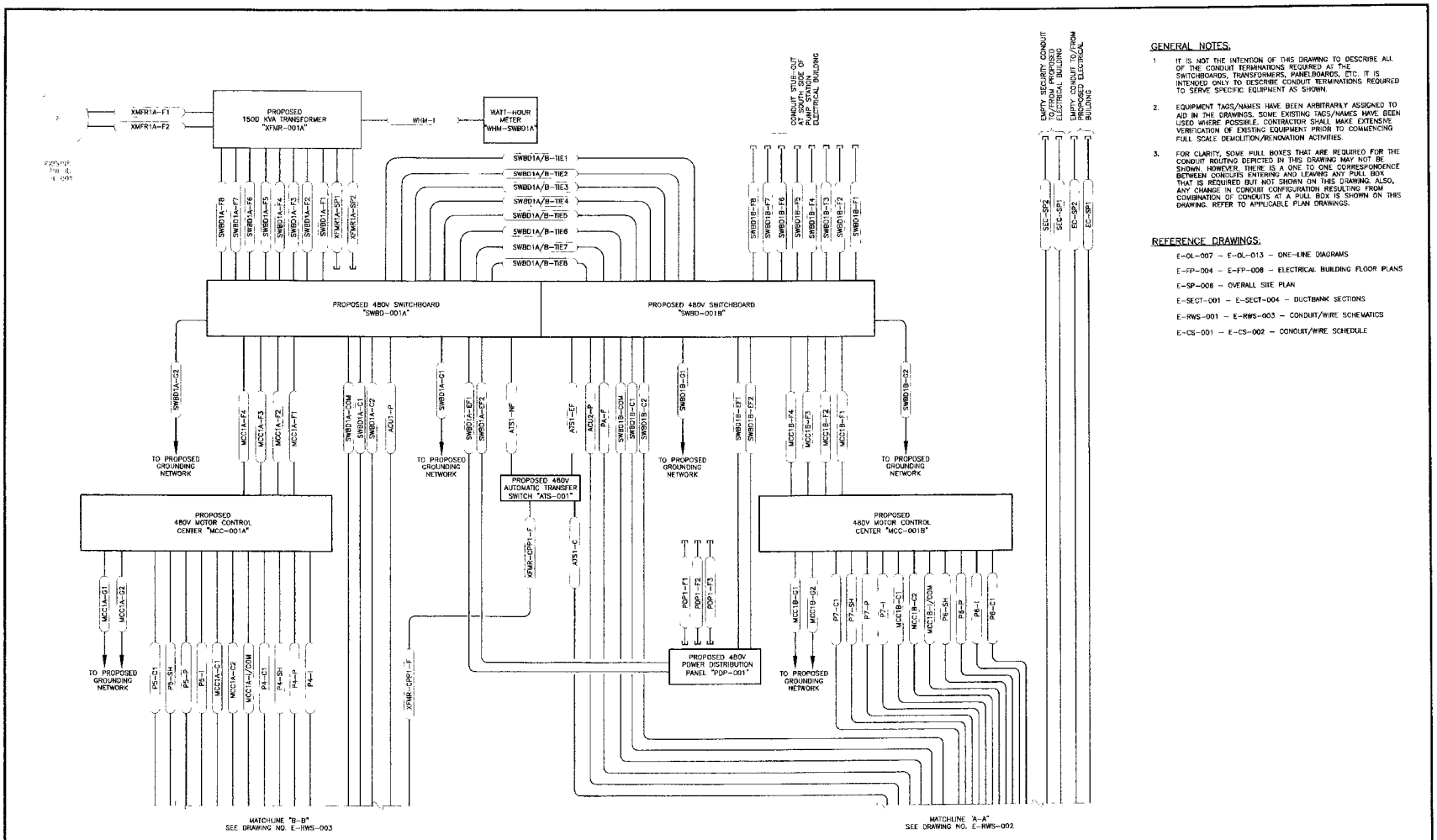

GENERAL NOTES:

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2. EQUIPMENT TAGS/NAMES HAVE BEEN ARBITRARILY ASSIGNED TO AID IN THE DRAWINGS. SOME EXISTING TAGS/NAMES HAVE BEEN USED WHERE POSSIBLE. CONTRACTOR SHALL MAKE EXTENSIVE VERIFICATION OF EXISTING EQUIPMENT PRIOR TO COMMENCING FULL SCALE DEMOLITION/RENOVATION ACTIVITIES.
3. FOR CLARITY, SOME PULL BOXES THAT ARE REQUIRED FOR THE CONDUIT ROUTING DEPICTED IN THIS DRAWING MAY NOT BE SHOWN. HOWEVER, THERE IS A ONE TO ONE CORRESPONDENCE BETWEEN CONDUITS ENTERING AND LEAVING ANY PULL BOX THAT IS REQUIRED BUT NOT SHOWN ON THIS DRAWING. ALSO, ANY CHANGE IN CONDUIT CONFIGURATION RESULTING FROM COMBINATION OF CONDUITS AT A PULL BOX IS SHOWN ON THIS DRAWING. REFER TO APPLICABLE PLAN DRAWINGS.

REFERENCE DRAWINGS:

E-OL-007 – E-OL-013 – ONE-LINE DIAGRAMS

E-FP-004 – E-FP-008 – ELECTRICAL BUILDING FLOOR PLANS

E-SP-006 – OVERALL SITE PLAN

E-SECT-001 – E-SECT-004 – DUCTBANK SECTIONS

E-RWS-001 – E-RWS-003 – CONDUIT/WIRE SCHEMATICS

E-CS-001 – E-CS-002 – CONDUIT/WIRE SCHEDULE

BAR IS 1 INCH ON ORIGINAL DRAWING. IF NOT ONE INCH, ADJUST SCALE AS NEEDED

HARUTUNIAN ENGINEERING INCORPORATED

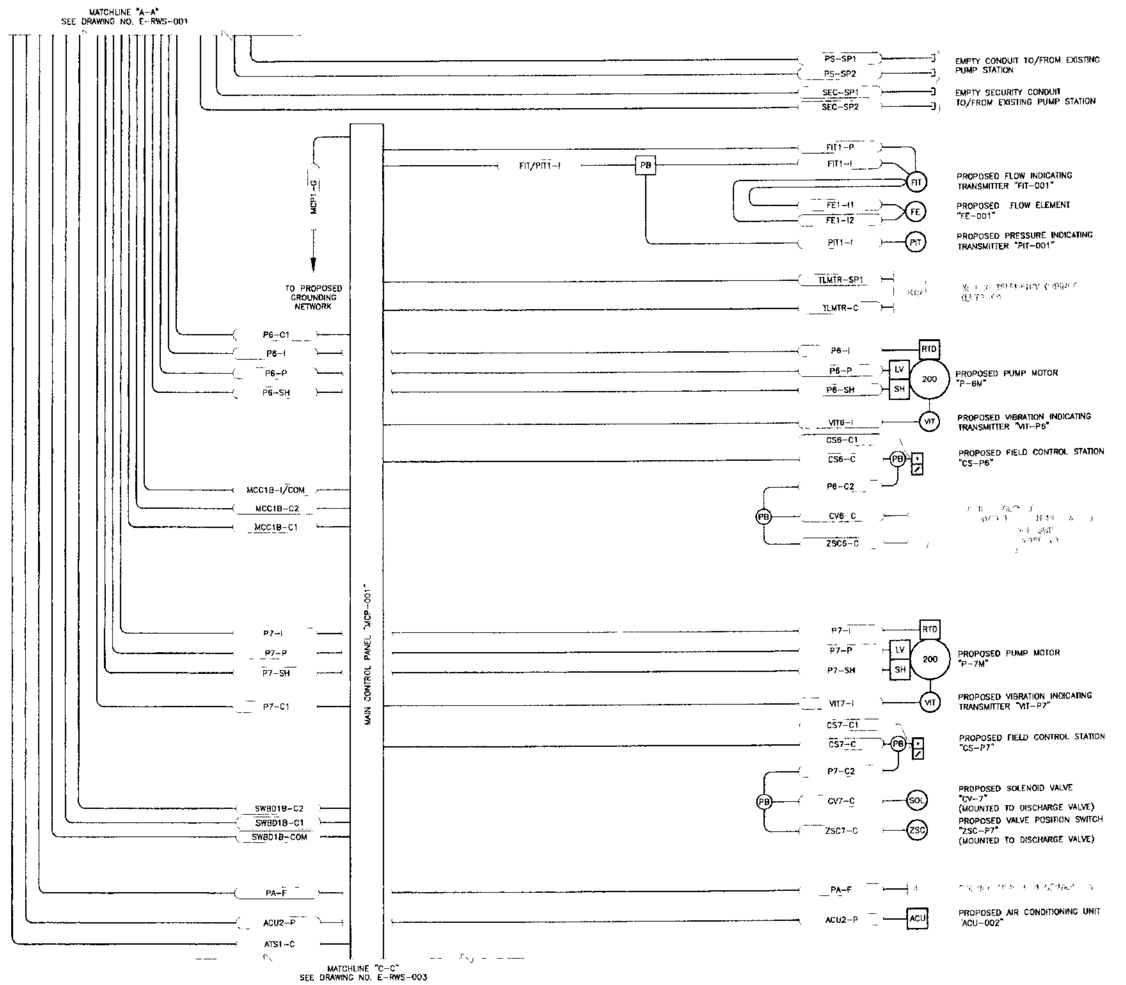
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

DESIGNED	HEI
DRAWN	HEI
CHECKED	HEI
DATE	FEBRUARY 2005
SCALE	NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO. 1

CONDUIT SCHEMATIC
(SHEET 1 OF 3)

JOB NO.	SHEET	DRAWING NO.
2002-210	144	E-RWS-001


MATCHLINE "A-A"
SEE DRAWING NO. E-RWS-001
PS-SP1
PS-SP2
SEC-SP1
SEC-SP2
EMPTY CONDUIT TO/FROM EXISTING PUMP STATION
EMPTY SECURITY CONDUIT TO/FROM EXISTING PUMP STATION
FIT1-P
FIT1-I
FIT/PIT1-I
PB
FE1-I1
FE1-I2
PIT1-I
FIT
FE
PIT
PROPOSED FLOW INDICATING TRANSMITTER "FIT-001"
PROPOSED FLOW ELEMENT "FE-001"
PROPOSED PRESSURE INDICATING TRANSMITTER "PIT-001"
MCP1-G
TO PROPOSED GROUNDING NETWORK
TLMTR-SP1
TLMTR-C
P6-C1
P6-I
P6-P
P6-SH
RTD
LV
SH
200
PROPOSED PUMP MOTOR "P-6M"
VIT6-I
VIT
PROPOSED VIBRATION INDICATING TRANSMITTER "VIT-P6"
CS6-C1
CS6-C
PROPOSED FIELD CONTROL STATION "CS-P6"
P6-C2
CV6-C
ZSC6-C
MCC1B-I/COM
MCC1B-C2
MCC1B-C1
MAIN CONTROL PANEL "MCP-001"
P7-I
P7-P
P7-SH
P7-C1
PROPOSED PUMP MOTOR "P-7M"
VIT7-I
PROPOSED VIBRATION INDICATING TRANSMITTER "VIT-P7"
CS7-C1
CS7-C
PROPOSED FIELD CONTROL STATION "CS-P7"
P7-C2
CV7-C
ZSC7-C
SOL
ZSC
PROPOSED SOLENOID VALVE "CV-7" (MOUNTED TO DISCHARGE VALVE)
PROPOSED VALVE POSITION SWITCH "ZSC-P7" (MOUNTED TO DISCHARGE VALVE)
SWBD1B-C2
SWBD1B-C1
SWBD1B-COM
PA-F
ACU2-P
ACU
PROPOSED AIR CONDITIONING UNIT "ACU-002"
ATS1-C
MATCHLINE "C-C"
SEE DRAWING NO. E-RWS-003

GENERAL NOTES:

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REFERENCE DRAWINGS:

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E-FP-004 – E-FP-008 – ELECTRICAL BUILDING FLOOR PLANS
E-SP-006 – OVERALL SITE PLAN
E-SECT-001 – E-SECT-004 – DUCTBANK SECTIONS
E-RWS-001 – E-RWS-003 – CONDUIT/WIRE SCHEMATICS
E-CS-001 – E-CS-002 – CONDUIT/WIRE SCHEDULE

HARUTUNIAN ENGINEERING INCORPORATED
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

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This document and the ideas and designs incorporated herein as an instrument of professional service has been developed, designed and prepared by Harutunian Engineering, Inc. and is not to be used, in whole or part, for any other project without the written authorization of Water District No. 10 and Harutunian Engineering, Inc. © 2005

2/21/2005

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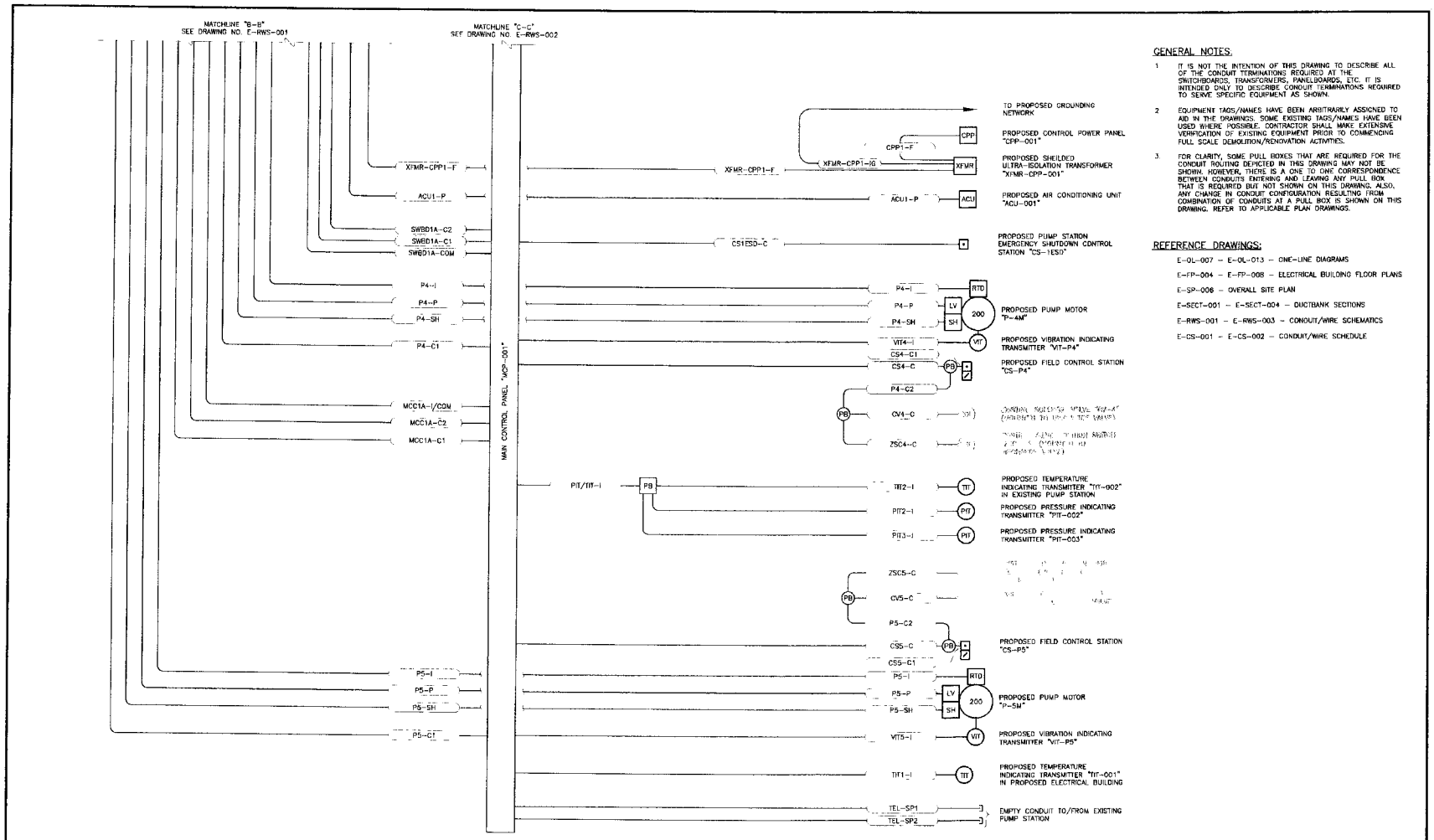
FEBRUARY 2005
NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO. 10
PUMP STATION NO. 1

CONDUIT SCHEMATIC
(SHEET 2 OF 3)

2002-210 | SHEET 145 | E-RWS-002

P-TC02163
250



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E-SECT-001 – E-SECT-004 – DUCTBANK SECTIONS
E-RWS-001 – E-RWS-003 – CONDUIT/WIRE SCHEMATICS
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BAR LENGTH ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ADJUST SCALE ACCORDINGLY

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FEBRUARY 2005
NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO. 10
PUMP STATION NO. 1

CONDUIT SCHEMATIC
(SHEET 3 OF 3)

2002-210 | SHEET 148 | E-RWS-003

CONDUIT/WIRE SCHEDULE

CONDUIT TAG	SIZE	CABLE/WIRE DESCRIPTION	TO	FROM
ACU1-P	1"	3 #6 (P), 1 #8 (G)	ACU-001	MCC-001A
ACU2-P	1"	3 #6 (P), 1 #8 (G)	ACU-002	MCC-001B
ATS1-C	1-1/2"	8 #12 (C), 8 #12 (SP), 1 #12 (G)	MCP-001	ATS-001
ATS1-EF	1-1/2"	3 #6 (P), 1 #8 (G)	ATS-001	SWBD-001B
ATS1-NF	1-1/2"	3 #6 (P), 1 #8 (G)	ATS-001	SWBD-001A
CPP1-F	2"	4 #2 (P), 1 #6 (G), 1 #6 (G)	CPP-001	XFMR-CPP-001
CS1ESD-C	1"	4 #12 (C), 2 #12 (SP), 1 #12 (G)	MCP-001	CS-1ESD
CS4-C	1-1/2"	16 #12 (C), 8 #12 (SP), 3 #12 (G)	PBOX	MCP-001
CS4-C1	1"	12 #12 (C), 4 #12 (SP), 1 #12 (G)	PBOX	CS-P4
CS5-C	1-1/2"	16 #12 (C), 8 #12 (SP), 3 #12 (G)	PBOX	MCP-001
CS5-C1	1"	12 #12 (C), 4 #12 (SP), 1 #12 (G)	PBOX	CS-P5
CS6-C	1-1/2"	16 #12 (C), 8 #12 (SP), 3 #12 (G)	PBOX	MCP-001
CS6-C1	1"	12 #12 (C), 4 #12 (SP), 1 #12 (G)	PBOX	CS-P6
CS7-C	1-1/2"	16 #12 (C), 8 #12 (SP), 3 #12 (G)	PBOX	MCP-001
CS7-C1	1"	12 #12 (C), 4 #12 (SP), 1 #12 (G)	PBOX	CS-P7
CV4-C	3/4"	2 #12 (C), 2 #12 (SP), 1 #12 (G)	CV-4	PBOX
CV5-C	3/4"	2 #12 (C), 2 #12 (SP, 1 #12 (G)	CV-5	PBOX
CV6-C	3/4"	2 #12 (C), 2 #12 (SP), 1 #12 (G)	CV-6	PBOX
CV7-C	3/4"	2 #12 (C), 2 #12 (SP), 1 #12 (G)	CV-7	PBOX
FE1-I1	3/4"	1 VENDOR SUPPLIED CABLE (I)	FE-001	FIT-001
FE1-I2	3/4"	1 VENDOR SUPPLIED CABLE (I)	FE-001	FIT-001
FIT/PIT1-I ①	1-1/2"	2 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I) 1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (SP)	PBOX	MCP-001
FIT1-I	3/4"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I)	FIT-001	PBOX
FIT1-P	1"	2 #12 (P), 1 #12 (G)	FIT-001	MCP-001
MCC1A-C1	1-1/2"	8 #12 (C), 20 #12 (SP), 1 #12 (G)	MCP-001	MCC-001A
MCC1A-C2	1-1/2"	EMPTY	MCP-001	MCC-001A
MCC1A-F1	4"	3 500 KCMIL (P), 1 #2/0 (G)	MCC-001A	SWBD-001A
MCC1A-F2	4"	3 500 KCMIL (P), 1 #2/0 (G)	MCC-001A	SWBD-001A
MCC1A-F3	4"	3 500 KCMIL (P), 1 #2/0 (G)	MCC-001A	SWBD-001A
MCC1A-F4	4"	EMPTY	MCC-001A	SWBD-001A
MCC1A-G1	1-1/2"	1 250 KCMIL (G)	GROUND	MCC-001A
MCC1A-G2	1-1/2"	1 250 KCMIL (G)	GROUND	MCC-001A
MCC1A-I/COM	2"	4 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I) 2 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (COM) 2 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (SP) 16 #12 (C), 8 #12 (SPARE)	MCP-001	MCC-001A
MCC1B-C1	1-1/2"	8 #12 (C), 20 #12 (SP), 1 #12 (G)	MCP-001	MCC-001B
MCC1B-C2	1-1/2"	EMPTY	MCP-001	MCC-001B
MCC1B-F1	4"	3 500 KCMIL (P), 1 #2/0 (G)	MCC-001B	SWBD-001B
MCC1B-F2	4"	3 500 KCMIL (P), 1 #2/0 (G)	MCC-001B	SWBD-001B
MCC1B-F3	4"	3 500 KCMIL (P), 1 #2/0 (G)	MCC-001B	SWBD-001B
MCC1B-F4	4"	EMPTY	MCC-001B	SWBD-001B
MCC1B-G1	1-1/2"	1 250 KCMIL (G)	GROUND	MCC-001B
MCC1B-G2	1-1/2"	1 250 KCMIL (G)	GROUND	MCC-001B
MCC1B-I/COM	2"	4 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I) 2 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (COM) 2 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (SP) 16 #12 (C), 8 #12 (SPARE)	MCP-001	MCC-001B
MCP1-G	1-1/2"	1 250 KCMIL (G)	GROUND	MCP-001
P4-C1	2"	30 #12 (C), 16 #12 (SP), 1 #12 (G)	MCP-001	MCC-001A
P4-C2	1"	4 #12 (C), 4 #12 (SP), 2 #12 (G)	PBOX	PBOX
P4-I	2"	6 #16 3-CONDUCTOR TWISTED SHIELDED CABLE (I) 1 #16 3-CONDUCTOR TWISTED SHIELDED CABLE (SP)	P-4M	MCC-001A
P4-P	3-1/2"	6 #4/0 (P), 1 #2 (G)	P-4M	MCC-001A
P4-SH	1"	2 #10 (SH), 1 #10 (SP), 1 #10 (G)	P-4M	MCC-001A
P5-C1	2-1/2"	48 #12 (C), 24 #12 (SP), 1 #12 (G)	MCP-001	MCC-001A
P5-C2	1"	4 #12 (C), 4 #12 (SP), 2 #12 (G)	PBOX	PBOX
P5-I	2"	6 #16 3-CONDUCTOR TWISTED SHIELDED CABLE (I) 1 #16 3-CONDUCTOR TWISTED SHIELDED CABLE (SP)	P-5M	MCC-001A
P5-P	3-1/2"	6 #4/0 (P), 1 #2 (G)	P-5M	MCC-001A
P5-SH	1"	2 #10 (SH), 1 #10 (SP), 1 #10 (G)	P-5M	MCC-001A

CONDUIT/WIRE SCHEDULE

CONDUIT TAG	SIZE	CABLE/WIRE DESCRIPTION	TO	FROM
P6-C1	2"	30 #12 (C), 16 #12 (SP), 1 #12 (G)	MCP-001	MCC-001B
P6-C2	1"	4 #12 (C), 4 #12 (SP), 2 #12 (G)	PBOX	PBOX
P6-I	2"	6 #16 3-CONDUCTOR TWISTED SHIELDED CABLE (I) 1 #16 3-CONDUCTOR TWISTED SHIELDED CABLE (SP)	P-6M	MCC-001B
P6-P	3-1/2"	6 #4/0 (P), 1 #2 (G)	P-6M	MCC-001B
P6-SH	1"	2 #10 (SH), 1 #10 (SP), 1 #10 (G)	P-6M	MCC-001B
P7-C1	2-1/2"	48 #12 (C), 24 #12 (SP), 1 #12 (G)	MCP-001	MCC-001B
P7-C2	1"	4 #12 (C), 4 #12 (G), 2 #12 (G)	PBOX	PBOX
P7-I	2"	6 #16 3-CONDUCTOR TWISTED SHIELDED CABLE (I) 1 #16 3-CONDUCTOR TWISTED SHIELDED CABLE (SP)	P-7M	MCC-001B
P7-P	3-1/2"	6 #4/0 (P), 1 #2 (G)	P-7M	MCC-001B
P7-SH	1"	2 #10 (SH), 1 #10 (SP), 1 #10 (G)	P-7M	MCC-001A
PA-F	1"	3 #8 (P), 1 #10 (G)	PA	SWBD-001B
PIT/TIT-I ①	1-1/2"	3 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I) 1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (SP)	PBOX	MCP-001
PIT1-I	3/4"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I)	PIT-001	PBOX
PIT2-I	3/4"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I)	PIT-002	PBOX
PIT3-I	3/4"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I)	PIT-003	PBOX
PS-SP1	1-1/2"	EMPTY	STUB UP	STUB UP
PS-SP2	1-1/2"	EMPTY	STUB UP	STUB UP
SEC-SP1	1-1/2"	EMPTY	STUB UP	STUB UP
SEC-SP2	1-1/2"	EMPTY	STUB UP	STUB UP
SWBD1A/B-TIE1	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001B	SWBD-001A
SWBD1A/B-TIE2	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001B	SWBD-001A
SWBD1A/B-TIE3	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001B	SWBD-001A
SWBD1A/B-TIE4	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001B	SWBD-001A
SWBD1A/B-TIE5	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001B	SWBD-001A
SWBD1A/B-TIE6	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001B	SWBD-001A
SWBD1A/B-TIE7	4"	EMPTY	SWBD-001B	SWBD-001A
SWBD1A/B-TIE8	4"	EMPTY	SWBD-001B	SWBD-001A
SWBD1A-C1	1-1/2"	18 #12 (C), 16 #12 (SP), 1 #12 (G)	MCP-001	SWBD-001A
SWBD1A-C2	1-1/2"	EMPTY	MCP-001	SWBD-001A
SWBD1A-COM	2"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (COM) 1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (SP)	MCP-001	SWBD-001A
SWBD1A-EF1	4"	3 500 KCMIL (P), 1 250 KCMIL (G)	MTS-001	SWBD-001A
SWBD1A-EF2	4"	3 500 KCMIL (P), 1 250 KCMIL (G)	MTS-001	SWBD-001A
SWBD1A-F1	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001A	XFMR-001A
SWBD1A-F2	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001A	XFMR-001A
SWBD1A-F3	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001A	XFMR-001A
SWBD1A-F4	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001A	XFMR-001A
SWBD1A-F5	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001A	XFMR-001A
SWBD1A-F6	4"	3 500 KCMIL (P), 1 #1/0 (G)	SWBD-001A	XFMR-001A
SWBD1A-F7	4"	EMPTY	SWBD-001A	XFMR-001A
SWBD1A-F8	4"	EMPTY	SWBD-001A	XFMR-001A
SWBD1A-G1	1-1/2"	1 250 KCMIL (G)	GROUND	SWBD-001A
SWBD1A-G2	1-1/2"	1 250 KCMIL (G)	GROUND	SWBD-001A
SWBD1B-C1	1-1/2"	12 #12 (C), 10 #12 (SP), 1 #12 (G)	MCP-001	SWBD-001B
SWBD1B-C2	1-1/2"	EMPTY	MCP-001	SWBD-001B
SWBD1B-COM	2"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (COM) 1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (SP)	MCP-001	SWBD-001B
SWBD1B-EF1	4"	3 500 KCMIL (P), 1 #1/0 (G)	MTS-001	SWBD-001B
SWBD1B-EF2	4"	3 500 KCMIL (P), 1 250 KCMIL (G)	MTS-001	SWBD-001B
SWBD1B-F1	4	EMPTY	SWBD-001B	STUB OUT
SWBD1B-F2	4"	EMPTY	SWBD-001B	STUB OUT
SWBD1B-F3	4"	EMPTY	SWBD-001B	STUB OUT
SWBD1B-F4	4"	EMPTY	SWBD-001B	STUB OUT
SWBD1B-F5	4"	EMPTY	SWBD-001B	STUB OUT
SWBD1B-F6	4	EMPTY	SWBD-001B	STUB OUT
SWBD1B-F7	4"	EMPTY	SWBD-001B	STUB OUT

KEY NOTES:

① COIL SPARE CABLE IN PULLBOX WITH SUFFICIENT LENGTH TO REACH FURTHEST INSTRUMENT

GENERAL NOTES:

1. CLOSELY AND CAREFULLY COORDINATE ALL REQUIREMENTS WITH THE APPLICABLE EQUIPMENT MANUFACTURER/HVAC/MECHANICAL, THE SPECIFICATIONS, AND MAKE ALL FINAL CONNECTIONS.
2. CLOSELY AND CAREFULLY COORDINATE VENDOR SUPPLIED CABLE REQUIREMENTS WITH THE EQUIPMENT MANUFACTURER AND MAKE ALL FINAL CONNECTIONS.

BAR IS 1" ON ORIGINAL DRAWING. IF NOT ONE INCH ADJUST SCALE ACCORDINGLY

2/21/2005

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FEBRUARY 2005
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TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO. 1

CONDUIT AND WIRE SCHEDULE
(SHEET 1 OF 2)

PROJECT NO. 2002-210 | SHEET 147 | DWG. E-CS-001

CONDUIT/WIRE SCHEDULE

CONDUIT TAG	SIZE	CABLE/WIRE DESCRIPTION	TO	FROM
SWBD1B-F8	4"	EMPTY	SWBD-001B	STUB OUT
SWBD1B-G1	1-1/2"	1 250 kCMIL (G)	GROUND	SWBD-001B
SWBD1B-G2	1-1/2"	1 250 kCMIL (G)	GROUND	SWBD-001B
TEL-SP1	2"	EMPTY	STUB OUT	MCP-001
TEL-SP2	2"	EMPTY	STUB OUT	MCP-001
TIT1-I	1"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I)	TIT-001	MCP-001
TIT2-I	3/4"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I)	TIT-002	PBOX
TLMTR-C	1-1/2"	12 #12 (C), 6 #12 (SP), 1 #12 (G)	TLMTR-001	MCP-001
TLMTR-SP1	1-1/2"	EMPTY	TLMTR-001	MCP-001
VIT4-I	1"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I) 1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (SP)	VIT-P4	MCP-001
VIT5-I	1"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I) 1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (SP)	VIT-P5	MCP-001
VIT6-I	1"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I) 1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (SP)	VIT-P6	MCP-001
VIT7-I	1"	1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (I) 1 #16 2-CONDUCTOR TWISTED PAIR SHIELDED CABLE (SP)	VIT-P7	MCP-001
WHM-I	1-1/4"	1 #8 (G)	WHM-001	XFMR-001A
XFMR1A-F1 (1)	4"	EMPTY	XFMR-001A	MH-001
XFMR1A-F2 (1)	4"	EMPTY	XFMR-001A	MH-001
XFMR1A-SP1	4"	EMPTY	STUB OUT	XFMR-001A
XFMR1A-SP2	4	EMPTY	STUB OUT	XFMR-001A
XFMR-CPP1-F	1-1/2"	3 #6 (P), 1 #8 (G)	XFMR-CPP-001	ATS-001
XFMR-CPP1-IG	1-1/2"	1 250 kCMIL (G)	GROUND	XFMR-CPP-001
ZSC4-C	3/4"	2 #12 (C), 2 #12 (SP), 1 #12 (G)	CV-4	PBOX
ZSC5-C	3/4"	2 #12 (C), 2 #12 (SP), 1 #12 (G)	CV-5	PBOX
ZSC6-C	3/4"	2 #12 (C), 2 #12 (SP), 1 #12 (G)	CV-6	PBOX
ZSC7-C	3/4"	2 #12 (C), 2 #12 (SP), 1 #12 (G)	CV-7	PBOX

KEY NOTES:

(1) CABLE IS FURNISHED AND INSTALLED BY AUSTIN ENERGY. CLOSELY AND CAREFULLY COORDINATE WITH AUSTIN ENERGY

GENERAL NOTES:

1. CLOSELY AND CAREFULLY COORDINATE ALL REQUIREMENTS WITH THE APPLICABLE EQUIPMENT MANUFACTURER/HVAC/MECHANICAL, THE SPECIFICATIONS, AND MAKE ALL FINAL CONNECTIONS.
2. CLOSELY AND CAREFULLY COORDINATE VENDOR SUPPLIED CABLE REQUIREMENTS WITH THE EQUIPMENT MANUFACTURER AND MAKE ALL FINAL CONNECTIONS.

BAR IS 1" ON ORIG. DRAWING. IF NOT 1" ON YOUR DRAWING ADJUST SCALE ACCORDINGLY

K. A. Harutunian, State of Texas, Registered Professional Engineer, 2/21/2005

HARUTUNIAN ENGINEERING INCORPORATED
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

DESIGNED BY: HEI
DRAWN BY: HEI
CHECKED BY: HEI
ORIGINAL DATE: FEBRUARY 2005
REVISIONS: NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO 1

CONDUIT AND WIRE SCHEDULE
(SHEET 2 OF 2)

JOB NO. 2002-210 SHEET 148 DWG NO. E-CS-002

GENERAL NOTES:

1. PANELBOARD SHORT CIRCUIT INTERRUPTING RATING IS 10,000 A.I.C.
2. CONDUIT SIZE MAY INCREASE FROM THAT SHOWN FOR CONDUIT SYSTEMS ROUTED UNDERGROUND IN DUCT BANK SYSTEM, CONCEALED IN FLOOR SLAB, ETC. REFER TO THE PLANS AND THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. FURNISH AND INSTALL PANELBOARD WITH ISOLATED GROUND BUS. ALSO REFER TO THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REFERENCE DRAWINGS:

E-OL-007 – ONE-LINE DIAGRAM
E-FP-005 – E-FP-006 – POWER FLOOR PLANS
E-FP-007 – I/C FLOOR PLAN
E-FP-008 – LIGHTING AND AUXILIARY POWER FLOOR PLAN

CIRCUIT BREAKER PANEL SCHEDULE–"CPP–001"

VOLTS: 120/208V AMPS: 225A BUS MAIN: 100A PHASE/WIRE: 3Ø, 4W

CONDUIT/WIRE DESCRIPTION	CIRCUIT BREAKER SIZE	CKT NO.	LOAD DESCRIPTIONS	PHASE A (VA)	PHASE B (VA)	PHASE C (VA)	LOAD DESCRIPTIONS	CKT NO.	CIRCUIT BREAKER SIZE	CONDUIT/WIRE DESCRIPTION
1"–2#6(P),1#6(G), 1#6(IG)	50 2P	1	MAIN CONTROL PANEL "MCP–001" UPS POWER	100 / 1500			MOTOR CONTROL CENTER "MCC–001A" ("P–4" TEST PWR)	2	20 1P	1"–4#10(P),2#10(G)
		3			100 / 1500		MOTOR CONTROL CENTER "MCC–001A" ("P–5" TEST PWR)	4	20 1P	
1"–6#10(P),1#10(G), 1#10(IG)	20 1P	5	MAIN CONTROL PANEL "MCP–001" (24VDC POWER SUPPLY)			100 / 1080	MOTOR CONTROL CENTER "MCC–001B" ("P–6" TEST PWR)	6	20 1P	1"–4#10(P),2#10(G)
	20 1P	7	MAIN CONTROL PANEL "MCP–001" (LOCAL I/O,R00)	100 / 45			MOTOR CONTROL CENTER "MCC–001B" ("P–7" TEST PWR)	8	20 1P	
	20 1P	9	MAIN CONTROL PANEL "MCP–001" (REMOTE I/O,R01)		45 / 45		MAIN CONTROL PANEL "MCP–001" (REMOTE I/O,R02)	10	20 1P	1"–6#10(P),1#10(G), 1#10(IG)
	20 1P	11	SPARE			45 / ---	MAIN CONTROL PANEL "MCP–001" (REMOTE I/O,R03)	12	20 1P	
1"–2#10(P),1#10(G)	20 1P	13	EXIT AND EGRESS LIGHTING	45 / 100			MAIN CONTROL PANEL "MCP–001" (REMOTE I/O,R04)	14	20 1P	
1"–2#10(P),1#10(G)	20 1P	15	EXTERIOR LIGHTING		200 / 110		MAIN CONTROL PANEL "MCP–001" RECEPTACLES	16	20 1P	1"–6#10(P),1#10(G)
1"–2#10(P),1#10(G)	20 1P	17	DUPLEX RECEPTACLES			243 / 720	MAIN CONTROL PANEL "MCP–001" VENTILATION FANS	18	20 1P	
	20 1P	19	SPARE	378 / ---			MAIN CONTROL PANEL "MCP–001" LIGHTING	20	20 1P	
	20 1P	21	SPARE		--- / ---		SPARE	22	20 1P	
1"–2#10(P),1#10(G)	20 1P	23	INTERIOR LIGHTING			— / 693	SPARE	24	20 1P	
		25	SPACE	--- / ---			SPACE	26		
		27	SPACE		--- / ---		SPACE	28		
		29	SPACE			--- / ---	SPACE	30		
	TOTAL CONNECTED VOLT AMPS (VA)			2268	2000	2881				

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH, ADJUST SCALE ACCORDINGLY

2/21/2005

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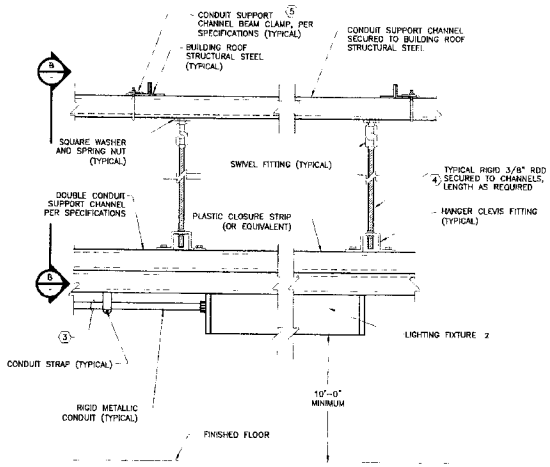
FEBRUARY 2005
NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO. 1

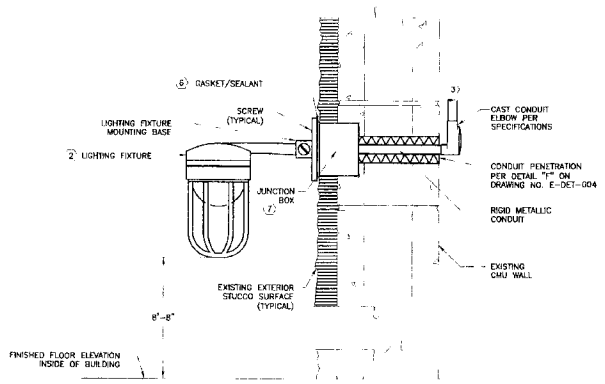
ELECTRICAL BUILDING
PANEL SCHEDULE

2002-210 | SHEET 149 | E-PNLS-001

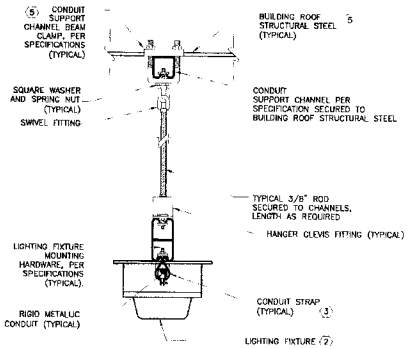
P-TC02167
254



FIXTURE TYPE "A" MOUNTING DETAIL (A)
NTS



FIXTURE TYPE "B" WALL MOUNTED OUTDOOR INSTALLATION DETAIL (C)
NTS



SECTION (B)
NTS

KEY NOTES:

(1) CONTRACTOR SHALL PROVIDE A COMPLETE AND FUNCTIONAL LIGHTING FIXTURE/FIXTURE MOUNTING ASSEMBLY.

(2) REFER TO PARTIAL LIGHTING FIXTURE SCHEDULE ON THIS DRAWING FOR FURTHER INFORMATION.

(3) PROPOSED CONDUIT/WIRE CONTINUES. REFER TO LIGHTING FLOOR PLAN FOR CONTINUATION AND ADDITIONAL INFORMATION.

(4) QUANTITY AND SPACING BETWEEN ADJACENT SUPPORT RODS AS REQUIRED FOR SECURE INSTALLATION (SPACING BETWEEN ADJACENT SUPPORT RODS IS NOT TO EXCEED 8 FEET).

(5) THE PROPOSED STRUCTURE TYPE TO WHICH PROPOSED EQUIPMENT AND/OR SUPPORT SYSTEMS SHALL BE MOUNTED MAY VARY THE EQUIPMENT/SUPPORT SYSTEM SECURING METHOD MAY ALSO VARY BUT SHALL CORRESPOND TO THE TYPE OF STRUCTURE TO WHICH THE EQUIPMENT/SUPPORT SYSTEM IS ATTACHED. THE DRAWING REFLECTS A SPECIFIC STRUCTURE TYPE/SUPPORT SYSTEM WITH CORRESPONDING SECURING METHOD AND IS TYPICAL FOR THE STRUCTURE TYPE SHOWN. TO ATTACH EQUIPMENT/SUPPORT SYTEM TO A CONCRETE MASONRY UNIT (CMU) WALL STRUCTURE TYPE, TO A PRE-CAST/CAST-IN-PLACE CONCRETE WALL/FLOOR SLAB OR TO AN EXISTING STEEL STRUCTURE TYPE, FURNISH AND INSTALL BOLTING ASSEMBLY AND/OR ANCHORING SYSTEM WITH BOLTING ASSEMBLY PER SPECIFICATIONS AND STRUCTURAL REQUIREMENTS. CLOSELY AND CAREFULLY COORDINATE STRUCTURE TYPES WITH STRUCTURAL. ALSO REFER TO THE STRUCTURAL GENERAL NOTES ON SHEET 11 FOR ADDITIONAL INFORMATION.

(6) SEAL COMPLETELY THE AREA BETWEEN LIGHTING FIXTURE MOUNTING BASE AND JUNCTION BOX/EXTERIOR SURFACE OF EXISTING STRUCTURE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

(7) MOUNT EACH EXTERIOR LIGHTING FIXTURE JUNCTION BOX AS FLUSH TO EXTERIOR STUCCO SURFACE WILL PERMIT MOUNT JUNCTION BOX IN A MANNER THAT WILL PERMIT A COMPLETE SEAL BETWEEN THE EXISTING STUCCO SURFACE/JUNCTION BOX AND THE LIGHTING FIXTURE MOUNTING BASE.

PARTIAL LIGHTING FIXTURE SCHEDULE

TYPE	LAMP	CATALOG NO.	DESCRIPTION
A	GE # F32 T8 (COOL WHITE RAPID START)	LITHONIA # AF232/120/F32T8/ES/PO/WGAFPV	FIXTURE SHALL BE FOUR FOOT 120V TWO LAMP, HEAVY-DUTY TURRET INDUSTRIAL TYPE. THE FIXTURE BODY SHALL BE ONE-FORMED CODE-GAMGE STEEL FINISHED WITH FIVE-STAGE, IRON-PHOSPHATE PRETREATMENT AND PAINTED WITH HIGH GLOSS, BAKED WHITE ENAMEL. THE REFLECTOR WILL HAVE A WHITE PORCELAIN FINISH. THE BALLAST SHALL BE A .9 HIGH POWER FACTOR ELECTRONIC TYPE.
B	(1) 26W. COMP FLOOR	RIG-A-LITE # CVPD-26F-12/P	FIXTURE SHALL BE WALL MOUNTED (W/BOX) SUITABLE FOR DAMP LOCATIONS. LAMP SHALL BE 120V, 26 WATT COMPACT FLUORESCENT. THE GLOBE SHALL BE OF POLYCARBONATE IN PRISMATIC FORM.

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY

2/21/2005

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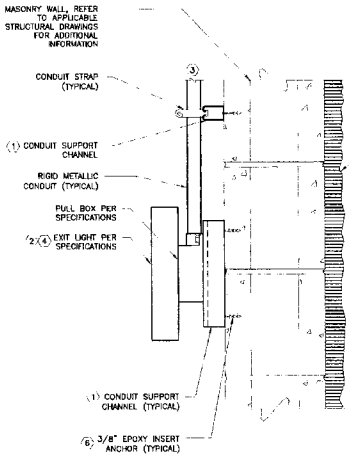
AUSTIN, TEXAS 78752

DESIGNED HEI
DRAWN HEI
CHECKED HEI
DATE FEBRUARY 2005
SCALE NONE

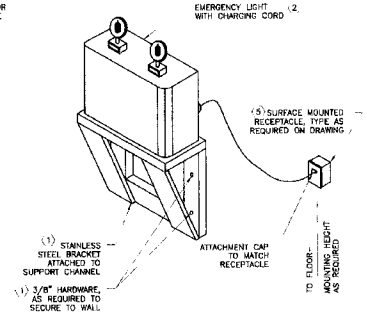
TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO 1

ELECTRICAL DETAILS
(SHEET 1 OF 13)

JOB NO. 2002-210 SHEET 150 DWG # E-DET-001



EXIT LIGHT FIXTURE TYPE "X" MOUNTING DETAIL (A) (1)
NTS



EMERGENCY FIXTURE TYPE "Y" MOUNTING DETAIL (B) (1)
NTS

KEY NOTES:

1. CONTRACTOR SHALL PROVIDE A COMPLETE AND FUNCTIONAL LIGHTING FIXTURE/FIXTURE MOUNTING ASSEMBLY
2. REFER TO PARTIAL LIGHTING FIXTURE SCHEDULE ON THIS DRAWING FOR FURTHER INFORMATION.
3. PROPOSED CONDUIT/WIRE CONTINUES. REFER TO LIGHTING FLOOR PLAN FOR CONTINUATION AND ADDITIONAL INFORMATION.
4. MOUNT/LOCATE EXIT LIGHT ASSEMBLY OVER CENTER OF DOORWAY AT 1'-0" TO CENTER ABOVE TOP OF DOOR FRAME OR AT ELEVATION NOTED ON PLAN. REFER TO PARTIAL LIGHTING FIXTURE SCHEDULE ON THIS DRAWING AND LIGHTING FLOOR PLAN FOR CONTINUATION AND ADDITIONAL INFORMATION.
5. LOCATION OF RECEPTACLE FOR REPRESENTATION ONLY. EXACT LOCATION/ORIENTATION TO LIGHTING FIXTURE PER LIGHTING FLOOR PLAN. LOCATE RECEPTACLE IMMEDIATELY ADJACENT TO LIGHTING FIXTURE AND REMOVE EXCESS LENGTH OF CHARGING CORD BEFORE INSTALLING ATTACHMENT CAP. MOUNTING METHOD OF RECEPTACLE TO BE DETERMINED AT EACH LOCATION AND PER THE MOUNTING DETAILS ON DRAWING NO. E-DET-005.
6. THE PROPOSED STRUCTURE TYPE TO WHICH PROPOSED EQUIPMENT AND/OR SUPPORT SYSTEMS SHALL BE MOUNTED MAY VARY. THE EQUIPMENT/SUPPORT SYSTEM SECURING METHOD MAY ALSO VARY BUT SHALL CORRESPOND TO THE TYPE OF STRUCTURE TO WHICH THE EQUIPMENT/SUPPORT SYSTEM IS ATTACHED. THE DRAWING REFLECTS A SPECIFIC STRUCTURE TYPE/SUPPORT SYSTEM WITH CORRESPONDING SECURING METHOD AND IS TYPICAL FOR THE STRUCTURE TYPE SHOWN. TO ATTACH EQUIPMENT/SUPPORT SYTEM TO A CONCRETE MASONRY UNIT (CMU) WALL STRUCTURE TYPE, TO A PRE-CAST/CAST-IN-PLACE CONCRETE WALL/FLOOR SLAB OR TO AN EXISTING STEEL STRUCTURE TYPE, FURNISH AND INSTALL BOLTING ASSEMBLY AND/OR ANCHORING SYSTEM WITH BOLTING ASSEMBLY, PER SPECIFICATIONS AND STRUCTURAL REQUIREMENTS. CLOSELY AND CAREFULLY COORDINATE STRUCTURE TYPES WITH STRUCTURAL. ALSO REFER TO THE STRUCTURAL GENERAL NOTES ON SHEET 11 FOR ADDITIONAL INFORMATION.

PARTIAL LIGHTING FIXTURE SCHEDULE

TYPE	LAMP	CATALOG NO.	DESCRIPTION
X	LED	LITHONIA # LVS1R120/277 ELN (OR APPROVED EQUAL)	FACTORY ASSEMBLED UNIVERSAL SINGLE FACED EXIT SIGN COMPLETE WITH SEALED LONG LIFE NICKEL CADMIUM BATTERY AND 120V OR 277V AS REQUIRED CHARGER. HOUSING SHALL BE OF ALUMINUM CONSTRUCTION WITH BLACK ENAMEL FINISH AND RED LETTERS WITH STENCIL FACE OF BRUSHED ALUMINUM. TRANSFER SHALL BE MADE WITH A SEALED RELAY. CHARGER SHALL BE CURRENT LIMITED, TEMPERATURE COMPENSATED, SHORT-CIRCUIT PROOF AND REVERSE POLARITY PROTECTED.
Y	(2) 9 WATT HIT	EMERGI-LITE # 12 KSE 36-2 OR APPROVED EQUAL	WALL MOUNTED 12V TWIN LIGHT BATTERY EMERGENCY FIXTURE, CABINET NEMA 4X CONSTRUCTED OF MOLDED FIBERGLASS WITH ASA 61 GRAY FINISH, FRONT DOOR IS FULLY GASKETED. CHARGER IS 100% SOLID STATE, AUTOMATIC PULSE TYPE TRANSFER BY SEALED RELAY AND ENERGIZES LAMP LOAD UPON FAILURE OF AC SUPPLY. A LOW VOLTAGE BATTERY DISCONNECT CIRCUIT SENSES LOW BATTERY VOLTAGE AND AUTOMATICALLY DISCONNECTS THE LAMP LOAD FROM THE BATTERY TO PREVENT DEEP DISCHARGES. UNIT BATTERIES ARE SEALED LONG LIFE LEAD TYPE WITH 35 WATT CAPACITY. OPERATION INPUT VOLTAGE 120V

USE LENGTH ON ORIGINAL DRAWING TO MEASURE AND ADJUST SCALE ACCORDINGLY

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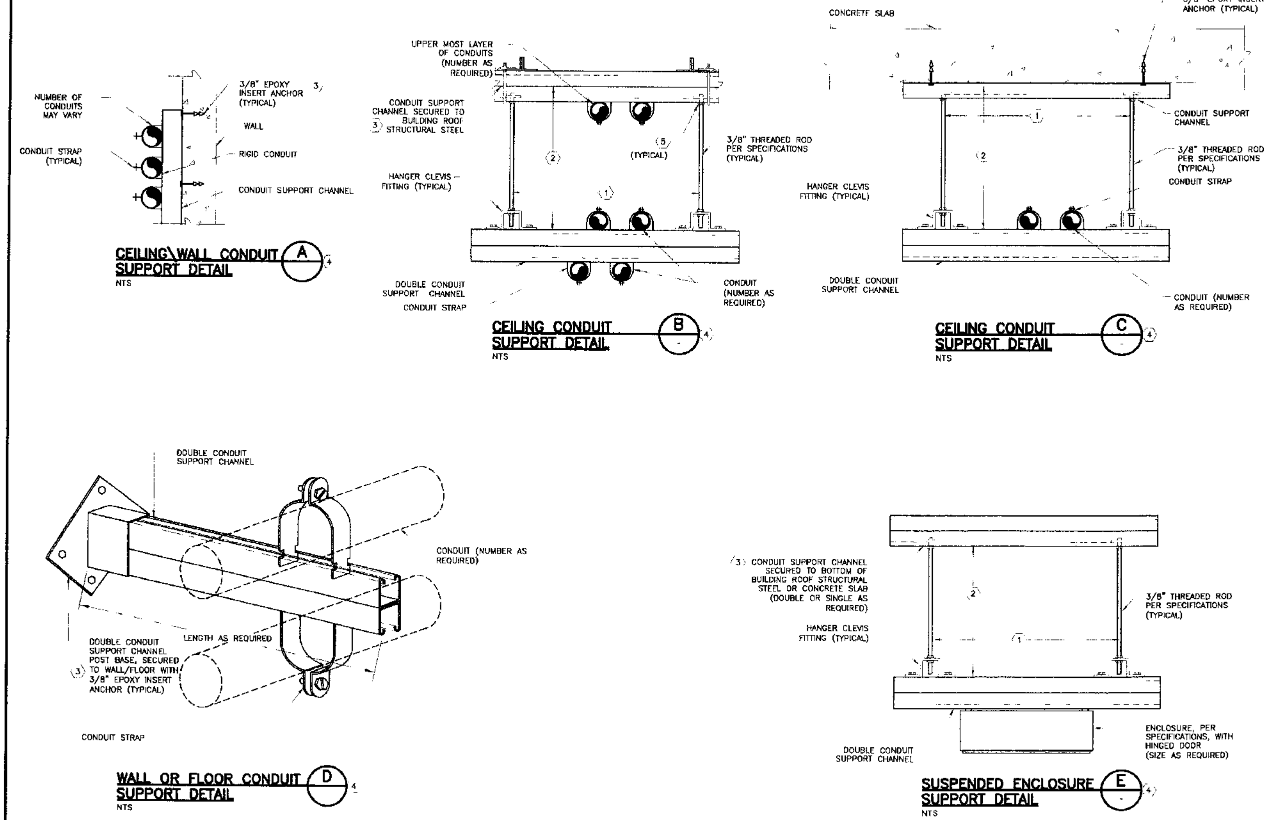
FEBRUARY 2005
NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO. 10
PUMP STATION NO. 1

ELECTRICAL DETAILS
(SHEET 2 OF 13)

JOB NO. 2002-210 | SHEET 151 | DWG NO. E-DET-002


NUMBER OF CONDUITS MAY VARY
CONDUIT STRAP (TYPICAL)
3/8" EPOXY INSERT ANCHOR (TYPICAL)
WALL
RIGID CONDUIT
CONDUIT SUPPORT CHANNEL
CEILING\WALL CONDUIT SUPPORT DETAIL
A
NTS
UPPER MOST LAYER OF CONDUITS (NUMBER AS REQUIRED)
CONDUIT SUPPORT CHANNEL SECURED TO BUILDING ROOF STRUCTURAL STEEL
HANGER CLEVIS FITTING (TYPICAL)
(TYPICAL)
3/8" THREADED ROD PER SPECIFICATIONS (TYPICAL)
DOUBLE CONDUIT SUPPORT CHANNEL
CONDUIT STRAP
CONDUIT (NUMBER AS REQUIRED)
CEILING CONDUIT SUPPORT DETAIL
B
NTS
CONCRETE SLAB
3/8" EPOXY INSERT ANCHOR (TYPICAL)
CONDUIT SUPPORT CHANNEL
3/8" THREADED ROD PER SPECIFICATIONS (TYPICAL)
CONDUIT STRAP
HANGER CLEVIS FITTING (TYPICAL)
DOUBLE CONDUIT SUPPORT CHANNEL
CONDUIT (NUMBER AS REQUIRED)
CEILING CONDUIT SUPPORT DETAIL
C
NTS
DOUBLE CONDUIT SUPPORT CHANNEL
CONDUIT (NUMBER AS REQUIRED)
LENGTH AS REQUIRED
DOUBLE CONDUIT SUPPORT CHANNEL POST BASE, SECURED TO WALL/FLOOR WITH 3/8" EPOXY INSERT ANCHOR (TYPICAL)
CONDUIT STRAP
WALL OR FLOOR CONDUIT SUPPORT DETAIL
D
NTS
CONDUIT SUPPORT CHANNEL SECURED TO BOTTOM OF BUILDING ROOF STRUCTURAL STEEL OR CONCRETE SLAB (DOUBLE OR SINGLE AS REQUIRED)
HANGER CLEVIS FITTING (TYPICAL)
3/8" THREADED ROD PER SPECIFICATIONS (TYPICAL)
ENCLOSURE, PER SPECIFICATIONS, WITH HINGED DOOR (SIZE AS REQUIRED)
DOUBLE CONDUIT SUPPORT CHANNEL
SUSPENDED ENCLOSURE SUPPORT DETAIL
E
NTS

KEY NOTES:

1. MAINTAIN MAXIMUM DISTANCE BETWEEN ADJACENT THREADED SUPPORT RODS OF 4'-0"
2. CLOSELY AND CAREFULLY COORDINATE SUPPORT ROD LENGTH (AND CORRESPONDING CONDUIT/WIRE SUPPORT/RACK ELEVATION) WITH PLANS. SUPPORT ROD LENGTH MAY VARY
3. THE PROPOSED STRUCTURE TYPE TO WHICH PROPOSED EQUIPMENT AND/OR SUPPORT SYSTEMS SHALL BE MOUNTED MAY VARY THE EQUIPMENT/SUPPORT SYSTEM SECURING METHOD MAY ALSO VARY BUT SHALL CORRESPOND TO THE TYPE OF STRUCTURE TO WHICH THE EQUIPMENT/SUPPORT SYSTEM IS ATTACHED. THE DRAWING REFLECTS A SPECIFIC STRUCTURE TYPE/SUPPORT SYSTEM WITH CORRESPONDING SECURING METHOD AND IS TYPICAL FOR THE STRUCTURE TYPE SHOWN. TO ATTACH EQUIPMENT/SUPPORT SYTEM TO A CONCRETE MASONRY UNIT (CMU) WALL STRUCTURE TYPE, TO A PRE-CAST/CAST-IN-PLACE CONCRETE WALL/FLOOR SLAB OR TO AN EXISTING STEEL STRUCTURE TYPE, FURNISH AND INSTALL BOLTING ASSEMBLY AND/OR ANCHORING SYSTEM WITH BOLTING ASSEMBLY, PER SPECIFICATIONS AND STRUCTURAL REQUIREMENTS. CLOSELY AND CAREFULLY COORDINATE STRUCTURE TYPES WITH STRUCTURAL. ALSO REFER TO THE STRUCTURAL GENERAL NOTES ON SHEET 11 FOR ADDITIONAL INFORMATION.
4. CLOSELY AND CAREFULLY COORDINATE/CALCULATE TOTAL WEIGHT LOAD OF PROPOSED CONDUIT/WIRE/CABLES/ETC. AT EACH LOCATION OF SUPPORT FURNISH AND INSTALL ADDITIONAL SUPPORT AS NECESSARY AT EACH LOCATION, IN ORDER TO MAINTAIN A MAXIMUM OF 50 PERCENT OF MANUFACTURERS STATED WEIGHT SUPPORT CAPACITY
5. ALTHOUGH NOT SHOWN HERE, FURNISH AND INSTALL SWIVEL FITTINGS WHERE REQUIRED TO ACCOMODATE FOR ELEVATION CHANGES OF ROOF/TRUSS STRUCTURE.

2/21/2005

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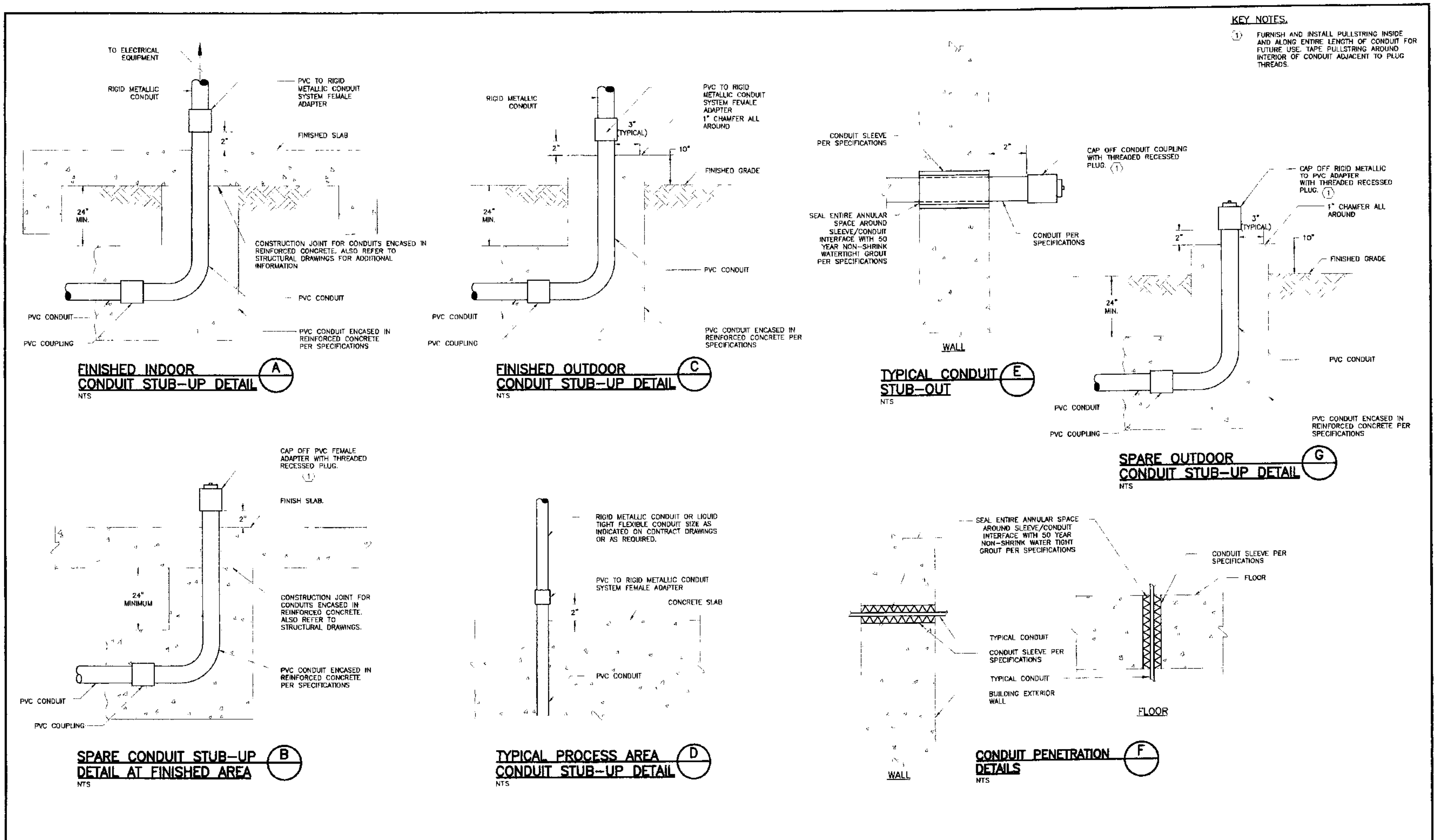
FEBRUARY 2005
NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO. 1

ELECTRICAL DETAILS
(SHEET 3 OF 13)

2002-210 | SHEET 152 | E-DET-003

P-TC02170
257


KEY NOTES.
① FURNISH AND INSTALL PULLSTRING INSIDE AND ALONG ENTIRE LENGTH OF CONDUIT FOR FUTURE USE. TAPE PULLSTRING AROUND INTERIOR OF CONDUIT ADJACENT TO PLUG THREADS.
TO ELECTRICAL EQUIPMENT
RIGID METALLIC CONDUIT
PVC TO RIGID METALLIC CONDUIT SYSTEM FEMALE ADAPTER
FINISHED SLAB
2"
24" MIN.
CONSTRUCTION JOINT FOR CONDUITS ENCASED IN REINFORCED CONCRETE. ALSO REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION
PVC CONDUIT
PVC COUPLING
PVC CONDUIT ENCASED IN REINFORCED CONCRETE PER SPECIFICATIONS
FINISHED INDOOR CONDUIT STUB-UP DETAIL (A)
NTS
RIGID METALLIC CONDUIT
PVC TO RIGID METALLIC CONDUIT SYSTEM FEMALE ADAPTER 1" CHAMFER ALL AROUND
3" (TYPICAL)
10"
FINISHED GRADE
PVC CONDUIT ENCASED IN REINFORCED CONCRETE PER SPECIFICATIONS
FINISHED OUTDOOR CONDUIT STUB-UP DETAIL (C)
NTS
CONDUIT SLEEVE PER SPECIFICATIONS
SEAL ENTIRE ANNULAR SPACE AROUND SLEEVE/CONDUIT INTERFACE WITH 50 YEAR NON-SHRINK WATERTIGHT GROUT PER SPECIFICATIONS
CAP OFF CONDUIT COUPLING WITH THREADED RECESSED PLUG. ①
CONDUIT PER SPECIFICATIONS
WALL
TYPICAL CONDUIT STUB-OUT (E)
NTS
CAP OFF RIGID METALLIC TO PVC ADAPTER WITH THREADED RECESSED PLUG. ①
1" CHAMFER ALL AROUND
FINISHED GRADE
SPARE OUTDOOR CONDUIT STUB-UP DETAIL (G)
NTS
CAP OFF PVC FEMALE ADAPTER WITH THREADED RECESSED PLUG. ①
FINISH SLAB.
24" MINIMUM
CONSTRUCTION JOINT FOR CONDUITS ENCASED IN REINFORCED CONCRETE. ALSO REFER TO STRUCTURAL DRAWINGS.
SPARE CONDUIT STUB-UP DETAIL AT FINISHED AREA (B)
NTS
RIGID METALLIC CONDUIT OR LIQUID TIGHT FLEXIBLE CONDUIT SIZE AS INDICATED ON CONTRACT DRAWINGS OR AS REQUIRED.
PVC TO RIGID METALLIC CONDUIT SYSTEM FEMALE ADAPTER
CONCRETE SLAB
TYPICAL PROCESS AREA CONDUIT STUB-UP DETAIL (D)
NTS
SEAL ENTIRE ANNULAR SPACE AROUND SLEEVE/CONDUIT INTERFACE WITH 50 YEAR NON-SHRINK WATER TIGHT GROUT PER SPECIFICATIONS
CONDUIT SLEEVE PER SPECIFICATIONS
FLOOR
TYPICAL CONDUIT
BUILDING EXTERIOR WALL
CONDUIT PENETRATION DETAILS (F)
NTS

HARUTUNIAN ENGINEERING INCORPORATED
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2/21/2005

REUSE OF DOCUMENTS

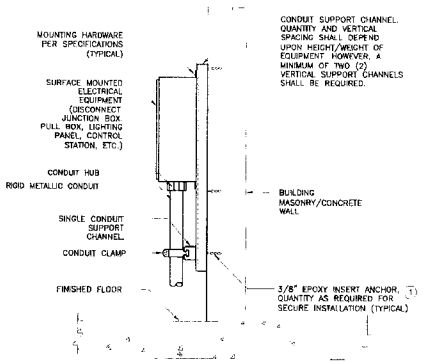
DESIGNED BY HEI
CHECKED BY HEI
HEI
SUBMITTAL DATE FEBRUARY 2005
SCALE NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO 1

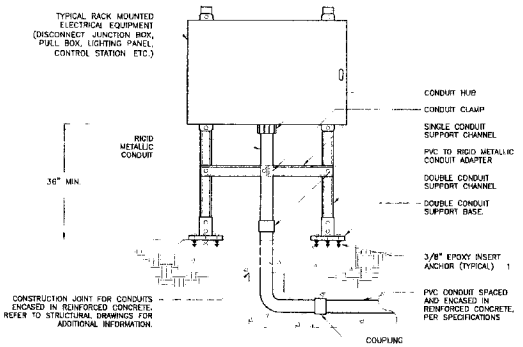
ELECTRICAL DETAILS
(SHEET 4 OF 13)

2002-210 SHEET 153 E-DET-004

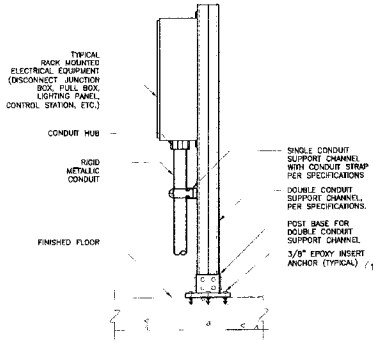
P-TC02171
258



SIDE ELEVATION SURFACE/WALL MOUNTED ELECTRICAL EQUIPMENT INSTALLATION DETAIL (A)
NTS



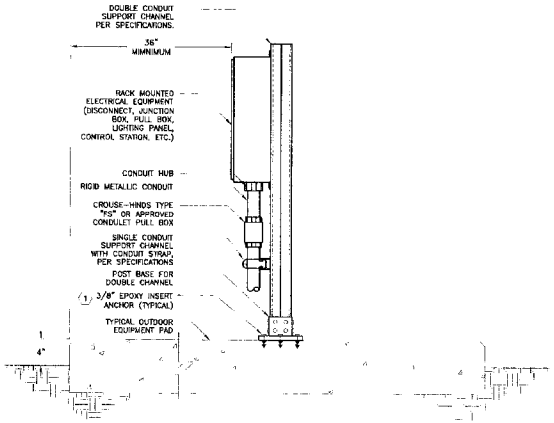
ELECTRICAL EQUIPMENT SUPPORT DETAIL–FRONT ELEVATION (OUTDOOR) (C)
NTS



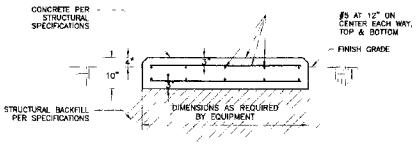
ELECTRICAL EQUIPMENT SUPPORT DETAIL–SIDE VIEW (INDOOR) (E)
NTS

KEY NOTES:

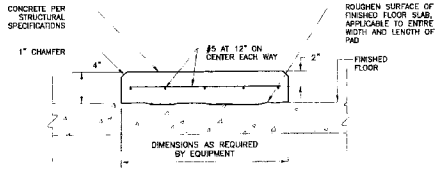
1 THE PROPOSED STRUCTURE TYPE TO WHICH PROPOSED EQUIPMENT AND/OR SUPPORT SYSTEMS SHALL BE MOUNTED MAY VARY THE EQUIPMENT/SUPPORT SYSTEM SECURING METHOD MAY ALSO VARY BUT SHALL CORRESPOND TO THE TYPE OF STRUCTURE TO WHICH THE EQUIPMENT/SUPPORT SYSTEM IS ATTACHED. THE DRAWING REFLECTS A SPECIFIC STRUCTURE TYPE/SUPPORT SYSTEM WITH CORRESPONDING SECURING METHOD AND IS TYPICAL FOR THE STRUCTURE TYPE SHOWN. TO ATTACH EQUIPMENT/SUPPORT SYTEM TO A CONCRETE MASONRY UNIT (CMU) WALL STRUCTURE TYPE, TO A PRE-CAST/CAST-IN-PLACE CONCRETE WALL/FLOOR SLAB OR TO AN EXISTING STEEL STRUCTURE TYPE, FURNISH AND INSTALL BOLTING ASSEMBLY AND/OR ANCHORING SYSTEM WITH BOLTING ASSEMBLY PER SPECIFICATIONS AND STRUCTURAL REQUIREMENTS. CLOSELY AND CAREFULLY COORDINATE STRUCTURE TYPES WITH STRUCTURAL. ALSO REFER TO THE STRUCTURAL GENERAL NOTES ON SHEET 11 FOR ADDITIONAL INFORMATION.



ELECTRICAL EQUIPMENT SUPPORT DETAIL–SIDE VIEW (OUTDOOR) (B)
NTS



TYPICAL OUTDOOR ELECTRICAL EQUIPMENT PAD CONCRETE SLAB DETAIL (F)
NTS



TYPICAL INDOOR ELECTRICAL EQUIPMENT PAD CONCRETE SLAB DETAIL (G)
NTS

BAR IF NOT ON ORIGINAL DRAWING ADJUST SCALE ACCORDINGLY

2/9/2005

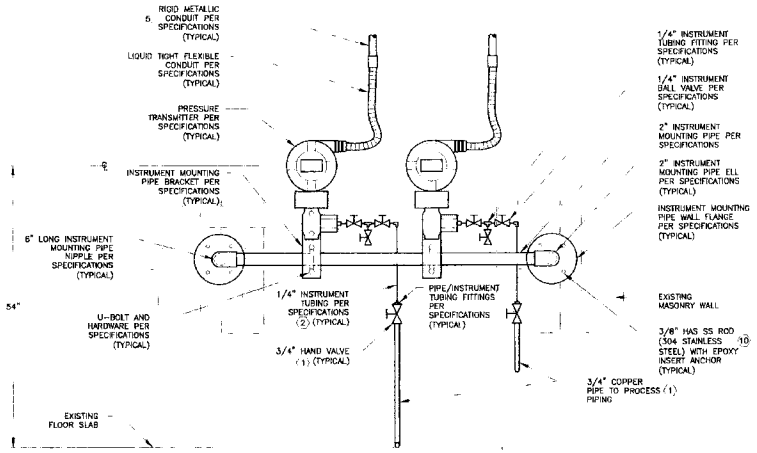
HARUTUNIAN ENGINEERING INCORPORATED
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

DESIGNED BY HEI
DRAWN BY HEI
CHECKED BY HEI
FEBRUARY 2005
SCALE NONE

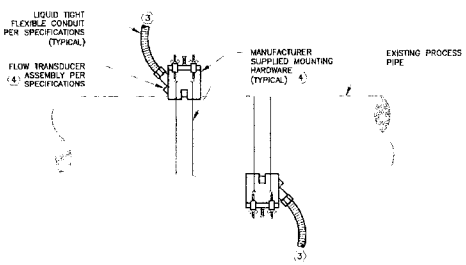
TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO 1

ELECTRICAL DETAILS
(SHEET 5 OF 13)

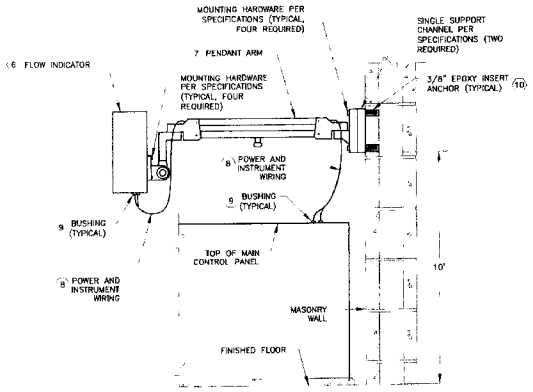
PROJECT NO. 2002-210 | SHEET 154 | E-DET-005



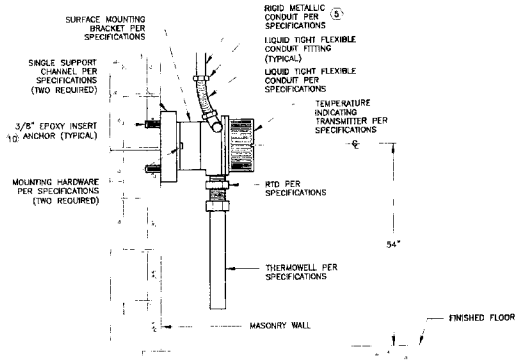
DISCHARGE PRESSURE TRANSMITTERS INSTALLATION DETAIL (A)
NTS



ULTRASONIC FLOW TRANSDUCER INSTALLATION DETAIL (TOP VIEW) (B)
NTS



FLOW INDICATOR INSTALLATION DETAIL (C)
NTS



TEMPERATURE INDICATING TRANSMITTER INSTALLATION DETAIL (E)
NTS

KEY NOTES:

1. REFER TO MECHANICAL DRAWINGS AND COORDINATE ALL WORK WITH MECHANICAL.
2. FURNISH AND INSTALL SUPPORT FOR TUBING AND VALVES TO ENSURE A SECURE INSTALLATION.
3. FURNISH AND INSTALL PROPOSED CONDUIT FOR MANUFACTURER SUPPLIED CABLE TO ROUTE BETWEEN TRANSDUCER LOCATION AND TRANSMITTER LOCATED OUTSIDE OF METER VAULT. CONDUIT TRANSITIONS TO RIGID METAL CONDUIT AT METER VAULT INSIDE WALL AND ROUTES EXPOSED TO TRANSMITTER OUTSIDE VAULT. REFER TO METER VAULT PLAN DRAWING NO. E-SP-008 AND TO METER VAULT INSTRUMENT MOUNTING DETAIL ON DRAWING NO. E-DET-013 FOR FURTHER INFORMATION.
4. FURNISH AND INSTALL PROPOSED FLOW TRANSDUCER ASSEMBLIES PER THE SPECIFICATIONS AT THE LOCATION SHOWN ON DRAWING NO. E-SP-008 USING MANUFACTURER SUPPLIED MOUNTING HARDWARE AND PER THE MANUFACTURERS RECOMMENDATIONS. MAKE ALL FINAL CONNECTIONS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. CAREFULLY COORDINATE INSTALLATION WITH PROCESS MECHANICAL, EQUIPMENT MANUFACTURERS, AND THE OWNER.
5. SUPPORT PER DETAILS ON DRAWING NO. E-DET-003.
6. FURNISH AND INSTALL DIGITAL PROCESS VARIABLE INDICATOR AS MANUFACTURED BY "NEWPORT" MODEL #LI40S-R-P OR APPROVED EQUAL. PROPOSED DIGITAL INDICATOR SHALL BE FOUR DIGIT LIGHT EMITTING DIODE TYPE WITH 4 INCH TALL RED DIGITS COMPLETE WITH 4-20 mADC PROCESS INPUT SIGNAL CONDITIONING AND NEMA 4X/IP65 CASE. FURNISH AND INSTALL ALL NECESSARY MOUNTING HARDWARE, WIRING, WIRING CONNECTORS, ETC. CLOSELY AND CAREFULLY COORDINATE INSTALLATION AND WIRING AND MAKE ALL FINAL CONNECTIONS.
7. FURNISH AND INSTALL PENDANT ARM MOUNTING ASSEMBLY WITH HANDLE AS MANUFACTURED BY "HOFFMAN" MODEL #CCS1HSV (PENDANT ARM) AND #CCS1HDL (HANDLE) OR APPROVED EQUALS. PENDANT ARM SHALL BE HORIZONTALLY AND VERTICALLY ADJUSTABLE AND SHALL BE CAPABLE OF SUPPORTING A LOAD OF 30 POUNDS MINIMUM.
8. FURNISH AND INSTALL ONE S/O TYPE CORD WITH 2#12 (P), 1 #12 (G) AND ONE #16 2-CONDUCTOR TWISTED SHIELDED PAIR CABLE (I) AND MAKE ALL FINAL CONNECTIONS. WRAP CABLES IN NYLON SPIRAL WRAP AND ROUTE THROUGH WIRE CONTAINMENT CHANNEL IN PENDANT ARM. PROVIDE SUFFICIENT CABLE LENGTH TO ALLOW MANIPULATION OF THE PENDANT ARM TO ITS FULL EXTENTS WITHOUT PLACING ANY TENSION ON THE CABLES.
9. FURNISH AND INSTALL CORD/CABLE BUSHING WITH GLAND NUT AND NEOPRENE BUSHING AS MANUFACTURED BY "CROUSE-HINDS" SERIES CCB, OR APPROVED EQUAL, AND MAKE ALL FINAL CONNECTIONS.
10. THE PROPOSED STRUCTURE TYPE TO WHICH PROPOSED EQUIPMENT AND/OR SUPPORT SYSTEMS SHALL BE MOUNTED MAY VARY. THE EQUIPMENT/SUPPORT SYSTEM SECURING METHOD MAY ALSO VARY BUT SHALL CORRESPOND TO THE TYPE OF STRUCTURE TO WHICH THE EQUIPMENT/SUPPORT SYSTEM IS ATTACHED. THE DRAWING REFLECTS A SPECIFIC STRUCTURE TYPE/SUPPORT SYSTEM WITH CORRESPONDING SECURING METHOD AND IS TYPICAL FOR THE STRUCTURE TYPE SHOWN. TO ATTACH EQUIPMENT/SUPPORT SYSTEM TO A CONCRETE MASONRY UNIT (CMU) WALL STRUCTURE TYPE, TO A PRE-CAST/CAST-IN-PLACE CONCRETE WALL/FLOOR SLAB OR TO AN EXISTING STEEL STRUCTURE TYPE, FURNISH AND INSTALL BOLTING ASSEMBLY AND/OR ANCHORING SYSTEM WITH BOLTING ASSEMBLY, PER SPECIFICATIONS AND STRUCTURAL REQUIREMENTS. CLOSELY AND CAREFULLY COORDINATE STRUCTURE TYPES WITH STRUCTURAL. ALSO REFER TO THE STRUCTURAL GENERAL NOTES ON SHEET 11 FOR ADDITIONAL INFORMATION.

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET ADJUST SCALE ACCORDINGLY

STATE OF TEXAS — REGISTERED — PROFESSIONAL ENGINEER — 2/21/2005

HARUTUNIAN ENGINEERING INCORPORATED
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

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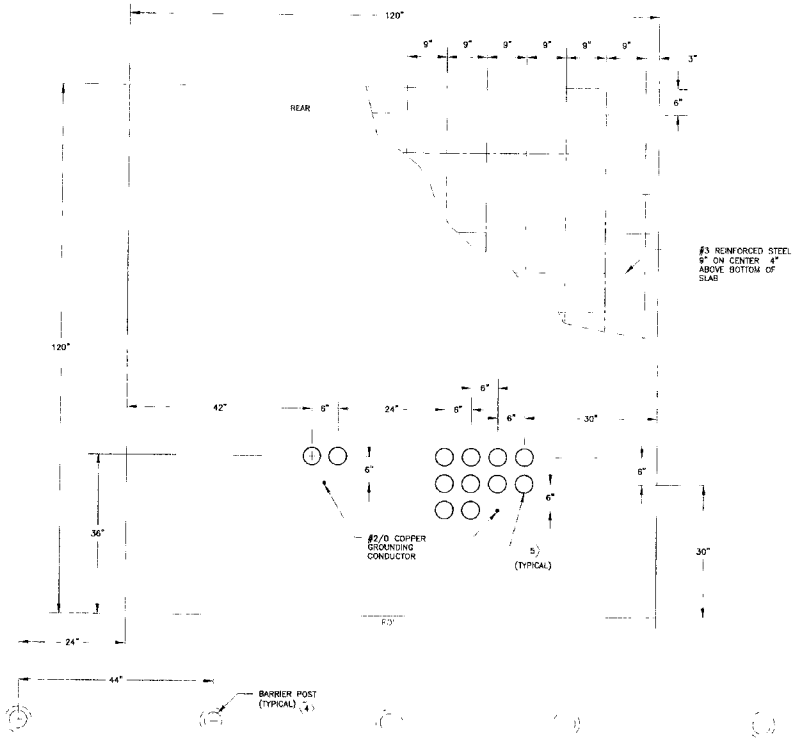
FEBRUARY 2005	
NONE	

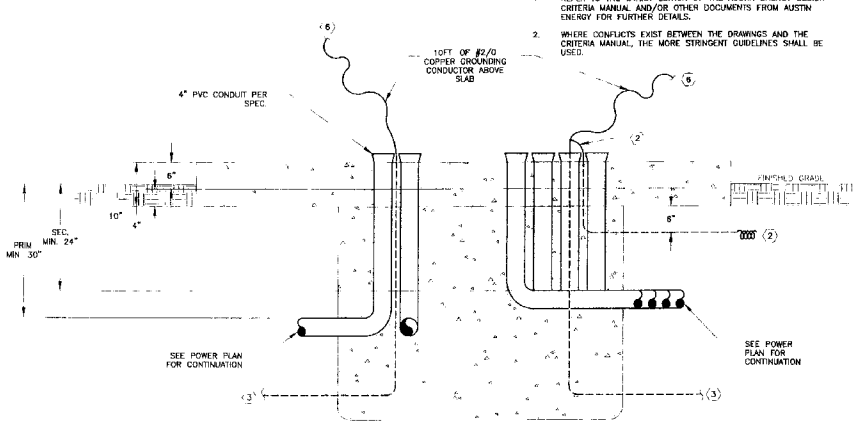
TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO. 10
PUMP STATION NO. 1

ELECTRICAL DETAILS
(SHEET 6 OF 13)

PROJECT	SHEET	
2002-210	155	E-DET-006



THREE PHASE TRANSFORMER PAD DETAIL (750 TO 2500kVA) 1
NTS



THREE PHASE TRANSFORMER PAD DETAIL (750 TO 2500kVA) 2
NTS

NORTH

KEY NOTES:

1. CLOSELY AND CAREFULLY COORDINATE INSTALLATION REQUIREMENTS WITH AUSTIN ENERGY SERVICE PLANNING REPRESENTATIVE, JERRY MENDEZ, AT (512)-505-7533.
2. FURNISH AND INSTALL #6 AWG BARE COPPER WIRE AT 0'-6" BELOW FINISHED GRADE FOR TELECO. LEAVE 3'-0" EXPOSED COPPER WIRE ABOVE TOP OF SLAB TO BE CONNECTED TO SECONDARY GROUND WIRE WHEN CONNECTIONS ARE MADE IN TRANSFORMER. CLOSELY AND CAREFULLY COORDINATE THE EXACT REQUIRED STUB-UP LOCATION FOR THIS GROUNDING CONDUCTOR WITH TRANSFORMER MANUFACTURER TO DETERMINE LOCATION OF GROUNDING TERMINATION POINT ON/WITHIN TRANSFORMER ENCLOSURE.
3. 30 FEET OF 2/0 STRANDED SOFT-DRAWN TINNED COPPER WIRE DIRECT BURRIED A MINIMUM OF 24" BELOW GRADE.
4. FURNISH AND INSTALL THE QUANTITY OF BARRIER POSTS SHOWN ON THE SITE PLAN DRAWINGS, AT MINIMUM. FURNISH AND INSTALL BARRIER POSTS PER THE REQUIREMENTS AND DETAILS OF AUSTIN ENERGY. FURNISH AND INSTALL ADDITIONAL BARRIER POSTS AS REQUIRED TO ADHERE TO THE REQUIREMENTS OF AUSTIN ENERGY REFER TO THE LATEST EDITION OF THE AUSTIN ENERGY DESIGN CRITERIA MANUAL AND/OR OTHER DOCUMENTS FROM AUSTIN ENERGY FOR FURTHER DETAILS.
5. NUMBER OF CONDUITS MAY VARY. ALSO REFER TO THE PLAN DRAWINGS FOR ADDITIONAL INFORMATION.
6. LOCATION OF GROUNDING CONDUCTOR STUB-UP. FOR REPRESENTATION ONLY. CLOSELY AND CAREFULLY COORDINATE THE EXACT REQUIRED STUB-UP LOCATION FOR THIS GROUNDING CONDUCTOR WITH TRANSFORMER MANUFACTURER TO DETERMINE LOCATION OF GROUNDING TERMINATION POINT ON/WITHIN TRANSFORMER ENCLOSURE.

GENERAL NOTES:

1. REFER TO THE LATEST EDITION OF THE AUSTIN ENERGY DESIGN CRITERIA MANUAL AND/OR OTHER DOCUMENTS FROM AUSTIN ENERGY FOR FURTHER DETAILS.
2. WHERE CONFLICTS EXIST BETWEEN THE DRAWINGS AND THE CRITERIA MANUAL, THE MORE STRINGENT GUIDELINES SHALL BE USED.

BAR IS NOT 1 ON ORIGINAL DRAWING. IF NOT AS SHOWN ADJUST SCALING ACCORDINGLY

K. B. HARUTUNIAN 2/21/2005

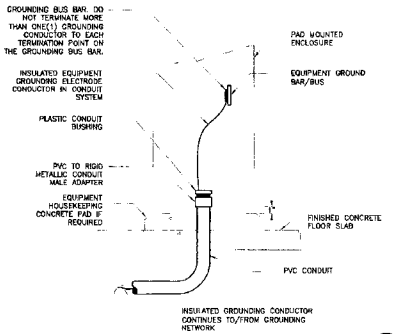
HARUTUNIAN ENGINEERING INCORPORATED
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

DES. BY: HEI
CHKD BY: HEI
DRAWN BY: HEI
DATE: FEBRUARY 2005
SCALE: NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO. 1

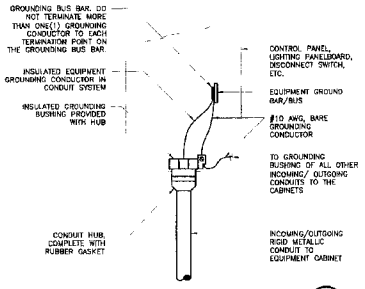
ELECTRICAL DETAILS
(SHEET 7 OF 13)

JOB NO. 2002-210 | SHEET 156 | DWG NO. E-DET-007



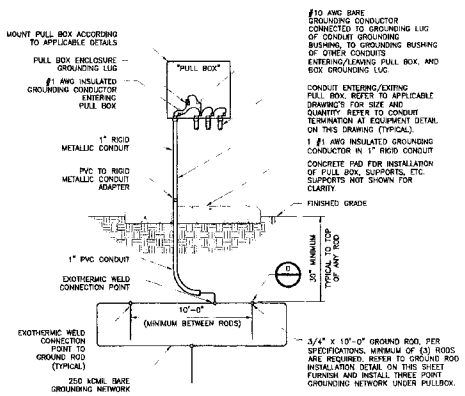
GROUNDING ELECTRODE CONDUCTOR CONDUIT ENTRANCE TO PAD MOUNTED EQUIPMENT (A)

NTS



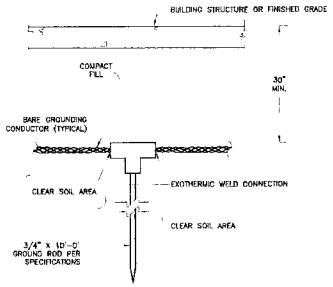
CONDUIT TERMINATION FOR WALL AND/OR RACK MOUNTED EQUIPMENT (C)

NTS



PULL BOX GROUNDING DETAIL (B)

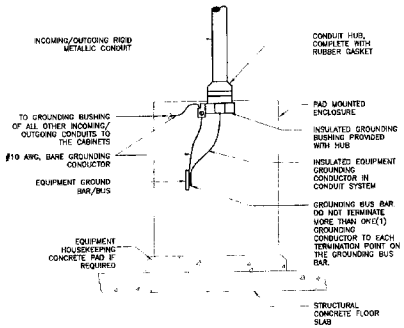
NTS



NOTE:
ROD SHALL NOT BE DRIVEN IN AREAS CONTAINING CRUSHED LIMESTONE, SAND, CRUSHED STONES, CONCRETE, ETC.; I.e. 100% OF THE ROD'S LENGTH AND GROUND CONDUCTOR MUST BE PLACED/DRIVEN INTO AN AREA OF CLEAN NATURAL SOIL. EVEN IF THE MINIMUM BURIAL DEPTH OF 30" MUST BE INCREASED TO ACCOMPLISH THIS TASK, AT NO ADDITIONAL COST TO OWNER.

TYPICAL GROUND ROD INSTALLATION DETAIL (D)

NTS



TOP CONDUIT ENTRANCE TO PAD MOUNTED EQUIPMENT (F)

NTS

BAR IS 1" CT. ORIGINAL DRAWING SCALE IF NOT INCH, ADJUST SCALE ACCORDINGLY.

2/2/2005

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ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 300
AUSTIN, TEXAS 78752

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FEBRUARY 2005
NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO. 10
PUMP STATION NO. 1

ELECTRICAL DETAILS
(SHEET 8 OF 13)

2002-210 | SHEET 157 | E-DET-008

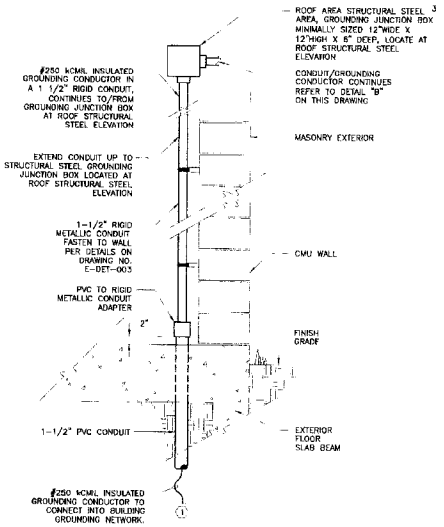
P-TC02175
262

KEY NOTES:

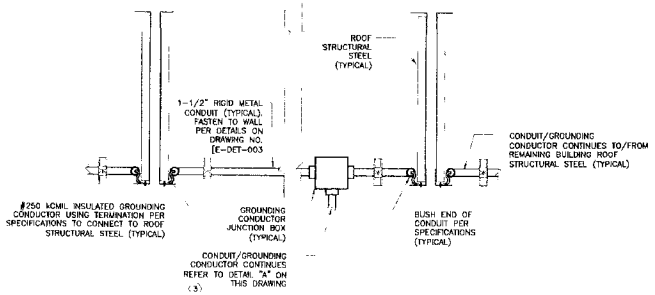
(1) #250 MCM INSULATED GROUNDING CONDUCTOR IN 1-1/2" PVC CONDUIT (ORIENTATION OF CONDUIT VARIES), DIRECT BURIED AT MINIMUM 30" BELOW SLAB (NOT CONCRETE ENCASED). EACH PVC CONDUIT TO EXTEND HORIZONTALLY 12 INCHES FROM COUPLING AT 90 DEGREE BEND. GROUNDING CONDUCTOR EXTENDS TO GROUNDING NETWORK.

(2) CONTRACTOR SHALL CLOSELY AND CAREFULLY COORDINATE THE INSTALLATION OF, AND PROTECTION OF, THE ENTIRE GROUNDING NETWORK (GROUND RODS AND ASSOCIATED GROUNDING CONDUCTORS IN AND AROUND THE STRUCTURE) WITH CIVIL/STRUCTURAL/MECHANICAL DURING ALL PHASES OF CONSTRUCTION.

(3) ALL CONNECTIONS/SPLICES OF CONDUCTORS WITHIN THE STRUCTURAL STEEL AREA GROUNDING JUNCTION BOX SHALL BE BY MEANS OF EXOTHERMIC WELD. COVER ANY PORTION OF UNINSULATED CONDUCTOR OR SPLICE WITH A MINIMUM OF THREE OVERLYING LAYERS OF APPROVED INSULATING ELECTRICAL TAPE, OR ENGINEER APPROVED SPLICE COVER.



TYPICAL GROUNDING CONDUCTOR/CONDUIT TO ROOF AREA (A/2)
NTS



ROOF AREA GROUNDING INSTALLATION DETAIL (B/2)
NTS

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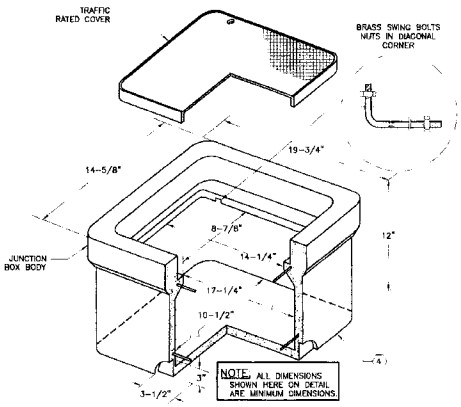
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

DRAWN BY	HEI
CHECKED BY	HEI
APPROVED BY	HEI
DATE	FEBRUARY 2005
SCALE	NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO. 10
PUMP STATION NO. 1

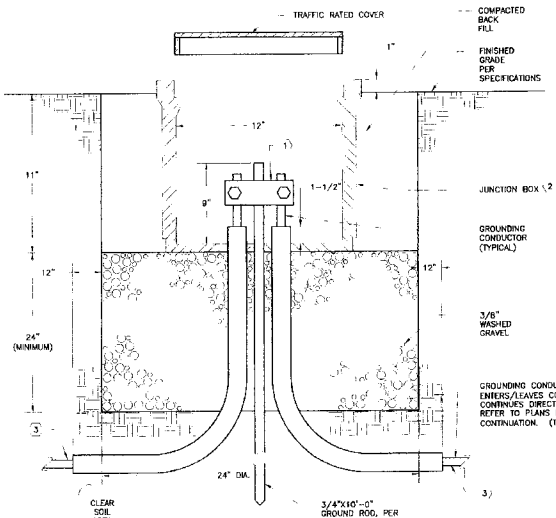
ELECTRICAL DETAILS
(SHEET 9 OF 13)

JOB NO. 2002-210	SHEET 158	DWG. NO. E-DET-009



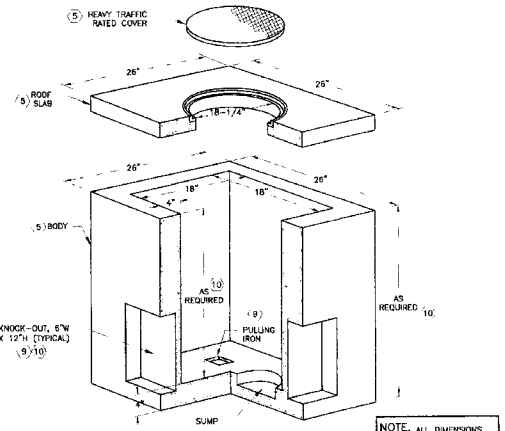
GROUND TEST WELL JUNCTION BOX DETAIL (A)

NTS



GROUNDING TEST WELL DETAIL (B)

NTS



HANDHOLE BOX DETAIL (C)

NTS

KEY NOTES (CONTINUED):

(11) CLOSELY AND CAREFULLY COORDINATE LOCATION OF FINISHED GRADE WITH DUCT BANK ELEVATIONS. SLOPE FINISHED GRADE AWAY FROM HANDHOLE LID TO PREVENT WATER ACCUMULATION IN VICINITY OF HANDHOLE LID.

GENERAL NOTES:

1. CLOSELY AND CAREFULLY COORDINATE ALL HANDHOLE ELEVATIONS, CONDUIT ENTRY WINDOW SIZES/LOCATIONS, AND ALL CORRESPONDING DUCT BANK ELEVATIONS WITH THE DUCT BANK PLAN AND PROFILE DRAWINGS AND WITH THE HANDHOLE MANUFACTURER.
2. FURNISH AND INSTALL BELL ENDS FOR ALL CONDUITS PENETRATING HANDHOLES.

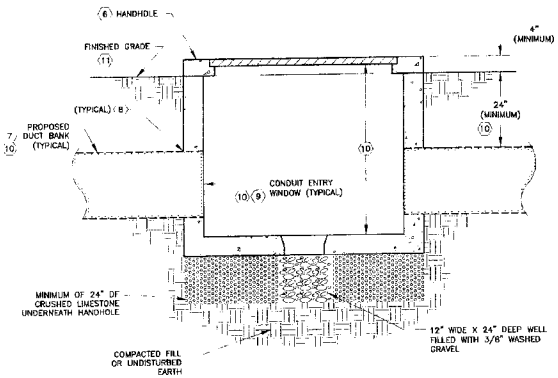
KEY NOTES:

1. TIN PLATED COPPER GROUNDING CONNECTOR PER SPECIFICATIONS.
2. FURNISH AND INSTALL PRECAST HANDHOLE PER DETAIL "A" ON THIS DRAWING
3. #250 KCMIL GROUNDING CONDUCTOR IN 1-1/2" PVC CONDUIT, DIRECT BURIED AT MINIMUM 30" BELOW FINISHED GRADE (NOT CONCRETE ENCASED). EACH PVC CONDUIT TO EXTEND HORIZONTALLY A MINIMUM OF 12 INCHES FROM OUTSIDE EDGE OF TEST WELL CAST CONCRETE JUNCTION BOX. CONDUITS SHALL STUB-UP 4" ABOVE GRAVEL BED AND INSIDE THE BOX.
4. FURNISH AND INSTALL PRECAST HANDHOLE AS MANUFACTURED BY "OLDCASTLE PRECAST, INC." (BROOKS), OR APPROVED EQUAL. OLDCASTLE PART NUMBERS ARE:

   A. TRAFFIC RATED NO. 36T CAST IRON COVER #01701430. SECURE WITH STAINLESS STEEL HARDWARE.

   B. REINFORCED CONCRETE BODY #9700085

   C. PULLBOX SIZE: INSIDE DIMENSION 10-1/2" X 17" X 12" (MINIMUM).
5. FURNISH AND INSTALL PRECAST HANDHOLE COMPLETE WITH HEAVY TRAFFIC RATED CAST IRON COVER AS MANUFACTURED BY "OLDCASTLE PRECAST, INC." (BROOKS), SIMILAR TO MODEL #205081 (BODY), #205062 (CONCRETE ROOF SLAB), AND #401590 (CAST IRON COVER) WITH MINIMUM INTERIOR DIMENSIONS OF 18" WIDE X 18" LONG X 42" DEEP, OR APPROVED EQUAL. THE PROPOSED HANDHOLE SHALL BE MADE OF CONCRETE WITH 5500 POUNDS PER SQUARE INCH DESIGN STRENGTH MEASURED AT 28 DAYS AND SHALL HAVE CONCRETE REINFORCEMENT THROUGHOUT WITH CONCRETE REINFORCEMENT IN COMPLIANCE WITH ASTM A-615 GRADE 60, MINIMUM. FURNISH AND INSTALL ON A MINIMUM OF 24" DEEP X 12" X 12" BED OF 3/8" WASHED GRAVEL (CENTERED UNDER FLOOR DRAIN FOR DRAINAGE) AND 24" OF CRUSHED LIMESTONE. THE HEIGHT OF THE HANDHOLE SHOWN MAY VARY TO ACCOMMODATE THE DUCT BANK ELEVATIONS. CLOSELY AND CAREFULLY COORDINATE INSTALLATION OF HANDHOLE AND HANDHOLE SIZE WITH THE DUCT BANK ELEVATIONS.
6. FURNISH AND INSTALL PRECAST CONCRETE HANDHOLE PER DETAIL "C" ON THIS DRAWING.
7. PROPOSED DUCT BANK IS SHOWN HERE ONLY FOR PURPOSES OF CLARITY. THE PROPOSED DUCT BANK CONTINUES. PROPOSED DUCT BANK SIZE/LOCATION MAY VARY. DUCT BANK CONFIGURATION VARIES IN IMMEDIATE VICINITY OF HANDHOLE TO FACILITATE PENETRATION THROUGH RESERVED CONDUIT PENETRATION WINDOW. REFER TO SITE ELECTRICAL DRAWINGS FOR CONTINUATION, ENCASEMENT, AND ADDITIONAL INFORMATION.
8. GROUT ALL GAPS BETWEEN DUCT BANK AND CONDUIT ENTRY WINDOW COMPLETELY WITH 50-YEAR, NON-SHRINK GROUT TO PROVIDE A WATER-TIGHT SEAL.
9. WINDOW SIZE AND LOCATION SHOWN HERE ARE CONCEPTUAL. CONTRACTOR SHALL ADJUST SIZE AND LOCATION OF WINDOW ALONG WALL AS NEEDED TO ACCOUNT FOR FIELD CONDITIONS. PULLING IRONS SHALL BE TREATED LIKEWISE. ALTHOUGH NOT SHOWN, HANDHOLE SHALL BE PROVIDED WITH A MINIMUM OF ONE WINDOW KNOCKOUT PER SIDE FOR PRESENT OR FUTURE USE. ALL PROPOSED WINDOWS MAY NOT BE USED IN THIS CONTRACT. CLOSELY AND CAREFULLY COORDINATE CONDUIT ENTRY WINDOW LOCATIONS WITH THE DUCT BANK ELEVATIONS AND THE PRECAST HANDHOLE MANUFACTURER.
10. THE HEIGHT OF THE HANDHOLE SHOWN MAY VARY TO ACCOMMODATE THE REQUIREMENTS OF THE DUCT BANK ELEVATIONS. CLOSELY AND CAREFULLY COORDINATE INSTALLATION OF HANDHOLE WITH THE DUCT BANK ELEVATIONS AND CIVIL/SITE DRAWINGS/SPECIFICATIONS.



HANDHOLE INSTALLATION DETAIL (D)

NTS

BAR LENGTH IS ORIGINAL DRAWING SIZE. ADJUST SCALE ACCORDINGLY

K. Harutunian — STATE OF TEXAS — REGISTERED — PROFESSIONAL ENGINEER — 2/2/2006

HARUTUNIAN ENGINEERING INCORPORATED
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 300
AUSTIN, TEXAS 78752

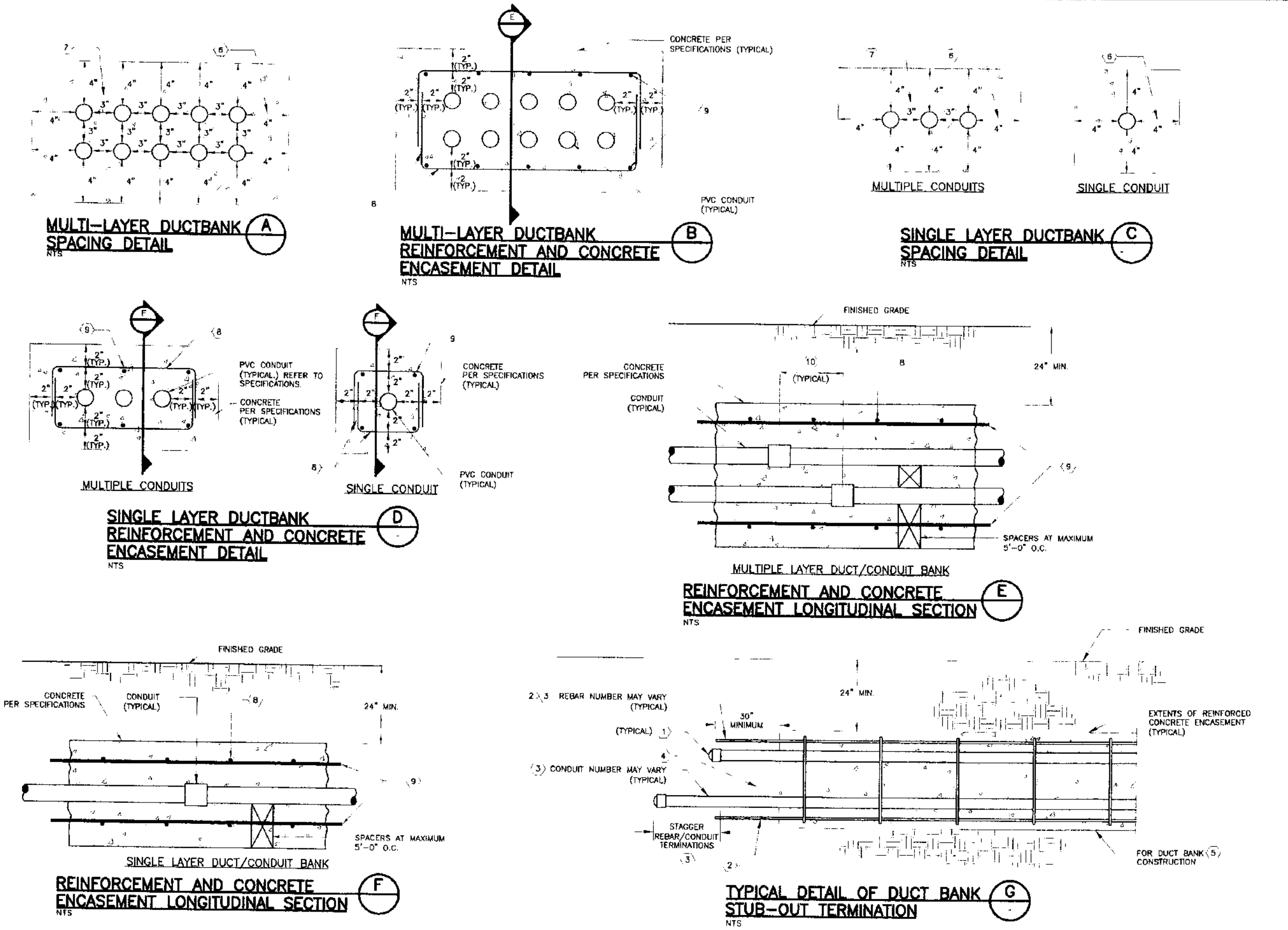
DESIGNED	HEI
DRAWN	HEI
CHECKED	HEI
DATE	FEBRUARY 2006
SCALE	NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO. 10
PUMP STATION NO. 1

ELECTRICAL DETAILS
(SHEET 10 OF 13)

PROJ. I.D. 2002-210 | SHEET 159 | DOC. ID E-DET-010

P-TC02177
264


MULTI-LAYER DUCTBANK SPACING DETAIL (A)
NTS
CONCRETE PER SPECIFICATIONS (TYPICAL)
PVC CONDUIT (TYPICAL)
MULTI-LAYER DUCTBANK REINFORCEMENT AND CONCRETE ENCASEMENT DETAIL (B)
NTS
MULTIPLE CONDUITS
SINGLE CONDUIT
SINGLE LAYER DUCTBANK SPACING DETAIL (C)
NTS
PVC CONDUIT (TYPICAL) REFER TO SPECIFICATIONS
CONCRETE PER SPECIFICATIONS (TYPICAL)
MULTIPLE CONDUITS
SINGLE CONDUIT
SINGLE LAYER DUCTBANK REINFORCEMENT AND CONCRETE ENCASEMENT DETAIL (D)
NTS
FINISHED GRADE
24" MIN.
CONCRETE PER SPECIFICATIONS
CONDUIT (TYPICAL)
SPACERS AT MAXIMUM 5'-0" O.C.
MULTIPLE LAYER DUCT/CONDUIT BANK
REINFORCEMENT AND CONCRETE ENCASEMENT LONGITUDINAL SECTION (E)
NTS
SINGLE LAYER DUCT/CONDUIT BANK
REINFORCEMENT AND CONCRETE ENCASEMENT LONGITUDINAL SECTION (F)
NTS
REBAR NUMBER MAY VARY (TYPICAL)
CONDUIT NUMBER MAY VARY (TYPICAL)
30" MINIMUM
STAGGER REBAR/CONDUIT TERMINATIONS
EXTENTS OF REINFORCED CONCRETE ENCASEMENT (TYPICAL)
FOR DUCT BANK CONSTRUCTION
TYPICAL DETAIL OF DUCT BANK STUB-OUT TERMINATION (G)
NTS

KEY NOTES.

1. AFTER CONDUITS ARE BRUSHED AND WIPED OUT, GLUE CONDUIT CAP TO ENDS OF CONDUITS TO PREVENT ENTRY OF MOISTURE PRIOR TO INSTALLING CONDUIT CAP, FURNISH AND INSTALL A PULLSTRING INSIDE AND ALONG THE ENTIRE LENGTH OF EACH CONDUIT FOR FUTURE USE. SECURELY TAPE PULLSTRING AROUND INTERIOR OF CONDUIT AT CONDUITS TERMINATION POINT
2. THOROUGHLY CLEAN AND DRY EXPOSED REBAR AROUND ITS CIRCUMFERENCE AND ALONG ITS LENGTH. TIGHTLY WRAP REBAR WITH TWO LAYERS AT HALF LAP WITH SCOTCH #33 TAPE (OR APPROVED EQUAL) TO PREVENT CORROSION.
3. STAGGER ALL PROPOSED CONDUIT AND REBAR END POINTS ACCORDING TO CONDUIT/REBAR SPACING REQUIREMENTS IN THE ELECTRICAL SPECIFICATIONS. ONLY THE MINIMUM DISTANCE BETWEEN ANY ONE CONDUIT/REBAR AND THE PROPOSED REINFORCED CONCRETE ENCASEMENT IS SHOWN IN THIS VIEW.
4. CONTRACTOR SHALL BACKFILL REGION IN, ABOUT, AND AROUND EACH PROPOSED EXPOSED CONDUIT/REBAR EXTENDING BEYOND THE EDGE OF THE PROPOSED REINFORCED CONCRETE ENCASEMENT BY HAND.
5. SPACE AND ENCASE IN REINFORCED CONCRETE PER APPLICABLE DETAILS ON THIS DRAWING.
6. 4" SPACE FROM EDGE OF CONDUIT TO EDGE OF CONCRETE ENCASEMENT (TYPICAL).
7. 3" MINIMUM SPACING IN BETWEEN CONDUITS (TYPICAL).
8. #4 STIRRUPS SPACED AT MAXIMUM OF 12" O.C. (ON CENTER).
9. #5 BARS SPACE AT MAXIMUM OF 12" O.C. (TYPICAL FOR TOP AND BOTTOM).
10. STAGGER COUPLINGS BETWEEN LAYERS SPACED AT A MINIMUM OF 12" O.C. (ON CENTER) (TYPICAL).

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH ADJUST SCALE ACCORDINGLY

2/21/2005

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REUSE OF DOCUMENTS

HEI
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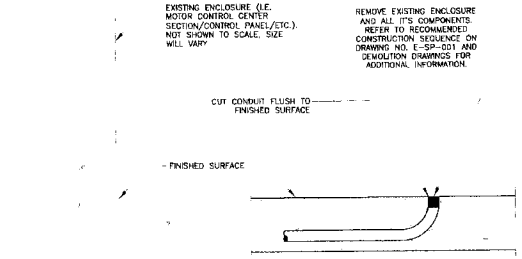
FEBRUARY 2005
NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO. 1

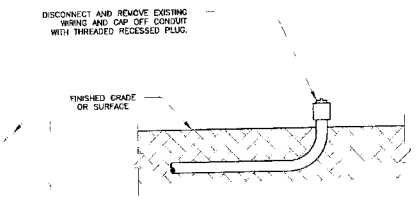
ELECTRICAL DETAILS
(SHEET 11 OF 13)

2002-210 | SHEET 160 | E-DET-011

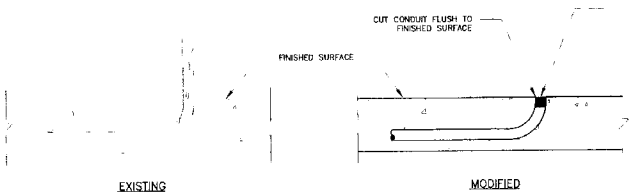
P-TC02178
265



EXISTING STUB-UP MODIFICATION (A)
EXISTING ENCLOSURE REMOVED
NTS



EXISTING STUB-UP MODIFICATION (C)
OUTDOOR CONDUITS CAPPED
NTS



EXISTING STUB-UP MODIFICATION (B)
NO EXISTING ENCLOSURE
NTS

HARUTUNIAN ENGINEERING INCORPORATED
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST HUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

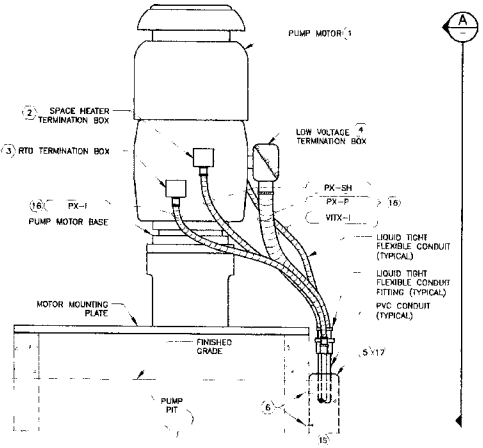
REUSE OF DOCUMENTS
This document and the ideas and designs incorporated herein as an instrument of professional service has been developed, designed and prepared by Harutunian Engineering, Inc. and is not to be used, in whole or part, for any other project without the written authorization of Water District No. 10 and Harutunian Engineering, Inc. © 2005

DESIGNED HEI
DRAWN HEI
CHECKED HEI
DATE FEBRUARY 2005
SCALE NONE

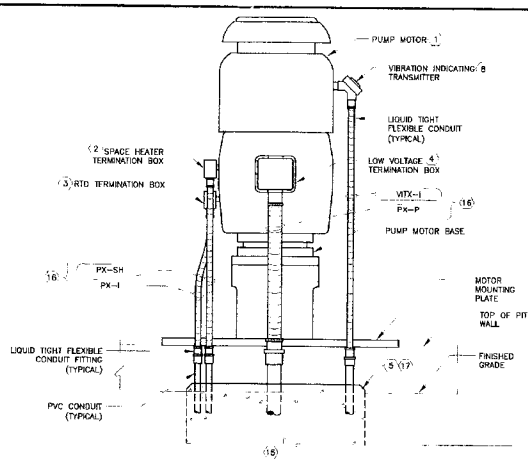
TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO 10
PUMP STATION NO 1

ELECTRICAL DETAILS
(SHEET 12 OF 13)

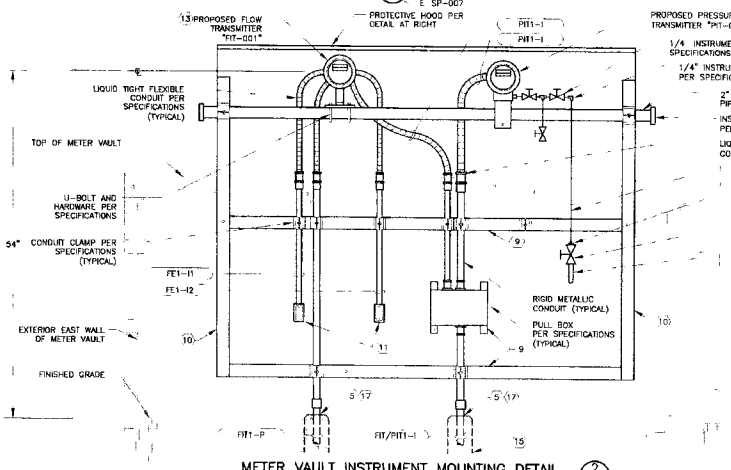
JOB NO 2002-210 | SHEET 161 | DWG NO E-DET-012



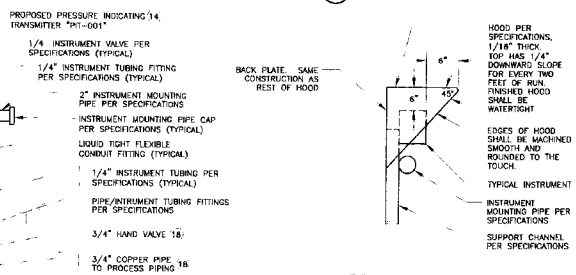
TYPICAL PUMP MOTOR CONNECTION DETAIL 1 7
SCALE: NTS



TYPICAL PUMP MOTOR CONNECTION DETAIL A
SCALE: NTS



METER VAULT INSTRUMENT MOUNTING DETAIL 2
SCALE: NTS



PROTECTIVE HOOD DETAIL
SCALE: NTS

GENERAL NOTES (CONTINUED):

5. CONTRACTOR SHALL CLOSELY AND CAREFULLY COORDINATE ROUTE OF PROPOSED CONDUIT/WIRE WITH EXISTING AND PROPOSED CIVIL/MECHANICAL/STRUCTURAL/ELECTRICAL SYSTEMS/COMPONENTS/EQUIPMENT/UTILITIES, ETC.
6. THE LOCATIONS AND SIZES OF EQUIPMENT SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY CONDITIONS PRIOR TO COMMENCING CONSTRUCTION.

REFERENCE DRAWINGS:

E-SP-007 – PUMP AREA PLAN
E-SP-008 – METER VAULT AREA PLAN
E-CS-001 – E-CS-002 – CONDUIT/WIRE SCHEDULE
E-RWS-001 – E-RWS-003 – CONDUIT SCHEMATICS

KEY NOTES:

1. EXACT SIZE/SHAPE OF PROPOSED PUMP MOTOR IS NOT SHOWN. COORDINATE WITH MOTOR MANUFACTURER FOR DETAILS OF MOTOR DIMENSIONS AND LOCATIONS/SIZES OF PROPOSED TERMINATION POINTS.
2. COORDINATE LOCATION/SIZE OF PROPOSED SPACE HEATER TERMINATION BOX WITH MOTOR MANUFACTURER
3. COORDINATE LOCATION/SIZE OF PROPOSED RTD TERMINATION BOX WITH MOTOR MANUFACTURER.
4. COORDINATE LOCATION/SIZE OF PROPOSED LOW VOLTAGE TERMINATION BOX WITH MOTOR MANUFACTURER FOR POWER CONNECTION TO PUMP MOTOR. COORDINATE WITH PROCESS/MECHANICAL AND MOTOR MANUFACTURER TO ENSURE CORRECT ORIENTATION OF PUMP MOTOR FOR TRANSITION OF CONDUIT/WIRE. ALSO COORDINATE WITH STRUCTURAL/ARCHITECTURAL TO ENSURE ADEQUATE CLEARANCE IN FRONT OF TERMINATION BOX AND AVOID CONFLICT WITH GUARD RAIL.
5. SPACE AND ENCASE DUCTBANK PER THE APPLICABLE DETAILS ON DRAWING NO. E-DET-011
6. DOWEL PROPOSED REINFORCED DUCTBANK INTO WALL OF EXISTING PUMP PIT FOR STABILITY AND SUPPORT OF CONDUIT STUB-UP. USE #4 BAR ON MAXIMUM 12" CENTERS BEGINNING 3" FROM EDGE OF DUCTBANK.
7. PUMP MOTOR CONNECTION DETAIL IS TYPICAL FOR EXISTING PUMPS "P-4", "P-5" AND "P-6". PROPOSED PUMP "P-7" MOTOR CONNECTION SHALL BE SIMILAR, BUT ORIENTATION IS ROTATED NINETY DEGREES AND CONDUIT/WIRE TRANSITION IS THROUGH BOTTOM OF PROPOSED PUMP PIT. REFER TO PLAN VIEW ON DRAWING NO. E-SP-007 FOR PROPOSED MOTOR ORIENTATION.
8. FURNISH AND INSTALL PROPOSED VIBRATION INDICATING TRANSMITTER ACCORDING TO TRANSMITTER MANUFACTURER RECOMMENDATIONS. COORDINATE LOCATION/SIZE OF PROPOSED CONNECTION POINT WITH MOTOR MANUFACTURER.
9. DOUBLE SUPPORT CHANNEL MOUNTED TO OUTSIDE EAST WALL OF METER VAULT. CHANNEL AND SUPPORT HARDWARE/ANCHORS ARE PER SPECIFICATIONS AND ASSOCIATED MANUFACTURER'S RECOMMENDATIONS.
10. SINGLE SUPPORT CHANNEL FASTENED TO HORIZONTAL DOUBLE SUPPORT CHANNEL FOR INSTALLATION OF PROPOSED PRESSURE AND FLOW TRANSMITTERS. CHANNEL AND SUPPORT HARDWARE/ANCHORS ARE PER SPECIFICATIONS AND ASSOCIATED MANUFACTURER'S RECOMMENDATIONS.
11. PROPOSED CONDUIT FITTINGS FOR TRANSITION THROUGH METER VAULT WALL. CONDUIT CONTINUES INSIDE METER VAULT TO PROPOSED FLOW TRANSDUCER. SEAL WALL PENETRATION WITH GROUT PER SPECIFICATIONS. ALSO REFER TO ULTRA SONIC FLOW TRANSDUCER INSTALLATION DETAIL ON DRAWING NO. E-DET-006.
12. PROPOSED PRESSURE INSTRUMENT TUBING TO BE INSTALLED PER PROCESS/MECHANICAL DRAWINGS/SPECIFICATIONS, SHOWN FOR REFERENCE ONLY.
13. FURNISH AND INSTALL PROPOSED FLOW INDICATING TRANSMITTER AND MAKE ALL FINAL CONNECTIONS PER THE MANUFACTURER'S RECOMMENDATIONS.
14. FURNISH AND INSTALL PROPOSED PRESSURE INDICATING TRANSMITTER SIMILAR TO DETAIL ON DRAWING NO. E-DET-008 AND MAKE ALL FINAL CONNECTIONS PER THE MANUFACTURER'S RECOMMENDATIONS.
15. PROPOSED DUCTBANK CONTINUES TO/FROM ASSOCIATED MOTOR CONTROL CENTER AND/OR MAIN CONTROL PANEL LOCATED IN THE ELECTRICAL BUILDING. REFER TO DRAWING NO. E-SP-008 FOR CONTINUATION.
16. REPLACE "X" IN CONDUIT DESIGNATIONS WITH NUMBER OF CORRESPONDING PUMP. E.G. "PX-I" FOR PUMP P-4 BECOMES "P4-I"
17. STUB UP PER APPLICABLE DETAILS ON DRAWING NO. E-DET-004.
18. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION. COORDINATE ALL WORK WITH MECHANICAL.

GENERAL NOTES:

1. EXTREME CARE MUST BE TAKEN FOR THE INSTALLATION OF THE ELECTRICAL DUCT BANKS. SINCE THERE ARE NO AVAILABLE AS BUILT RECORDS OF PROFILES IDENTIFYING THE LOCATION AND INVERT ELEVATIONS OF EXISTING UNDERGROUND ELECTRICAL SYSTEM (CONDUITS, DUCT BANK, GROUNDING NETWORK, ETC.) AND UNDERGROUND MECHANICAL PIPING. ROUTING OF NEW DUCT BANK SHOWN IS BASED ON SCHEMATIC KNOWLEDGE OF THE SIZE OF MECHANICAL PIPING AND THEIR APPROXIMATE SIZE AND/OR LOCATION. NO DATA IS AVAILABLE PERTAINING TO EXISTING UNDERGROUND ELECTRICAL DUCT BANK SYSTEM AND ITS COORDINATION WITH THE UNDERGROUND MECHANICAL SYSTEM. THEREFORE THE CONTRACTOR IS TO EXERCISE EXTREME CARE, VERIFY LOCATION/ROUTING/ELEVATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCING FULL SCALE INSTALLATION PROCESS OF THE PROPOSED DUCT BANK SYSTEM. FOLLOWING THE DISCOVERY VERIFICATION OF EXISTING UNDERGROUND UTILITIES, SHOULD ADJUSTMENT/MODIFICATIONS BECOME A NECESSITY TO EITHER THE EXISTING OR PROPOSED SYSTEM (AS APPLICABLE), THE EXISTING DISCOVERED FIELD CONDITIONS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION FOR EXECUTION OF THE NECESSARY ADJUSTMENTS/MODIFICATIONS.
2. NOT ALL MANHOLES/HANDHOLES/PULLBOXES OR UNDERGROUND UTILITIES ARE SHOWN ON THIS DRAWING.
3. EXACT LOCATIONS OF MECHANICAL/STRUCTURAL/CIVIL COMPONENTS ARE NOT SHOWN ON THIS DRAWING. REFER TO MECHANICAL/STRUCTURAL/CIVIL DRAWINGS FOR EXACT LOCATIONS OF MECHANICAL/STRUCTURAL/CIVIL ITEMS.
4. NOT ALL ELECTRICAL/MECHANICAL/STRUCTURAL/CIVIL COMPONENTS ARE SHOWN ON THIS DRAWING. REFER TO ELECTRICAL/MECHANICAL/STRUCTURAL/CIVIL DRAWINGS, AS APPLICABLE, FOR ADDITIONAL INFORMATION.

HARUTUNIAN ENGINEERING INCORPORATED
ENGINEERING AND ENVIRONMENTAL CONSULTANTS
305 EAST MUNTLAND DRIVE SUITE 500
AUSTIN, TEXAS 78752

HEI
HEI
HEI
FEBRUARY 2005
NONE

TRAVIS COUNTY WATER CONTROL & IMPROVEMENT DISTRICT NO. 10
PUMP STATION NO. 1

ELECTRICAL DETAILS
(SHEET 13 OF 13)

2002-210 | SHEET 162 | E-DET-013

RESPONSE TO REQUEST NO. 68

DANNENBAUM ENGINEERING CORPORATION
8627 NORTH MOPAC, SUITE 300 AUSTIN, TEXAS 78759 (512) 345-8505

August 15, 1994

Mr. Paul Wakefield, District Manager
Travis County WCID No. 10
5450 Bee Caves Road, Suite 2-A
Austin, Texas 78746

REFERENCE: **Travis County WCID No. 10**

SUBJECT: **Capital Improvement Projects Revised-2**

Dear Mr. Wakefield:

In accordance with the Board's request, we have prepared a list of potential Capital Improvement Projects that the District may need to undertake some time in the future. Exhibits A, B and C are listings of the estimated costs of each of these projects. The following is a description of these projects:

Project 1 - Rob Roy Water Storage Facility

This project involves the construction of a new water storage tank with a volume of 1,000,000 gallons. The foundation for this tank and site improvements have been completed. The final project will include the reservoir, transmission piping, telemetry and other incidental items.

Project 2 - Bee Caves Road Waterline Relocation (Phase A)

This project includes the installation of approximately 5,800 L.F. of 16 inch waterline to replace one 8 inch and one 12 inch line. This work is necessary to accommodate the proposed widening of Bee Caves Road between Loop 360 and St. Stephen's School Road. The widening project is currently scheduled to bid in July 1996 and the right-of-way acquisition has begun.

Project 3 - Camelot Transmission Upgrade

This project includes the installation of approximately 3000 L.F. of 8 inch waterline to replace the existing 4 inch line from Bee Caves Road along Canyon Rim Drive to the master meter. This project will provide fire flow along the route and will exceed the District's standard (6-inch main) for transmission size.

Project 4 - Rob Roy Upgrade

This project is Alternate No. 3, Interim Ranch Road Route, Full Irrigation Flows, from the **DEC** April 8, 1994 study.

Project 5 - Pump Stations No. 1 & 2 Upgrade

This project includes the installation of an additional pump in Pump Station No. 1 (2300 gpm) and Pump Station No. 2 (1607 gpm). These pumps will be required in order to increase the capacity as the District "builds-out". Some or all of the cost of the pump for Pump Station No. 1 will be recovered from the Capital Recovery Fee, currently implemented by the Board for Zones I and II.

Project 6 - West Bank Drive Transmission Main

The City of Austin is proposing a water storage facility near the intersection of Camp Craft Road and Barclay Drive. This reservoir may include capacity for W.C.I.D. No. 10 which would be utilized for the District's elevation 880 pressure plane. In order to tie the reservoir to the system, we have used the most conservative route for Alternate A, which would begin at the tank, proceed along Scottish Woods Trail, be bored across Loop 360, then proceed along West Bank Drive to Bee Caves Road where it will be connected to the District's system. The West Bank Drive Route was chosen over a shorter Camp Craft Road route for two reasons:

1. West Bank Drive possesses sufficient right-of-way.

2. Connecting the system at West Bank Drive and Bee Caves Road feeds the most users more directly.

Alternate B begins at the City's proposed ground storage tank near Pinnacle Road and Westbank Drive. It then follows Westbank Drive to Bee Caves Road. It is not known at this time what the Austin participation cost will be. In addition, the construction will most likely not begin for 3-5 years.

Project 7 - Bee Caves Road Waterline Relocation (Phase B)

This project includes the installation of approximately 11,150 L.F. of 12 inch waterline and 1,500 L.F. of 8 inch waterline to replace all of the lines currently in the right-of-way for Bee Caves Road between Bulian Lane and Loop 360. This work is necessary to accommodate the proposed widening of Bee Caves Road.

TXDOT currently has this project scheduled for September 1999. However, after talking with TXDOT and the City of Westlake personnel, it may be 10 years or more before construction.

EXHIBIT A includes Projects 1 through 5 which are anticipated to occur in the next two years. EXHIBIT B is Project 6, expected to occur within 5 years and EXHIBIT C is Project 7 which is not expected to occur for at least 10 years. The following is a summary of Groups A, B and C:

Group	Construction	Remaining Cost W/Group B Alt. A	Remaining Cost W/Group B Alt. B
A	1 Year	$3,087,000	$3,087,000
B	5 Years	941,000	361,000
C	10 Years	1,433,000	1,433,000
	TOTALS	$5,461,000	$4,881,000

If you have any questions regarding this matter, please give me a call.

Sincerely,

DANNENBAUM ENGINEERING CORPORATION

Thomas C. Arndt, P.E.

TCA:sam
Enclosures

Cap-Impr\Rev-2
7009-06.CIP

EXHIBIT A

TRAVIS COUNTY W.C.I.D. NO. 10

CAPITAL IMPROVEMENT PROJECTS

GROUP A

ESTIMATED COSTS

PROJECTED 1 YEAR AT 4% INFLATION

AUGUST 1994

PROJECT NO.	DESCRIPTION	TOTAL COST	COST TO DATE	REMAINING COST
1.	NEW ROB ROY TANK	$ 639,986.50	$29,986.50	$610,000.00
2.	BEE CAVES WATERLINE REPLACEMENT-PHASE A	839,000.00	0.00	839,000.00
3.	CAMELOT WATERLINE REPLACEMENT	265,000.00	0.00	265,000.00
4.	ROB ROY UPGRADE	1,229,000.00	0.00	1,229,000.00
5.	PUMP STATION 1	73,000.00	0.00	73,000.00
	PUMP STATION 2	71,000.00	0.00	71,000.00
TOTALS		**$3,116,986.50**	**$29,986.50**	**$3,087,000.00**

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7009-06.cip

DANNENBAUM ENGINEERING CORPORATION

EXHIBIT B

TRAVIS COUNTY W.C.I.D. NO. 10

CAPITAL IMPROVEMENT PROJECTS

GROUP B

ESTIMATED COSTS

PROJECTED 5 YEARS AT 4% INFLATION

AUGUST 1994

PROJECT NO.	DESCRIPTION	TOTAL COST	COST TO DATE	REMAINING COST
6. - Alt. A	WEST BANK DRIVE TRANSMISSION MAIN	$941,000.00	$0.00	$941,000.00
	TOTALS	**$941,000.00**	**$0.00**	**$941,000.00**
6. - Alt. B	WEST BANK DRIVE TRANSMISSION MAIN	$361,000.00	$0.00	$361,000.00
	TOTALS	**$361,000.00**	**$0.00**	**$361,000.00**

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EXHIBIT C

TRAVIS COUNTY W.C.I.D. NO. 10

CAPITAL IMPROVEMENT PROJECTS

GROUP C

ESTIMATED COSTS

PROJECTED 10 YEARS AT 4% INFLATION

AUGUST 1994

PROJECT NO.	DESCRIPTION	TOTAL COST	COST TO DATE	REMAINING COST
7.	BEE CAVES WATERLINE REPLACEMENT-PHASE B	$1,433,000.00	$0.00	$1,433,000.00
TOTALS		$1,433,000.00	$0.00	$1,433,000.00

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7009-06.cip

DANNENBAUM ENGINEERING CORPORATION

PROJECT NO. 1

ROB ROY WATER STORAGE FACILITY

DESCRIPTION	QUANTITY	UNIT PRICE		TOTAL
1,000,000 Gal Tank	1 EA	$ 335,000.00	$	335,000
24" D.I. Pipe	700 LF	85.00		59,500
24" Butterfly Valve	3 EA	7,500.00		22,500
Telemetry, Elec. Misc.	LS	10,000.00		10,000
	SUBTOTAL		$	427,000
	+15% Surveying, Engineering & COA Fees			64,100
	+15% Construction Contingencies			64,100
	+ COA Inspection			31,800
	TOTAL		$	587,000
Present Cost Projected 1 Years @ 4% Inflation =			$	**610,000**
Cost To Date				29,986.50
	TOTAL			**$ 639,986.50**

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RR-WSF.RP1

DANNENBAUM ENGINEERING CORPORATION

PROJECT NO. 2

BEE CAVES ROAD

LOOP 360 TO ST. STEPHENS SCHOOL ROAD

AND RELOCATE 12" WITH 16"

DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
16" D.I. Pipe	5700 LF	$ 60.00	$ 342,000
16" D.I. Pipe (Bore)	130 LF	250.00	32,500
8" D.I. Pipe	2200 LF	40.00	88,000
8" Pipe (Bore)	400 LF	150.00	60,000
16"x12" Wet Connection	2 EA	5,000.00	10,000
16"x8" Wet Coonnection	2 EA	4,000.00	8,000
16" Butterfly Valve	5 EA	4,500.00	22,500
8" Gate Valve	10 EA	600.00	6,000
Fire Hydrants	12 EA	1,500.00	18,000
	SUBTOTAL		$ 587,000
	+15% Surveying, Engineering & COA Fees		88,000
	+15% Construction Contingencies		88,000
	+ COA Inspection		44,000
	TOTAL		**$ 807,000**

Present Cost Projected 1 Year @ 4% Inflation = $ 839,000

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Bee-Cave.Pr2

DANNENBAUM ENGINEERING CORPORATION

PROJECT 3

CAMELOT IMPROVEMENTS

DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
8" D.I. Pipe	2,900 LF	$ 40.00	$ 116,000
8" D.I. Pipe (Bore)	130 LF	150.00	19,500
8" x 12" Wet Connection	1 EA	2,500.00	2,500
Fire Hydrant	6 EA	1,500.00	9,000
Pavement Repair	2,900 LF	9.00	26,100
	SUBTOTAL		$ 173,100
	+15% Surveying, Engineering & COA Fees		34,600
	+15% Construction Contingencies		34,600
	+ COA Inspection		12,700
	TOTAL		**$ 255,000**

Present Cost Projected 1 Year @ 4% Inflation = $ 265,000

Cap-Impr\Rev-2
Camelot.Pr3

PROJECT 4

ROB ROY UPGRADE
FULL IRRIGATION FLOWS
RANCH ROAD ROUTE
INTERIM WITHOUT LOOP 360 LINE

DESCRIPTION	QUANTITY	UNIT COST	TOTAL
20" D.I. Pipe	1,800 LF	$ 75.00	$ 135,000
16" D.I. Pipe	3,750 LF	60.00	225,000
12" D.I. Pipe (Ranch Rd)	1,500 LF	80.00	120,000
12" D.I. Pipe	3,500 LF	48.00	168,000
6" D.I. Pipe	1,170 LF	35.00	40,950
20" Tank Wet Connection	1 EA	5,000.00	5,000
20" Check Valve	1 EA	8,500.00	8,500
20"x12" Wet Connection	1 EA	5,000.00	5,000
16"x8" Wet Connection	1 EA	4,000.00	4,000
16"x6" Wet Connection	1 EA	3,000.00	3,000
12"x8" Wet Connection	1 EA	2,500.00	2,500
12"x6" Wet Connection	3 EA	1,500.00	4,500
8"x6" Wet Connection	1 EA	1,500.00	1,500
6"x6" Wet Connection	1 EA	1,500.00	1,500
Fire Hydrant	2 EA	1,500.00	3,000
20" Butterfly Valve	3 EA	6,000.00	18,000
16" Butterfly Valve	3 EA	4,500.00	13,500
12" Gate Valve	10 EA	1,200.00	12,000
6" Gate Valve	2 EA	500.00	1,000
Silt Fence	12,000 LF	2.00	24,000
Rock Berm	500 LF	18.00	9,000
Pavement Repair	LS	55,000.00	55,000
		SUBTOTAL	$ 859,950
		+ 15% Surveying, Engineering & COA Fees	129,000
		+ 15% Construction Contingencies	129,000
		+ COA Inspection	64,050
		TOTAL	$1,182,000

Present Cost Projected 1 Year @ 4% Inflation = $1,229,000

NOTE: DOES NOT INCLUDE COST OF EASEMENTS

Cap-Impr\Rev-2
Project.004

PROJECT 5

PUMP STATIONS NO. 1 and 2 UPGRADE

A. PUMP STATION NO. 1

DESCRIPTION	QUANTITY	UNIT COST	TOTAL
2300 GPM Pump	1 EA	$30,000.00	$ 30,000
Foundation	LS	5,000.00	5,000
Piping	LS	11,000.00	11,000
Controls	LS	5,000.00	5,000
		SUBTOTAL	51,000
	+ 15% Surveying, Engineering & COA Fees		7,700
	+ 15% Construction Contingencies		7,700
	+ COA Inspection		3,600
		TOTAL	**$ 70,000**
Present Cost Projected 1 Year @ 4% Inflation =			**$ 73,000**

B. PUMP STATION NO. 2

DESCRIPTION	QUANTITY	UNIT COST	TOTAL
1600 GPM Pump	1 EA	$28,000.00	$ 28,000
Foundation	LS	5,000.00	5,000
Piping	LS	11,000.00	11,000
Controls	LS	5,000.00	5,000
		SUBTOTAL	49,000
	+ 15% Surveying, Engineering & COA Fees		7,500
	+ 15% Construction Contingencies		7,500
	+ COA Inspection		4,000
		TOTAL	**$ 68,000**
Present Cost Projected 1 Year @ 4% Inflation =			**$ 71,000**

Cap-Impr\Rev-2
Project.005

PROJECT 6

WEST BANK DRIVE

TRANSMISSION MAIN

ALTERNATE A

DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
16" D.I. Pipe	7,500 LF	$ 60.00	$ 450,000
16" D.I. Pipe (Bore)	200 LF	250.00	50,000
16"X12" Wet Connection	1 EA	5,000.00	5,000
16" Butterfly Valve	4 EA	4,500.00	18,000
Silt Fence	7,700 LF	2.00	15,400
Rock Berm	200 LF	18.00	3,600
Pavement Repair	LS	20,000.00	20,000
	SUBTOTAL		$ 562,000
	+15% Surveying, Engineering & COA Fees		84,300
	+15% Construction Contingencies		84,300
	+ COA Inspection		42,400
	TOTAL		**$ 773,000**

Present Cost Projected 5 Years @ 4% Inflation = $ 941,000

NOTE: DOES NOT INCLUDE CITY OF AUSTIN PARTICIPATION COST

Cap-Impr\Rev-2
W-Bank.Pr6

PROJECT 6

WEST BANK DRIVE

TRANSMISSION MAIN

ALTERNATE B

DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
16" D.I. Pipe	3,000 LF	$ 60.00	$ 180,000
24"X16" Wet Connection	1 EA	7,000.00	7,000
16" Butterfly Valve	2 EA	4,500.00	9,000
Silt Fence	3,000 LF	2.00	6,000
Rock Berm	200 LF	18.00	3,600
Pavement Repair	LS	10,000.00	10,000
		SUBTOTAL	$ 215,600
		+15% Surveying, Engineering & COA Fees	32,300
		+15% Construction Contingencies	32,300
		+ COA Inspection	16,800
		TOTAL	**$ 297,000**

Present Cost Projected 5 Years @ 4% Inflation = $ 361,000

NOTE: DOES NOT INCLUDE CITY OF AUSTIN PARTICIPATION COST

Cap-Impr\Rev-2
W-Bank.Pr6

PROJECT 7

BEE CAVES ROAD BETWEEN BULIAN LANE AND LOOP 360

DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
12" D.I. Pipe	11,150 LF	$ 48.00	$ 535,200
8" D.I. Pipe	1500 LF	33.00	49,500
12" x 12" Wet Connection	2 EA	3,000.00	6,000
12" x 8" Wet Connection	2 EA	2,500.00	5,000
12" x 6" Wet Connection	5 EA	1,500.00	7,500
8" x 6" Wet Connection	1 EA	1,500.00	1,500
Fire Hydrant	27 EA	1,500.00	40,500
12" Gate Valve	16 EA	1,200.00	19,200
8" Gate Valve	2 EA	600.00	1,200
6" Gate Valve	5 EA	500.00	2,500
Silt Fence	11,000 LF	2.00	22,000
Rock Berm	200 LF	18.00	3,600
Pavement Repair	LS	10,000.00	10,000
	SUBTOTAL		$ 703,700
	+15% Surveying, Engineering & COA Fees		105,600
	+15% Construction Contingencies		105,600
	+ COA Inspection		53,100
	TOTAL		**$ 968,000**

Present Cost Projected 10 Years @ 4% Inflation = $1,433,000

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Bee-Cave.Pr7

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