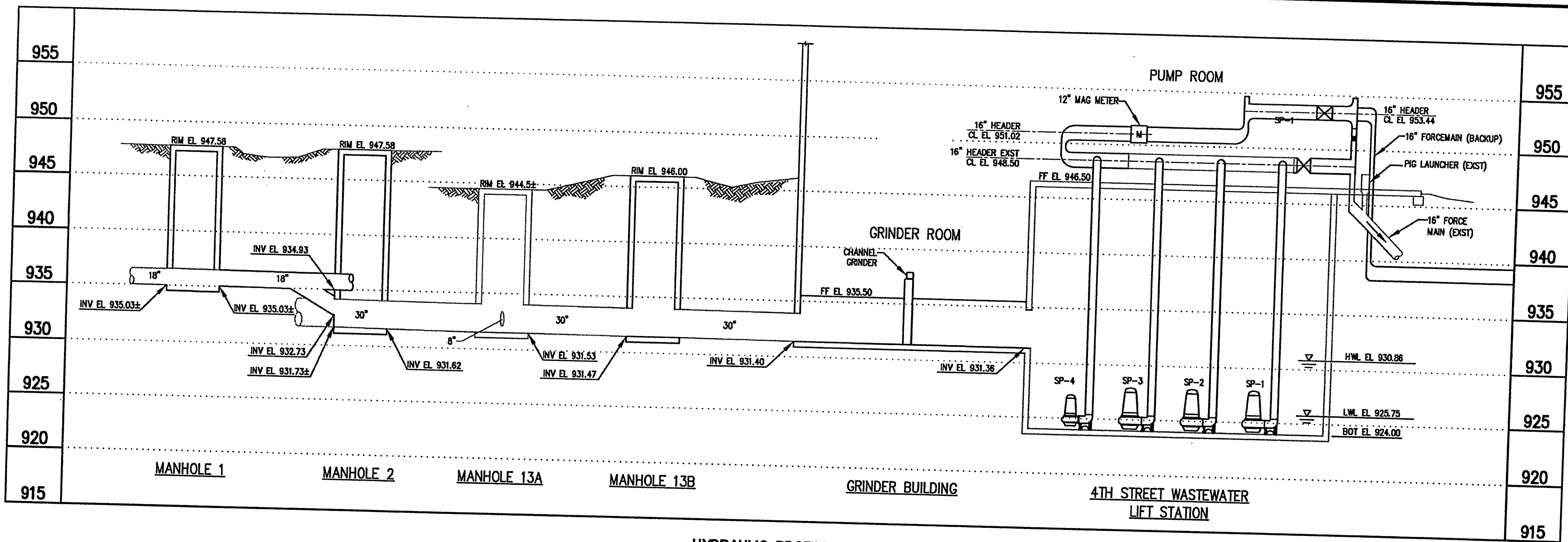

HYDRAULIC PROFILE
1"=5' VERT

DESIGN CRITERIA

DESIGN FLOWS

AVERAGE DAILY: 976 GPM
PEAK HOUR: 1,400 GPM

SEWAGE LIFT STATION

INITIAL FIRM CAPACITY (2 PUMPS OPERATING): 2,900 GPM
FUTURE FIRM CAPACITY (3 PUMPS OPERATING): 3,500 GPM
HIGH CAPACITY: SP-1, SP-2, SP-3
Q = 1,602 GPM
HP = 20
LOW CAPACITY: SP-4
Q = 476 GPM
HP = 5
SMALL 5HP PUMP PROVIDED FOR LOW FLOW HOURS

CHANNEL GRINDER

FLOW: 4,340 GPM

EXISTING FORCEMAIN

DIAMETER: 16"
APPROXIMATE LENGTH: 4,250 FT

(05) (G07)8-Hydraulic Profile.DWG H:\7311ch\ JUN 15, 2006 @ 09:03:02 am - (TONYF)

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
1	6/06	JJC	ALF	MANHOLES 1 & 2

PN: CH-7311-SD | DESIGNED BY: JHF
DATE: APRIL, 2006 | DRAWN BY: RJF
 | CHECKED BY: DGO

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
DESIGN CRITERIA/HYDRAULIC PROFILE

28038 DONALD G. CHILTON

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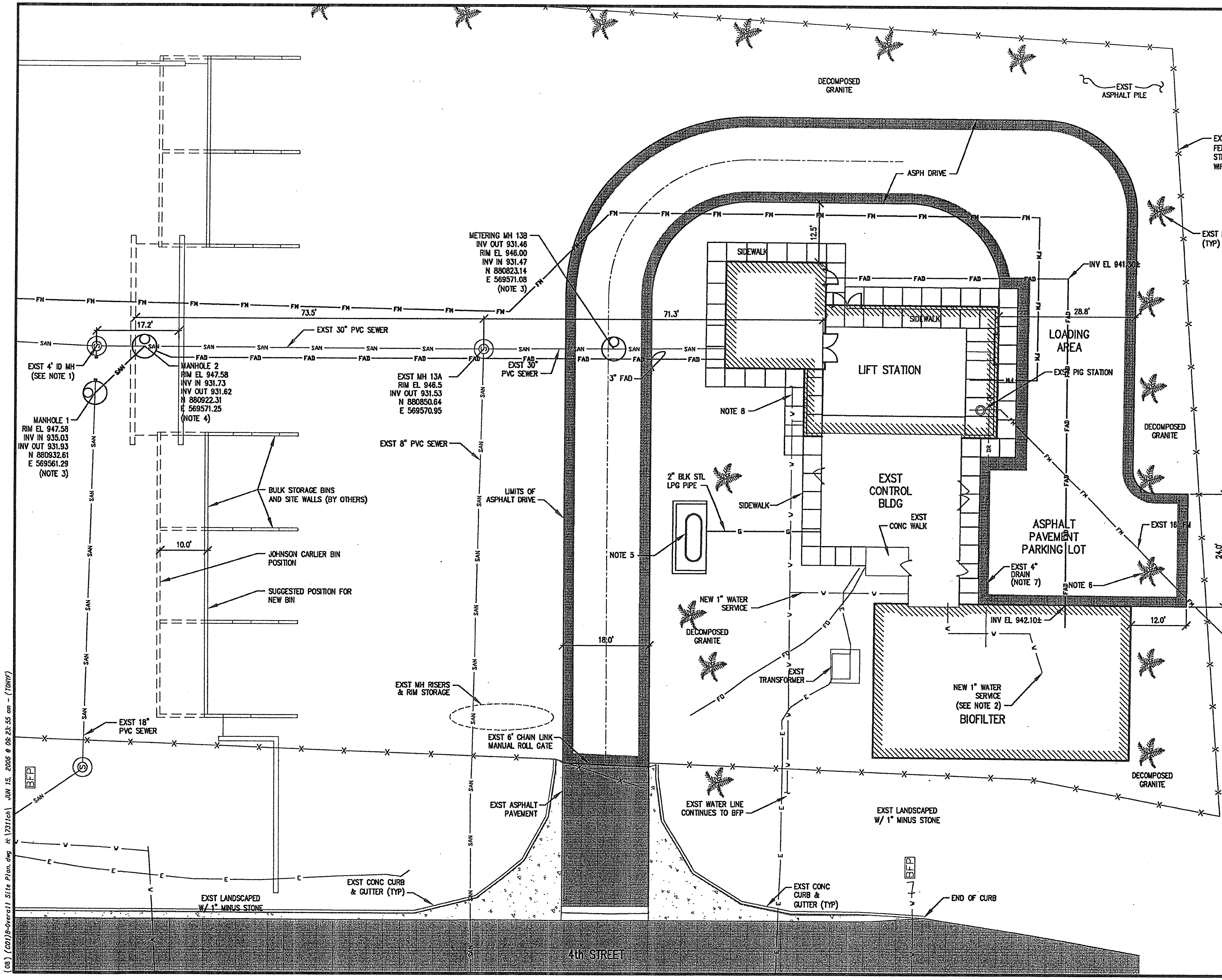
SHEET NO. G-7



GENERAL NOTES:

1. CONTRACTOR TO CUT, PLUG, & ABANDON 18" PVC SEWER LINE FOLLOWING COMPLETION OF PROJECT.
2. CONTRACTOR TO COORDINATE CONNECTION OF BIOFILTER WATER SERVICE W/ SHEET P-2.
3. MANHOLE 1 & MANHOLE 13B , SEE MAG STD DETAIL 420-2 WITH MAG STD DETAIL 423 COVER.
4. MANHOLE 2 SAME AS NOTE 3 WITH MAG STD DETAIL 426 TYPE "A" DROP FROM THE NORTHWEST.
5. RELOCATE EXISTING PROPANE TANK. PLACE ON 6" CONCRETE PAD WITH 5' HIGH BLOCK WALLS ON THE NORTH, EAST & WEST, WITH 2' MIN CLEAR ALL AROUND.
6. RELOCATE PALM TREE TO NORTH SIDE OF BUILDINGS, SEE SHEET C-5.
7. EXTEND EXISTING 4" DRAIN TO CONNECT TO NEW ODOR CONTROL DRAIN.
8. CONTINUE EXISTING 1" WATER TO HOSE BIBBS IN GRINDER ROOM AND LIFT STATION.

0 — 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

Registered Professional Engineer, Certificate No. 28038, DONALD G. CHILTON, Arizona, U.S.A.

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

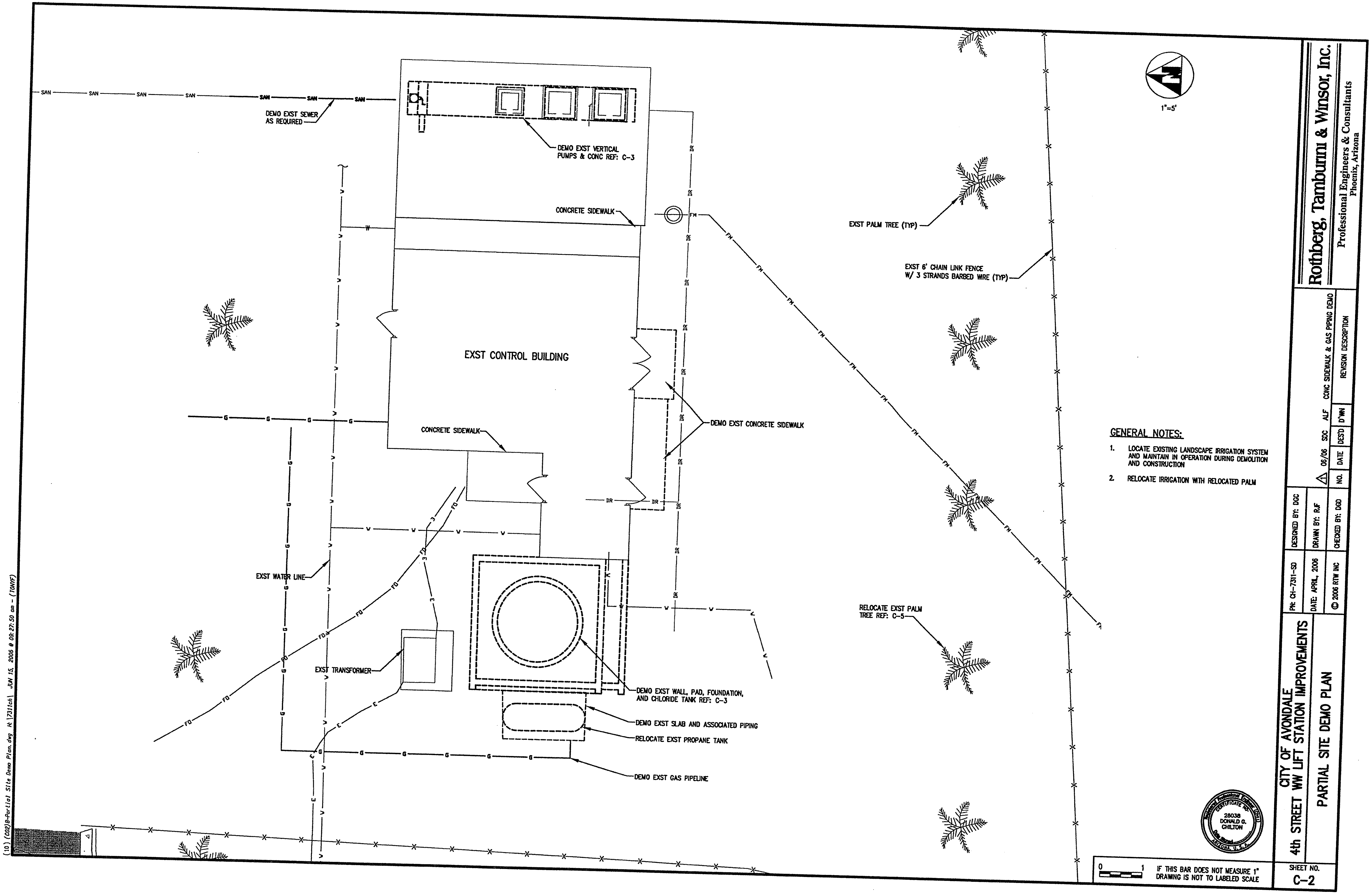
NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
1	6/06	JDC	ALF	BIN & FAD RELOC. & BLDG FOOTPRINT

PN: CH-7311-SD | DESIGNED BY: DGC
DATE: APRIL, 2006 | DRAWN BY: RJF
 | CHECKED BY: DGD

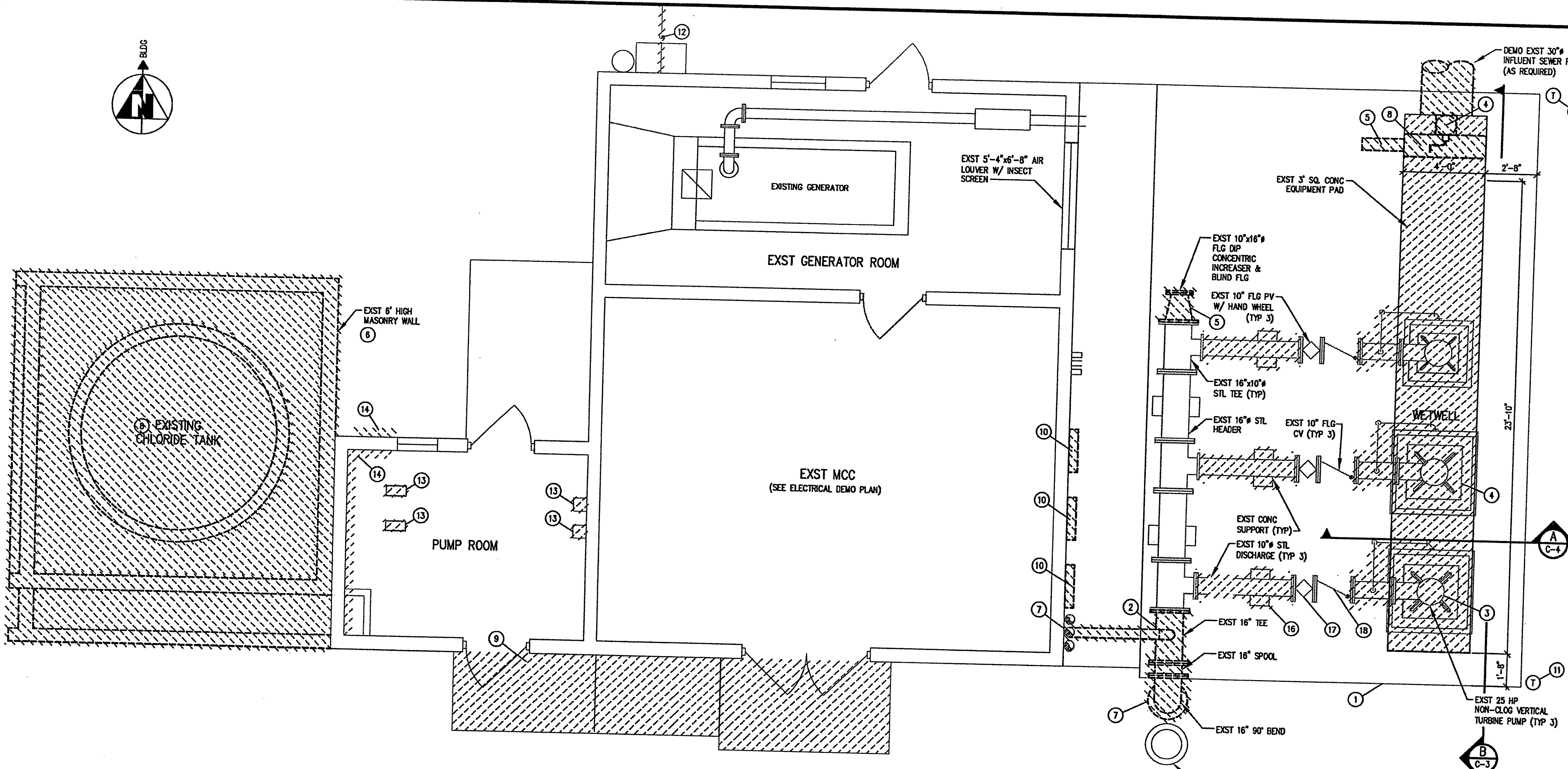
CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS

OVERALL SITE PLAN

SHEET NO. C-1



DEMO EXST SEWER AS REQUIRED
DEMO EXST VERTICAL PUMPS & CONC REF: C-3
CONCRETE SIDEWALK
EXST CONTROL BUILDING
CONCRETE SIDEWALK
DEMO EXST CONCRETE SIDEWALK
EXST WATER LINE
EXST TRANSFORMER
DEMO EXST WALL, PAD, FOUNDATION, AND CHLORIDE TANK REF: C-3
DEMO EXST SLAB AND ASSOCIATED PIPING
RELOCATE EXST PROPANE TANK
DEMO EXST GAS PIPELINE
EXST PALM TREE (TYP)
EXST 6' CHAIN LINK FENCE W/ 3 STRANDS BARBED WIRE (TYP)
RELOCATE EXST PALM TREE REF: C-5
1"=5'
GENERAL NOTES:
1. LOCATE EXISTING LANDSCAPE IRRIGATION SYSTEM AND MAINTAIN IN OPERATION DURING DEMOLITION AND CONSTRUCTION
2. RELOCATE IRRIGATION WITH RELOCATED PALM
IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE
Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona
1 06/06 SDC ALF CONC SIDEWALK & GAS PIPING DEMO
NO. DATE DES'D D'WN REVISION DESCRIPTION
PN: CH-7311-SD DESIGNED BY: DGC
DATE: APRIL, 2006 DRAWN BY: RJF
© 2006 RTW INC CHECKED BY: DGD
CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
PARTIAL SITE DEMO PLAN
28036 DONALD G. CHILTON
SHEET NO. C-2
(10) (C02)B-Partial Site Demo Plan.dwg JUN 15, 2006 @ 08:27:50 am - (TONYF)



PLAN

3/8"=1'-0"

EQUIPMENT:

1. EXISTING VERTICAL TURBINE LIFT STATION, REF: SHT P-1 & P-2
2. REMOVE AND SALVAGE PIPE, REF: SHT P-1. PROVIDE TEMPORARY PLUGS ON ALL OPEN PIPING (TYP 3)
3. REMOVE AND REFURBISH EXST VERTICAL TURBINE PUMPS IN ACCORDANCE WITH SPEC 02050 (TYP 3)
4. REMOVE AND SALVAGE EXST SLUICE GATE & OPERATOR IN ACCORDANCE WITH SPEC. 02050
5. REMOVE & SALVAGE PIPE
6. DEMO EXST CHLORIDE TANK, MASONRY WALL, PAD & FOUNDATION
7. REMOVE & SALVAGE EXST VENT PIPING FOR REUSE. REF SHT P-1 PROTECT EXST VENT PIPES FROM DEBRIS
8. REMOVE EXISTING DECK PLATE AND REPLACE WITH NEW DECK PLATE BOLT IN PLACE WITH FLUSH MOUNT MACHINE SCREWS
9. REMOVE AND REPLACE EXST SIDEWALK
10. REMOVE EXST SEAL WATER CONTROL PANELS TO OWNER. DEMO EXST PIPING, SUPPORTS, & APPURTENANCES
11. REMOVE & RELOCATE GROUND TEST ACCESS POINTS & GROUND CABLE AS REQUIRED FOR CONSTRUCTION & ACCESS
12. DEMO EXST LOW PRESSURE GAS LINE
13. REMOVE & SALVAGE EXST METERING PUMP EQUIPMENT & CONTROLS TO OWNER. DEMO EXPOSED CONDUIT. CAP EMBEDDED CONDUIT AND PIPE. DEMO CONCRETE AND GROUT PAPS
14. DEMO EXST EXPOSED PIPING, PADS & SUPPORTS, VOID, CLEAN AND CAP EMBEDDED PIPING.
15. DEMO EXST VERTICAL TURBINE EQUIPMENT BASES, REF: SHT P-1 (TYP 3)
16. DEMO EXST CONC PIPE SUPPORTS. REF: SHT P-1
17. REMOVE & SALVAGE 10'ø FLG PLUG VALVE FOR REUSE. REF: SHT P-1
18. REMOVE & SALVAGE 10'ø FLG CHECK VALVE FOR REUSE. REF: SHT P-1

GENERAL NOTES:

1. REFER TO SPEC 02050 FOR ALL DEMO & SALVAGE WORK
2. REFER TO SPEC 01010 FOR SEQUENCE OF WORK FOR ALL DEMO, SALVAGE, AND RELOCATION OF EQUIPMENT
3. PROTECT ALL EXST PROCESS PIPE EQUIPMENT, AND UTILITIES NOT SCHEDULED FOR DEMO OR SALVAGE, SEE SPEC 02500
4. BACKFILL & COMPACT ALL EXCAVATIONS REQUIRED FOR DEMO OF SUBSURFACE STRUCTURES OR UTILITIES IN ACCORDANCE WITH SPEC 02200
5. MAINTAIN ENTRY & LIFT STATION ACCESS DRIVE FOR CITY OF AVONDALE MAINTENANCE PERSONNEL
6. BY-PASS PUMPING & PIPING AS NEEDED TO CONSTRUCT EXST WETWELL MODIFICATIONS & GRINDER BLDG ADDITION
7. PRIOR TO START OF DEMO WORK, COMPLETE TEMPORARY BYPASS PIPING & PUMPING MODIFICATIONS RE: SPEC SECTION 01010.
8. REFER TO SHT E-2 FOR ADDITIONAL ELECTRICAL DEMO AND SALVAGE

28038 DONALD G. CHILTON

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Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

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PN: CI-7311-SD | DESIGNED BY: JHF
DATE: APRIL, 2006 | DRAWN BY: KDK
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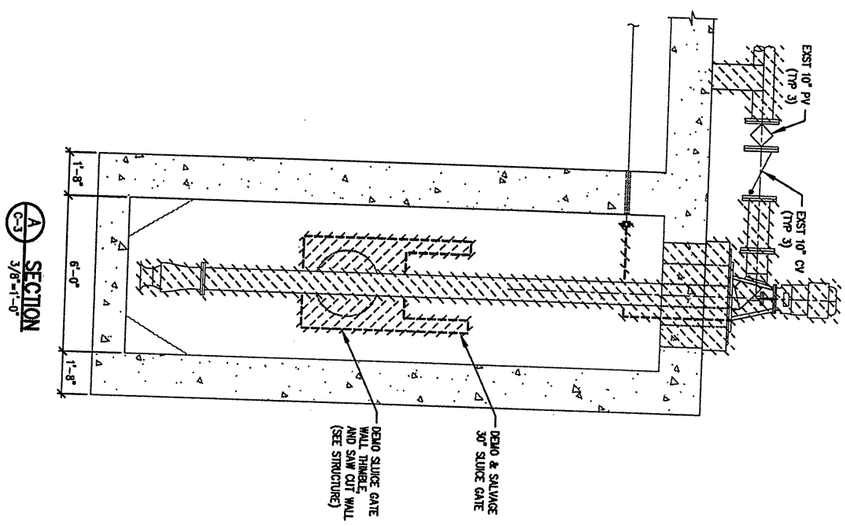
CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
SITE DEMOLITION – LIFT STATION PLAN

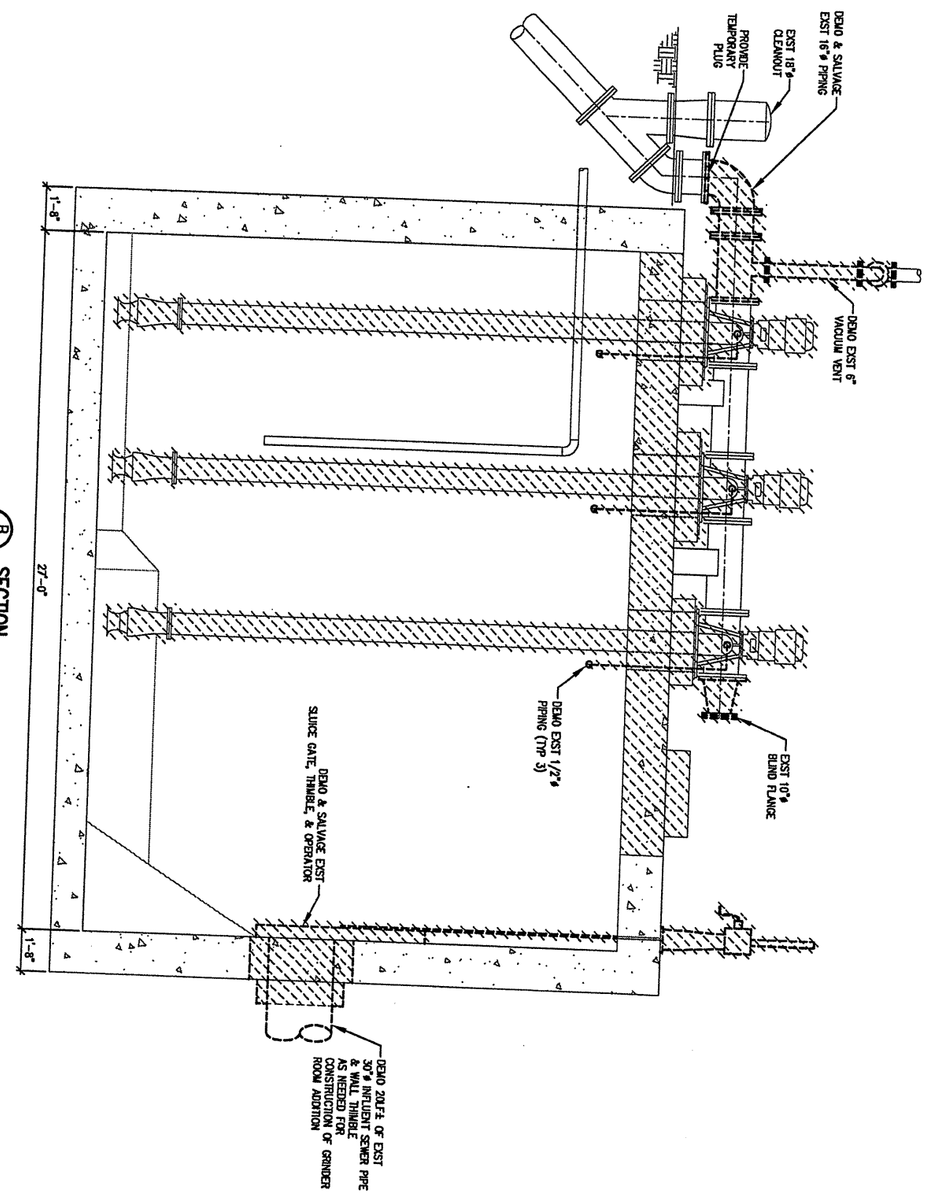
SHEET NO.
C-3

(03) (C03)B-Lift Station Demo Plan.dwg lt [731lch] JUN 15, 2006 @ 09:25:07 am - (TONYF)

(04) (C04)B-Lift Station Demo Section.dwg ht\7311ch\ JUN 15, 2006 @ 09:36:00 am - (TONYF)



A C-3 SECTION 3/8"=1'-0"



B C-3 SECTION 3/8"=1'-0"

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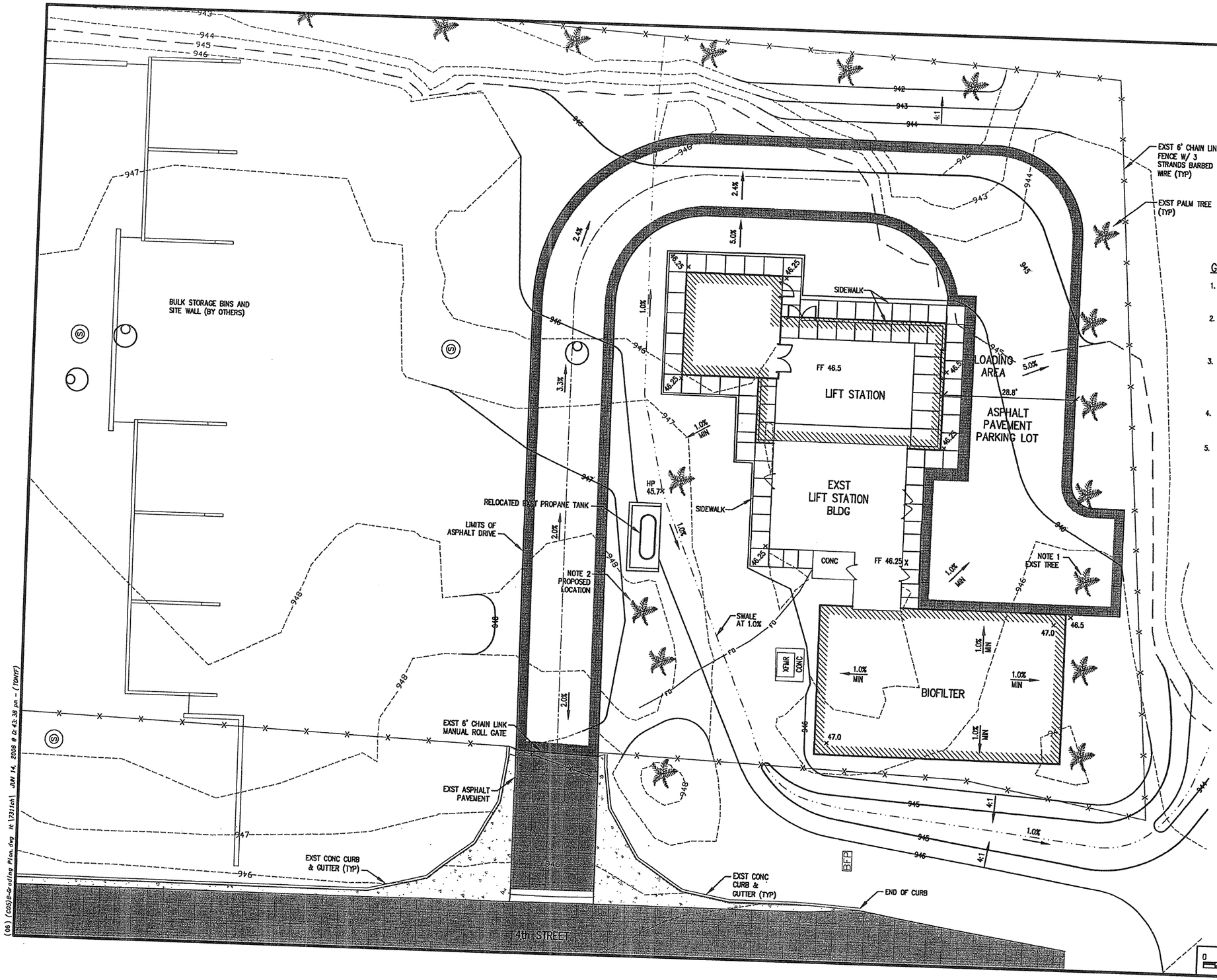
SHEET NO. C-4

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
SITE DEMOLITION – LIFT STATION SECTIONS

PN: CH-7311-SD | DESIGNED BY: JHF
DATE: APRIL, 2006 | DRAWN BY: RJF
 | CHECKED BY: DGD

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
1	6/06	JDC	ALF	THIMBLE DRAINLINE & HEADER

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Colorado



GENERAL NOTES:

1. SALVAGE PALM TREE AND RELOCATE IN LINE OF PALM TREES NORTH OF LIFT STATION. INSTALL IRRIGATION AS NECESSARY FOR SUCCESSFUL TRANSPLANTING.
2. LOCATE AND PROTECT IN PLACE ALL LANDSCAPE CONTROLS, WIRING AND IRRIGATION SYSTEMS AND MAINTAIN CONTINUOUS SERVICE OF ALL IRRIGATION SYSTEMS.
3. PREPARE BASE AND INSTALL ASPHALTIC CONCRETE (AC) IN CONFORMANCE WITH MAG STD DETAIL 201 RESIDENTIAL ALLEY DETAIL EXCEPT FINISHED THICKNESS OF AC SHALL BE 3" AND SHALL SLOPE IN ONE DIRECTION ONLY AND TERMINATION DETAIL SHALL BE MAG STD 201 TYPE "A".
4. WHERE AC ABUTS CONCRETE, COMPACTED AC SHALL BE HIGHER THAN CONCRETE BY A MIN OF 1/8" AND LESS THAN 1/4".
5. SLOPE SIDEWALK AND PAVEMENT ABUTTING BUILDINGS AND WALLS AWAY AT 2.0% SLOPE FOR A DISTANCE OF 5' (MIN).

Professional Land Surveyor
CERTIFICATE NO.
28038
DONALD C. CHILTON
For Arizona, U.S.A.

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	REVISION DESCRIPTION
1	06/06	BUILDING & SIDEWALK MODS

DESIGNED BY: DGC
DRAWN BY: RLH
CHECKED BY: DGD
ALF SDC DESD D'WN

PN: CH-7311-SD
DATE: APRIL, 2006
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CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
SITE GRADING, DRAINAGE & LANDSCAPING PLAN

SHEET NO.
C-5

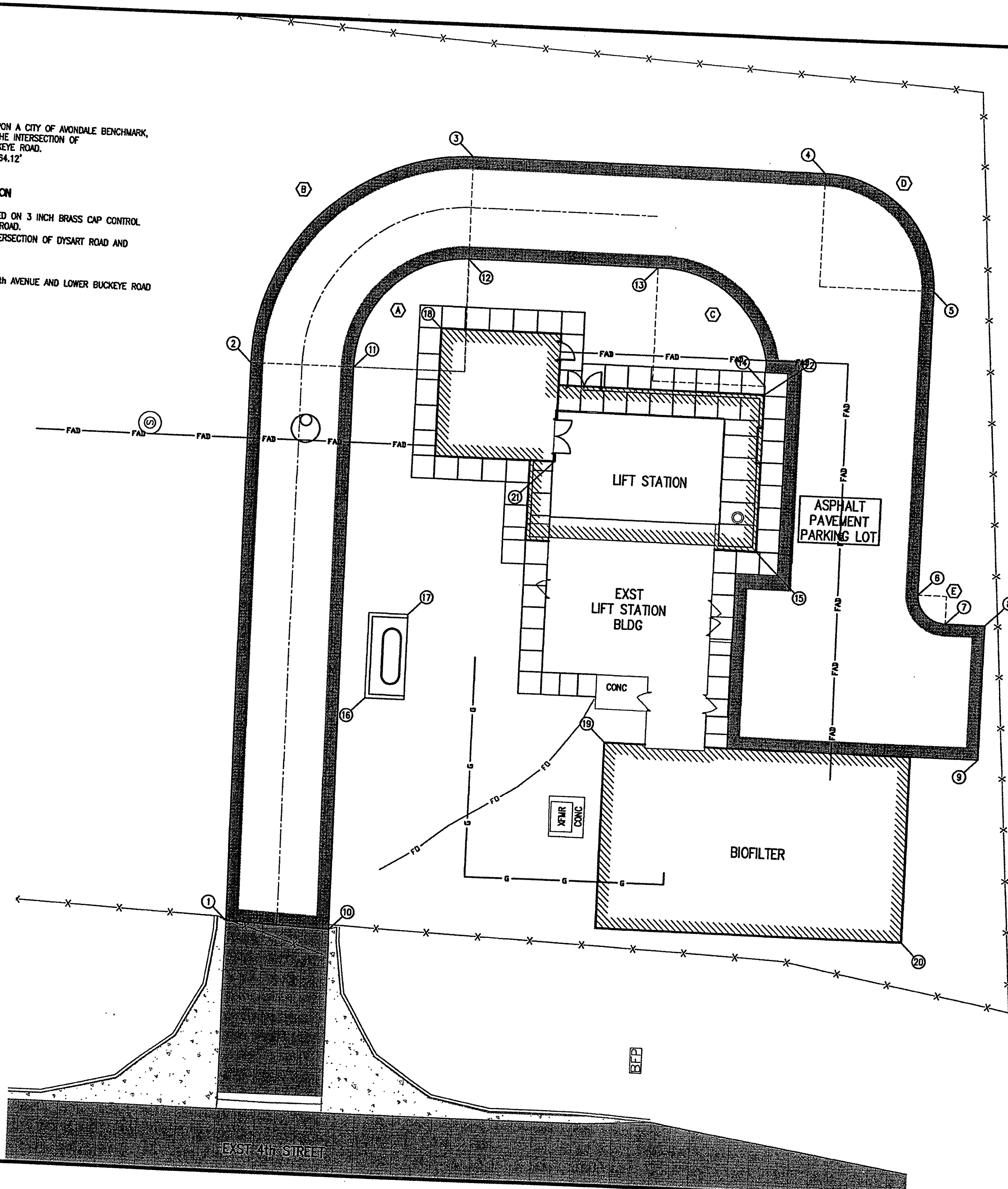
(GS) (cad)\Grading Plan.dwg ht\2311ch1 JAN 14, 2006 @ 8:43:38 pm - (TONYF)

BENCHMARK INFO

THE VERTICAL DATUM IS BASED UPON A CITY OF AVONDALE BENCHMARK, BEING A 3 INCH MCHD BCHH IN THE INTERSECTION OF LITCHFIELD ROAD AND LOWER BUCKEYE ROAD.
CITY OF AVONDALE ELEVATION = 964.12'

HORIZONTAL CONTROL INFORMATION

THE COORDINATES SHOWN ARE BASED ON 3 INCH BRASS CAP CONTROL POINTS FOUND IN LOWER BUCKEYE ROAD.
CONTROL POINT #1 IS IN INTERSECTION OF DYSART ROAD AND LOWER BUCKEYE ROAD
N 881025.70
E 570749.78
CONTROL POINT #2 IS IN 127th AVENUE AND LOWER BUCKEYE ROAD
N 880942.82
E 573290.85



CURVE DATA			
CURVE	LENGTH	DELTA	RADIUS
A	31.26'	89°32'27"	20.00'
B	59.54'	89°46'28"	38.00'
C	31.42'	90°00'00"	20.00'
D	31.42'	90°00'00"	20.00'
E	7.85'	90°00'00"	5.00'

HORIZONTAL CONTROL POINT TABLE

PT NUMBER	N & E	DESCRIPTION
1	N 880833.38 E 569482.87	COR EXST ASPHALT/NEW ASPHALT
2	N 880833.26 E 569582.33	PC ASPHALT ROAD
3	N 880795.41 E 569620.33	PT ASPHALT ROAD
4	N 880733.37 E 569619.90	PC ASPHALT ROAD
5	N 880713.50 E 569599.77	PT ASPHALT ROAD
6	N 880713.87 E 569545.85	PC ASPHALT ROAD
7	N 880708.91 E 569540.82	PT ASPHALT ROAD
8	N 880701.91 E 569540.77	COR ASPHALT
9	N 880702.07 E 569516.77	COR ASPHALT
10	N 880815.35 E 569482.06	COR EXST ASPHALT/NEW ASPHALT
11	N 880815.26 E 569582.33	PC ASPHALT ROAD
12	N 880795.42 E 569602.33	PT ASPHALT ROAD
13	N 880762.24 E 569602.10	PC ASPHALT ROAD
14	N 880742.38 E 569581.91	PT ASPHALT ROAD
15	N 880742.58 E 569552.30	S.W. COR LIFT STATION/BLOCK WALL
16	N 880810.62 E 569523.43	N.W. COR BLOCK WALL
17	N 880803.46 E 569538.71	S.E. COR BLOCK WALL
18	N 880799.74 E 569589.77	N.E. COR GRINDER ROOM
19	N 880768.07 E 569517.22	N.E. COR BIOFILTER WALL
20	N 880714.30 E 569483.85	S.W. COR BIOFILTER WALL
21	N 880778.90 E 569566.96	S.W. COR GRINDER ROOM
22	N 880742.47 E 569580.38	S.E. COR LIFT STATION BLOCK WALL

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

28038 DONALD G. CHILTON

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
1	06/06	SDC	ALF	BUILDING & SIDEWALK MODS

PN: CH-7311-SD DESIGNED BY: DGC
DATE: APRIL, 2006 DRAWN BY: RLH
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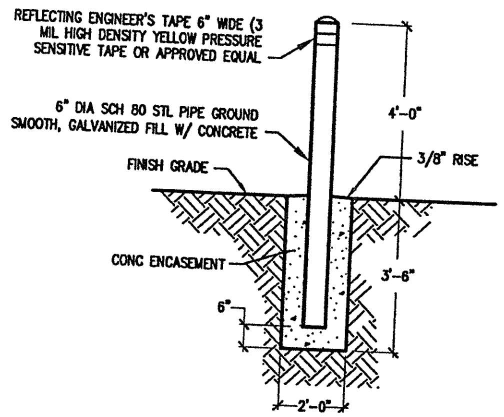
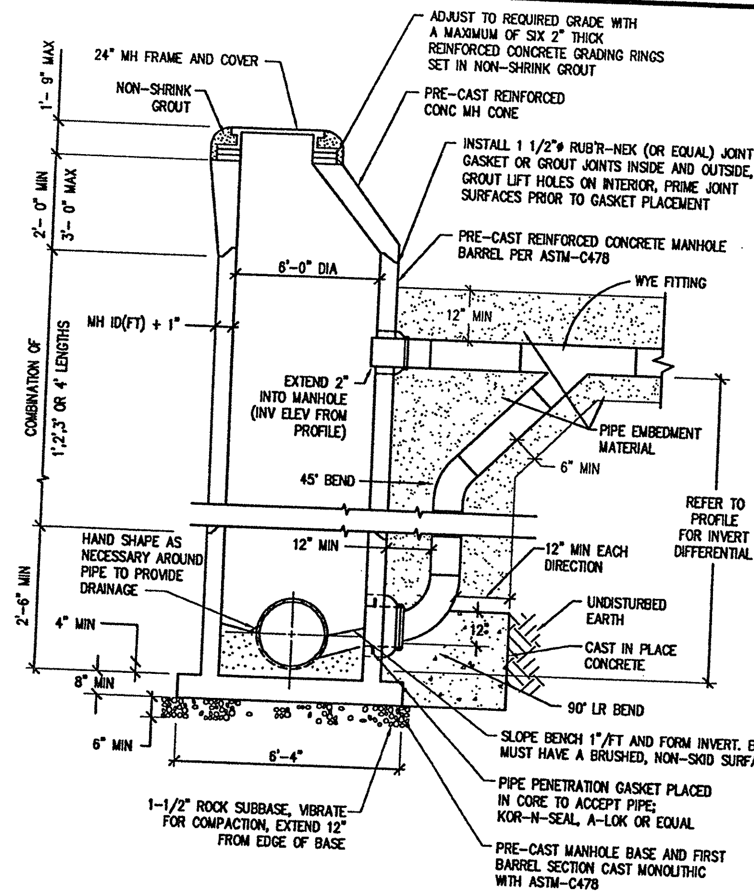
CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
HORIZONTAL CONTROL PLAN

SHEET NO.
C-6

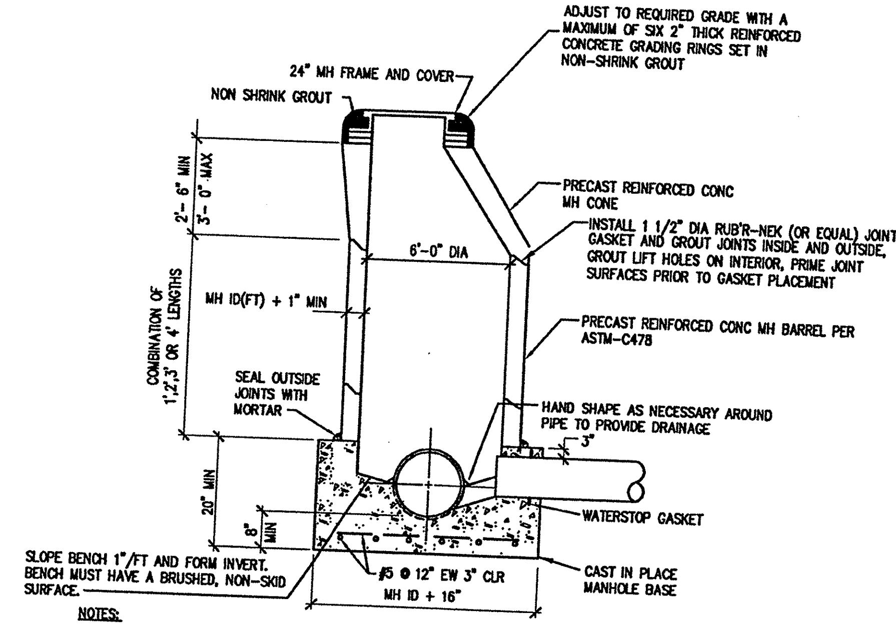
(06) (C06)B-Horizontal Control Plan.dwg ht(7311ch) JUN 15, 2006 @ 09:37:49 am - (TONYF)



PIPE BOLLARD 1/2"=1'-0" (1/—)



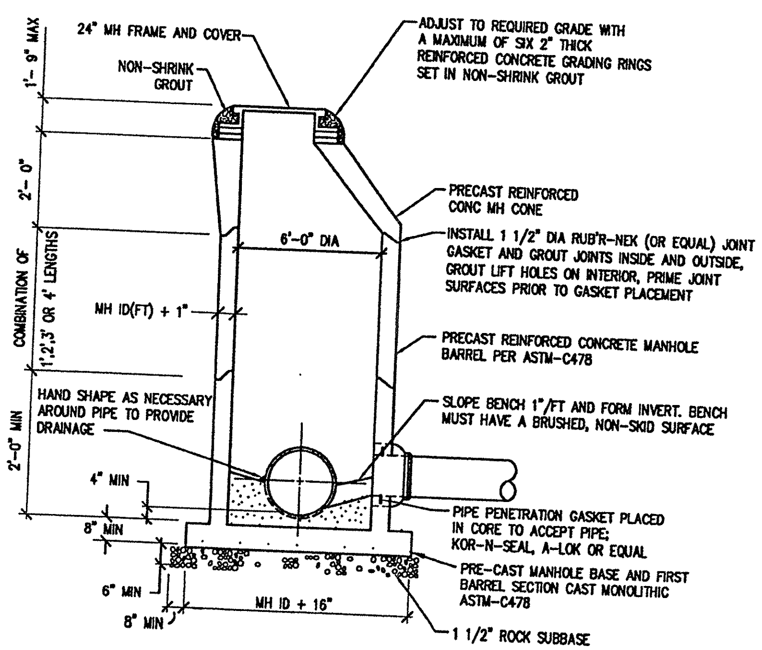
DROP MANHOLE DETAIL (2/C-1)
NTS



NOTES:

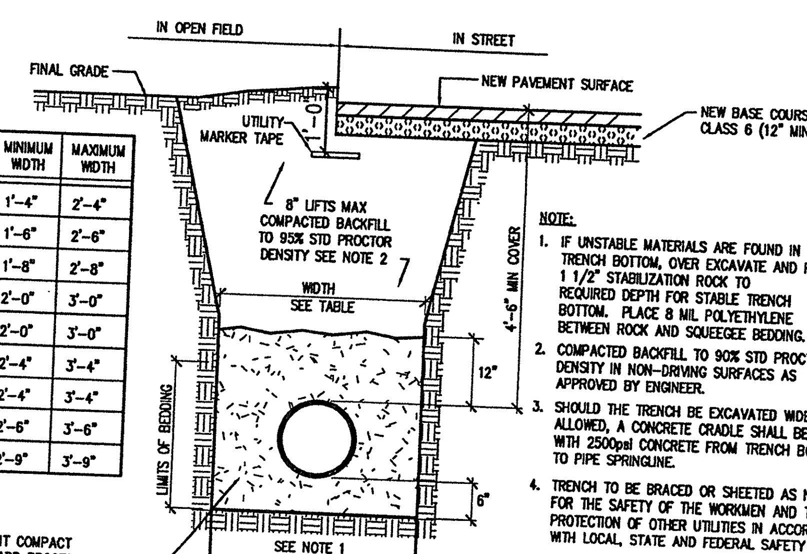
1. CONCRETE MANHOLES MAY BE POURED IN PLACE ONLY WHERE SPECIFIED BY ENGINEER.
2. SHAPING FOR SMOOTH MANHOLE INVERTS MUST BE DONE BY FORMING OR SHAPING BASE CONCRETE.
3. ALL MORTAR GROUT SHALL BE MIXED WITH TYPE II CEMENT.

CAST IN PLACE BASE MANHOLE DETAIL (3/C-1)
NTS



PRECAST MANHOLE DETAIL (4/C-1)
NTS

PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
3",4"	1'-4"	2'-4"
6"	1'-6"	2'-6"
8"	1'-8"	2'-8"
10"	2'-0"	3'-0"
12"	2'-0"	3'-0"
15"	2'-4"	3'-4"
16"	2'-4"	3'-4"
18"	2'-6"	3'-6"
21"	2'-9"	3'-9"



NOTE:

1. IF UNSTABLE MATERIALS ARE FOUND IN TRENCH BOTTOM, OVER EXCAVATE AND PLACE 1 1/2" STABILIZATION ROCK TO REQUIRED DEPTH FOR STABLE TRENCH BOTTOM. PLACE 8 MIL POLYETHYLENE BETWEEN ROCK AND SQUEEGEE BEDDING.
2. COMPACTED BACKFILL TO 90% STD PROCTOR DENSITY IN NON-DRIVING SURFACES AS APPROVED BY ENGINEER.
3. SHOULD THE TRENCH BE EXCAVATED WIDER THAN ALLOWED, A CONCRETE CRADLE SHALL BE PLACED WITH 2500psi CONCRETE FROM TRENCH BOTTOM TO PIPE SPRINGLINE.
4. TRENCH TO BE BRACED OR SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND THE PROTECTION OF OTHER UTILITIES IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL SAFETY REGULATIONS.
5. MINIMUM COVER TO BE 4.5' BELOW FINAL GRADE, UNLESS SHOWN OTHERWISE.

TYPICAL TRENCH SECTION - ON-SITE ONLY (5/C-1)
NTS

(04) (CD01)8-Civil Details.dwg H:\7317ch\ JUN 15, 2006 @ 09:38:23 am - (TONYF)

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION

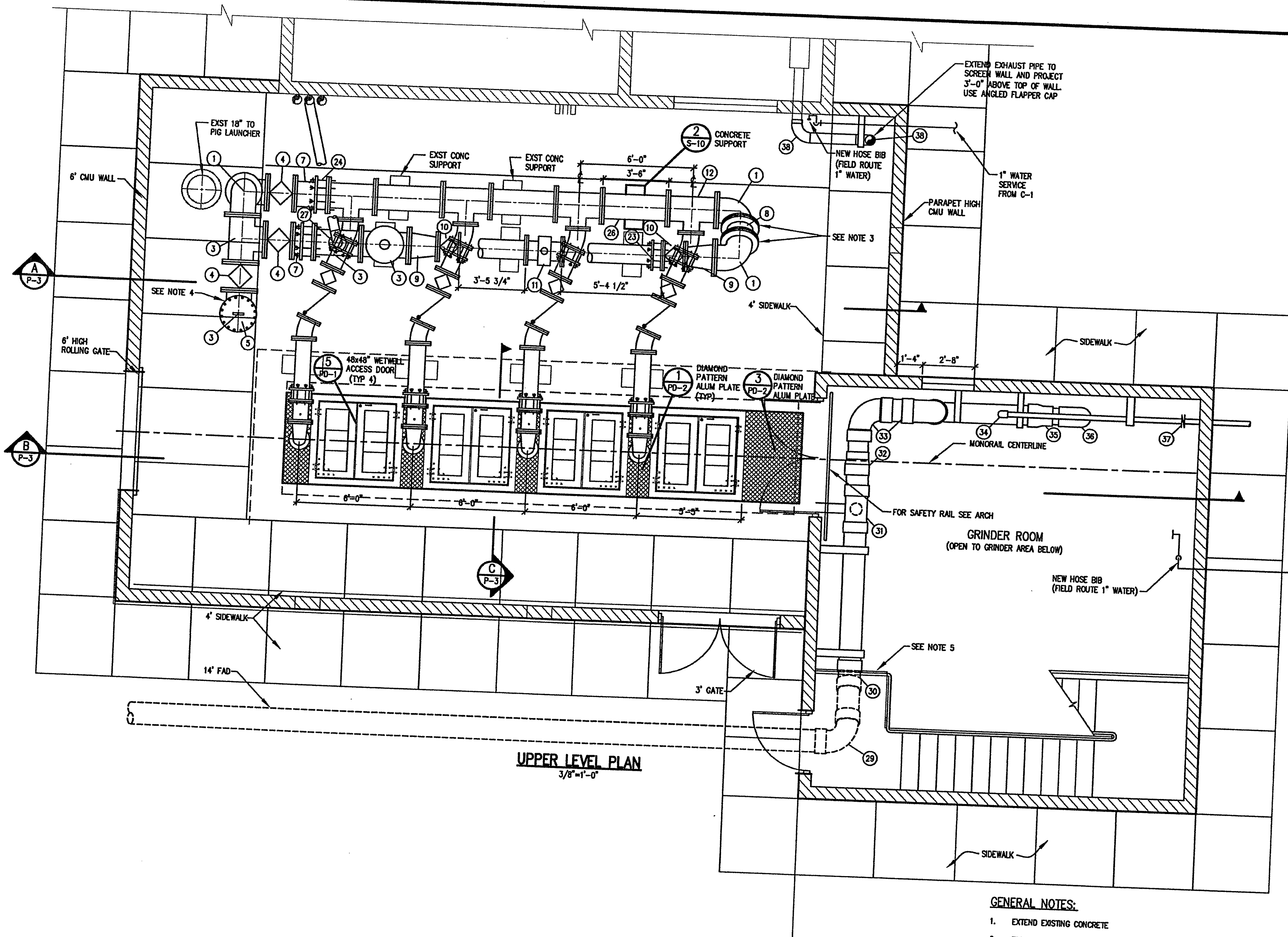
DESIGNED BY: JHF | DRAWN BY: KDK | CHECKED BY: DGD
PN: CH-7311-SD | DATE: APRIL, 2006 | © 2006 RTW INC

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
CIVIL DETAILS

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 28038 DONALD G. CHILTON ARIZONA, U.S.A.

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

SHEET NO. CD-1



UPPER LEVEL PLAN
3/8"=1'-0"

EQUIPMENT:

1. 16" 90° BEND
2. 16" 45° BEND
3. 16" TEE
4. 16" PLUG VALVE
5. 16" BLIND FLANGE W/LIFTING LUG
6. 16" DIP FLGxPE (LENGTH AS REQUIRED)
7. 16" DIP FLGxPE (LENGTH AS REQUIRED)
8. 16" DIP SPOOL (LENGTH AS REQUIRED)
9. 16"x12" ECCENTRIC REDUCER
10. 12" PLUG VALVE
11. 12" MAG METER
12. 16"x10" TEE
13. 10" DIP FLGxPE SPOOL (LENGTH AS REQUIRED)
14. 10" PLUG VALVE
15. 10" CHECK VALVE
16. 10" SPOOL
17. 10" 22.5° BEND
18. 10" RFCA
19. 10"x8" 90° BEND
20. 8"x4" REDUCER
21. 10" FLG SPOOL W/ 1/4" NPT TAP & PRESSURE GAUGE
22. 16" 90° BEND BASE ELBOW
23. 12" RFCA
24. 16" RFCA
25. 1" AIR/VAC PIPE RELIEF TO WETWELL
26. 16" DIP SPOOL
27. 6" DIP
28. 6" BFD
29. 14" 90° BEND
30. 14" 22.5° BEND
31. 14"x6" TEE
32. 14"x12" RED
33. 12" 90° BEND
34. 3" 90° BEND
35. 12"x10" RED
36. 10" 90° BEND
37. 3" BFD
38. 6" 90° EXHAUST BEND

GENERAL NOTES:

1. EXTEND EXISTING CONCRETE
2. FILLET TO SOUTH WALL OF WATERWELL
3. ROTATE EACH 90° BEND 1 BOLT HOLE (22-1/2°)
4. COORDINATE CONSTRUCTION OF HEADER WITH NEW FORCE MAIN HEADER
5. FOR DETAILS OF STAIRWAY SEE ARCHITECTURAL DWGS
6. PROVIDE 8"x16" ORNAMENTAL BLOCK DRAIN BLOCKOUTS FOR DRAINAGE

IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DESTD	D'WN	REVISION DESCRIPTION
1	06/06	SDC	AJF	BUILDING & FAD MODS

PN: CH-7311-SD | DESIGNED BY: JHF
DATE: APRIL, 2006 | DRAWN BY: KDK
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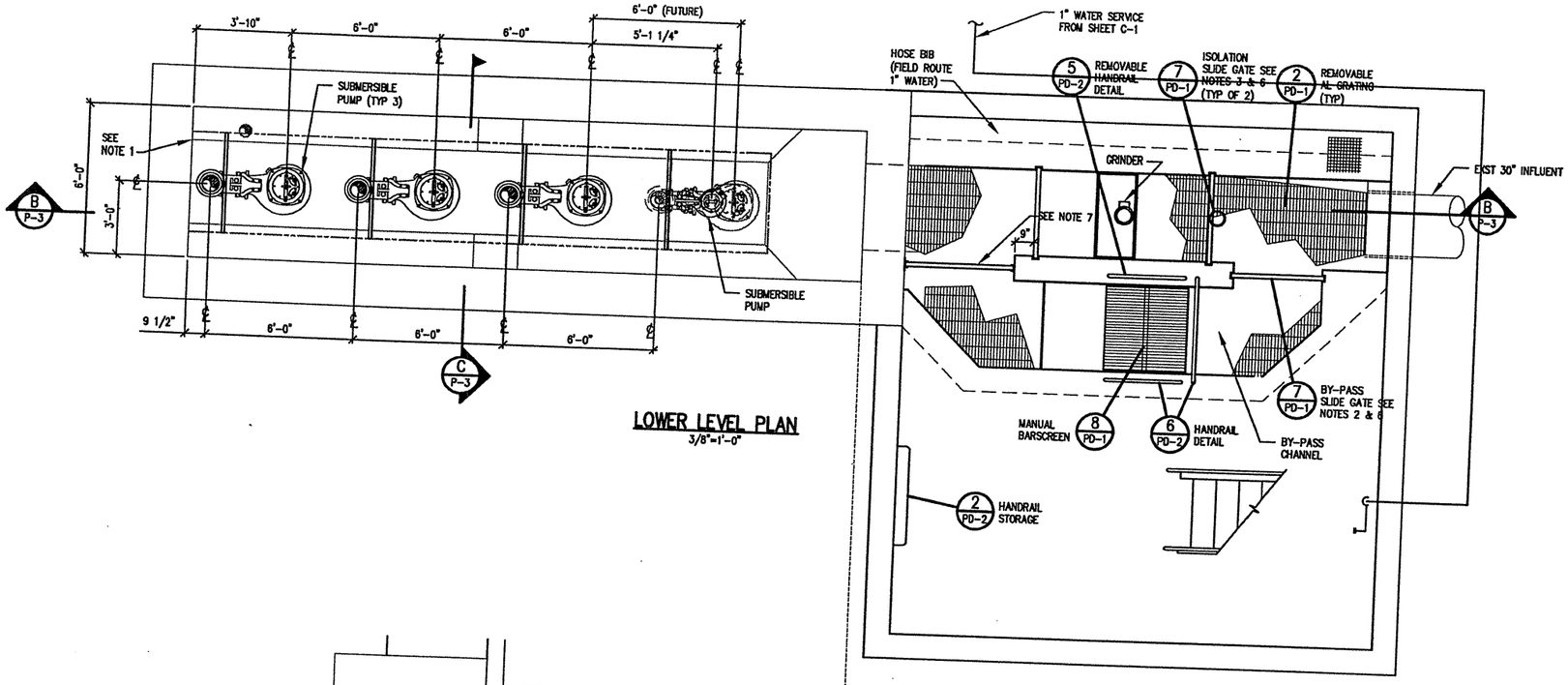
CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
LIFT STATION GROUND LEVEL PLAN

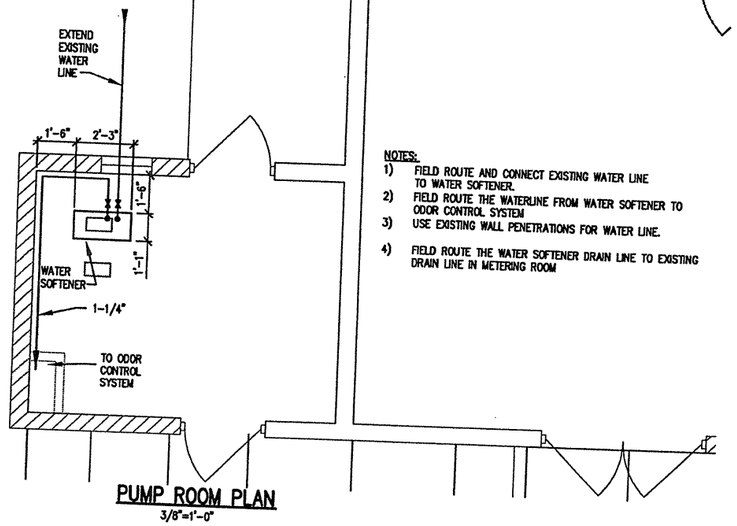
SHEET NO. P-1

28038 DONALD G. CHILTON ARIZONA, U.S.A.

(03) [P01]B-Lift Station Ground Level Plan.dwg H:\7311ch\ JUN 15, 2006 @ 09:39:12 am - (TONYF)



LOWER LEVEL PLAN
3/8"=1'-0"



PUMP ROOM PLAN
3/8"=1'-0"

NOTES:
1) FIELD ROUTE AND CONNECT EXISTING WATER LINE TO WATER SOFTENER.
2) FIELD ROUTE THE WATERLINE FROM WATER SOFTENER TO ODOR CONTROL SYSTEM
3) USE EXISTING WALL PENETRATIONS FOR WATER LINE.
4) FIELD ROUTE THE WATER SOFTENER DRAIN LINE TO EXISTING DRAIN LINE IN METERING ROOM

GENERAL NOTES:
1. EXTEND EXISTING CONCRETE
2. FILLET TO SOUTH WALL OF WETWELL
3. TOP OF ISOLATION SLIDE GATES ELEVATION EQUALS 935.23
4. TOP OF BYPASS SLIDE GATES ELEVATION EQUALS 934.48, WIDTH VARIES
5. RE: ARCHITECTURAL SHEETS FOR HANDRAIL
6. EMBEDDED GATE INSULATION
7. SURFACE MOUNT GATE INSTALLATION

Registered Professional Engineer (Civil) CERTIFICATE NO. 28038 DONALD G. CHILTON Date Signed ARIZONA, U.S.A.

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

(03) (P02)P-Lift Station Lower Level Plan.dwg RE:\7311sh\ JUN 15, 2006 @ 08:56:44 am - (TONYF)

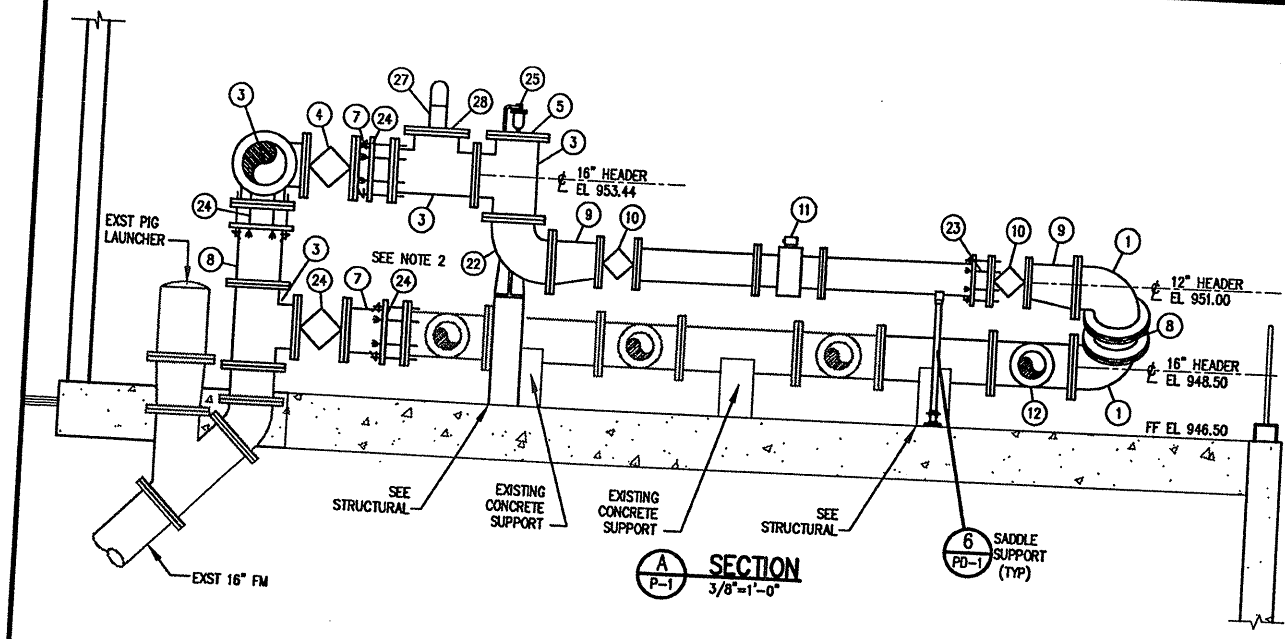
Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DWN	REVISION DESCRIPTION
1	6/06	JDC	AJF STOP GATE MODIFICATION

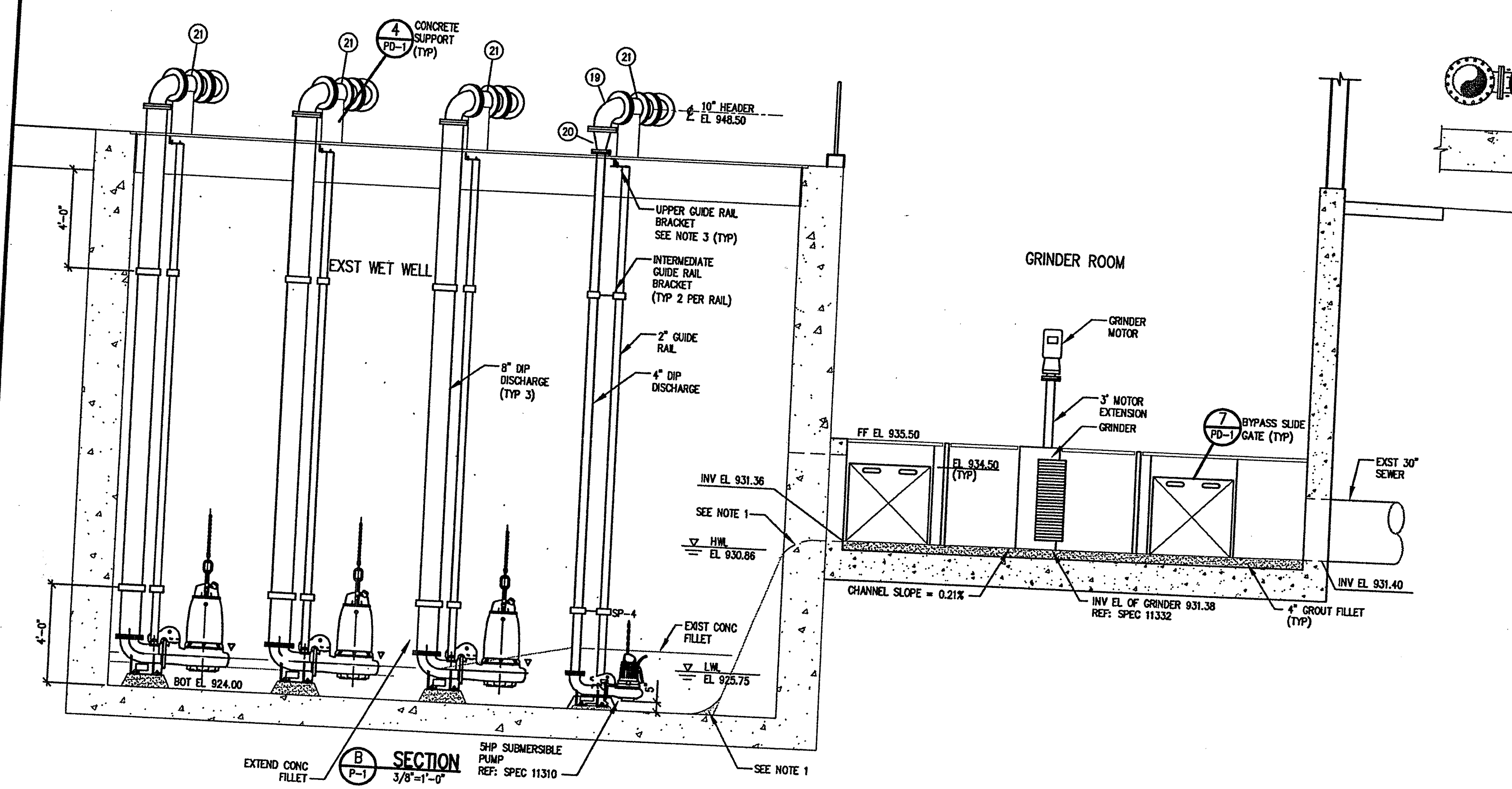
PH: CH-7311-SD | DESIGNED BY: JHF
DATE: APRIL, 2006 | DRAWN BY: KDK | CHECKED BY: DGD

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
LIFT STATION LOWER LEVEL PLAN

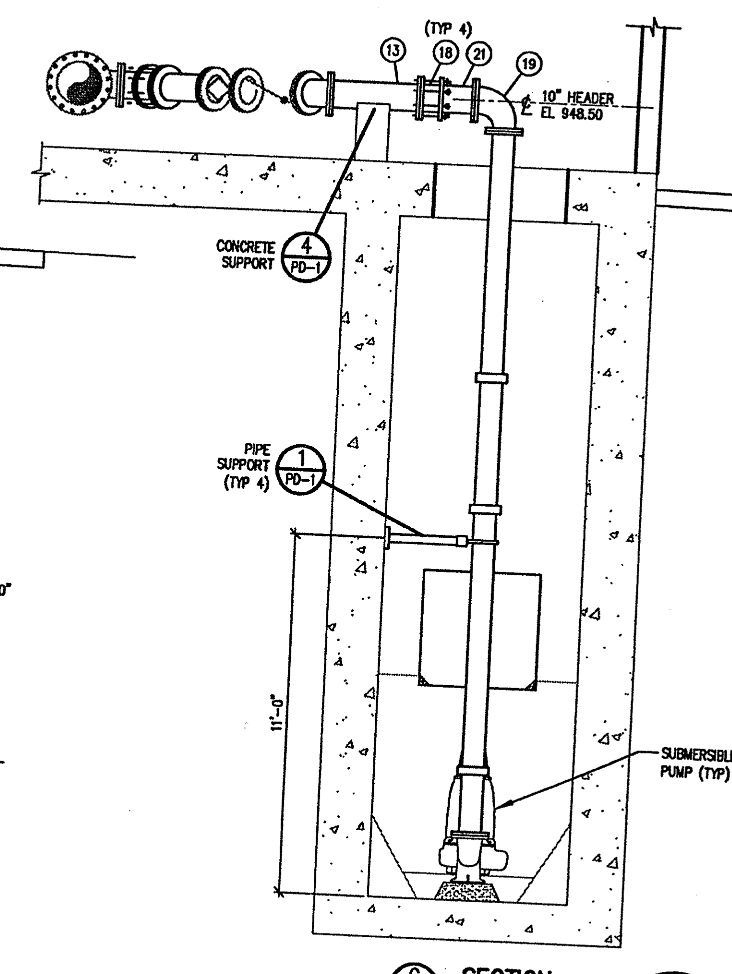
SHEET NO. P-2



A/P-1 SECTION 3/8"=1'-0"



B/P-1 SECTION 3/8"=1'-0"



C/P-1 SECTION 3/8"=1'-0"

EQUIPMENT:

1. 16" 90° BEND
2. 16" 45° BEND
3. 16" TEE
4. 16" PLUG VALVE W/HANDWHEEL
5. 16" BLIND FLANGE TAPPED W/1" NPT
6. 16" DIP FLGxPE SPOOL (LENGTH AS REQUIRED)
7. 16" DIP FLGxPE SPOOL (LENGTH AS REQUIRED)
8. 16" SPOOL (LENGTH AS REQUIRED)
9. 16"x12" ECCENTRIC REDUCER
10. 12" PLUG VALVE
11. 12" MAG METER
12. 16"x10" TEE
13. 10" DIP PIPE
14. 10" PLUG VALVE
15. 10" CHECK VALVE
16. 10" SPOOL AS REQUIRED
17. 10" 22-1/2° BEND
18. 10" RFCA
19. 10"x8" RED 90° BEND
20. 8"x4" REDUCER
21. 10" FLG SPOOL W/ 1/4" NPT TAP & PRESSURE GAUGE
22. 16" 90° BEND BASE ELBOW
23. 12" RFCA
24. 16" RFCA
25. 1" AIR/VAC PIPE RELIEF TO WETWELL
26. 16" DIP SPOOL
27. 6" STL VENT
28. 16" BLIND FLANGE W/ 6" FLG TAP
29. 16" BLIND FLANGE W/ LIFTING LUG

GENERAL NOTES:

1. PLUG VALVE TO BE NORMALLY CLOSED (NC) FOLLOWING COMPLETION OF LIFT STATION.
2. CONTRACTOR TO UTILIZE EXISTING WETWELL LEVEL TRANSDUCER.
3. RE: STRUCTURAL SHEETS FOR UPPER GUIDE RAILS

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
1	6/06	JDC	ALF	STOP GATE MODIFICATIONS

PN: CH-7311-SD | DESIGNED BY: JHF
DATE: APRIL, 2006 | DRAWN BY: KOK
 | CHECKED BY: DGD

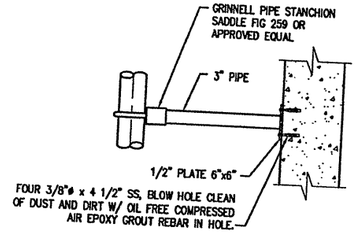
CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
LIFT STATION SECTIONS

28038 DONALD G. CHILTON

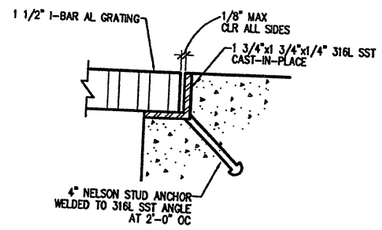
0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

SHEET NO. P-3

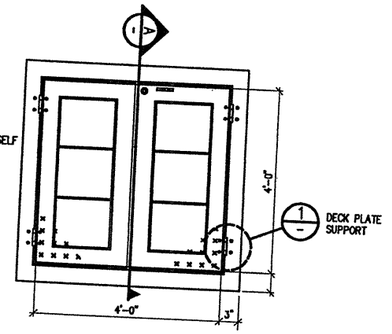
(03) (P03)B-Lift Station Sections.dwg k:\7311ch\ JUN 15, 2006 @ 10:10:27 am - (TONYF)



PIPE SUPPORT
3/4"=1'-0"
1 / P-3

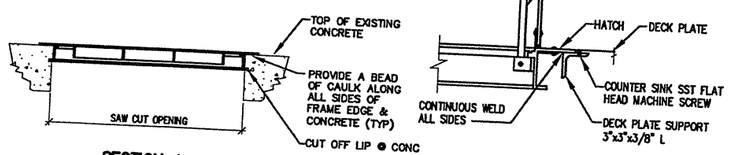


GRATING DETAIL
NTS
2 / P-2



NOTES:
1. REINFORCE BOTH HINGED SIDES TO BE SELF SUPPORTING.
2. PROVIDE HINGED SIDES WITH WELDED SUPPORT EXTENSION TO SUPPORT DECK PLATE ADJACENT TO HATCH FRAMES AS SHOWN IN DETAIL 1.

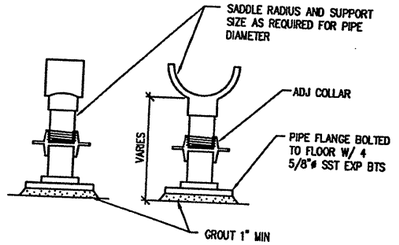
PLAN



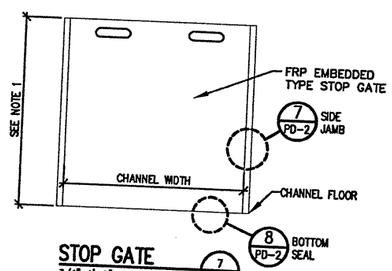
SECTION A

DECK PLATE SUPPORT
1 1/2"=1'-0"
1 / -

ACCESS HATCH
3/4"=1'-0"
5 / P-1,2

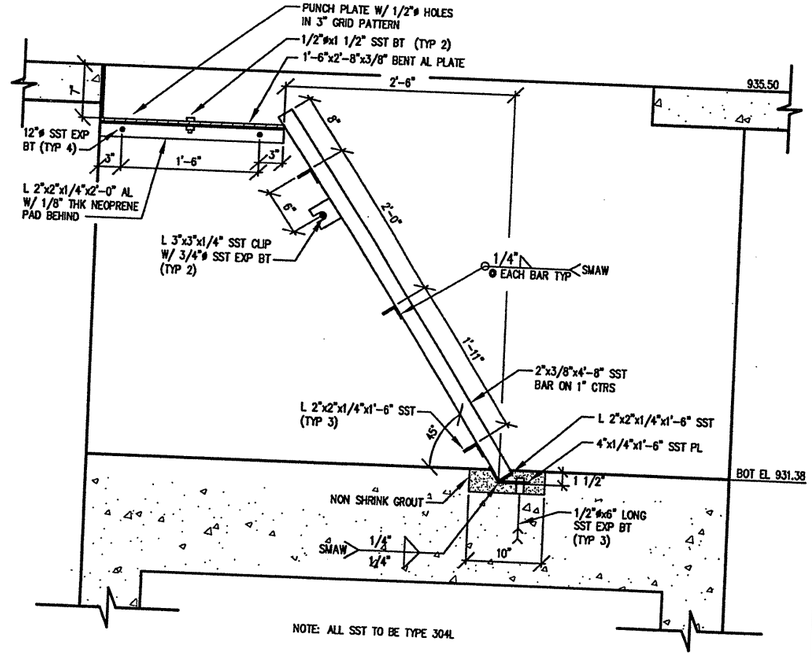


SADDLE SUPPORT
NTS
6 / P-3



STOP GATE
3/4"=1'-0"
7 / P-2

NOTE:
1. FURNISH TWO STOP GATES 3'10" TALL AND TWO STOP GATES 3'-1" TALL.
2. FOR MOUNTING DETAIL SEE DETAILS 4, 5 & 6 ON SHT CD-2



NOTE: ALL SST TO BE TYPE 304L

SECTION
1-1/2"=1'-0"
8 / P-2

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Professional Engineers & Consultants
Phoenix, Arizona

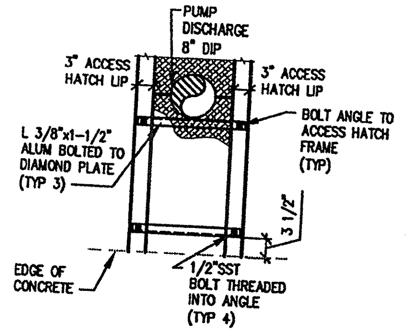
NO.	DATE	DES'D	D'WN
1	6/08	JDC	ALF

REVISION DESCRIPTION: DELETE DETS 3 & 4, MODIFIED DET 7

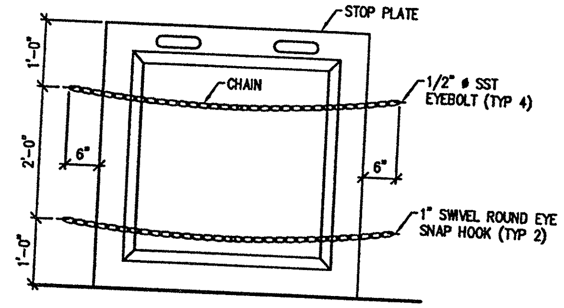
DESIGNED BY: JHF
DRAWN BY: KDK
CHECKED BY: DGD
PM: CH-7311-SD
DATE: APRIL, 2006

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
PROCESS DETAILS

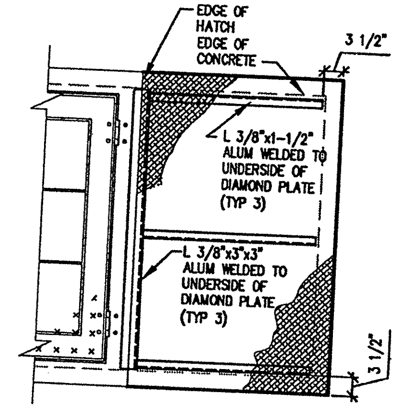
SHEET NO.
PD-1



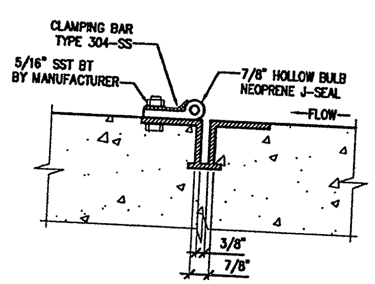
1 / P-1 DIAMOND PLATE REINFORCEMENT
3/4"=1'-0"



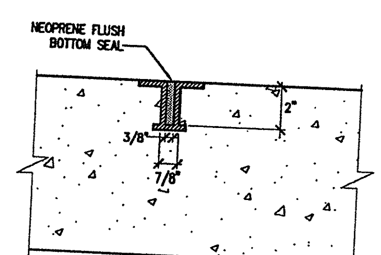
2 / P-2 SLIDE GATE STORAGE
NTS



3 / P-1 DIAMOND PLATE REINFORCEMENT
3/4"=1'-0"

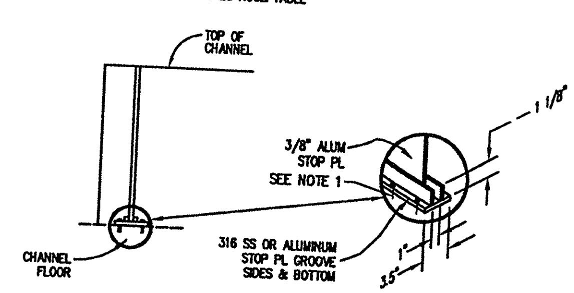


4 / PD-1 SIDE JAMB DETAIL
3"=1'-0"



5 / PD-1 BOTTOM SEAL DETAIL
3"=1'-0"

NOTE: FIBERGLASS STOP PL AND GROOVES ACCEPTABLE



6 / P-2 SLIDE GATE DETAIL
NTS

NOTE:
1. 1/2" 316 SS ALL THREAD ANCHOR BOLT. CHEMICAL GROUT ANCHOR BOLT ON 9" CENTER COMMENCING 3" FROM THE BOTTOM CORNERS OF THE CHANNEL.

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
1	6/06	JDC	ALF	DETAILS 2 & 6

DESIGNED BY: JHF
DRAWN BY: KDK
CHECKED BY: DGD
PN: CH-7311-SD
DATE: APRIL, 2006

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS

PROCESS DETAILS

28038 DONALD G. CHILTON

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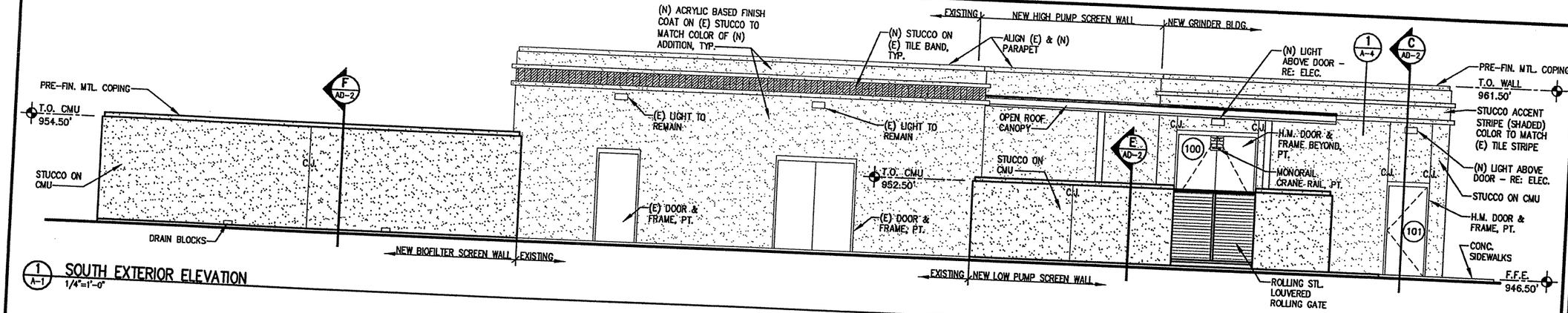
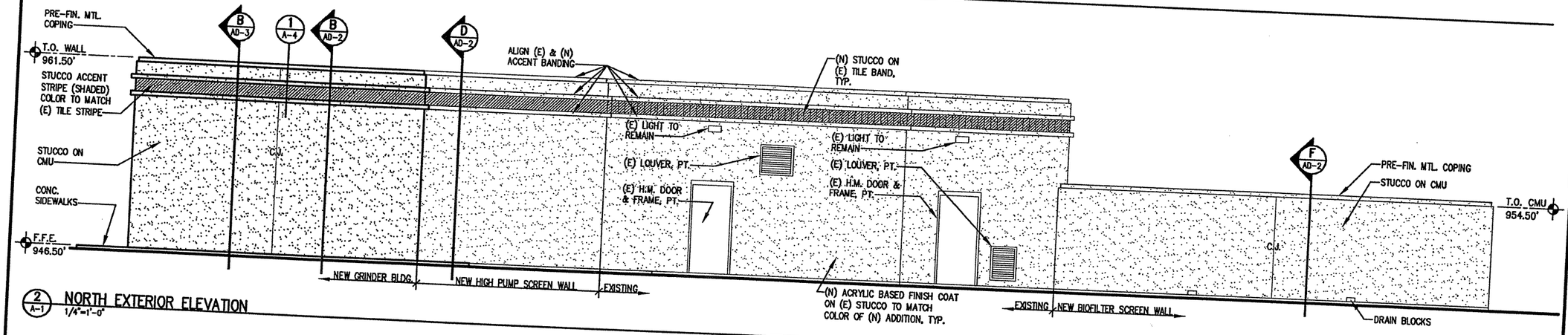
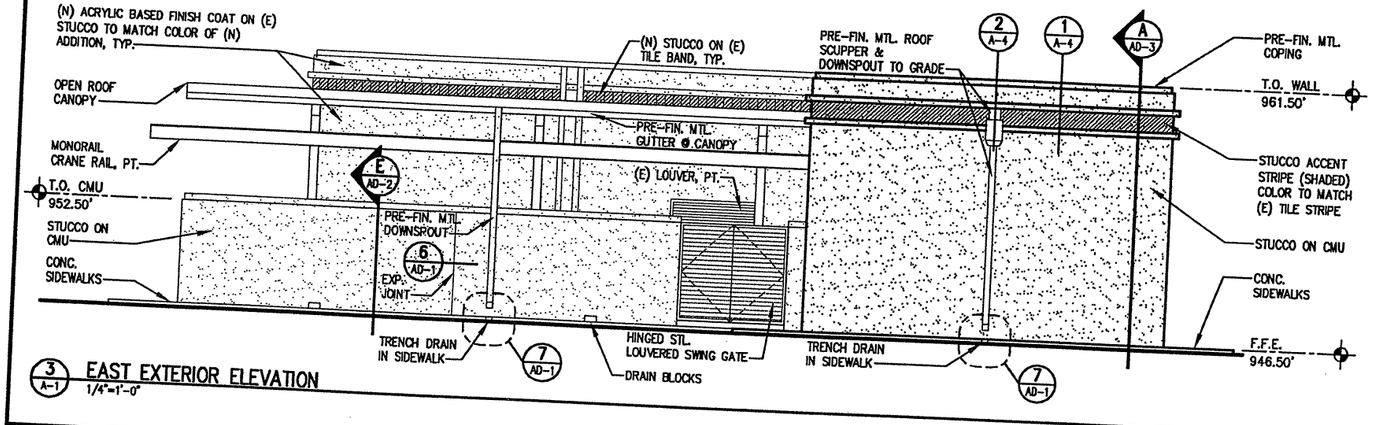
SHEET NO.
PD-2



1 A-1 SOUTH EXTERIOR ELEVATION
1/4"=1'-0"



2 A-1 NORTH EXTERIOR ELEVATION
1/4"=1'-0"



3 A-1 EAST EXTERIOR ELEVATION
1/4"=1'-0"

GENERAL NOTES:

1. MATCH NEW BUILDING APPEARANCE, TEXTURE, STRUCTURE HEIGHT, AND COLOR TO EXISTING BUILDING.
2. ALL NEW & EXISTING DOORS, FRAMES & LOUVERS TO BE PAINTED.
3. ALL EXISTING STUCCO TO RECEIVE NEW ACRYLIC BASED FINISH COAT TO MATCH NEW STUCCO.

Eidos Architects, PC
Architecture / Planning / Design
5400 South Syracuse Street
Greenwood Village, Colorado 80111

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

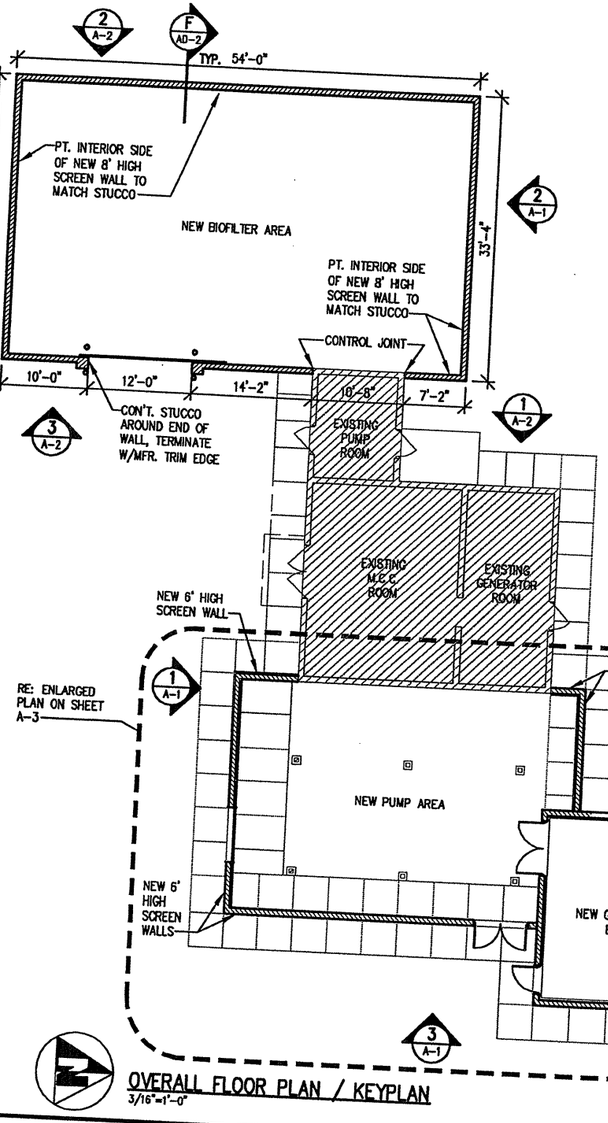
Rothberg, Tamburni & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION

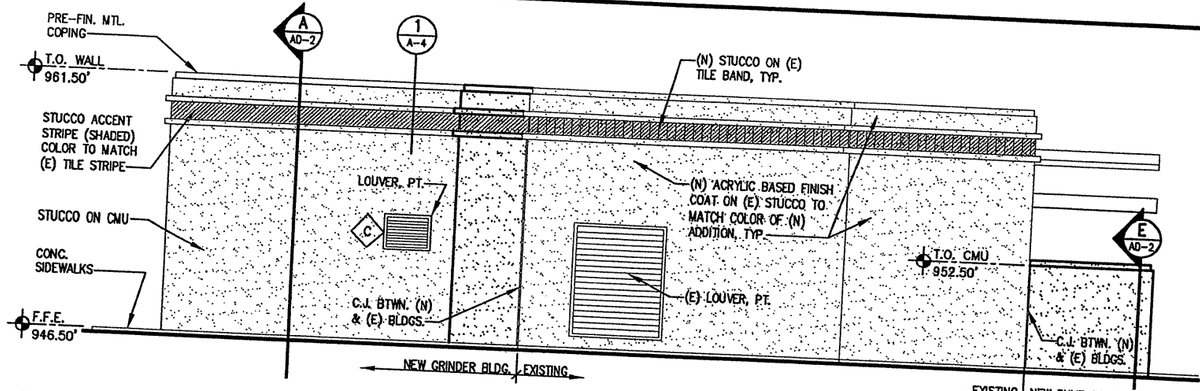
DESIGNED BY: RGN
DRAWN BY: LMH
CHECKED BY:
PN: CH-7311-SD
DATE: JUNE, 2006

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
LIFT STATION EXTERIOR ELEVATIONS

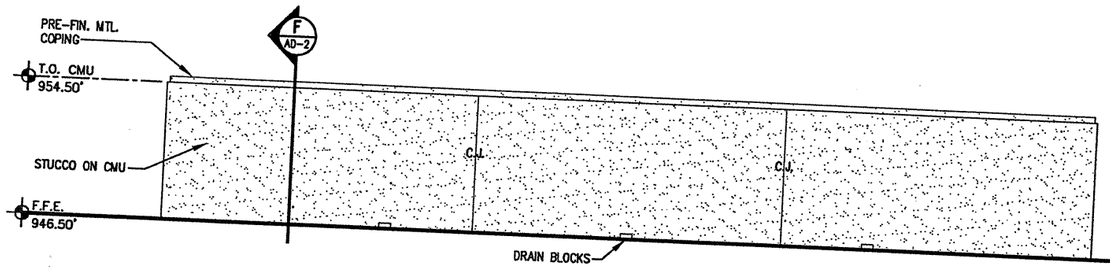
SHEET NO.
A-1



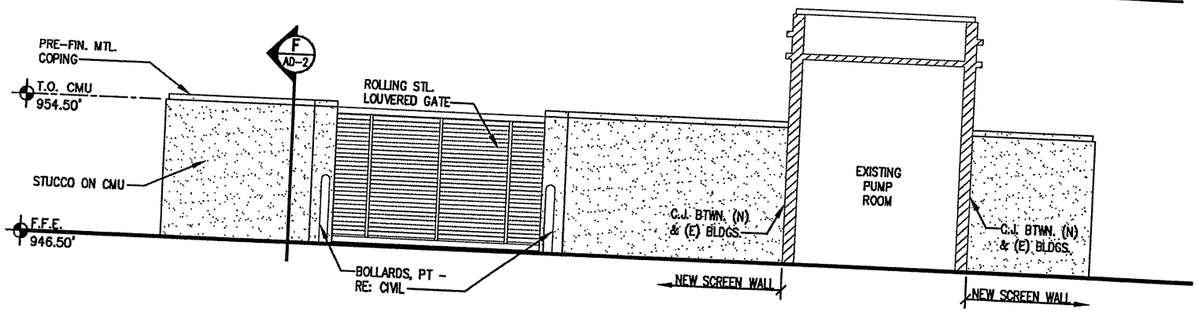
OVERALL FLOOR PLAN / KEYPLAN
3/16"=1'-0"



1 A-2 WEST EXTERIOR ELEVATION – NEW PUMP AREA
1/4"=1'-0"



2 A-2 WEST EXTERIOR ELEVATION – BIOFILTER SCREEN WALL
1/4"=1'-0"



3 A-2 EAST EXTERIOR ELEVATION – BIOFILTER SCREEN WALL
1/4"=1'-0"

GENERAL NOTES:

1. MATCH NEW BUILDING APPEARANCE, TEXTURE, STRUCTURE HEIGHT, AND COLOR TO EXISTING BUILDING.
2. ALL NEW & EXISTING DOORS, FRAMES & LOUVERS TO BE PAINTED.
3. ALL EXISTING STUCCO TO RECEIVE NEW ACRYLIC BASED FINISH COAT TO MATCH NEW STUCCO.

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Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DESD	REVISION DESCRIPTION

DESIGNED BY: RGN
DRAWN BY: LMH
CHECKED BY:
PN: CH-7311-SD
DATE: JUNE, 2006

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS

LIFT STATION EXTERIOR ELEVATIONS

SHEET NO.
A-2

UPPER LEVEL PLAN
3/8"=1'-0"

GENERAL NOTES:

1. FOR DOOR & ROOM FINISH SCHEDULES SEE SHEET AD-1.
2. ALL INTERIOR EXPOSED STRUCTURE, WELD PLATES, ETC. TO RECEIVE COATING OF TNEMEC PAINT PER SPEC.

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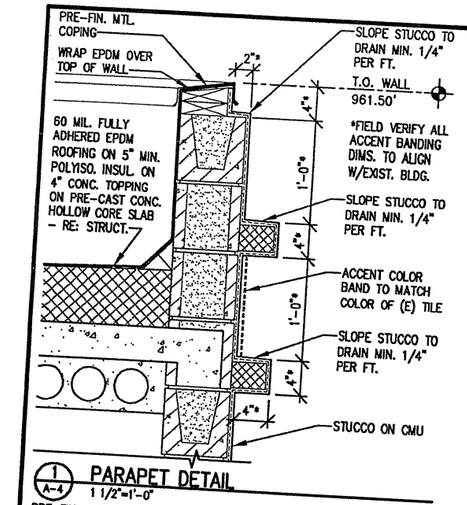
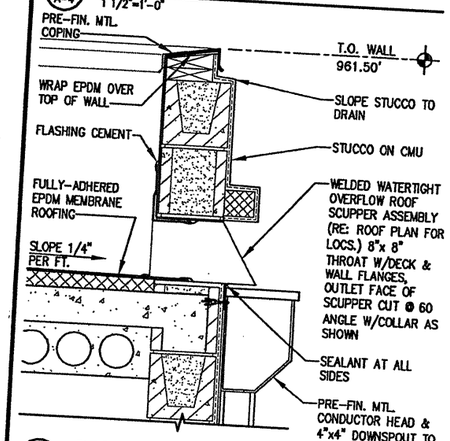
DRAWN BY: LAH
CHECKED BY:
PN: CH-7311-50
DATE: JUNE, 2006

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
LIFT STATION UPPER LEVEL PLAN

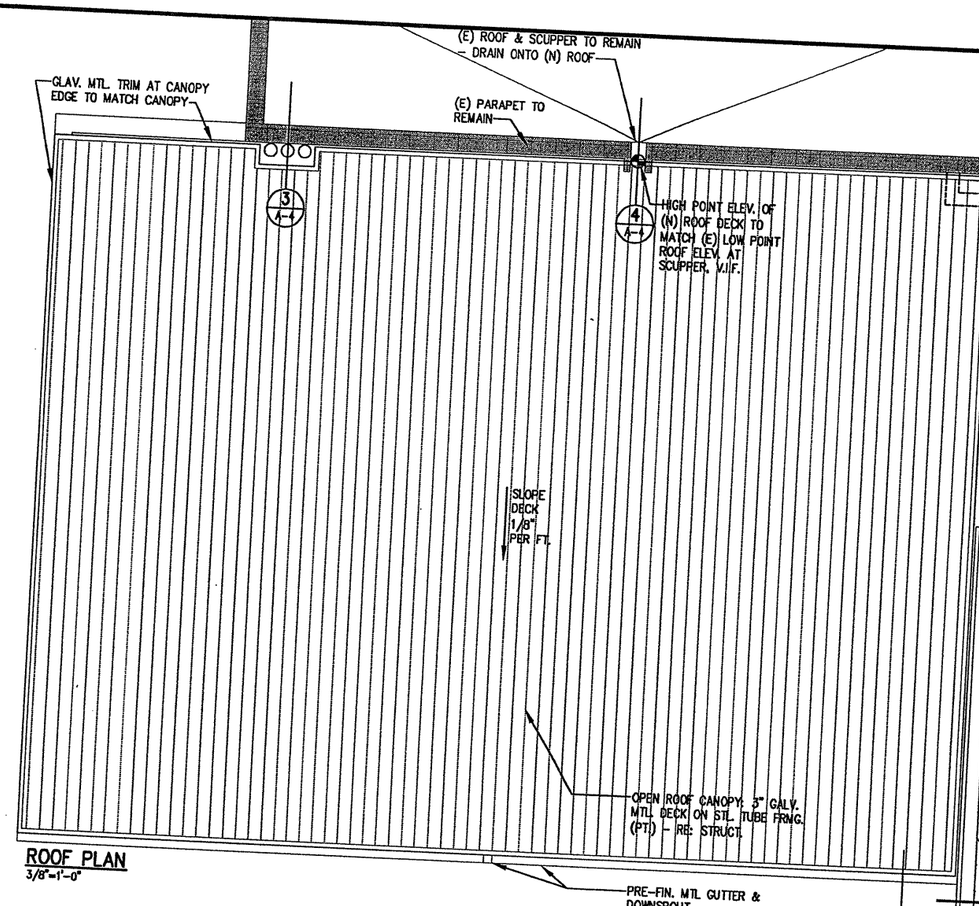
SHEET NO.
A-3



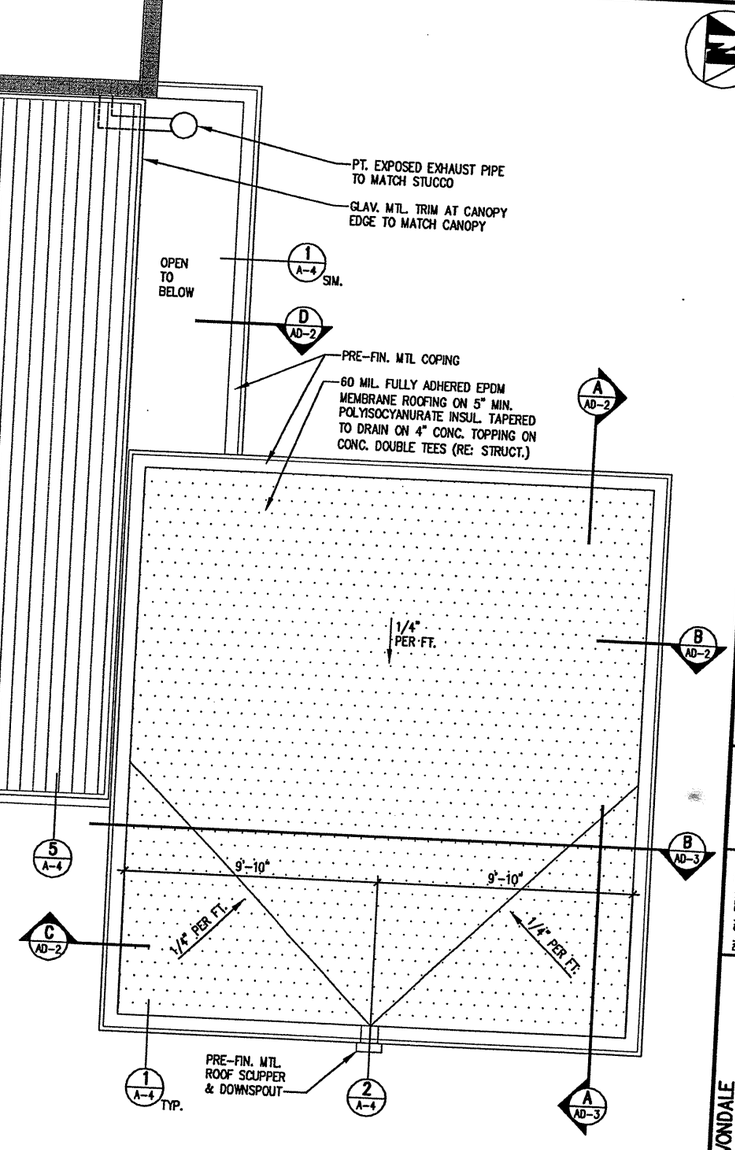
1/A-4 PARAPET DETAIL
1 1/2"=1'-0"

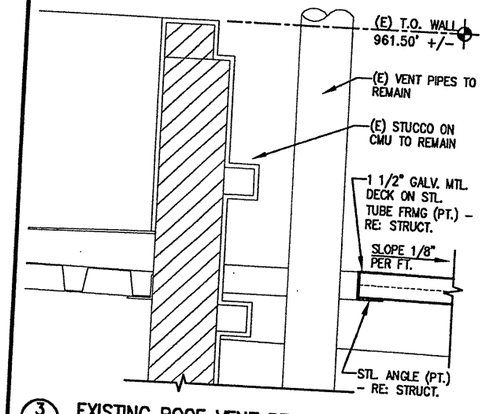


2/A-4 ROOF SCUPPER DETAIL
1 1/2"=1'-0"

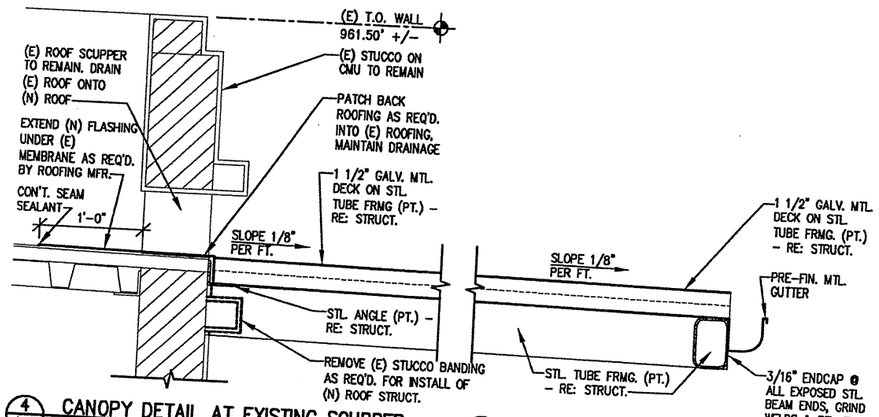


ROOF PLAN
3/8"=1'-0"





3/A-4 EXISTING ROOF VENT DETAIL
1 1/2"=1'-0"



4/A-4 CANOPY DETAIL AT EXISTING SCUPPER
1 1/2"=1'-0"

5/A-4 CANOPY DETAIL
1 1/2"=1'-0"

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Phoenix, Arizona

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DRAWN BY: LMH
CHECKED BY:
PR: CH-7311-SD
DATE: JUNE, 2006

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
LIFT STATION ROOF PLAN & ROOF DETAILS

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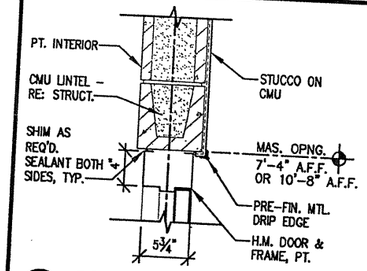
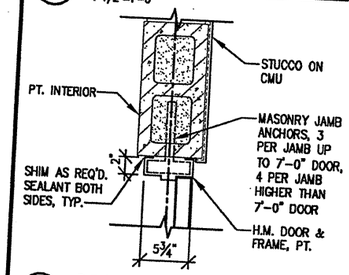
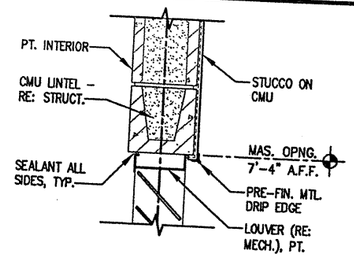
SHEET NO.
A-4



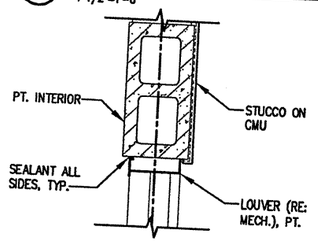
1 AD-1 **DOOR HEAD DETAIL**
1 1/2"=1'-0"



2 AD-1 **DOOR JAMB DETAIL**
1 1/2"=1'-0"

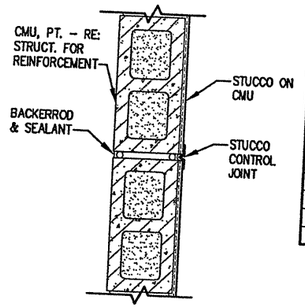


3 AD-1 **LOUVER HEAD DETAIL**
1 1/2"=1'-0"



4 AD-1 **LOUVER JAMB DETAIL**
1 1/2"=1'-0"

5 AD-1 **LOUVER SILL DETAIL**
1 1/2"=1'-0"



6 AD-1 **EXPANSION JOINT DETAIL**
1 1/2"=1'-0"

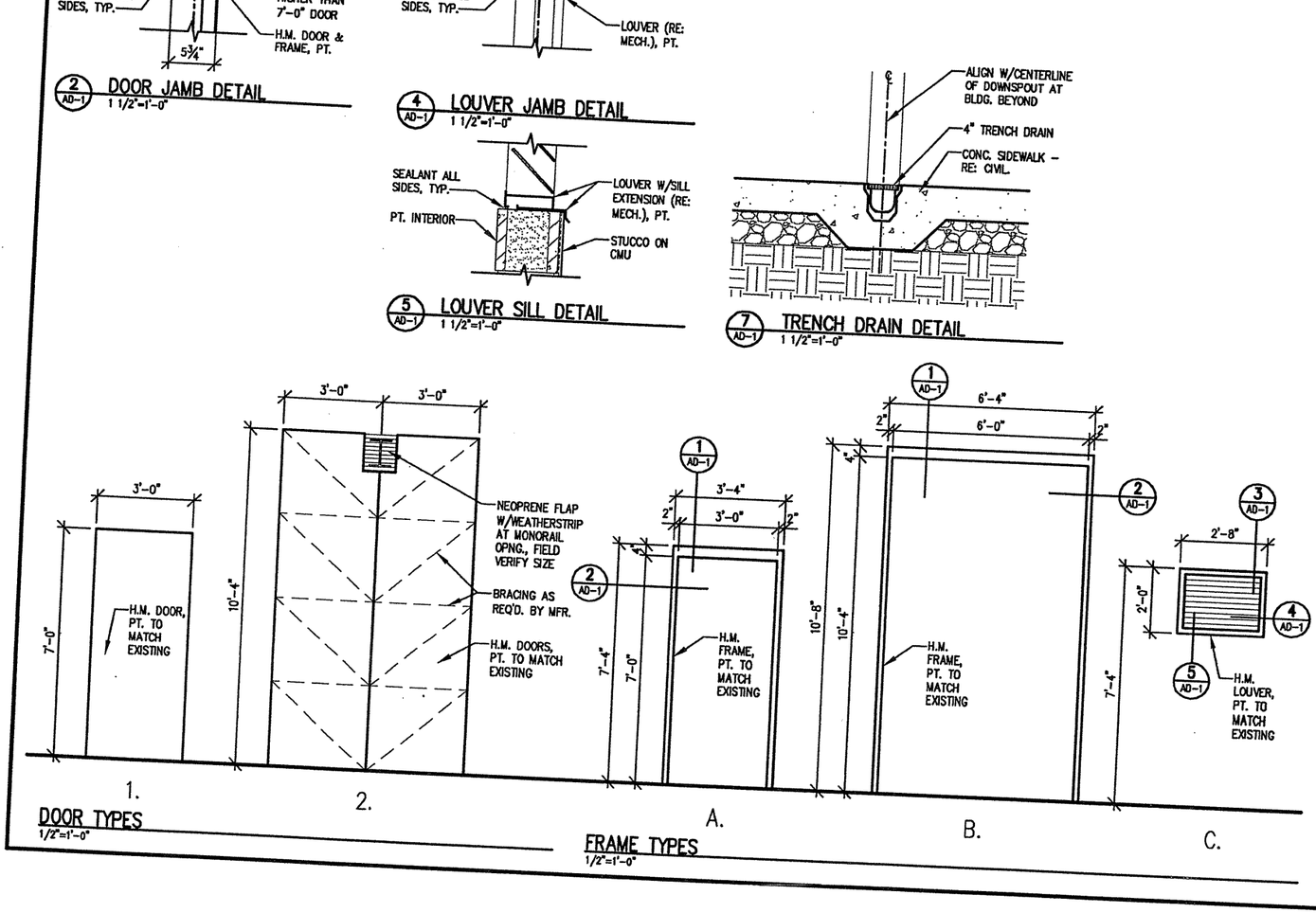
7 AD-1 **TRENCH DRAIN DETAIL**
1 1/2"=1'-0"

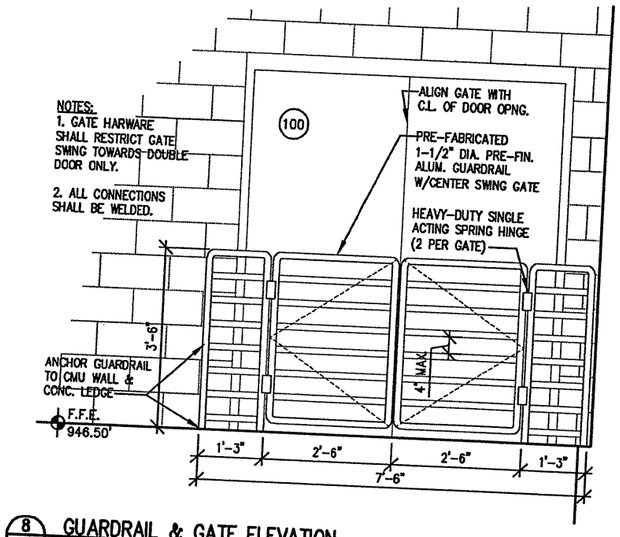
ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR	BASE	WALLS	CEILING	CEILING HEIGHT	REMARKS
100	Grinder Room	Fin. Conc.	None	CMU – Pt.	Exposed Structure	–	Paint all exposed misc. metals

DOOR SCHEDULE

DOOR NO.	DOOR SIZE	DOOR TYPE	DOOR MAT.	FRAME TYPE	FRAME MAT.	HDWR. SET	HEAD/ JAMB	REMARKS
100	6'0"x9'10"x1 3/4" (pair)	2	H.M.	B	H.M.	1	1/2 AD-1	Threshold,Lockset,Closer,Weatherstripping,Neoprene Flap
101	3'0"x7'0"x1 3/4"	1	H.M.	A	H.M.	2	1/2 AD-1	Threshold,Storeroom Lockset,Closer,Weatherstripping





8 AD-1 **GUARDRAIL & GATE ELEVATION**
3/4"=1'-0"

GENERAL NOTES:

1. ALL NEW DOORS, FRAMES & LOUVERS TO BE PAINTED.

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NO.	DATE	DESD	D'WN

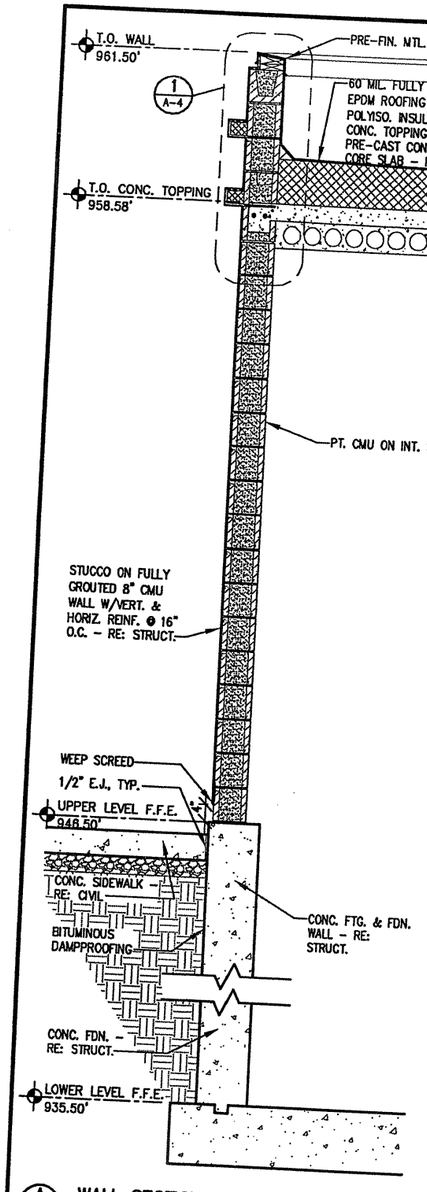
REVISION DESCRIPTION

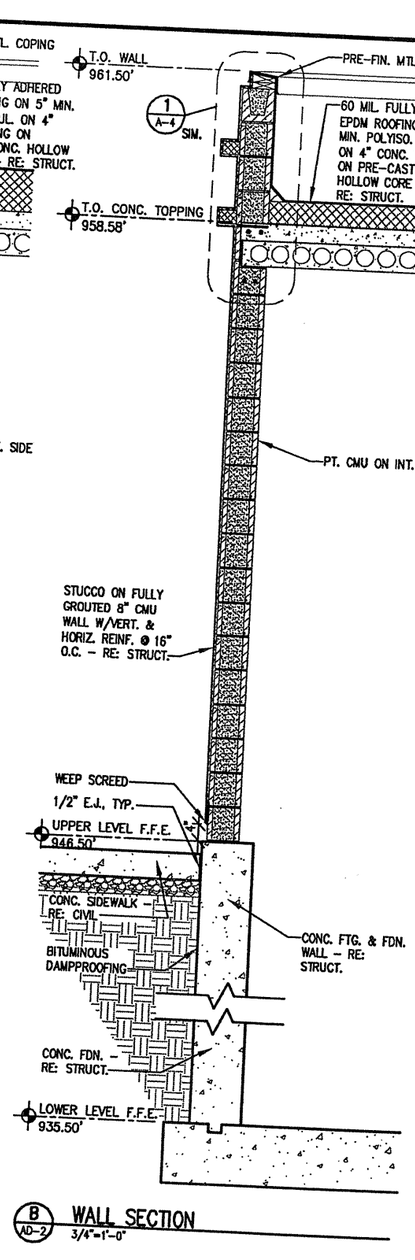
DESIGNED BY: RGN
DRAWN BY: LWH
CHECKED BY:

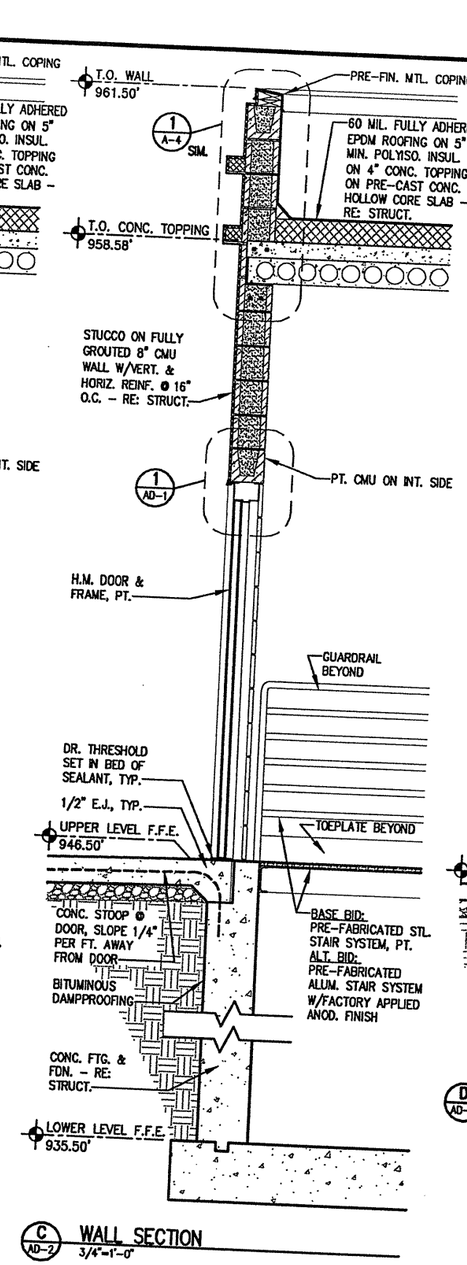
PN: CH-7311-50
DATE: JUNE, 2006

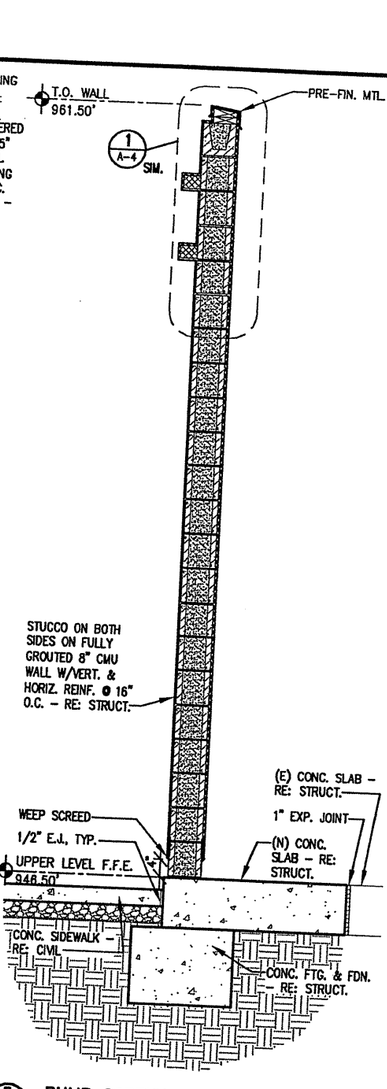
CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
ARCHITECTURAL SCHEDULES, DOOR AND FRAME TYPES & MISC. DETAILS

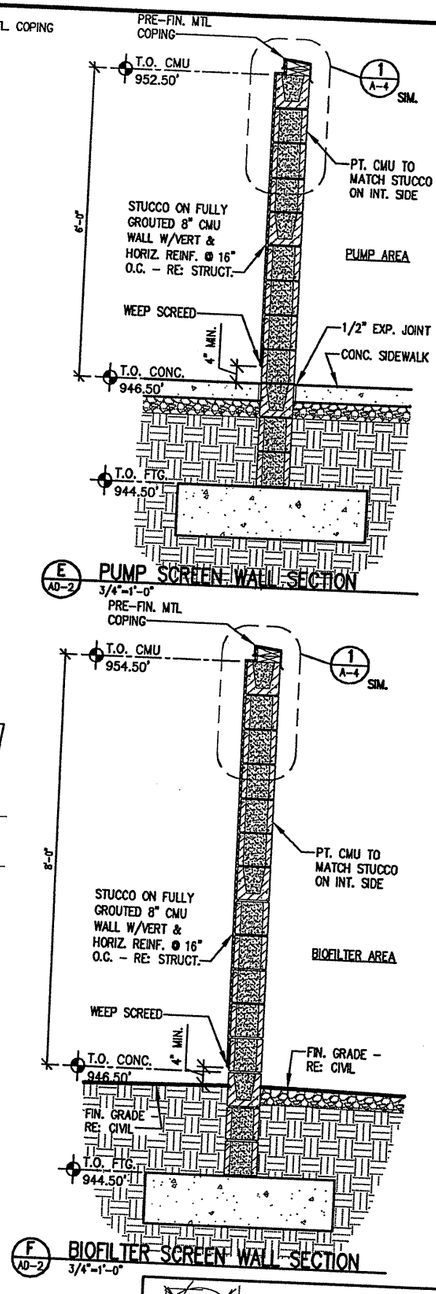
SHEET NO.
AD-1











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Phoenix, Arizona

NO.	DATE	DES'D	D'WN

REVISION DESCRIPTION

DESIGNED BY: RGN
DRAWN BY: LMH
CHECKED BY:

PM: CH-7311-SD
DATE: JUNE, 2006

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
WALL SECTIONS

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SHEET NO.
AD-2

A/AD-3 STAIR SECTION
3/4"=1'-0"

B/AD-3 STAIR SECTION
3/4"=1'-0"

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Phoenix, Arizona

NO.	DATE	DSTD	D'WN	REVISION DESCRIPTION

DESIGNED BY: RGN
DRAWN BY: LMH
CHECKED BY:
PN: CH-7311-SD
DATE: JUNE, 2006

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
STAIR SECTIONS

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SHEET NO.
AD-3

GENERAL STRUCTURAL NOTES:

THESE NOTES APPLY EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.

CODE:

1. COMPLY WITH THE 2003 INTERNATIONAL BUILDING CODE, AS AMENDED BY THE CITY OF AVONDALE.

DESIGN LOADS:

1. SUPERIMPOSED DEAD LOADS:
   ROOF ---------- 35 PSF
2. LIVE LOADS:
   ROOF ---------- 20 PSF (REDUCIBLE)
3. LATERAL LOADS:
   WIND ---------- V=90 mph, I_W=1.15 (category II) EXPOSURE C
   SEISMIC ---------- SITE CLASS D, SEISMIC DESIGN CATEGORY B, I_E=1.50 (USE GROUP II), S_{DS}=0.235g, S_{D1}=0.103g

GENERAL:

1. THE STRUCTURAL DRAWINGS SHOW THE COMPLETED PROJECT. THEY DO NOT INCLUDE COMPONENTS NEEDED FOR CONSTRUCTION SAFETY. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND AROUND THE JOB SITE DURING CONSTRUCTION.
2. STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY BRACING, SHORING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION.
3. VERIFY ALL DIMENSIONS OF EQUIPMENT, PIPING, ETC. PRIOR TO STARTING WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES.
4. VERIFY IN FIELD ALL EXISTING CONDITIONS SHOWN ON THE DRAWINGS.
5. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR MECHANICAL, ELECTRICAL, AND PLUMBING WITH APPROPRIATE TRADES AND DRAWINGS.
6. REFER TO THE CIVIL DRAWINGS FOR ALL ELEVATIONS AND SLOPES.
7. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL AND SIGNATURE OF AN INSURED STRUCTURAL OR CIVIL ENGINEER REGISTERED IN ARIZONA.
8. THE COST OF DESIGN WORK RESULTING FROM ERRORS OR OMISSIONS IN CONSTRUCTION SHALL BE BORNE BY THE CONTRACTOR.
9. IN CASE OF CONFLICTS, MORE COSTLY REQUIREMENTS GOVERN FOR BIDDING. SUBMIT CLARIFICATION REQUEST PRIOR TO PROCEEDING WITH WORK.
10. WHEN DRILLING, CHIPPING OR CORING INTO CONCRETE THE AREA SHALL BE X-RAYED OR FERRO SCANNED PRIOR TO START OF WORK. DO NOT CUT OR NICK EXISTING REINFORCING.

FOUNDATIONS:

1. PERFORM ALL WORK IN ACCORDANCE WITH THE SOILS REPORT BY ACURA ENGINEERING DATED MARCH 28, 2006 (ACURA PROJECT NO. A06-0021G). REPORT IS AVAILABLE FOR REVIEW FROM OWNER.
2. FOUNDATION DESIGN IS BASED ON THE FOLLOWING SOIL BEARING CAPACITIES:
   BEARING AT GRINDER ROOM ---------- 2500 PSF
3. PLACE FOUNDATION CONCRETE ONLY ON UNDISTURBED NATIVE SOILS OR PROPERLY COMPACTED STRUCTURAL FILL. VERIFY THE SUITABILITY OF THE BEARING MATERIAL WITH THE SOILS CONSULTANT BEFORE PLACING FOUNDATIONS.
4. BACKFILL SHALL NOT BE PLACED AGAINST FOUNDATION WALLS UNTIL THE CONCRETE HAS REACHED 75% OF ITS DESIGN STRENGTH. HEAVY EQUIPMENT FOR SPREADING AND COMPACTING BACKFILL SHALL NOT BE OPERATED CLOSER TO FOUNDATION WALLS THAN A DISTANCE EQUAL TO THE HEIGHT OF BACKFILL ABOVE THE TOP OF THE FOOTING OR 10'-0" WHICHEVER IS LESS. THE AREA REMAINING SHALL BE COMPACTED WITH POWER-DRIVEN HAND TAMPERS SUITABLE FOR THE MATERIAL BEING COMPACTED. NOTE: IN NO CASE SHALL THE HAND TAMPER APPLY SOIL PRESSURE AGAINST THE WALL GREATER THAN THE VALUES GIVEN IN THE SOILS REPORT.
5. LEAN CONCRETE BACKFILL SHALL BE A 1 SACK CLSM PER MAG SPECIFICATION #728 (150 ± 50 PSI). PUMPABLE LEAN CONCRETE SHALL BE USED AS A NON-STRUCTURAL MATERIAL TO FILL VOID SPACES BETWEEN SOIL AND STRUCTURAL MEMBERS.
6. PLACE DOWELS AND ANCHOR BOLTS BEFORE POURING CONCRETE. USE TEMPLATES TO ENSURE PROPER PLACEMENT.
7. CENTER FOUNDATIONS UNDER COLUMNS AND WALLS UNLESS NOTED OTHERWISE.
8. OVER-EXCAVATE, REPLACE AND RE-COMPACT SOIL UNDER STRUCTURES AS RECOMMENDED IN THE SOILS REPORT.

CONCRETE:

1. CONCRETE QUALITY SHALL CONFORM TO THE LATEST EDITIONS OF ACI 117, ACI 315, ACI 301 AND ACI 318. FINISHES SHALL CONFORM TO ACI 301, PARAGRAPH 10.4. SURFACES NOT EXPOSED TO PUBLIC VIEW: ROUGH FORM SURFACES. SURFACES EXPOSED TO PUBLIC VIEW: SMOOTH FORM FINISH, GROUT CLEAN AND PATCH ALL HOLES AND BLEMISHES GREATER THAN 1/8". ALL EXPOSED SURFACES SHALL CONFORM TO ACI 117 CLASS A FORMWORK TOLERANCES.
2. CONCRETE SHALL BE REGULAR WEIGHT (144 PCF) UNLESS NOTED OTHERWISE. CEMENT SHALL BE TYPE II AND SHALL CONFORM TO ASTM C150. AGGREGATE SHALL CONFORM TO ASTM C33. WATER SHALL BE POTABLE. CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI.
3. SUBMIT MIX DESIGNS FOR REVIEW BEFORE PLACEMENT OF CONCRETE.
4. AGGREGATE SIZE SHALL NOT EXCEED 1".
5. SLUMP OF CONCRETE SHALL NOT EXCEED 4". IF SUPERPLASTICIZERS ARE USED IN THE MIX DESIGN, THE MIX SHALL BE SLUMPED AT THE JOB SITE PRIOR TO ADDITION OF SUPERPLASTICIZER. PROVIDE COMPUTERIZED BATCH RECORDS WITH ALL LOADS.
6. AIR ENTRAINING ADMIXTURE: ALL CONCRETE PERMANENTLY EXPOSED TO WEATHER SHALL CONTAIN AIR ENTRAINING ADMIXTURE TO PRODUCE NOT LESS THAN 4% NOR MORE THAN 7% AIR BY VOLUME OF CONCRETE. ADMIXTURE TO CONFORM TO ASTM C 260.
7. FLY ASH MAY BE USED AND SHALL CONFORM TO THE FOLLOWING:
   FLY ASH MAY BE USED IN CONCRETE MIX PROVIDED THE RATIO (BY VOLUME) OF FLY ASH TO TOTAL OF FLY ASH AND CEMENT IS NO MORE THAN 20 PERCENT. FLY ASH SHALL CONFORM TO ASTM C-618, TYPE F. COMPLETE CHEMICAL AND PHYSICAL ANALYSES OF THE FLY ASH SHALL BE SUBMITTED WHEN REQUESTED BY THE ENGINEER. IF DURING THE COURSE OF CONSTRUCTION, CONCRETE USING FLY ASH IS DEEMED BY THE ENGINEER TO NOT BE IN COMPLIANCE WITH ALL REQUIREMENTS STATED IN THE CONTRACT DOCUMENTS THE USE OF FLY ASH SHALL BE DISCONTINUED. UNDER NO CONDITIONS SHALL THE WATER-CEMENT RATIO EXCEED 0.45 FOR CONCRETE CONTAINING FLY ASH.
8. ADMIXTURES OTHER THAN THE FOREGOING SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. DO NOT USE ADMIXTURES CONTAINING CALCIUM CHLORIDE.
9. PLACING: CONFORM TO ACI 304 AND ACI 305. DO NOT PLACE CONCRETE IN CONTACT WITH ALUMINUM.
10. THE MAXIMUM FREE DROP OF ANY CONCRETE SHALL BE 6'-0".
11. PROVIDE 3/4" x 3/4" CHAMFERS AT ALL EXPOSED CORNERS.
12. MECHANICALLY VIBRATE ALL CONCRETE, EXCEPT SLABS ON GRADE NEED ONLY BE VIBRATED AROUND UNDER-FLOOR DUCTS AND OTHER ITEMS EMBEDDED IN THE SLAB. REVIBRATE THE TOP 5 FEET OF WALLS (OVER 10 FEET IN HEIGHT), AND COLUMNS.
13. THE USE OF WATER OR "SPRINKLING" AS AN AID TO FINISHING IS NOT ALLOWED.
14. CURING: CONFORM TO ACI 318.
   A. COLUMNS, WALLS AND FOUNDATIONS:
      PROVIDE MEMBRANE CURING COMPOUND. APPLY CURING COMPOUND IMMEDIATELY UPON THE REMOVAL OF FORMS OR THE COMPLETION OF FINISHING WORK.
   B. ALL SLABS AND CAST-IN-PLACE FINISHED CONCRETE:
      PROVIDE MEMBRANE CURING COMPOUND. APPLY CURING COMPOUND IMMEDIATELY UPON THE COMPLETION OF FINISHING WORK. ONCE THE CONCRETE HAS SET ENOUGH TO WALK ON WITHOUT HARMING THE FINISH, APPLY A SECOND HEAVY COAT OF CURING COMPOUND USING A HIGH PRESSURE AIRLESS SPRAYER.

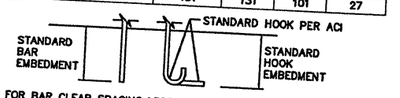
   * ALL CURING COMPOUND SHALL HAVE A FUGITIVE DIE. ALL CURING COMPOUND SHALL MEET THE MOISTURE RETENTION REQUIREMENTS OF ASTM C-309, TYPE 1-D AT COVERAGE RATE SPECIFIED, AND PASS VOC REQUIREMENTS. ALL CURING COMPOUND SHALL BE COMPATIBLE WITH FUTURE TOPPINGS, PAINT, WATERPROOFING AND FINISHES. CLEAN NOZZLE AFTER EACH USE.
15. DO NOT CAST WALLS OR GRADE BEAMS IN LENGTHS OVER 40'-0".
16. LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. PLACE JOINTS IN SLABS ON GRADE AT 20'-0" MAXIMUM.
17. WAIT 24 HOURS BETWEEN ADJACENT CONCRETE CASTINGS.
18. CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED FOR BOND. PROVIDE WATERSTOPS AT ALL CONSTRUCTION JOINTS IN WATERBEARING SLABS AND WALLS.
19. ALL CONCRETE REPAIRS SHALL BE CONSIDERED STRUCTURAL. SEE STRUCTURAL CONCRETE REPAIR SECTION FOR MORE INFORMATION.

REINFORCING STEEL:

1. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60. ALL REINFORCING BARS SHALL BE DEFORMED.
2. CONCRETE COVERAGE FOR REINFORCING BARS (TO FACE OF BAR INCLUDING STIRRUPS, TIES AND SPIRALS) UNLESS NOTED OTHERWISE:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ---------- 3"
   CONCRETE EXPOSED TO EARTH, WEATHER OR WATER ---------- 2"
3. SEE REINFORCEMENT LAP SPLICE AND EMBEDMENT LENGTH SCHEDULE FOR LAP SPLICE LENGTHS IN CONCRETE WHERE LAP LENGTHS ARE NOT SPECIFICALLY DESIGNATED ON THE STRUCTURAL PLANS.
   A. PROVIDE CLASS B SPLICES TYPICAL, UNLESS NOTED OTHERWISE.
   B. SPLICE REINFORCING ONLY AT APPROVED LOCATIONS.
   C. TOP BARS ARE ALL HORIZONTAL BARS PLACED SO 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BARS.

REINFORCEMENT LAP SPLICE AND EMBEDMENT LENGTH ($f'c \geq 4000$ PSI)

BAR SIZE NO.	BAR SPACING	MIN. LAP LGTH. (IN.) TOP BARS CLASS B	MIN. LAP LGTH. (IN.) OTHER BARS CLASS B	MIN. EMBEDMENT LGTH. (IN.) STRAIGHT BARS TOP BARS	MIN. EMBEDMENT LGTH. (IN.) STRAIGHT BARS OTHER BARS	MIN. EMBEDMENT LGTH. (IN.) WITH STANDARD HOOK
REQUIREMENTS FOR SLABS & WALLS**						
#3	≥ 3db	24	19	19	15	7
#4		32	25	25	19	10
#5		40	31	31	24	12
#6		48	37	37	29	15
#7		70	54	54	42	17
#8		80	62	62	48	19
#9		91	70	70	54	22
#10		102	79	79	61	24
#11		113	87	87	67	27
REQUIREMENTS FOR BEAMS AND COLUMNS						
#3 THRU #7	≥ 2db	SAME AS SLABS AND WALLS ABOVE				
#8	2 db OR LESS	121	93	93	71	19
#9		136	105	105	81	22
#10		153	118	118	91	24
#11		170	131	131	101	27



** FOR BAR CLEAR SPACING LESS THAN 3 BAR DIAMETER, ADD 50%

4. REINFORCING SPACING IS MAXIMUM ON CENTER. ALL REINFORCING IS TO BE CONTINUOUS UNLESS OTHERWISE NOTED.
5. ALL WALL REINFORCEMENT AT CORNERS OR JUNCTIONS OF WALLS SHALL BE CONTINUOUS, LAPPED OR TERMINATED IN A 90 DEGREE HOOK. ALL BARS SHALL BE DOWELED, UNLESS SHOWN OTHERWISE. ALL DOWELS SHALL BE SAME SIZE AND SPACING AS THE REINFORCEMENT TO BE SPLICED, UNLESS SHOWN OTHERWISE. CONFORM TO ACI DETAILING MANUAL SP-66.
6. DOWEL ALL VERTICAL REINFORCING TO FOUNDATIONS, UNLESS OTHERWISE NOTED ON DRAWINGS.
7. SECURELY TIE ALL REINFORCING AND EMBEDDED ITEMS IN POSITION BEFORE PLACING CONCRETE OR GROUT. DO NOT STAB OR SHOVE INTO FRESHLY PLACED CONCRETE.
8. SUBMIT PLACING DRAWINGS PER ACI DETAILING MANUAL, ACI SP-66. FABRICATE REINFORCING STEEL AFTER ENGINEER'S REVIEW. INCLUDE ELEVATIONS SHOWING REINFORCING AT ALL CONCRETE AND MASONRY WALLS, AND AT ALL FOUNDATIONS.
9. DO NOT WELD REINFORCING STEEL.
10. MECHANICAL BUTT SPLICES, FORM SAVERS, AND COUPLERS SHALL EXCEED THE REQUIREMENTS FOR BOTH TENSION AND COMPRESSION SPECIFIED BY ACI 318-95 AND THE UNIFORM BUILDING CODE. ALL CONNECTORS SHALL HAVE AN ICBO REPORT. TENSION SPLICE CAPACITY MUST EXCEED 125% Fy. INSTALL PER ICBO REPORT. SPECIAL INSPECTION WILL INCLUDE RANDOM TORQUEING OF COUPLERS BEFORE AND AFTER INSTALLATION IN FORMS. IF ANY COUPLER DOES NOT PASS THE TORQUE TEST ALL COUPLERS WILL BE TORQUED BY AN INDEPENDENT TESTING LAB AT THE CONTRACTORS EXPENSE.
11. TOLERANCES FOR FABRICATION, PLACEMENT, AND LAP SPLICES FOR REINFORCEMENT SHALL CONFORM TO SECTION 2 OF ACI 117.
12. REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY PIPE, PIPE FLANGE OR METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM OF 1-1/2 INCHES CLEARANCE SHALL BE PROVIDED AT ALL TIMES U.N.O.

PRESTRESSED PRECAST CONCRETE:

1. DESIGN AND MANUFACTURE OF PRESTRESSED, PRETENSIONED, PRECAST CONCRETE MEMBERS SHALL BE BY PCI CERTIFIED FABRICATOR. PRECAST CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 5000 PSI.
2. DESIGN, FABRICATION, TRANSPORT AND ERECTION SHALL CONFORM TO THE LATEST ACI AND PCI CODES AND THE PCI HANDBOOK. ALL DETAILING SHALL CONFORM TO THE LATEST EDITION OF ACI 318 AND 2003 IBC.
3. DESIGN FOR SUPERIMPOSED LOADS AS LISTED UNDER "DESIGN LOADS" ABOVE, AND AS SHOWN ON THE PLANS.
4. DESIGN FOR PONDING LOADS PER SECTION 1611 OF 2003 IBC WHERE ADEQUATE SLOPE OR CAMBER IS NOT PROVIDED.
5. SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS TO THE ENGINEER FOR REVIEW. FABRICATE FROM REVIEWED DRAWINGS. INCLUDE REQUIRED STRENGTH OF ANY STRUCTURAL TOPPINGS.
6. REINFORCE ENDS OF MEMBERS TO PREVENT CRACKING DUE TO VOLUME CHANGES.
7. CAMBER PER MANUFACTURE'S RECOMMENDATIONS, SUBJECT TO APPROVAL BY THE ENGINEER. CAMBER SHALL BE SHOWN ON SHOP DRAWINGS.
8. THE CONTRACTOR IS RESPONSIBLE FOR PICK-UP POINT LOCATIONS AND INSERTS, SPECIAL PICK-UP REINFORCING AND STRONG BACKS, AND ALL PICK-UP AND PLACING OPERATIONS.

1-1/2" TYPE B METAL ROOF DECK:

1. STEEL DECK INSTITUTE SPECIFICATIONS AND RECOMMENDATION APPLY EXCEPT AS NOTED OTHERWISE. DECK SHALL BE GALVANIZED MINIMUM 20 GAGE 1 1/2" DEEP, WITH S ≥ 0.22 INCH CUBED PER FOOT WIDTH. PROVIDE A MINIMUM YIELD STRESS OF 33,000 PSI. CONFORM TO ICC REPORT ER-2078P OR EQUAL.
2. PROVIDE ALL NECESSARY DETAILS SUCH AS EDGE FORM, SPLICE PLATES, PROFILE PLATES, ETC.
3. ALL SHEETS TO BE 36" WIDE. NARROWER CLOSURE STRIPS SHALL NOT BE LESS THAN 1'-6" WIDE AND SHALL BE WELDED TO ADJACENT FULL SHEET WITH 1" LONG SEAM WELDS AT 12" O/C.
4. SHOP DRAWINGS SHALL SHOW ERECTION PROCEDURE AND DETAILS AND ICC REPORT NUMBER. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.
5. SEE PLAN FOR METAL ROOF DECK FASTENING REQUIREMENTS.

NOT FOR CONSTRUCTION

NSB PROJECT NO. 2307.02

NSB Naber Stanley Brown, Inc.
Consulting Structural Engineers
2150 East Highland Avenue, Suite #204
Phoenix, Arizona 85016-4721
tel (602)912-9191 fax (602)912-9686

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION

DESIGNED BY: BHP
DRAWN BY: MIO
CHECKED BY: SJH
PM: CH-7311-SD
DATE: JUNE 2006

CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS
GENERAL STRUCTURAL NOTES I

SHEET NO.
S-1

MASONRY:

1. MASONRY STRENGTH:
   A. HOLLOW CONCRETE MASONRY UNITS: GRADE N, MEDIUM WEIGHT WITH A COMPRESSIVE STRENGTH OF 1900 PSI ON THE NET AREA. CONFORM TO ASTM C-90.
   B. GROUT: 2000 PSI, MINIMUM 28 DAY COMPRESSIVE STRENGTH. MECHANICALLY VIBRATE GROUT IMMEDIATELY AFTER POURING AND AGAIN AFTER 5 MINUTES. GROUT SHALL CONFORM TO ASTM C476 AND IBC 2103. MIX GROUT FOR AT LEAST FIVE MINUTES AND UNTIL MIX HAS BEEN ATTAINED. GROUT SHALL HAVE SUFFICIENT WATER ADDED TO PRODUCE A CONSISTENCY FOR POURING WITHOUT SEGREGATION. USE GROUT WITHIN 1.5 HOURS OF ADDITION OF MIXING WATER (NO WATER SHALL BE ADDED AT CONSTRUCTION SITE).
   C. MORTAR: CEMENT-LIME TYPE S, 1900 PSI MINIMUM 28 DAY COMPRESSIVE STRENGTH. CONFORM TO ASTM C270 AND IBC 2003, SECTION 2103.
   D. A SET OF FIVE MASONRY PRISMS SHALL BE BUILT AND TESTED IN ACCORDANCE WITH ASTM C1314 PRIOR TO THE START OF CONSTRUCTION, UNDER THE OBSERVATION OF THE ENGINEER OR SPECIAL INSPECTOR OR AN APPROVED AGENCY AND TESTED BY AN APPROVED AGENCY.
   E. A MINIMUM OF ONE SET OF THREE PRISMS SHALL BE CONSTRUCTED FOR EACH 5,000 SQUARE FEET OF WALL. THE PRISM TEST SHALL BE CONDUCTED IN ACCORDANCE WITH ASTM C1314.
   F. COMPRESSIVE STRENGTH OF MASONRY f'_m = 1500 PSI.
2. LAY UNITS IN RUNNING BOND. CORNERS SHALL HAVE A STANDARD BOND BY OVERLAPPING UNITS.
3. BUILD PILASTERS INTEGRALLY WITH WALLS BY OVERLAPPING UNITS.
4. MAXIMUM GROUT LIFT WITHOUT CLEAN-OUTS AND INSPECTION SHALL BE 4'-0".
5. TIE VERTICAL REINFORCING AT EACH END OF BAR AND AT 4'-0" MAXIMUM VERTICAL SPACING USING SINGLE WIRE LOOP TYPE TIES AS MANUFACTURED BY A.A. WIRE PRODUCTS COMPANY OR APPROVED ALTERNATE.
6. SEE PLANS FOR LOCATIONS OF MASONRY CONTROL JOINTS. MASONRY CONTROL JOINTS SHALL BE SPACED AT 24'-0" ON CENTER, UNLESS SHOWN OTHERWISE. LOCATE CONTROL JOINTS NO MORE THAN 16'-0" FROM THE CORNER OF A WALL. CONTROL JOINTS SHALL BE LOCATED AT ALL VERTICAL INTERFACES OF MAJOR CHANGES IN WALL HEIGHT AND WALL THICKNESS.
7. CONTROL JOINTS, OR ANY CONTINUOUS VERTICAL MORTAR JOINTS, SHALL BE AT LEAST 16" FROM A BEARING PLATE OR JAMB OF AN OPENING.
8. PRIOR TO GROUTING, THE GROUT SPACE SHALL BE CLEAN. SPACES TO BE FILLED WITH GROUT SHALL NOT CONTAIN MORTAR PROJECTIONS GREATER THAN 1/2 INCH, MORTAR DROPPINGS OR OTHER FOREIGN MATERIAL. ALL SPACES DESIGNATED TO BE GROUTED SHALL BE FILLED WITH GROUT AND THE GROUT SHALL BE CONFINED TO THOSE SPECIFIC SPACES. REMOVE ALL DEBRIS FROM BOTTOM OF MASONRY CELLS PRIOR TO GROUTING.
9. GROUT MATERIALS AND WATER CONTENT SHALL BE CONTROLLED TO PROVIDE ADEQUATE FLUIDITY FOR PLACEMENT, WITHOUT SEGREGATION OF THE CONSTITUENTS, AND SHALL BE MIXED THOROUGHLY.
10. THE GROUTING OF ANY SECTION OF WALL SHALL BE COMPLETED IN ONE DAY WITH NO INTERRUPTIONS GREATER THAN ONE HOUR.
11. BETWEEN GROUT POURS, A HORIZONTAL CONSTRUCTION JOINT SHALL BE FORMED BY STOPPING ALL WYTHES AT THE SAME ELEVATION AND WITH THE EXCEPT AT THE TOP OF THE WALL WHERE BOND BEAMS OCCUR, THE GROUT POUR SHALL BE STOPPED A MINIMUM OF 1/2 INCH BELOW THE TOP OF THE MASONRY.
12. ALL CELLS AND SPACES CONTAINING REINFORCEMENT, ANCHOR BOLTS, OR HEADED ANCHOR STUDS (HAS) SHALL BE FILLED WITH GROUT. ALL EMBEDS SHALL BE TIED OR FIXED IN PLACE PRIOR TO GROUTING.
13. GROUT SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION DURING PLACEMENT BEFORE LOSS OF PLASTICITY IN A MANNER TO FILL THE GROUT SPACE. GROUT POURS GREATER THAN 12 INCHES IN HEIGHT WILL BE RECONSOLIDATED BY MECHANICAL VIBRATION TO MINIMIZE VOIDS. GROUT POURS 12 INCHES OR LESS IN HEIGHT SHALL BE MECHANICALLY VIBRATED OR PUDDLED AND RODDED WITH SMOOTH BAR.
14. MINIMUM VERTICAL REINFORCING:
    PROVIDE CONTINUOUS FULL HEIGHT VERTICAL REINFORCING IN CENTER OF GROUTED VERTICAL CELLS AS SPECIFIED ON PLANS (48" O/C MINIMUM). PROVIDE 1 VERTICAL EACH SIDE OF CONTROL JOINTS. PROVIDE ADDITIONAL REINFORCING AT CORNERS, INTERSECTIONS, WALL ENDS AND JAMBS, AS SHOWN ON PLANS AND TYPICAL DETAILS.
15. MINIMUM HORIZONTAL REINFORCING:
    A. PROVIDE 2 #5 BARS AT MID HEIGHT BETWEEN FLOOR AND ROOF LINES AND AT ALL ROOF LINES AND AT TOP OF ALL WALL IN CONTINUOUS GROUTED BOND BEAMS. EXTEND REINFORCING THROUGH CONTROL JOINTS, WRAPPING BARS WITH 1/8" THICK BOND BREAKING TAPE 2'-0" BOTH SIDES OF JOINT. DO NOT SPLICE BOND BEAM REINFORCING WITHIN 6'-0" OF CONTROL JOINT. PROVIDE BOND BEAM TYPE BLOCK FOR ALL HORIZONTAL REINFORCING.
    B. PROVIDE LADDER TYPE #9 JOINT REINFORCING AT 16" VERTICAL SPACING IN WALLS (LAP LADDER JOINT REINF. 12" MINIMUM). MAX SPACING OF CROSS WIRES SHALL BE 16". DO NOT USE TRUSS TYPE JOINT REINFORCING. CONFORM TO ASTM A951.
    C. AT PITCHED OR SLOPPING ROOF LINES, BOND BEAM SHALL BE STEPPED OR SLOPED TO MATCH THE WALL/ DIAPHRAGM JUNCTION.
    D. 1 #5 BAR ABOVE AND BELOW ALL OPENINGS WITH ENDS EXTENDING 24" PAST THE OPENING.
16. SPLICES:
    A. LAP REINFORCING BARS 48 BAR DIAMETERS AT SPLICES (#5 = 30" LAP).
    B. LAP JOINT REINFORCING 12" MINIMUM AT SPLICES. SPLICES SHALL CONTAIN AT LEAST ONE CROSS WIRE OF EACH PIECE OF REINFORCEMENT IN THE LAPPED DISTANCE.
17. ALL REINFORCING TO BE CLEAR OF MASONRY FACE SHELLS AND OTHER REINFORCING NOT SPLICED. 1/4" FOR FINE GROUT AND 1/2" FOR COARSE GROUT.
18. WHERE MASONRY ENCOMPASSES STEEL BEAMS PROVIDE DOVETAIL ANCHORS AT 16 INCHES O/C.
19. PROVIDE LINTEL TYPE BLOCKS AT THE BOTTOM OF ALL LINTELS. PROVIDE DOUBLE OPEN END HALF WEB HEIGHT BLOCK FOR REMAINDER OF LINTEL DEPTH. PLACE ALL BLOCKS OF LINTEL IN RUNNING BOND THROUGHOUT SPAN AND AT JAMBS.
20. ALL HOLES SHALL BE DRILLED. HOLES MADE BY CHIPPING WILL NOT BE ACCEPTED.
21. CONCRETE MASONRY UNITS SHALL NOT BE WETTED UNLESS OTHERWISE APPROVED.
22. MASONRY SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING ITEMS:
    A. COMPLETE LAYOUT OF ALL MASONRY WALLS SHOWING MODULAR PLANNING AND ALL SPECIAL SHAPES TO BE USED IN THE WORK. SHOW ALL DETAILS FOR EACH CONDITION ENCOUNTERED IN THE WORK. PROVIDE PLANS AND ELEVATIONS DRAWN AT 1/4-INCH SCALE AND DETAILS DRAWN AT 1-1/2-INCH SCALE. SHOW ALL ITEMS REQUIRED TO BE BUILT INTO UNIT MASONRY CONSTRUCTION WORK.
    B. MASONRY EXPANSION AND CONTROL JOINT LOCATIONS AND DETAILS.
    C. SHOW DRAWINGS SHOWING THE LOCATION, EXTENT AND ACCURATE CONFIGURATION AND PROFILE OF ALL ITEMS SHOWN, SPECIFIED AND REQUIRED BY THIS AND OTHER SECTIONS TO BE BUILT INTO THE UNIT MASONRY CONSTRUCTION WORK.
    D. SHOP DRAWINGS FOR FABRICATION, BENDING AND PLACEMENT OF REINFORCING BARS. SHOW BAR SCHEDULES, DIAGRAMS OF BENT BARS, STIRRUP SPACING, LATERAL TIES AND OTHER ARRANGEMENTS AND ASSEMBLIES AS REQUIRED FOR FABRICATION AND PLACEMENT OF REINFORCING FOR UNIT MASONRY CONSTRUCTION WORK.

STRUCTURAL STEEL:

1. STEEL CONSTRUCTION SHALL CONFORM TO THE SPECIFICATIONS AND STANDARDS AS CONTAINED IN THE LATEST EDITION OF THE AISC STEEL CONSTRUCTION MANUAL, INCLUDING THE COMMENTARY AND SUPPLEMENTS THERETO, AS ISSUED.
2. MATERIALS SHALL CONFORM TO THE FOLLOWING STANDARDS:
   A. W-SHAPES ---------- ASTM A992, FY=50 KSI
   B. OTHER ROLLED SECTIONS (ANGLES, CHANNELS, PLATES, ETC) UNLESS OTHERWISE NOTED ---------- ASTM A36, FY=36 KSI
   C. STRUCTURAL PIPES ---------- ASTM A53, GR.B, FY=35 KSI
   D. STRUCTURAL TUBES ---------- ASTM A500, GR.B, FY=46 KSI
   E. WELDABLE CONCRETE REINFORCING BARS ---------- ASTM A706, GR.60
   F. WELDING RODS FOR STRUCTURAL STEEL ---------- E-70 SERIES LOW HYDROGEN
   G. WELDING RODS FOR A706 REBAR ---------- E8018-X
3. WELDING OF STRUCTURAL STEEL SHALL CONFORM TO AWS D1.1. WELDING OF CONCRETE REINFORCING BARS SHALL CONFORM TO AWS D1.4.
4. ALL WELDERS SHALL HOLD VALID CERTIFICATES ISSUED BY AN ACCEPTED TESTING AGENCY WITHIN THE LAST 12 MONTHS. IF ANY CERTIFICATE IS MORE THAN 12 MONTHS OLD SUBMIT DETAILS OF COMPANY QUALITY CONTROL PROGRAM.
5. ALL WELDERS SHALL SUBMIT PREQUALIFIED WELDING PROCEDURES AND WELDING PROCEDURES SHALL BE AVAILABLE ON THE PREMISES FOR REVIEW.
6. SUBMIT SHOP DRAWINGS FOR ENGINEER'S REVIEW. FABRICATE ONLY FROM REVIEWED DRAWINGS.
7. HEADED ANCHOR STUDS (HAS ON DRAWINGS) SHALL BE NELSON HEADED STUDS OR APPROVED EQUAL. STUDS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE NELSON STUD WELDING EQUIPMENT. ALL WELDS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE NELSON STUD WELDING COMPANY, LORAIN, OHIO. USE 3/4" DIAMETER STUDS UNLESS NOTED OTHERWISE ON DRAWINGS. STUDS SHALL BE OF LENGTH AND SPACING PER THE DRAWINGS.
8. PRIME AND FINISH PAINT STEEL IN CONFORMANCE WITH SPECIFICATIONS AND ARCHITECTURAL DRAWINGS.

STAINLESS STEEL:

1. STAINLESS STEEL SHALL BE TYPE 316, U.N.O.
2. STAINLESS STEEL MEMBERS AND MEMBER COMPONENTS SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS.
   A. PLATES, SHEETS & STRIPS ---------- ASTM A167
   B. BAR & SHAPES ---------- ASTM A276
   C. FASTENER & FITTINGS ---------- ASTM A320
3. WELDING OF STAINLESS STEEL COMPONENTS SHALL CONFORM TO AWS D1.6

ALUMINUM:

1. ALUMINUM CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE ALUMINUM CONSTRUCTION MANUAL OF THE ALUMINUM ASSOCIATION.
2. UNLESS OTHERWISE INDICATED, STRUCTURAL ALUMINUM SHALL BE ALLOY 6061-T6 OR ALLOY 6063-T6 CONFORMING TO ASTM B-221. CHECKERED PLATE SHALL CONFORM TO ASTM B-209.
3. WHERE ALUMINUM IS IN CONTACT WITH CONCRETE OR MASONRY SURFACES, CONTACT SURFACES SHALL BE COATED WITH HEAVY ALKALI-RESISTANT BITUMINOUS PAINT.

WATERSTOPS AT CONSTRUCTION JOINTS:

1. PROVIDE WATERSTOPS WHERE SHOWN ON DRAWINGS AND AT ALL CONSTRUCTION JOINTS IN PARTIALLY AND FULLY UNDERGROUND STRUCTURES.
2. SEE TYPICAL DETAILS FOR CONSTRUCTION JOINTS IN NEW CONSTRUCTION AND BETWEEN EXISTING AND NEW CONSTRUCTION.

ALUMINUM GRATING:

1. PROVIDE ALUMINUM GRATING AS NOTED ON DRAWINGS WITH NON-SKID SURFACE. MATERIAL SHALL BE PROVIDED WITH AN ANODIZED FINISH. ALLOY AND TEMPER TO BE 6061-T6.
2. LIVE LOAD DESIGN CRITERIA:
   A. UNIFORM DISTRIBUTED LOAD OF 300 PSF (WITH NO LIMIT ON DEFLECTION)
   B. CONCENTRATED LOAD OF 3000 LBS ON 2'x2' AREA (WITH NO LIMIT ON DEFLECTION)
   C. MAXIMUM DEFLECTION IN GRATING UNDER UNIFORMLY DISTRIBUTED LOAD OF 100 PSF = 1/4" OR SPAN/180, WHICHEVER IS LESS
   D. DESIGN BEAMS SUPPORTING GRATING FOR 300 PSF, MAXIMUM DEFLECTION IN THE BEAM = SPAN/180
3. PROVIDE REQUIRED SEPARATION PAD OR COATING BETWEEN NON-COMPATIBLE MATERIALS.
4. GRATING SHALL BE BANDED ON ALL EDGES.
5. UNLESS OTHERWISE NOTED ALL GRATING SHALL BE REMOVABLE. WEIGHT OF INDIVIDUAL GRATING PIECES SHALL NOT EXCEED 150 LBS.
6. PROVIDE AND INSTALL EMBEDDED EDGE ANGLES AND THEIR ANCHORAGE AT SUPPORTING CONCRETE WALLS. GRATING ATTACHMENT HARDWARE SHALL BE OF TYPE 316 STAINLESS STEEL.
7. PROVIDE ALUMINUM INTERIOR BEAMS AS REQUIRED TO SUPPORT GRATING.
8. CONTRACTOR TO DESIGN SUPPORTS INCLUDING ANCHORAGE OF BEAMS AT CONCRETE WALLS. EMBEDDED ITEMS AND OTHER CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
9. SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR THE GRATING AND SUPPORTS TO THE ENGINEER FOR REVIEW. THE DRAWINGS AND CALCULATIONS SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A STRUCTURAL ENGINEER REGISTERED IN ARIZONA.

STRUCTURAL CONCRETE REPAIRS:

1. THE FOLLOWING NOTES ON STRUCTURAL CONCRETE REPAIRS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT. HOWEVER, ALL REPAIRS TO STRUCTURAL CONCRETE SHOULD BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER ON A CASE BY CASE BASIS BEFORE PROCEEDING WITH THE INTENDED REPAIR. PATCHING WITH SITE MIXED PORTLAND CEMENT, SAND AND WATER IS NOT CONSIDERED AN ACCEPTABLE STRUCTURAL REPAIR.
2. SURFACE DEFECTS THAT REQUIRE REPAIR INCLUDE CRACKS IN EXCESS OF 0.01" WIDE, CRACKS OF ANY WIDTH AND OTHER SURFACE DEFICIENCIES WHICH PENETRATE TO THE REINFORCEMENT OR COMPLETELY THROUGH NON-REINFORCED SECTIONS, HONEYCOMB, ROCK POCKETS, VOIDS, HOLES LEFT BY TIE RODS AND BOLTS, AND SPALLS EXCEPT MINOR BREAKAGE AT CORNERS.
3. CRACKS WHICH REQUIRE REPAIR SHALL BE PRESSURE GROUTED USING ONE OF THE FOLLOWING. APPLY IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS.
   A. SIKADUR 31, HI-MOD-GEL AND SIKADUR 35, HI-MOD L.V. MANUFACTURED BY SIKA CORPORATION.
   B. SCB CONCRESIVE 1380 MANUFACTURED BY MASTER BUILDERS TECHNOLOGIES.
   C. OR APPROVED EQUAL.
4. OUTLINE HONEYCOMB, ROCK POCKETS, VOIDS OVER 1/2" DIAMETER, AND SPALLS WITH 3/4" DEEP SAW CUT MINIMUM (DO NOT CUT REINFORCING STEEL. SCAN/X-RAY AS REQUIRED) AND REMOVE SUCH CONCRETE DOWN TO SOUND CONCRETE. MAKE EDGES OF CUTS PERPENDICULAR TO THE CONCRETE SURFACE. EDGES SHOULD BE "SQUARED UP". WHEN CHIPPING IS NECESSARY, LEAVE CHIPPED EDGES PERPENDICULAR TO THE SURFACE OR SLIGHTLY UNDERCUT. DO NOT FEATHER EDGES. THOROUGHLY CLEAN AND DAMPEN THE SURFACE WITH WATER (PRESOAK 24 HOURS TO A SATURATED SURFACE DRY CONDITION). VIGOROUSLY WORK A SCRUB COAT INTO THE AREA TO BE PATCHED WITH A CLEAN, WET, STIFF BROOM OR BRUSH IMMEDIATELY AHEAD OF MORTAR PLACEMENT (SCRUB COAT SHALL CONSIST OF A SMALL AMOUNT OF EACH BATCH MIXED TO A SLIGHTLY WETTER CONSISTENCY). DO NOT APPLY SCRUB COAT THAN CAN BE COVERED WITH MORTAR BEFORE THE SCRUB COAT DRIES OUT. PATCH REMOVED AREA USING ONE OF THE FOLLOWING. APPLY IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS.
   A. SIKATOP 122 PLUS AS MANUFACTURED BY SIKA CORPORATION.
   B. EMACO S88 CI AS MANUFACTURED BY MASTER BUILDERS TECHNOLOGIES.
   C. OR APPROVED EQUAL.
5. IF THE EXPOSED REINFORCING STEEL IN A PATCH HAS CORRODED IT SHOULD BE CLEANED USING A SANDBLASTER/WATERBLASTER IN ACCORDANCE WITH THE COMMERCIAL BLAST CLEAN STANDARDS. IN CASES WHERE THE REBAR HAS LOST MORE THAN 25% OF ITS ORIGINAL CROSS SECTION, A NEW REBAR PIECE SHOULD BE SPLICED TO THE OLD IN ACCORDANCE WITH ACI 318-95. SIGNIFICANT DAMAGE TO REINFORCEMENT SHOULD BE REVIEWED BY THE STRUCTURAL ENGINEER BEFORE PATCHING.
6. FILL HOLES LEFT BY TIE RODS AND BOLTS BY MEANS OF A PLUNGER-TYPE GUN OR OTHER SUITABLE DEVICE FROM THE LEAST EXPOSED FACE, USING A FLUSH STOP HELD AT THE EXPOSED FACE TO ENSURE COMPLETE FILLING. USE THE SAME PRODUCTS LISTED TO FILL ROCK POCKETS AND VOIDS. APPLY IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS.
7. FOR VERTICAL AND OVERHEAD PATCHES PROVIDE DRILLED-IN 1/8" DIA. STAINLESS STEEL HEADED PINS AT 6" O.C. EACH WAY WITH 12 GAGE STAINLESS STEEL WIRE BETWEEN THE PINS.
8. ALL PATCHES TO CONCRETE SHALL BE CONSIDERED STRUCTURAL REPAIRS. PATCHING WITH SITE MIXED PORTLAND CEMENT, SAND AND WATER IS NOT CONSIDERED AN ACCEPTABLE STRUCTURAL REPAIR. ALL PATCHING OF COLORED CONCRETE SHALL MEET ARCHITECTURAL APPROVAL.
9. THE STRUCTURAL ENGINEER SHALL PERFORM AN INSPECTION AFTER EACH OF THE FOLLOWING STAGES:
   A. SAW CUTTING EDGE OF PATCH.
   B. CHIPPING OF EDGES.
   C. DURING PRESOAKING OF SURFACE.
   D. AFTER PRESOAK AND DURING SCRUB COAT APPLICATION.
   E. DURING PLACEMENT OF THE PATCH.

ADHESIVE ANCHORS AND DRILLED DOWELS:

1. ALL ADHESIVE ANCHORS AND DRILLED DOWELS SHALL BE HILTI HY-150. INSTALL PER MANUFACTURER'S REQUIREMENTS AND ICC REPORT ER 5193 (OR APPROVED EQUAL). THREADED ANCHOR RODS SHALL BE TYPE 316 STAINLESS STEEL, UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL INCLUDE IN HIS BID, TESTING BY AN INDEPENDENT LABORATORY OF A MINIMUM OF 10% CHOSEN AT RANDOM BY THE TESTING LABORATORY AND CONFIRMED BY STRUCTURAL ENGINEER (BUT NO LESS THAN 15) OF EACH TYPE OF ANCHOR OR DRILLED DOWEL INSTALLED. TEST LOAD IS TO BE PER THE MANUFACTURERS SUGGESTED TEST LOAD.

NON-SHRINK GROUT:

1. NON-SHRINK GROUT SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
   A. USE MASTER BUILDERS "SET GROUT" MIXED TO A PLASTIC STATE.
   B. PRESATURATE THE AREA WITH CLEAN WATER PER THE MFG'S RECOMMENDATIONS.
   C. APPLY CURING COMPOUND TO EXPOSE GROUT SURFACE.
   D. ALL GROUT SHALL CONFORM TO THE REQUIREMENTS OF THE CORPS OF ENGINEERS SPECIFICATION CRD-C 621 AT STIFF AND PLASTIC CONSISTENCY. MINIMUM 28 DAY STRENGTH OF 6000 PSI.

SHOP DRAWINGS:

1. THE STRUCTURAL DRAWINGS ARE THE PROPERTY OF NABAR STANLEY BROWN, INC. AND SHALL NOT BE REPRODUCED AS SHOP DRAWINGS UNDER ANY CIRCUMSTANCE. ALL ELEMENTS REQUIRED TO BE SHOWN IN THE SHOP DRAWINGS SHALL BE REDRAWN BY THE PARTY PREPARING THE SHOP DRAWINGS. NABAR STANLEY BROWN, INC. WILL REJECT ANY SHOP DRAWINGS MERELY COPIED FROM THE STRUCTURAL DRAWINGS.
2. THE STRUCTURAL SHOP DRAWINGS WILL BE RETURNED FOR RESUBMITTAL IF A CURSORY REVIEW SHOWS MAJOR ERRORS WHICH SHOULD HAVE BEEN FOUND BY THE CONTRACTOR'S CHECKING. NABAR STANLEY BROWN, INC. SHALL RETURN WITHOUT COMMENT MATERIAL NOT CALLED FOR OR WHICH HAS NOT BEEN APPROVED BY THE CONTRACTOR AND BEAR HIS STAMP.
3. CONCRETE MIX DESIGNS: SUBMITTALS SHALL BE PREPARED OR CERTIFIED TO CONFORM TO ACI CODE BY AN INDEPENDENT TESTING LABORATORY PRIOR TO SUBMITTING TO ENGINEER. EACH SEPARATE MIX DESIGN SHALL BE INCLUDED WITH A COVER LETTER INDICATING ALL LOCATIONS ON THE PROJECT WHERE THE MIX WILL BE USED.
4. ANY RESUBMITTAL OF ANY DETAIL SHEET WITH ADDED INFORMATION SHALL BE ACCOMPANIED BY LOCATION PLAN IDENTIFYING THE MEMBERS INVOLVED AND CLOUDING AROUND ADDED INFORMATION.
5. ANY ENGINEERING SUBMITTED FOR REVIEW SHALL BE APPROPRIATELY SEALED. FULL RESPONSIBILITY OF SUCH ENGINEERING RESTS WITH THE PERSON SEALING THE DESIGN.
6. SEE EACH PREVIOUS SECTION OF THE GENERAL STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS THAT SHALL BE INCLUDED ON EACH TRADE'S SHOP DRAWINGS.

STRUCTURAL INSPECTION:

1. THE OWNER OR THE ENGINEER OR ENGINEER OF RECORD ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE SPECIAL STRUCTURAL INSPECTORS IN ACCORDANCE THE BUILDING CODE.
2. THE CONTRACTOR SHALL INSPECT ALL STRUCTURAL WORK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY STRUCTURAL INSPECTION PROVIDED BY OTHERS DOES NOT RELIEVE HIM OF HIS RESPONSIBILITY. ANY STRUCTURAL DEVIATIONS FROM THE CONTRACT DOCUMENTS FOUND AT A LATER DATE AND DECLARED TO BE SIGNIFICANT BY THE STRUCTURAL ENGINEER SHALL BE CORRECTED BY THE CONTRACTOR WITH ALL DISPATCH. THE STRUCTURAL INSPECTOR IS NOT AUTHORIZED TO DIRECT OR APPROVE ANY CHANGES FROM THE CONTRACT DOCUMENTS. IF THE CONTRACTOR WISHES TO QUESTION THE STRUCTURAL INSPECTOR'S INTERPRETATION OF THE CONTRACT DOCUMENTS, HE MAY DO SO DIRECTLY WITH THE ENGINEER.
3. THE STRUCTURAL INSPECTOR IS NOT AUTHORIZED TO STOP OR DELAY THE WORK. IF THE CONTRACTOR ELECTS TO CONTINUE WITH CERTAIN WORK AFTER NOTIFICATION OF UNACCEPTABILITY BY THE STRUCTURAL INSPECTOR, HE DOES SO AT HIS OWN RESPONSIBILITY AND RISKS CORRECTING THE WORK AT A LESS OPPORTUNE TIME.
4. THE STRUCTURAL INSPECTOR IS NOT INSPECTING FOR ANY OSHA COMPLIANCE OR FOR ANY TEMPORARY CONSTRUCTION, SUCH AS BRACING.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE FACILITIES FOR THE STRUCTURAL INSPECTOR TO INSPECT THE WORK SAFELY AND EFFICIENTLY.
6. A MINIMUM 24 HOUR NOTICE IS REQUIRED FOR INSPECTION.
7. WORK MUST BE COMPLETED AT TIME OF INSPECTION.
8. CONTRACTOR SHALL BEAR THE EXPENSE OF ANY ADDITIONAL INSPECTION DUE TO INCOMPLETE OR INCORRECT WORK.
9. THE FOLLOWING ITEMS REQUIRE SPECIAL STRUCTURAL INSPECTION IN ACCORDANCE WITH THE BUILDING CODE:
   A. CONCRETE
   B. BOLTS INSTALLED IN CONCRETE
   C. REINFORCING STEEL
   D. STRUCTURAL WELDING
   E. HIGH STRENGTH BOLTING
   F. STRUCTURAL MASONRY
   G. ADHESIVE ANCHOR AND DRILLED DOWEL PREPARATION AND INSTALLATION

NOT FOR CONSTRUCTION

NSB Nabar Stanley Brown, Inc.
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tel (602)912-9101 fax (602)912-9686

NSB PROJECT NO. 2307.02

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION

DESIGNED BY: BHP
DRAWN BY: MIO
CHECKED BY: SJN
PH: CH-7311-SD
DATE: JUNE 2006

CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS
GENERAL STRUCTURAL NOTES II

SHEET NO. S-2

PLAN AT EL 936.00

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

CONTRACTOR SHALL SUBMIT THE FOLLOWING FOR REVIEW BY ENGINEER PRIOR TO SLIDING GATE OR SITE WALL FABRICATION:
1. SLIDING GATE CALCULATIONS INCLUDING DESIGN FOR WIND LOADING IN ANY PARTIALLY OPENED CONDITION
2. SLIDING GATE DRAWINGS INCLUDING ADDITIONAL CONCRETE FOUNDATIONS AND SITE WALL ALTERATIONS NEEDED
3. DRAWINGS AND CALCULATIONS SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A STRUCTURAL ENGINEER REGISTERED IN ARIZONA.

FIELD VERIFY CANOPY COLUMN LOCATIONS w/ FINAL PIPING LAYOUT AS CONSTRUCTED PRIOR TO CANOPY FABRICATION

* FIELD VERIFY EXISTING DIMENSIONS

PLAN AT EL 947.00

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

PLAN AT EL 932.50

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

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NSB PROJECT NO. 2307.02

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Professional Engineers & Consultants
Phoenix, Arizona

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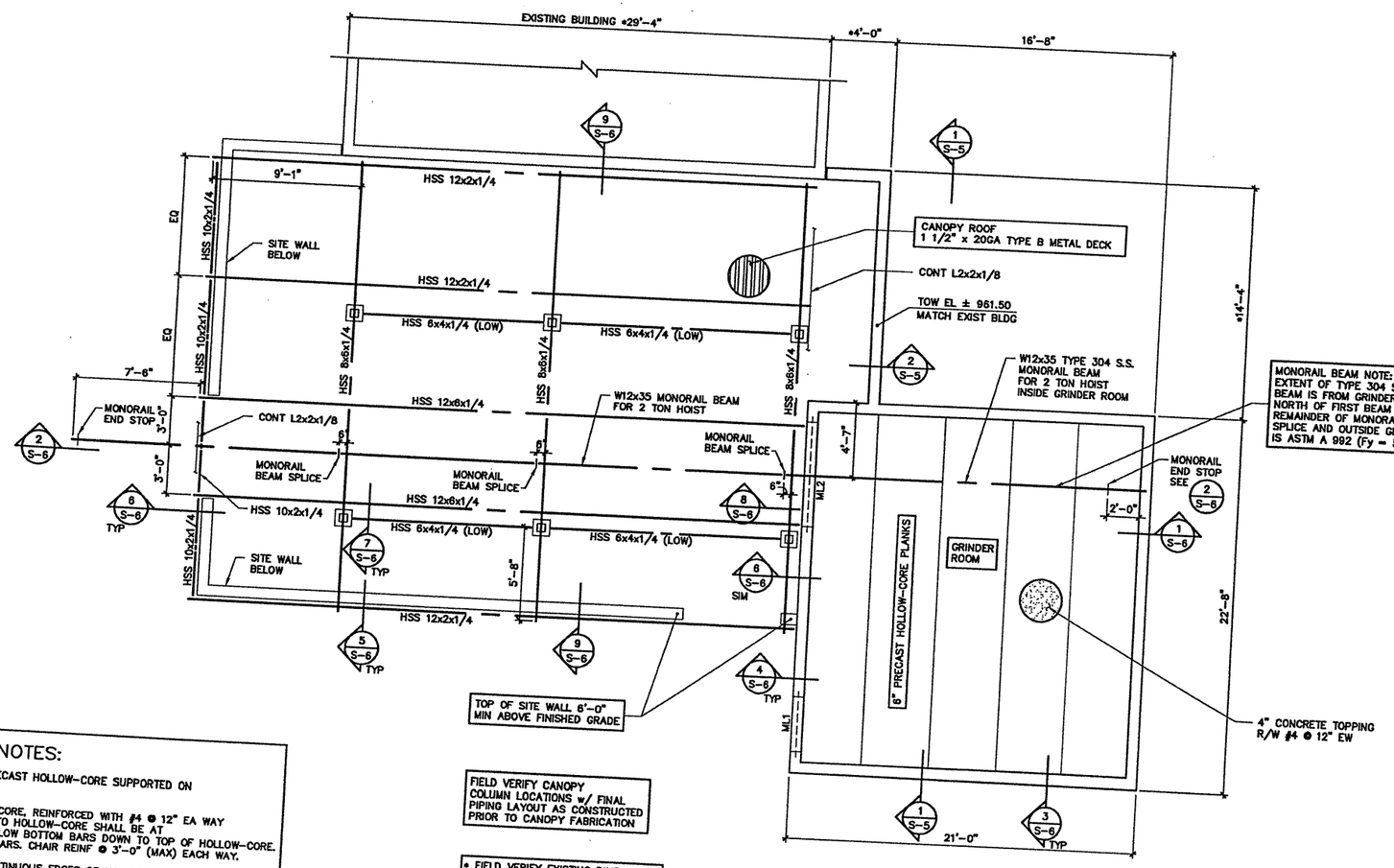
DRAWN BY: MID
CHECKED BY: SJN
PN: CH-7311-50
DATE: JUNE 2006

CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS
LIFT STATION PLANS

SHEET NO.
S-3

METAL ROOF DECK NOTES:

1. PROVIDE 20 GAUGE 1 1/2" GALVANIZED ROOF DECK CONTINUOUS FULL DECK WIDTH.
2. WELD TO SUPPORTING AND PERIMETER MEMBERS USING PUDDLE WELDS AT 12"o.c. PUDDLE WELDS SHALL HAVE 1/2" DIA FUSION AREA WITH 3/4" DIA TOP DIMENSION.
3. WELD STANDING SEAM SIDE LAPS TOGETHER WITH 1 1/2" LONG SEAM WELDS AT 12"o.c.
4. REMOVE SLAG FROM WELDS AND TOUCH UP WITH ZINC RICH PAINT PER ASTM A780.



PRECAST HOLLOW-CORE NOTES:

1. FRAMING SHOWN CONSISTS OF 6" DEEP PRECAST HOLLOW-CORE SUPPORTED ON SOLID GROUTED 8" MASONRY WALLS.
2. PROVIDE 4" THICK TOPPING OVER HOLLOW-CORE, REINFORCED WITH #4 @ 12" EA WAY REINFORCEMENT RUNNING PERPENDICULAR TO HOLLOW-CORE SHALL BE AT THE BOTTOM, PROVIDE 1" CLEAR COVER BELOW BOTTOM BARS DOWN TO TOP OF HOLLOW-CORE. PROVIDE 1 1/2" CLEAR COVER OVER TOP BARS. CHAIR REINF @ 3'-0" (MAX) EACH WAY.
3. PROVIDE ZIP STRIPS IN TOPPING ALONG CONTINUOUS EDGES OF HOLLOW-CORE. ALSO PROVIDE CONT ZIP STRIP ALONG INSIDE OF SUPPORTING WALLS. SEE (6/S-10)
4. DESIGN PRECAST FRAMING FOR LIVE LOAD OF 20 PSF (REDUCIBLE) AND SUPERIMPOSED DEAD LOAD OF 35 PSF. THESE LOADS ARE IN ADDITION TO TOPPING WEIGHT. SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS FOR REVIEW BY ENGINEER.
5. ALL HARDWARE AND EMBEDS IN PRECAST MEMBERS REQUIRED FOR PRECAST CONSTRUCTION SHALL BE PROVIDED AND LOCATED BY PRECAST MANUFACTURER. PRECAST MANUFACTURER SHALL ALSO PROVIDE ALL BEARING PADS REQUIRED.
6. CONTRACTOR SHALL COORDINATE ALL OPENINGS REQUIRED FOR OTHER DISCIPLINES (ARCH, MECH, ELEC, HVAC, ETC.) WITH PRECAST MANUFACTURER.

FIELD VERIFY CANOPY COLUMN LOCATIONS w/ FINAL PIPING LAYOUT AS CONSTRUCTED PRIOR TO CANOPY FABRICATION

• FIELD VERIFY EXISTING DIMENSIONS

NOTE: FOR MASONRY LINTELS NOTED ON PLAN AS MLX AND FOR OPENINGS IN MASONRY NOT NOTED, SEE (1/S-11)

ROOF PLAN

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

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tel (602)912-9191 fax (602)912-9686

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Phoenix, Arizona

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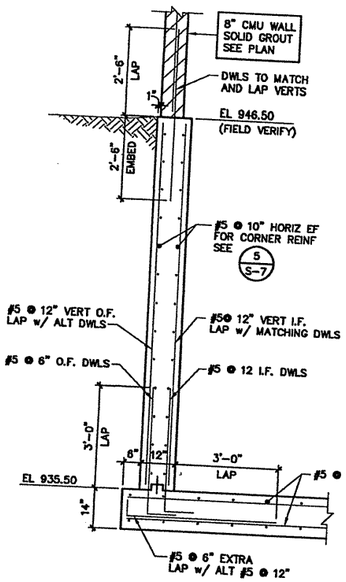
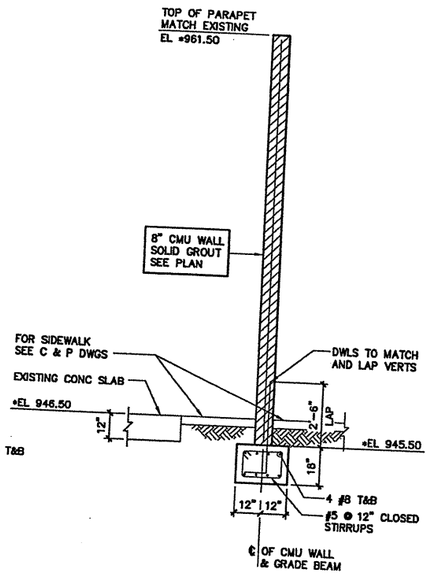
CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS

LIFT STATION ROOF PLAN

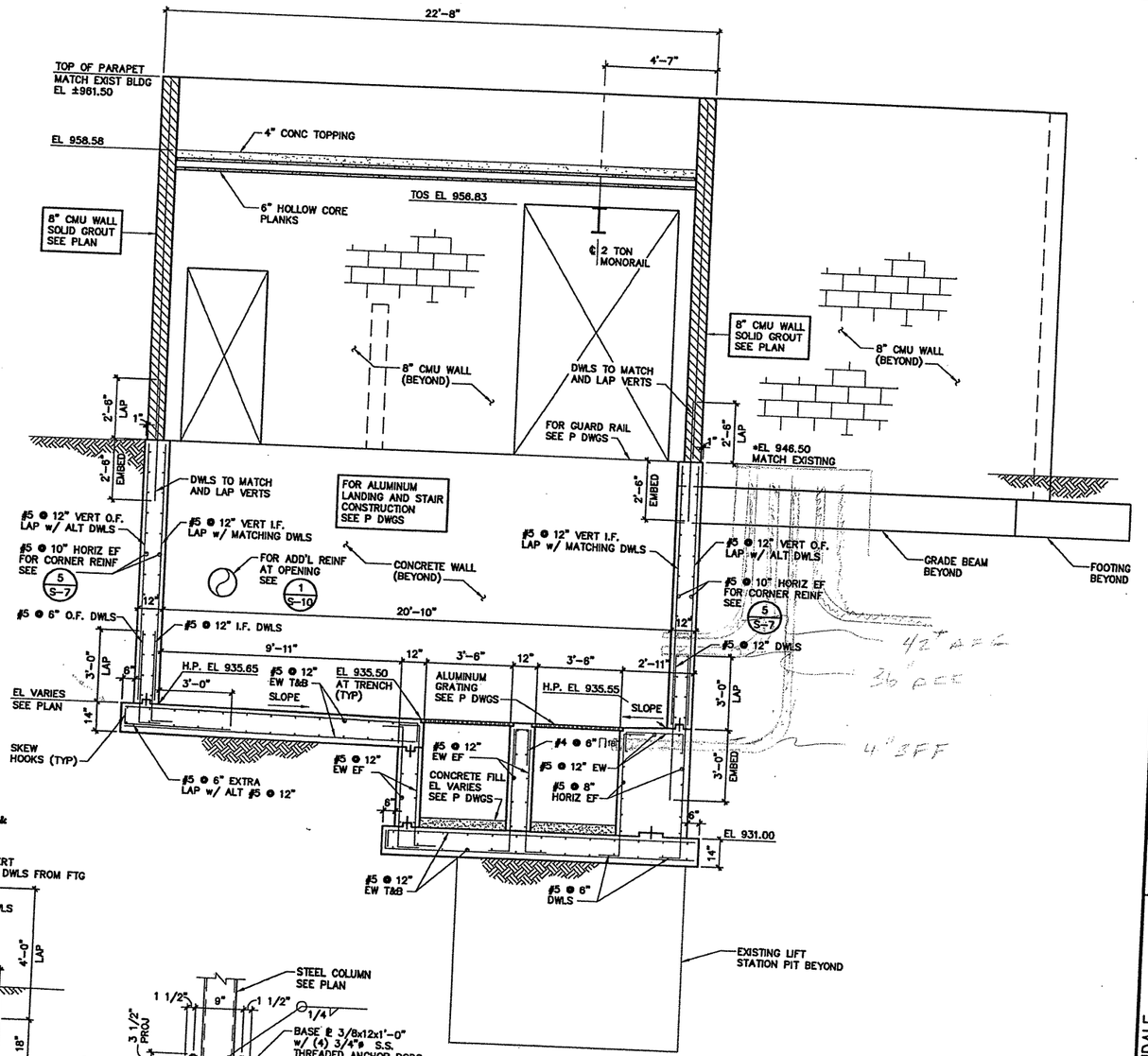
SHEET NO.
S-4



3 SECTION S-5 SCALE: 1/2"=1'-0"

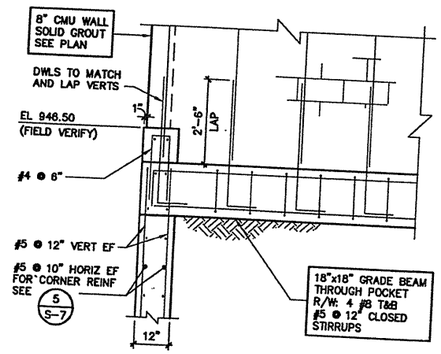


2 SECTION S-5 SCALE: 3/8"=1'-0"

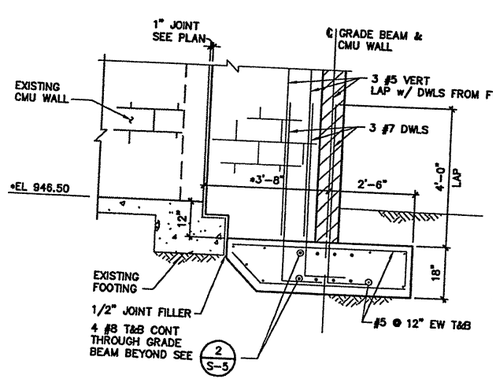


* FIELD VERIFY EXISTING DIMENSIONS

1 SECTION S-5 SCALE: 3/8"=1'-0"

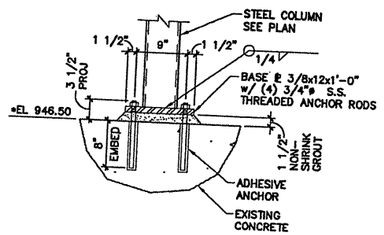


6 SECTION S-5 SCALE: 1/2"=1'-0"



* FIELD VERIFY EXISTING DIMENSIONS

5 SECTION S-5 SCALE: 1/2"=1'-0"



4 SECTION S-5 SCALE: 1/2"=1'-0"

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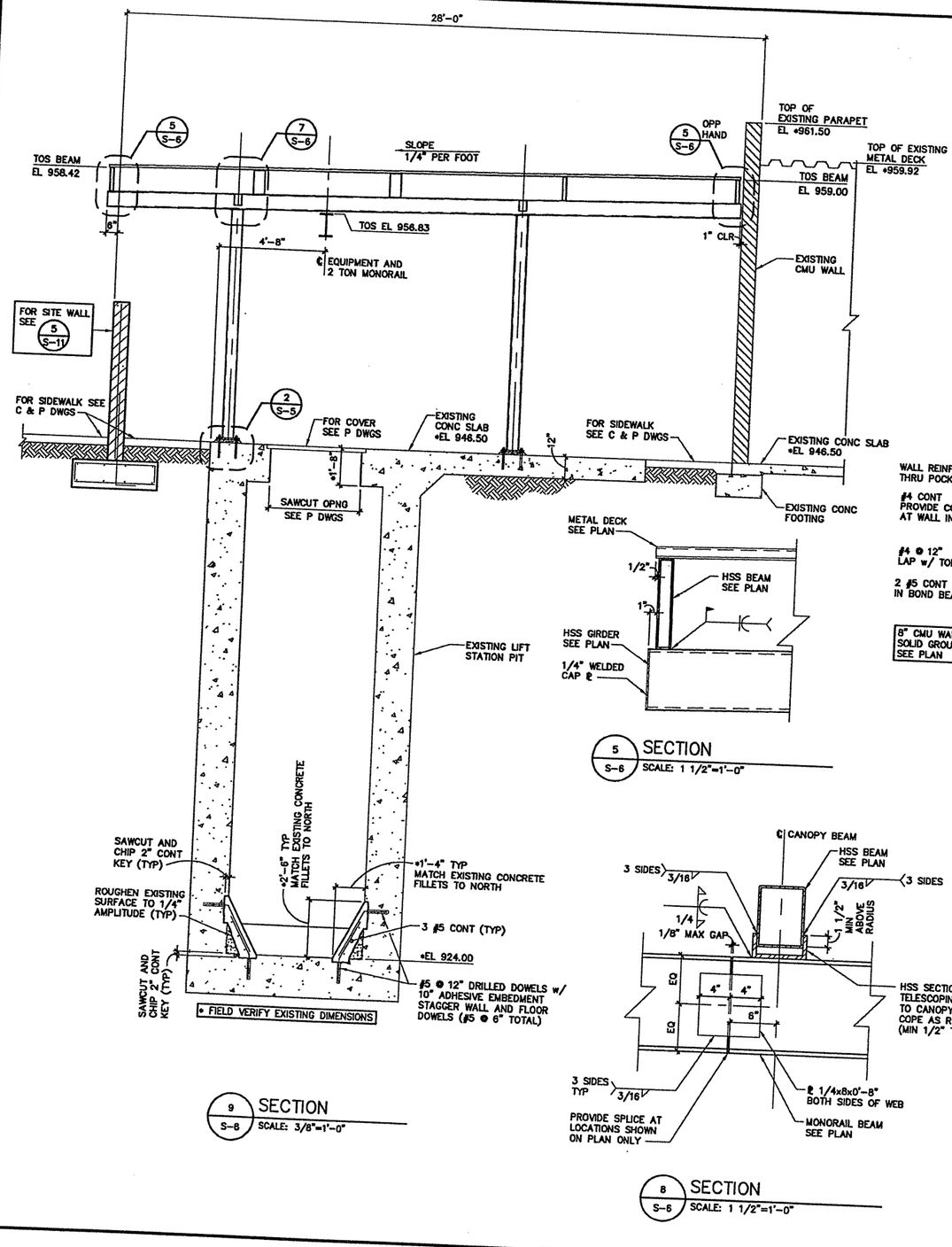
DATE: JUNE 2006

CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS
LIFT STATION SECTIONS

SHEET NO. S-5



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Plotted: Jun 16, 2006 - 11:27am

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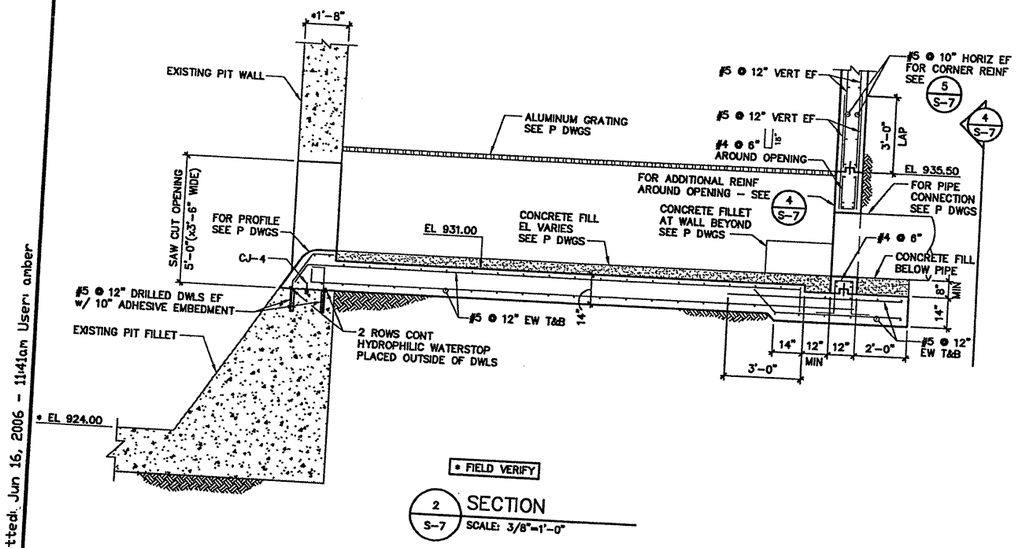
PR. CH-7311-SD
DATE: JUNE 2006

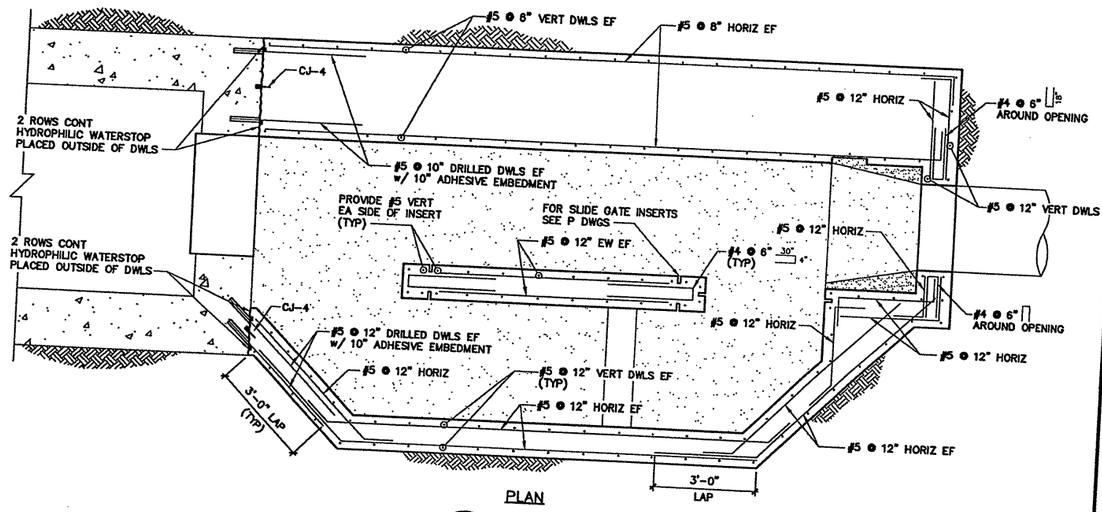
CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS

LIFT STATION SECTIONS & DETAILS

SHEET NO.
S-6

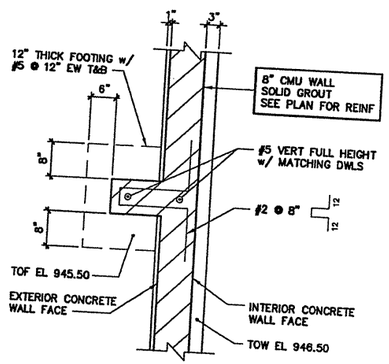


2/S-7 SECTION
SCALE: 3/8"=1'-0"



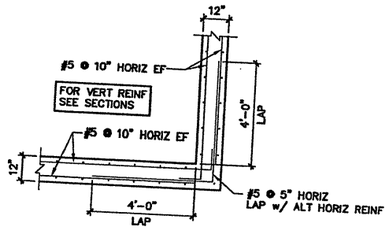
PLAN

1/S-7 DETAIL
SCALE: 1/2"=1'-0"



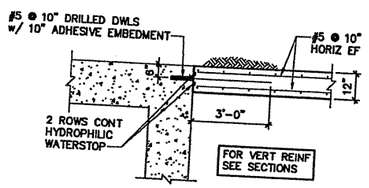
PLAN

7/S-7 DETAIL
SCALE: 3/4"=1'-0"



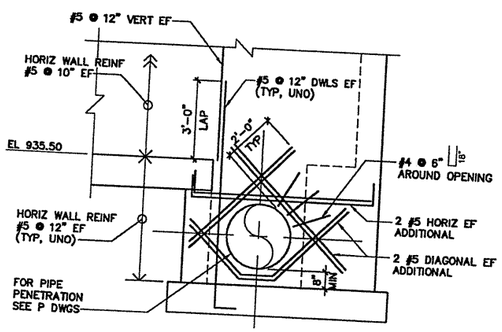
PLAN

5/S-7 DETAIL
SCALE: 3/8"=1'-0"

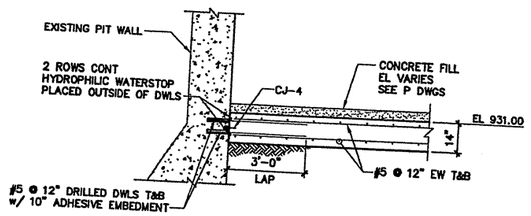


PLAN

8/S-7 DETAIL
SCALE: 3/8"=1'-0"



4/S-7 SECTION
SCALE: 3/8"=1'-0"



3/S-7 SECTION
SCALE: 3/8"=1'-0"

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NSB PROJECT NO. 2307.02

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Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION

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DRAWN BY: DJP
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PM: CH-7311-SD
DATE: JUNE 2006

CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS

LIFT STATION SECTIONS & DETAILS

SHEET NO.
S-7

FOUNDATION PLAN

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

CONTRACTOR SHALL SUBMIT THE FOLLOWING FOR REVIEW BY ENGINEER PRIOR TO SLIDING GATE OR SITE WALL FABRICATION:
1. SLIDING GATE CALCULATIONS INCLUDING DESIGN FOR WIND LOADING IN ANY PARTIALLY OPENED CONDITION
2. SLIDING GATE DRAWINGS INCLUDING ADDITIONAL CONCRETE FOUNDATIONS AND SITE WALL ALTERATIONS NEEDED
3. DRAWINGS AND CALCULATIONS SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A STRUCTURAL ENGINEER REGISTERED IN ARIZONA.

NOTES:
1. VERIFY ALL PAD DIMENSIONS AND ELEVATIONS WITH EQUIPMENT PURCHASED
2. FOR ADDITIONAL CONCRETE PIPE SUPPORT PADS SEE H DWGS AND 5/S-9

NOT FOR CONSTRUCTION

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Consulting Structural Engineers
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Phoenix, Arizona 85016-4721
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Professional Engineers & Consultants
Phoenix, Arizona

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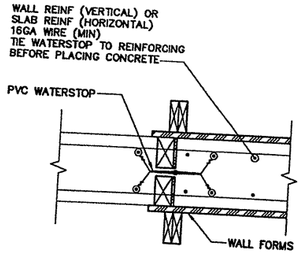
DESIGNED BY: TFW
DRAWN BY: MID
CHECKED BY: SJN
PM: CH-7311-SD
DATE: JUNE 2006

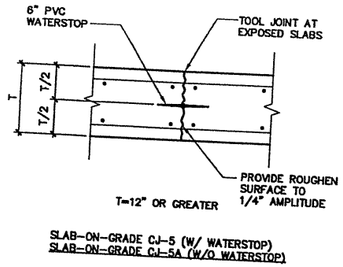
CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS
BIOFILTER FOUNDATION PLAN

SHEET NO.
S-8

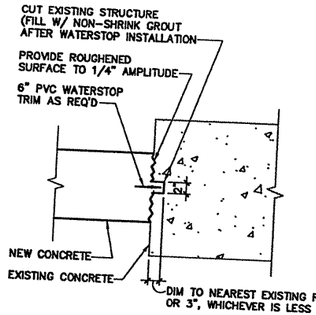


PVC WATERSTOP INSTALLATION DETAIL

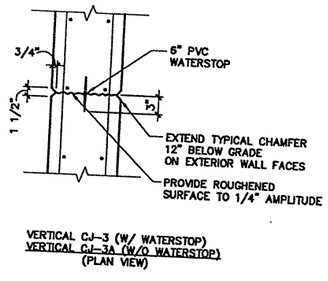
2 / S-9 DETAIL N.T.S.



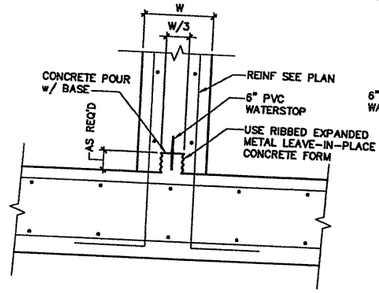
SLAB-ON-GRADE CJ-5 (W/ WATERSTOP)
SLAB-ON-GRADE CJ-5A (W/O WATERSTOP)



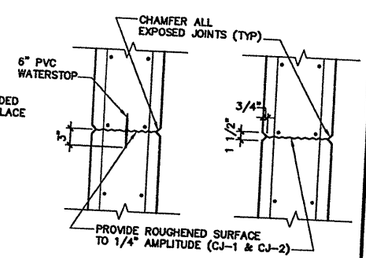
CJ-4



VERTICAL CJ-3 (W/ WATERSTOP)
VERTICAL CJ-3A (W/O WATERSTOP)
(PLAN VIEW)



HORIZONTAL CJ-2A ALTERNATE

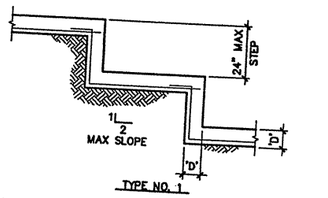


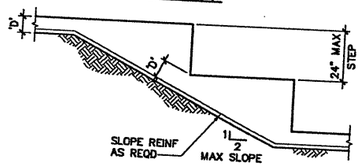
HORIZONTAL CJ-2 HORIZONTAL CJ-1

CONSTRUCTION JOINT DETAILS

NOTES: 1.) CONTINUE ALL REINFORCEMENT BARS THRU JOINTS
2.) ALL WALL VERTICAL CONSTRUCTION JOINTS TO BE CJ-3 UNO
3.) CONSTRUCTION JOINTS SHALL NOT OCCUR WITHIN THE MINIMUM LENGTH OF LAPS FOR SPLICES OF REINFORCEMENT
SEE GENERAL STRUCTURAL NOTES FOR LAP SPLICE REQUIREMENTS

1 / S-9 DETAIL N.T.S.



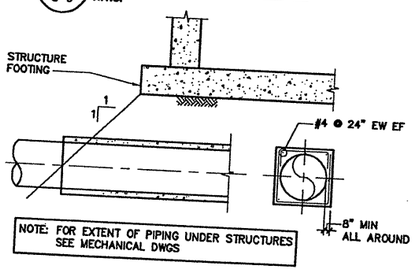


TYPE NO. 2

NOTE: 'D' = DEPTH OF STRIP FOOTING, SEE PLANS

STEPPED FOOTING

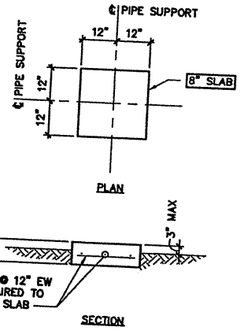
6 / S-9 DETAIL N.T.S.



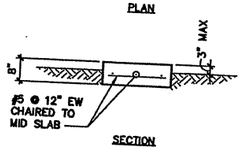
NOTE: FOR EXTENT OF PIPING UNDER STRUCTURES SEE MECHANICAL DWGS

END OF PIPE ENCASEMENT
UNDER STRUCTURES

9 / S-9 DETAIL N.T.S.



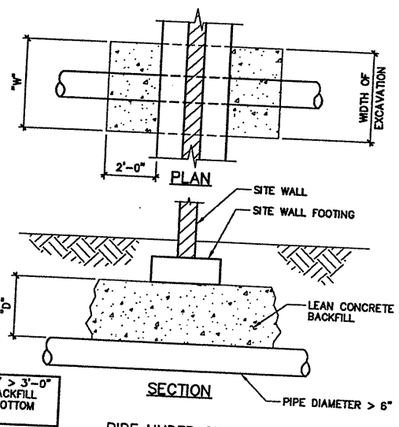
PLAN



SECTION

CONCRETE PIPE SUPPORT PAD

5 / S-9 DETAIL N.T.S.

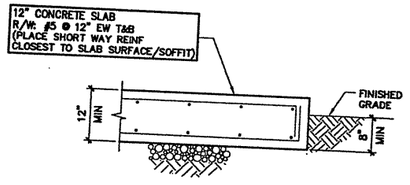


SECTION

NOTE: IF 'D' < 5'-0" OR 'W' > 3'-0" PROVIDE LEAN CONCRETE BACKFILL BETWEEN TOP OF PIPE TO BOTTOM OF FOOTING

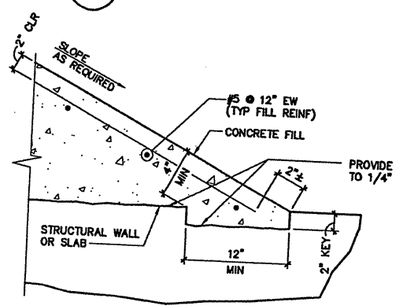
PIPE UNDER SITE WALL FOOTING

8 / S-9 DETAIL N.T.S.



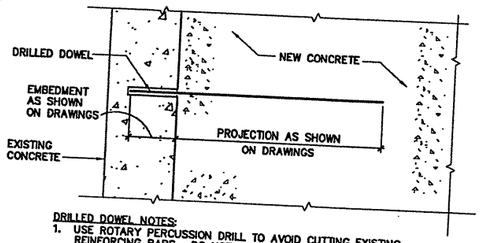
BIOFILTER PAD

4 / S-9 DETAIL N.T.S.



CONCRETE FILL TERMINATION WITH KEY

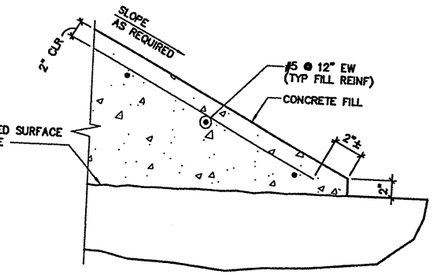
7 / S-9 DETAIL N.T.S.



DRILLED DOWEL NOTES:
1. USE ROTARY PERCUSSION DRILL TO AVOID CUTTING EXISTING REINFORCING BARS. DO NOT USE CORE DRILL.
2. DRILL HOLE DIAMETER OF SIZE PER ADHESIVE MANUFACTURER'S INSTRUCTIONS AND ICC-ES REPORT.
3. THOROUGHLY CLEAN HOLE AND INSTALL DOWELS PER ADHESIVE MANUFACTURER'S INSTRUCTIONS AND ICC-ES REPORT.
4. ADHESIVE SHALL BE HILTI HY-150 (ICC REPORT #ER 5193) OR APPROVED EQUAL.

DRILLED DOWEL

3 / S-9 DETAIL N.T.S.



CONCRETE FILL TERMINATION WITHOUT KEY

NOT FOR CONSTRUCTION

NSB PROJECT NO. 2307.02

Naber Stanley Brown, Inc.
Consulting Structural Engineers
2150 East Highland Avenue, Suite #204
Phoenix, Arizona 85016-4721
tel (602)912-9191 fax (602)912-9686

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

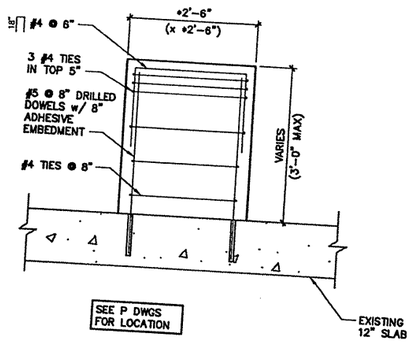
Rothberg, Tamburni & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION

DESIGNED BY: BHP
DRAWN BY: MIO
CHECKED BY: SJH
PN: CH-7311-SD
DATE: JUNE 2006

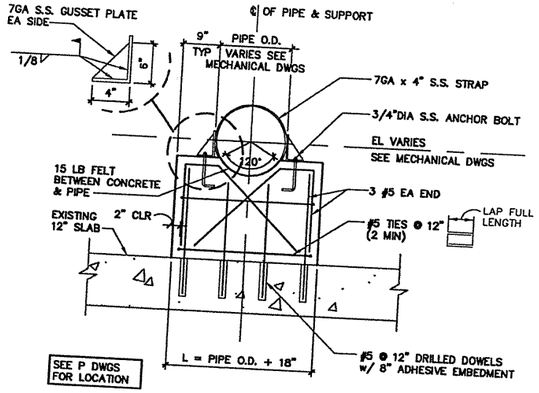
CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS
TYPICAL DETAILS I

SHEET NO.
S-9



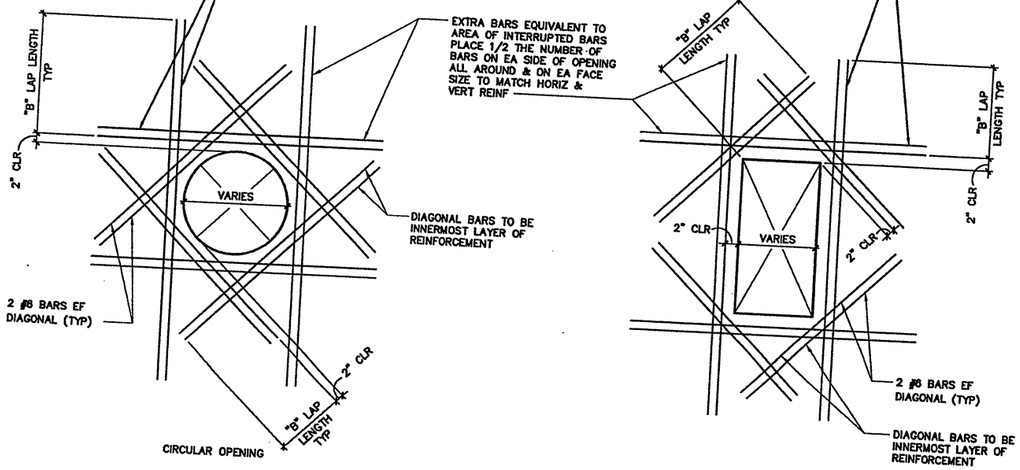
PIPE ELBOW SUPPORT

3 / S-10 DETAIL N.T.S.



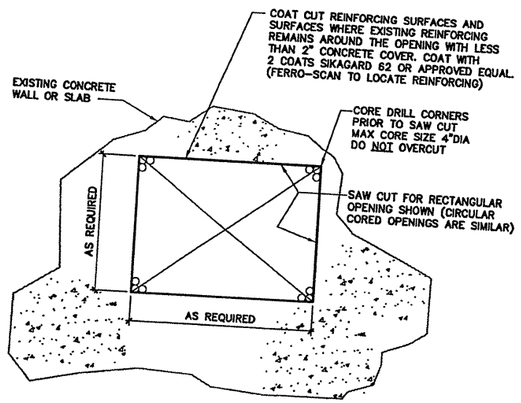
CONCRETE PIPE SADDLE ON EXISTING CONSTRUCTION

2 / S-10 DETAIL N.T.S.



OPENING REINFORCING DETAILS

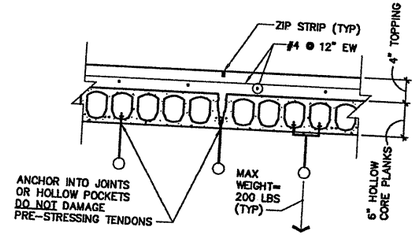
1 / S-10 DETAIL N.T.S.



NOTE: SIZES AND LOCATIONS OF ALL OPENINGS MUST BE APPROVED BY ENGINEER PRIOR TO BEGINNING CUTTING OPERATION

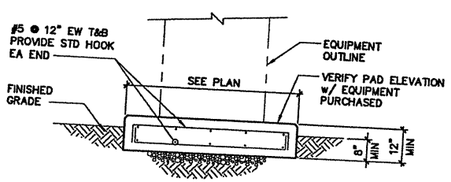
PROCEDURE FOR CUTTING OR CORING OPENINGS IN EXISTING SLABS OR WALLS

8 / S-10 DETAIL SCALE: N.T.S.



HOLLOW CORE PLANK PROFILE WITH MECHANICAL OR ELECTRICAL ATTACHMENT

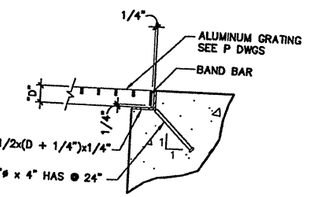
6 / S-10 DETAIL SCALE: N.T.S.



* NOTE:
CONTRACTOR TO VERIFY CONCRETE PAD DIMENSIONS WITH EQUIPMENT FURNISHED. PAD SHALL BE 12" PAST OUTSIDE EDGES OF THE GREATER DIMENSIONS OF BASE OR ENCLOSURE

EQUIPMENT PAD

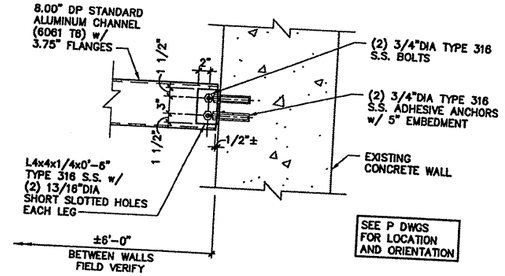
7 / S-10 DETAIL SCALE: 1/2"=1'-0"



NOTES:
1. SURFACE IN CONTACT WITH CONCRETE AND SURFACES OF DISSIMILAR METALS SHALL RECEIVE COATING/PAINT PER SPECIFICATIONS
2. EMBEDDED ANGLES SHALL BE FUSION WELDED AT CORNERS FULL LENGTH OF CONTACT AND FULL THICKNESS OF MATERIAL

GRATING SUPPORT

5 / S-10 DETAIL SCALE: N.T.S.



ALUMINUM CHANNEL SUPPORT FOR GUIDE BAR BRACKET

4 / S-10 DETAIL N.T.S.

NOT FOR CONSTRUCTION

NSB PROJECT NO. 2307.02

NSB Naber Stanley Brown, Inc.
Consulting Structural Engineers
2150 East Highland Avenue, Suite #204
Phoenix, Arizona 85016-4721
tel (602)912-9191 fax (602)912-9686

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Professional Engineers & Consultants
Phoenix, Arizona

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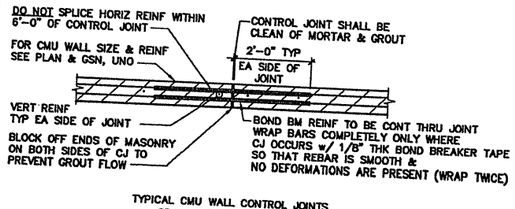
DESIGNED BY: BHP
DRAWN BY: MIO
CHECKED BY: SJN
PM: CH-7311-SD
DATE: JUNE 2006

CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS
TYPICAL DETAILS II

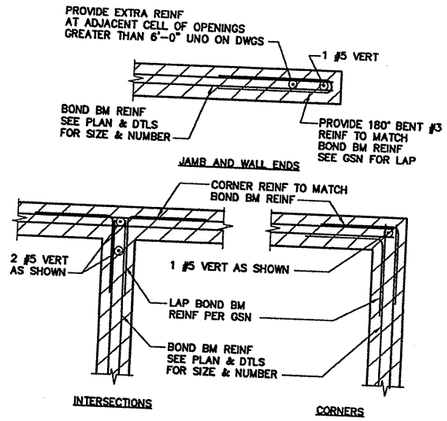
SHEET NO. S-10



TYPICAL CMU WALL CONTROL JOINTS SPACED @ 24'-0" o.c. & NO MORE THAN 16'-0" FROM CORNERS (PLAN VIEW)

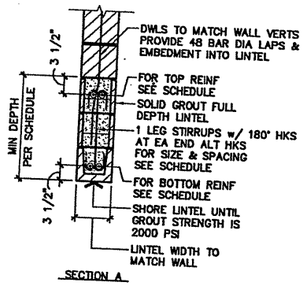
CMU WALL CONTROL JOINTS (MCJ)

3 / S-11 DETAIL — SCALE: N.T.S.



CMU WALL REINFORCING (PLAN VIEW)

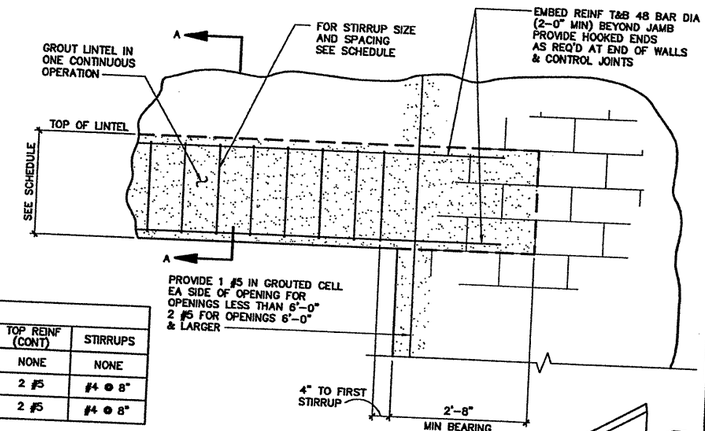
2 / S-11 DETAIL — SCALE: N.T.S.



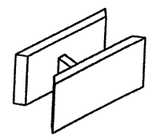
SECTION A

MASONRY LINTEL SCHEDULE					
TYPE	SPAN	MIN DEPTH	BOT REINF (CONT)	TOP REINF (CONT)	STIRRUPS
ML1	0" TO 4'-0"	24"	2 #5	NONE	NONE
ML2	4'-1" TO 7'-0"	32"	2 #5	2 #5	#4 @ 8"
ML3	7'-1" TO 10'-0"	48"	2 #5	2 #5	#4 @ 8"

NOTES:
1. SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL INFORMATION
2. PROVIDE LINTEL TYPE BLOCKS AT BOTTOM COURSE OF LINTELS (TYP)
3. NO VERTICAL JOINTS ARE ALLOWED AT JAMB EDGE



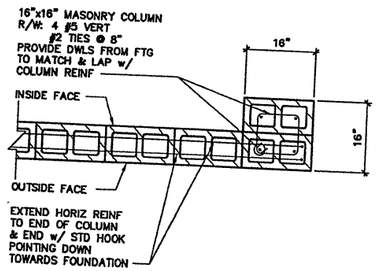
ELEVATION



DOUBLE OPEN END BOND BEAM

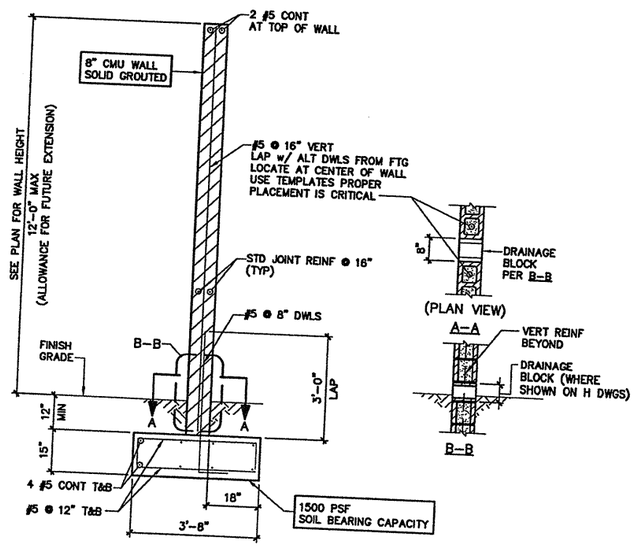
MASONRY LINTELS

1 / S-11 DETAIL — SCALE: N.T.S.



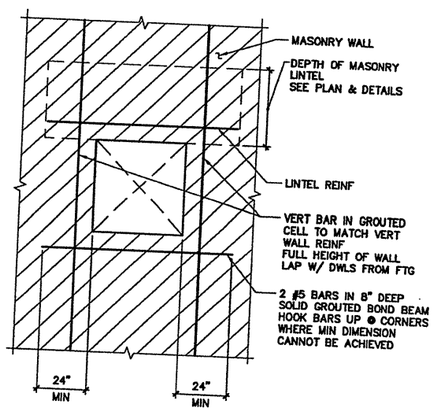
PILASTER AT 12'-0" SITE WALL OPENING

6 / S-11 DETAIL — SCALE: 3/4"=1'-0"



SITE WALL

5 / S-11 DETAIL — SCALE: 3/4"=1'-0"



OPENING IN MASONRY WALL

4 / S-11 DETAIL — SCALE: N.T.S.

NOT FOR CONSTRUCTION

NSB Naber Stanley Brown, Inc.
Consulting Structural Engineers
2150 East Highland Avenue, Suite #204
Phoenix, Arizona 85016-4721
tel (602)912-9191 fax (602)912-9686
NSB PROJECT NO. 2307.02

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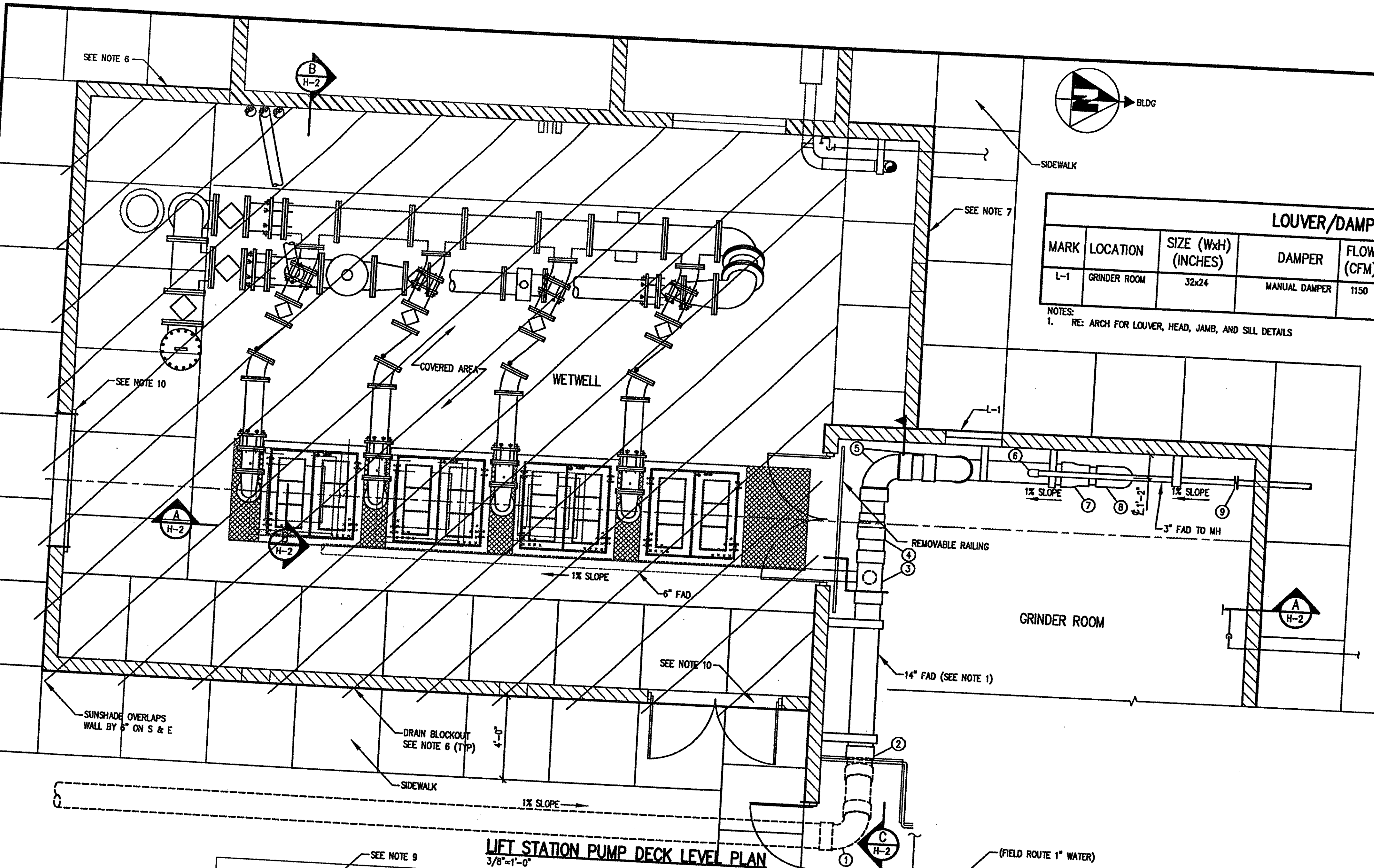
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION

PN: CH-7311-SD | DESIGNED BY: SES
DATE: JUNE 2006 | DRAWN BY: MIO
 | CHECKED BY: SJN

CITY OF AVONDALE
4th STREET LIFT STATION IMPROVEMENTS
TYPICAL DETAILS III

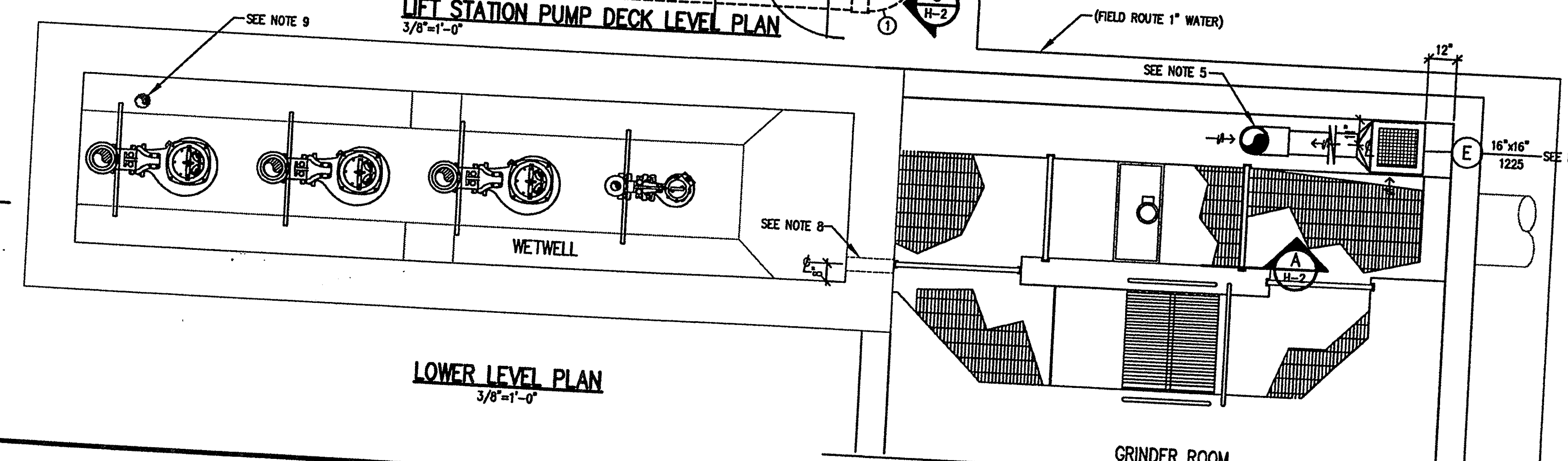
SHEET NO. S-11



LOUVER/DAMPER SCHEDULE

MARK	LOCATION	SIZE (WxH) (INCHES)	DAMPER	FLOW (CFM)	MAX SP (IN W.C.)	COMMENTS
L-1	GRINDER ROOM	32x24	MANUAL DAMPER	1150	0.07	INTAKE WITH SST INSECT SCREEN. MANUALLY ADJUST DAMPER TO PROVIDE PRESSURE DIFFERENTIAL RELATIVE TO AMBIENT OF NEG 0.1" W.C.

NOTES:
1. RE: ARCH FOR LOUVER, HEAD, JAMB, AND SILL DETAILS



EQUIPMENT

1. 14" 90° BEND
2. 14" 22.5° BEND
3. 14"x6" RED TEE
4. 14"x12" RED
5. 12" 90° BEND
6. 3" 90° BEND
7. 12"x10" RED
8. 10" 90° BEND
9. 3" BFD

GENERAL NOTES:

1. ALL FOUL AIR DUCTWORK (FAD) EXPOSED TO SUNLIGHT SHALL BE CIRCULAR FRP PIPE. ALL BURIED & INDOOR FAD SHALL BE SCH 80 PVC.
2. ALL DAMPERS SHOWN ON DRAWINGS SHALL BE FRP CIRCULAR BUTTERFLY DAMPERS UNLESS OTHERWISE NOTED
3. PROVIDE ECC RED IN HORIZ FAD RUNS & CONCENTRIC RED IN VERT FAD RUNS
4. FIELD VERIFY ALL DIMENSIONS
5. EXHAUST REGISTER, SURFACE MOUNTING EGG CRATE PATTERN FRP OBD TITUS 50F OR EQUAL
6. 6' CMU BLOCK WALL
7. CMU BLOCK WALL TO MATCH PARAPET HEIGHT OF EXISTING BUILDING
8. CORE DRILL, SEAL ANNULUS WITH COMPRESSIBLE LINK TYPE SEAL
9. FIELD LOCATE EXISTING DRAIN
10. STEEL AND WOOD GATE
11. EXHAUST REGISTER, SURFACE MOUNTING EGG CRATE PATTERN FRP OBD TITUS OR EQUAL

DONALD G. CHILTON 28038 ARIZONA, U.S.A.

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Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DESTD	D'WN	REVISION DESCRIPTION
1	06/06	SOC	ALF	BUILDING & FAD MODS

DESIGNED BY: RJ
DRAWN BY: RJF
CHECKED BY: DGD
PN: CH-7311-S0
DATE: APRIL, 2006
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CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
LIFT STATION FOUL AIR DUCT PLAN

SHEET NO. H-1

(06) (H01)B-FAD Plan.dwg H:\7311ch\ JUN 16, 2006 @ 11:01:56 am - (TONYF)

A SECTION
3/8"=1'-0"

B SECTION
3/8"=1'-0"

C SECTION
3/8"=1'-0"

EQUIPMENT

1. 6" 90° BEND
2. 6" BFD
3. 14"x6" RED TEE
4. 12" 90° BEND
5. 12"x3" RED TEE
6. 3" 90° BEND
7. 12"x10" RED
8. 10" 90° BEND
9. 3" BFD
10. 10" BFD
11. 14" 90° BEND
12. 14" 22.5° BEND
13. 14"x12" RED

GENERAL NOTES:

1. FIELD ROUTE 3" FAD TO MANHOLE. 3" FAD ELEV AT MANHOLE SHALL BE AS REQUIRED TO MAINTAIN 1% SLOPE

28038
DONALD R.
CHILTON
REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
ARIZONA U.S.A.

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Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
1	06/06	SDC	ALF	BUILDING & FAD MODS

DESIGNED BY: RJJ
DRAWN BY: RJH
CHECKED BY: DRD
PH: CH-7311-SD
DATE: APRIL, 2006
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CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
LIFT STATION FOUL AIR DUCT SECTIONS

SHEET NO.
H-2

(05) [H02]8-FAD Sections.dwg H:\231ch1 JUN 16, 2006 @ 11:28:27 am - (TOWF)

EXST CONTROL BLDG

BIOFILTER NO. 1

BIOFILTER NO. 2

CONNECT TO EXISTING 4" DRAIN

1% SLOPE

CONTROL PANEL

CLEAN OUT

2'-7"ø NUTRIENT TANK

14" FAD

BOLLARD (TYP 4)

8" TYP

BLR No.1

BLR No.2

CLEANOUT CAP & TEE

P-TRAP

HUMIDIFIER

2" FAN DRAIN

THR'D PLUG CLEANOUT

SEE NOTE 3 (TYP OF 3)

DRAIN BLOCKOUTS SEE NOTE 4 (TYP)

BLDG

PLAN
1/2"=1'-0"

GENERAL NOTES:

1. GENERAL CONTRACTOR TO SUPPLY:
   - A) ALL FANS, DUCTING INLET FLANGES, VIBRATION, AND SUPPORTS
   - B) WATER SERVICE AND INTERCONNECTING WATERLINE
   - C) DRAIN WATER PIPING, INCLUDING LOOP SEALS
   - D) FOUNDATION GRADING, ENGINEERED FILL, AND COMPACTION
   - E) CONCRETE WORK
2. ALL PIPING AND SPRAY SYSTEMS INSIDE BIOFILTER SUPPLIED BY MANUFACTURER
3. PROVIDE 8"x16" ARCHITECTURAL BLOCK OPENING

EQUIPMENT:

1. 3/4" UPPER NPW IRRIGATION LINE BY BIOFILTER MFR
2. 3/4" LOWER NPW IRRIGATION LINE BY BIOFILTER MFR
3. 12" BFD
4. HUMIDIFICATION VESSEL
5. FOUL AIR DUCT TRANSITION
6. 14" FAD
7. 12" FAD
8. 12" BFD
9. 12" FLC
10. RECIRCULATION PUMP
11. AIR FLOWMETER
12. FLOW SWITCH
13. AIR PRESSURE GAUGE
14. WATER PRESSURE GAUGE
15. 1" WATER SERVICE CONNECTION
16. PRESSURE GAUGE

IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

Registered Professional Engineer (Civil) CERTIFICATE NO. 28038 DONALD G. CHILTON Date Signed 6/30/08 ARIZONA, U.S.A.

Rothberg, Tamburni & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN
1	6/08	JDC	ALF

EQUIPMENT PAD MODIFICATIONS

REVISION DESCRIPTION

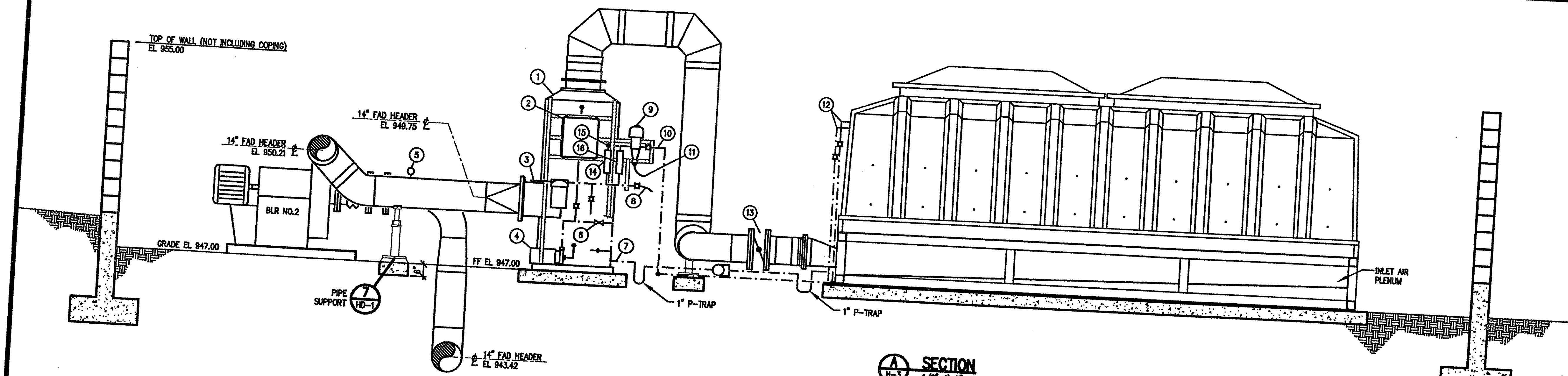
DESIGNED BY: RJJ
DRAWN BY: RLH
CHECKED BY: DGC
PM: CH-7311-SD
DATE: APRIL, 2006

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS

BIOFILTER PLAN

SHEET NO.
H-3

(02) (H03)6-Biofilter Plan.dgn H:\7311ch\ JUN 15, 2006 @ 10:44:41 am - (TONY)



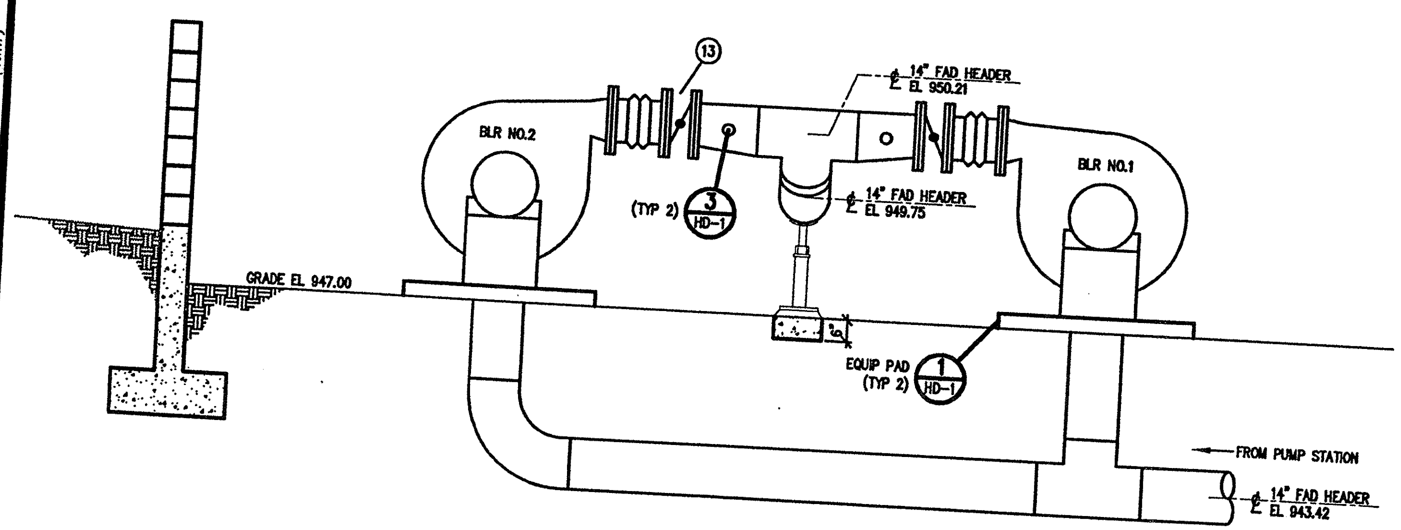
A
H-3
SECTION
1/2"=1'-0"

NOTES:

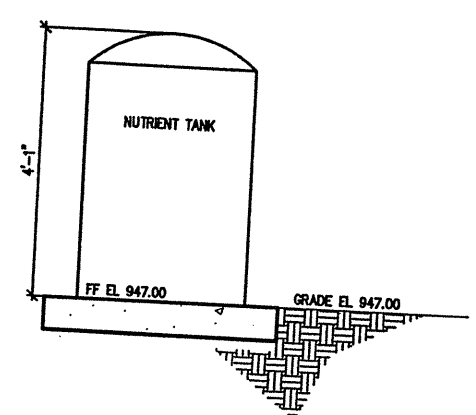
1. SLOPE IN DRAIN LINES AT 1% IN DIRECTION OF FLOW

EQUIPMENT:

1. HUMIDIFIER
2. CONTROL PANEL
3. 1" WATER SERVICE
4. RECIRCULATION PUMP
5. AIR FLOW METER
6. DRAIN LINE CONTROL VALVE
7. HUMIDIFIER BLOW DOWN/DRAIN 1" SW SCH 80 PVC
8. NUTRIENT TANK FILL HOSE
9. NUTRIENT EDUCTOR
10. UPPER IRRIGATION
11. NUTRIENT SUCTION HOSE
12. PRESSURE GAUGE
13. 12" BUTTERFLY VALVE
14. LOWER IRRIGATION FLOW METERING SOLENOID
15. LOWER LEVEL IRRIGATION
16. UPPER IRRIGATION FLOW METERING SOLENOID



B
H-3
SECTION
1/2"=1'-0"



C
H-3
SECTION
3/4"=1'-0"

GENERAL NOTES:

1. ANCHOR ALL PIPE SUPPORTS TO CONCRETE PAD

28038
DONALD G.
CHILTON

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Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
1	6/06	JDC	ALF	CON PAD & WALL MODIFICATIONS

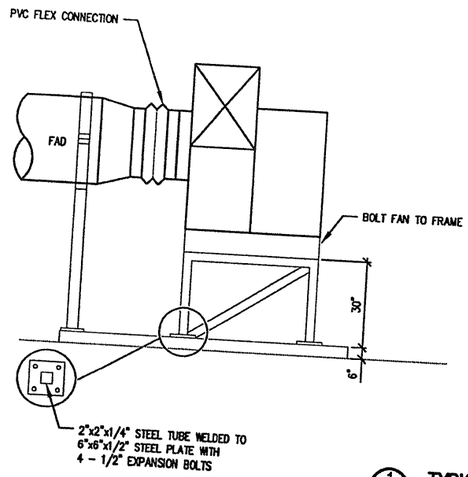
PN: CH-7311-SD | DESIGNED BY: RJJ
DATE: APRIL, 2006 | DRAWN BY: RLH
 | CHECKED BY: DGD

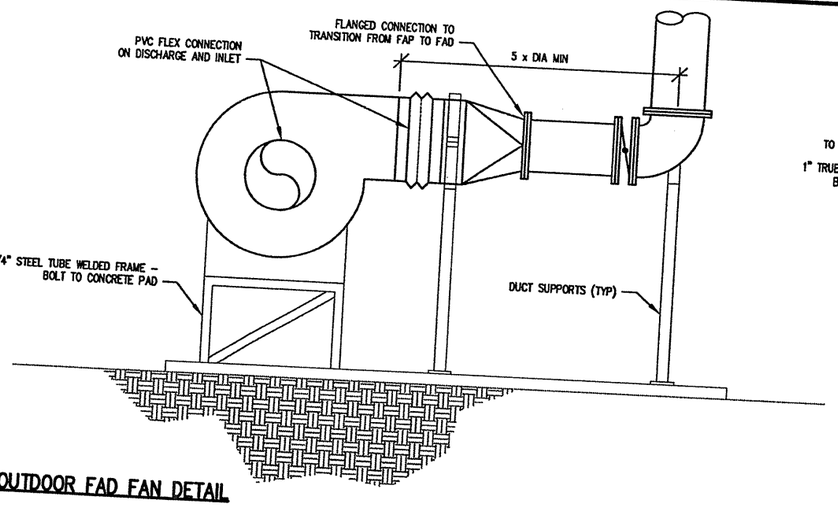
CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS

BIOFILTER SECTIONS

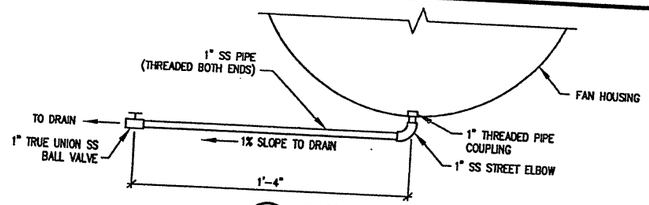
SHEET NO.
H-4

(01) (H04)B-Biofilter Sections.dwg H:\7311ch\ JUN 15, 2006 @ 10:59:15 am - (TONYF)



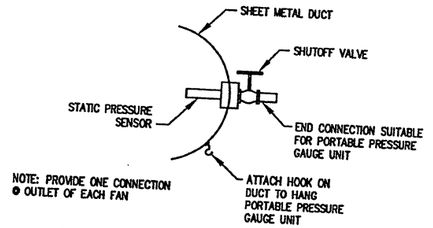


1 — TYPICAL OUTDOOR FAD FAN DETAIL
NTS

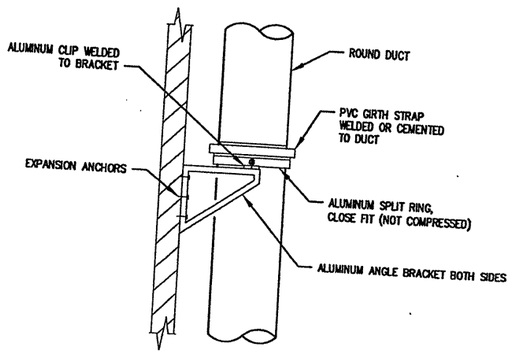


2 — FAN DRAIN DETAIL
NTS

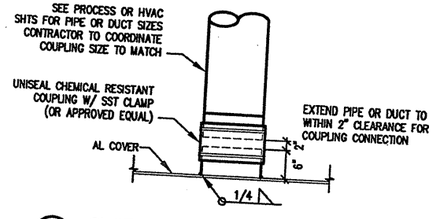
NOTE: FIELD ROUTE AND SLOPE 1" SS PIPE 18" MIN BELOW GRADE AS SHOWN IN DRAWINGS



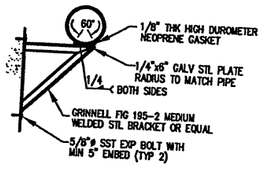
3 — PRESSURE GAUGE CONNECTION DETAIL
NTS



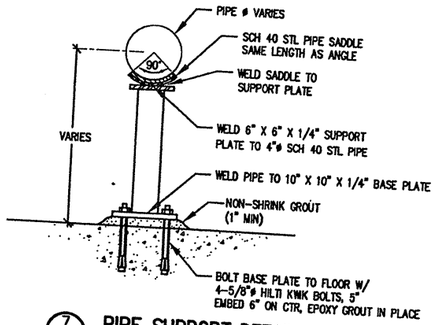
4 — PVC DUCT VERTICAL SUPPORT DETAIL
NTS



5 — SUCTION OR VENT PIPE CONNECTION
NTS



6 — PVC DUCT HORIZONTAL SUPPORT DETAIL
NTS



7 — PIPE SUPPORT DETAIL
NTS

(01) (H001)8-FAD Details.dwg lt:\2311ch\ JAN 15, 2008 @ 11:00:33 am - (TONYF)

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION
1	6/06	JDC	ALF	DETAILS 2 & 6

PN: CH-7311-SD | DESIGNED BY: RJJ
DATE: APRIL, 2006 | DRAWN BY: RJF
 | CHECKED BY: DGD

CITY OF AVONDALE
4th STREET WW LIFT STATION IMPROVEMENTS
FOUL AIR DUCT DETAILS

SHEET NO.
HD-1

0 — 1
IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

PLAN LEGEND

- EXPOSED CONDUIT
- UNDERGROUND CONDUIT DUCTBANK
- CONDUIT STUBUP
- CONDUIT TURNED DOWN
- UTILITY CONDUIT DUCTBANK
- CONDUIT RUN CONCEALED IN CEILING, FLOOR, OR IN WALLS
- EXISTING UNDERGROUND ELECTRIC
- GROUNDING ELECTRODE CONDUCTOR
- EXISTING OVERHEAD ELECTRIC
- FENCE
- 240V SIMPLEX RECEPTACLE (NUMBER DENOTES CIRCUIT AMPS)
- 480V SIMPLEX RECEPTACLE (NUMBER DENOTES CIRCUIT AMPS)
- 120V, 20A SIMPLEX RECEPTACLE
- 120V, 20A DUPLEX RECEPTACLE
- 120V, 20A QUADRAPLEX RECEPTACLE
- 120V, 20A SPST SWITCH
- MANUAL MOTOR STARTER
- 120V, 20A 3-WAY SWITCH
- 120V, 20A 4-WAY SWITCH
- TELEPHONE JACK
- CONDUCTIVITY SWITCH
- FLOAT SWITCH
- ABOVE GROUND JUNCTION BOX
- LEVEL ELEMENT
- LEVEL PROBES
- LEVEL TRANSMITTER
- PHOTOCELL
- PRESSURE SWITCH
- PRESSURE TRANSMITTER
- TEMPERATURE SWITCH
- TEMPERATURE ELEMENT
- THERMOSTAT
- INTRUSION ALARM SWITCH
- UNDERGROUND JUNCTION BOX
- MANHOLE
- HANDHOLE
- NON-FUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- CIRCUIT BREAKER STYLE DISCONNECT SWITCH
- COMBINATION MOTOR STARTER
- MOTOR STARTER
- PUSHBUTTON CONTROL STATION
- SOLENOID VALVE (ENERGIZE TO CLOSE)
- SOLENOID VALVE (ENERGIZE TO OPEN)
- BUTTERFLY VALVE
- PLUG VALVE
- GATE VALVE
- ALARM BEACON
- WALL MOUNTED LIGHT
- EXISTING WALL MOUNTED LIGHT
- CONDUIT DESIGNATION
- GROUND ROD AND WELL
- PANELBOARD

LUMINAIRE SCHEDULE

SYMBOL	VOLTS	LAMP(S)	FIXTURE	DESCRIPTION	MANUFACTURER
A	120V	(2) 32W R.S. FLUORESCENT		2-TUBE, 8"x4' VAPORTIGHT (FULLY GASKETED) FLUORESCENT LUMINAIRE WITH STAINLESS STEEL LATCHES, SURFACE MOUNTED, ONE PIECE, IMPACT RESISTANT ACRYLIC DIFFUSER WITH SMOOTH SURFACE. UL LISTED FOR WET LOCATIONS. BALLAST MUST BE RATED FOR HIGH AMBIENT TEMPS.	DAY-BRITE (V2WA232-EB10R-TR) LITHONIA (DMW-2-32-AR-STSL-CEB10RS) COLUMBIA (LUN4-232-EB8LH-CPPSSL)
B	120V	(1) 26W COMPACT FLUORESCENT		WALL MOUNTED, BRONZE DIE CAST ALUMINUM HOUSING. BOROSILICATE PRISMATIC GLASS REFRACTOR.	HOLOPHANE (WL2K-260) NITEBRITES (WLS-26C-F)
C	120V	(1) 70W-HPS		FULL CUTOFF WALL MOUNTED LUMINAIRE WITH A FULLY GASKETED TWO-PIECE DIE-CAST ALUMINUM HOUSING FINISHED WITH A BRONZE POLYESTER POWDER COAT. EPDM GASKETED SEALED IMPACT-RESISTANT GLASS LENS UL APPROVED FOR WET LOCATIONS. LUMINAIRE TO INCLUDE PHOTOCELL.	GARDCO (101-70HPS-AR-PCB) LUMARK IMPACT (HP-IP-T-70-PE) ECLIPSE (MI-A-HPS-(1)70-9206)
D	120V	(1) 64W FLUORESCENT		EXPLOSION-PROOF WALL MOUNTED COMPACT FLUORESCENT LUMINAIRE	CROUSE-HINDS (EVLPFBX02641) OR APPROVED EQUAL

VICINITY MAP

N

NTS

SINGLE LINE DIAGRAM AND SCHEMATIC LEGEND

- INTERNAL WIRING / TERMINAL BLOCK / FIELD WIRING
- PILOT LIGHT (LETTER DENOTES COLOR)
- PUSH-TO-TEST PILOT LIGHT (LETTER DENOTES COLOR)
- CONTROL RELAY
- PRESSURE SWITCH CLOSES ON RISING PRESSURE
- PRESSURE SWITCH OPENS ON RISING PRESSURE
- NORMALLY OPEN CONTACT TIME TO CLOSE (ON DELAY)
- NORMALLY CLOSED CONTACT TIME TO OPEN (ON DELAY)
- NORMALLY OPEN CONTACT TIME TO OPEN (OFF DELAY)
- NORMALLY CLOSED CONTACT TIME TO CLOSE (OFF DELAY)
- FLOW SWITCH CLOSES ON RISING FLOW
- FLOW SWITCH OPENS ON RISING FLOW
- FLOAT SWITCH OPENS ON RISING LEVEL
- FLOAT SWITCH CLOSES ON RISING LEVEL
- LIMIT SWITCH (N.C.)
- LIMIT SWITCH (N.O.)
- LIMIT SWITCH (N.C.)
- LIMIT SWITCH (N.O.)
- TEMPERATURE SWITCH OPENS ON RISING TEMPERATURE
- TEMPERATURE SWITCH CLOSES ON RISING TEMPERATURE
- ELAPSED TIME METER
- HORN
- BUZZER
- NEUTRAL BUS
- GROUND BUS
- FUSE
- FUSED TERMINAL BLOCK
- OVERLOAD (ELECTRONIC TYPE)
- THERMAL OVERLOAD (BI-METALLIC)
- DIODE
- DISCONNECT SWITCH (N.O.)
- DISCONNECT SWITCH (N.C.)
- TERMINAL BLOCK (GENERAL)
- TERMINAL BLOCK IN VFD
- TERMINAL BLOCK IN PLC SECTION OF MCC
- TERMINAL BLOCK IN MCC BUCKET
- MAIN LUG ONLY
- POWER DISTRIBUTION BLOCK
- CURRENT TRANSFORMER
- POWER TRANSFORMER
- CIRCUIT BREAKER WITH DOOR OPERATED HANDLE
- CIRCUIT BREAKER
- NORMALLY OPEN CONTACTS
- NORMALLY CLOSED CONTACTS
- CONTROL RELAY CONTACTS CONTROLLED BY PLC DISCRETE OUTPUT (N.O.)
- CONTROL RELAY CONTACTS CONTROLLED BY PLC DISCRETE OUTPUT (N.C.)
- MOTOR STARTER (NUMBER INDICATES NEMA RATING)
- NORMALLY OPEN MOMENTARY-CONTACT PUSHBUTTON
- NORMALLY CLOSED MOMENTARY-CONTACT PUSHBUTTON
- 3-POSITION SELECTOR SWITCH
- 2-POSITION SELECTOR SWITCH
- LOCKOUT STOP PUSHBUTTON
- PUSH-PULL EMERGENCY STOP PUSHBUTTON
- EARTH GROUND CONNECTION
- LEVEL PROBE
- WATER OR GAS BOND
- ELAPSED TIME METER

GENERAL ELECTRICAL REQUIREMENTS

A. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODE ORDINANCES AND REGULATIONS. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE, FINISHED AND SAFE MANNER, ACCORDING TO THE LATEST PUBLISHED N.E.C.A. STANDARDS OF INSTALLATION, UNDER COMPETENT SUPERVISION. INSTALL GROUNDING AS REQUIRED BY THE NATIONAL ELECTRIC CODE (2002).

B. VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND ALL OTHER FACTORS WHICH MAY AFFECT THE EXECUTION OF THIS WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.

C. ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH NEMA, ANSI, U.L. OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURER'S NAMES, MODELS AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE USEFULNESS AND BID PRICE. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED IN WRITING AND REVIEWED BY THE ENGINEER BEFORE ORDERING.

D. PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED UNDER THIS CONTRACT AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS OR ANY OTHER CAUSES. EQUIPMENT FOUND DAMAGED OR IN OTHER THAN NEW CONDITION WILL BE REJECTED AS DEFECTIVE.

E. LEAVE THE SITE CLEAN, REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK.

F. REFER TO OTHER PLANS FOR EXACT LOCATION OF EQUIPMENT AND ARCHITECTURAL FEATURES.

G. REFER TO SPECIFICATIONS FOR ADDITIONAL PROJECT REQUIREMENTS.

H. TYPICAL DETAILS APPLY IN ALL CASES WHETHER SPECIFICALLY REFERRED TO OR NOT.

ABBREVIATIONS

2S	TWO SPEED	LIT	LEVEL INDICATING TRANSMITTER
AI	ANALOG INPUT	MBJ	MAIN BONDING JUMPER
AFF	ABOVE FINISHED FLOOR	MCC	MOTOR CONTROL CENTER
AFG	ABOVE FINISHED GRADE	MLO	MAIN LUG ONLY
AO	ANALOG OUTPUT	MFR	MANUFACTURER
APS	ARIZONA PUBLIC SERVICE	MIN	MINIMUM
ATS	AUTOMATIC TRANSFER SWITCH	MTS	MANUAL TRANSFER SWITCH
C	CONDUIT	NPW	NON-POTABLE WATER
CB	CIRCUIT BREAKER	NTS	NOT TO SCALE
CKT	CIRCUIT	PIT	PRESSURE INDICATING TRANSMITTER
CMU	CONCRETE MASONRY UNIT	PLC	PROGRAMMABLE LOGIC CONTROLLER
COM	COMMON	PNL	PANELBOARD
CPT	CONTROL POWER TRANSFORMER	PQM	POWER QUALITY METER
Cu	COPPER	PR	PAIR
DIST	DISTRIBUTION	PW	POTABLE WATER
DI	DISCRETE INPUT	REQ'TS	REQUIREMENTS
DO	DISCRETE OUTPUT	RTU	REMOTE TERMINAL UNIT
DWG	DRAWING	RVNR	REDUCED VOLTAGE NON-REVERSING
EX	EXISTING	RW	RAW WATER
FIT	FLOW INDICATING TRANSMITTER	SES	SERVICE ENTRANCE SECTION
FS	FUSE	SPC	SPARE CONDUIT
FVNR	FULL VOLTAGE NON-REVERSING	STT	SHIELDED TWISTED TRIAD
FVR	FULL VOLTAGE REVERSING	SWBD	SWITCHBOARD
GEC	GROUNDING ELECTRODE CONDUCTOR	TELCO	TELEPHONE COMPANY
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TSP	TWISTED SHIELDED PAIR
GFI	GROUND FAULT INDICATOR	TST	TWISTED SHIELDED TRIAD
GFP	GROUND FAULT PROTECTION	TTB	TELEPHONE TERMINAL BOARD
GND	GROUND	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
GRS	GALVANIZED RIGID STEEL	TYP	TYPICAL
INST	INSTRUMENT	UG	UNDERGROUND
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT	VFD	VARIABLE FREQUENCY DRIVE
		WP	WEATHERPROOF

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39548
ZANE E. WILSTERMAN
6-15-06
ARIZONA U.S.A.

NO.	DATE	DES'D	DWN	REVISION DESCRIPTION

PN: CH-7311-SD | DESIGNED BY: ZEW
DATE: JUNE 15, 2006 | DRAWN BY: CS
 | CHECKED BY: DAR

CITY OF AVONDALE
4th STREET LIFT STATION MODIFICATIONS

ELECTRICAL COVER SHEET

0 — 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

SHEET NO. E-1

KEYED NOTES

1. DISCONNECT AND REMOVE EXISTING DISCONNECT SWITCH, TRANSFORMER, PANELBOARD, CONDUCTORS AND EXPOSED CONDUITS. PATCH WALL PENETRATIONS WITH FIRE-SEAL OR GROUT TO PROVIDE AIR-TIGHT SEAL. SALVAGE EQUIPMENT AND DELIVER TO WWTP.
2. AFTER TEMPORARY BYPASS PUMPING IS OPERATIONAL, REMOVE EXISTING DISCONNECT SWITCHES, SEAL WATER SOLENOID VALVES, AND HOA CONTROL STATIONS. DISCONNECT AND REMOVE EXISTING CONDUCTORS TO PUMPS, VFD'S, AND MCC. CUT CONDUITS FLUSH WITH FLOOR AND FILL WITH CONCRETE SLURRY.
3. DISCONNECT AND REMOVE BUBBLER LEVEL CONTROL PANEL, BUBBLER TUBE AND ALL WIRING BACK TO SOURCE. PRESERVE PRESSURE TRANSMITTER, AIR COMPRESSOR, POWER SUPPLY, TERMINAL BLOCKS AND TYSS UNIT FOR RELOCATION TO NEW ENCLOSURE ON PUMP STATION EXTERIOR WALL.
4. DISCONNECT AND REMOVE EXISTING ULTRASONIC LEVEL ELEMENT, JUNCTION BOX, TRANSMITTER/INDICATOR, AND ASSOCIATED CONDUIT AND CONDUCTORS. SALVAGE EQUIPMENT AND DELIVER TO WWTP.
5. EXISTING HIGH AND LOW LEVEL ALARM FLOATS TO BE DISCONNECTED AND RELOCATED.
6. EXISTING GROUND ROD WELL TO BE RELOCATED. INSTALL NEW 3/4" x 10' COPPER CLAD GROUND ROD AND CONNECT TO EXISTING GROUNDING ELECTRODE CONDUCTOR BY EXOTHERMIC WELD. EXTEND EXISTING CONDUCTOR AS REQUIRED.
7. DEMOLISH EXISTING CONCRETE PAD AND REPLACE WITH NEW AFTER CONDUIT INSTALLATION.
8. RAISE EXISTING GROUND ROD WELL TO BE FLUSH WITH NEW CONCRETE WALKWAY AROUND WETWELL.

Plot full size

Saved: Jun 14, 2006 File: 04123-E2.dwg

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN
	REVISION DESCRIPTION		

PN: CH-7311-SD | DESIGNED BY: ZEW
DATE: JUNE 15, 2006 | DRAWN BY: CS
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CITY OF AVONDALE
4th STREET LIFT STATION MODIFICATIONS
ELECTRICAL DEMOLITION PLAN

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Registered Professional Engineer
CERTIFICATE NO.
39548
ZANE E. WILSTERMAN
6-15-06
ARIZONA U.S.A.

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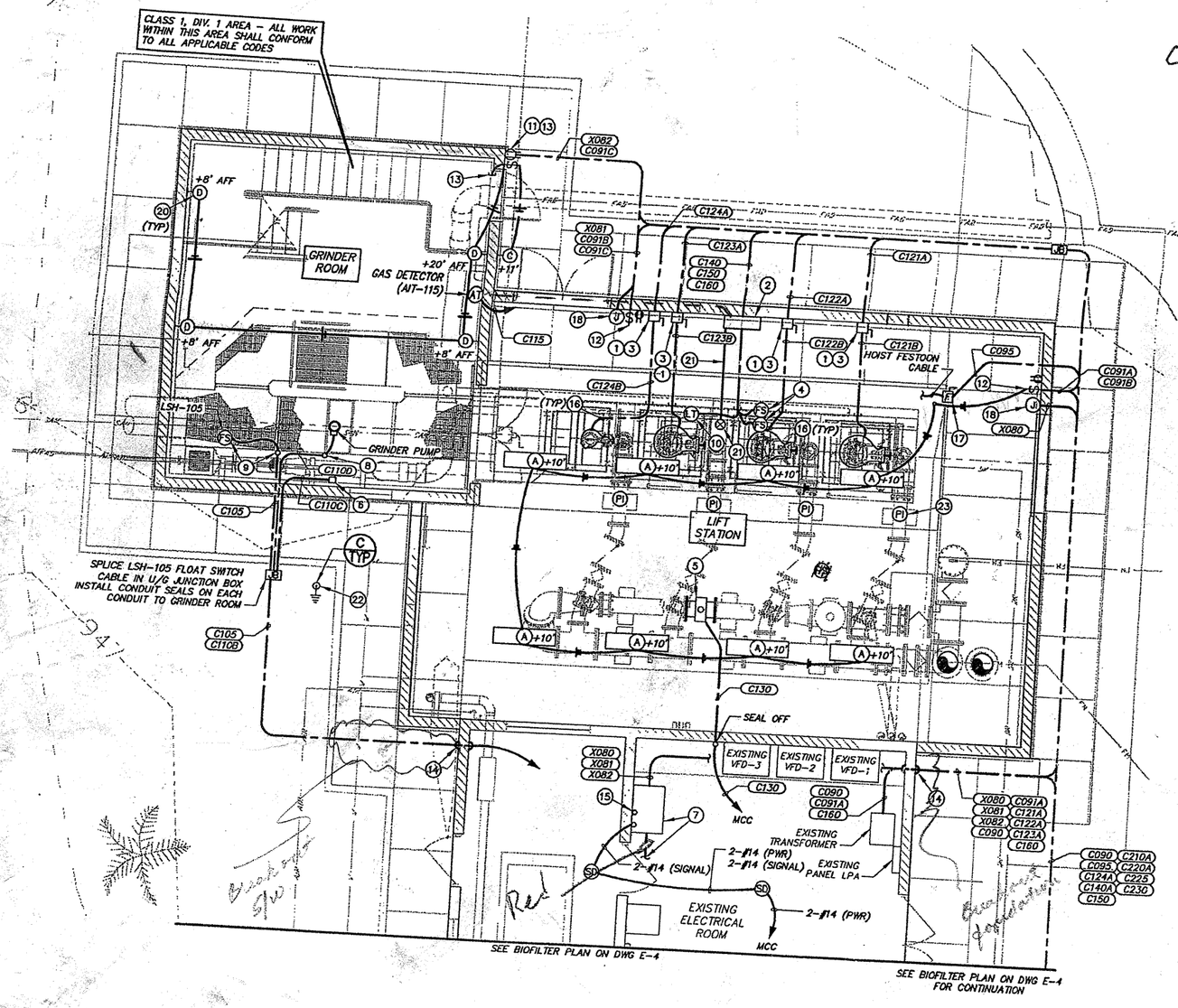
SHEET NO.
E-2

956-83 TOB monorail 955-83

5-6



GENERAL NOTES

A. ALL WORK WITHIN GRINDER ROOM AND WETWELL IS CLASSIFIED AS A CLASS 1, DIVISION 1 AREA AND SHALL CONFORM TO APPLICABLE CODES.

B. ALL EXPOSED CONDUIT IN GRINDER ROOM SHALL BE PVC COATED RIGID STEEL.

C. FOR CLARITY, ALL CONDUIT IS NOT SHOWN. REFER TO SHEET E-8 FOR CONDUIT AND CONDUCTOR SCHEDULE.

D. REFER TO SHEET E-1 FOR LUMINAIRE SCHEDULE.

KEYED NOTES

1. INSTALL PUMP DISCONNECT SWITCH AT +3' AFF. STUBUP PVC COATED GRS CONDUITS (C121B, C122B, C123C OR C124C) BELOW DISCONNECT SWITCH TO 4" AFF. EXTEND SUBMERSIBLE CABLES INTO BOTTOM OF DISCONNECT SWITCH AND INSTALL "CGB" TYPE FITTING(S). SUPPORT CABLE(S) WITH KELLUM GRIP(S).
2. INSTALL A 24"x24"x8" NEMA 4X STAINLESS STEEL ENCLOSURE (LEVEL CONTROL PANEL) WITH BACKPANEL FOR RELOCATED BUBBLER COMPONENTS, TERMINAL BLOCKS AND SUBMERSIBLE LEVEL TRANSDUCER DESSICANT BOX. STUBUP (3) 1" PVC COATED GRS CONDUITS FOR THE FLOAT SWITCH CABLES AND THE LEVEL TRANSDUCER CABLE AT +4" AFF. INSTALL SUBMERSIBLE LEVEL TRANSDUCER, FLOAT SWITCH AND CABLES IN CONDUITS TO WETWELL. EXTEND CABLES INTO BOTTOM OF ENCLOSURE AND INSTALL "CGB" TYPE FITTINGS, SUPPORT CABLES WITH KELLUM GRIPS. RECALIBRATE PRESSURE TRANSMITTER FOR BUBBLER AFTER INSTALLATION IS COMPLETE.
3. INSTALL HAND-OFF-AUTO SELECTOR SWITCH AND PILOT LIGHT IN "FD" TYPE BOX ON WALL NEXT TO DISCONNECT SWITCH. EXTEND 8-#14, #14 GND, 3/4"C FROM U/G JUNCTION BOX TO LOCAL CONTROL STATION.
4. RELOCATED HIGH AND LOW LEVEL ALARM FLOATS. INSTALL 1" SCHEDULE 80 PVC PIPE FASTENED TO WETWELL WALL WITH STAINLESS STEEL STANDOFFS ANCHORED TO WETWELL WALL AT 5' INTERVALS WITH 1/4" STAINLESS STEEL CONCRETE ANCHORS.
5. MAGNETIC FLOWMETER WITH INTEGRAL TRANSMITTER (FE/FIT-130). INSTALL CONDUIT C130 OVERHEAD TO EXISTING PLC/CONTROL SECTION OF MCC IN ELECTRICAL ROOM.
6. FORWARD-STOP-REVERSE GRINDER PUMP CONTROL STATION AND EMERGENCY STOP, MUSHROOM-HEAD PUSHBUTTON CONTROL STATION IN EXPLOSIONPROOF BOX PROVIDED WITH GRINDER. INSTALL ON WALL AT +42" AFF. PROVIDE CONDUIT SEAL-OFF.
7. EXISTING FREESTANDING ENCLOSURE TO BE UTILIZED FOR COMMUNICATIONS EQUIPMENT. REFER TO SPECIFICATION SECTION 17500 FOR FURTHER INFORMATION. INSTALL ETHERNET CABLE FROM COMMUNICATION EQUIPMENT TO PLC IN EXISTING EMPTY CONDUIT. COIL 10' OF 2-#14 SIGNAL CONDUIT CONDUCTORS FROM SMOKE DETECTOR FOR FUTURE CONNECTION TO SECURITY SYSTEM EQUIPMENT.
8. STUBUP CONDUIT FROM CONCRETE FLOOR NEXT TO FLOW CHANNEL. INSTALL EXPLOSION-PROOF FLEXIBLE CONDUIT TO GRINDER MOTOR.
9. STUBOUT PVC COATED RIGID STEEL CONDUIT INTO FLOW CHANNEL 4-INCHES BELOW FINISHED FLOOR FOR FLOAT SWITCH CABLE. ATTACH 1" STAINLESS STEEL PIPE TO CHANNEL WALL FOR ATTACHING FLOAT SWITCH.
10. SUBMERSIBLE LEVEL TRANSDUCER (LT-150)
11. INSTALL 120V, 20A GFCI RECEPTACLE AND 120V, 20A, SPST LIGHT SWITCH IN FLUSH MOUNTED 2-GANG BOX WITH WP COVER AT +42" AFG.
12. INSTALL 120V, 20A GFCI RECEPTACLE AND 120V, 20A, 3-WAY LIGHT SWITCH IN FLUSH MOUNTED 2-GANG BOX WITH WP COVER AT +42" AFG.
13. STUBOUT AND CAP CONDUIT ABOVE DOOR FRAME FOR FUTURE SECURITY. INSTALL 1/2" CONDUIT CONCEALED IN WALL TO A FLUSH MOUNTED JUNCTION BOX MOUNTED AT +42" NEXT TO LIGHT SWITCH FOR FUTURE CARD READER ON EXTERIOR OF BLDG. TERMINATE SPARE CONDUIT FROM ELECTRICAL ROOM IN JUNCTION BOX FOR FUTURE CARD READER.
14. STUBUP CONDUITS AND PENETRATE EXISTING CMU BLOCK WALL AT 12-INCHES ABOVE GRADE USING LB'S. UTILIZE LB'S ON INSIDE TO EXTEND CONDUITS UP WALL AND OVERHEAD TO ELECTRICAL EQUIPMENT. PROVIDE PROPER SUPPORTS FOR CONDUITS ON INTERIOR WALLS AND CEILING. ALL EXPOSED CONDUIT SHALL BE GALVANIZED RIGID STEEL. PATCH WALL PENETRATION WITH GROUT.
15. REPLACE EXISTING 1" CONDUIT TO ANTENNA ON ROOF WITH A NEW 2" RIGID STEEL CONDUIT. PROVIDE LARGER ROOF PENETRATION AND FLASHING FOR 2" CONDUIT. EXTEND CONDUIT ABOVE ROOF TO HEIGHT AS RECOMMENDED BY COMMUNICATION SYSTEM INSTALLER (APPROX 5-FEET). NEW ANTENNA AND CABLE SHALL BE INSTALLED BY COMMUNICATION SYSTEM INSTALLER.
16. SUBMERSIBLE CABLE(S)
17. FUSED DISCONNECT SWITCH MOUNTED AT +36" AFF FOR MOTORIZED HOIST.
18. STUBOUT AT +36" AFF AND INSTALL "FD" TYPE BOX WITH BLANK COVER FOR FUTURE SECURITY.
19. INSTALL SMOKE DETECTOR ON CEILING WITH SURFACE MOUNTED BOX.
20. INSTALL SEAL-OFF IN CONDUIT AT EACH LUMINAIRE.
21. INSTALL 3/8" STAINLESS STEEL TUBING FROM LEVEL CONTROL PANEL TO WETWELL SURFACE MOUNTED ON TOP OF CONCRETE. FASTEN TO WALL AND CONCRETE SLAB WITH 2-HOLE STAINLESS STEEL STRAPS. CORE DRILL OR PROVIDE SLEEVE FOR 3/4" HOLE IN TOP CONCRETE SLAB FOR BUBBLER TUBE PENETRATION. PROVIDE "T" FITTING IN TUBING WITH PLUG IN ONE SIDE OF "T". EXTEND TUBING TO 12" FROM BOTTOM OF WETWELL. PROVIDED TWO STAINLESS STEEL STANDOFFS ON WETWELL WALL TO SUPPORT TUBING IN WETWELL.
22. RELOCATE GROUND ROD WELL. INSTALL 3/4" X 10' COPPERCLAD GROUND ROD AND EXOTHERMIC WELD TO GROUNDING ELECTRODE CONDUCTOR EXTENDED TO GROUND ROD. REFER TO KEYED NOTE 8 ON SHEET E-2 FOR ADDITIONAL INFORMATION.
23. INSTALL PRESSURE GAUGE WITH DIAPHRAM SEAL ON DISCHARGE PIPE OF EACH SUBMERSIBLE PUMP.

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DESD	REVISION DESCRIPTION

DESIGNED BY: ZEW
DRAWN BY: CS
CHECKED BY: DAR
DATE: JUNE 15, 2006
PH: CH-7311-SD

CITY OF AVONDALE
4th STREET LIFT STATION MODIFICATIONS
"T" STATION LIGHTING & POWER PLAN

Registered Professional Engineer Certificate No. 39548 ZANE E. WILSTERMAN 6-15-06 Arizona U.S.A.

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PRS

KEYED NOTES

1. INSTALL ODOR CONTROL BLOWER MOTOR STARTER ON CMU BLOCK WALL AT +36" AFG.
2. INSTALL WALL MOUNTED AREA LIGHT ON FLUSH MOUNTED JUNCTION BOX NEAR TOP OF CMU BLOCK WALL. INSTALL CONDUIT CONCEALED IN BLOCK WALL.
3. INSTALL 120V, 20A GFCI RECEPTACLE IN SURFACE MOUNTED TYPE "FD" BOX ON CMU WALL AT +18" AFG. EXTEND 2-#12, #12 GND, 3/4"C FROM RECEPTACLE TO 120V, 20A LIGHT SWITCH INSTALLED IN AN "FD" TYPE BOX AT +42" AFG. PROVIDE WP COVER FOR RECEPTACLE AND LIGHT SWITCH.
4. EXISTING GROUND ROD AND WELL TO REMAIN.
5. STUBUP CONDUITS AND PENETRATE EXISTING CMU BLOCK WALL AT 12-INCHES ABOVE GRADE USING LB'S. UTILIZE LB'S ON INSIDE TO EXTEND CONDUITS UP WALL AND OVERHEAD TO ELECTRICAL EQUIPMENT. PROVIDE PROPER SUPPORTS FOR CONDUITS ON INTERIOR WALLS AND CEILING. ALL EXPOSED CONDUIT IT SHALL BE GALVANIZED RIGID STEEL. PATCH WALL PENETRATIONS WITH GROUT.
6. INSTALL NEW CONCRETE PAD TO MATCH EXISTING PAD BEING DEMOLISHED.
7. PENETRATE INTERIOR CMU BLOCK WALL NEAR CEILING AND ENTER TOP OF EXISTING MCC OR PANELBOARD WITH CONDUIT. PATCH WALL PENETRATIONS WITH GROUT.
8. INSTALL PACKAGED GRINDER PUMP CONTROL PANEL ON WALL AT +36" AFF.
9. INSTALL FEED-THROUGH AND FUSED TERMINAL BLOCKS IN EXISTING CONTROL SECTION OF MCC. CONNECT TO EXISTING 24VDC POWER SUPPLY AND EXTEND 2-#12 CONDUCTORS IN CONDUIT C235 TO POWER H2S GAS DETECTOR.

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN	REVISION DESCRIPTION

PM: CH-7311-SD | DESIGNED BY: ZEW
DATE: JUNE 15, 2006 | DRAWN BY: CS
 | CHECKED BY: DAR

CITY OF AVONDALE
4th STREET LIFT STATION MODIFICATIONS
BIOFILTER LIGHTING AND POWER PLAN

DARcor
11811 N. TATUM BLVD
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Ph: (602) 795-2699
Fax: (602) 795-2647

Registered Professional Engineer (Retired) CERTIFICATE NO. 39548 ZANE E. WILSTERMAN 6-13-08 ARIZONA, U.S.A.

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

SHEET NO. E-4

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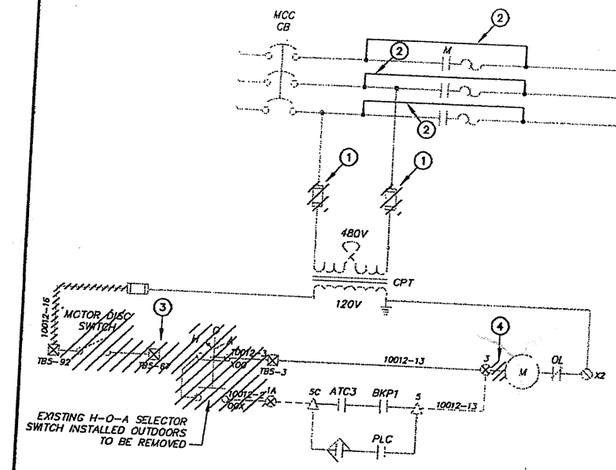
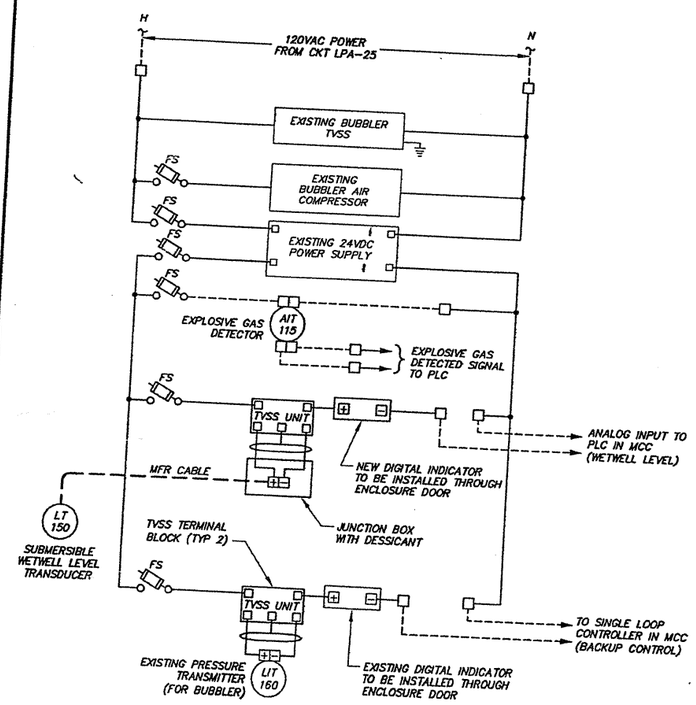
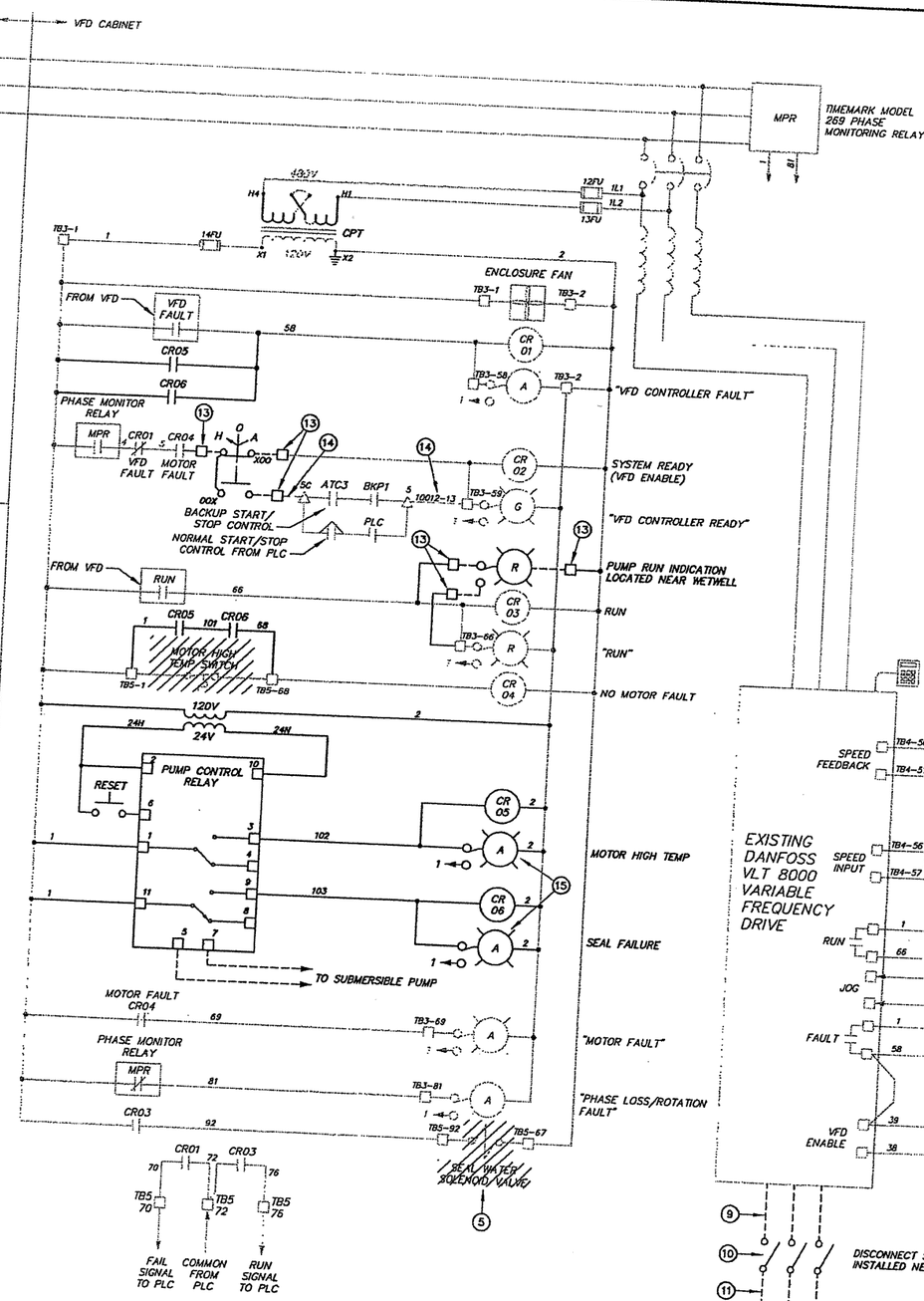


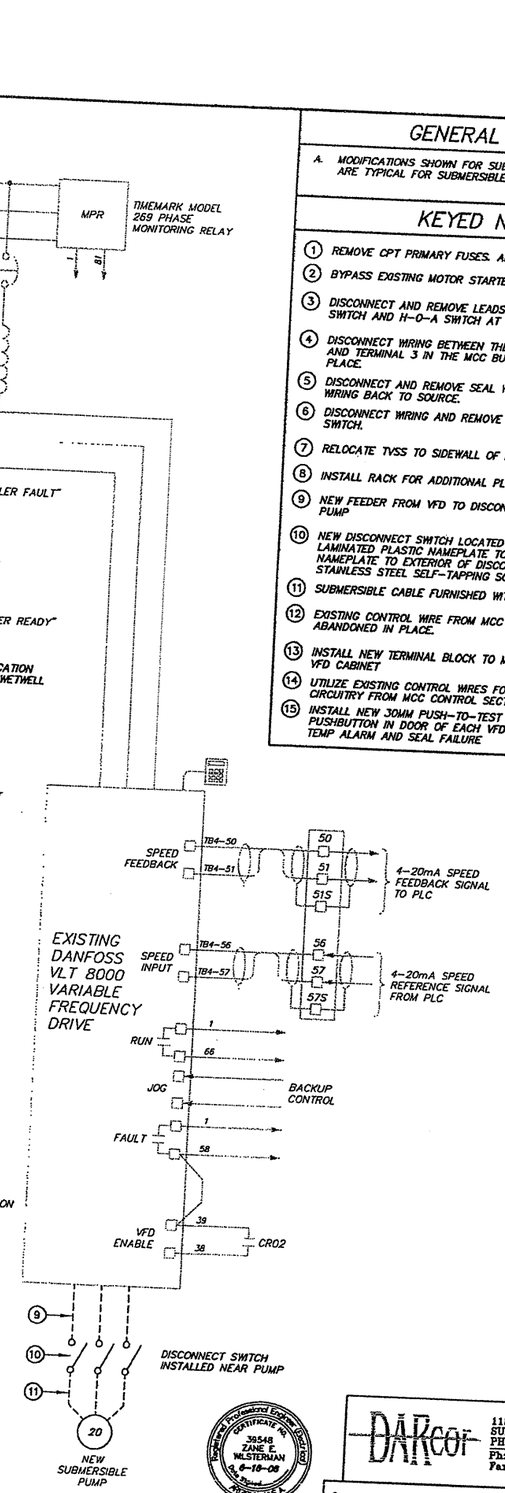


LEVEL CONTROL CABINET SCHEMATIC DIAGRAM



EXISTING SUBMERSIBLE PUMP 3 CONTROL SCHEMATIC MODIFICATIONS

(TYPICAL FOR PUMPS 1, 2 & 3)



GENERAL NOTES

A. MODIFICATIONS SHOWN FOR SUBMERSIBLE PUMP 3 CONTROLS ARE TYPICAL FOR SUBMERSIBLE PUMP 1 AND 2.

KEYED NOTES

1. REMOVE CPT PRIMARY FUSES. ABANDON CPT IN PLACE.
2. BYPASS EXISTING MOTOR STARTER AND OVERLOAD RELAY.
3. DISCONNECT AND REMOVE LEADS FROM MOTOR DISCONNECT SWITCH AND H-O-A SWITCH AT VFD.
4. DISCONNECT WIRING BETWEEN THE CONTACTOR OPERATING COIL AND TERMINAL 3 IN THE MCC BUCKET. ABANDON CONTACTER IN PLACE.
5. DISCONNECT AND REMOVE SEAL WATER SOLENOID VALVE AND WIRING BACK TO SOURCE.
6. DISCONNECT WIRING AND REMOVE MOTOR HIGH TEMPERATURE SWITCH.
7. RELOCATE TVSS TO SIDEWALL OF PLC SECTION.
8. INSTALL RACK FOR ADDITIONAL PLC I/O MODULES.
9. NEW FEEDER FROM VFD TO DISCONNECT SWITCH LOCATED NEAR PUMP
10. NEW DISCONNECT SWITCH LOCATED NEAR PUMP. FURNISH WITH LAMINATED PLASTIC NAMEPLATE TO IDENTIFY PUMP. FASTEN NAMEPLATE TO EXTERIOR OF DISCONNECT SWITCH WITH STAINLESS STEEL SELF-TAPPING SCREWS.
11. SUBMERSIBLE CABLE FURNISHED WITH NEW PUMP
12. EXISTING CONTROL WIRE FROM MCC BUCKET TO VFD TO BE ABANDONED IN PLACE.
13. INSTALL NEW TERMINAL BLOCK TO MATCH EXISTING IN EXISTING VFD CABINET
14. UTILIZE EXISTING CONTROL WIRES FOR START/STOP CONTROL CIRCUITRY FROM MCC CONTROL SECTION.
15. INSTALL NEW 30MM PUSH-TO-TEST PILOT LIGHTS AND RESET PUSHBUTTON IN DOOR OF EACH VFD CABINET FOR MOTOR HIGH TEMP ALARM AND SEAL FAILURE

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

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DRAWN BY: CS
CHECKED BY: DAR
PM: CH-7311-SD
DATE: JUNE 15, 2006

CITY OF AVONDALE
4th STREET LIFT STATION MODIFICATIONS
SCHEMATIC DIAGRAMS

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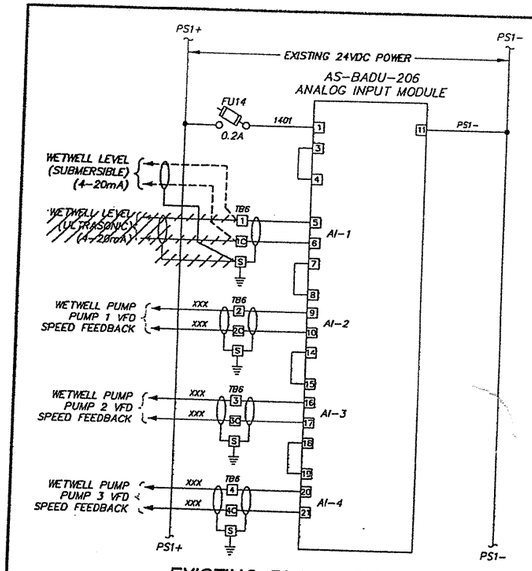
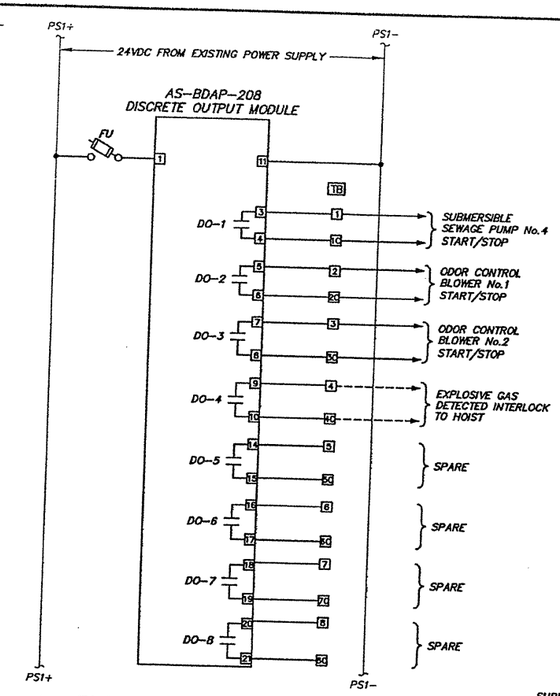


EXISTING PLC RACK 2 SLOT 2



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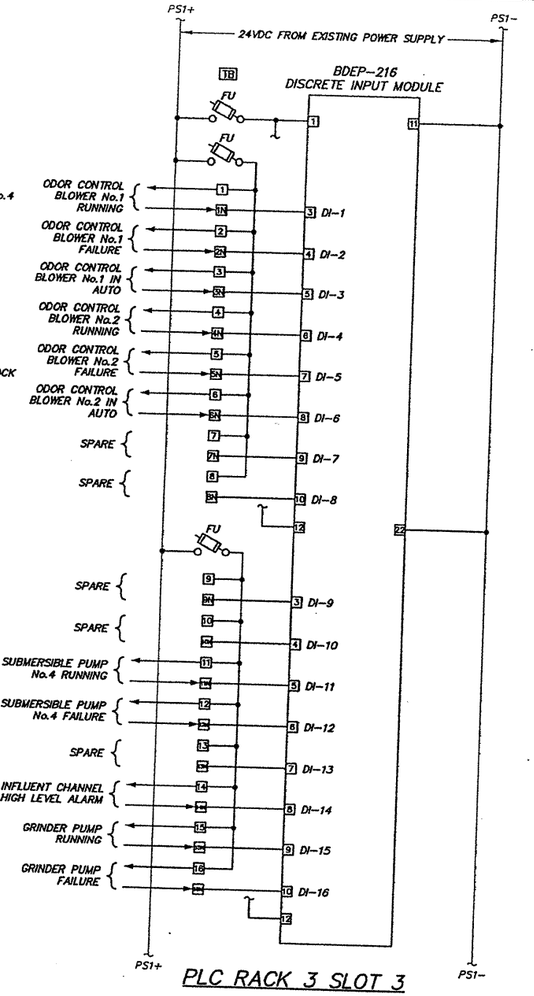

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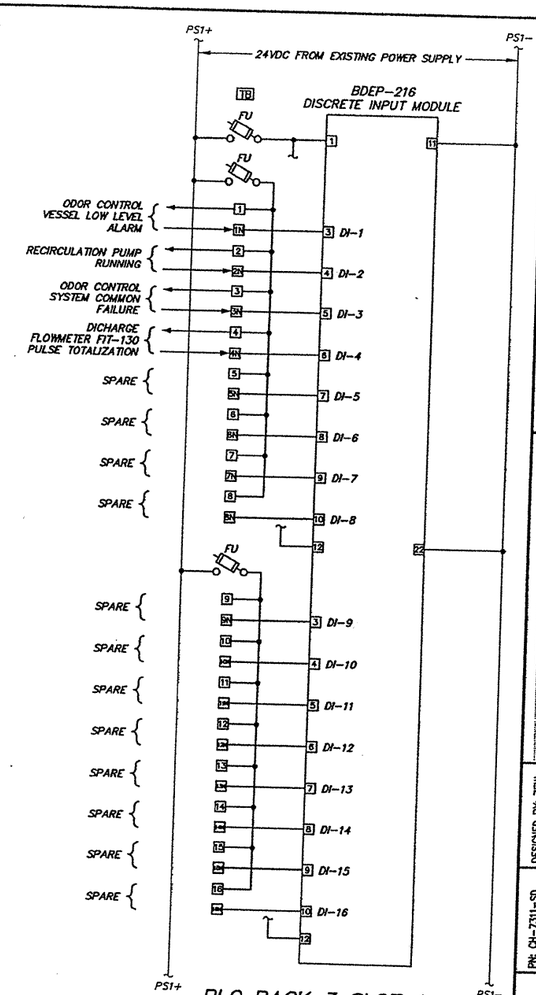

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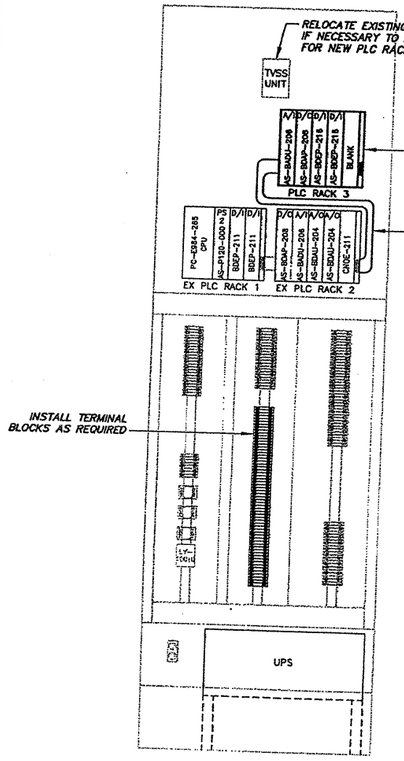
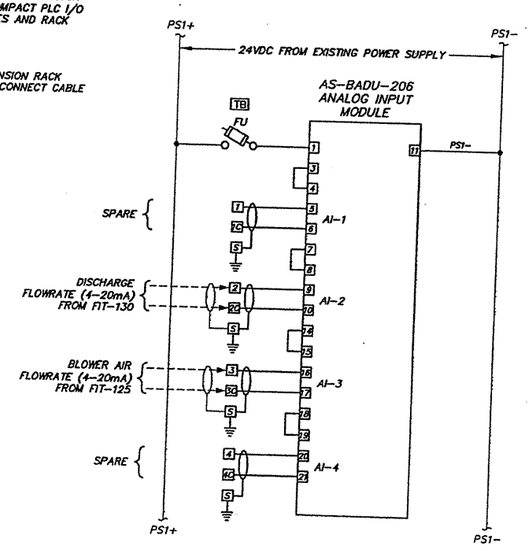
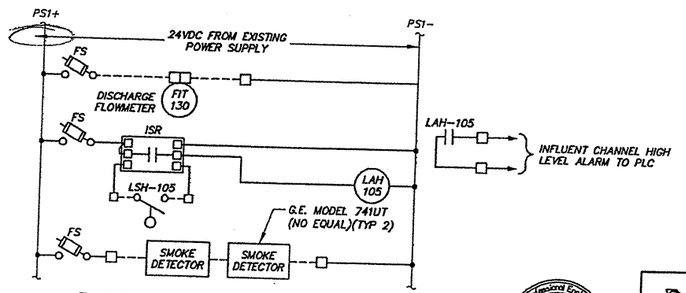


MCC/PLC CONTROL SECTION INTERIOR ELEVATION

NTS



PLC RACK 3 SLOT 1



PARTIAL MCC/PLC CONTROL SECTION SCHEMATIC DIAGRAM

Saved: Jun 16, 2006 File: 04123-E7.dwg

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	D'WN

REVISION DESCRIPTION

DESIGNED BY: ZEW
DRAWN BY: CS
CHECKED BY: DAR
DATE: JUNE 15, 2006
PN: CH-7311-50
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CITY OF AVONDALE
4th STREET LIFT STATION MODIFICATIONS

PLC SCHEMATIC DIAGRAM

SHEET NO.
E-7

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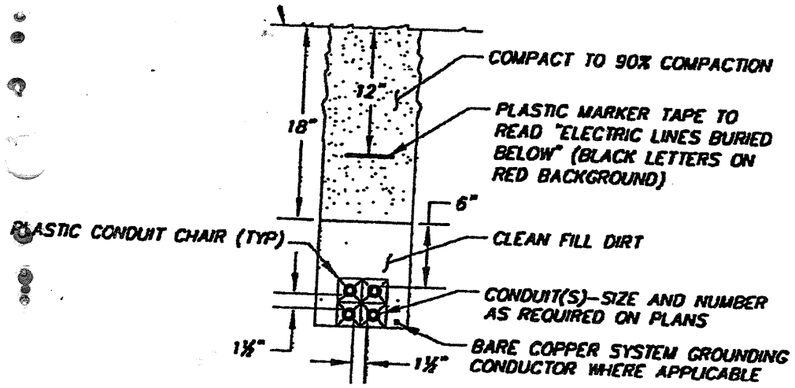

NOTES:

1. ALL DIMENSIONS INDICATED ABOVE ARE MINIMUM.
2. SPARE CONDUITS MUST BE LOCATED ON TOP OF DUCTBANKS.
3. THIS DETAIL APPLIES IN ALL CASES WHETHER SPECIFICALLY REFERRED TO OR NOT.

B TYP TYPICAL UNDERGROUND CONDUIT DETAIL

NTS

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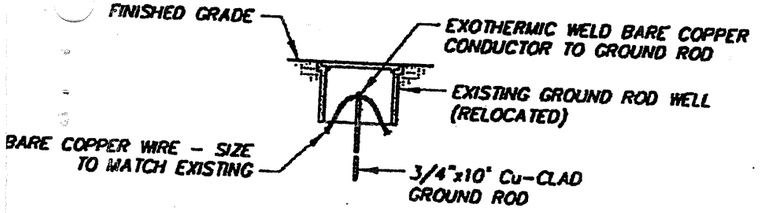
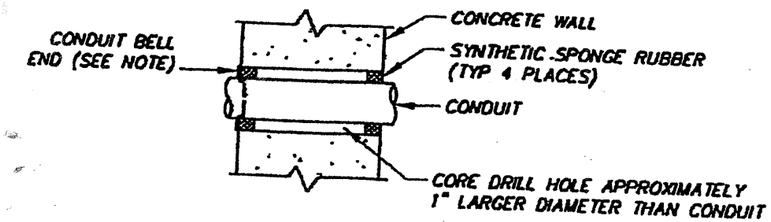


TYPICAL GROUND ROD AND WELL DETAIL

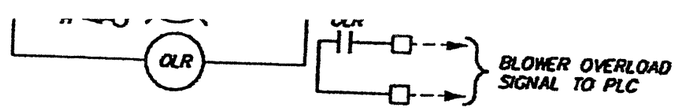
NTS



NOTE: THIS DETAIL IS TYPICAL FOR ALL WETWELL OR FLOW CHANNEL WALL PENETRATIONS

TYPICAL CONCRETE WALL PENETRATION DETAIL

NTS



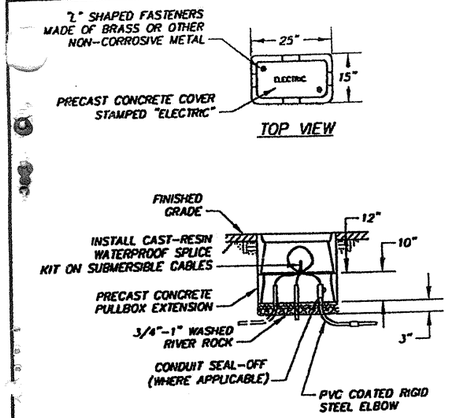
TYPICAL ODOR CONTROL BLOWER MOTOR CONTROL SCHEMATIC

(TYPICAL FOR 2)

CONDUIT & CONDUCTOR SCHEDULE

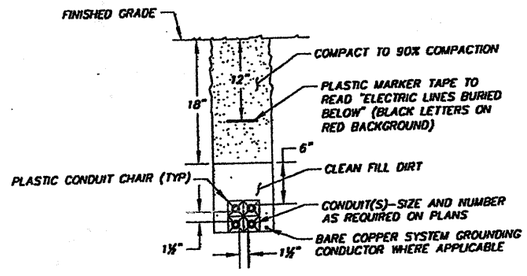
CONDUIT		CONDUCTORS			ROUTING INFORMATION		
TAG	SIZE	POWER	CTRL	GND		TO	REMARKS
X080	3/4"	PULL STRING			EXISTING COMMS EQUIPMENT CABINET	SWITCH/RECEPT ON S WALL OF LIFT STATION	SPARE CONDUIT FOR FUTURE SECURITY
X081	3/4"	PULL STRING			EXISTING COMMS EQUIPMENT CABINET	SWITCH/RECEPT ON E WALL OF LIFT STATION	SPARE CONDUIT FOR FUTURE SECURITY
X082	3/4"	PULL STRING			EXISTING COMMS EQUIPMENT CABINET	SWITCH/RECEPT ON S WALL OF GRINDER RM	SPARE CONDUIT FOR FUTURE SECURITY
C090	3/4"	2-#12		#12	EXISTING PANEL "LPA"	BIOFILTER LIGHTING & RECEPTACLES	CKT LPA-23
C091A	3/4"	3-#12, #12 N		#12	EXISTING PANEL "LPA"	SWITCH/RECEPT ON S WALL OF LIFT STATION	CKT's LPA-27, LPA-29 & LPA-31
C091B	3/4"	5-#12, #12 N		#12	SWITCH/RECEPT ON S WALL OF WETWELL RM	SWITCH/RECEPT ON E WALL OF LIFT STATION	CKT's LPA 27 & LPA-29 AND 3-TRAVELLERS
C091C	3/4"	2-#12, #12 N		#12	SWITCH/RECEPT ON E WALL OF PUMP RM	SWITCH/RECEPT ON S WALL OF GRINDER RM	CKT's LPA 27 & LPA-29
C095	1"	3-#12	2-#14	#12	EXISTING MOTOR CONTROL CENTER (MCC-A)	HOIST DISCONNECT SWITCH	POWER AND INTERLOCK
C105	3/4"		2-#14	#14	CONTROL SECTION IN EXISTING MCC	INFLUENT CHANNEL HIGH LEVEL FLOAT	LSH-105
C110A	1"	3-#12	4-#14	#12	EXISTING MOTOR CONTROL CENTER (MCC-A)	PKG'D GRINDER PUMP CONTROL PANEL	POWER AND RUN & FAIL SIGNALS
C110B	1"	3-#12	8-#14	#12	PKG'D GRINDER PUMP CONTROL PANEL	GRINDER PUMP	POWER AND SIGNALS
C110C	3/4"		6-#14	#14	UNDERGROUND JUNCTION BOX	GRINDER PUMP CONTROL STATION	
C110D	3/4"	2-#12	2-#14	#12	UNDERGROUND JUNCTION BOX	GRINDER PUMP	POWER & MOTOR TEMP SWITCH
C115	3/4"	2-#12	2-#14	#12	LEVEL CONTROL PANEL	EXPLOSIVE GAS DETECTOR IN GRINDER ROOM	POWER AND EXPLOSIVE GAS DETECTED SIGNAL
C121A	1½"	3-#8	10-#14	#10	SUBMERSIBLE PUMP No.1 VFD	SUBMERSIBLE PUMP No.1 DISCONNECT SWITCH	
C121B	1½"	SUBM PUMP CABLE			SUBMERSIBLE PUMP No.1 DISCONNECT SWITCH	SUBMERSIBLE PUMP No.1	
C122A	1½"	3-#8	10-#14	#10	SUBMERSIBLE PUMP No.2 VFD	SUBMERSIBLE PUMP No.2 DISCONNECT SWITCH	POWER & TSH/CSH SIGNALS
C122B	1½"	SUBM PUMP CABLE			SUBMERSIBLE PUMP No.2 JUNCTION BOX	SUBMERSIBLE PUMP No.2	
C123A	1½"	3-#8	10-#14	#10	SUBMERSIBLE PUMP No.3 VFD	SUBMERSIBLE PUMP No.3 DISCONNECT SWITCH	POWER & TSH/CSH SIGNALS
C123B	1½"	SUBM PUMP CABLE			SUBMERSIBLE PUMP No.3 JUNCTION BOX	SUBMERSIBLE PUMP No.3	
C124A	1½"	3-#8	10-#14	#10	SUBMERSIBLE PUMP No.4 STARTER	SUBMERSIBLE PUMP No.4 DISCONNECT SWITCH	POWER & TSH/CSH SIGNALS
C124B	1½"	SUBM PUMP CABLE			SUBMERSIBLE PUMP No.4 JUNCTION BOX	SUBMERSIBLE PUMP No.4	
C130	1"	2-TSP IC, 2-#14		#14	CONTROL SECTION IN EXISTING MCC	FLOW TRANSMITTER (FIT-130)	24VDC POWER & 4-20mA FLOWRATE & PULSE SIGNALS
C140	1"		6-#14	#14	CONTROL SECTION IN EXISTING MCC	LEVEL CONTROL PANEL	WETWELL LSLL-140, LSHH-141 & AHA-115 SIGNALS
C150	1"	2-TSP INST CABLES			CONTROL SECTION IN EXISTING MCC	LEVEL CONTROL PANEL	LIT-160 & LT-150 (SPLICE MFR CABLE IN DESSICANT BOX)
C160	1"	2-#12			EXISTING PANEL "LPA"	LEVEL CONTROL PANEL	CKT LPA-25
C210A	1"	3-#8	8-#14	#10	EXISTING MOTOR CONTROL CENTER (MCC-A)	FOUL AIR BLOWER No.1 STARTER	480V POWER (A8) AND PLC SIGNALS
C210B	1"	3-#10		#10	FOUL AIR BLOWER No.1 STARTER	FOUL AIR BLOWER No.1	
C210C	3/4"		4-#14	#14	FOUL AIR BLOWER STARTERS	PACKAGED ODOR CONTROL SYSTEM LCP	RECIRC PUMP RUNNING (INTERLOCK)
C220A	1"	3-#8	8-#14	#10	EXISTING MOTOR CONTROL CENTER (MCC-A)	FOUL AIR BLOWER No.2 STARTER	480V POWER (A9) AND PLC SIGNALS
C220B	1"	3-#10		#10	FOUL AIR BLOWER No.2 STARTER	FOUL AIR BLOWER No.2	
C225	3/4"	1-TSP INST CABLE			CONTROL SECTION IN EXISTING MCC	AIR FLOWMETER (FIT-225)	
C230	1"	3-#12	8-#14	#12	EXISTING MOTOR CONTROL CENTER (MCC-A)	PACKAGED ODOR CONTROL SYSTEM LCP	480V POWER (A10) AND PLC SIGNALS
X231	1"	PULLSTRING			EXISTING MOTOR CONTROL CENTER (MCC-A)	PKG'D ODOR CONTROL SYSTEM LCP	
X232	1"	PULLSTRING			EXISTING MOTOR CONTROL CENTER (MCC-A)	PKG'D ODOR CONTROL SYSTEM LCP	
X235	1"	PULLSTRING			CONTROL SECTION OF MCC-A	ODOR CONTROL AREA	FUTURE H2S GAS SENSOR

C231 3/4 8#14- H.O.A. To VFD & MCC.



A TYP — TYPICAL UNDERGROUND JUNCTION BOX DETAIL

NTS



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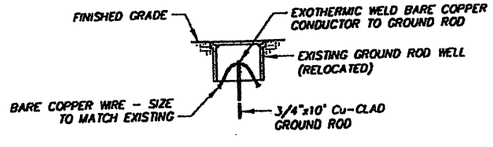
NTS



C TYP — TYPICAL GROUND ROD AND WELL DETAIL

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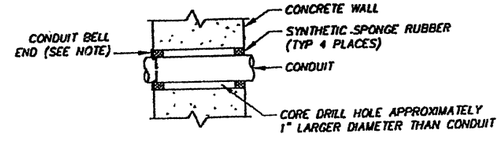

NOTE: THIS DETAIL IS TYPICAL FOR ALL WETWELL OR FLOW CHANNEL WALL PENETRATIONS

D TYP — TYPICAL CONCRETE WALL PENETRATION DETAIL

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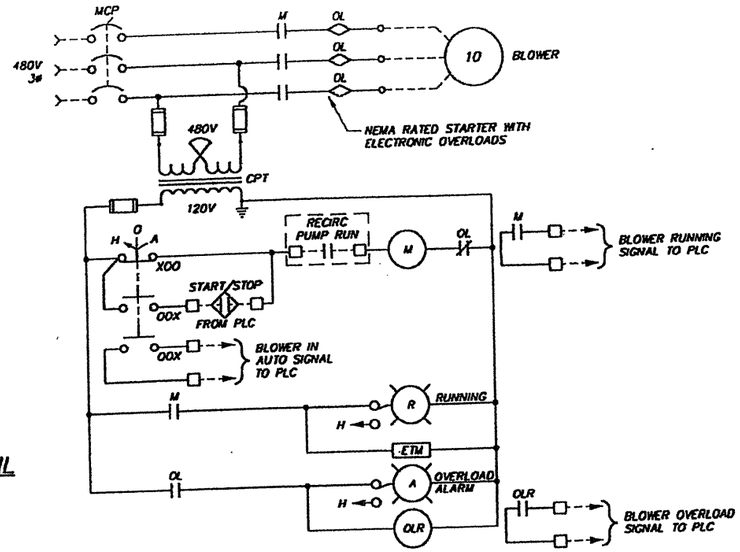


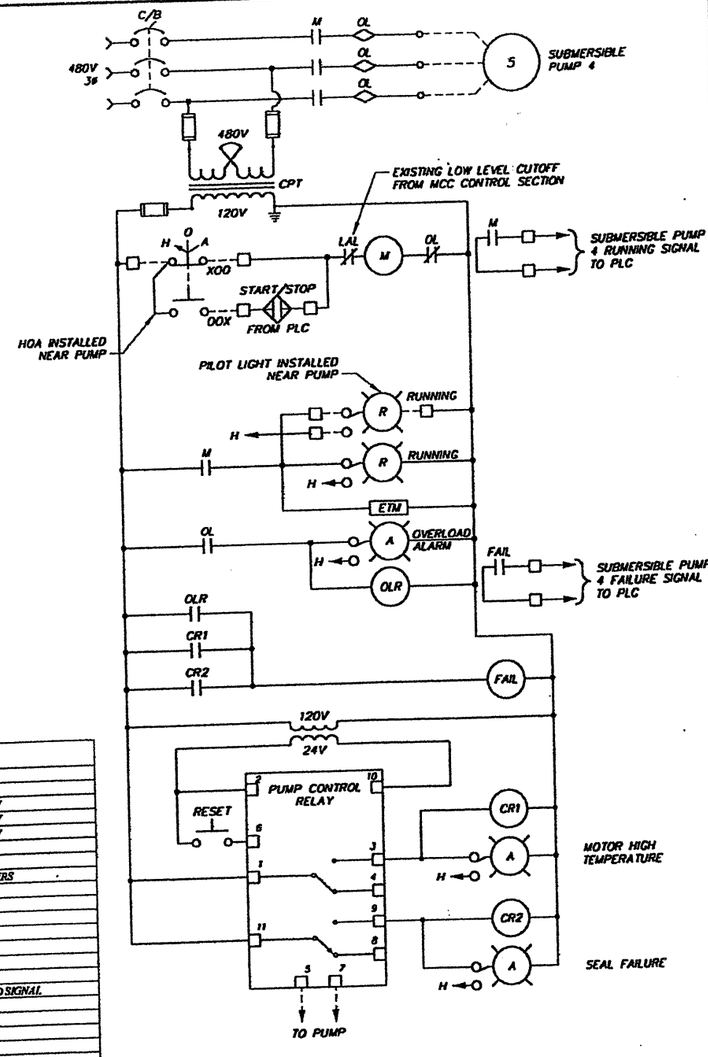
TYPICAL ODOR CONTROL BLOWER MOTOR CONTROL SCHEMATIC

(TYPICAL FOR 2)

CONDUIT & CONDUCTOR SCHEDULE

CONDUIT TAG	CONDUIT SIZE	CONDUCTORS POWER	CONDUCTORS CTRL	CONDUCTORS GND	ROUTING INFORMATION FROM	ROUTING INFORMATION TO	REMARKS
X080	3/4"	PULL STRING			EXISTING COMMS EQUIPMENT CABINET	SWITCH/RECEPT ON S WALL OF LIFT STATION	SPARE CONDUIT FOR FUTURE SECURITY
X081	3/4"	PULL STRING			EXISTING COMMS EQUIPMENT CABINET	SWITCH/RECEPT ON E WALL OF LIFT STATION	SPARE CONDUIT FOR FUTURE SECURITY
X082	3/4"	PULL STRING			EXISTING COMMS EQUIPMENT CABINET	SWITCH/RECEPT ON S WALL OF GRINDER RM	SPARE CONDUIT FOR FUTURE SECURITY
C090	3/4"	2-#12		#12	EXISTING PANEL "LPA"	BIOFILTER LIGHTING & RECEPTACLES	CKT LPA-23
C091A	3/4"	3-#12, #12 N		#12	EXISTING PANEL "LPA"	SWITCH/RECEPT ON S WALL OF LIFT STATION	CKT's LPA-27, LPA-29 & LPA-31
C091B	3/4"	3-#12, #12 N		#12	SWITCH/RECEPT ON E WALL OF PUMP RM	SWITCH/RECEPT ON E WALL OF LIFT STATION	CKT's LPA 27 & LPA-29 AND 3-TRAVELLERS
C091C	3/4"	2-#12, #12 N		#12	SWITCH/RECEPT ON S WALL OF GRINDER RM	SWITCH/RECEPT ON S WALL OF LIFT STATION	CKT's LPA 27 & LPA-29
C095	1"	3-#12	2-#14	#12	EXISTING MOTOR CONTROL CENTER (MCC-A)	HOIST DISCONNECT SWITCH	POWER AND INTERLOCK
C105	3/4"		2-#14	#14	CONTROL SECTION IN EXISTING MCC	INFLUENT CHANNEL HIGH LEVEL FLOAT	LSH-105
C110A	1"	3-#12	4-#14	#12	EXISTING MOTOR CONTROL CENTER (MCC-A)	PKG'D GRINDER PUMP CONTROL PANEL	POWER AND RUN & FAIL SIGNALS
C110B	1"	3-#12	8-#14	#12	PKG'D GRINDER PUMP CONTROL PANEL	GRINDER PUMP	POWER AND SIGNALS
C110C	3/4"		6-#14	#14	UNDERGROUND JUNCTION BOX	GRINDER PUMP CONTROL STATION	
C110D	3/4"	2-#12	2-#14	#12	UNDERGROUND JUNCTION BOX	GRINDER PUMP	POWER & MOTOR TEMP SWITCH
C115	3/4"	2-#12	2-#14	#12	LEVEL CONTROL PANEL	EXPLOSIVE GAS DETECTOR IN GRINDER ROOM	POWER AND EXPLOSIVE GAS DETECTED SIGNAL
C121A	1½"	3-#8	10-#14	#10	SUBMERSIBLE PUMP No.1 VFD	SUBMERSIBLE PUMP No.1 DISCONNECT SWITCH	
C121B	1½"	SUBM PUMP CABLE			SUBMERSIBLE PUMP No.1 DISCONNECT SWITCH	SUBMERSIBLE PUMP No.1	
C122A	1½"	3-#8	10-#14	#10	SUBMERSIBLE PUMP No.2 VFD	SUBMERSIBLE PUMP No.2 DISCONNECT SWITCH	POWER & TSH/CSH SIGNALS
C122B	1½"	SUBM PUMP CABLE			SUBMERSIBLE PUMP No.2 JUNCTION BOX	SUBMERSIBLE PUMP No.2	
C123A	1½"	3-#8	10-#14	#10	SUBMERSIBLE PUMP No.3 VFD	SUBMERSIBLE PUMP No.3 DISCONNECT SWITCH	POWER & TSH/CSH SIGNALS
C123B	1½"	SUBM PUMP CABLE			SUBMERSIBLE PUMP No.3 JUNCTION BOX	SUBMERSIBLE PUMP No.3	
C124A	1½"	3-#8	10-#14	#10	SUBMERSIBLE PUMP No.4 STARTER	SUBMERSIBLE PUMP No.4 DISCONNECT SWITCH	POWER & TSH/CSH SIGNALS
C124B	1½"	SUBM PUMP CABLE			SUBMERSIBLE PUMP No.4 JUNCTION BOX	SUBMERSIBLE PUMP No.4	
C130	1"	2-TSP IC, 2-#14		#14	CONTROL SECTION IN EXISTING MCC	FLOW TRANSMITTER (FIT-130)	24VDC POWER & 4-20mA FLOWRATE & PULSE SIGNALS
C140	1"		6-#14	#14	CONTROL SECTION IN EXISTING MCC	LEVEL CONTROL PANEL	WETWELL LSLL-140, LSHH-141 & AHA-115 SIGNALS
C150	1"	2-TSP INST CABLES			CONTROL SECTION IN EXISTING MCC	LEVEL CONTROL PANEL	LIT-160 & LT-150 (SPLICE MFR CABLE IN DESSICANT BOX)
C160	1"	2-#12			EXISTING PANEL "LPA"	LEVEL CONTROL PANEL	CKT LPA-25
C210A	1"	3-#8	8-#14	#10	EXISTING MOTOR CONTROL CENTER (MCC-A)	FOUL AIR BLOWER No.1 STARTER	480V POWER (A8) AND PLC SIGNALS
C210B	1"	3-#10		#10	FOUL AIR BLOWER No.1 STARTER	FOUL AIR BLOWER No.1	
C210C	3/4"		4-#14	#14	FOUL AIR BLOWER STARTERS	PACKAGED ODOR CONTROL SYSTEM LCP	RECIRC PUMP RUNNING (INTERLOCK)
C220A	1"	3-#8	8-#14	#10	EXISTING MOTOR CONTROL CENTER (MCC-A)	FOUL AIR BLOWER No.2 STARTER	480V POWER (A9) AND PLC SIGNALS
C220B	1"	3-#10		#10	FOUL AIR BLOWER No.2 STARTER	FOUL AIR BLOWER No.2	
C225	3/4"	1-TSP INST CABLE			CONTROL SECTION IN EXISTING MCC	AIR FLOWMETER (FIT-225)	
C230	1"	3-#12	8-#14	#12	EXISTING MOTOR CONTROL CENTER (MCC-A)	PACKAGED ODOR CONTROL SYSTEM LCP	480V POWER (A10) AND PLC SIGNALS
X231	1"	PULLSTRING			EXISTING MOTOR CONTROL CENTER (MCC-A)	PKG'D ODOR CONTROL SYSTEM LCP	
X232	1"	PULLSTRING			EXISTING MOTOR CONTROL CENTER (MCC-A)	PKG'D ODOR CONTROL SYSTEM LCP	
X235	1"	PULLSTRING			CONTROL SECTION OF MCC-A	ODOR CONTROL AREA	FUTURE H2S GAS SENSOR

C231 3/4" 8#14- H.O.A. TO VFD & MCC.



SUBMERSIBLE PUMP 4 MOTOR CONTROL SCHEMATIC

Rothberg, Tamburini & Winsor, Inc.
Professional Engineers & Consultants
Phoenix, Arizona

NO.	DATE	DES'D	DWN	REVISION DESCRIPTION

DESIGNED BY: ZEW
DRAWN BY: CS
CHECKED BY: DAR
PH: CH-7311-SD
DATE: JUNE 16, 2006

CITY OF AVONDALE
4th STREET LIFT STATION MODIFICATIONS

ELECTRICAL DETAILS

DARcor
11811 N. TATUM BLVD
SUITE 2700
PHOENIX, AZ 85028
Ph: (602) 765-2699
Fax: (602) 765-2647

Registered Professional Engineer's Certificate No. 39548 ZANE E. WILSTERMAN 6-16-06 Date Signed ARIZONA U.S.A.

0 1 IF THIS BAR DOES NOT MEASURE 1" DRAWING IS NOT TO LABELED SCALE

SHEET NO. E-8

Jun 16, 2006 dwg