

May 1, 2019

To: Ridgeland WRF Expansion Plan Holders

From: Paul Lewis

Re: Addendum #3
Ridgeland WRF Expansion

Below are the items for this addendum. If you have submitted a question or comment and do not see it addressed here, please resubmit it to us.

We are extending our last date for questions to Wednesday May 8 at noon.

Addendum Reference #	Reference	Question / comment
3.1	Section 46 76 00 – GeoTube Dewatering Bags	Flint Industries is approved as an equal to the GeoTubes. Julie Kucera jkucera@flintusa.net . Flint Industries, 1040 East Lillian St, Metter GA 30439 (USA) TEL: (912) 685-3375 / FAX: (912) 685-9801. www.flintusa.net
3.2	E001 One-line diagram	<ol style="list-style-type: none"> 1. MDP, DP1, ATS - Upgrade these to 800A to accommodate increased load from LAS pumps. 2. Wire schedule – Update wire schedule: <ol style="list-style-type: none"> a. A - 500 KCMIL with Ground wire 1/0. b. B – Ground wire to 1/0 c. C – Ground wire to #4. d. D – Ground wire to #4. e. E – Ground wire to #4. 3. Upsize generator to 450 KW. 4. Wire size to existing main panel is wire size B. 5. Update plan sheet is attached.
3.3	E002 One-line diagram	<ol style="list-style-type: none"> 1. Sludge pump P803 / motor 806 - There is not a change in the wire size for upgraded 5 hp pump. It remains wire size M. 2. Underdrain pumps - Use M on the wire schedule. 3. Update wire schedule as shown in 3.2. 4. Updated plans sheet is attached.
3.4	Section 26 32 13 – Emergency Generator	Paragraph 1.A. Generator to be 450 KW.
3.5	G012 Demolition Plan	Deliver the existing generator and the fuel tank to a location designated by the Town. Any site prep, pads, wiring, etc. will be by others.

Addendum Reference #	Reference	Question / comment
3.6	Section 40 60 00 – Instrumentation and control	<ol style="list-style-type: none"> 1. Piedmont Automation is approved as a Controls Systems Integrator. Bill Parrish, billp@teampiedmont.com, 919.777.3411 Cell 2. Paragraph 22.16.1.1 Delete the sentence: “The existing generator will be used for providing power to the influent pump station and to the buildings.” The existing generator will be taken off site. 3. Will you be supplying specifications for the Fiber Optic Cable? <ol style="list-style-type: none"> A. Yes. See attached Section 27 10 00 Structured Cabling. Also use Leviton Fast-cam pre-polished connectors or approved equals (see attached cut sheet). Use Optical Cable Corporation 12 Channel D-series distribution – riser rate cables or approved equal (see attached cut sheet). 4. Will the Manufacture Venders be responsible to supply the needed Fiber Optic Media Converters, Fiber Patch Panels and Ethernet Switches in their Local Control Panels? <ol style="list-style-type: none"> A. Yes. Contractor should coordinate to ensure that manufacturers control panels interface with the requirements of this section and supply what is needed to for the fiber optic system.
3.7	Section 40 68 00 – SCADA Software and Hardware	<ol style="list-style-type: none"> 1. Section 40 68 00 page 15 paragraph B. states that the SCADA system shall be configured in a “redundant system configuration” as depicted in the equipment list on page 19. However, the equipment list on page 19 only shows One (1) HMI computer (HMI-1 Workstation) and One (1) Web Client (HMI-2 Web Client). Should we provide Two (2) Workstation Computers in a Redundant configuration with One (1) Web Client Notebook? <ol style="list-style-type: none"> A. Yes. We want a back up computer, but the second can be a standby and not run redundantly. 4. Will the HMI-1 Workstation be located in the OPS Building? <ol style="list-style-type: none"> A. Yes. It will be located in the new OPS building.
3.8	CS001 – Layout plan	<ol style="list-style-type: none"> 1. On Drawing CS001 there is shown a panel identified as “PLC CPU” located in the OPS Building. Is this an existing control panel? <ol style="list-style-type: none"> A. No. This is the new computer that you are supplying. However, in the existing control building there is an existing computer for monitoring the Town’s pump stations and drinking water wells that will be relocated to the new control building. (See Section 40 60 00 paragraph 22.18.4) 2. Will this panel be the Master SCADA Panel for the Fiber Optic Network? <ol style="list-style-type: none"> A. Yes.
3.9	Plan sheet scale issues	The pdf drawings uploaded to the Goldie site had some scaling issues, which were repaired.

Addendum Reference #	Reference	Question / comment
3.10	Project cost	The engineer's opinion of cost is \$6.7 million without adders. \$8.2 million with the filters and digester adders.
3.11	Town of Ridgeland Fees	The Town will waive building permit fees; however, a business license will be required.
3.12	Section 01 22 00 Measurement & Payment	<ol style="list-style-type: none"> 1. Delete 1.1.B B. "List taxes for process related construction separately, as discussed in the Instructions to Bidders." 2. Section 1.3 Add: "<u>Digester and Geotube area. Provide a lump sump cost for the catwalk and platform, sludge pump, chemical feed area, Geotube area and all appurtenances, including purchase of 4 Geotubes.</u>" 3. Section 1.3 Add to spare influent / effluent pump: "Include one impeller for influent and effluent if the impellers are different." 4. Section 1.3 Delete: "Construct concrete Post-EQ pond. Provide a lump sum cost for the addition cost of lining the Post EQ pond with concrete instead of an HDPE liner. Use 6" of shotcrete on a mat of #4 rebar 12" o.c. each way." 5. Section 1.3 Delete: "Construct concrete digester pond. Provide a lump sum cost for the addition cost of lining the digester pond with concrete instead of an HDPE liner. Use 6" of shotcrete on a mat of #4 rebar 12" o.c. each way." 6. An updated specification is attached.
3.13	Section 00 41 00 Bid Form	<ol style="list-style-type: none"> 1. Add Section for Digester Base Bid. 2. Modified digester alternate. 3. A new bid form is attached.
3.14	Section 01 11 00 – Summary of Work	<ol style="list-style-type: none"> 1. Modify 1.2.9 to say "digester (lined pond) with decant pump and existing aerators." 2. Add 1.2.11 "effluent pipe to existing LAS pump station." 3. Move 1.2.10 "dewatering facilities to use Geotube dewatering bags" to 1.4.3. 4. Add 1.4.2 "Add catwalk, mixers and blowers to digester." 5. An updated specification is attached.
Questions in process		
	Section 43 22 56 – Submersible Mixers	KSB has submitted a request to be considered as an equal for the digester mixers. This is under consideration.
	Section 43 25 01 – Non-clog pumps (influent and effluent)	KSB has submitted a request to be considered as an equal for the influent and effluent pumps. This is under consideration.

If you have any questions, comments, or need further information, please email me at paul@goldieassociates.com.

Sincerely,

Goldie Associates

A handwritten signature in black ink that reads "Paul Lewis". The signature is written in a cursive style with a large initial "P".

Paul Lewis, PE
Project Engineer

Attachments – Section 00 41 00 – Bid form Section 5 only (Rev. 3)
Section 01 11 00 – Summary of work (Rev. 1)
Section 01 22 00 – Measurement & Payment (Rev. 1)
Section 10 73 23 - Shelters
Section 27 10 00 – Structured cabling
OCC Riser related cables cut sheet
Leviton Fast-cam pre-polished connectors cut sheet
Plans: Cover, E001, E002

SECTION 01 22 00

MEASUREMENT AND PAYMENT

Revision History

Rev. #	Date	Comments
1	4/30/19	<ol style="list-style-type: none">1. Delete 1.1.B B. “List taxes for process related construction separately, as discussed in the Instructions to Bidders.”2. Section 1.3 Add: “Digester and Geotube area. Provide a lump sum cost for the catwalk and platform, sludge pump, chemical feed area, Geotube area and all appurtenances, including purchase of 4 Geotubes.”3. Section 1.3 Add to spare influent / effluent pump: “Include one impeller for influent and effluent if the impellers are different.”4. Section 1.3 Delete: “Construct concrete Post EQ pond. Provide a lump sum cost for the addition cost of lining the Post EQ pond with concrete instead of an HDPE liner. Use 6” of shotcrete on a mat of #4 rebar 12” o.c. each way.”5. Section 1.3 Delete: “Construct concrete digester pond. Provide a lump sum cost for the addition cost of lining the digester pond with concrete instead of an HDPE liner. Use 6” of shotcrete on a mat of #4 rebar 12” o.c. each way.”

1. General.

1.1 Lump Sum Cost

- A. Contractor’s lump sum cost should include all the work shown in the contract documents, except the work listed as Alternates on the bid form. Provide a cost for the lump sum items as shown on the bid form.
- ~~B. List taxes for process related construction separately, as discussed in the Instructions to Bidders.~~

1.2 Unit Price Items.

- A. For partial payment, the following items shall be measured in place and paid for using the unit prices indicated on the Bid Form. Unit costs are for partial payment only. **Final amount shall not exceed the total amount specified in the bid without prior change order.**

1. Excavation of unsuitable materials. You will perform the excavation required as shown on the drawings as part of your lump sum cost. In this unit price item you will be paid only for the removal of any extra material that is deemed by the Engineer or Engineer's representative as being unsuitable for use for grading or structural fill. This would include material that is removed by over-excavation as directed by the Engineer. Provide a cost based on the cubic yardage shown on the bid form. You will be paid according to the actual volume of extra unsuitable materials removed.
2. Replacement of unsuitable material with stone. This line item is for replacement with stone of any extra excavation required by the Engineer because of unsuitable soils at the bottom of the excavated hole. Provide a cost based on the cubic yardage shown on the bid form. You will be paid according to the actual volume of stone replaced.
3. Replacement of unsuitable material with suitable material from off-site. This line item is for replacement with suitable material of any extra excavation required by the Engineer because of unsuitable soils at the bottom of the excavated hole. Provide a cost based on the cubic yardage shown on the bid form. You will be paid according to the actual volume of suitable materials replaced.
4. Removal of rock. Provide a cost based on the cubic yardage shown on the bid form. You will be paid according to the actual volume of rock removed.
5. Mobilization for sludge removal. This line item is for mobilization of equipment for sludge removal. One mobilization is expected. You will be paid according to the number of mobilizations actually required.
6. Removal of sludge to landfill. Provide a cost based on the dry pounds shown on the bid form. You will be paid according to the actual dry pounds of sludge removed.
7. Fencing. Provide a cost based on the linear feet of fence shown on the bid form. You will be paid according to the actual linear feet of fence installed.
8. Paving. Provide a cost based on the square yards of paving shown on the bid form. You will be paid according to the actual square yards of pavement installed.

1.3 Alternate Items.

A. Provide a cost for each of the alternates below.

1. Rental and setup of DAF unit and pumping system. Provide a lump sum cost for renting and setting up the DAF unit and pumping system. You will only be paid if this alternate is exercised. If needed, this system will be required until the ICEAS system is permitted and in use.
2. Purchase and install Effluent Filters. Provide a lump sum cost for purchase and installation of the effluent filters.
3. Provide one (1) spare influent / effluent pump and motor. Provide a lump sum cost for providing a spare pump and motor. Include one impeller for influent and effluent if the impellers are different.
4. ~~Reserved. Construct concrete Post EQ pond. Provide a lump sum cost for the addition cost of lining the Post EQ pond with concrete instead of an HDPE liner. Use 6" of shotcrete on a mat of #4 rebar 12" o.c. each way.~~
5. ~~Reserved. Construct concrete digester pond. Provide a lump sum cost for the addition cost of lining the digester pond with concrete instead of an HDPE liner. Use 6" of shotcrete on a mat of #4 rebar 12" o.c. each way.~~
6. Digester and Geotube area. Provide a lump sum cost for the catwalk and platform, sludge pump, chemical feed area, Geotube area and all appurtenances, including purchase of 4 Geotubes.

1.4 Measurements.

Measurements shall be made for all unit price items and agreed upon by the Engineer or Owner's representative. Quantities for items not verified by the Engineer or Owner will not be approved for payment.

1.5 Summary.

Payment as noted above shall constitute full compensation for **all** work shown and required by the construction drawings and contract documents. The cost of auxiliary operations and materials required to complete the project shall be absorbed in the appropriate bid item.

[END OF SECTION]

ARTICLE 5 - BASIS OF BID

Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Bid for The Jimmy Mixson WRF Plant Expansion Revision #3 4/29/19 for Addendum #3					
Lump Sum Items					
Item	Description	Unit	Quantity	Unit Price	Total Price
1.	Mobilization (not to exceed 3% of bid)	LS	1	\$	\$
2.	Sediment and Erosion Control	LS	1	\$	\$
3.	Sitework & Demolition	LS	1	\$	\$
	Grading, earthwork, paving, etc.				
4.	Operations Building				
	Construct the operations building, including appliances.				
	Allowances:				
	- Dishwasher	EA	1	\$700	\$700
	- Microwave	EA	1	\$300	\$300
	- Refrigerator	EA	2	\$2500	\$5000
	- Washer / dryer	EA	1	\$1400	\$1400
	- Furniture	EA	1	\$2000	\$2000
	Balance of Operations Building	LS	1	\$	\$
5.	Division A – Influent Area				

	Description: Purchase and install Influent Pump Station, Flow Meter and associated piping and forcemain, concrete work, electrical and controls. Purchase and install the bulk storage tanks, transfer pump, concrete work, piping at the tanks and to the influent pump station, canopy, and all appurtenances related to the Bulk Chemical Storage tanks.				
	Influent Area	LS	1	\$	\$
6.	Division B – Headworks				
	Purchase and install the headworks (influent screen and grit removal system), with blower, vendor supplied controls, associated piping, concrete work, canopy and appurtenances.				
	Assigned purchase of headworks	LS	1	\$182,402.00	\$182,402.00
	Balance of Division B	LS	1	\$	\$
7.	Division C – ICEAS biological treatment system and Post – EQ basin				
	Description: Purchase and install the ICEAS with blowers, pumps, vendor supplied controls, flow junction boxes, associated piping, concrete work, and blower area canopy. Construct Post EQ Basin with blowers, liner and blower area canopy.				
	Assigned purchase of ICEAS	LS	1	\$345,085.00	\$345,085.00
	Balance of Division C	LS	1	\$	\$
8.	Division D- Effluent Pump Station, UV disinfection and Effluent Pipe.				
	Construct Effluent PS, UV, canopy, effluent pipe, creek discharge and all appurtenances.				
	Assigned purchase of UV equipment (import duties not included)	LS	1	\$121,000.00	\$121,000.00
	Balance of Division D	LS	1	\$	\$
9.	Division E. - Digester and Geotube area				

	Fill lagoon and construct lined pond, decant pumps, existing 20 Hp aerators, and associated electrical and controls for pumps and aerators.					
10.	Electrical					
	Purchase and install electrical panels (not supplied with equipment), conduit, wiring and emergency generator.					
	Electrical	LS	1	\$		\$
11.	Instrumentation, monitoring and controls					
	Purchase and install instrumentation and controls, samplers, and all associated wiring, programming and appurtenances related to the instrumentation and control system					
	Instrumentation	LS	1	\$		\$

Unit Price Items						
12.	Excavate unsuitable material	CY	300	\$		\$
13.	Replace unsuitable material with stone underneath structures	Ton	200	\$		\$
14.	Replace unsuitable material with soil from off-site borrow pit underneath structures	CY	150	\$		\$
15.	Removal of rock	CY	50	\$		\$
16.	Mobilization for removal of sludge to landfill	EA	1	\$		\$
17.	Removal of sludge to landfill	DRY TONS	175	\$		\$
18.	Fencing	LF	165	\$		\$

19.	Paving	SY	1214	\$		\$
20.	Total Bid Price (Items 1-19)			\$		\$
				<i>Bid price (in numerals)</i>		\$
<i>Bid price (in words)</i>						
	Quantities provided are estimates only. The Bidder must satisfy themselves with the accuracy of the estimated quantities listed in the bid by examination of the site and a review of the drawings and contract documents.					
	5.02 Alternates. Provide a cost for each of the alternates below					
1.	DAF and Pump Rental during construction of ICEAS #1	LS	1	\$		\$
2.	Purchase and install Effluent Filters with associated piping, electrical, controls and expanded canopy					
	Assigned purchase of effluent filters	LS	1	\$224,832.00		\$224,832.00
	Balance of work for effluent filters	LS	1	\$		\$
3.	Division E. - Digester and Geotube area					
	Construct catwalk and platform, sludge pump, chemical feed area, Geotube area and all appurtenances, including purchase of 4 Geotubes.					
	Division E	LS	1	\$		\$
4.	Spare influent / effluent pump	LS	1	\$		\$

SECTION 01 11 00

SUMMARY OF WORK

Revision History

No.	Date	Comments
1.	4/29/19 – Add. 3	<ol style="list-style-type: none">1. Modify 1.2.9 to say “digester (lined pond) with decant pump and existing aerators.”2. Add 1.2.11 “effluent pipe to existing LAS pump station.”3. Move 1.2.10 “dewatering facilities to use Geotube dewatering bags” to 1.4.3.4. Add 1.4.2 “Add catwalk, mixers and blowers to digester.”

1. Work covered by Contract Documents.
 - 1.1. The project consists of upgrades to the Town of Ridgeland’s Jimmy Mixson Wastewater Reclamation Facility (WRF).
 - 1.2. The Work consists of the purchase, construction and installation of new:
 - 1.2.1. influent pump station with forcemain.
 - 1.2.2. headworks facility.
 - 1.2.3. Intermittent Cycle Extended Air System (ICEAS) biological treatment system with blowers and sludge pumps.
 - 1.2.4. lined post-equalization pond with aeration.
 - 1.2.5. effluent pump station and piping.
 - 1.2.6. UV disinfection system with channel.
 - 1.2.7. effluent flume with channel.
 - 1.2.8. effluent outfall pipe
 - 1.2.9. digester (lined pond) with decant pump and existing aerators.
 - 1.2.10. Reserved. ~~dewatering facilities to use Geotube dewatering bags.~~
 - 1.2.11. operator building.
 - 1.2.12. effluent pipe to existing LAS pump station.
 - 1.3. The Work also includes:
 - 1.3.1. Miscellaneous paving and site improvements.
 - 1.3.2. Removal of sludge from the existing lagoons.
 - 1.4. Alternates considered are:
 - 1.4.1. Purchase, construction and installation of 2 effluent filters.
 - 1.4.2. ~~Add concrete post equalization tank instead of lined pond.~~

- 1.4.3. Add catwalk, mixers and blowers to digester.
- 1.4.4. dewatering facilities to use Geotube dewatering bags.
- 1.5. Special conditions.
 - 1.5.1. The upgrades are being placed in the footprint of the existing WRF, which will need to remain in operation during construction. A construction sequence is provided on the plans.
 - 1.5.2. Several pieces of equipment have been preselected and will be assigned to the Contractor:
 - 1.5.2.1.Headworks
 - 1.5.2.2.ICEAS
 - 1.5.2.3.UV system
 - 1.5.2.4.Effluent filters (alternate)

[END OF SECTION]

SECTION 27 10 00 STRUCTURED CABLING

PART 1. GENERAL

1.1.SUMMARY

A. Section Includes:

- 1.) Requirements for the structural cabling system such as:
 - (a) Service entrance protection.
 - (b) Cabinets and enclosures.
 - (c) Patch panels.
 - (d) Cable management and cable pathways.
 - (e) Backbone cabling.
 - (f) Horizontal cabling.
 - (g) Patch cords.

B. Related Sections include but are not necessarily limited to:

- 1.) Division 00 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
- 2.) Division 01 - General Requirements.
- 3.) Section 07 84 00 - Firestopping.
- 4.) Section 26 05 00 - Electrical: Basic Requirements.
- 5.) Section 26 05 26 - Grounding and Bonding.
- 6.) Section 26 05 33 - Raceways and Boxes.

1.2.QUALITY ASSURANCE

A. Referenced Standards:

- 1.) Building Industry Consulting Service International (BICSI).
- 2.) Electronics Components Industry Association (ECA):
 - (a) 310, Cabinets, Racks, Panels and Associated Equipment.
- 3.) National Electrical Manufacturers Association (NEMA):
 - (a) WC 66, Standard for Category 6 and 6A, 100 Ohm, Individually Unshielded Twisted Pairs, Indoor Cables (With Or Without An Overall Shield) For Use In LAN Communication Wiring Systems.
- 4.) National Fire Protection Association (NFPA):
 - (a) 70, National Electrical Code (NEC).
- 5.) Telecommunications Industry Association/Electronic Industries Alliance/American National Standards Institute (TIA/EIA/ANSI):
 - (a) 526-7, Measurement of Optical Power Loss of Installed Singlemode Fiber Cable Plant.
 - (b) 568-C.0, Generic Telecommunications Cabling for Customer Premises.
 - (c) 568-C.1, Commercial Building Telecommunications Cabling Standard.
 - (d) 3568-C.2, Balanced Twisted-Pair Telecommunications Cabling and Components Standards.
 - (e) 568-C.3, Optical Fiber Cabling Components Standard.

- (f) 569-C, Telecommunications Pathways and Spaces.
- (g) 598-D, Optical Fiber Cable Color Coding.
- (h) 606-B, Administration Standard for Telecommunications Infrastructure.
- (i) 607-B, Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises.

B. Qualifications:

- 1.) Telecommunications Contractor:
 - (a) Shall be regularly and professionally engaged in the business of the applications, installation, and testing of telecommunications systems and equipment.
 - (b) The contractor shall include three (3) references of similar scope jobs completed in the last two (2) years.
 - (c) Supervisors and installers shall be Building Industry Consulting Services International (BICSI) Registered Cabling Installers, Technician Level.
 - (d) In lieu of BICSI certification, supervisors and installers assigned to the installation of this system or any of its components shall have:
 - (i) A minimum of 5 years' experience in the installation of the specified copper and fiber optic cable and components.
 - (ii) Factory or factory approved certification from each equipment manufacturer indicating that they are qualified to install and test the provided products.
- 2.) Manufacturer:
 - (a) Company specializing in manufacturing products specified in this Section with minimum 10 years documented experience in the manufacturing, assembly, and factory testing of components which comply with TIA-568-C.1, TIA-568-C.2 and TIA-568- C.3.

1.3.SYSTEM DESCRIPTION

- A. The building telecommunications cabling and pathway system shall include:
 - 1.) All permanently installed backbone and horizontal cabling.
 - 2.) Horizontal and backbone pathways.
 - 3.) Service entrance facilities.
 - 4.) Telecommunications outlet assemblies.
 - 5.) Cabinets.
 - 6.) Enclosures.
 - 7.) Conduit.
 - 8.) Raceway.
 - 9.) Patch panels.
 - 10.) Fiber enclosures and hardware for splicing.
 - 11.) Terminating and interconnecting cabling necessary to transport voice and data between equipment items in a building.
- B. All components required for the above shall be provided for a fully tested operational system per the latest TIA/EIA/ANSI Standards.
- C. The Contractor shall provide and install all components per this Specification for the Structured Cabling System.

- D. Active equipment including switched hubs, routers, data switch(es) for fiber/copper shall be provided by others under a separate contract.
- E. Patch cords connected to active equipment shall be installed by others.

1.4.SUBMITTALS

A. Shop Drawings:

- 1.) See Specification Section 01 33 00 for requirements for the mechanics and administration for the submittal process.
- 2.) Provide product technical data including:
 - (a) Submittal data for all products specified in PART 2 of this Specification.
 - (b) See Specification Section 26 05 00 for additional requirements.
- 3.) Certificates:
 - (a) Telecommunications Contractor and Installers qualifications.
 - (b) Key Personnel qualifications.
 - (c) Manufacturer qualifications.
- 4.) Test reports:
 - (a) Testing plan and procedures.
 - (b) Telecommunications cabling test results.

PART 2. PRODUCTS

2.1.MATERIALS AND EQUIPMENT

- A. Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products and shall be the manufacturer's latest standard design that has been in satisfactory use for at least one (1) year prior to installation.
 - 1.) Materials and equipment shall conform to the respective publications and other requirements specified below and to the applicable requirements of NFPA 70.
 - 2.) Components shall be UL or third-party certified.

2.2.TELEPHONE TERMINAL CABINETS

- A. Factory painted or galvanized steel NEMA 3R enclosure with hinged door.
 - 1.) Used to house building entrance protector and terminal blocks.

2.3.TELECOMMUNICATIONS OUTLET BOXES

- A. Electrical boxes for telecommunication outlets shall be 4-11/16 IN square by 2-1/8 IN deep with minimum 3/8 IN deep single or two gang plaster ring as required.
 - 1.) Provide a minimum 1 IN conduit.

2.4.EQUIPMENT MOUNTING BACKBOARD

- A. Provide one plywood backboard on one wall of telecommunications spaces.
- B. Void-free, interior grade A-C fire-rated plywood, A-side mounted facing out, 3/4 IN thick, 4 FT x 8FT sheets.

2.5.PATCH PANELS

- A. Patch panels mounted in equipment cabinets or SCADA panels with sufficient ports to accommodate all installed cable plus 25 percent spare:
 - 1.) Copper Patch Panel:
 - (a) 48-port modular jack (2U maximum), with rear mounted type 110 insulation displacement connectors.
 - (b) Panel shall have incoming cable strain relief and cable management guides.
 - (c) Jack pin/pair configuration shall be T568B.
 - (d) Jacks shall be unkeyed.
 - 2.) Fiber Optic Patch Panel:
 - (a) Panel shall accommodate 12 duplex connectors (1U maximum).
 - (b) Panel shall have cable management tray, incoming cable strain relief and cable management guides.
 - (c) Connectors shall be duplex SC.
 - (d) Connectors shall be unkeyed.
 - (e) Provide dust covers for unused connectors.

2.6.BACKBONE CABLING SYSTEM

- A. Outside Plant Cable:
 - 1.) Same as horizontal cabling System except gel filled with UV resistant jacketed suitable for installation underground.
- B. Backbone Fiber Cable:
 - 1.) Singlemode, 9um/125um OS2 rated cable, formed into 12-strand color coded groups.
 - 2.) Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level.
 - 3.) Cable shall be rated CMP per NFPA 70.

2.7.HORIZONTAL CABLING SYSTEM

- A. Horizontal Copper Cable:
 - 1.) Category 6.
 - 2.) Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level.
 - 3.) Conductors shall be solid untinned copper 24 AWG.
 - 4.) Cable shall be rated CMP per NFPA 70.
- B. Telecommunications Outlets:
 - 1.) General wall and desk outlet plates shall come equipped with two (2) modular jacks and two (2) blank spaces.
 - 2.) Modular jacks shall be the same category as the cable they terminate.
 - 3.) Modular copper jack pin/pair configuration shall be T568B.
 - 4.) Modular fiber optic jacks shall be duplex SC connectors.
 - 5.) Modular jacks shall be unkeyed.
 - 6.) Wallplates:
 - (a) High impact thermoplastic or nylon.
 - (b) Color: Gray.

- 7.) Outlet assemblies used in the premises distribution system shall consist of modular jacks in outlet assemblies mounted in single or double gang covers as specified in this Section and as indicated on the Drawings.

2.8.PATCH CORDS

- A. Contractor shall supply patch cords equal to 1.1 times the number of cables terminated in the communication room(s).
 - 1.) Provide for installed copper and fiber-optic systems.
 - 2.) 10 FT cords.
- B. Patch Cords, Copper:
 - 1.) Assemblies consisting of flexible, twisted pair stranded wire with eight-position plugs at each end.
 - 2.) Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level.
 - 3.) Patch cords shall be wired straight through; pin numbers shall be identical at each end and shall be paired to match T568B patch panel jack wiring.
 - 4.) Patch cords shall be unkeyed.
 - 5.) Patch cords shall be factory assembled.
 - 6.) Patch cords shall match the color of the installed system.
- C. Patch Cords, Singlemode Fiber:
 - 1.) Assemblies consisting of flexible, 9um/125um OS2 rated cable with duplex SC connectors at each end.
 - 2.) Cable jacket shall be factory marked at regular intervals indicating verifying organization and performance level.
 - 3.) Patch cords shall have crossover orientation.
 - 4.) Patch cords shall be unkeyed.
 - 5.) Patch cords shall be factory assembled.
 - 6.) Patch cords shall be yellow.

2.9.LABELING AND COLOR CODING

- A. Labels shall be developed by the contractor and approved by the Owner.
 - 1.) Labels shall be machine printed on opaque or clear tape, stenciled onto adhesive labels.
 - 2.) Handwritten labeling is unacceptable.
- B. .Cable and Jacks:
 - 1.) Voice: White.
 - 2.) Data: Blue.

PART 3. EXECUTION

3.1.INSTALLATION

- A. System components and appurtenances shall be installed in accordance with NFPA 70, manufacturer's instructions and as shown.
- B. Necessary interconnections, services, and adjustments required for a complete and operable signal distribution system shall be coordinated with the local communications provider(s).

- C. Components shall be labeled in accordance with TIA/EIA/ANSI 606.
- D. Penetrations in fire-rated construction shall be firestopped.
- E. Wiring shall be installed in accordance with TIA/EIA/ANSI Standards.
 - 1.) Wiring, and terminal blocks and outlets shall be marked in accordance with TIA/EIA/ANSI 606.
- F. Cables shall not be installed in the same cable tray, utility pole compartment, or floor trench compartment with AC power cables.
- G. Pathway System:
 - 1.) Provide in accordance with TIA 569 and NFPA 70.
 - 2.) Provide conduits in accordance with 26 05 33 - Raceways and Boxes.
 - 3.) Provide grounding of raceways and cable tray in accordance with TIA 607 and NFPA 70.
- H. Unshielded Twisted Pair Patch Panels:
 - 1.) Patch panels shall be mounted in equipment racks with sufficient modular jacks to accommodate the installed cable plant plus 25 percent spares.
 - 2.) Cable guides shall be provided above, below and between each panel.
- I. Fiber Optic Patch Panels:
 - 1.) Patch panels shall be mounted in equipment racks with sufficient connectors to accommodate the installed cable plant plus 25 percent spares.
 - 2.) Cable guides shall be provided above, below and between each panel.
- J. Backbone and Horizontal Distribution Cable:
 - 1.) Cable pulling tension shall not be exceeded.
 - (a) 110N (25 lbf) for copper cabling.
 - 2.) Cable shall not be stressed such that twisting, stretching or kinking occurs.
 - 3.) Cable shall not be spliced.
 - 4.) All backbone cable shall be installed in conduit or cable tray.
 - 5.) All horizontal cable shall be installed in an appropriate telecommunications pathway.
 - 6.) Cable shall not be run through structural members or in contact with conduits, pipes, ducts, or other potentially damaging items.
 - 7.) Placement of cable parallel to power conductors shall be avoided, if possible; a minimum separation of 12 IN shall be maintained when such placement cannot be avoided.
 - 8.) Cables shall be terminated; no cable shall contain unterminated elements.
 - 9.) Minimum bending radius shall not be exceeded during installation or once installed.
 - 10.) Only fabric hook and loop fasteners shall be used to wrap cables, 1/2 IN width minimum. Plastic or nylon cable ties shall not be used.
- K. Telecommunications Outlets:
 - 1.) Faceplates: As a minimum each jack shall be labeled as to its function and a unique number to identify cable link.
 - 2.) Cables:
 - (a) Unshielded twisted pair cables shall have a minimum of 12 IN of slack cable loosely coiled into the telecommunications outlet boxes.

- (b) Minimum manufacturers bend radius for each type of cable shall not be exceeded.

3.2.TERMINATION

A. Cables and conductors shall sweep into termination areas; cables and conductors shall not bend at right angles.

- 1.) Manufacturer's minimum bending radius shall not be exceeded.
- 2.) When there are multiple system type drops to individual workstations, relative position for each system shall be maintained on each system termination block or patch panel.
- 3.) Unshielded Twisted Pair Cable:
 - (a) Each pair shall be terminated on appropriate outlets, terminal blocks or patch panels.
 - (b) No cable shall be unterminated or contain unterminated elements.
 - (c) Pairs shall remain twisted together to within the proper distance from the termination as specified in the TIA/EIA/ANSI 568B Series.
 - (d) Conductors shall not be damaged when removing insulation.
 - (e) Wire insulation shall not be damaged when removing outer jacket.
- 4.) Fiber Optic Cable:
 - (a) Each pair shall be terminated with appropriate connectors.
 - (b) No cable shall be unterminated or contain unterminated elements.

3.3.GROUNDING

A. Signal distribution system ground shall be installed in the telecommunications entrance facility and in each telecommunications closet in accordance with TIA/EIA/ANSI J-STD-607.

- 1.) Equipment racks shall be connected to the electrical safety ground.

3.4.LABELING

- A. All cables will be labeled using color labels on both ends per TIA/EIA/ANSI 606.
- B. All workstation and patch panel connections will be labeled using color coded labels per TIA/EIA/ANSI 606.

3.5.TESTING

A. Testing shall conform to the TIA/EIA/ANSI Standards for all test parameters.

- 1.) All test data sheets shall be downloaded from the tester, printed out and provided to the Owner.
 - 2.) A CD-ROM shall be provided to the Owner with all test results.
 - 3.) Tester shall be capable of testing parameters for the warranted system.
- B. Materials and documentation to be furnished under this Specification are subject to inspections and tests.
- 1.) All components shall be terminated prior to testing.
 - 2.) Equipment and systems will not be accepted until the required inspections and tests have been made, demonstrating that the signal distribution system conforms to the specified requirements, and that the required equipment, systems, and documentation have been provided.

C. Unshielded Twisted Pair Tests:

- 1.) All metallic cable pairs shall be tested for proper identification and continuity.
- 2.) All opens, shorts, crosses, grounds, and reversals shall be corrected.
- 3.) Correct color coding and termination of each pair shall be verified in the communications closet and at the outlet.
- 4.) Horizontal wiring shall be tested from and including the termination device in the communications closet to and including the modular jack in each room.
- 5.) These tests shall be completed and all errors corrected before any other tests are started.

D. Category 6 Circuits:

- 1.) Perform Category 6 link tests in accordance with TIA-568-C.1 and TIA-568-C.2. Tests shall include wire map, length, insertion loss, NEXT, PSNEXT, ELFEXT, PSELFEXT, return loss, propagation delay, and delay skew.
- 2.) Cables which contain failed circuits shall be replaced and retested to verify the standard is met.

E. Fiber Optic Cable:

- 1.) Unless stated otherwise, tests shall be performed from both ends of each circuit.
- 2.) All terminations shall be visually inspected for scratches, pits or chips and shall be reterminated if any of these conditions exist.
- 3.) Each link shall be tested for insertion loss using a light source similar to that used for the intended communications equipment.
- 4.) High-resolution optical time domain reflectometer (OTDR) tests shall be performed for each fiber.
- 5.) Scale of the OTDR trace shall be such that the entire circuit appears over a minimum of 80 percent of the X-axis.

END OF SECTION

Section 10 73 23

Shelters

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Pre-engineered metal carport type covers including all hardware.

1.3 REFERENCES

A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

1.4 DESIGN REQUIREMENTS

A. Design members to withstand dead, live, wind and other applicable loads in accordance with ASCE-7 and applicable code.

B. Cooperate with regulatory agency or authority and provide data as requested authority having jurisdiction.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 33 00 – Submittals.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Shop Drawings: Indicate system components, dimensions, attachments, and accessories.

D. Reserved

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, two samples, minimum size 3 inches (76 mm) square, representing actual product, color, and patterns.

G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

H. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic checking and periodic cleaning and maintenance of all components.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience and approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products with labels intact, in manufacturer's unopened packaging until ready for installation.

B. Handle materials so as to protect materials, coatings, and finishes during transportation and installation to prevent damage or staining.

1.8 WARRANTY

Workmanship – 1 year.

Panels – 10 years against chipping and cracking.

Steel frames – 20 year guarantee against rust.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Carport Central, 737 S. Main St., Mount Airy, NC, 27030. Contact Ryan Griffin, Building Specialist, P: 980-321-9898, ryan@carportcentral.com, www.carportcentral.com or approved equal.

2.2 CARPORT TYPE CANOPY SYSTEM

A. Materials.

a. Support tubing to be galvanized.

b. Standard spacing between bows should be maximum 5 ft.

c. Roof and side panels should be 24 gauge.

d. Roof coating shall be a ceramic pigment polyester that protects against chalking and abrasion and meets or exceeds AAMA 2605 standards.

e. Anchors and fasteners: Stainless steel or hot dip galvanized for corrosion resistance.

2.3 FABRICATION

Fabricate system in accordance with approved Shop Drawings.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install components plumb and level, in proper plane, free from warp and twist.

C. Anchor system to building components; provide adequate clearance for movement caused by thermal expansion and contraction and wind loads.

3.4 CLEANING

A. Clean all surfaces and restore any marred or abraded surfaces to original conditions as approved by the Architect.

3.5 PROTECTION

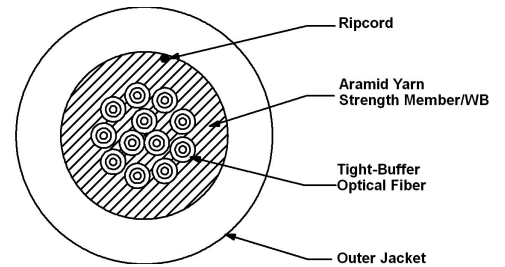
A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

Part #: DX012DWLS9KR

**12 CHANNEL
D-Series Distribution – Riser Rated Cables**



Laser Ultra-Fox™ Fiber Performance	
Fiber Code	WLS
Industry Standard Designation	OM1 ISO/IEC 11801
Core/Cladding Diameter (µm)	62.5/125
Numeric Aperture	0.275
Wavelength (nm)	850/1310
Gigabit Ethernet Distance (m)	300/600
10-Gigabit Ethernet Distance (m)	33/300
Maximum Cabled Attenuation (dB/km)	3.5/1.5
Minimum Laser EMB Bandwidth (MHz-km)	220/500
Minimum OFL LED Bandwidth (MHz-km)	200/500
Primary Coating Diameter (µm)	245
Secondary Buffer Diameter (µm)	900
Proof Test Level (kpsi)	100

Installation and Operating Characteristics		
	Installation	Operating
Max Tensile Load	2,700 N (600 lbs)	600 N (135 lbs)
Min Bend Radius	9.8 cm (3.9 in)	6.5 cm (2.6 in)

Mechanical and Environmental	
Impact Resistance EIA/TIA-455-25A	1500 impacts
Crush Resistance TIA/EIA-455-41A	1800 N/cm
Flex Resistance	2000 cycles
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
Installation Temperature (actual temp. of cable)	-10°C to +60°C
Flame Retardancy	UL Listed Type OFNR (UL 1666)

Cable Characteristics	
Jacket Color	Black
Jacket Material	Indoor / Outdoor PVC
Buffer Material	PVC
Cable Weight	38 kg/km (25 lbs/1000')
Cable Diameter	6.5 mm (0.26 in)

12 CHANNEL

D-Series Distribution – Riser Rated Cables

Part #: DX012DWLS9KR



Standards

Optical Cable Corporation's Indoor/Outdoor tight-buffered fiber optic cables meet the functional requirements of the following standards:

- UL 1651
- UL 1666
- GR-409-CORE
- ICEA-S-104-696
- ICEA-S-83-596
- TIA-568
- TIA-598
- UL-listed type OFNR in accordance with NEC sections 770-179 (B) and 770-154 (B) for use in vertical runs in building riser shafts or from floor to floor. Meets or exceeds requirements for intra-building fiber optic cables as outlined in GR-409-CORE.

Applications

- Indoor/Outdoor tight-bound tight-buffered design allows cables to be installed in intra-building backbone and inter-building campus locations without costly transitions between cable types
- Ideal configuration for a single termination point requiring multiple fibers

COST SAVINGS

- 900 µm buffer eliminates the need for costly and time-consuming installation of fanout kits or pigtail splices because connectors terminate directly to the fiber
- No need to splice outdoor cable to indoor cable at building entrance
- High crush resistance may eliminate the need for innerduct

Features

- High performance components and construction
- Cable materials are indoor/outdoor - UL-listed OFNR and UV, water and fungus resistant
- UL Listed in accordance with NEC section 770.179(b) for use in vertical runs in building riser shafts or from floor to floor
- Wide operating temperature range of -40°C to +85°C
- Helically stranded core for greater flexibility and mechanical protection of the optical fibers
- High strength-to-weight ratio
- 2-144 fiber configuration is smaller and lighter than comparable sub-grouped cables made by others: ideal for installation in areas with limited space or tight bends
- Can be armored for additional protection in direct burial and aerial installations
- Interlocking armor can be applied to cables as an alternative to conduit installation

FastCAM® Pre-Polished Connectors

APPLICATION

FastCAM connectors are pre-polished, field-installable connectors that eliminate the need for hand polishing, bonding, or epoxy in the field. They are available in LC, SC, SC/APC, or ST, single-mode or multimode (OM1, OM2, OM3/4, or OS2) configurations. Connectors can be terminated on 250 or 900 µm buffered fiber and/or 2 or 3 mm jacketed fiber. All connectors allow verification of optical continuity, by use of the visual fault locator (VFL). FastCAM connectors are designed for premise environments, patch panels, and rapid repair/replacement requirements, as well as data centers and applications requiring fast network deployment.

SPECIFICATION

The FastCAM mechanical fiber optic connector shall meet or exceed the requirements described in ANSI/TIA-568-D and 604 standards. Connector shall be pre-polished and field-installable to eliminate the need for hand polishing, bonding, or epoxy in the field. Connector shall be available in LC, SC, SC/APC, or ST, single-mode or multimode (OM1, OM2, OM3/4, or OS2) configurations terminated on 250 or 900 µm buffered fiber and 2 or 3 mm jacketed fiber. Maximum connector insertion loss shall be no greater than 0.5 dB (0.6 dB for SC/APC), with an average of 0.1 dB (multimode) and 0.2 dB (single-mode or 0.3 dB for SC/APC). Typical connector return loss shall be 25 dB (multimode) and 55 dB (single-mode or 65 dB for SC/APC). All versions shall allow continuity to be verified by use of a visual fault locator (VFL).

FEATURES

- Precision mechanical splice termination
- Fast and easy to install (less than one minute)
- No polishing, epoxy curing, consumables
- No proprietary tools
- Low insertion-loss connection
- Uses proven, molded v-groove technologies
- Allows optical continuity to be verified by use of visual fault locator (VFL)
- Includes 900 µm, 2 mm, and 3 mm boots
- SC/APC has an internal angled cleave for optimal return loss performance

COUNTRY OF ORIGIN

Mexico (LC, SC, ST)
Japan (SC/APC)



FastCAM SC
OM3 Connector



FastCAM SC/APC
OS2 Connector



FastCAM LC
OM2 Connector



FastCAM ST
OM1 Connector

DESIGN CONSIDERATIONS

- Multimode and single-mode versions
- Precision, pre-radiused zirconia ferrules
- 900 µm or 250 µm buffered cable termination for SC, LC, and ST
- 2 or 3 mm jacketed cable
- Physical contact (PC) polish for multimode
- Ultra physical contact (UPC) polish for single-mode
- Angled physical contact (APC) polish for single-mode
- Not recommended for termination in outside plant applications/installations
- Precision cleavers are required for all FastCAM connectors*
- LC, SC, and ST UPC connectors require a 0-degree cleave with a maximum angle of 2 degrees for multimode and 1 degree for single-mode fibers
- SC/APC connectors require a maximum cleaving angle of 8 degrees ± 1 degree
- Visual fault locator is recommended for use to verify the optical continuity of the FastCAM connector

* Leviton High-Precision Flat Cleaver (49886-LNX) and Fujikura CT-30A Cleaver (49800-SMK), both available in kits. Leviton High-Precision Angled Cleaver (49886-APC).

STANDARDS COMPLIANCE

Meets ANSI/TIA-568.3-D performance requirements
Meets ANSI/TIA-604-2 (ST), -3 (SC), -10A (LC) Connector Intermateability Standards

WARRANTY INFORMATION

For a copy of Leviton product warranties, visit www.leviton.com/warranty.

Leviton Network Solutions

2222 - 222nd St. SE
Bothell, WA 98021-4416

tel 1-800-824-3005
tel +1-425-486-2222
appeng@leviton.com
www.leviton.com

Asia / Pacific

T +1.631.812.6228
E infoasean@leviton.com

Europe

T +44.0.1592.772124
E customerservice@brand-rex.com

Canada

T +1.514.954.1840
E pcservice@leviton.com

India / SAARC

T +971.4.886.4722
E infoindia@leviton.com

Caribbean

T +1.954.593.1896
E infocaribbean@leviton.com

Mexico

T +52.55.5082.1040
E lsamarketing@leviton.com

China

T +852.2774.9876
E infochina@leviton.com

Middle East & Africa

T +971.4.886.4722
E lmeinfo@leviton.com

Colombia

T +57.1.743.6045
E infocolombia@leviton.com

South Korea

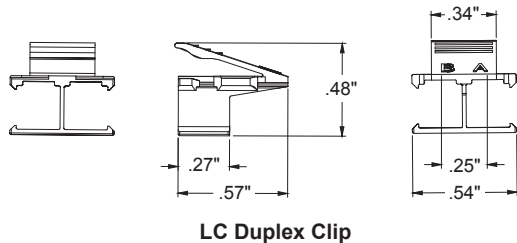
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E infokorea@leviton.com

ELECTRONIC FILES

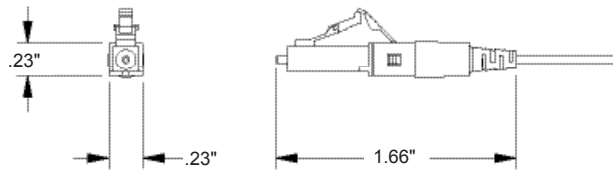
For CAD files, typical specs, or technical drawings (.DXF, .DWG), visit www.leviton.com.

Performance Specifications

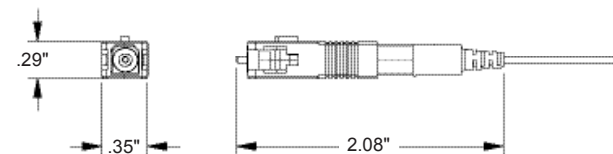
Parameter	Value
Insertion Loss (Multimode)	Typical: 0.1 dB; Max: 0.5 dB
Insertion Loss (Single-Mode)	Typical: 0.2 dB; Max: 0.5 dB
Insertion Loss (Single-Mode SC/APC)	Typical: 0.3 dB; Max: 0.6 dB
Return Loss (Multimode)	Typical: 25 dB
Return Loss (Single-Mode)	Typical: 55 dB
Return Loss (Single-Mode SC/APC)	Typical: 65 dB
Operating Temperature:	-40° C to +75° C



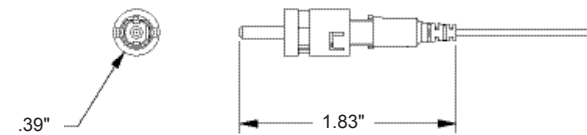
LC Duplex Clip



LC Connector



SC Connector



ST Connector

49991-XXX

Leviton FastCAM® Connectors

Description	Part No.
FastCAM LC OM1, beige	49991-MLC
FastCAM LC OM2, black	49991-5LC
FastCAM LC OM3/4, aqua	49991-LLC
FastCAM LC OS2, blue	49991-SLC
FastCAM SC OM1, beige	49991-MSC
FastCAM SC OM2, black	49991-5SC
FastCAM SC OM3/4, aqua	49991-LSC
FastCAM SC OS2, blue	49991-SSC
FastCAM SC/APC OS2, green	49991-ASC
FastCAM ST OM1, beige	49991-MST
FastCAM ST OM2, black	49991-5ST
FastCAM ST OS2, blue	49991-SST
FastCAM LC Duplex Clip (pack of 6), Clear	49991-CLP

Leviton FastCAM Installation Kits and Tools

Description	Part No.
FastCAM Tool Kit w/ Opt-X® Fiber cleaver, work tray and gooseneck LED	49800-LAK
FastCAM Tool Kit w/ Opt-X Fiber Cleaver	49800-MSK
FastCAM Tool Kit w/ CT-30A Cleaver	49800-SMK
Visual Fault Locator (VFL)	49886-VFL
Opt-X Fiber Cleaver	49886-LNX
Gooseneck LED (use with Opt-X Fiber Cleaver)	49886-LGN
Work Tray (use with Cleaver)	49886-LNT
CT-30A Cleaver	49886-CTA
APC Angled Cleaver	49886-APC



<p>Leviton Network Solutions 2222 - 222nd St. SE Bothell, WA 98021-4416</p> <p>tel 1-800-824-3005 tel +1-425-486-2222 appeng@leviton.com www.leviton.com</p>	<p>Asia / Pacific T +1.631.812.6228 E infoasean@leviton.com</p>	<p>Canada T +1.514.954.1840 E pcservice@leviton.com</p>	<p>Caribbean T +1.954.593.1896 E infocaribbean@leviton.com</p>	<p>China T +852.2774.9876 E infochina@leviton.com</p>	<p>Colombia T +57.1.743.6045 E infocolombia@leviton.com</p>
	<p>Europe T +44.0.1592.772124 E customerservice@brand-rex.com</p>	<p>India / SAARC T +971.4.886.4722 E infoindia@leviton.com</p>	<p>Mexico T +52.55.5082.1040 E lsamarketing@leviton.com</p>	<p>Middle East & Africa T +971.4.886.4722 E lmeinfo@leviton.com</p>	<p>South Korea T +82.2.3273.9963 E infokorea@leviton.com</p>

JIMMY MIXSON WASTEWATER RECLAMATION FACILITY (WRF) EXPANSION

TOWN OF RIDGELAND, JASPER COUNTY, SOUTH CAROLINA



Town of Ridgeland
 Joseph N. Malphrus, Mayor
 Josephine Boyles, Councilwoman
 Chris Dubose, Councilman
 Tommy Rhodes, Councilman
 Grady Woods, Councilman
 Dennis Averkin, Town Administrator

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CS012*	2	P&ID - ICEAS and Post EQ Pond						
CS013*	2	P&ID - Effluent Pump Station, Effluent Filters (Alternate), and UV Disinfection						
CS014*	2	P&ID - Sludge Digesters and Dewatering (Alternate)						



VICINITY MAP
 TOWN HALL
 1 TOWN SQUARE
 RIDGELAND, SC 29936
 JIMMY MIXSON WRF
 366 PREACHER STREET
 RIDGELAND, SC 29936
 LAT: 32°29'01.59"N
 LONG: 80°58'22.72"W

The purpose of this project is to replace the existing wastewater lagoons with an SBR treatment system. The capacity of the plant is also being expanded, and a new operator building is being constructed. Presently, the system discharges to a sod farm; the new facility will discharge to nearby Captain Bill's Creek.

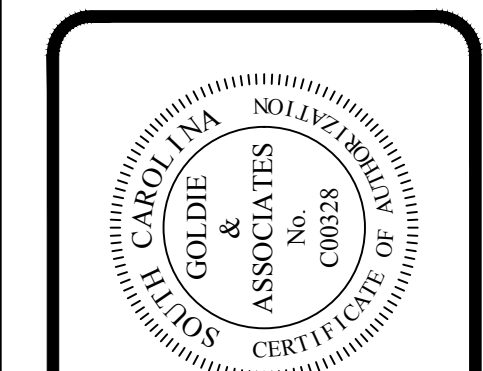
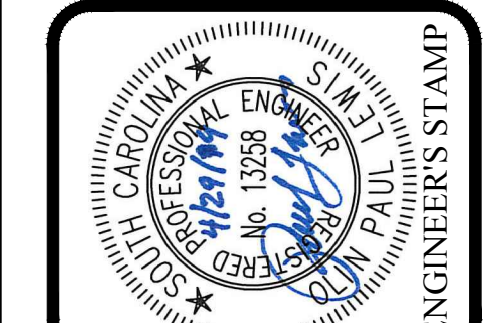
RELEASE	SHEETS INCLUDED IN RELEASE	DATE
A	Cover, General, Civil, Mechanical, and Control Systems to DHEC	8/1/18
B	Cover, G011 & G012, E&S, and Civil to DHEC Stormwater	8/27/18
C	Cover, E&S, and Civil to DHEC Stormwater	10/29/18
D	Complete set to RD for review	12/12/2018
E	Release for Bid - Complete Set	4/2/2019
F	Addendum #1 - As Noted ""	4/11/2019
G	Addendum #2	4/17/2019
H	Addendum #3	4/29/2019

GOLDIE ASSOCIATES **FOUR WATERS ENGINEERING**
 210 West North Second Street Seneca, SC 29678
 www.goldieassociates.com
 324 6th Ave North, Jacksonville Beach, FL 32250
 www.4weng.com

DENOTES A CHANGE IN THE PLANS FROM THE ADDENDA
 THE FIRST NUMBER REFERENCES THE ADDENDUM NUMBER WHILE
 THE SECOND NUMBER REFERENCES THE ADDENDUM ITEM NUMBER



NO.	DATE	DESCRIPTION
7	4/29/19	RELEASE H
6	4/17/19	RELEASE G
5	4/11/19	RELEASE F
4	4/2/19	RELEASE E
3	12/12/18	RELEASE D
2	10/29/18	RELEASE C
1	8/27/18	RELEASE B
0	8/1/18	INITIAL - RELEASE A
		NO.

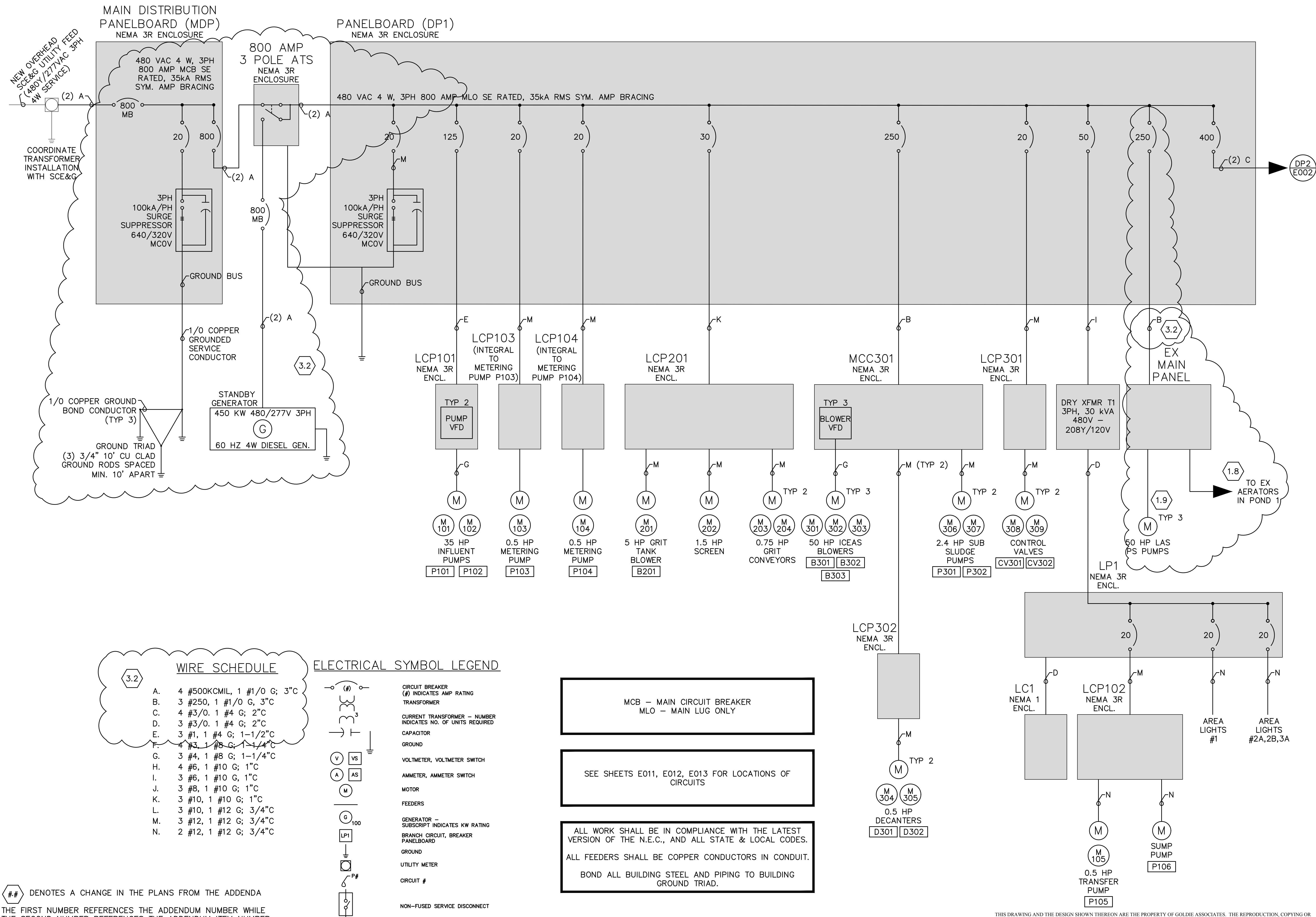


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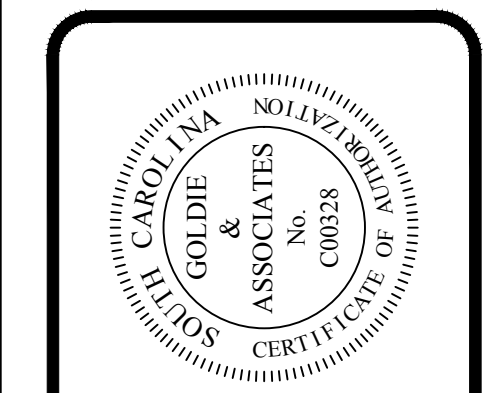
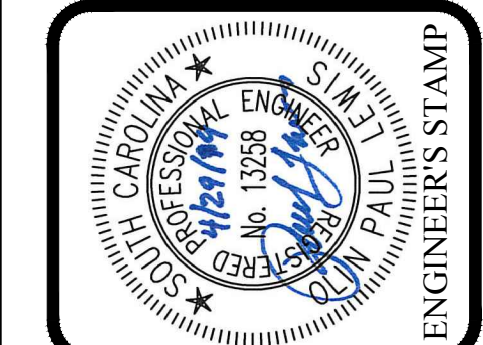


CLIENT: Town of Ridgeland
 PROJECT: Jimmy Mixson WRF Expansion
 SHEET TITLE: Cover

SHEET NO.	OF
Cover	---
FILE NO.	1636.6



NO.	DATE	DESCRIPTION
2	4/29/19	
1	4/17/19	
0	12/2/18	



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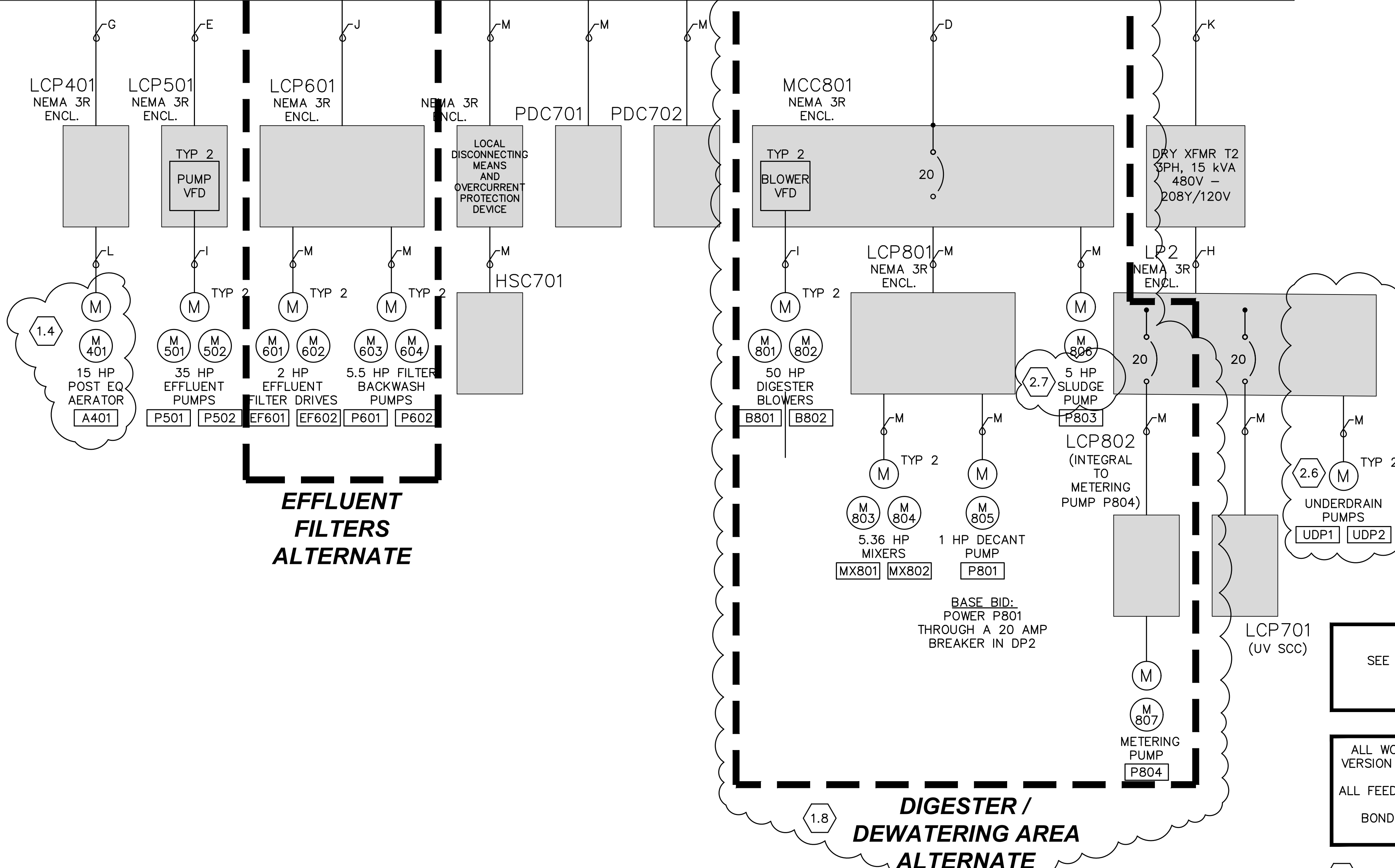
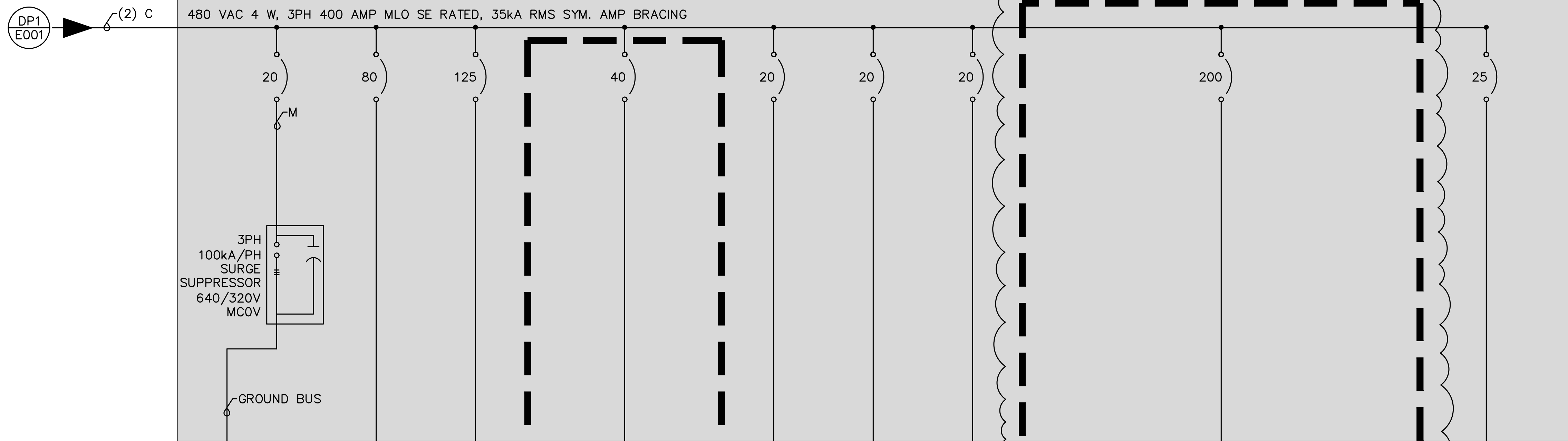
www.goldieassociates.com
 WE LISTEN. WE SERVE.

CLIENT: **Town of Ridgeland**
 PROJECT: **Jimmy Mixson WRF Expansion**
 SHEET TITLE: **Electrical One-Line Diagram**

SHEET NO. **E001** OF ---
 FILE NO. **1636.6**

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PANELBOARD (DP2)
NEMA 3R ENCLOSURE



**EFFLUENT
FILTERS
ALTERNATE**

**DIGESTER /
DEWATERING AREA
ALTERNATE**

3.2 WIRE SCHEDULE

A.	4 #500KCMIL, 1 #1/0 G; 3"C
B.	3 #250, 1 #1/0 G, 3"C
C.	4 #3/0, 1 #4 G; 2"C
D.	3 #3/0, 1 #4 G; 2"C
E.	3 #1, 1 #4 G; 1-1/2"C
F.	4 #3, 1 #8 G; 1-1/4"C
G.	3 #4, 1 #8 G; 1-1/4"C
H.	4 #6, 1 #10 G; 1"C
I.	3 #6, 1 #10 G; 1"C
J.	3 #8, 1 #10 G; 1"C
K.	3 #10, 1 #10 G; 1"C
L.	3 #10, 1 #12 G; 3/4"C
M.	3 #12, 1 #12 G; 3/4"C
N.	2 #12, 1 #12 G; 3/4"C

ELECTRICAL SYMBOL LEGEND

	CIRCUIT BREAKER (#) INDICATES AMP RATING
	TRANSFORMER
	CURRENT TRANSFORMER - NUMBER INDICATES NO. OF UNITS REQUIRED
	CAPACITOR
	GROUND
	VOLTMETER, VOLTMETER SWITCH
	AMMETER, AMMETER SWITCH
	MOTOR
	FEEDERS
	GENERATOR - SUBSCRIPT INDICATES KW RATING
	BRANCH CIRCUIT, BREAKER PANELBOARD
	GROUND
	UTILITY METER
	CIRCUIT #
	NON-FUSED SERVICE DISCONNECT

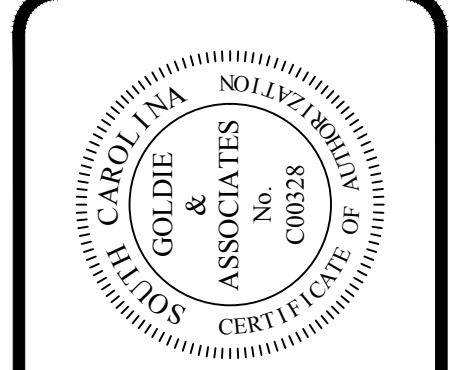
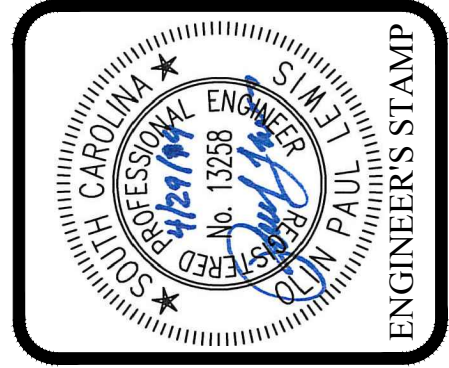
SEE SHEETS E011, E012, E013 FOR LOCATIONS OF
CIRCUITS

ALL WORK SHALL BE IN COMPLIANCE WITH THE LATEST
VERSION OF THE N.E.C., AND ALL STATE & LOCAL CODES.
ALL FEEDERS SHALL BE COPPER CONDUCTORS IN CONDUIT.
BOND ALL BUILDING STEEL AND PIPING TO BUILDING
GROUND TRIAD.

DENOTES A CHANGE IN THE PLANS FROM THE ADDENDA
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NO.	DATE	DESCRIPTION
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1	4/17/19	
0	12/18/18	



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CLIENT: **Town of Ridgeland**
PROJECT: **Jimmy Mixson WRF Expansion**
SHEET TITLE: **Electrical One-Line Diagram**

SHEET NO.	OF
E002	---
FILE NO.	1636.6