

INDIANOLA MUNICIPAL UTILITIES



Electric • Network Services • Water

**IMU Board of Trustees of the
Electric, Water and Communications Utilities
May 8, 2017
City Hall Council Chambers
5:30 p.m.**

Agenda

1. Call to Order
2. Roll Call
3. Public Comments
4. Consent Agenda
 - A. Claims list for May 1, 2017
 - B. Minutes from April 24, 2017
5. Communications Utility Action Items
 - A. Fiber Project Infrastructure
 1. FTTH Business Plan Presentation and Report Acceptance
 2. Public hearing on the matter of adoption of plans, specs, form of contract and estimate of cost for the Fiber To The Home Network Project (construction)
 3. Resolution adopting plans, specs, form of contract and estimate of cost for the Fiber to the Home Network Project (construction)
 4. Consider setting May 22, 2017 for hearing, review and acceptance of the bids for the Fiber to the Home Network Project (construction)
 5. Public hearing on the matter of adoption of plans, specs, form of contract and estimate of cost the Fiber to the Home Network Project (materials)

6. Resolution adopting plans, specs, form of contract and estimate of cost for the Fiber to the Home Network Project (materials)
7. Consider setting May 22, 2017 for hearing, review and acceptance of the bids for the Fiber to the Home Network Project (materials)
6. Communications Utility Informational Items
7. Electric Utility Action Items
 - A. Consider proposal from Watts Electric in an amount of \$68,761.80 for the 2017 Hwy 92 Martensdale Transmission Line Relocation Project
8. Electric Utility Informational Items
9. Water Utility Informational Items
10. Combined Electric, Water and Communications Utilities Action Items
 - A. Public hearing regarding the FY 2017 budget amendment
 - B. Resolution approving the FY 2017 budget amendment
 - C. Receive and file resignation of General Manager Rob Stangel
11. Combined Electric, Water and Communications Utilities Informational Items
12. Other Business
 - A. Motion to go into Closed Session in accordance with Iowa Code Section 21.5(1)(i) to evaluate the professional competency of an individual whose appointment, hiring, performance, or discharge is being considered when necessary to prevent needless and irreparable injury to that individual's reputation and that individual requests a closed session
13. Adjourn

IMU Regular Downstairs

4.A.

Meeting Date: 05/08/2017

Information

Subject

Claims list for May 1, 2017

Information

Fiscal Impact

Attachments

Claims

Vendor Name	GL Account Number	Description	Invoice Date	Net Invoice Amount
WATER OPERATING FUND				
CONVERGINT TECHNOLOGIES	600-8120-63100	SECURITY CAMERA STORAGE SERVER	04/21/2017	750.00
IOWA ASSOC OF MUN UTILITIE	600-8192-64990	SAFETY CONSULTING - MARCH 2017	03/31/2017	122.74
KELLER'S GARAGE	600-8160-63320	2009 FORD F150 ACTUATOR REPAIR	04/20/2017	368.54
MAHASKA COMMUNICATION G	600-8110-63730	TELEPHONE	04/01/2017	41.74
MUNICIPAL ENERGY AGENCY	600-8110-63710	PURCHASED POWER - MAR (WELL KWH & TRANS)	01/11/2017	238.95
SHULL, DOUG	600-8190-64990	TREASURER CONTRACT	04/21/2017	15.84
U.S. CELLULAR	600-8110-63730	CELL PHONES - 4	04/12/2017	107.90
WAL-MART STORES INC.	600-8110-65070	INK CARTRIDGE	04/19/2017	21.97
WAL-MART STORES INC.	600-8110-65070	INK CARTRIDGE	04/20/2017	28.97
Total WATER OPERATING FUND:				1,696.65
IMU ADMINISTRATION FUND				
21ST CENTURY REHAB P.C.	620-8090-65990	PREWORK SCREEN	04/03/2017	60.00
BRICK GENTRY P.C.	620-8091-64110	UNION NEGOTIATIONS	02/25/2017	795.00
BRICK GENTRY P.C.	620-8091-64110	UNION NEGOTIATIONS	03/25/2017	1,920.00
CAPITAL EXPRESS	620-8090-65080	DELIVERY OF 4-1-17 UTILITY BILLS	04/01/2017	41.15
CONVERGINT TECHNOLOGIES	620-8090-64190	SECURITY CAMERA STORAGE SERVER	04/21/2017	750.00
MAHASKA COMMUNICATION G	620-8091-63730	TELEPHONE	04/01/2017	36.52
MAHASKA COMMUNICATION G	620-8091-63730	INTERNET	04/01/2017	22.00
PELLA PRINTING	620-8090-65070	SUSTAINABILITY/SPRING CLEAN UP	03/27/2017	416.00
PITNEY BOWES	620-8090-65080	POSTAGE METER 1/16/17 - 4/15/17	04/16/2017	8.99
Total IMU ADMINISTRATION FUND:				4,049.66
ELECTRIC OPERATING FUND				
BANKERS TRUST COMPANY	630-8290-64990	FEE CALCULATION - 1ST QTR 2017	04/17/2017	1,844.91
CHAPMAN METERING	630-8250-64200	SINGLE & THREE PHASE ANNUAL METER TESTS	04/19/2017	3,812.41
CINTAS CORPORATION	630-8250-65072	1ST AID SUPPLIES	04/07/2017	126.99
CITY OF INDIANOLA	630-8250-65072	CRUSHED CONCRETE	04/20/2017	230.00
CITY OF INDIANOLA - REBATE	630-8290-67306	A/C REBATE	04/11/2017	200.00
CITY OF INDIANOLA - REBATE	630-8290-67306	A/C REBATE	03/28/2017	200.00
CITY OF INDIANOLA - REBATE	630-8290-67306	COMMERCIAL LIGHTING	04/17/2017	696.00
CITY OF INDIANOLA - REBATE	630-8290-67306	A/C REBATE	04/04/2017	200.00
CR SERVICES	630-8250-65072	CUPS FOR WATER COOLERS	04/17/2017	41.71
DOERING PROPERTIES LLC	630-8290-67306	COMMERCIAL LIGHTING REBATE	04/24/2017	2,096.00
IEUSTA	630-8290-62100	2016 IEUSTA MEMBERSHIP DUES	04/24/2017	150.00
IEUSTA	630-8290-62100	2017 IEUSTA MEMBERSHIP DUES	04/24/2017	150.00
INDIANOLA TREE COMMITTEE	630-8290-67306	2017 TREE COMMITTEE DONATION	04/17/2017	1,500.00
INFOMAX OFFICE SYSTEMS IN	630-8290-64990	LEASE- 4/21/17 TO 5/20/17	04/06/2017	264.00
IOWA ASSOC OF MUN UTILITIE	630-8292-64990	SAFETY CONSULTING - MARCH 2017	03/31/2017	122.74
MAHASKA COMMUNICATION G	630-8240-63730	TELEPHONE	04/01/2017	83.48
METCALF, MIKE	630-8240-62300	MILEAGE	04/24/2017	232.19
MUNICIPAL ENERGY AGENCY	630-8230-63991	TRANSMISSION/ADJUSTMENT - MAR	01/11/2017	51,665.84
MUNICIPAL ENERGY AGENCY	630-8230-63990	CONTRACTED WIND - MAR	01/11/2017	22,236.00
MUNICIPAL ENERGY AGENCY	630-8230-63991	FIXED COST RECOVERY CHARGE	01/11/2017	325,805.00
MUNICIPAL ENERGY AGENCY	630-8230-63991	PURCHASED POWER - MAR. (NET ELECTRIC)	01/11/2017	418,481.48
MUNICIPAL ENERGY AGENCY	630-8200-45629	20% 69KV 30.9 CREDIT/ADMIN FEE - MAR	01/11/2017	6,347.65-
MUNICIPAL ENERGY AGENCY	630-8230-63990	LANDFILL GAS ATTRIBUTES - MAR	01/11/2017	13,260.00
MUNICIPAL ENERGY AGENCY	630-8230-63991	IND TRANS SYSTEM OPERATOR CHARGE	04/06/2017	5,141.54
SHULL, DOUG	630-8290-64990	TREASURER CONTRACT	04/21/2017	60.00
STANGEL, ROBERT	630-8290-62700	MILEAGE - POWER SUPPLY WORKSHOP	04/19/2017	315.65
U.S. CELLULAR	630-8240-63730	CELL PHONES - 9	04/12/2017	172.38
VANDERPOOL PLUMBING	630-8220-63100	AC REPAIR ON POP BULIDING	03/24/2017	882.10
VOLTMER, STEVE AND BETH	630-8290-67306	A/C REBATE	04/03/2017	100.00
WESCO	630-8250-65072	FIBERGLASS ARM ADAPTER	04/14/2017	316.72
WESCO	630-8240-65500	FR RAIN GEAR	04/14/2017	172.14

Vendor Name	GL Account Number	Description	Invoice Date	Net Invoice Amount
WESCO	630-8210-65500	FR RAIN GEAR	04/14/2017	143.04
Total ELECTRIC OPERATING FUND:				844,354.67
FIBER/COMMUNICATIONS FUND				
SHULL, DOUG	640-8590-64990	TREASURER CONTRACT	04/21/2017	7.50
U.S. CELLULAR	640-8550-63730	CELL PHONE	04/12/2017	52.57
Total FIBER/COMMUNICATIONS FUND:				60.07
WATER CAPITAL PROJECTS FUND				
BRICK GENTRY P.C.	700-8100-67406	W IOWA WATER MAIN REPLACEMENT	02/25/2017	90.00
Total WATER CAPITAL PROJECTS FUND:				90.00
ELECTRIC CAPITAL PROJECTS FUND				
BRICK GENTRY P.C.	730-8200-67905	FIBER EXPANSION PROJECT	02/25/2017	375.00
BRICK GENTRY P.C.	730-8200-67901	SCADA, OSI AGREEMENT	02/25/2017	150.00
CONVERGINT TECHNOLOGIES	730-8200-67245	SECURITY CAMERA STORAGE SERVER	04/21/2017	750.00
CR SERVICES	730-8200-67906	ELECTRIC AND FIBER LOCATE FLAGS	04/17/2017	574.89
KRIZ-DAVIS COMPANY	730-8200-67906	400 KVAR CAPACITORS	04/07/2017	1,679.90
MAGELLAN ADVISORS LLC	730-8200-67605	BUSINESS PLAN AND FINANCIAL MODEL	03/31/2017	4,495.00
METERING & TECHNOLOGY SO	730-8200-67906	FORM 12S ELECTRIC METERS	04/10/2017	13,156.14
MUNICIPAL ENERGY AGENCY	730-8200-45629	80% 69KV 30.9 CREDIT/ADMIN FEE - MAR	01/11/2017	25,390.59-
NEWCOM TECHNOLOGIES INC	730-8200-67605	DOCUMENT EXISTING SYSTEM IN FMS AND REDESIGN AE AR	04/04/2017	2,440.00
NEWCOM TECHNOLOGIES INC	730-8200-67605	DOCUMENT EXISTING SYSTEM IN FMS AND REDESIGN AE AR	04/10/2017	2,440.00
POWER & TEL	730-8200-67906	400' FIBER DROP CABLES	04/10/2017	871.65
SPECTRUM ADVANTAGE LLC	730-8200-67601	FUSION SPLICING, FDP SETUP-PREP	04/24/2017	2,414.00
TERRY-DURIN CO.	730-8200-67906	PULL TAPE REELS	04/17/2017	174.90
WESCO	730-8200-67906	100 AMP CUTOUT	04/10/2017	1,799.63
WESCO	730-8200-67906	2" PVC U-GUARD	04/14/2017	100.58
WESCO	730-8200-67906	WIRE WEDGE CLAMPS	04/14/2017	112.89
WESCO	730-8200-67906	#2 TRI-PLEX WIRE	04/18/2017	1,658.50
Total ELECTRIC CAPITAL PROJECTS FUND:				7,802.49
Grand Totals:				858,053.54

Board of Trustees: _____

IMU Regular Downstairs

4.B.

Meeting Date: 05/08/2017

Information

Subject

Minutes from April 24, 2017

Information

Fiscal Impact

Attachments

Minutes

BOARD OF TRUSTEE MINUTES
REGULAR SESSION – APRIL 24, 2017

The Board of Trustees met in regular session at 5:30 p.m. on April 24, 2017 in the City Hall Council Chambers. Chairperson Adam Voigts called the meeting to order and on roll call the following members were present: Jim McClymond (via phone), Mike Rozga, Adam Voigts and Deb White. Absent: Lesley Forbush.

The consent agenda consisting of the following was approved on a motion by White and seconded by Rozga. Question was called for and on voice vote the Chairperson declared the motion carried unanimously.

Claims list for April 17, 2017

Minutes from April 10, 2017

Salaries: Jeremy Cross, Generation and Metering Tech 1, from Range 19-4 \$47,038/year (includes longevity) to Range 21-3 \$48,911/year (includes longevity) effective August 7, 2016

Nate Edwards, Lead Generation Operator, from Range 27-5 \$63,268/year (includes longevity) to Range 27-6 \$66,412/year (includes longevity) effective August 7, 2016

March 2017 Treasurer and Financial Reports

Board member Forbush arrived at the meeting.

Electric Utility Information Items

Electric Superintendent Mike Metcalf presented information regarding the Electric Utility.

Water Utility Action Items

Jeff Lucas, Recreation Coordinator, requested a contribution of up to 1.8 million gallons at the government services rate of \$6.00/1,000 gallons for the Memorial Aquatic Center (pool). A motion was made by White and seconded by Rozga to approve up to 1.8 million gallons at the government service rate of \$6.00/1,000 gallons at a cost of \$10,800. Question was called for and on voice vote the Chairperson declared the motion carried unanimously.

Water Utility Information Items – Lou Elbert, Water Superintendent presented information regarding the Water Utility Information Items.

Communication Utility Informational Items – Forbush moved and White seconded to go into recess at 5:43 p.m. and to reconvene when Rob Stangel, General Manager, arrives at the meeting. Question was called for and on voice vote the Chairperson declared the motion carried.

General Manager Rob Stangel arrived at the meeting.

It was moved by White and seconded by Forbush to resume the meeting at 6:11 p.m. Question was called for and on voice vote the Chairperson declared the motion carried unanimously.

General Manager Rob Stangel presented a high level overview of service pricing and salary/benefit costs that will be included in the full Business Plan on May 8, 2017.

Combined Electric, Water and Communications Utilities Information Items – General Manager
Rob Stangel presented an update.

Meeting adjourned at 6:20 p.m. on a motion by White and seconded by Rozga.

Adam Voigts, Chair

Diana Bowlin, City Clerk

IMU Regular Downstairs

5.A.

Meeting Date: 05/08/2017

Information

Subject

Fiber Project Infrastructure

Information

Fiscal Impact

Attachments

No file(s) attached.

IMU Regular Downstairs**5.A.1.****Meeting Date:** 05/08/2017

Information**Subject**

FTTH Business Plan Presentation and Report Acceptance

Information

The presentation to be given by Courtney Violette of Magellan Advisors is attached for your review prior to the meeting on Monday. There have only been a few minor narrative and cosmetic updates to the draft report that was previously distributed and reviewed by Management and the Board of Trustees. Financial projections presented in recent weeks have not changed since last reviewed. The final version of the report is uploaded to the Fiber Study Documents folder and can be accessed on your ipads.

Fiscal Impact**Attachments**Business Plan Presentation



FIBER-TO-THE-HOME (FTTH) BUSINESS PLAN

INDIANOLA MUNICIPAL UTILITIES, IA

IMU's History and FTTH Services

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ELECTRIC

- 1890, the original, steam operated plant is established
- 1927, tow diesel engines are placed into service
- 1944, a third diesel unit increases generating capabilities by 70%
- 1970, the downtown plant houses six diesel powered generators
- 1976, the first Frame 5 combustion turbine is installed
- 1998, the second Frame 5 combustion turbine is installed
- 2006, a second, 69kV substation is put into service.
- 2011, a third 69kV source is operational

WATER

- 1905, water supply is drawn from the South River
- 1932, the first above ground water tower was constructed
- 1933, the first iron removal and softening plant is constructed
- 1955, the first deep water well is drilled to the Jordan Aquifer
- 1964-66, a second deep water well is drilled and a second tower is constructed
- 1970, the original treatment plant is uprated to a more advanced system
- 1976, a third deep water well is drilled
- 1995, a third water tower is constructed
- 1997, the current water treatment facility is constructed
- 2003, a fourth deep water well is drilled

NETWORK SERVICES

- 1997, a municipally owned broadband communications utility is created
- 1998, an independent fiber optic network is constructed
- 2002, IMU contracts with a service provider to offer wireless internet service
- 2006, a fiber to the premise partnership is formed
- 2010, residential fiber build-out is begun
- 2012, first residential triple-play service activated

Current Partnership and Path Forward

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- IMU has partnered with MCG to provide FTTH services within areas of the City.
- IMU funds infrastructure, while MCG provides consumables and owns customer.
- Current agreement wholesale rates:
 - Residential: \$30/mo. each subscriber connection
 - Commercial: \$100/mo. each subscriber connection
- In 2016 IMU commissioned a study to determine a path forward to bring FTTH to all residents and businesses.
- Study determined partnership at current rates did not support expansion.
- IMU accepted report and commissioned FTTH Business Plan to enter the retail market as a provider of triple-play services.

Current Market Competition

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- IMU is served by Mediacom, Centurylink, and MCG.
- Some areas of Indianola that only have one provider option – and in some cases – no true broadband option as defined by FCC (at least 25Mb/3Mb)



Great Offer

\$34.95 a month

Online Only!
\$25 Prepaid Card

- 1-Year Pricing Guarantee
- Fast speed supports multiple devices
- Great for streaming HD movies
- Speeds up to 40 Mbps - May not be available in your area

[Start Now >](#)

12-month contract and AutoPay enrollment required.



Add Home Phone & Save!

\$19.95 a month

Online Only!
\$100 Prepaid Card

- 5-Year Pricing Guarantee
- Great for downloading HD movies
- No contract required!

[Start Now >](#)

When bundled with Unlimited Nationwide Calling. AutoPay enrollment required.



Speeds up to 1 Gig!

CenturyLink is bringing speeds up to 1 Gig to your community

- Upload and download files at symmetrical speeds up to 1 Gig (1,000 Mbps)
- Perfect for homes with multiple high-bandwidth internet users
- Connect smartphones and tablets to your in-home Wi-Fi to save on mobile data

[See What's Available >](#)

It's more than just speed - It's new possibilities!

Offer	TV	Internet	Phone
\$139.98 Per month for one year > Xtream 100 Platinum Promotional offer terms	360+ Channels	Internet 100 Download speeds up to 100 Mbps	16 calling features
\$119.98 Per month for one year > Xtream 100 Gold Promotional offer terms	280+ Channels	Internet 100 Download speeds up to 100 Mbps	16 calling features
\$99.98 Per month for one year > Xtream 100 Silver Promotional offer terms	240+ Channels	Internet 100 Download speeds up to 100 Mbps	16 calling features

Benchmarking and FTTH Metrics

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- Iowa leads the nation in municipal/utility FTTH deployments.
- Munis/utilities play on “home town” local services, grass-roots support, and to the strengths of their utility operations.
- Benchmarking:
 - Osage Municipal Utilities (IA) – 67% uptake
 - Cedar Falls Utilities (IA) – 90+% uptake
 - Waverly Utilities (IA) – 25% uptake (currently in Year 1 of operation)
 - Morristown Utilities (TN) – 47% uptake by Year 5
 - EPB Chattanooga (TN) – 50% uptake by Year 6
 - Bristol Virginia Utilities (TN) – 68% uptake by Year 5

Opportunity and Services

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- IMU becomes a FTTH services provider, internalizing the retail broadband business.
- IMU connects into Des Moines @ regional data center facility, interconnecting to the Internet backbone, and Cedar Falls Utilities (CFU).
- IMU sources wholesale Internet and voice services, and enters partnership with CFU for IPTV (video) services.
- IMU hits the Indianola market with the only FTTH offering in the region, providing:
 - ▣ Internet
 - ▣ Voice
 - ▣ Video (cable TV)

Residential Offerings

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Table 1: Residential Product Offerings

Offering	Description	Price / Month	Projected Distribution
Gig Triple Play	Internet - 1Gbps Up/Down Video – Voice – Home Phone; Unlimited Local and Domestic Long Distance	\$174	3%
Gig Double Play (Internet/Video)	Internet - 1Gbps Up/Down Video –	\$169	4%
Gig Double Play (Internet/Voice)	Internet - 1Gbps Up/Down Voice – Home Phone; Unlimited Local and Domestic Long Distance	\$134	1%
100 Mbps Triple Play	Internet - 100 Mbps Up/Down Video – Voice – Home Phone; Unlimited Local and Domestic Long Distance	\$144	23%
100 Mbps Double Play (Internet/Video)	Internet - 100 Mbps Up/Down Video –	\$139	28%
100 Mbps Double Play (Internet/Voice)	Internet - 100 Mbps Up/Down Voice – Home Phone; Unlimited Local and Domestic Long Distance	\$84	5%
1 Gbps/1Gbps	Internet - 1Gbps Up/Down	\$119	3%
100 Mbps/100Mbps	Internet - 100 Mbps Up/Down	\$69	31%
Television	Video – Channel Line Ups TBD	\$89	2%
Long Distance-International	Stand Alone Option; Individual Calls Will Be Charged Based on Country Rate	N/A	N/A

Business Offerings

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Offerings	Description	Price / Month	Projected Distribution
Internet – 10Mbps/10Mbps	Internet – 10 Mbps	\$70	15
Internet – 25Mbps/25Mbps	Internet – 25 Mbps	\$150	15
Internet – 100Mbps/100Mbps	Internet – 100 Mbps	\$250	65%
Internet – 1Gbps/1Gbps	Internet – 1 Gbps	\$500	5%
Digital Choice (<i>must have Internet service</i>)	Video	\$98	20%
Business Line Per Line	Voice – Business Phone; Unlimited Local and Domestic Long Distance	\$25	100%
Long Distance -International	Stand Alone Option; Individual Calls Will Be Charged Based on Country Rate	N/A	N/A
SIP Trunking	PRI replacement with dynamic allocation	\$29	N/A
Hosted PBX	PBX replacement services with advanced features	\$29	N/A

Current Potential Market

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- MDUs
 - ▣ Buildings: 70
 - ▣ Units (subs): 1,803
- Single-family homes: 5,062
- Business: 412

- MCG Customer Buyout (existing customers):
 - ▣ Residential: 451
 - ▣ Business: 145

Operational Requirements and Costs

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□ Cost of Services – General (*first three years*)

Cost of Services - General	Annual % Increase	2017	2018	2019
Facilities Maintenance/Power/Environment (Fixed Annual)	1%	\$ 20,000	\$ 20,200	\$ 20,402
Miscellaneous based on Revenue (1% of Revenue)	0%	\$ 3,150	\$ 13,914	\$ 30,819
Network/Headend Maintenance (Fixed Annual)	1%	\$ 40,000	\$ 40,400	\$ 40,804
Vehicle Maintenance (5% of Vehicles)	0%		\$ 5,250	\$ 5,250
Total:		\$ 63,150	\$ 79,764	\$ 97,275

□ Cost of Services – Sales-General-Administrative (*first three years*)

Sales, General & Administrative Expenses	Annual % Increase	2017	2018	2019
Admin and General Expenses (Fixed Annual)	2%	\$ 35,000	\$ 35,700	\$ 36,414
Billing and Mailing (Per Customer)	1%	\$ -	\$ 13,764	\$ 29,914
Cost Allocation for City Services (Fixed Annual)	2%	\$ -	\$ 41,820	\$ 42,656
Office & Computer Expense (Fixed Annual)	2%	\$ 20,000	\$ 20,400	\$ 20,808
Professional & Legal Fees (Fixed Annual)	2%	\$ 15,000	\$ 15,300	\$ 15,606
Reporting & Compliance (Fixed Annual)	2%	\$ -	\$ 7,650	\$ 7,803
Sales Commissions & Marketing Expense (Fixed Annual)	1%	\$ 45,000	\$ 45,450	\$ 45,905
Travel & Entertainment Expense (Fixed Annual)	2%	\$ -	\$ 7,650	\$ 7,803
Utilities (Fixed Annual)	0.25%	\$ 20,000	\$ 20,050	\$ 20,100
Bad Debt Expense (1.0% of Revenue)	0%	\$ 3,150	\$ 13,914	\$ 30,819
Totals:		138,150.00	221,697.53	257,828.42

Operational Requirements and Costs

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□ Cost of Services – Internet (first three years)

Cost of Services - Internet	Annual % Increase	2017	2018	2019
Internet Transport (MRC, Colo, Peering) Yr 1 (Annual)	0%		\$ 63,504	
Internet Transport (MRC, Colo, Peering) Yr 2 (Annual)	0%			\$ 82,248
Internet Transport (MRC, Colo, Peering) Yr 3+ (Annual)	0%			
Software Main-Active Licenses (\$2/sub/mo); min \$3K/mo (Annual)	0%		\$ 36,000	\$ 46,920
Software Maint-Reg Locale Licenses (\$0.25/sub/mo) (Annual)	0%		\$ 16,380	\$ 15,552
Software Maintenance-1-time and Support (Annual)	0%	\$ 29,000	\$ 2,000	\$ 2,000
Total:		\$ 29,000	\$ 117,884	\$ 146,720

□ Cost of Services – Wholesale Voice (first three years)

Cost of Services - Wholesale Voice	Annual % Increase	2017	2018	2019
Voice Wholesale Costs (\$12 Per Cust/Mo)	1%	\$ -	\$ 61,776	\$ 132,768

Operational Requirements and Costs

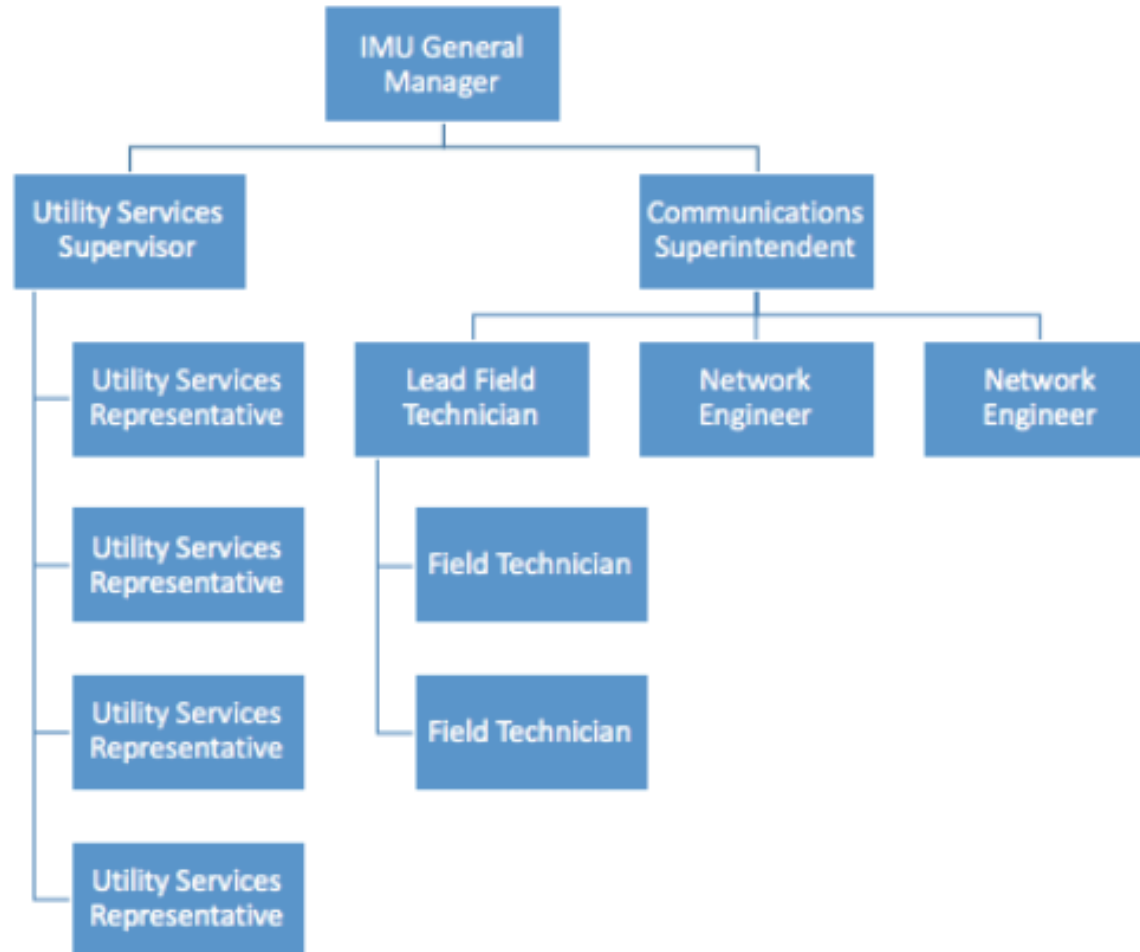
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□ Cost of Services – CFU Video (*first three years*)

Cost of Services	Annual % Increase	2017	2018	2019
Managed video monthly costs				
Video Wholesale Costs	4%	\$ 302,400	\$ 676,316	
Minerva Subscriber License - 1-Time/Sub	0%	\$ 47,250	\$ 7,110	
Minerva Support-# Subs at Start of Year @ 15% of License (Ann	0%		\$ 7,088	
Verimatrix SetTop Lic \$5.50/Set-Top (1-time per sub)	0%	\$ 8,663	\$ 1,304	
Verimatrix Support-Subs at Start of Year @ 15% of License (Ar	0%		\$ 1,299	
INCA Multicast transcoding support	3%	\$ 2,500	\$ 2,575	
Equip/Lic/Multicast IP Sftw/CatchupTV/RestartTV Support	3%	\$ 11,500	\$ 11,845	
EMC (Storage) for Support Starts 2019	3%		\$ 5,000	
CFU IPTV Maintenance	3.5%	\$ 60,720	\$ 62,542	
Virtual Server Hardware and Software Support	3%	\$ 1,000	\$ 1,030	
Juniper Switches Support Starting 2019	3%		\$ 1,000	
ROVI (TiVO) Grid Guide Copyright Fee Per Sub/yr	0%		\$ 27,038	
Amino Set-top Auto Config Cost 1-time/Sub	0%	\$ 1,000		
Amino Set-Top Qrtly Fee per Sub	0%	\$ 788	\$ 906	
Transport to Des Moines Data Center	0%	\$ 37,200	\$ 37,200	
Rack Space in Cedar Falls per rack/month	0%	\$ 286	\$ 294	
Total Per Year		\$ -	\$ 473,306	\$ 842,546

IMU Staffing Requirements

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Operational Requirements and Costs

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□ Staffing *(first three years after first hire)*

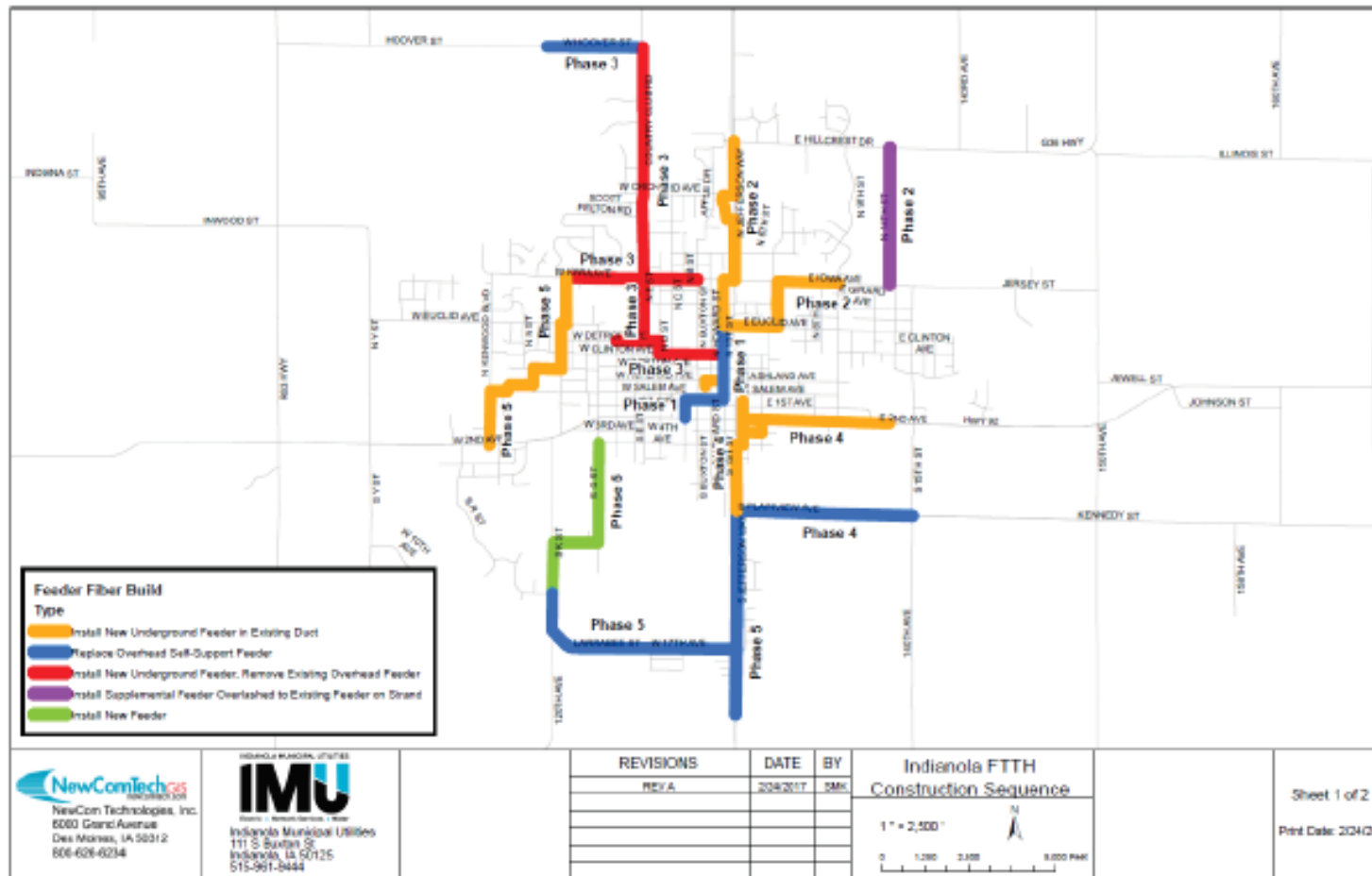
Staffing		2018	2019	2020
Communications Superintendent		1.00	1.00	1.00
Accounting, Finance, & Admin (cost alloc)		0.50	1.00	1.00
Network Engineer		1.50	2.00	2.00
Lead Field Technician		1.00	1.00	1.00
Field Technician		1.00	2.00	2.00
Utility Services Supervisor		0.33	0.33	0.33
Utility Services Representative		1.00	1.33	1.33
GIS Coordinator		0.50	0.50	0.50
Totals:		6.83	9.16	9.16

Salaries + Benefits	Annual % Increase	2018	2019	2020
Communications Superintendent	3%	109,034	112,305	115,674
Accounting, Finance, & Admin (cost alloc)	3%	34,441	70,948	73,077
Network Engineer	3%	139,760	191,936	197,694
Lead Field Technician	3%	78,982	81,351	83,792
Field Technician	3%	67,040	138,102	142,245
Utility Services Supervisor	3%	34,145	35,169	36,224
Utility Services Representative	3%	68,033	93,198	95,994
GIS Coordinator	3%	39,769	40,962	42,190
Totals:		571,202.77	763,972.79	786,891.98

Network Expansion Plan

15

Figure 4: Feeder Expansion



Capital Requirements and Costs

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□ FEEDER/BACKBONE TO UPN

Transport to UPN (Norwalk) / Backbone / Feeder/ Distribution

Transport Connection to UPN (Norwalk)

Labor	\$	269,384
Materials	\$	96,270

Feeder/Distribution

Labor	\$	4,737,080
Materials	\$	1,692,886

Buildout Total: \$ 6,795,620.00

- **PREMISE DROPS** (includes replacement of equipment every 5 years from install; does not include existing drops at current MCG locations)

Premise Drops

Number of Drops @ 40% Uptake **Res: 2690; Bus: 165**

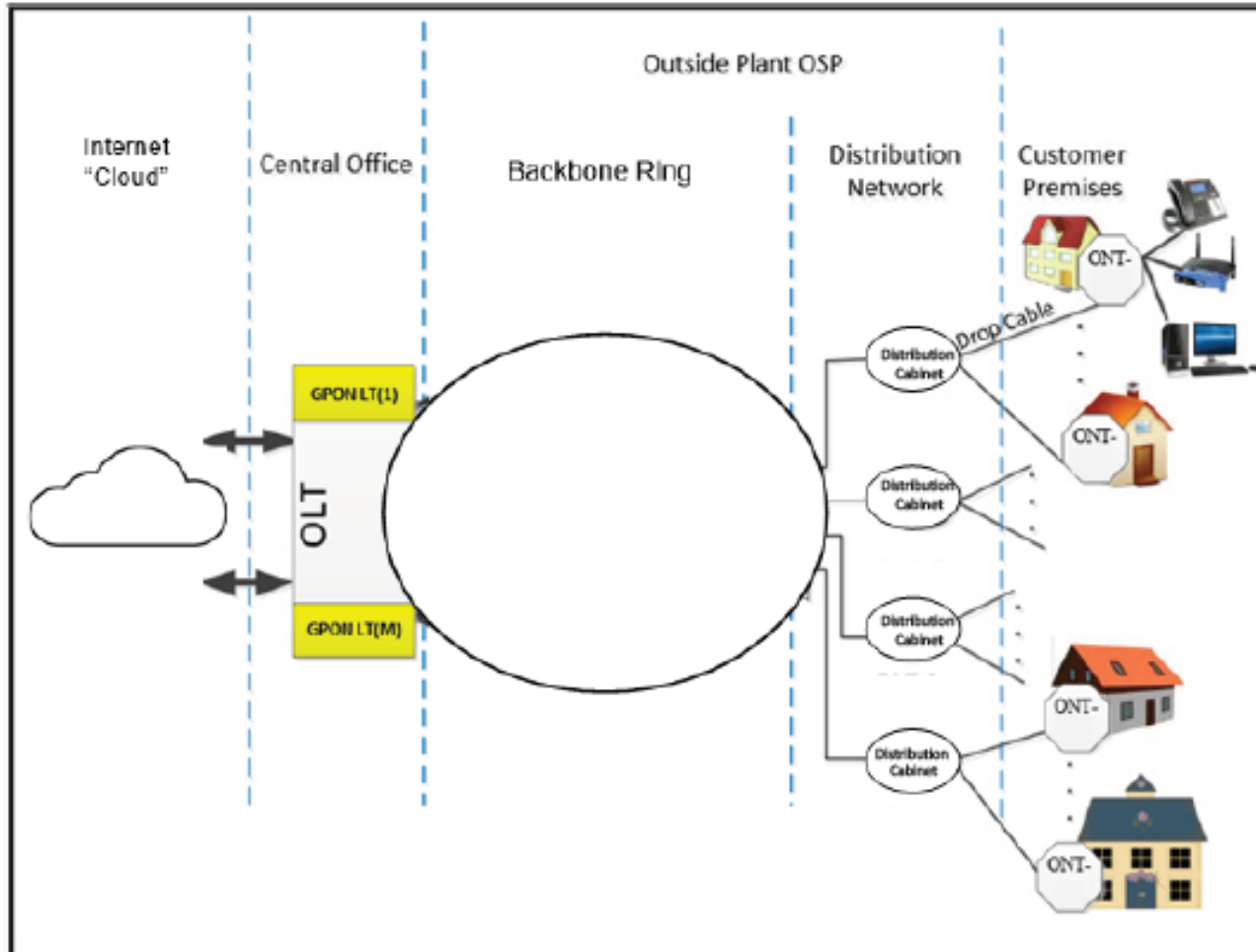
Labor	\$	1,942,050
Material	\$	509,250
Equipment	\$	2,027,296

Total: \$ 4,478,596.18

Conceptual Service Delivery Diagram

17

Figure 3: Conceptual GPON Network Diagram



Capital Requirements and Costs

18

- **HEADEND** (includes replacement of equipment every 8 years from install)

Headend Equipment

Intra-facility cabling	\$	10,000
Ladder/raceway	\$	20,000
Racks/cabinets	\$	50,000
Edge Routing-Cisco-ASR 9001 (2)	\$	750,000
Access Network, Core-Calix-E7-20 (1)	\$	75,000
Firewalls	\$	60,000
Internet routers	\$	150,000
OLTs (3)	\$	523,626
Switches, servers, storage	\$	300,000
MDU Core (70 Buildings)	\$	460,284
Spares (ONT, Residential Gateway)	\$	30,000
Network Management-Calix-CMS (1)	\$	90,000
Billing/Provisioning Systems	\$	690,000
Total:	\$	<u>3,208,910</u>

- **BUILDING IMPROVEMENTS**

Building Improvements

Core PoP-Variou-(1 @ 100K ea)	\$	100,000
NOC Improvements	\$	100,000
Administrative Offices	\$	800,000
Total:	\$	<u>1,000,000</u>

Capital Requirements and Costs

19

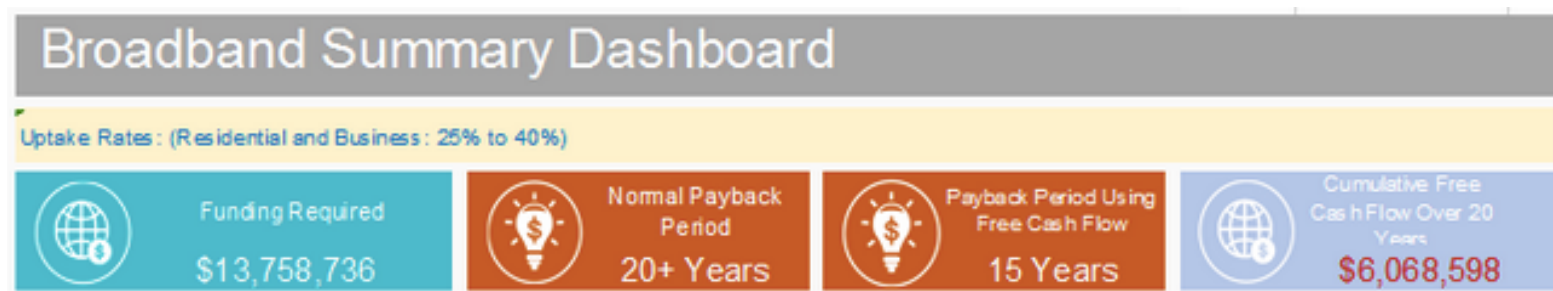
- **EQUIPMENT & TOOLS** (includes replacement of equipment every 8 years from install)

General Equipment and Tools

Vehicles & Outfitting (4 @ 35K)	\$	315,000
Splicing Trailer	\$	60,000
OTDRs	\$	90,000
Mobile Test Sets	\$	30,000
Fusion Splicers	\$	75,000
Toolkits	\$	22,500
Miscellaneous Equipment	\$	45,000
Total:	\$	637,500.00

Financial Dashboard @ 40%

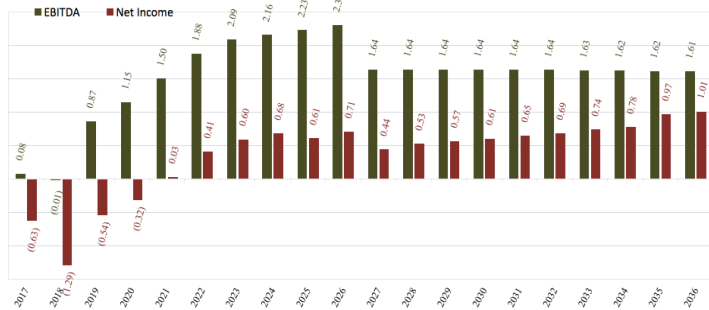
20



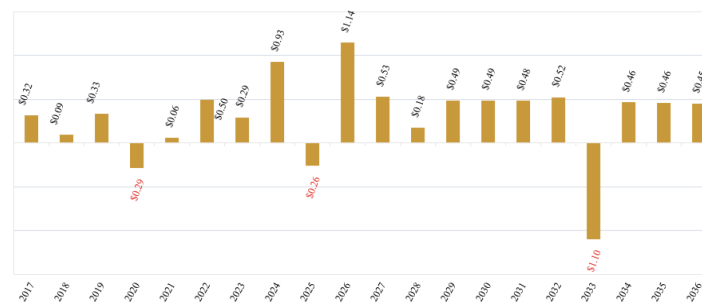
Financial Metrics @ 40%

21

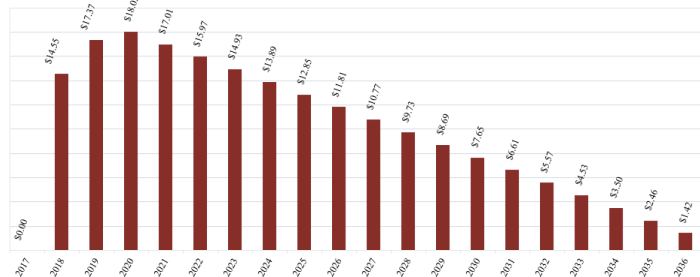
EBITDA & Net Income (Millions)



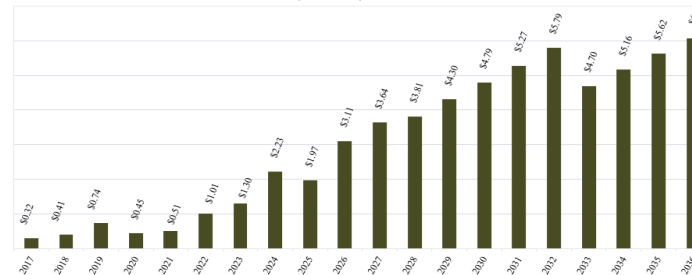
Annual Unrestricted Free Cash Flow (Millions)



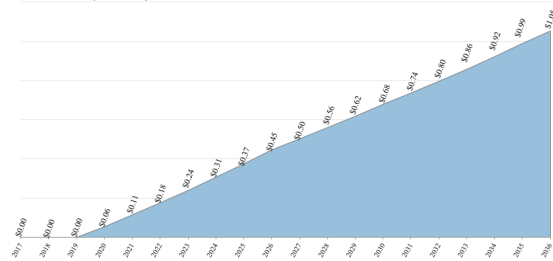
Debt Balance - Normal Payback (Millions)



Cumulative Unrestricted Free Cash Flow (Millions)



Total Reserve Balances (Millions)



Financial Projections

22

Residential Passings: 6865 Business Passings: 412					
Uptake Percentages	Res: 25% -> 35% Bus: 25% -> 35% 4.3% Interest	Res: 25% -> 40% Bus: 25% -> 40% 4.3% Interest	Res: 25% -> 45% Bus: 25% -> 45% 4.3% Interest	Res: 25% -> 50% Bus: 25% -> 50% 4.3% Interest	Res: 25% -> 60% Bus: 25% -> 60% 4.3% Interest
Number of Subscribers	**Breakeven**				
Residential (with TV; after TV service terminated)	2403; 2355	2745; 2690	3090; 3028	3432; 3363	4119; 4037
Business**	145	165	186	206	247
Key Financial Metrics					
Total Borrowing	\$13.63M	\$13.76M	\$13.89M	\$14.02M	\$14.28M
First Year for Positive Net Income	7	5	5	5	4
Total Reserve Balances	\$1.02M	\$1.05M	\$1.09M	\$1.13M	\$1.20M
Year Cash Flow Positive Going Forward	1	1	1	1	1
Cumulative Free Cash at 20 Yrs	\$0.06M	\$6.07M	\$12.20M	\$18.12M	\$30.29M
Year Payback Using Free Cash Flow	20	15	13	12	10
Capital Cost Summary [All Zones]					
Network Backbone/Distribution and Transport Buildout	\$6.80M	\$6.80M	\$6.80M	\$6.80M	\$6.80M
Premises Connected (Drops)	\$3.55M	\$4.04M	\$4.53M	\$5.03M	\$6.02M
Other Capital (hw, sw, facilities)	\$6.92M	\$7.03M	\$7.12M	\$7.31M	\$7.51M
Initial Operating (Startup) Costs - 3 Yrs	\$3.97M	\$4.00M	\$4.02M	\$4.05M	\$4.10M

Timeline

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IMU PROJECT TIMELINE

MAY 2017	AUG 2017	OCT 2017	DEC 2017	JAN 2018	FEB 2018	MAY 2018	AUG 2018
Business Plan Complete	Source Funding	BEGIN Data Center Upgrades	COMPLETE OSP Construction	COMPLETE Data Center Upgrades	BEGIN Network Testing and Certification	COMPLETE Network Testing and Certification	Integration of MCG Customers
Engineering/Design Complete	Start Hiring	Purchase and Order Equipment	Install and Configure Equipment	Install Wholesale Services	Beta Test with "Friendly" Customers	Full Market Launch	
Submitted to IMU Board for Approval	BEGIN OSP Construction	Contract for Wholesale Services	COMPLETE Building Improvements	Hire Key Operational and Utility Services Resources	Full Launch Marketing & Sales	All Systems Operational	
Approval to Source Funding	BEGIN Building Improvements		Hire Network Engineer				
OSP Construction/ Vendor Selection	COMPLETE Marketing/ Sales Plan Development						
BEGIN Marketing/Sales Plan Development	Execute Marketing/ Sales Plan						
Hire Communications Superintendent	Hire OSP Staff Resources						
Ramp Up Project Management Team							

Project Risks

24

- Market Penetration Rate Risks
- Network Construction Costs
- Interest Rates on Debt Financing
- Competitive Risks

Conclusions and Next Steps

25

- IMU has the opportunity to expand its existing assets to deliver FTTH services throughout the region.
- IMU is a “home town” municipal utility who’s primary focus is Indianola’s constituents. This is another opportunity to provide a superior “utility” service to the City of Indianola.
- Next Steps:
 1. Accept the final IMU FTTH Business Plan
 2. Authorize the GM to proceed in executing the Plan as outlined.

Questions?

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Thank You!

Meeting Date: 05/08/2017

Information

Subject

Public hearing on the matter of adoption of plans, specs, form of contract and estimate of cost for the Fiber To The Home Network Project (construction)

Information

The Board Chair opens the public hearing, invites comments (including from the Trustees) and closes the hearing.

Project highlights include:

- Construct GPON Fiber to the home including all labor, materials (Conduit and Fittings, Tracer Wire, Muletape, backfill, peagravel, hydroseeding, and all aerial components) and equipment necessary for approximately 70 miles of new network.
- The network will serve single family homes, multiple dwelling units, and businesses.
- The build consists of 90% of underground and 10% of aerial. Part of the 70 miles will be 2.5 miles of aerial self-supporting fiber and strand-supported fiber to be replaced.
- The Point of Presence (POP)/Head End is located at the IMU facility building of 110 South Buxton Street.
- Anticipated completion will be 12 months after work commences

No other actions are necessary.

Fiscal Impact

Attachments

No file(s) attached.

IMU Regular Downstairs

5.A.3.

Meeting Date: 05/08/2017

Information

Subject

Resolution adopting plans, specs, form of contract and estimate of cost for the Fiber to the Home Network Project (construction)

Information

In your packet is the resolution adopting the plans, specs, form of contract and estimate of cost for the Fiber To The Home Network Project (construction).

Roll call is in order.

Fiscal Impact

Attachments

Resolution

This being the time and place fixed for a public hearing on the matter of the adoption of plans, specifications, form of contract and estimate of cost relative to the 2017 Fiber To The Home Network (Construction) for Indianola Municipal Utilities, Indianola, Iowa. The Chair called for any oral objections to the adoption of the plans, specifications, form of contract and estimate of cost. No oral objections were offered and the Trustee Clerk reported that no written objections had been filed.

Board Member _____ introduced the following Resolution entitled "RESOLUTION ADOPTING PLANS, SPECIFICATIONS, FORM OF CONTRACT AND ESTIMATE OF COST", and moved that it be adopted. Board Member _____ seconded the motion to adopt. The roll was called and the vote was, AYES: _____ NAYS: _____ ABSENT: _____ Whereupon the Chair declared the following resolution duly adopted:

RESOLUTION ADOPTING PLANS, SPECIFICATIONS,
FORM OF CONTRACT AND ESTIMATE OF COST

WHEREAS, on the _____ day of _____, 2017, plans, specifications, form of contract and estimate of cost were filed with the City Clerk for the Indianola Municipal Utilities, for certain public improvements described in general as the 2017 Fiber to The Home Network Project (Construction) for Indianola Municipal Utilities, Indianola, Iowa, and

WHEREAS, notice of hearing on plans, specifications, form of contract and estimate of costs of the public improvements was published as required by law.

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE INDIANOLA MUNICIPAL UTILITIES:

Section 1. The plans, specifications, form of contract and estimate of cost are approved as the plans, specifications, form of contract and estimate of cost for the public improvements described in the preamble of this Resolution.

PASSED AND APPROVED this 1st day of May, 2017.

ADAM VOIGTS, Chair

ATTEST:

DIANA BOWLIN, City Clerk

IMU Regular Downstairs

5.A.4.

Meeting Date: 05/08/2017

Information

Subject

Consider setting May 22, 2017 for hearing, review and acceptance of the bids for the Fiber to the Home Network Project (construction)

Information

The final item is to set May 22, 2017 as a hearing, review and acceptance of the bids for the Fiber To The Home Network Project (construction).

Simple motion is in order.

Fiscal Impact

Attachments

No file(s) attached.

Meeting Date: 05/08/2017

Information

Subject

Public hearing on the matter of adoption of plans, specs, form of contract and estimate of cost the Fiber to the Home Network Project (materials)

Information

The Board Chair opens the public hearing, invites comments (including from the Trustees) and closes the hearing.

Project highlights include:

- Fiber optic cable, Multi Subscriber Terminals (MST), Handholes, Vaults, Fiber Distribution Cabinets with splitters, Splice Enclosures, ground rods and connectors, warning tape, patch panels with splitters for existing cabinet upgrades, and a patch panel for the PoP/Central Office

No other actions are necessary.

Fiscal Impact

Attachments

No file(s) attached.

IMU Regular Downstairs

5.A.6.

Meeting Date: 05/08/2017

Information

Subject

Resolution adopting plans, specs, form of contract and estimate of cost for the Fiber to the Home Network Project (materials)

Information

In your packet is the resolution adopting the plans, specs, form of contract and estimate of cost for the Fiber To The Home Network Project (materials).

Roll call is in order.

Fiscal Impact

Attachments

Resolution

This being the time and place fixed for a public hearing on the matter of the adoption of plans, specifications, form of contract and estimate of cost relative to the 2017 Fiber To The Home Project – Material Procurement for Indianola Municipal Utilities, Indianola, Iowa. The Chair called for any oral objections to the adoption of the plans, specifications, form of contract and estimate of cost. No oral objections were offered and the Trustee Clerk reported that no written objections had been filed.

Board Member _____ introduced the following Resolution entitled "RESOLUTION ADOPTING PLANS, SPECIFICATIONS, FORM OF CONTRACT AND ESTIMATE OF COST", and moved that it be adopted. Board Member _____ seconded the motion to adopt. The roll was called and the vote was, AYES: _____ NAYS: _____ ABSENT: _____ Whereupon the Chair declared the following resolution duly adopted:

RESOLUTION ADOPTING PLANS, SPECIFICATIONS,
FORM OF CONTRACT AND ESTIMATE OF COST

WHEREAS, on the _____ day of _____, 2017, plans, specifications, form of contract and estimate of cost were filed with the City Clerk for the Indianola Municipal Utilities, for certain public improvements described in general as the 2017 Fiber to The Home Project – Material Procurement for Indianola Municipal Utilities, Indianola, Iowa, and

WHEREAS, notice of hearing on plans, specifications, form of contract and estimate of costs of the public improvements was published as required by law.

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE INDIANOLA MUNICIPAL UTILITIES:

Section 1. The plans, specifications, form of contract and estimate of cost are approved as the plans, specifications, form of contract and estimate of cost for the public improvements described in the preamble of this Resolution.

PASSED AND APPROVED this 1st day of May, 2075.

ADAM VOIGTS, Chair

ATTEST:

DIANA BOWLIN, City Clerk

IMU Regular Downstairs

5.A.7.

Meeting Date: 05/08/2017

Information

Subject

Consider setting May 22, 2017 for hearing, review and acceptance of the bids for the Fiber to the Home Network Project (materials)

Information

The final item is to set May 22, 2017 as a hearing, review and acceptance of the bids for the Fiber To The Home Network Project (materials).

Simple motion is in order.

Fiscal Impact

Attachments

No file(s) attached.

Meeting Date: 05/08/2017

Information

Subject

Consider proposal from Watts Electric in an amount of \$68,761.80 for the 2017 Hwy 92 Martensdale Transmission Line Relocation Project

Information

RFP's were sent out to contractors to relocate five transmission poles due to the DOT highway project at Martensdale. Straightening an existing pole and installing a bonding wire were also included as part of this project. This was done to save on mobilization and to allow the work to be complete at the same time the transmission line was de-energized. Only one bid was received which is explained in more detail in AI Powers recommendation letter.

Watts Electric submitted a bid in the amount of \$68,761.80.
IMU will need to provide materials estimated around \$24,000.

The DOT plans on starting their project on June 1, 2017. IMU was notified of this project in February of this year. This gave us limited time to design and get approval for the new pole placements from the DOT.

Staff and P&E Engineers recommendation is to accept the bid from Watts Electric in the amount of \$68,761.80

Simple motion is in order.

Fiscal Impact

Attachments

Contract Award Letter
Contract

May 5, 2017

Mr. Rob Stangel
General Manager
Indianola Municipal Utilities
PO Box 356
Indianola, Iowa 50125

Dear Rob,

Informal bids were requested from five suppliers for relocating a portion of the 69 kV IMU to Patterson line along Hwy 92 in Martensdale, as required to accommodate the DOT widening project at that location. Only one proposal was received. I recommend accepting the proposal submitted by Watts Electric of Waverly, Nebraska, in the amount of \$68,761.80.

The project includes relocating five (5) existing round wood poles and the associated transmission conductors. Four (4) of those poles will be replaced with new round wood poles. The fifth pole will become an angle structure and will be replaced with a laminated wood pole that is being purchased by IMU. The Contract requires the relocation work to be completed by June 10. The DOT is intending to start work on the project about June 1.

The project also includes two other relatively minor items on the 69 kV IMU to Patterson line that are not related to the DOT project, but need to be completed while the line is out of service. The first is to install pole keys to stabilize an existing laminated wood pole east of I-35. The second is to add a guy wire bond on a pole about 4 miles east of Martensdale, to address an issue identified in a recent IUB inspection.

Either I or Mike Metcalf have contacted all of the contractors that were requested to bid. One was unable to respond because their estimator has been on vacation. Three indicated their work load would not allow them to complete the work on the required schedule. I have talked to Watts Electric and they have assured me that they have crews and equipment available to complete the work as requested.

May 5, 2017

Mr. Rob Stangel

Page 2 of 2

My estimate of the probable value of the Contract was \$70,000. I believe that the Watts proposal is reasonable, and recommend accepting it, and entering into a contract with Watts for a lump sum amount of \$68, 761.80.

A complete copy of the proposed contract, including the Watts proposal, is attached.

Please let me know if you have any questions or would like to discuss any aspects of this project.

Sincerely,



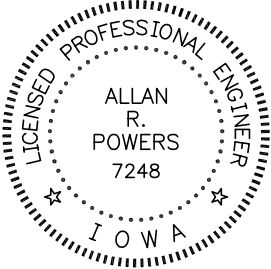
Allan Powers, P.E.

cc Mike Metcalf
Chris Longer



INDIANOLA MUNICIPAL UTILITIES

CONTRACT FOR
2017 Hwy 92 Martensdale Transmission Line Relocation
VOLUME 1
Information and Contract Sections

	I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA. <table border="0"><tr><td>(signature)</td><td>(date)</td></tr><tr><td colspan="2">ALLAN R. POWERS, IOWA REG. NO. 07248</td></tr><tr><td colspan="2">MY LICENSE RENEWAL DATE IS DECEMBER 31, 2018</td></tr><tr><td colspan="2">PAGES OR SHEETS COVERED BY THIS SEAL:</td></tr><tr><td colspan="2">All drawings and documents</td></tr><tr><td colspan="2">listed on Index Page 00001-1</td></tr></table>	(signature)	(date)	ALLAN R. POWERS, IOWA REG. NO. 07248		MY LICENSE RENEWAL DATE IS DECEMBER 31, 2018		PAGES OR SHEETS COVERED BY THIS SEAL:		All drawings and documents		listed on Index Page 00001-1	
(signature)	(date)												
ALLAN R. POWERS, IOWA REG. NO. 07248													
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2018													
PAGES OR SHEETS COVERED BY THIS SEAL:													
All drawings and documents													
listed on Index Page 00001-1													

April 19, 2017



245 S. 5th
P.O. Box 620
Carlisle, IA 50047

Office: 515-989-3083
FAX: 515-989-3138
peengr@peengr.com

REV
A
DWG NO
E9482-0

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

Contract Index

Information and Contract Sections

00001	Index (This Page)
00300	Bid Proposal Form
00520	Agreement
00700	General Conditions of the Contract {This is the Standard General Conditions of the Construction Contract as published by the Engineers Joint Contract documents Committee (EJCDC) as Document No. 1910-8 (2002 Edition)}
00800	Supplementary Conditions
00850	Safety Manual for the City of Indianola and Indianola Municipal Utilities
00860	DOT Permit Application

Construction Specifications

01000	General Requirements
16721	Transmission Line Overhead Construction
16915	Bill of Material
16920	Staking Sheets
16930	LWS Drawings for Pole T69-1 INMU-0002.02A4 INMU-0002.02B4 INMU-0002.02C4
16931	LWS Drawings for Pole CM129 INMU-0001.02A1 INMU-0001.02A1-1 INMU-0001.02B1 INMU-0001.02C1

Drawings

See Contract Index Page E9482-000

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

PROJECT IDENTIFICATION

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

Contract includes the installation of wood poles, transferring existing conductor, and miscellaneous other work.

THIS BID IS SUBMITTED TO (Owner):

Indianola Municipal Utilities
111 South Buxton St.
Indianola, Iowa 50125

THIS BID IS SUBMITTED BY (Bidder):

Watts Electric Company

1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included with the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions in the Bidding Documents

2.01 Bidder accepts all terms and conditions of the Agreement. The Bid will remain subject to acceptance for 30 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

3.01 In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

- A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.

Addendum Date

N/A

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress and performance of the Work.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

- D. Bidder declares that he has examined to his own satisfaction the Drawings, Specifications, and other Bidding Documents, the character and location of the work, the conformation of the ground, the character, quality and quantity of materials to be supplied, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and other matters which can affect the work under this contract; and that this proposal is made with full knowledge of the intent and purpose of the same. He further declares that in respect to these matters he is not relying upon any representation made to him by any officer, agent, or employee of the Owner, or by any other person on behalf of Owner, but that he relies solely upon his own investigation.
- E. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- F. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- G. The Bidding Documents are generally sufficient to indicate and convey all terms and conditions of the performance of the Work for which this Bid is submitted.
- H. The undersigned certifies that the bid prices contained herein have been carefully checked and are submitted as correct and final. It is proposed to do the work at the prices set out for each item.

4.01 Bidder further represents that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not sought by collusion to obtain for itself any advantage over any other bidder or over Owner.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

5.01 Bidder (Watts Electric Company) will complete the work in accordance with the Contract Documents for the following price(s).

LUMP SUM BASE BID including all work as described in the drawings and Specifications.

Sixty-eight thousand seven hundred sixty-one dollars
& eighty cents

(use words)

Dollars(\$ 68,761.80)
(figures)

5.02 All bidders for Contract must list the hourly cost for labor classifications and major equipment that Bidder expects to utilize in the performance of the Work. These rates may be utilized for determining pricing of Extra Work. Bidder may furnish this information by attaching his standard listing format and noting that reference below.

HOURLY RATES for Bidder (Watts Electric Company)

<u>Classification or Equipment</u>	<u>Straight Time Hourly Rate</u>	<u>Over Time Hourly Rate</u>
*See attached for hourly rates...		

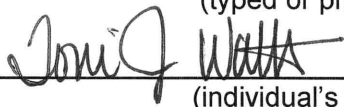
6.01 Bidder agrees that the Work under Contract will be substantially completed as shown in Paragraph 4.0 of Specification Section 01000.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

7.01 The terms used in this Bid with initial capital letters have the meanings indicated in the General Conditions and the Supplementary Conditions.

Submitted on May 4th, 2017.

Firm Name Watts Electric Company

By Toni J. Watts
(typed or printed)

(individual's signature)

Title Vice President

Business address 13351 Dovers Street

Waverly, NE 68462

Phone No. 402-786-2270

Email toniw@gowatts.com



13351 Dovers St | Waverly, Ne 68462
Phn. 402-786-2270 | Fax. 402-786-2267

Location:
Work:
Date

Description	Hours	Unit Cost	Extended
Labor Rates			
Project Manager		\$150.00	
Superintendent			
Regular Hours		\$125.00	
Overtime Hours (1 1/2 x Regular After 40)		\$187.50	
Sunday Or Holiday Hours (2 x Regular)		\$250.00	
Foreman			
Regular Hours		\$115.00	
Overtime Hours		\$172.50	
Sunday Or Holiday Hours		\$230.00	
Journeyman Lineman / Electrician			
Regular Hours		\$96.00	
Overtime Hours (1 1/2 x Regular After 40)		\$144.00	
Sunday Or Holiday Hours (2 x Regular)		\$192.00	
Apprentice Lineman / Electrician			
Regular Hours		\$75.00	
Overtime Hours		\$112.50	
Sunday Or Holiday Hours		\$150.00	
Operator			
Regular Hours		\$96.00	
Overtime Hours (1 1/2 x Regular After 40)		\$144.00	
Sunday Or Holiday Hours (2 x Regular)		\$192.00	
Groundman / Laborer			
Regular Hours		\$60.00	
Overtime Hours (1 1/2 x Regular After 40)		\$90.00	
Sunday Or Holiday Hours (2 x Regular)		\$120.00	
Perdiem Per Day, Per Employee if overnight stay is required		\$80.00	
Sub Total Labor			

Equipment

Pickup

3/4T 4WD	\$14.50
----------	---------

OVERHEAD EQUIPMENT

Track Mounted Equipment

20k Digger Derrick Track Mounted in IHI Chassis	\$75.00
Altec DB37 Back Yard Digger/Bucket	\$65.00
82 ft. Material Handling Bucket Track Mounted	\$140.00

Digger Derricks

20k Digger Derrick on 4 x 2 Chassis	\$40.00
20K Digger Derrick on 4 x 4 chassis	\$50.00
38k Digger Derrick on 6X6 Chassis	\$65.00

Bucket Trucks / Lifts

TLM-50 Insulated / Material Handling Bucket Truck	\$40.00
G50 Elliot Platform Crane on 4x2 Chassis	\$50.00
60 ft. Material Handling Bucket Truck on 4x4 Chassis	\$45.00
82 ft. Material Handling Bucket Truck on 6x4 Chassis	\$75.00
125 ft. Material Handling Bucket on 6x6 Chassis	\$175.00
JLG 45 ft. Manlift	\$35.00
JLG 85 ft. Manlift	\$55.00

Service Truck

Service Truck	\$25.00
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Cranes

National 681C Crane 17T Truck Crane	\$100.00
Link Belt RT8085 35 Ton Rough Terrain Crane	\$130.00
Altec AC38-103 38 Ton Crane	\$145.00

Stringing Equipment

4 Drum Rope Machine - Wagner Smith T-4DP-75 or equal	\$55.00
V Groove Puller/Tensioner - Wagner Smith VBWPT-340-72	\$75.00
Bull Wheel Tensioner - Wagner Smith BWT-4-61FO	\$35.00
Bull Wheel Tensioner - Wagner Smith BWT-5-52-RC	\$30.00
Bull Wheel Tensioner - Wagner Smith BWT-3-31-RC	\$30.00

Foundation Drills

Spiradrill LHD-50S Track Mounted Pressure Drill	\$230.00
PC 300LC8 Excavator Mounted Drill	\$195.00
M320-324 Excavator Mounted Drill	\$155.00

Excavators / Mini Ex / Backhoe

Komatsu PC 300LC8	\$145.00
Cat 324DL	\$130.00
Cat 320DL	\$125.00
Cat - M318 Wheel Excavator	\$120.00
Cat - 318CL	\$120.00
303.5 CR Mini Excavator	\$30.00
Cat 430D or equal Rubber Tire Hoe	\$45.00

Front End Loaders

Cat 653 Track Loader	\$90.00
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Skid Steer Loaders with Bucket or Forks

Bobcat 853 Rubber tire Machine or equal	\$30.00
Bobcat T770 Track Machine or Equal	\$40.00
Bobcat T870 Track Machine or Equal	\$45.00

Trenchers / Plows

< 40 HP Trencher	\$25.00
41 to 60 HP Trencher	\$35.00
61 to 85 HP Trencher	\$60.00
Quad Track Trencher	\$85.00
P-185 Track Plow	\$250.00

HDD Boring Units

520 Ditch Witch w/ Mixer	\$75.00
20 x 22 Vermeer & Trailer	\$150.00
36 x 50 Vermeer & Trailer	\$225.00
DD-110 American Augers Drill	POR
200X300 Vermeer Drill	POR

Earth Auger Equipment

36 x 600 American Augers - Horizontal Cased Bores	POR
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Mix Trucks for HDD Units

Truck Mounted Mix Trucks	\$75.00
Tulsa Rig Iron Recycler	\$250.00

Vacuum Equipment

Ram Vac Vacuum Excavation Truck with Cold Weather Kit	\$85.00
Vacuum / Water Truck 100bbl on Tandem Axle Truck	\$45.00
Vacuum / Water Truck 100bbl - Trailer Unit	\$25.00
Trailer Mounted Vacuum Machines for Potholing	\$25.00

Semi - Tractors

Triple Axle Heavy Haul with Folding Neck Triple Axle Lowboy	\$145.00
Triple Axle with Side Dump or Trailer	\$105.00
Tandem Axle with Side Dump or Trailer	\$75.00

Tag Trailers

20k Belshe Trailer	\$8.00
Pole Trailer	\$8.00
Brindle 4 Position Reel Trailer	\$10.00

Cable Placing Equipment

Champion Rodder Truck	\$90.00
Arnco 3050 Cable Pusher	\$35.00

Misc. Equipment

Per day, Per Crew (generators, power tools, hydraulic tools)	\$30.00
Sullair 185 Compressor	\$12.00
Komatsu PC300 with Sheet / Piling Driver	\$300.00
JCB-714 10 Yard Rough Terrain Dump Trucks	\$75.00
Fiber Testing Equipment - OTDR - Power Meters	\$30.00
Fiber Fusion Equipment	\$25.00
DC Hi Pot Test Equipment	\$20.00
VLF Test Equipment - TAN Delta	\$45.00

Sub Total Equipment

Contractor Furnished Material

Order # Or

Invoice # Vendor

Description

Cost

Qty

Amounts

\$1.00 - \$500.00 = 30% Markup

\$501.00 - \$1,500.00 = 25% Markup

\$1,501.00 Up = 20% Markup

Sub Total

Mark Up

Tax

Sub Total Material

Total Labor

Total Equipment

Total Material

Credit Card Fees

Total For Project

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

THIS AGREEMENT is by and between Indianola Municipal Utilities (Owner) and
_____ (Contractor).

Owner and Contractor, in consideration of the mutual covenants set forth herein, agree as follows:

ARTICLE 1 - WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Install conduit, cable, pad mounted switchgear, and related work.

ARTICLE 2 - THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is identified as follows:

2017 Hwy 92 Martensdale Transmission Relocation Project

ARTICLE 3 - ENGINEER

3.01 The Project has been designed by P & E Engineering Co. (Engineer), who is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Dates for Substantial Completion and Final Payment

A. The Work under Contract will be completed as described in Paragraph 4.0 of Contract Section 01000.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

ARTICLE 5 - CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds as follows:

A. A Lump Sum of:

_____ (\$ _____)
(use words) (figures)

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the First day of each month during performance of the Work as provided in Paragraphs 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions or, in the event there is no schedule of values, as provided in the General Requirements:

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, in accordance with Paragraph 14.02 of the General Conditions:

- a. 95 percent of Work completed (with the balance being retainage). and;
- b. 95 percent of cost of materials and equipment stored on site but not yet incorporated in the Work (with the balance being retainage).

2. Following Substantial Completion, partial payment of retainage may be made in accordance with the Contract Documents and applicable State Law.

6.03 Final Payment

A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in Paragraph 14.07 of the General Conditions.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

ARTICLE 7 – CONTRACTOR’S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
- B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.
- E. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- F. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- G. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

ARTICLE 8 - CONTRACT DOCUMENTS

8.01 Contents

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 6, inclusive).
2. Performance bond.
3. Payment bond.
4. General Conditions (Section 00700, pages 1 to 41, inclusive).
5. Supplementary Conditions (Section 00800, pages 1 to 8, inclusive).
6. General Requirements (Section 01000, pages 1 to 4, inclusive)
6. Specifications and drawings as listed on the index page.
7. Addenda (numbers _____ to _____, inclusive).
8. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid (pages 1 to 4, inclusive).
9. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directive(s).
 - c. Change Order(s).

B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.01 Terms

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

10.02 Assignment of Contract

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns

A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in duplicate. One counterpart each has been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

This Agreement will be effective on _____, _____ (which is the Effective Date of the Agreement).

OWNER:

CONTRACTOR

_____ Indianola Municipal Utilities

By: _____

By: _____

Title: _____

Title: _____

Address for giving notices:

_____ Indianola Municipal Utilities

_____ 111 South Buxton St.

_____ Indianola, IA 50125

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



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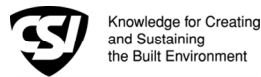
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These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain

administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times

but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

B. Intent of Certain Terms or Adjectives

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. Day

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

- a. does not conform to the Contract Documents, or
- b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or
- c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. Furnish, Install, Perform, Provide

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement

or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or

responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work

(unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's

sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the “technical data” contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such “technical data” is identified in the Supplementary Conditions. Except for such reliance on such “technical data,” Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor’s purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any “technical data” or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any “technical data” on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer’s Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner’s obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer’s findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor’s making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

- a. reviewing and checking all such information and data,
- b. locating all Underground Facilities shown or indicated in the Contract Documents,
- c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and
- d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. Not Shown or Indicated

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will

promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. Reports and Drawings: Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to

entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified

in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection

from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any

deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract

Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or

received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. Special Guarantee: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract

Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. Contractor's Expense: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 Concerning Subcontractors, Suppliers, and Others

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual

or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 Taxes

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. Removal of Debris During Performance of the Work: During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. Cleaning: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. Loading Structures: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 Record Documents

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 Safety and Protection

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Draw-

ings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:* Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals , any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents

with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 Continuing the Work

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or

disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 Contractor's General Warranty and Guarantee

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or

arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal

shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and

properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep

Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show

partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall

promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and

Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have

resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. Costs Excluded: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. Contractor's Fee: When all the Work is performed on the basis of cost-plus, Contractor's fee shall

be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an

allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted

by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to

be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
2. correct such defective Work; or
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress

payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

a. to supervise, direct, or control the Work, or

b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent

inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling Owner to a set-off against the amount recommended; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 Contractor's Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial

Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals

that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

- a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;
- b. consent of the surety, if any, to final payment;
- c. a list of all Claims against Owner that Contractor believes are unsettled; and
- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations

under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance

with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be

governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

GENERAL

1. These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (C-00700, 2002 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.
2. Terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

3. Additional Terms

Owner: Indianola Municipal Utilities

Engineer: P & E Engineering Co., Carlisle, Iowa

ARTICLE 2 – PRELIMINARY MATTERS

- SC-2.02 Amend the first sentence of Paragraph 2.02 of the General Conditions to read as follows:

Owner shall furnish to Contractor up to four (4) printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished to Contractor for the cost of printing and delivering the additional copies.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

- SC-3.07 Add the following new paragraphs to the General Conditions immediately after Paragraph 3.06:

3.07 Drawings

A. Details of construction and other engineering data are shown on the included Drawings. In addition to these drawings, other drawings or data may hereafter be furnished and issued by Engineer to explain portions of the work covered by these Specifications in more detail.

B. The Drawings, in general, are to scale, but figured dimensions shall always be followed and Drawings shall not be scaled.

C. Engineer will give Contractor reasonable assistance in interpreting the Drawings and Specifications, but such assistance shall not relieve Contractor from any responsibility for his work.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS;
HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

SC-4.02 Add the following new paragraph to the General Conditions immediately after Paragraph 4.02.B:

C. No reports of explorations or tests of subsurface conditions at or contiguous to the Site are known to the Owner or Engineer.

SC-4.04 Add the following new paragraph to the General Conditions immediately after Paragraph 4.04.B:

C. Locates: All existing utilities must be located before any excavation is started. Regardless of other utility contacts, Contractor must notify One-Call of Iowa and Owner at least 48 hours before beginning work at any particular location.

SC-4.05 Add the following new paragraph(s) to the General Conditions immediately after Paragraph 4.05.A:

B. Owner will provide staking for the Project as defined in the General Requirements, Staking and Layout Section.

SC-4.06 Delete Paragraphs 4.06.A and 4.06.B in their entirety and insert the following:

A. No reports or drawings related to Hazardous Environmental Conditions are known to Owner or Engineer.

ARTICLE 5 - BONDS AND INSURANCE

SC-5.01 Bonds may be submitted on the forms provided with this Contract, or may be provided on the standard forms utilized by the Surety.

SC-5.03 Add the following new paragraphs to the General Conditions immediately after Paragraph 5.03.B:

C. Failure of Owner to demand such certificates or other evidence of full compliance with these insurance requirements or failure of Owner to identify a deficiency from evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. By requiring such insurance and insurance limits herein, Owner does not represent that coverage and limits will necessarily be adequate to protect Contractor and such coverage and limits shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

SC-5.04 Add the following new paragraph to the General Conditions immediately after Paragraph 5.04.B:

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation and related coverages under Paragraphs 5.04.A.1 and 5.04.A.2 of the General Conditions:
 - a. State: Statutory
 - b. Applicable Federal Statutory
 - c. Employer's Liability \$1,000,000
2. Contractor's General Liability under Paragraphs 5.04.A.3 through 5.04.A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under care, custody and control of Contractor:
 - a. General Aggregate: \$2,000,000
 - b. Products – Completed operations Aggregate: \$2,000,000
 - c. Personal and Advertising Injury \$1,000,000
 - d. Each Occurrence (Bodily Injury and Property Damage) \$1,000,000
 - e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverage where applicable.
 - f. Excess or Umbrella Liability
 - 1) General Aggregate \$4,000,000
 - 2) Each Occurrence \$4,000,000
3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:
 - a. Bodily Injury:

Each Person	\$500,000
Each Accident	\$1,000,000

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

- b. Property Damage:
Each Accident \$500,000
 - c. Combined Single Limit of: \$1,000,000
- 4. The Contractual Liability coverage required by Paragraph 5.04.B.4 of the General Conditions:
 - a. Bodily Injury:
Each Accident \$1,000,000
Annual Aggregate \$2,000,000
 - b. Property Damage:
Each Accident \$1,000,000
Annual Aggregate \$2,000,000
- 5. All policies must name the following as additional insured, in accordance with Paragraph 5.04.B.1 of the General Conditions
 - a. Indianola Municipal Utilities (Owner)
 - b. P & E Engineering Co. (Engineer)

SC-5.06 Delete Paragraphs 5.06.A, 5.06.B, 5.06.C, 5.06.D, and 5.06.E in their entirety and replace with the following:

- A. Contractor shall provide coverage to protect the Contractor and Owner from all insurable risks of physical loss or damage to materials and equipment to be incorporated into the Work while such property is in transit to the site of construction, while it is at temporary storage locations or on or about the premises awaiting and during construction or installation, during testing and after installation is completed, until such time as the Work has been turned over to and accepted by the Owner..
- B. Coverage shall be on an "all risk" form, and shall include coverage for Owner-furnished materials to be installed by the Contractor to the limits shown below.
- C. Policies affording this coverage must name Owner and the Contractor as Insureds and Loss Payees as their interests may appear.
- D. Any losses within deductible amounts provided for under this coverage shall be borne by the Contractor.
- E. The limits on this coverage shall be adequate to cover the full replacement cost of the Work covered by the contract, and shall include coverage for the full replacement cost of all materials, including those provided by the Owner. For purposes of determining the required coverage amount, the value of the Owner provided materials is deemed to be \$25,000.

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

SC-5.10 Delete Paragraph 5.10 of the General Conditions in its entirety.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITY

SC-6.02 Add the following new paragraphs to the General Conditions immediately after Paragraph 6.02.B:

C. The Contractor shall notify Owner and Engineer 24 hours before starting operations under this contract.

D. Contractor shall notify Owner each day in a manner set by Owner regarding when and where Contractor is working on Owner’s properties. At no time shall Contractor be on Owner’s property or working on or around Owner’s system without Owner’s knowledge of said fact.

SC-6.10 Add the following new paragraphs to the General Conditions immediately after Paragraph 6.10.A:

B. Owner is subject to State and Local Sales and Use Taxes. The bid prices shall include all applicable State or Local Sales and Use Taxes.

SC-6.13 Add the following new paragraph to the General Conditions immediately after Paragraph 6.13.D.

E. Contractor will be required to follow all IMU safety rules. All pertinent safety rules are shown on pages 12 & 14 attached to and made a part of this Contract. The entire Safety Manual for the City of Indianola and IMU can be viewed at the IMU main office.

SC-6.17 Delete Paragraphs 6.17.A, 6.17.B, 6.17.C, 6.17.D, and 6.17.E in their entirety and insert the following:

A. Shop drawings and samples will not be required for Contractor furnished materials.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.05 Delete Paragraph 14.05.A of the General Conditions in its entirety and replace it with the following paragraph 14.05.A:

A. The Contractor acknowledges the intent of the Owner that all portions of the system are subject to Partial Utilization as soon as they are installed and

Indianola Municipal Utilities
2017 Hwy 92 Martensdale Transmission Relocation Project

completed by the Contractor, so long as such partial utilization will not damage or hinder the Contractor's Work.

SC-14.07 Delete paragraph 14.07.A.2.d in its entirety.

Delete paragraph 14.07.A.3 in its entirety.

Delete paragraph 14.07.C.1 in its entirety and replace with the following.

1. The balance of the amount due the successful bidder will be paid not earlier than 31 days from final acceptance of the improvements by Owner, subject to the conditions and in accordance with the provisions of Chapter 384 and 573 of the Code of Iowa.

End of Section 00800

Safety Manual

**For The
City of Indianola
And
Indianola Municipal Utilities**

DATE: MARCH 27, 2006

(Page 12)

Outside Contractors

In hiring short-term contractors, the City of Indianola and/or Indianola Municipal Utilities will require the contractors to submit proof of their safety programs and successful safety training. Before a contractor commences work in the City of Indianola or Indianola Municipal Utilities workplace, the project coordinator and/or supervisor who controls the work area will be responsible for informing all outside contractors of the elements of all safety programs of the city/IMU that affect the project.

Contractors who fail to follow safety program requirements will be asked to leave the premises. Contractors with an insufficient program will not be allowed to begin work until their program meets or exceeds the requirements of this program.

(Page 14)
Basic Safety Rules

General Safety Rules

1. Each employee will be required to comprehend and abide by the contents of this safety program.
2. All accidents, incidents and near misses no matter how minor, shall be reported immediately to the supervisor.
3. All hazardous conditions, actions and/or practices shall be reported to the supervisor.
4. Work areas, including the inside and outside of vehicles and buildings, shall be kept clean and orderly at all times.
5. Employees are only to operate equipment/tools that they are trained and authorized to operate.
6. Smoking is prohibited in areas where there is a danger to equipment, materials, coworkers or buildings, or where "No Smoking" signs are posted.
7. Employees must use all safety devices and personal protective equipment provided for their protection.
8. Employees shall wear clothing and shoes suitable for the particular work they are doing.
9. Employees must use assisted lifting devices or obtain assistance from a coworker when lifting heavy objects.
10. Guards are never to be removed except when authorized to make repairs or adjustments. Replace guard immediately upon completion of work.
11. The use of drugs and alcohol during working hours is prohibited. Any employee reporting for work under the influence of alcohol or controlled substances is subject to disciplinary action.
12. Any employee taking prescription drugs or over-the-counter drugs that could impair assigned work shall report this fact to the supervisor.
13. Employees shall not engage in practical jokes or horseplay that could result in injury to themselves, others or cause property damage.

Specific Safety Programs and Procedures

Employees will be trained on specific programs and procedures in their departments that may include the following:

- A. Personal Protective Equipment
- B. Respiratory Protection
- C. Hearing Conservation
- D. Lockout/Tagout
- E. Confined Spaces Entry
- F. Hazardous Communications
- G. Blood-Borne Exposure Control Plan

APPLICATION AND AGREEMENT FOR USE OF
HIGHWAY RIGHT-OF-WAY FOR UTILITIES ACCOMMODATION

FOR DEPARTMENT USE ONLY

Permit Number	Highway Number	County
DOT Project Number		Expiration/Completion Date

APPLICANT (INDIVIDUAL OR COMPANY)

First Name	Middle Initial	Last Name	Phone Number	Ext.
Company Name Indianola Municipal Utilities			Phone Number (515) 961-9444	Ext.
Street Address P.O. Box 356, 111 South Buxton St.		City/Town Indianola	State IA	ZIP Code 50125
e-Mail Address mmetcalf@indianolaiowa.gov		Secondary e-Mail Address		

INSTALLATION TO BE ACCOMMODATED
Approval is hereby requested to enter within the state highway right-of-way for the accommodation of a utility installation as detailed on the attachments and further described as follows.

The installation shall consist of:
Overhead conductor for electric transmission at 69 KV run longitudinally on the north side of Hwy 92 within DOT ROW from Hwy Sta. 242+79 to 261+59
5 poles will be set on DOT ROW (2-70' and 2-75' round wood and 1-65' AGL wood laminate.)
2 Triple helix ground anchors as shown on drawing.
MEC under-built line shown on separate permit by MEC
5 poles will be removed
Existing Conductors to be transfered to new poles:
One shield wire top (steel 3/8" 7 strand, class B galvanized, EHS)
Three 69 KV nominal wire vertically arranged (T-2-336.4 ACSR, Bare)
Traffic control plan: TC-202 for Hwy 92 while installing the poles and transferring conductor if necessary.
Traffic control plan: TC-251 for Hwy 28 During conductor pulling.
See drawing E9482-900 for the plan view. See drawings E9482-T202 and E9482-T203 for cross sections.
See drawings T69-026C, T69-030, and T-69-064 for pole details.

and shall be located as shown on the detailed plan attached hereto. (See current Iowa Department of Transportation Utility Accommodation Policy for submittal of detailed plan requirements. See Section 115.8 (3).) <http://www.iowadot.gov/traffic/pdfs/UtilityPolicy.pdf>

WORK SITE LOCATION

The proposed work as described above is located in Section 21 , Twp. 76-N ,
Range 25W on Highway No. 92 generally located _____ (miles) within _____
(direction) from Martensdale (city, county line, or other landmark). Work proposed is more
specifically located as being from 121.174 (Milepost #) and 242+79 (Highway Station)
to 121.530 (Milepost #) and 261+59 (Highway Station) on the NORTH side of highway.

Disclosure Statement: The information furnished on this form will be used by the Department of Transportation to determine approval or denial of the application. Failure to provide all pertinent information will result in denial of the application. Information furnished is public information and copies may be provided to the public upon request.

The utility company, corporation, applicant, permit holder or licensee, (hereinafter referred to as the Permit applicant) agrees with the Iowa Department of Transportation (hereafter referred to as the Department) that the following stipulations and those special requirements as listed on this document shall govern under this permit after it is approved by the Department.

A. General

1. The installation shall meet the requirements of local municipal, county, state, and federal franchise rules and regulations, regulations and directives of the Iowa State Commerce Commission; the Iowa Department of Natural Resources, all rules and regulations of the Department and any other laws or regulations applicable.
2. The Permit Holder shall be fully responsible for any future adjustments of the facilities within the established highway right-of-way caused by highway construction or maintenance operations.
3. As per Section 115.8(8) of the Utility Accommodation Policy, As-Built plans are due within 90 days after completion of construction, the utility owner shall submit to the district representative an as-built plan.
4. The work described in this permit shall be completed as proposed in compliance with the stipulations and special requirements within one year from the date Department approval is received for said request. Failure on the part of the Permit Holder to abide by the stipulations or in constructing the work described as stipulated and within the time frame stated shall render this agreement and request null and void. The Permit Holder also agrees to save the State of Iowa and the Department harmless of any damages or losses that may be sustained by any person, or persons, on account of the conditions and requirements of this agreement.
5. Non-compliance with any of the terms of the Department's policy, permit, or agreement, may be considered cause for shut-down of construction operations, revocation of the permit, or withholding of relocation reimbursement and/or withholding of future application approvals until compliance is confirmed. The cost of any work deemed necessary to be performed by the State in removal of non-complying construction will be assessed against the Permit Holder.

B. Construction and Maintenance

1. The location, construction and maintenance of the utility installation covered by this application shall be in accordance with the current Department's Utility Accommodation Policy. <http://www.iowadot.gov/traffic/pdfs/UtilityPolicy.pdf>
2. Before beginning any work in the highway right-of-way, it is the responsibility of the Permit Holder to obtain an easement from the drainage district if necessary. The Department assumes no responsibility for advising the Permit Holder of each location of a drainage district crossing. It is the Permit Holder's responsibility to locate these crossings and obtain any necessary easements or permission from the drainage district. See Code of Iowa, Chapter 468 for additional information.
3. A copy of the approved permit shall be available on the job site at all times for examination by Department personnel.
4. Operations in the construction and maintenance of this utility installation shall be carried on in such a manner as to cause minimum interference to or distraction of traffic on said highway.
5. Traffic protection shall minimally be in accordance with Part VI of the current Manual on Uniform Traffic Control Devices for Streets and Highways. The applicant shall be responsible for correctly using traffic control devices including signs, warning lights, and channelizing devices as needed while work is in progress or the clear zone is impacted. Flagging operations are the responsibility of the applicant. The Department's TC XXX Series Standards are the preferred traffic control specification plans. http://www.iowadot.gov/design/stdplne_tc.htm
6. The applicant shall seed and mulch all disturbed areas within the highway right-of-way and shall be responsible for the vegetative cover until it becomes well established. Any surfaced areas such as driveways or shoulders and sodded waterways and plantings which are disturbed shall be restored to their original condition. Any damage to any other underground facilities during installation shall be repaired at the permit holder's expense.
7. All personnel in the highway right-of-way shall wear ANSI 107 Class 2 apparel at all times when exposed to traffic or construction equipment.
8. As per Policy Section 115.4(9) parking or storage in the clear zone is prohibited. When not in actual use, vehicles, equipment and materials shall not be parked or stored within the clear zone or median.
9. Unless specifically noted in Special Requirements section, all work performed within the right-of-way shall be restricted to 30 minutes after sunrise to 30 minutes before sunset.
10. Pedestals shall be placed within 12 inches of the right-of-way line.
11. All above and below ground appurtenances (pedestals, hydrants, drains, accesses, etc.) shall be marked with high visibility posts and signs. The minimum height requirement for the signs shall be 5 foot. Urban Roadway Sections may be exempted with department approval.

C. Liability

1. To the extent allowable by law, the Permit Holder agrees to indemnify, defend, and hold the Department harmless from any action or liability arising out of the design, construction, maintenance, placement of traffic control devices, inspection, or use of the Permit Holder's facilities. This agreement to indemnify, defend, and hold harmless applies to all aspects of the Department's application review and approval process, plan and construction reviews, and funding participation.
2. The Permit Holder shall indemnify and save harmless the State of Iowa, its agencies and employees, from any and all causes of action, suits at law or in equity, for losses, damages, claims or demands, and from any and all liability and expense of whatsoever nature, arising out of or in connection with the Permit Holder's use or occupancy of the public highway.
3. The State of Iowa and the Department assume no responsibility for damages to the Permit Holder's property occasioned by any construction or maintenance operations on said highway if the facilities are not located in accordance with this permit.
4. The State of Iowa, its agencies or employees, will be liable for expense incurred by the Permit Holder in its use and occupancy of the highway right-of-way only when negligence of the State, its agencies or employees, is the sole proximate cause of such expense. Whether in contract, tort or otherwise, the liability of the State, its agencies and employees, is limited to the reasonable, direct expense to repair damaged utilities, and in no event will such liability extend to loss of profits or business, indirect, special, consequential or incidental damages.

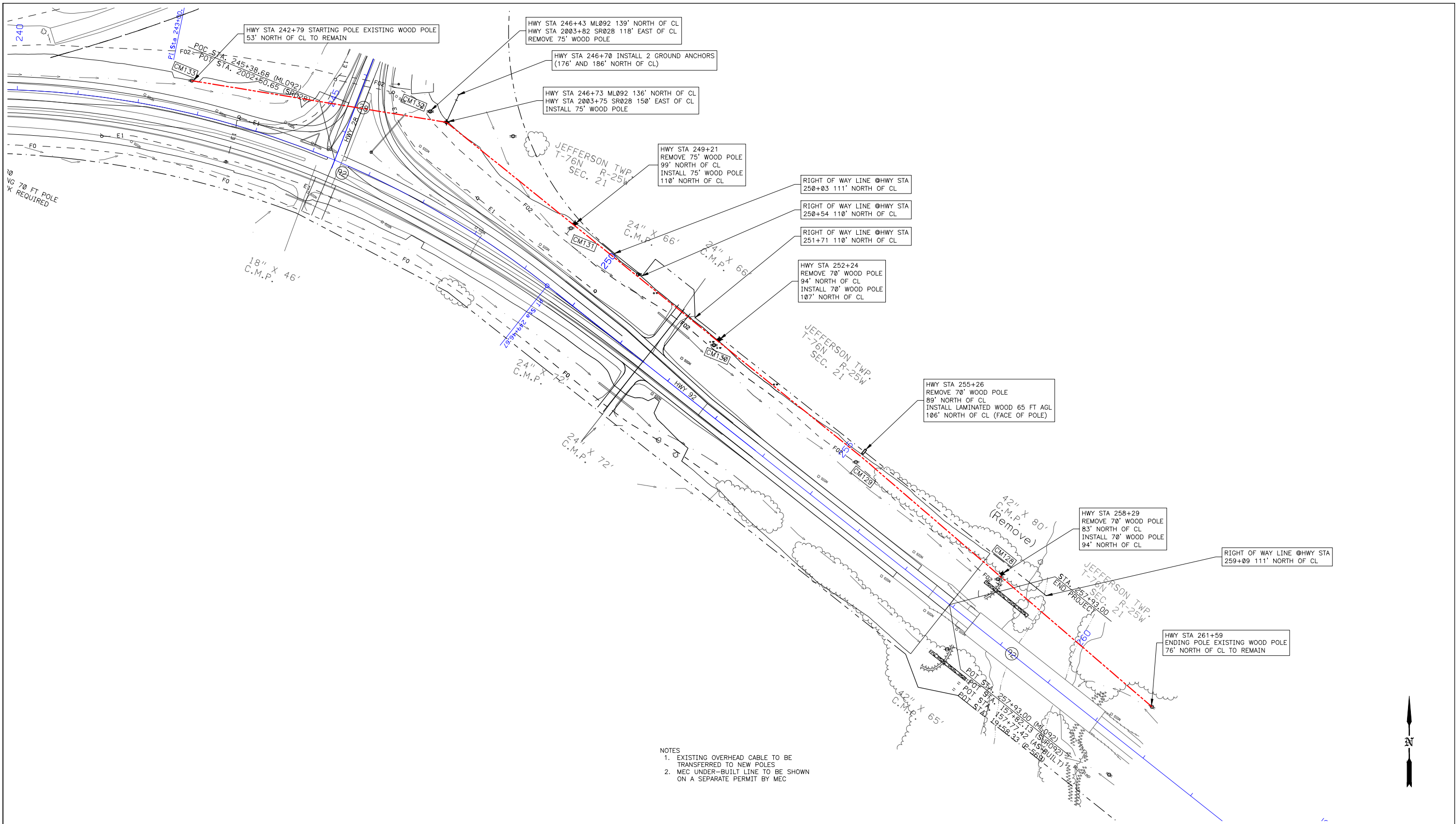
D. Notification

1. The Permit Holder is responsible for contacting **Iowa One-Call (1-800-292-8989)** and request the location of all underground utilities forty-eight (48) hours before excavation. Before beginning work in the highway right-of-way, the Permit Holder shall also contact any other known utility located in the area of the proposed work.
2. The Permit Holder agrees to give the Department forty-eight (48) hour notice of its intention to start construction or to perform routine maintenance on the highway right-of-way. Said notice shall be made to the local DOT contact person whose name is shown on Page 3.
3. **511 Notification**-In accordance with Iowa Code section 321.348, cities and utilities **may not obstruct or close** primary highways or primary highway extensions (State highways within city limits) **without prior consent of the Iowa DOT**, except in emergency situations. Before setting up a lane closure or a vertical/horizontal restriction of any kind on a primary highway, call your local Iowa DOT Maintenance garage and call the Traffic Management Center per attached documents. Except in emergency situations, a 10 day advance notice is required. <http://www.iowadot.gov/traffic/utility/pdfs/511UtilityNotification.pdf>

E. Buy America

Buy America applies to relocations of utility facilities that must move due to highway projects under certain specific conditions that include reimbursable locations and relocations due to interstate projects. Please contact the Department's District Engineering Operation Technician (EOT) for more information on Buy America requirements or visit the following link: <http://www.iowadot.gov/traffic/utility/utility.html>

Permit Number: _____



- NOTES
1. EXISTING OVERHEAD CABLE TO BE TRANSFERRED TO NEW POLES
 2. MEC UNDER-BUILT LINE TO BE SHOWN ON A SEPARATE PERMIT BY MEC

--- ROW
--- IMU OVERHEAD CABLE CENTERLINE

NO. 22534 CM42-998.dwg

P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
245 S. 5th
P.O. Box 620
Carlisle, IA 50047
Office: 515-989-3083
FAX: 515-989-3138
peengr@peengr.com

INDIANOLA MUNICIPAL UTILITIES
IMU
Electric • Network Services • Water

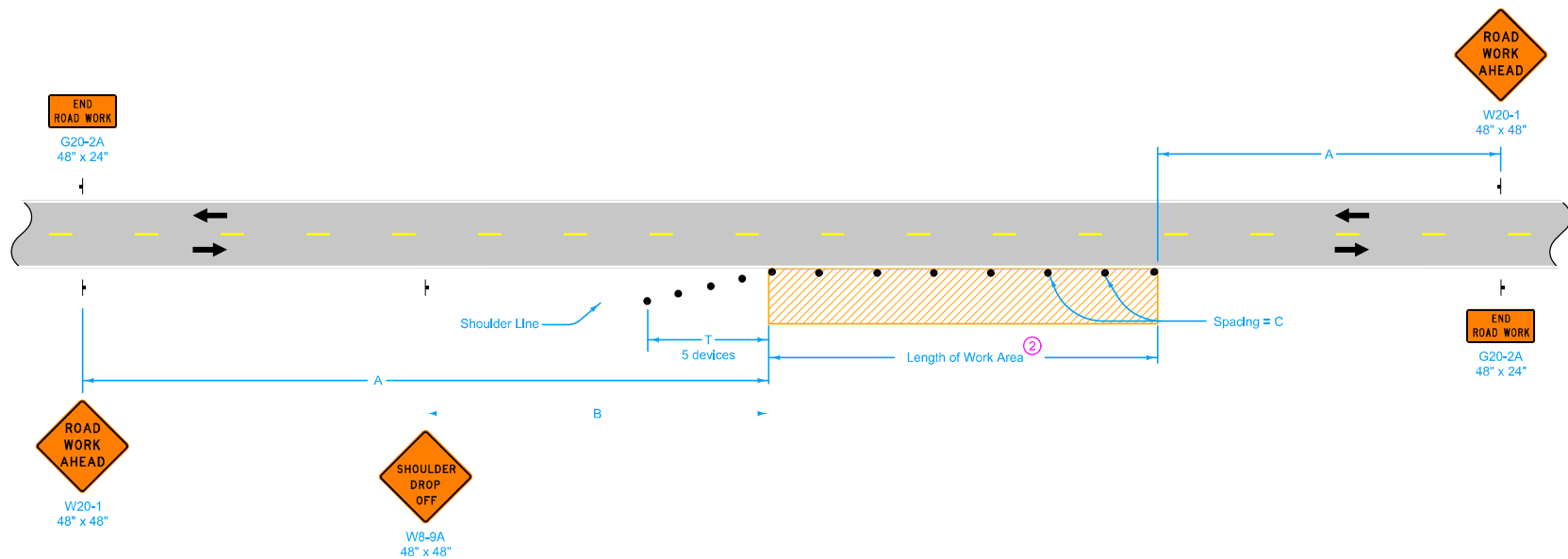
REV	DESCRIPTION	DESIG	DFTR	APPR	DATE	INCEPTION
A	ORIGINAL DESIGN	P&E	RWB	ARP	2017-04-12	DATE 2017-04-12
B	REVISED DESIGN FOR CM132 CONFLICT	P&E	DRP	ARP	2017-04-17	DESIG P&E
						DFTR RWB
						APPR ARP

**ISSUED
FOR PERMIT**

INDIANOLA MUNICIPAL UTILITIES
2017 HWY 92 MARTENSDALE
TRANSMISSION RELOCATION PROJECT
DOT PERMIT DRAWING

SCALE:
0' 75' 150'

REV
B
DWG NO
E9482-900



LEGEND	
	Traffic Sign
	42" Channelizer
	Work Area
	Direction of Traffic

SPEED LIMIT (mph)	A	B	C ②	T
35 or less	500'	250'	40'	100'
40 - 45	700'	350'	80' ①	200'
50 or greater	1000'	500'	100' ①	200'

When a pavement edge drop-off exists, install a SHOULDER DROP-OFF sign.

No pavement edge drop-offs greater than pavement depth will be allowed during non-working hours.

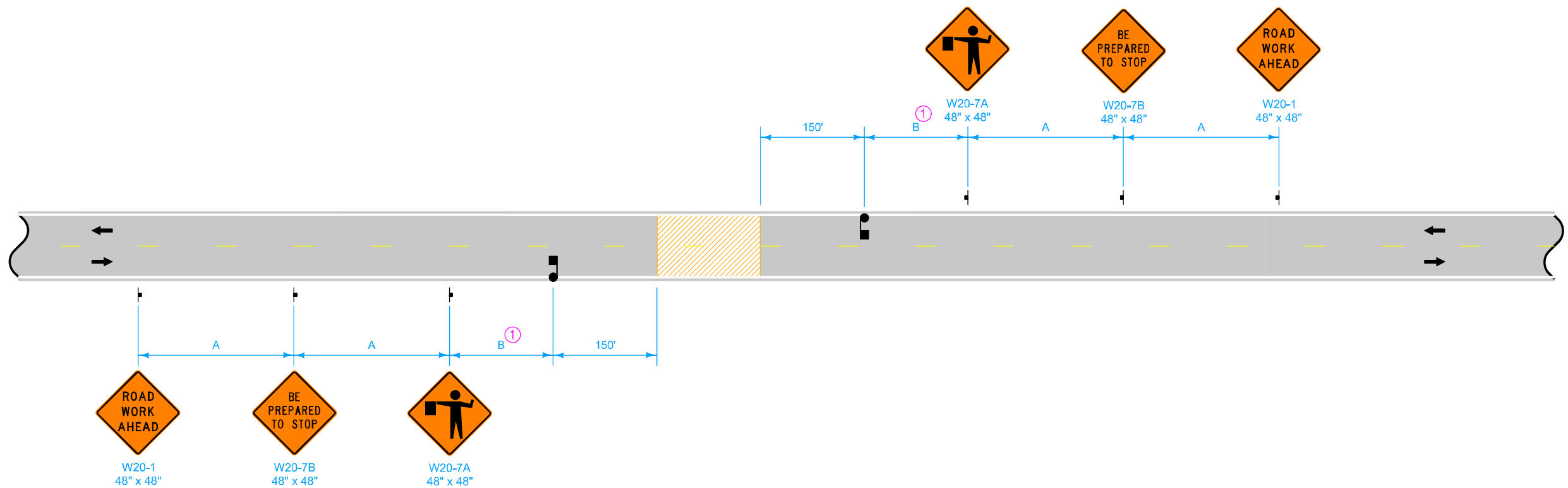
Shoulder edge drop-offs shall be mitigated according to Article 1107.08.L2 of the Standard Specifications.

① When the length of a pavement edge drop-off is 1000 feet or less, the temporary fillet requirement of Article 1107.08 of the Standard Specifications does not apply. Reduce channelizer spacing to 40 feet.

② For work areas less than 200 feet long, use channelizers spaced at 20 foot centers or use a vehicle with an amber revolving light or amber strobe light.

Possible Contract Item:
Traffic Control

 STANDARD ROAD PLAN REVISIONS: Modified circle note 1.	REVISION 7 10-15-13	
	TC-202 SHEET 1 of 1	
	APPROVED BY DESIGN METHODS ENGINEER 	
SHOULDER CLOSURE (ONE LANE)		



LEGEND

- Traffic Sign
- Work Area
- Flagger
- Direction of Traffic

SPEED LIMIT (mph)	A	B ⁽¹⁾ (minimum)
35 or less	250'	250'
40 - 45	350'	350'
50 or greater	500'	500'

This layout is intended for a preplanned closure of 20 minutes or less.

⁽¹⁾ The Engineer will determine the storage length, B, necessary to accommodate stopped traffic during the closure.

Possible Contract Item:

Traffic Control
Flaggers

Iowa Department of Transportation STANDARD ROAD PLAN	REVISION	
	2	04-17-12
TC-251 SHEET 1 of 1		
REVISIONS: No significant changes. Changed to color.		
Deanna Marjula APPROVED BY DESIGN METHODS ENGINEER		
TEMPORARY ROAD CLOSURE		

INDIANOLA MUNICIPAL UTILITIES
Hwy 92 Martensdale Transmission Relocation Project
Section 01000 – GENERAL REQUIREMENTS

INDEX

- 1.0 Project Description
- 2.0 Not Used
- 3.0 Work by Owner or Others
- 4.0 Schedule
- 5.0 Not Used
- 6.0 Not Used
- 7.0 Communications
- 8.0 Storage of Material and Equipment
- 9.0 Materials
- 10.0 Site and Other Areas
- 11.0 Energized Equipment
- 12.0 Staking
- 13.0 Not Used
- 14.0 Removal Work
- 15.0 Not Used
- 16.0 Tree Trimming
- 17.0 Traffic Control
- 18.0 Switching

1.0 PROJECT DESCRIPTION

- 1.1 The work is along and adjacent to Iowa Hwy 92 at three locations, all in Warren County, Iowa.
 - A. Near the intersection with Hwy 28
 - B. Third pole east of 74th Lane
 - C. Approx ¼ mile east of 20th Ave.
- 1.2 The scope of work includes the following.
 - A. Set five new wood poles (four round wood and one laminated wood) and transfer existing 69 kV circuit, framed per attached drawings and staking sheet
 - B. Remove five existing wood poles
 - C. Install concrete pole keys on existing 69 kV laminated wood pole
 - D. Install bond between down guy and shield wire on existing 69 kV wood pole
- 1.3 This project includes furnishing all material, labor, tools, equipment, and other items necessary to complete the entire project as defined by these Contract Documents, except for those material items identified as being supplied by the Owner.

2.0 NOT USED

3.0 WORK BY OWNER OR OTHERS

- 3.1 Owner will furnish materials as shown in the project Bill of Material.
- 3.2 This work is required to accommodate an Iowa DOT project to widen a portion of Hwy 92.

INDIANOLA MUNICIPAL UTILITIES
Hwy 92 Martensdale Transmission Relocation Project
Section 01000 – GENERAL REQUIREMENTS

4.0 SCHEDULE

- 4.1 Work must commence as soon as possible and must be completed by June 10, 2017.
- 4.2 The laminated wood pole is scheduled to be delivered on May 26, 2017.
- 4.2 No milestone dates for completion of specific portions of project Work are identified.

5.0 NOT USED

6.0 NOT USED

7.0 COMMUNICATIONS

- 7.1 Contractor shall furnish his own communication equipment, which shall be capable of interfacing with the public telephone system. The communication equipment shall be present at the job site any time workers are present. In cases of emergency Contractor shall immediately contact Owner by phone. Appropriate telephone numbers will be provided to Contractor prior to start of the work.

8.0 STORAGE OF MATERIAL AND EQUIPMENT

- 8.1 Only limited storage space for material and equipment will be available at the project Site.
- 8.2 Storage areas shall be subject to approval of Owner.

9.0 MATERIALS

- 9.1 Contractor is to furnish and pay for all materials necessary for the completion of the Work, except for those items shown as supplied by Owner. All materials supplied by Contractor shall be new and unused.
- 9.2 The Bill of Material is provided solely as a reference and guide for Contractor. All material (except for those items that are listed as being provided by Owner) and labor that is required to complete the Work as described by the Contract Documents is to be provided by Contractor, regardless of whether or not any specific items are included in the Bill of Material and regardless of the quantities shown.
- 9.3 Distances shown in the staking sheets or on drawings are estimated and are not guaranteed to be accurate.
- 9.4 If the total quantities of equipment actually installed differs from that shown in the Contract Documents an appropriate adjustment will be made in the final Contract Amount.

INDIANOLA MUNICIPAL UTILITIES
Hwy 92 Martensdale Transmission Relocation Project
Section 01000 – GENERAL REQUIREMENTS

- 9.5 Contractor is responsible for supplying Owner with a list of all materials to be supplied for use on the project, complete with manufacturer and catalog number, within two weeks of the issuing of the Notice to Proceed.
- 9.6 Contractor is responsible for furnishing all required fill dirt and black dirt, loading, hauling, and handling of all such materials.
- 9.7 Concrete and waste dirt or rock is to be loaded, hauled, and disposed of by Contractor.

10.0 SITE AND OTHER AREAS

- 10.1 Contractor shall confine his operations to public right-of-way or to existing easements on private lands. Contractor shall cooperate with adjacent property owners.
- 10.2 Should Contractor elect to enter upon adjacent private or public lands to perform a portion of the work, he shall make his own arrangements with the property owner. All such agreements shall be in writing and must expressly release Owner from any and all liability arising out of Contractor's operations on the property. One copy of each such agreement shall be furnished to Owner before Contractor shall be permitted to enter the property.

11.0 ENERGIZED EQUIPMENT

- 11.1 Contractors acknowledge that Contractor's employees are aware of the potentially dangerous nature of electricity and are qualified to work in the vicinity of secondary (600 volt class), primary distribution (15 kV class), and transmission (69 kV) electric facilities that have not been deenergized. The existing facilities shall remain in operation and energized at all times except when outages are scheduled on individual circuits. Contractor shall take whatever steps are necessary to protect the existing facilities and maintain them so that they do not interfere with or pose a danger to either the new construction, his operation, Owner's workers, or the general public. The cost of such actions shall be included in Contractor's prices as no separate payment will be made. Owner will assist Contractor when working around existing cables and equipment.
- 11.2 In the event the work cannot be performed safely, Contractor shall notify Owner and Engineer, and shall cease work until arrangements are made to proceed safely.
- 11.3 Any and all required outages shall be scheduled and coordinated with Owner's representative, well in advance of the expected date of the outage.

12.0 STAKING

- 12.1 Owner will provide the staking for this project. The staking or layout will consist of visible markings (stakes, flags or paint marks) in the field which delineate the location of poles.
- 12.2 Contractor will be responsible for the preservation of such layout and will provide all necessary additional detailed layout required to perform the work.

INDIANOLA MUNICIPAL UTILITIES
Hwy 92 Martensdale Transmission Relocation Project
Section 01000 – GENERAL REQUIREMENTS

- 12.3 Should any Owner furnished layout be lost or damaged, Owner will replace it upon notification and request by Contractor within a period of one working day after such request. All cost associated with such replacement will be deducted by Owner from amounts due Contractor in the performance of the work.
- 12.4 Contractor is responsible for obtaining underground locates in advance of the time set for staking in a given area.
- 13.0 NOT USED
- 14.0 REMOVAL WORK
- 14.1 All removal work shown on the Drawings and Staking Sheets will be completed by the Contractor in accordance with the specifications.
- 14.2 All removed materials are to be disposed of by Contractor, except that Owner may identify specific items to be returned to Owner's storeroom.
- 15.0 NOT USED
- 16.0 TREE TRIMMING
- 16.1 Owner will perform all tree trimming activities as needed to facilitate the project. Contractor shall request tree trimming at each specific location at least 48 hours in advance.
- 17.0 TRAFFIC CONTROL
- 17.1 Contractor shall furnish and use signs and flagmen as required to protect the traveling public and the Contractor's personnel. All traffic control measures and devices shall be in accordance with the requirements of the Iowa DOT and with the provisions of the DOT permit that is issued to cover the work.
- 17.2 The DOT permit application is included in the Contract Specifications.
- 18.0 SWITCHING
- 18.1 All switching required to de-energize and to re-energize the existing line will be scheduled and coordinated through the Owner. Contractor must request switching a minimum of 10 days prior to the required date.
- 18.2 All switching on the distribution under build and related lines and equipment will be done by MidAmerican Energy Company. Contractor shall coordinate all work involving the underbuild with MidAmerican Energy.
- 18.3 Contractor is responsible for testing for potential before applying grounds, and for installing and removing all safety grounds required to perform the Work.

INDIANOLA MUNICIPAL UTILITIES
Hwy 92 Martensdale Transmission Relocation Project
Section 01000 – GENERAL REQUIREMENTS

- 18.4 Owner will install hold tags on circuit breaker controls that are opened to facilitate Work on the project. Contractor is responsible for installing any additional hold tags and implementing all other safeguards required to establish de-energized work areas.

END OF SECTION 01000

NDIANOLA MUNICIPAL UTILITIES
Hwy 92 Martensdale Transmission Relocation Project
Section 16721 Transmission Line Overhead Construction

INDEX

- 1.0 General
- 2.0 Framing of Wood Structures
- 3.0 Erection of Wood Structures
- 4.0 Excavation and Backfill for Wood Poles
- 5.0 Pole Keys
- 6.0 Structure Grounding
- 7.0 Not Used
- 8.0 Insulators
- 9.0 Shield – Guy Bond
- 10.0 Splices
- 11.0 Sagging Conductors
- 12.0 Wire Attachment
- 13.0 Deadends
- 14.0 Jumpers
- 15.0 Pole Numbers

1.0 **GENERAL**

- 1.1 All material supplied by the Contractor shall be in accordance with the drawings and bills of material. Where substitutions are allowable, Contractor is responsible for ensuring that substitute materials meet or exceed all functional and performance specifications of the originally specified item.
- 1.2 Contractor shall provide a list showing the manufacturer and catalog number of all materials being supplied for the project. If requested by Owner, Contractor shall provide catalog data pages, cut sheets, or specification pages to fully describe and characterize materials being supplied.
- 1.3 All material shall be installed according to the drawings and the manufacturer's instructions. Contact Owner's Site Electrical Superintendent if any discrepancies are discovered or if clarification is required for intended methods of installation.
- 1.4 Tree and brush clearing will be completed by the Owner.

2.0 **FRAMING OF STRUCTURES**

- 2.1 Contractor shall field drill all holes in the poles required to assemble the structures, except for holes drilled by the pole supplier. Holes are to be sized for snug fit of bolts, generally using a drill bit that is 1/16" larger than the bolt diameter. Over sized holes are not acceptable. All unused holes shall be plugged with treated dowels.
- 2.2 Contractor shall provide all bolts with the proper size and length. Through bolts shall extend at least ½ inch and not more than 3 inches beyond the nuts. Bolt sizes shown on the bill of

Overhead Installation Specifications

material are nominal and may vary depending on actual pole dimensions. Contractor is responsible for determining required bolt lengths before ordering.

2.3 The location of framing materials shall not vary from the design details by more than one inch. Hardware shall be carefully installed on the poles and properly tightened. Structures may be framed on the ground or after poles are set, at the option of Contractor.

2.4 It is not permissible to cut off the tops of any poles unless directed to do so in the specifications or specifically approved by Owner. It will never be permissible to cut off the bottom of any pole. All holes, gains or cuts made in the field shall be brush treated with three coats of hot creosote, pentachlorophenol, or other approved preservative.

3.0 ERECTION OF STRUCTURES

3.1 Proper equipment and methods shall be used for loading, hauling, and erecting poles to prevent damage to the poles and framing materials.

3.2 Poles shall be set in accordance with the installation details. Setting depth shall be as listed below unless noted otherwise on the staking sheets. The actual setting depth must be at least this amount, but no more than 6" in excess of this value.

<u>Pole Length</u> <u>(in feet)</u>	<u>Setting Depth</u> <u>(in feet)</u>
35	5.5
40	6.0
45	6.5
50	7.0
55	7.5
60	8.0
65	8.5
70	9.0
75	9.5
80	10.0
85	10.5

3.3 Poles shall be set and framed according to the drawings and staking instructions. Poles shall be set as close as practical to the locations specified and truly perpendicular. If underground obstructions prevent setting the pole within 12" of the staked location and within 6" of true alignment, Owner's Site Electrical Superintendent shall be contacted for directions before proceeding.

Overhead Installation Specifications

4.0 EXCAVATION AND BACKFILL

- 4.1 Holes shall be excavated with diameters approximately 18 inches greater than the largest diameter of the poles being installed.
- 4.2 Rocks or portions of rocks which interfere with the excavation shall be removed.
- 4.3 The backfill for all pole holes shall be uniformly graded one inch maximum size crushed limestone rock, furnished by the Contractor. The pole hole shall be over-excavated to allow a minimum 12" base of crushed rock below the pole. The rock shall be placed from the bottom of the pole hole to a distance of 12 inches below the top of the hole and topped with excavated soil. All backfill shall be placed in 6 inch layers and each layer thoroughly machine tamped to at least 95% of its standard proctor density. The soil backfill shall be banked and tamped around the poles to a height of 6 inches above the natural ground line. The rock source and characteristics must be approved by the Owner prior to procurement. River rock or other rounded rock that will not compact is not allowed.
- 4.4 Backfill for the laminated wood pole must be stabilized by installing a corrugated galvanized culvert as shown on the drawings. Refer to Structure No. 9 on LWS drawings INMU-0001.02A1, .02A1-1, 02B1 and .02C1 for installation requirements and details of the pole foundation system.
- 4.5 All excess earth shall be spread smoothly around in the area immediately surrounding the structure to a depth of not more than six inches. In addition, a mound of earth shall be piled up and packed around the pole to a height of approximately ten inches.
- 4.6 All rock encountered in excavations shall be removed from the site and disposed of by the Contractor.
- 4.7 No open excavation shall be left unattended, uncovered, or unprotected during working hours. No excavation shall be left open overnight.
- 4.8 Poles shall be set in alignment and plumb except at corners, terminals, angles, junctions or other points of strain, where they shall be set and raked against the strain so that the conductor shall be in line. Where poles are specified to be raked, sufficient additional hole diameter shall be provided, if necessary to permit thorough compaction of backfill. Rake shall be based on horizontal offset between ground line and top of pole.

5.0 POLE KEYS

- 5.1 Concrete keys are to be installed on pole T69-1 as shown on drawing T69-241.
- 5.2 The pole keys will be supplied and delivered to the site by the Owner. Each key will be approximately 25" x 28" x 72", and will weigh approximately 3750 pounds.
- 5.3 The existing pole is supporting a 69 kV running angle with an angle of approximately 13 degrees. The conductors must be supported to allow the pole base to be excavated.

Overhead Installation Specifications

- 5.4 The pole must be raked approximately 15" prior to setting the keys as shown in the LWS drawings.
- 5.5 Backfill around the pole must be compacted crushed rock as shown on the drawings.
- 5.6 Voids between the keys and undisturbed earth must be filled with either a concrete slurry mix with a minimum strength of 1000 psi, or with expanding structural foam (Pole-Set or equivalent).
- 5.7 LWS drawings INMU-0002.02A4, .02B4, and .02C4 show the pole details and are included with this specification.

6.0 STRUCTURE GROUNDING

- 6.1 Grounding of overhead collector system line structures shall be in accordance with the detail drawings.
- 6.2 Grounding electrodes are not to be installed in the backfill surrounding the pole base. Electrodes are to be installed outside the backfill in undisturbed soil with the tops of the electrodes below grade. Pole grounding shall be installed immediately after the pole is set.
- 6.3 Each ground rod installation shall be tested either prior to connection to the structure utilizing a fall of potential ground resistance test set (AEMC Model 3620 or equivalent) or after all ground rods in a given line section have been installed and connected using a clamp-on ground resistance tester (AEMC Model 3711 or equivalent). The Contractor shall test each ground rod and keep a record of the resistance at each location. The records shall be furnished to the Owner upon completion of the work.
- 6.4 If the measured resistance is greater than 10 ohms, additional grounding beyond the requirements of the detail drawings may be required. Contact Owner's to determine the proper course of action.

7.0 NOT USED

8.0 INSULATORS

- 8.1 All insulators shall be carefully handled to prevent damage. Contractor shall inspect all insulators when removed from their crates.
- 8.2 All insulators shall be clean when installed.

9.0 SHIELD – GUY BOND

- 9.1 The existing guy wire shall be bonded to the shield wire at pole T69-2 as shown on drawing T69-240.

10.0 SPLICES

Overhead Installation Specifications

10.1 Splices or joints may be installed in the conductors and shield wires where necessary, within the constraints specified. No splices or joints shall be installed in any span that crosses other electric lines, communication lines, railroads, or controlled access roadways. Splices shall be installed at least 25 ft from the nearest structure. A maximum of two splices per conductor will be allowed in any conductor in any one span, with a minimum of 20 ft between splices.

10.2 Splices shall be compression type and be installed in strict accordance with the manufacturer's instructions. Tools shall be properly sized and adjusted, utilizing the dies specified by the connector manufacturer. Special care must be taken to thoroughly clean conductors before assembly, and to avoid having any loose strands in the conductor adjacent to the splice. Any damaged conductor, including sections with missing or damaged strands, must be cut off before installing splices.

11.0 SAGGING CONDUCTORS

11.1 The sag of the conductors after being transferred to the new poles must match the existing sag. The sag of the phase wires and shield wire in the span crossing Hwy 28 and in two of the spans parallel to Hwy 92 must be measured prior to unclipping the conductors. The air temperature at the time of the sag measurements must be recorded.

11.2 Splice locations must comply with Paragraph 10.0 of this specification.

11.3 The sag of the transferred conductors must be measured in the same spans as the original measurements. The conductor length must be adjusted to match sags within 6 inches of the existing when adjusted for differences in span length and air temperature. The conductor shall be clipped in immediately after splicing or dead ending is completed.

11.4 Sagging operations shall not be carried out when high wind, low temperatures, or other adverse conditions prevent satisfactory sagging.

11.5 Care must be taken to avoid displacing the adjacent structure.

12.0 WIRE ATTACHMENT

12.1 Conductors shall be securely clamped in their proper suspension clamps.

12.2 Armor rod shall be installed where required at all conductor suspension points including jumpers.

12.3 Conductors shall be lifted from the stringing blocks using a standard suspension clamp or an 8 inch or larger plate hook. Rope slings shall not be used. The inside diameter of the plate hook seat shall be at least 1/16 inch greater than the diameter of the conductor to be lifted. The center longitudinal portion of the plate hook shall be free of all burrs and rough edges. If conductor plate hooks are made of a material other than aluminum, they shall be lined with a suitable nonabrasive material.

Overhead Installation Specifications

13.0 DEADENDS

- 13.1 The conductor, messenger, and shield wire deadends shall be made using compression or bolted fittings as shown on the drawings and bill of material. The deadend fittings shall be installed in accordance with the manufacturer's instructions.

14.0 JUMPERS

- 14.1 Each jumper shall be one continuous piece of conductor and shall be accurately and uniformly tailored to each installation. Jumper loops shall be of proper length and formed so that the electrical clearances are maintained. Bends or corkscrew curves in jumpers, due to "forming" of the conductor on the reel or due to any other reason, shall either be straightened or the jumper replaced.
- 14.2 Uplift on jumper assemblies will not be permitted.
- 14.3 Contact surfaces on the bolted connections, jumper terminals, and on the deadend bodies of compression dead ends shall be thoroughly cleaned and electrical joint compound shall be applied to each surface immediately after cleaning to prevent re-oxidation. Abrade the surface through the compound. Do the same to the surface of the deadend tongue. Do not use filler compound for this purpose. The compound shall not be removed from the contact surface prior to bolting them together unless it should become contaminated by blowing dust or other foreign material. If the compound on the contact surface should become contaminated, the surface shall be wiped clean and recoated with compound before bolting the terminal to the deadend body.
- 14.4 All bolts shall be drawn up with a torque wrench to manufacturer's recommendations taking care not to damage the bolt or nut in the process. If bolt heads or nuts are burred or nicked, if threads are stripped, or if a bolt is stretched to the point of yielding, the bolt and nut shall be replaced. The entire assembly shall finally be wiped clean of extruded compound or any foreign material, using a soft cloth to detect burrs or abrasions. Any burrs or abrasions shall be removed by rubbing with fine aluminum oxide cloth.

15.0 POLE NUMBERS

- 15.1 Pole ID labels are to be transferred from the existing poles.

CLIENT Indianola Municipal Utilities
PROJECT Martensdale DOT Pole Replacement

P&E PROJECT NO. 9474

PROJECT MATERIAL

MAT ID	QUANTIT	MATERIAL DESCRIPTION	MANUFACTURER	CATALOG NO.	MATERIAL SOURCE
01705	2 ea.	Pole, wood, 70ft, class H1			Owner
01755	2 ea	Pole, wood, 75 ft, class H1			Owner
05023	100 ft	Conductor, #1/0 ACSR, bare		Raven	Contractor
05041	270 ft	Wire, #4 solid copper, SD, bare			Contractor
05044	10 ft	Wire, #2 str copper, Class B (7 str), SD, bare			Contractor
05164	150 ft	Conductor, T2-336.4 ACSR, bare		Linnet T-2	Owner
05707	280 ea	Wire, guy, 7/16", 7 str, Class A galvanized, EHS steel			Contractor
05710	50 ft	Wire, steel, 3/8", 7 str, Class B galvanized, EHS			Owner
05722	22 ea	Grip, guy, preformed, 7/16"	Preformed	GDE-1108	Contractor
10168	3 ea	Support, Shield Wire, Side Mounted, 5/8" x 12"	Hughes Bros	2812.5-12-B1CL	Contractor
10201	12 ea	Plate, pole eye, 6"	MacLean	EPR-77A-7	Contractor
10252	2 ea	Anchor, 8-10-12" Triple helix	MacLean	D6636	Contractor
10262	2 ea	Rod, anchor, 1-1/2" Adapter with Triple Eye	MacLean	D6606-US	Contractor
10272	4 ea	Rod, extension, 1-1/2" x 5'	MacLean	D6620-U	Contractor
10350	2 ea	Guard, guy	MacLean	J1493Y	Contractor
10402	5 ea	Rod, ground, 5/8" x 10', copperweld, threaded sectional	Eritech	635803	Contractor
10406	5 ea	Clamp, 5/8" ground rod to #8 - 1/0 Cu	T&B	GG58H	Contractor
10410	40 ft	Molding, ground wire, 1/2" plastic	MacLean	PM128	Contractor
10505	6 ea	Clamp, deadend, 226-T2 - 477-T2 kcmil ACSR	Maclean	AQDH-T2-94	Contractor
10509	2 ea	Clamp, deadend, quadrant, 0.18" - 0.46", galvanized	Anderson	SWDE-46-N	Contractor
10541	4 ea	Clamp, suspension, 3/8" EHS (with armor rod)	MacLean	FSC-60	Contractor
10701	8 ea	Grip, dead-end, preformed, 1/0 ACSR, AAC, AAAC	Preformed	SG-4506	Contractor
10761	10 ea	Damper, vibration, spiral, 0.327-0.461"	Preformed	5050104	Contractor
10790	4 ea	Rod, armor, 3/8" HS/EHS	Preformed	AR-1130	Contractor

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SECTION 16915

CLIENT Indianola Municipal Utilities
PROJECT Martensdale DOT Pole Replacement

P&E PROJECT NO. 9474

PROJECT MATERIAL

MAT ID	QUANTIT	MATERIAL DESCRIPTION	MANUFACTURER	CATALOG NO.	MATERIAL SOURCE
10901	3 ea	Thimble clevis, 40,000 pound	MacLean	FSA-100-6	Contractor
10911	2 ea	Clevis-eye, 7/8" opening, 3-3/8" C-C	Anderson	CA-05-033	Contractor
10947	6 ea	Socket Eye, 8 3/8" Extension Link	Maclean	SEHL-750	Contractor
12004	24 ea	Bolt, machine, 3/4" galvanized, various lengths	Hughes	B7x-x	Contractor
12005	24 ea	Bolt, machine, 7/8", various lengths	Hughes	B8x-x	Contractor
12103	24 ea	Bolt, double arming, 5/8" galvanized, various lengths	Hughes	TR6xx-F	Contractor
12403	18 ea	Locknut, 5/8" galvanized	Hughes	MF60	Contractor
12404	24 ea	Locknut, 3/4" galvanized	Hughes	MF70	Contractor
12405	24 ea	Locknut, 7/8", galvanized	Hughes	MF80	Contractor
12453	8 ea	Eye nut, 5/8" galvanized	Hughes	EN60	Contractor
12503	48 ea	Washer, square, flat, 5/8" galvanized	Hughes	SW2-1/4-60-3/16	Contractor
12506	24 ea	Washer, square, curved, galvanized, 3/4"	Hughes	CW70	Contractor
12507	24 ea	Washer, square, curved, galvanized, 7/8"	Hughes	CW80	Contractor
12509	24 ea	Washer, twin coils, 5/8"	Hughes	SLW2-60	Contractor
12510	30 ea	Washer, twin coils, 3/4"	Hughes	SLW2-70	Contractor
12550	210 ea	Staple, ground wire, 2" x 5/8"	MacLean	J7672	Contractor
14188	6 ea	Connector, comp sleeve, Jumper, 336 to 350-397.5 kcmil	Burndy	YCR32RG7	Contractor
14205	14 ea	Connector, Al compression, H-tap, various sizes	Burndy	YHO / YHD	Contractor
14220	1 ea	Connector, copper crimpit, #6 sol-#4 str to #8 sol-#4 str	T&B	CF44-1	Contractor
14451	2 ea	Clamp, parallel, #8-2/0 Cu to 3/16-7/16" guy strand	Burndy	UC8W26-L	Contractor
14620	6 ea	Splice, Full Tension, Compression, 2 piece, 336.4 ACSR, 26/7	Alcoa	33014	Contractor
14621	1 ea	Splice, Full Tension, Compression, 3/8" EHS Steel	Hubbell	811425	Contractor
16192	15 ea	Clamp, trunnion, clamp top, 266-T2 - 477-T2 ACSR	Maclean	LPS-T2-477	Owner
16502	8 ea	Insulator, guy, fiberglass, 54", 36,000 pound, 3/4" pins, one roller	Maclean	GCC36-54R	Contractor

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SECTION 16915

CLIENT Indianola Municipal Utilities
PROJECT Martensdale DOT Pole Replacement

P&E PROJECT NO. 9474

PROJECT MATERIAL

MAT ID	QUANTIT	MATERIAL DESCRIPTION	MANUFACTURER	CATALOG NO.	MATERIAL SOURCE
16511	7 ea	Roller, guy, 13/16" x 2-3/8" dia, 3/4" pin	Hughes	28084	Contractor
16600	6 ea	Insulator, suspension, polymer, 69 kV, 35"	Ohio Brass	S025023S2010	Contractor
16601	15 ea	Insulator, horz line post, 69 kV, steel gain base, clamp top, 2500 lb RC	Ohio Brass	P250024S1070	Owner
16610	16 ea	Insulator, down lead, fiberglass, 5/8" x 12"	Maclean	DLB-12-5A	Contractor
99980	1 ea	Laminated wood pole, 65 ft AGL	LWS	See drawings	Owner
99981	5 ea	Concrete pole key, 25"x28"x72", per drawing			Owner
99982	1 ea	Corrugated galvanized culvert, 48" Dia x 12 ft			Contractor

STAKING SHEET

Indianola Municipal Utilities
Martensdale DOT Pole Replacement

DATE 4/19/2017

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CONDUCTOR OR ACTIVITY	COND. QTY	SPAN FT.	SET POLE SIZE QTY	EXIST POLE	PRIMARY MODULE QTY	APPARATUS MODULE QTY	SEC/NEUTRAL MODULE QTY	GND MODULE QTY	GUYING MODULE QTY	COMMENTS & NOTES
AREA 01 Pole Replacement										
LOCATION NO. CM128										
Transfer Conductor	4		70H1 1		T69-030 1					Set new pole 9 ft north of existing Remove 1 70ft. Wood Pole
LOCATION NO. CM129										
					T69-064 1					Set laminated wood pole 18 ft north of existing Remove 1 70ft. Wood Pole
Transfer Conductor	4									
LOCATION NO. CM130										
Transfer Conductor	4		70H1 1		T69-030 1					Set new pole 12 ft north of existing Remove 1 70ft. Wood Pole
LOCATION NO. CM131										
Transfer Conductor	4		75H1 1		T69-030 1					Set new pole 12 ft north of existing Remove 1 75ft. Wood Pole
LOCATION NO. CM132										
T2-336 kcmil ACSR	3	50	75H1 1		T69-026C 1					Install anchors on angle bisector at 40 ft and 50 ft from pole Remove 1 75ft. Wood Pole
3/8" EHS	1	50								Extend existing conductor from west

STAKING SHEET

Indianola Municipal Utilities
Martensdale DOT Pole Replacement

DATE 4/19/2017

PAGE 2 OF 3

CONDUCTOR OR ACTIVITY	COND. QTY	SPAN FT.	SET POLE SIZE QTY	EXIST POLE	PRIMARY MODULE QTY	APPARATUS MODULE QTY	SEC/NEUTRAL MODULE QTY	GND MODULE QTY	GUYING MODULE QTY	COMMENTS & NOTES
--------------------------	--------------	-------------	----------------------	---------------	-----------------------	-------------------------	---------------------------	-------------------	----------------------	------------------

AREA 02 Stabalize laminated wood pole

LOCATION NO. T69-1

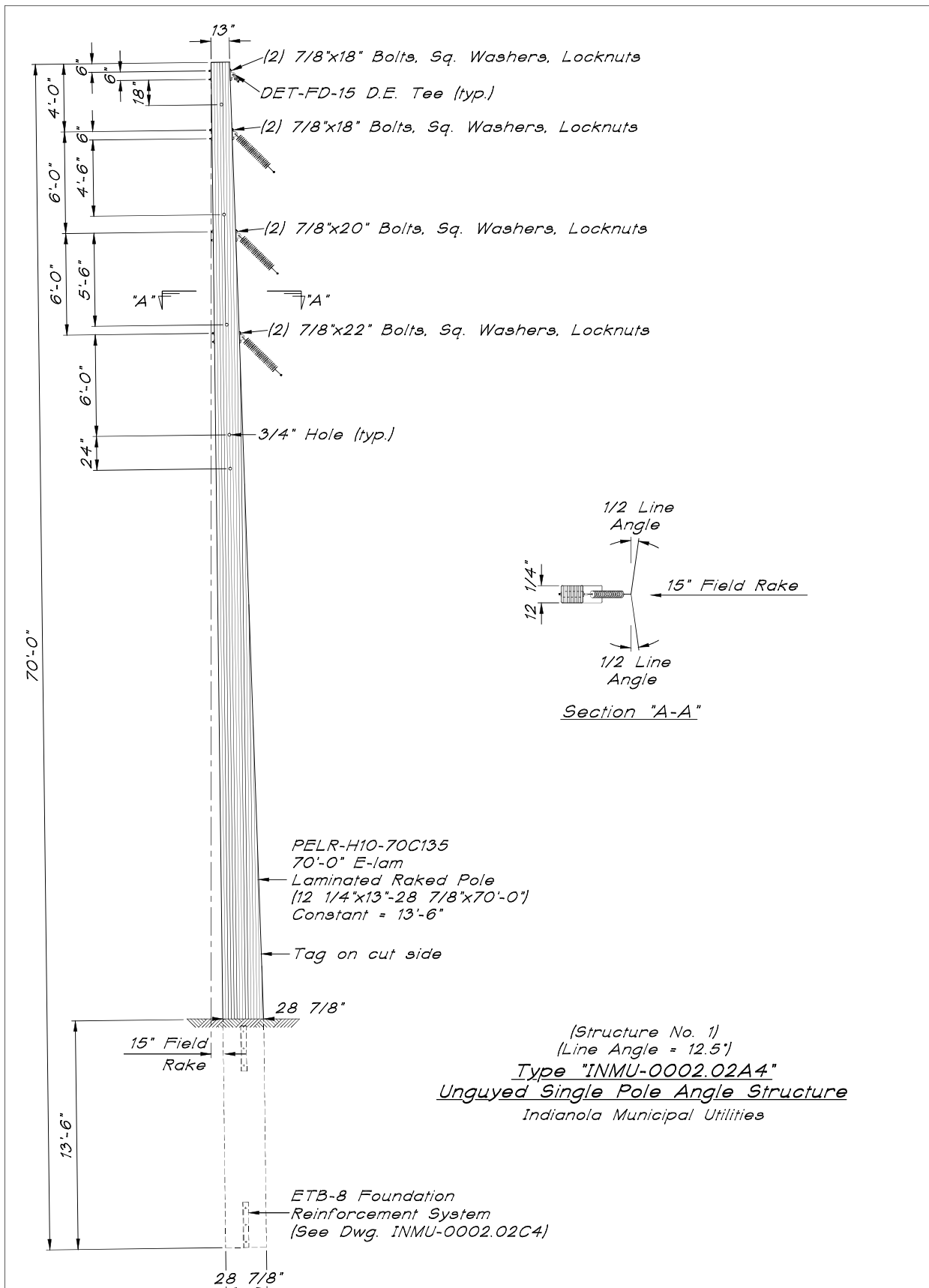
East of 20th Ave on Hwy 92, Install concrete pole keys
to stalize laminated wood pole. See detail drawing
T69-241. IMU will provide and deliver pole keys to site.

STAKING SHEET

Indianola Municipal Utilities
Martensdale DOT Pole Replacement

DATE 4/19/2017
PAGE 3 OF 3

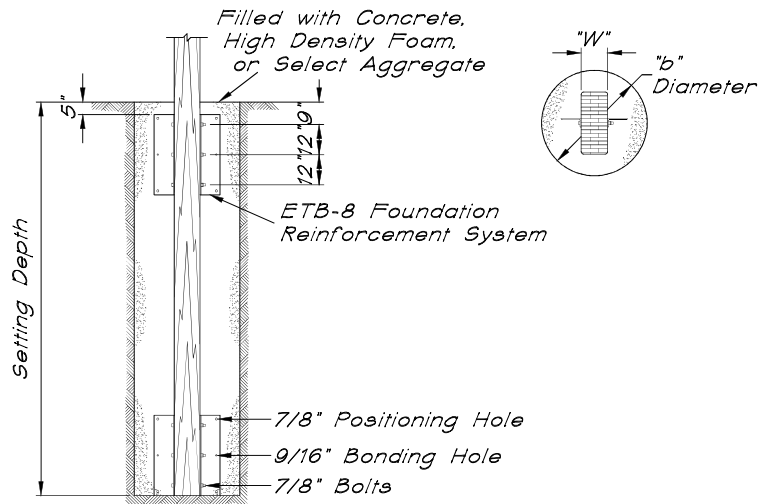
CONDUCTOR OR ACTIVITY	COND. QTY	SPAN FT.	SET POLE SIZE QTY	EXIST POLE	PRIMARY MODULE QTY	APPARATUS MODULE QTY	SEC/NEUTRAL MODULE QTY	GND MODULE QTY	GUYING MODULE QTY	COMMENTS & NOTES
AREA 03										
Bond guy to shield										
LOCATION NO. T69-2										
					T69-240	1				3 PE of 74th Lane on Hwy 92, Bond down guy to shield wire on existing angle pole



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				Laminated Wood Systems, Inc.		
				E-LAM		
				P.O. BOX 386, SEWARD, NE 68434 1-800-949-ELAM		
NO.	REVISION	DATE	CK.	DRAWN	DATE	DWG. NO.
ACAD DWG. FILE: INMU0202A4				J. Baack	1-27-14	INMU-0002.02A4

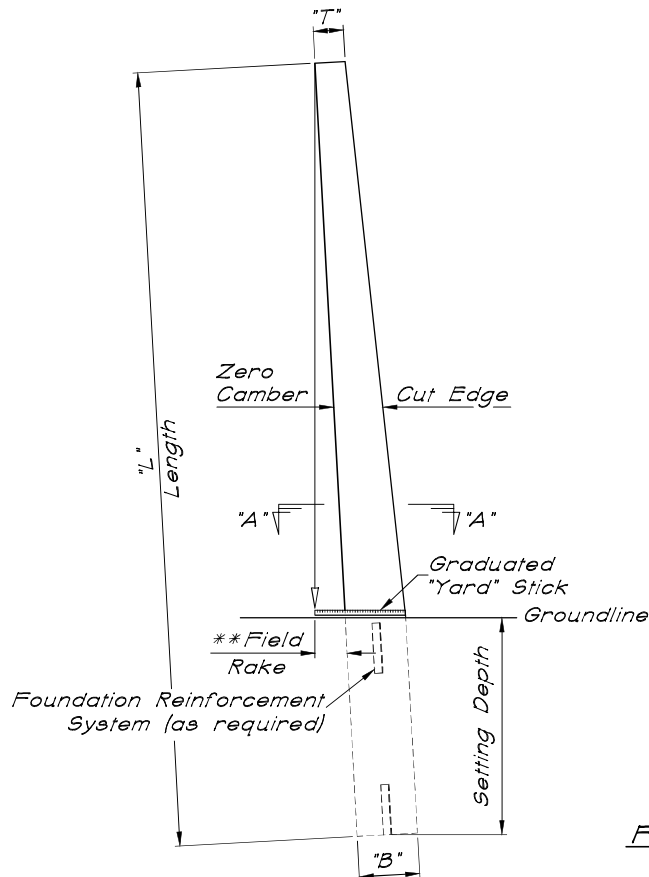
SECTION 16930



Structure Number	Pole Class & Length	"L"	Setting Depth	"W"	"T"	"B"	*"b"(min) Diameter	**Field Rake
1	PELR-H10-70C135	70'-0"	13'-6"	12 1/4"	13"	28 7/8"	4'-0"	15"

*Diameters are based on a Class 6 Soil Type.

**The pole should deflect approximately 1/2 of the field rake dimension at the time of installation (Assuming 60°F Tensions)



Recommended Raking Procedures

1. Attach a graduated yard stick to the base of the pole as shown.
2. Rake the pole until the back of the pole top and the end of the yard stick align with a plumb line.

Section "A-A"

Foundation and Field Raking Details Indianola Municipal Utilities

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				Laminated Wood Systems, Inc.			
				E-LAM [®]			
				P.O. BOX 386, SEWARD, NE 68434 1-800-949-ELAM			
NO.	REVISION	DATE	CK.	DRAWN	DATE	DWG. NO.	
ACAD	DWG. FILE: INMU0202C4			J. Baack	1-27-14		INMU-0002.02C4

SECTION 16930

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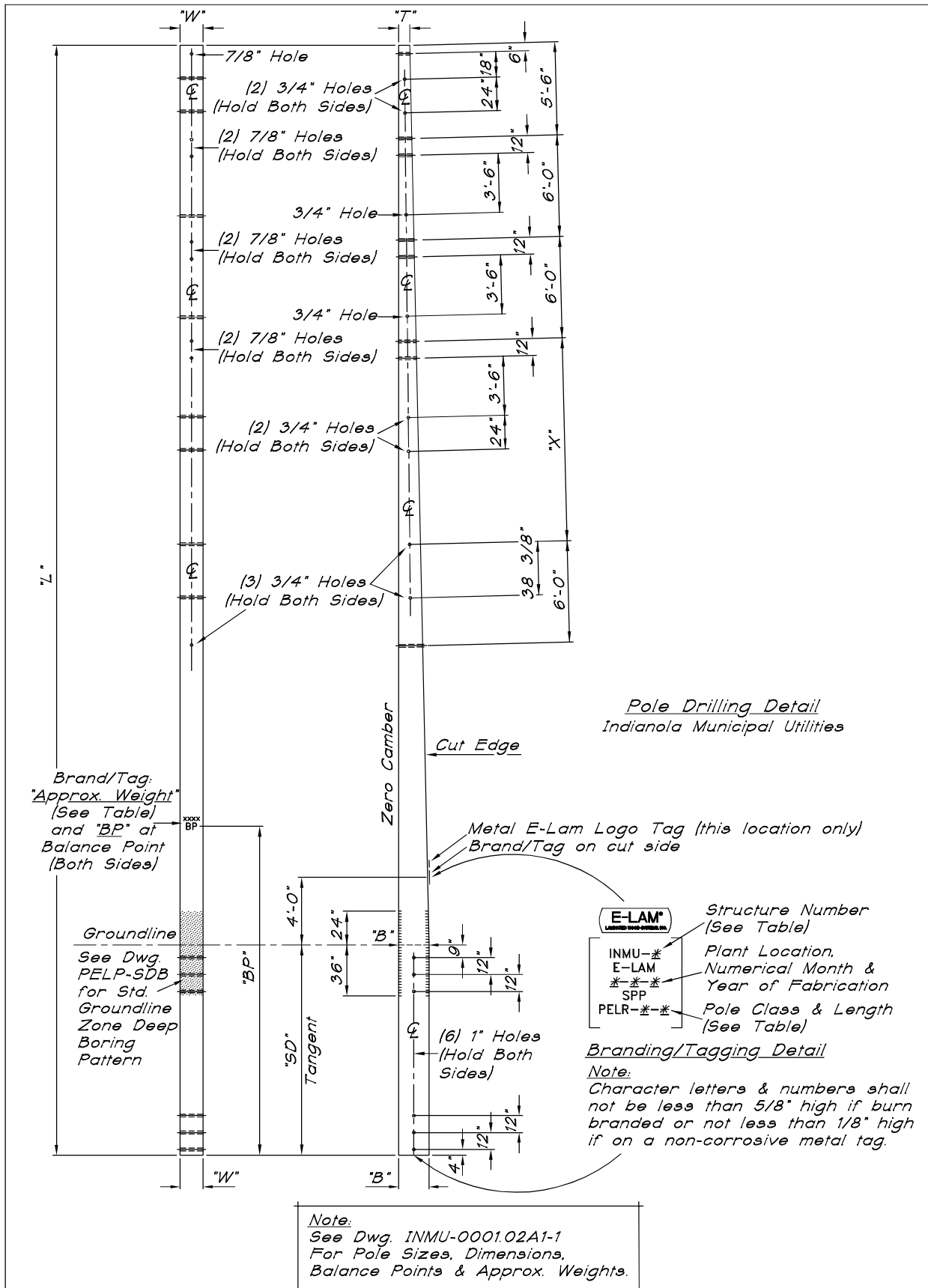
					Laminated Wood Systems, Inc.		
							
					P.O. BOX 386, SEWARD, NE 68434 1-800-949-ELAM		
1.			07/09/13		DRAWN	DATE	DWG.
NO.	REVISION			DATE	CK.	07/02/13	INMU-0001.02A1-1
ACAD DWG. FILE: INMU0102A1					K. Love		

Structure Number	Pole Class & Length	"L"	"SD"	"W"	"T"	"B"	"X"	"B.P"	Approx. Treated Weight	Bolt Lengths			
										"SW"	"TC"	"MC"	"BC"
9	PELR-H8-78.5C135	78'-6"	13'-6"	12 1/4"	12"	28 7/8"	12'-0"	33'-8"	6.725	16"	22"	24"	26"
11	PELR-H10-80.5C155	80'-6"	15'-6"	12 1/4"	13"	31 5/8"	12'-0"	34'-6"	7.595	16"	24"	24"	26"
12	PELR-H9-79.5C145	79'-6"	14'-6"	12 1/4"	13"	30 1/4"	12'-0"	34'-3"	7.220	16"	24"	24"	26"
15	PELR-H7-79C140	79'-0"	14'-0"	12 1/4"	12"	27 1/2"	12'-0"	34'-2"	6.530	16"	22"	22"	24"
24	PELR-H6-76.5	76'-6"	11'-6"	12 1/4"	11"	24 3/4"	13'-0"	33'-2"	5.660	14"	20"	22"	24"
26	PELR-H5-79	79'-0"	12'-0"	12 1/4"	10"	24 3/4"	14'-0"	33'-9"	5.720	14"	20"	22"	22"
29	PELR-H5-79	79'-0"	12'-0"	12 1/4"	10"	24 3/4"	12'-0"	33'-9"	5.720	14"	20"	22"	22"
32	PELR-H4-79	79'-0"	12'-0"	10 1/4"	9"	24 3/4"	13'-0"	33'-2"	4.675	12"	18"	20"	22"

Structure Number	*"b" (min.) Diameter	Line Angle	**Field Rake	Foundation Reinforcement System
9	4'-0"	7.0°	18°	ETB-8
11	4'-0"	9.5°	18°	ETB-8
12	4'-0"	8.0°	15°	ETB-8
15	4'-0"	7.0°	18°	ETB-8
24	4'-0"	4.0°	15°	ETB-8
26	4'-0"	4.0°	18°	ETB-8
29	4'-0"	4.0°	18°	ETB-8
32	3'-6"	3.0°	15°	ETA-8

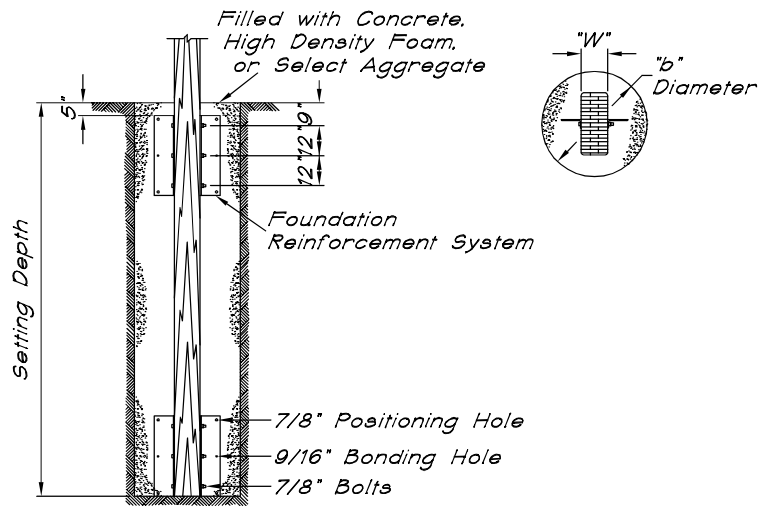
*Diameters are based on a Class 6 Soil Type.

**The pole should deflect approximately 1/2 of the field rake dimension at the time of installation (Assuming 60°F Tensions)

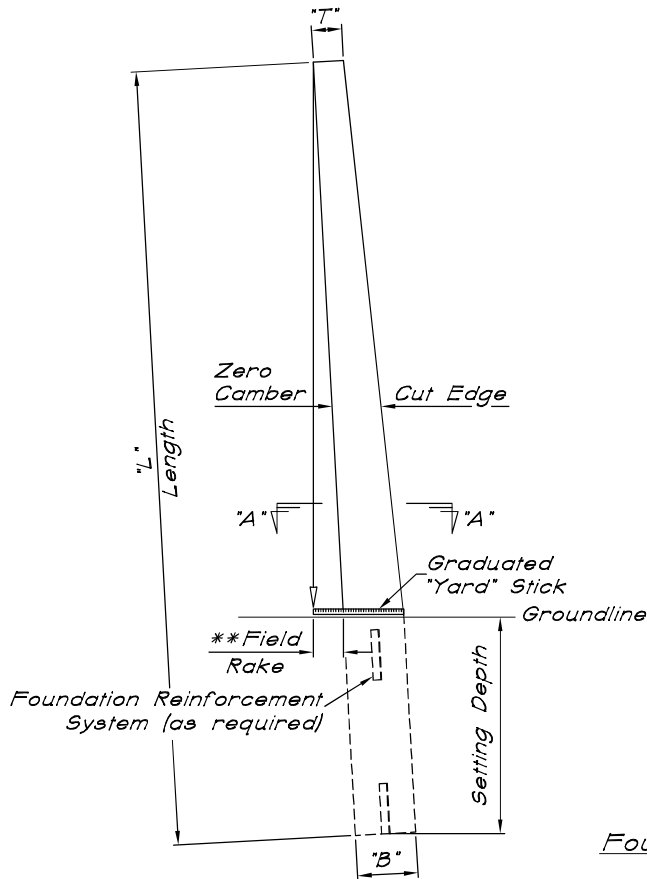


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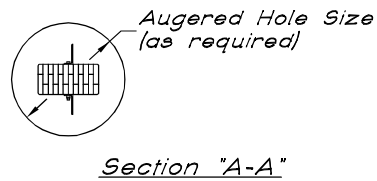
				Laminated Wood Systems, Inc.			
				E-LAM			
				P.O. BOX 386, SEWARD, NE 68434 1-800-949-ELAM			
NO.	REVISION	DATE	CK.	DRAWN	DATE	DWG. NO.	
ACAD DWG. FILE: INMU0102B1				K. Love	07/02/13	INMU-0001.02B1	



Note:
See Dwg. INMU-0001.02A1-1 For
Pole Sizes, Dimensions, Foundation Systems



- Recommended Raking Procedures
1. Attach a graduated yard stick to the base of the pole as shown.
 2. Rake the pole until the back of the pole top and the end of the yard stick align with a plumb line.



Foundation and Field Raking Details
Indianola Municipal Utilities

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				E-LAM®	
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ACAD DWG. FILE: INMU0102C1				K. Love	07/02/13
				DWG. NO.	INMU-0001.02C1

SECTION 16931

INDIANOLA MUNICIPAL UTILITIES

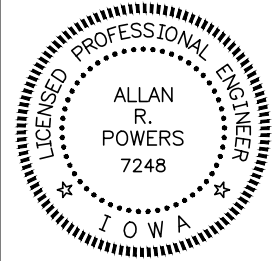
CONTRACT FOR
2017 HWY 92 MARTENSDALE, TRANSMISSION RELOCATION PROJECT
VOLUME 2

PROJECT INDEX AND VICINITY			
DWG NO.	ATTACHED	DESCRIPTION	REV DATE
➡ E9482-000	X	DRAWING INDEX AND COVER PAGE	4-20-17
➡ E9482-001	X	PROJECT VICINITY	4-20-17

DRAWINGS			
DWG NO.	ATTACHED	DESCRIPTION	REV DATE
➡ E9061-T200	X	POLE REMOVAL AND REPLACEMENT	4-20-17
➡ E9061-T201	X	POLE REMOVAL AND REPLACEMENT	4-20-17
➡ E9061-T202	X	CROSS SECTIONS	4-20-17
➡ E9061-T203	X	CROSS SECTIONS	4-20-17
➡ T69-026C	X	69KV DOUBLE DEAD END	4-20-17
➡ T69-030	X	69KV TANGENT VERTICAL STRUCTURE	4-20-17
➡ T69-064	X	LAMINATED WOOD ANGLE	4-20-17
➡ T69-240	X	BONDED SHIELD GUY	4-20-17
➡ T69-241	X	POLE STABILIZATION	4-20-17

➡ THIS SYMBOL SIGNIFIES THAT THE DRAWING HAS BEEN REVISED FOR THIS RELEASE

ISSUED FOR CONSTRUCTION
APRIL 20 , 2017



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

(signature) (date)

ALLAN R. POWERS, IOWA REG. NO. 07248
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2014
PAGES OR SHEETS COVERED BY THIS SEAL:
All drawings listed on this Index Page



} { P & E ENGINEERING CO.
} { POWER SYSTEM ANALYSIS AND DESIGN

E9482-000



2017 HWY 92 MARTENSDALE, TRANSMISSION RELOCATION PROJECT
PROJECT VICINITY



PROJECT VICINITY

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4-20-2017

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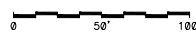
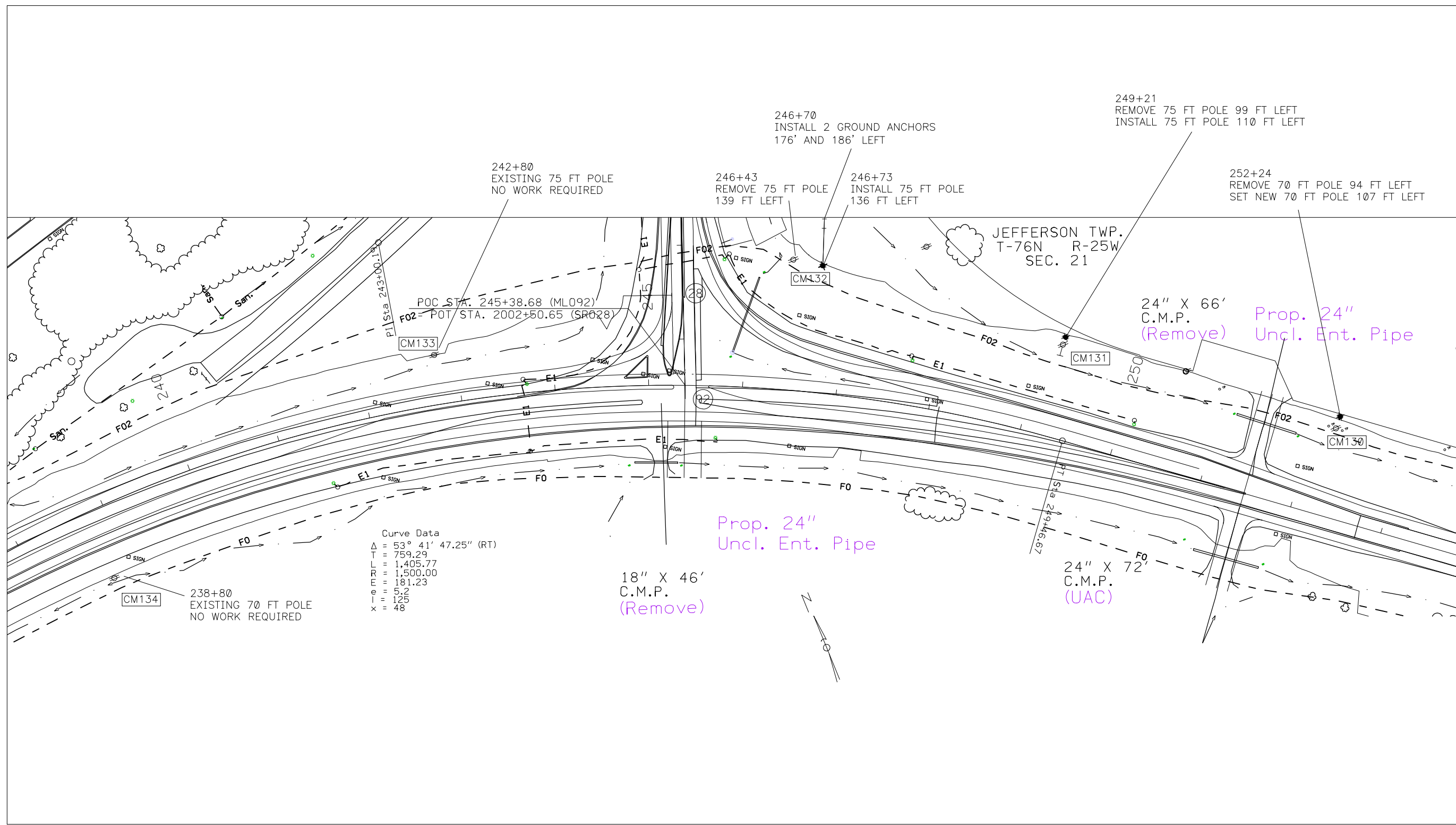


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E9482-001

FILE: ANSL_B 10-14-10



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REV	DATE	DESIG	DFTR	APP	DESCRIPTION
B	04-20-17	P&E	DRP	ARP	ADDED REMOVE AND INSTALL CM132
A	04-10-17	P&E	DRP	ARP	ISSUED FOR CONSTRUCTION

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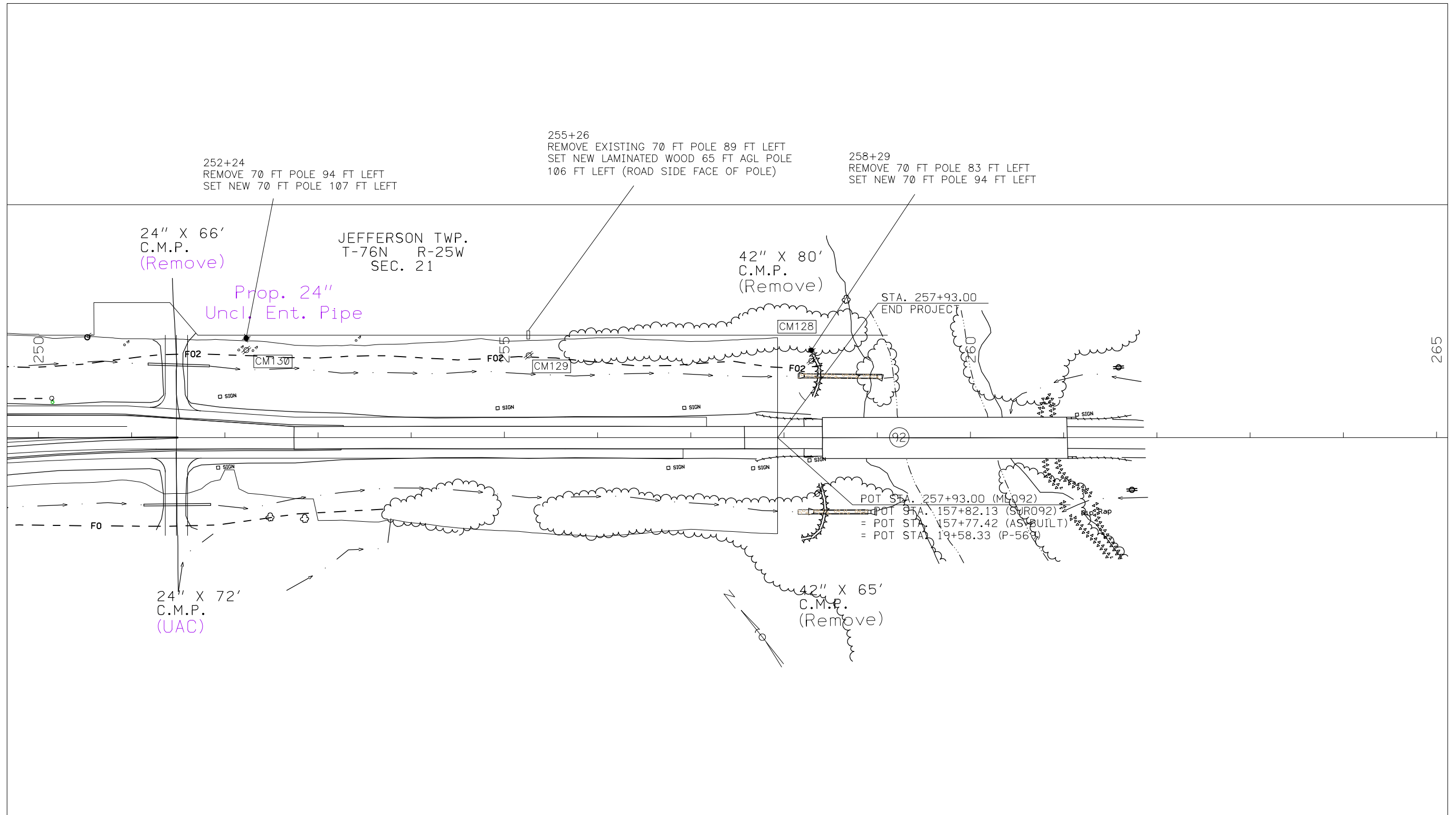
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DRAWN	DRP
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INDIANOLA MUNICIPAL UTILITIES
2017 HWY 92 MARTENSDALE
TRANSMISSION RELOCATION PROJECT
POLE REMOVAL AND REPLACEMENT

SCALE:	AS NOTED
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REV
B
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B	04-20-17	P&E	DRP	ARP	ADDED REMOVE AND INSTALL CM132
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APPROVED	ARP
APPROVED	

INDIANOLA MUNICIPAL UTILITIES

2017 HWY 92 MARTENSDALE
TRANSMISSION RELOCATION PROJECT
POLE REMOVAL AND REPLACEMENT

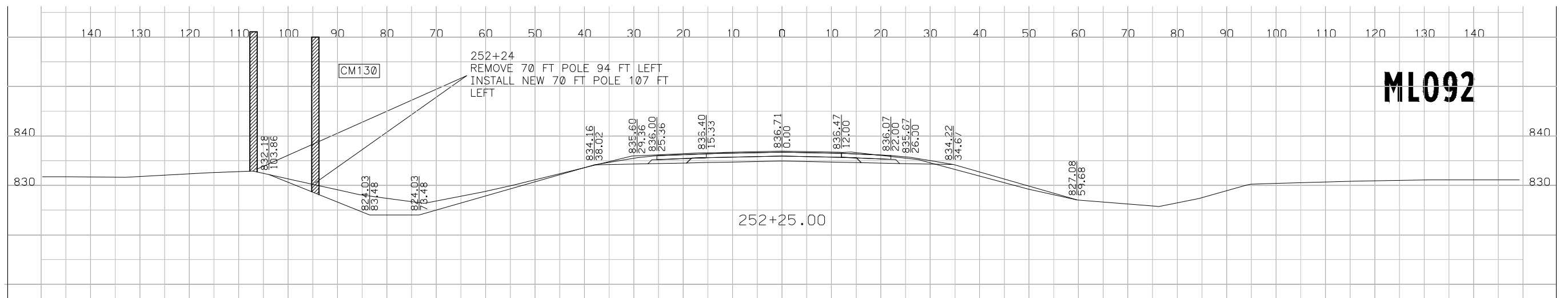
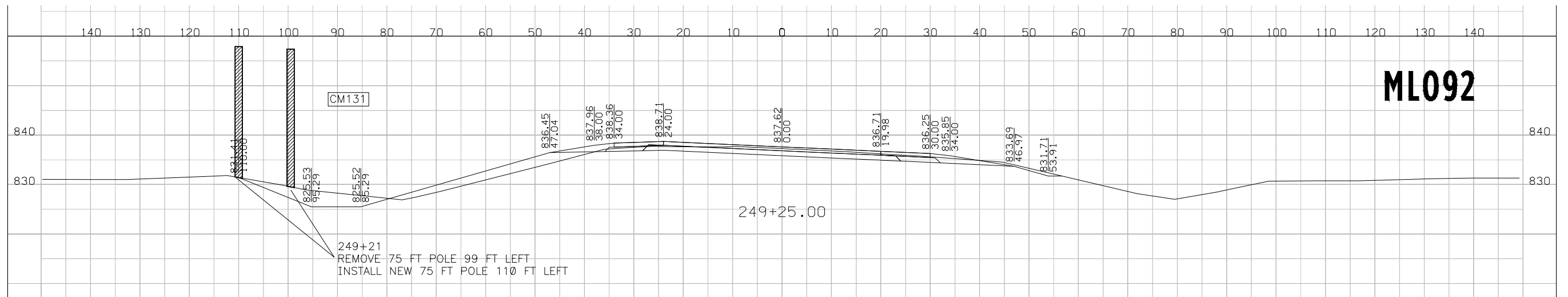
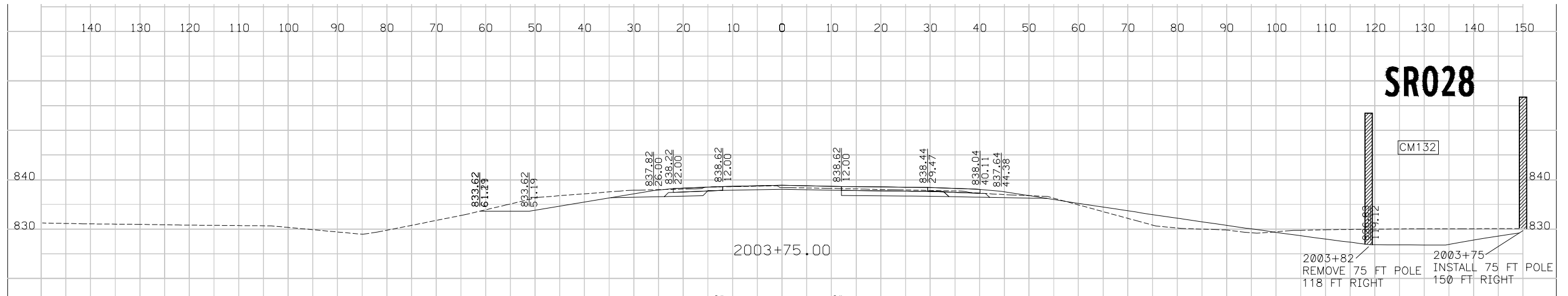
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REV
B

DWG NO
E9482-T201

ACAD 2025a

P&E ANSI_B 10-14-10



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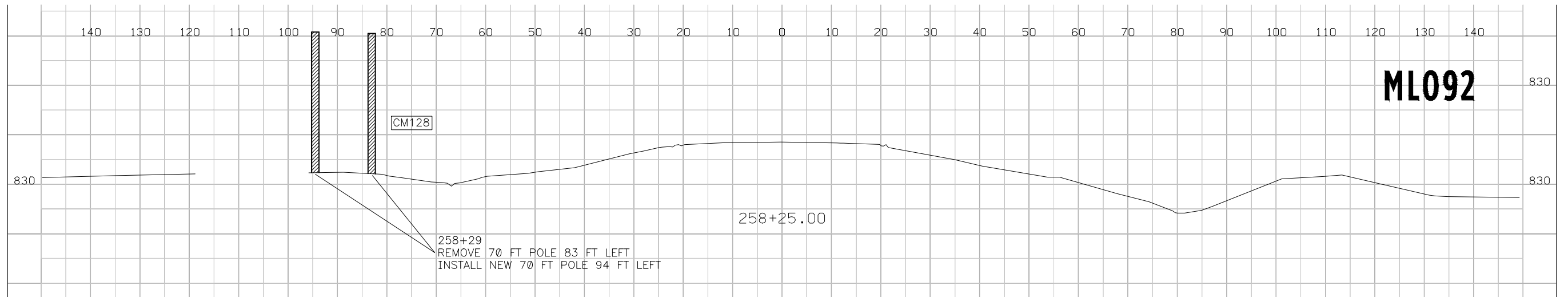
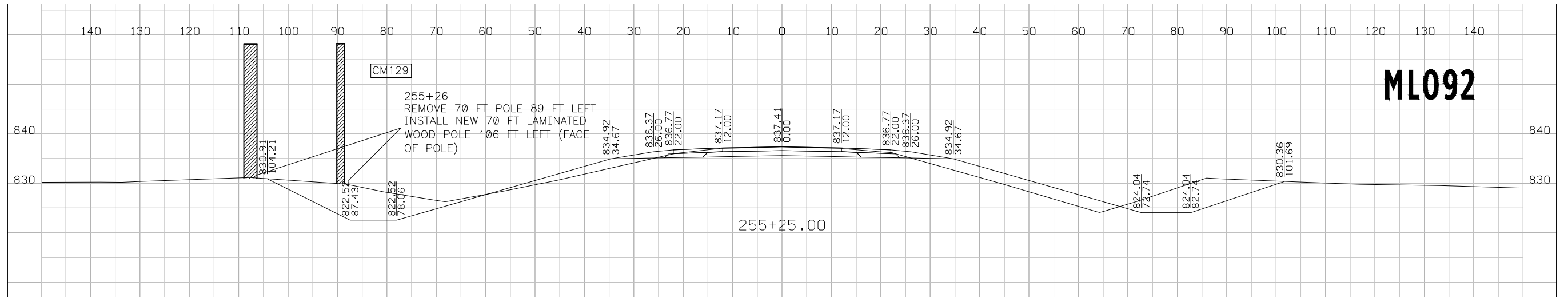
INDIANOLA MUNICIPAL UTILITIES
2017 HWY 92 MARTENSDALE
TRANSMISSION RELOCATION PROJECT
CROSS SECTIONS

SCALE:
N.T.S.

REV
B

DWG NO
E9482-T202

P&E ANSI_B 10-14-10



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REV	DATE	DESIG	DFTR	APP	DESCRIPTION
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DATE 04-10-17
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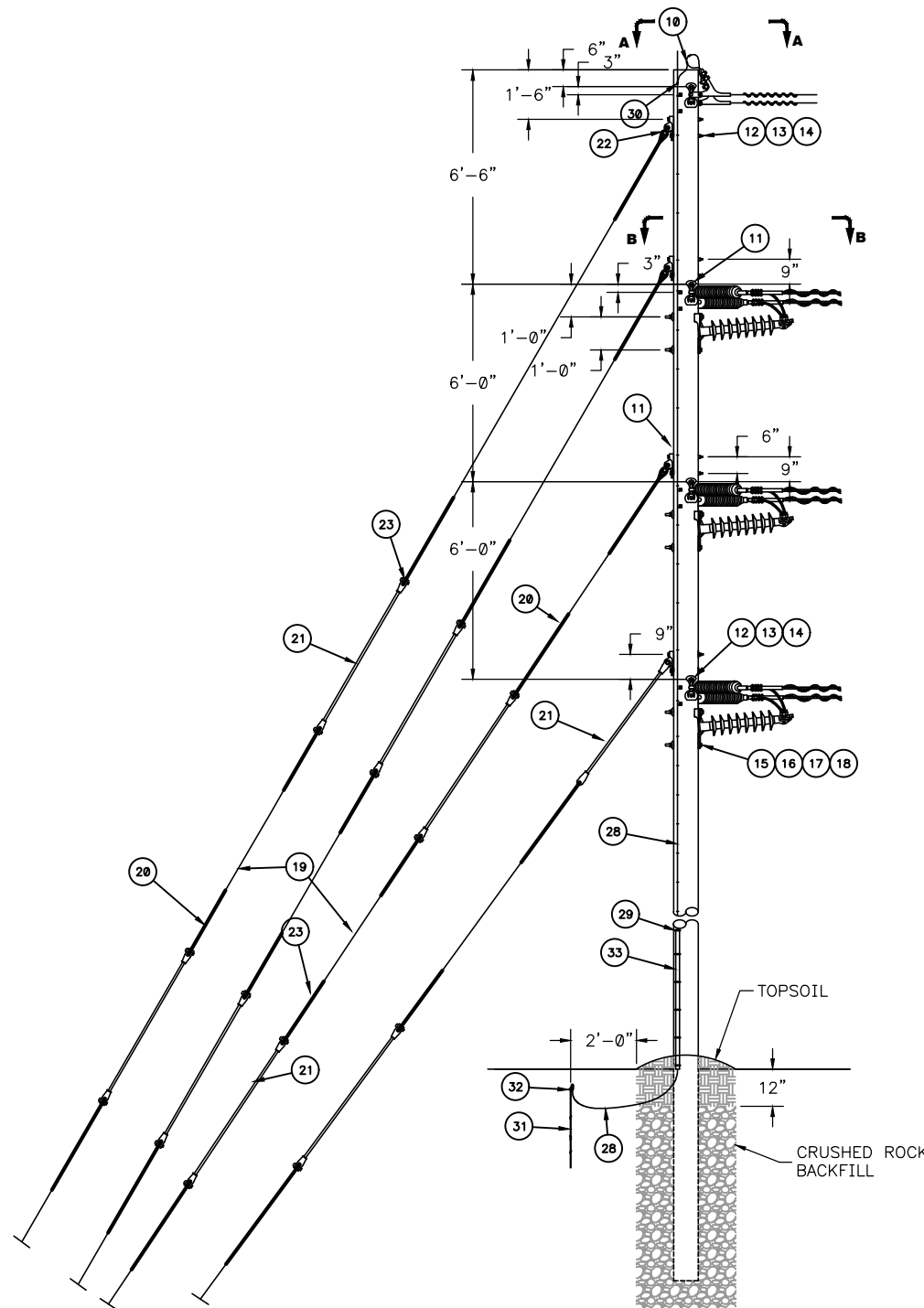
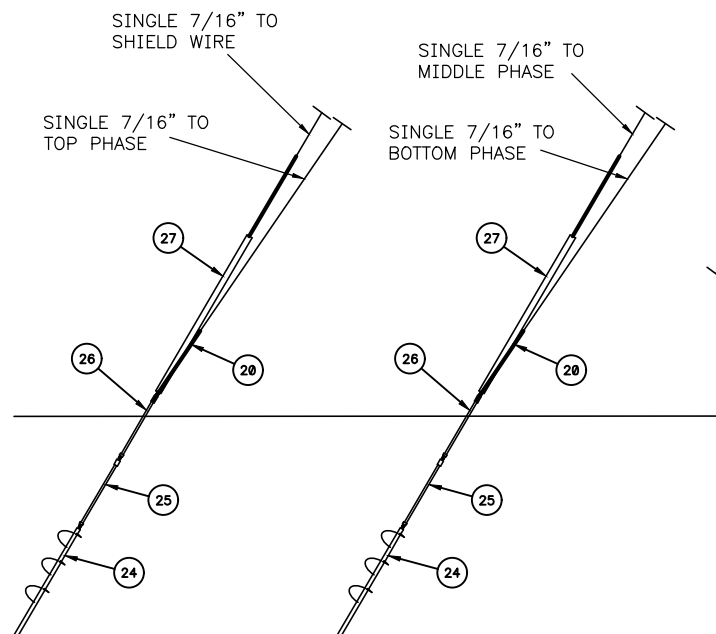
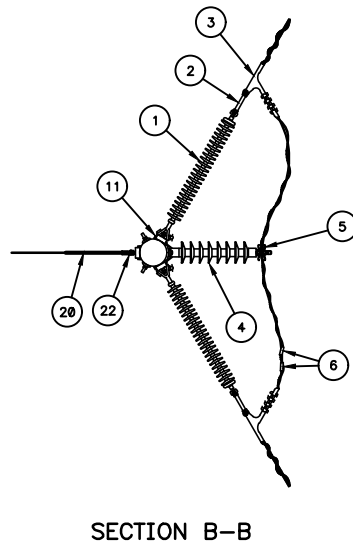
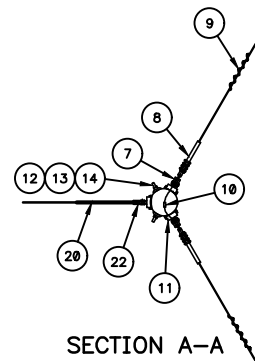
INDIANOLA MUNICIPAL UTILITIES
2017 HWY 92 MARTENSDALE
TRANSMISSION RELOCATION PROJECT
CROSS SECTIONS

SCALE:
N.T.S.

REV
B

DWG NO

E9482-T203



T69-026C
69 KV DOUBLE DEADEND, LARGE ANGLE, BISECT GUYING, 4 DOWN GUYS

ITEM	QTY	MATID	UNIT	DESCRIPTION
1	6	16600	EA	INSULATOR, SUSPENSION, POLYMER, 69 KV, 35"
2	6	10947	EA	SOCKET EYE, 8 3/8" EXTENSION LINK
3	6	10500	EA	CLAMP, DEADEND, SEE VAR MAT LIST
4	3	16601	EA	INSULATOR, HORZ LINE POST, 69 KV, GAIN BASE, CLAMP TOP, 1225 LB RCL
5	3	16180	EA	CLAMP, TRUNNION, CLAMP TOP, SEE VAR MAT LIST
6	6	14194	EA	CONNECTOR, COMP SLEEVE, JUMPER, VARIOUS SIZES
7	2	10911	EA	CLEVIS-EYE, 7/8" OPENING, 3-3/8" C-C
8	2	10500	EA	CLAMP, DEADEND, SEE VAR MAT LIST
9	2	10760	EA	DAMPER, VIBRATION, SPIRAL, SEE VAR MAT LIST
10	2	14205	EA	CONNECTOR, AL COMPRESSION, H-TAP, VARIOUS SIZES
11	12	10201	EA	PLATE, POLE EYE, 6"
12	24	12005	EA	BOLT, MACHINE, 7/8", VARIOUS LENGTHS
13	24	12507	EA	WASHER, SQUARE, CURVED, GALVANIZED, 7/8"
14	24	12405	EA	LOCKNUT, 7/8", GALVANIZED
15	6	12004	EA	BOLT, MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS
16	6	12506	EA	WASHER, SQUARE, CURVED, GALVANIZED, 3/4"
17	6	12404	EA	LOCKNUT, 3/4" GALVANIZED
18	6	12510	EA	WASHER, TWIN COILS, 3/4"
19	280	05707	EA	WIRE, GUY, 7/16", 7 STR, CLASS A GALVANIZED, EHS STEEL
20	22	05722	EA	GRIP, GUY, PREFORMED, 7/16"
21	8	16502	EA	INSULATOR, GUY, FIBERGLASS, 54", 36,000 POUND, 3/4" PINS, ONE ROLLER
22	3	10901	EA	THIMBLE CLEVIS, 40,000 POUND
23	7	16511	EA	ROLLER, GUY, 13/16" X 2-3/8" DIA, 3/4" PIN
24	2	10252	EA	ANCHOR, 8-10-12" TRIPLE HELIX
25	4	10272	EA	ROD, EXTENSION, 1-1/2" X 5'
26	2	10262	EA	ROD, ANCHOR, 1-1/2" ADAPTER WITH TRIPLE EYE
27	2	10350	EA	GUARD, GUY
28	70	05041	FT	WIRE, #4 SOLID COPPER, SD, BARE
29	50	12550	EA	STAPLE, GROUND WIRE, 2" X 5/8"
30	1	14220	EA	CONNECTOR, COPPER CRIMPIT, #6 SOL-#4 STR TO #8 SOL-#4 STR
31	1	10402	EA	ROD, GROUND, 5/8" X 10', COPPERWELD, THREADED SECTIONAL
32	1	10406	EA	CLAMP, 5/8" GROUND ROD TO #8 - 1/0 CU
33	8	10410	FT	MOLDING, GROUND WIRE, 1/2" PLASTIC

SPECIFY VARIABLE MATERIAL BY:
 CONDUCTOR BOLTED DEADEND: 6-T006xx
 CLAMP, TRUNNION CLAMP TOP: 3-T002xx
 SHIELD WIRE BOLTED DEADEND: 2-T006xx
 DAMPER VIBRATION, SPIRAL: 2-T004xx

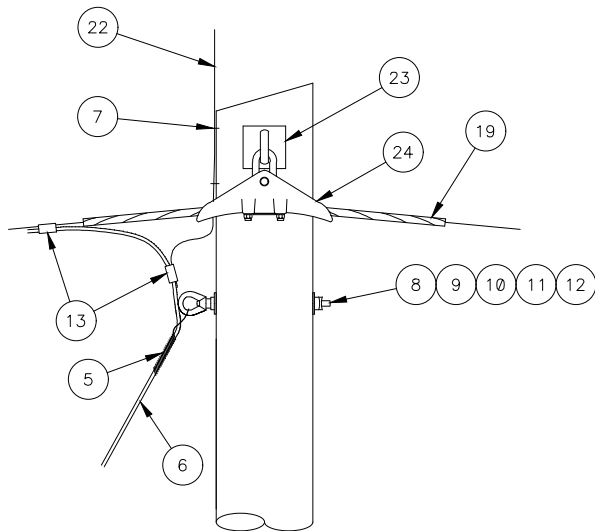
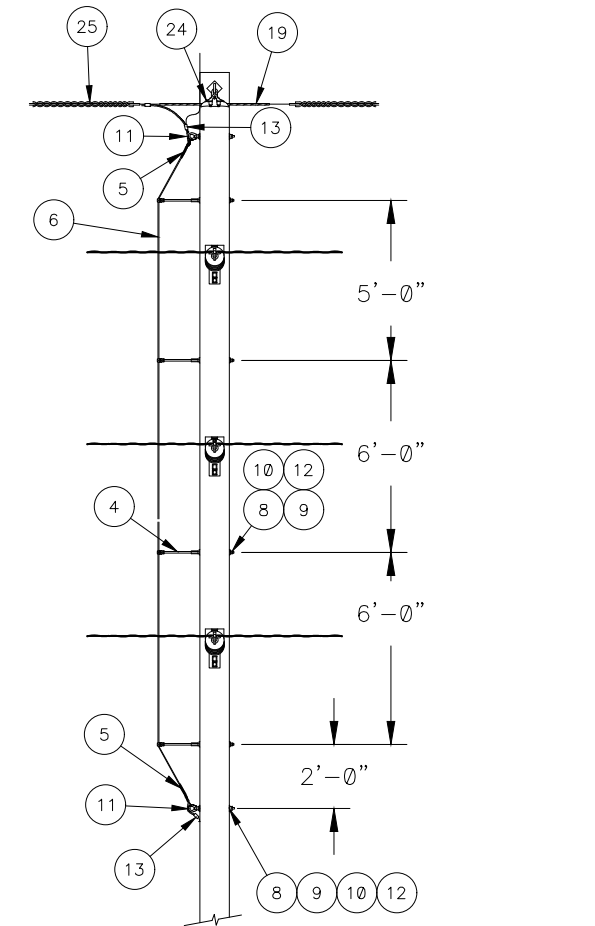
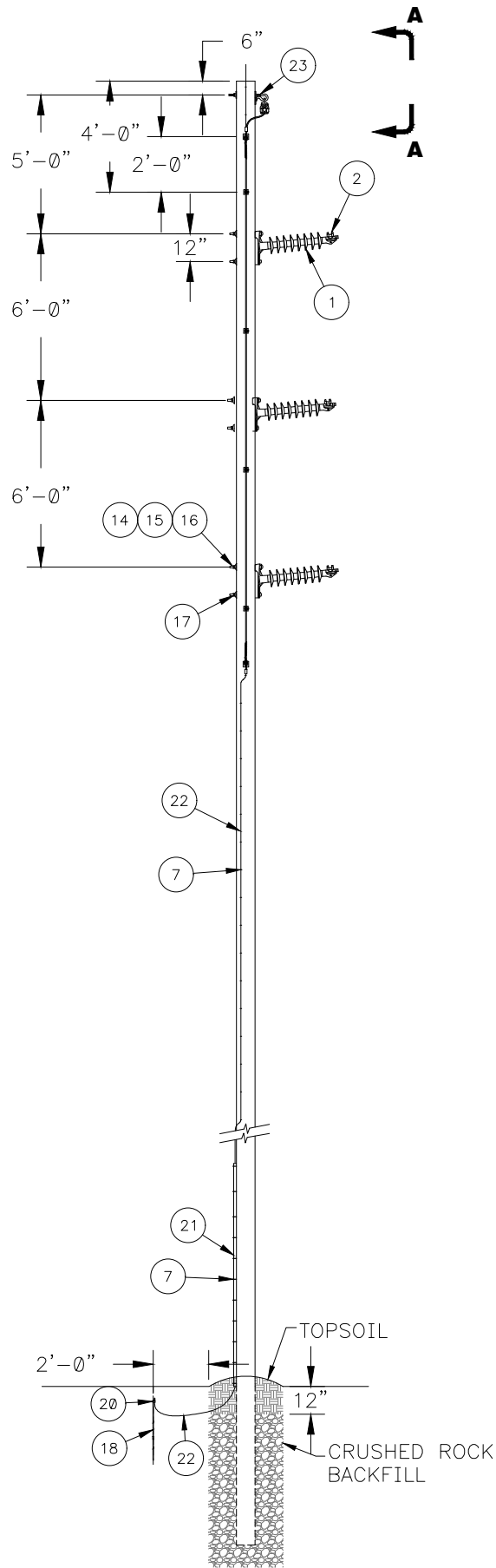
69kV DOUBLE DEADEND,
 LARGE ANGLE
 BISECT GUYING
 4 DOWN GUYS

REV	DATE	DESIG	DFTR	APP	DESCRIPTION
A	04-20-17	P&E	DRP	ARP	ISSUED FOR CONSTRUCTION

P & E ENGINEERING CO.
 POWER SYSTEM ANALYSIS AND DESIGN
 245 S. 5th
 P.O. Box 620
 Carlisle, IA 50047
 Office: 515-989-3083
 FAX: 515-989-3138
 peengr@peengr.com

DATE 04-18-13
 DESIGNED P&E
 DRAWN MRB
 APPROVED JWE
 APPROVED ARP

SCALE: NONE
 REV A
 DWG NO
T69-026C



VIEW A-A
NOT TO SCALE

T69-030

69KV TANGENT STRUCTURE, T2 CONDUCTOR

ITEM	QTY	MATID	UNIT	DESCRIPTION
1	3	16601	EA	INSULATOR, HORZ LINE POST, 69 KV, GAIN BASE, CLAMP TOP, 1225 LB RCL
2	3	16192	EA	CLAMP, TRUNNION, CLAMP TOP, 266-T2 - 477-T2 ACSR
3		99999		NOT USED
4	4	16610	EA	INSULATOR, DOWN LEAD, FIBERGLASS, 5/8" X 12"
5	2	10701	EA	GRIP, DEAD-END, PREFORMED, 1/0 ACSR, AAC, AAAC
6	25	05023	FT	CONDUCTOR, #1/0 ACSR, BARE
7	40	12550	EA	STAPLE, GROUND WIRE, 2" X 5/8"
8	6	12103	EA	BOLT, DOUBLE ARMING, 5/8" GALVANIZED, VARIOUS LENGTHS
9	12	12503	EA	WASHER, SQUARE, FLAT, 5/8" GALVANIZED
10	6	12403	EA	LOCKNUT, 5/8" GALVANIZED
11	2	12453	EA	EYE NUT, 5/8" GALVANIZED
12	6	12509	EA	WASHER, TWIN COILS, 5/8"
13	3	14205	EA	CONNECTOR, AL COMPRESSION, H-TAP, VARIOUS SIZES
14	6	12004	EA	BOLT, MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS
15	6	12506	EA	WASHER, SQUARE, CURVED, GALVANIZED, 3/4"
16	6	12404	EA	LOCKNUT, 3/4" GALVANIZED
17	6	12510	EA	WASHER, TWIN COILS, 3/4"
18	1	10402	EA	ROD, GROUND, 5/8" X 10', COPPERWELD, THREADED SECTIONAL
19	1	10790	EA	ROD, ARMOR, 3/8" HS/EHS
20	1	10406	EA	CLAMP, 5/8" GROUND ROD TO #8 - 1/0 CU
21	8	10410	FT	MOLDING, GROUND WIRE, 1/2" PLASTIC
22	50	05041	FT	WIRE, #4 SOLID COPPER, SD, BARE
23	1	10168	EA	SUPPORT, SHIELD WIRE, SIDE MOUNTED, 5/8" X 12"
24	1	10541	EA	CLAMP, SUSPENSION, 3/8" EHS (WITH ARMOR ROD)
25	2	10761	EA	DAMPER, VIBRATION, SPIRAL, 0.327-0.461"

**ISSUED
FOR CONSTRUCTION**

REV	DATE	DESIG	DFTR	APP	DESCRIPTION
A	04-20-17	P&E	DRP	ARP	ISSUED FOR CONSTRUCTION

P & E ENGINEERING CO.
POWER SYSTEM ANALYSIS AND DESIGN
245 S. 5th
P.O. Box 620
Carlisle, IA 50047
Office: 515-989-3083
FAX: 515-989-3138
peengr@peengr.com

INDIANOLA MUNICIPAL UTILITIES
IMU
Electric • Network Services • Water

DATE 04-05-17
DESIGNED P&E
DRAWN DRP
APPROVED ARP
APPROVED

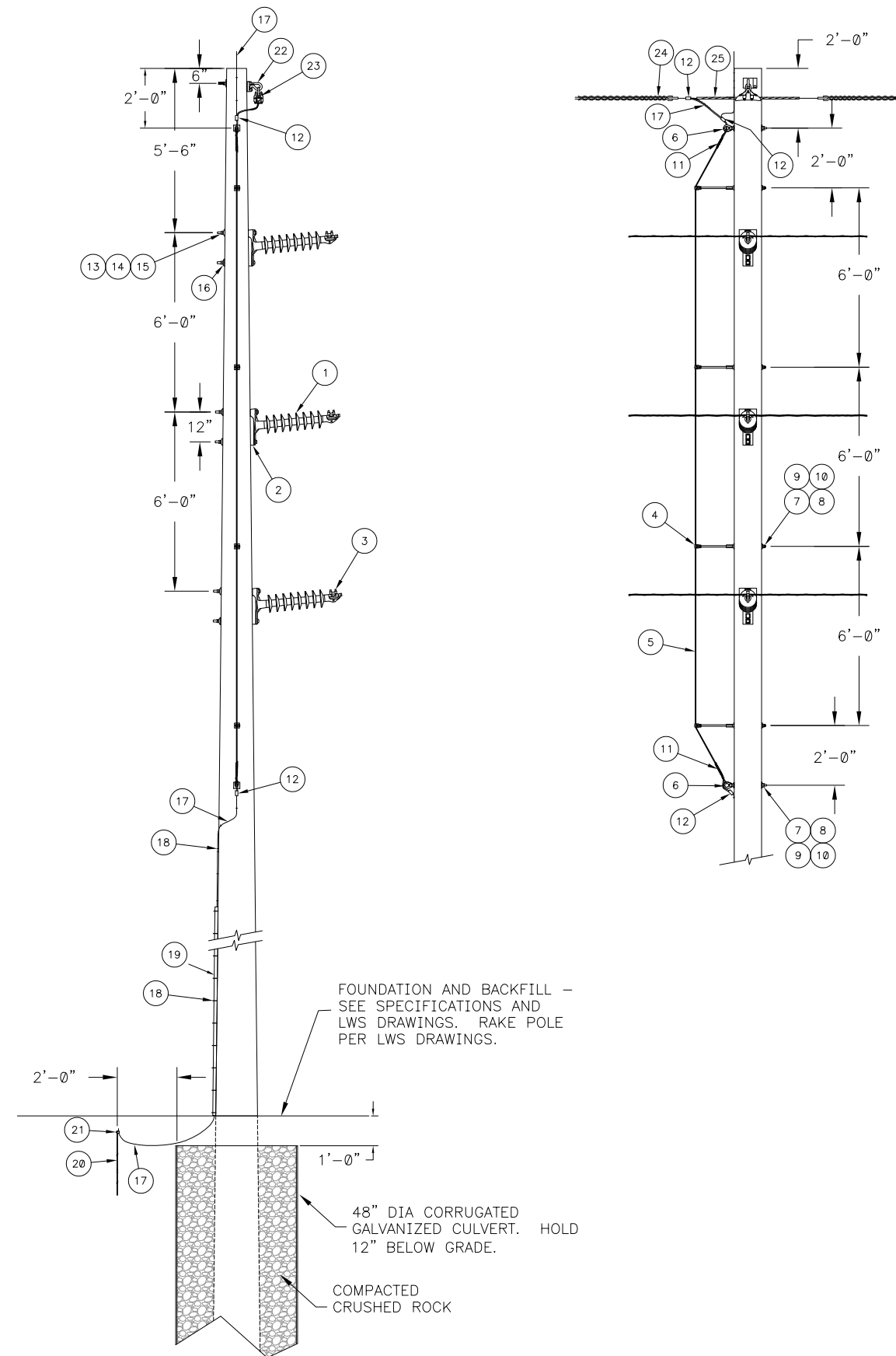
INDIANOLA MUNICIPAL UTILITIES

HIGHWAY 92 DOT PROJECT
DETAIL DRAWINGS
69KV TANGENT VERTICAL STRUCTURE T2 CONDUCTOR

SCALE:
NONE

REV
A

DWG. NO
T69-030



T69-064						
69KV, LIGHT ANGLE, LINE POST FRAMING, LAMINATED WOOD POLE						
ITEM	QTY	BY	LWS	MATID	UNIT	DESCRIPTION
1	3			16601	EA	INSULATOR, HORZ LINE POST, 69 KV, GAIN BASE, CLAMP TOP, 1225 LB RCL
2	3	3		10013	EA	SHIM, TO ADAPT GAIN BASE INSULATOR TO FLAT, 12" BOLT SPACING
3	3			16180	EA	CLAMP, TRUNNION, CLAMP TOP, SEE VAR MAT LIST
4	4			16610	EA	INSULATOR, DOWN LEAD, FIBERGLASS, 5/8" X 12"
5	25			05023	FT	CONDUCTOR, #1/0 ACSR, BARE
6	2			12453	EA	EYE NUT, 5/8" GALVANIZED
7	6			12103	EA	BOLT, DOUBLE ARMING, 5/8" GALVANIZED, VARIOUS LENGTHS
8	12			12503	EA	WASHER, SQUARE, FLAT, 5/8" GALVANIZED
9	6			12403	EA	LOCKNUT, 5/8" GALVANIZED
10	6			12509	EA	WASHER, TWIN COILS, 5/8"
11	2			10701	EA	GRIP, DEAD-END, PREFORMED, 1/0 ACSR, AAC, AAAC
12	3			14205	EA	CONNECTOR, AL COMPRESSION, H-TAP, VARIOUS SIZES
13	6	6		12004	EA	BOLT, MACHINE, 3/4" GALVANIZED, VARIOUS LENGTHS
14	6	6		12504	EA	WASHER, SQUARE, FLAT, 3/4" GALVANIZED
15	6	6		12404	EA	LOCKNUT, 3/4" GALVANIZED
16	6			12510	EA	WASHER, TWIN COILS, 3/4"
17	50			05041	FT	WIRE, #4 SOLID COPPER, SD, BARE
18	40			12550	EA	STAPLE, GROUND WIRE, 2" X 5/8"
19	8			10410	FT	MOLDING, GROUND WIRE, 1/2" PLASTIC
20	1			10402	EA	ROD, GROUND, 5/8" X 10', COPPERWELD, THREADED SECTIONAL
21	1			10406	EA	CLAMP, 5/8" GROUND ROD TO #8 - 1/0 CU
22	1	1		10167	EA	SUPPORT, SHIELD WIRE, SIDE MOUNTED, 5/8" X 14", FLAT BASE
23	1			10540	EA	CLAMP, SUSPENSION, SEE VAR MAT LIST
24	2			10760	EA	DAMPER, VIBRATION, SPIRAL, SEE VAR MAT LIST
25	1			10780	EA	ROD, ARMOR, SEE VAR MAT LIST

STRUCTURE

CM129

LWS DRAWINGS

INMU-0001-
02A2, 02B2, 02C2

LWS BOM

page 2

SPECIFY VARIABLE MATERIAL BY:

ARMOR ROD

CLAMP, TRUNION, CLAMP TOP

SUSPENSION CLAMP

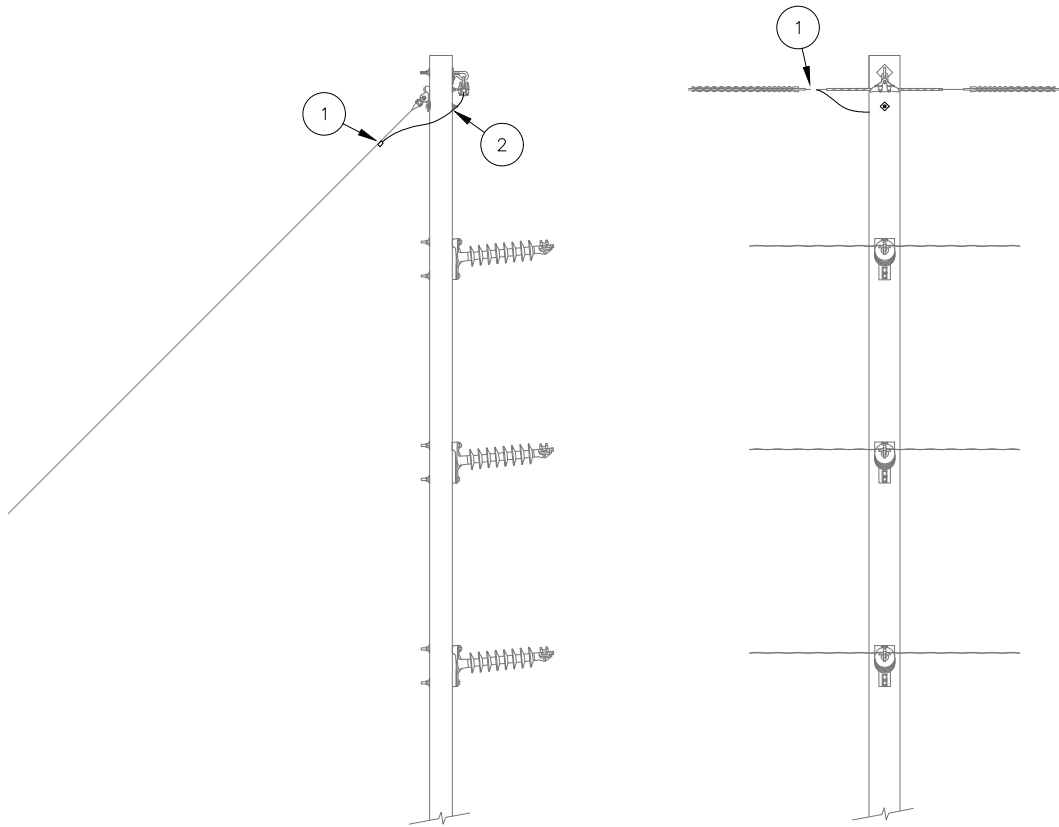
DAMPER, VIBRATION, SPIRAL

1-T001XX

3-T002XX

1-T003XX

2-T004XX



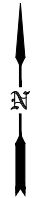
T69-240					
SHIELD WIRE TO GUY BOND					
ITEM	QTY	MATID	UNIT	DESCRIPTION	
1	2	14451	EA	CLAMP, PARALLEL, #8-2/0 CU TO 3/16-7/16" GUY STRAND	
2	10	05044	FT	WIRE, #2 STR COPPER, CLASS B (7 STR), SD, BARE	

BOND
DOWN GUY TO SHIELD

T69-2 BONDED SHIELD GUY ELEVATION



T69-2 BONDED SHIELD GUY PLAN VIEW



**ISSUED
FOR CONSTRUCTION**

A	04-20-17	P&E	DRP	ARP	ISSUED FOR CONSTRUCTION
REV	DATE	DESIG	DFTR	APP	DESCRIPTION

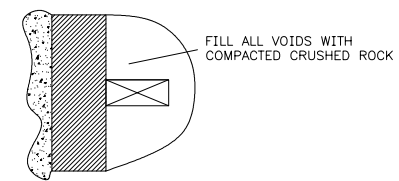
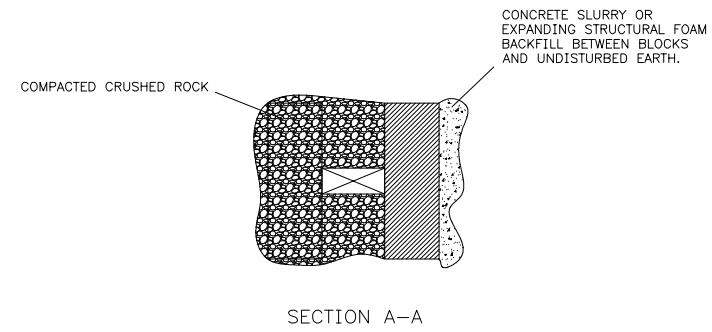
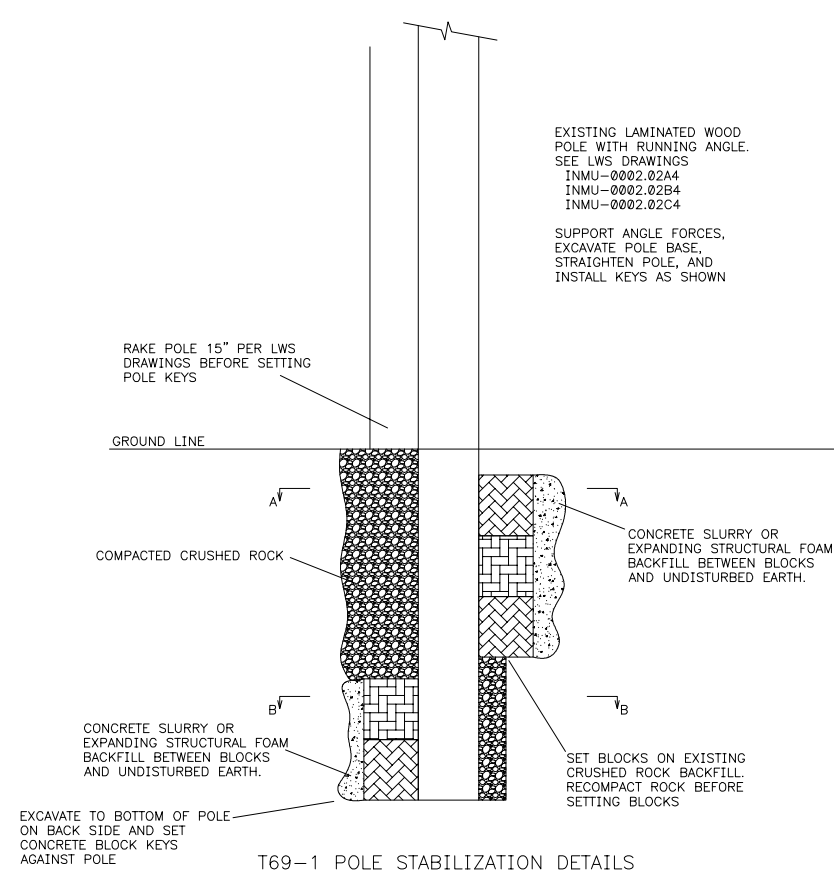
P & E ENGINEERING CO.
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INDIANOLA MUNICIPAL UTILITIES
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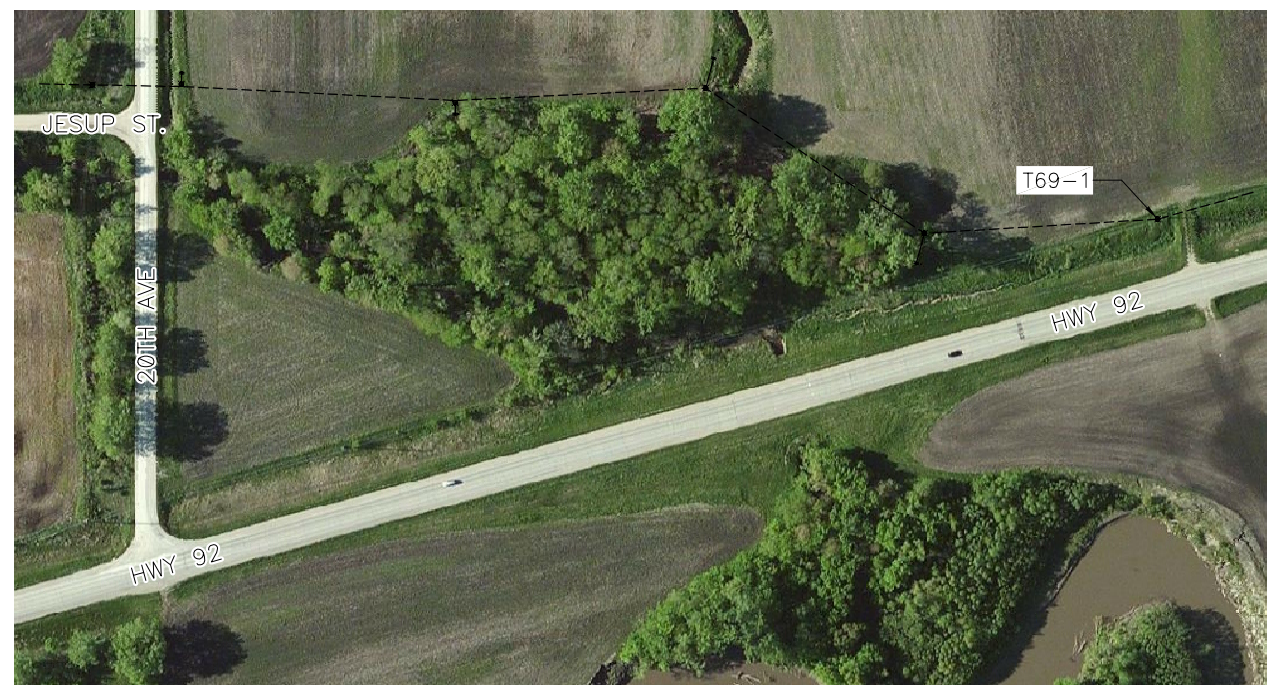
DATE	04-19-17
DESIGNED	P&E
DRAWN	DRP
APPROVED	ARP
APPROVED	ARP

INDIANOLA MUNICIPAL UTILITIES
T69-2 BONDED SHIELD GUY

SCALE: N.T.S.	REV A
DWG NO T69-240	



POLE KEYS WILL BE PROVIDED BY AND DELIVERED TO SITE BY IMU.
25"x28"x72"
APPROX 3750 LB EACH



T69-1 POLE STABILIZATION PLAN VIEW

ISSUED
FOR CONSTRUCTION

REV	DATE	DESIG	DFTR	APP	DESCRIPTION
A	04-20-17	P&E	DRP	ARP	ISSUED FOR CONSTRUCTION

P & E ENGINEERING CO.
POWER SYSTEM ANALYSTS AND DESIGN
245 S. 5th
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Carlisle, IA 50047
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peengr@peengr.com

INDIANOLA MUNICIPAL UTILITIES
IMU
Electric • Network Services • Water

DATE 04-19-17
DESIGNED P&E
DRAWN DRP
APPROVED ARP
APPROVED

INDIANOLA MUNICIPAL UTILITIES

T69-1 POLE STABILIZATION

SCALE:
N.T.S.

REV
A

DWG NO
T69-241

Meeting Date: 05/08/2017

Information

Subject

Public hearing regarding the FY 2017 budget amendment

Information

Trustees adopted the FY 2018 budget this past February. That budget also contained the re-estimated amounts for the current fiscal year ending June 30, 2017. State code requires cities to amend their budgets if actual expenses exceed those re-estimates. The Board Chairperson opens the public hearing, receives comments from both the public and Trustees, and then closes the public hearing.

The required notice of this hearing (attached) was published April 19, 2017. No written comments have been received.

Fiscal Impact

Attachments

Public Hearing Notice

OFFICIAL PUBLICATION

OFFICIAL PUBLICATION

OFFICIAL PUBLICATION

**NOTICE OF PUBLIC HEARING
Budget Amendment**

Indianola Municipal Utilities

(Name of Enterprise)

The IMU Board of Trustees will conduct a public hearing to

(Governing Board)

amend the fiscal year 2017 budget at Council Chambers, City Hall

(specify fiscal or calendar)

(xxxx)

(xxxx)

(xxxx)

on 5/8/2017, beginning at 5:30 o'clock PM The Budget Estimate Summary of proposed revenues

(include)

(xxxx)

(xxxx)

and expenditures is shown below. Copies of the *detailed* proposed budget may be obtained or viewed at the office of the City Clerk and Utility Finance Officer and at the city library. At the public hearing, any resident or taxpayer may present

objections to, or arguments in favor of, any part of the proposed budget.

4-19-17

(date)

Diana South

(signature)

Secretary

(specify budget year)
Revenues & Other Financing Sources
Use of money and property
Charges for services
Miscellaneous
Other Financing Sources
Total Revenues & Financing Sources

Expenditures & Transfers Out
Expenditures
Transfers Out
Total Expenditures & Transfers Out

Excess of Revenues & Other Sources
(+) (-) Expenditures & Transfers Out

Beginning Fund Balance July 1

(month)

Ending Fund Balance June 30

(month)

Budget as certified or last amended	Current Amendment	Budget after Current Amended
2017	2017	2017
(xxxx)	(xxxx)	(xxxx)
506,100		506,100
17,091,300	409,700	17,501,000
454,000		454,000
2,950,600		2,950,600
21,002,000	409,700	21,411,700
18,016,200	300,000	18,316,200
2,000,400		2,000,400
20,016,600	300,000	20,316,600
985,400	109,700	1,095,100
7,460,217		7,460,217
8,445,617		8,555,317

IW-9000588483

IMU Regular Downstairs

10.B.

Meeting Date: 05/08/2017

Information

Subject

Resolution approving the FY 2017 budget amendment

Information

After the public hearing is closed, Trustees should consider the attached FY 2017 Budget Amendment and Certification Resolution.

Roll call is in order.

Fiscal Impact

Attachments

Resolution

NOTICE OF PUBLIC HEARING

Budget Amendment

Indianola Municipal Utilities
(Name of Enterprise)

The IMU Board of Trustees will conduct a public hearing to
(Governing Board)

amend the fiscal year 2017 budget at Council Chambers, City Hall
(specify fiscal or calendar) (xxxx)

on 5/8/2017, beginning at 5:30 o'clock. PM The Budget Estimate Summary of proposed revenues
(xx/xx/xx) (xxxx) (AM/PM)

and expenditures is shown below. Copies of the **detailed** proposed budget may be obtained or viewed at the office of the City Clerk and Utility Finance Officer and at the city library. At the public hearing, any resident or taxpayer may present objections to, or arguments in favor of, any part of the proposed budget.

(date)

(signature)

Secretary

		Budget as certified or last amended	Current Amendment	Budget after Current Amended
		2017	2017	2017
		(xxxx)	(xxxx)	(xxxx)
Revenues & Other Financing Sources				
Use of money and property		506,100		506,100
Charges for services		17,091,300	409,700	17,501,000
Miscellaneous		454,000		454,000
Other Financing Sources		2,950,600		2,950,600
Total Revenues & Financing Sources		21,002,000	409,700	21,411,700
Expenditures & Transfers Out				
Expenditures		18,016,200	300,000	18,316,200
Transfers Out		2,000,400		2,000,400
Total Expenditures & Transfers Out		20,016,600	300,000	20,316,600
Excess of Revenues & Other Sources (+) (-) Expenditures & Transfers Out		985,400	109,700	1,095,100
Beginning Fund Balance	July 1 (month)	7,460,217		7,460,217
Ending Fund Balance	June 30 (month)	8,445,617		8,555,317

Meeting Date: 05/08/2017

Information

Subject

Receive and file resignation of General Manager Rob Stangel

Information

Trustees will need to receive and file the resignation of General Manager Rob Stangel.

We thank Rob for all of his hard work and dedication and wish him well with his new position

Simple motion is in order.

Fiscal Impact

Attachments

No file(s) attached.

Meeting Date: 05/08/2017

Information

Subject

Motion to go into Closed Session in accordance with Iowa Code Section 21.5(1)(i) to evaluate the professional competency of an individual whose appointment, hiring, performance, or discharge is being considered when necessary to prevent needless and irreparable injury to that individual's reputation and that individual requests a closed session

Information

Roll call is in order to go into closed session.

Fiscal Impact

Attachments

No file(s) attached.
