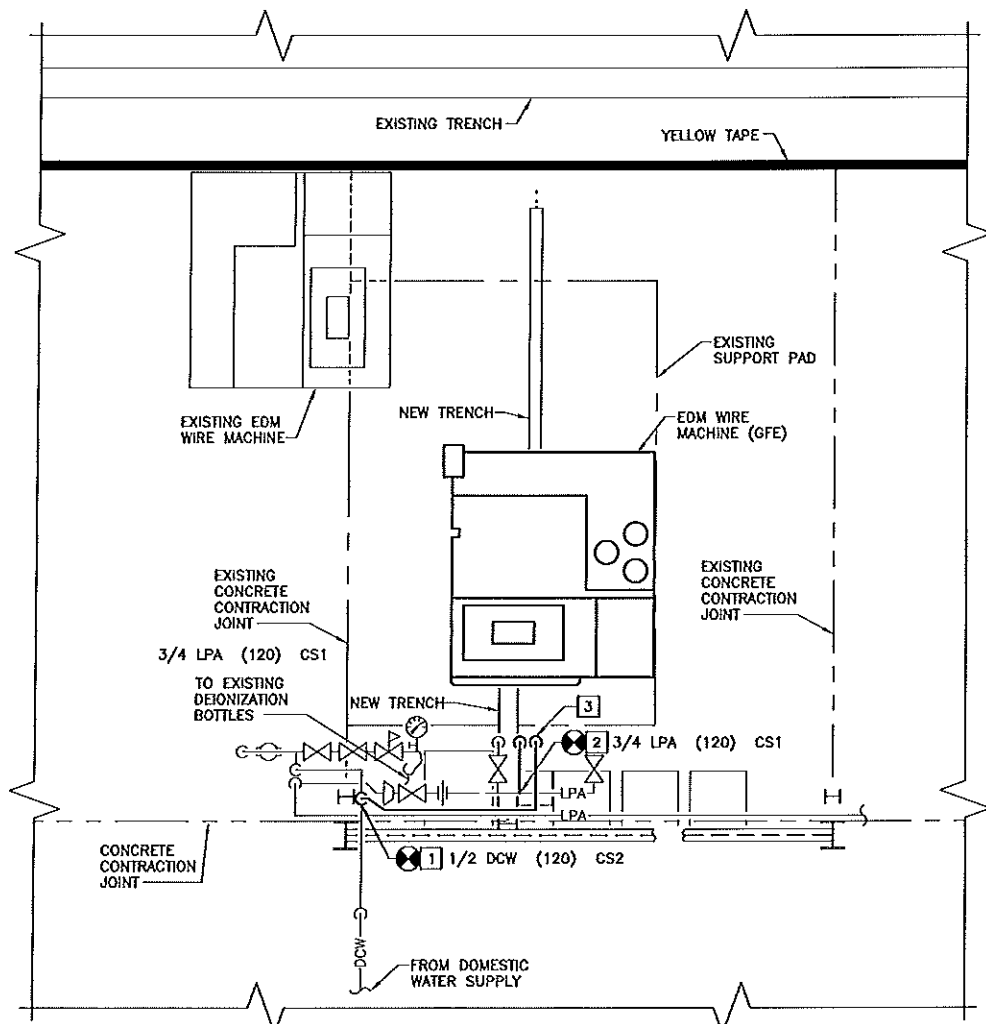
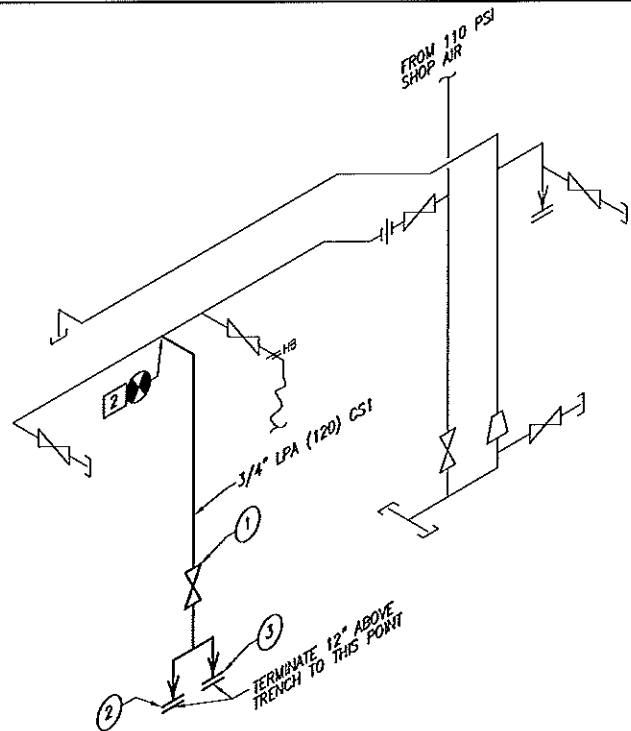


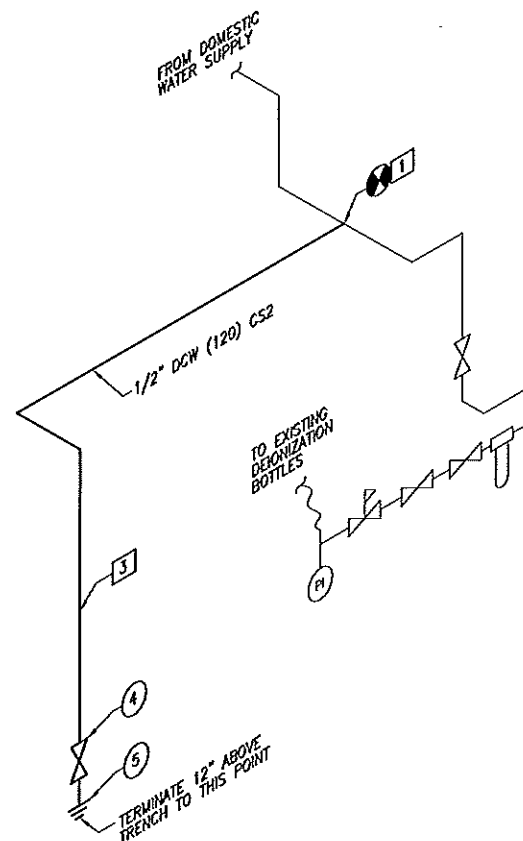
AREA OF WORK
NOT TO SCALE



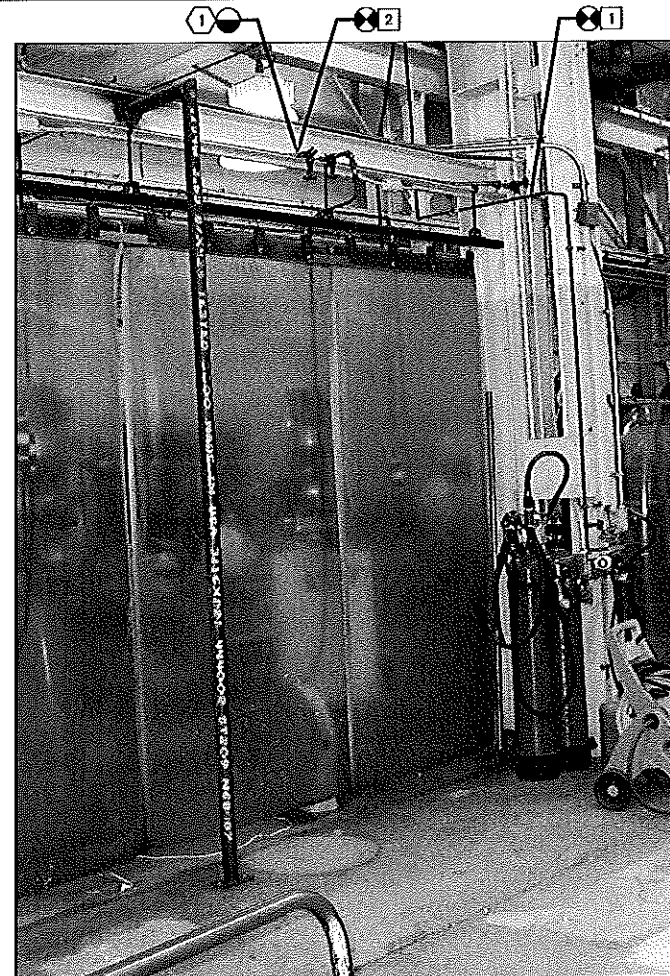
MECHANICAL NEW WORK PLAN - FIRST FLOOR
SCALE: 1/4" = 1'-0"



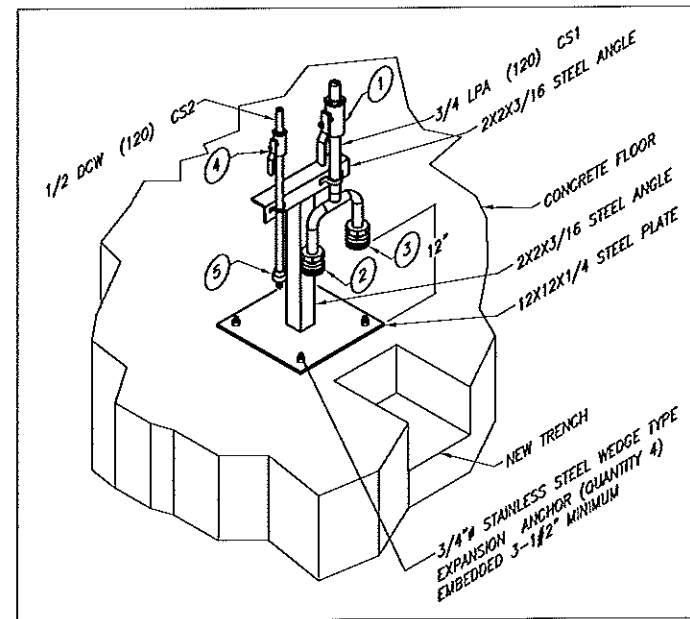
LPA CONNECTION DIAGRAM
NOT TO SCALE



NOTE: SEE PHOTO THIS SHEET
DOMESTIC WATER CONNECTION DIAGRAM
NOT TO SCALE



MECHANICAL TIE-IN POINTS
NOT TO SCALE



PIPE MOUNTING DETAIL
NOT TO SCALE

MECHANICAL REMOVAL NOTES

- 1 REMOVE VALVE AND PIPE BACK TO MAIN PIPE. PREPARE THREADED FOR RECONNECTION.

MECHANICAL NEW WORK NOTES

- 1 PROVIDE NEW DOMESTIC WATER SUPPLY.
- 2 PROVIDE NEW 3/4\"/>

| REVISIONS | | | | REVISIONS | | | |
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| DATE | LTR | FREQ | DESCRIPTION | DATE | LTR | FREQ | DESCRIPTION |
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| WORK ORDER NO. | AE02737 |
| APPROVALS | DATE |
| DRWN R. MARTIN | 06/21/10 |
| ENGR/DES J. MENKE | 06/21/10 |
| CHECK R. CRAIG | 06/21/10 |
| PROJ. MGR. J. BRANNICK | 06/21/10 |
| SUPVNL | |

| APPROVALS | | | |
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| NAME | ORGANIZATION | DATE | DATE |
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| FOR DRAWING INDEX SEE DRAWING 1271748 | | | |
| NATIONAL AERONAUTICS & SPACE ADMINISTRATION LANGLEY RESEARCH CENTER HAMPTON, VIRGINIA 23681-2199 | | | |
| PROJECT TITLE | PROMDE UTILITIES FOR NEW AGE CHARMELLIS FI 6400CS EDM WIRE MACHINE | | |
| DRAWING TITLE | MECHANICAL REMOVAL, NEW WORK AND DIAGRAMS | | |
| BUILDING NO. | 1225 | SIZE | DRAWING NO. |
| SHEET NO. | M-101 | D | 1271752 |

MECHANICAL SPECIFICATIONS

BALL VALVES

BALL VALVES SHALL CONFORM TO MSS SP-72 OR MSS SP-110 AND SHALL BE BRONZE FULL PORT DESIGN WITH THREADED ENDS, BLOWOUT PROOF STEM, 316 STAINLESS STEEL BALL AND STEM, ADJUSTABLE PACKING, RATED FOR 125 WSP.

PAINTING SPECIFICATIONS

ALL NEW STEEL PIPING SHALL BE PAINTED TO MATCH EXISTING ADJACENT PIPE COLOR. COATINGS SHALL BE ALKYL RESIN-BASED MATERIALS. APPLY A MINIMUM TWO COATS OF COATING WITH A DRY-FILM THICKNESS OF A MINIMUM 4 MILS. FIRST COAT MUST BE AN EPOXY ZINC PRIMER CONFORMING TO MPI, No. 20 WITH THE RESIN SOLIDS AND ZINC PIGMENT NOT LESS THAN 80% OF THE TOTAL WEIGHT OF THE MATERIAL. WHITE AND COLOR PIGMENTED FINISH COATS MUST BE AN ALKYL RESIN-BASED MATERIAL WITH THE RESIN SOLIDS AND PIGMENTS NOT LESS THAN 85% OF THE TOTAL WEIGHT OF THE MATERIAL. APPLY COATINGS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PRIME AND PAINT IN ACCORDANCE WITH LPR 1740.2. THE CONTRACTOR SHALL PROVIDE TOUCH-UP PAINT ON EXISTING PIPING WITHIN 12" OF WORK AREA AS NECESSARY AFTER INSTALLATION AND INSPECTION FOR LEAKS IS COMPLETE.

TESTING (LEAKAGE TEST)

- PRIOR TO ACCEPTANCE OF THE WORK, SYSTEMS SHALL BE TESTED IN THE PRESENCE OF THE CONTRACTING OFFICER OR CONSTRUCTION MANAGER.
- ALL NEW CONNECTION POINTS SHALL BE VISUALLY INSPECTED FOR LEAKS (USING SOAP/BUBBLE METHOD) DURING A FULL OPERATIONAL TEST, AND REPAIRED IF NECESSARY AT NO COST TO THE GOVERNMENT.

MECHANICAL GENERAL NOTES

- THE CONTRACTOR SHALL COORDINATE ALL WORK WITH APPLICABLE TRADES TO PROVIDE A FINISHED PRODUCT THAT COMPLIES WITH CONTRACT REQUIREMENTS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND DISPOSE OF ALL EQUIPMENT IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS. CONTRACTOR SHALL ALSO ADHERE TO NASA LMS-CP-2722 PROPERTY DISPOSAL (REFER TO CONTRACT SPECIFICATION SECTION 01 11 00.00 40, PARAGRAPH 1.8).
- DRAWINGS ARE DIAGRAMMATIC AND ARE NOT INTENDED TO PROVIDE EXACT LOCATION OF EQUIPMENT, LAYOUT OR ROUTING OF PIPE. DRAWINGS MAY NOT SHOW ALL OFFSETS AND BENDS REQUIRED TO AVOID BUILDING STRUCTURE OR EXISTING COMPONENTS. CONTRACTOR SHALL FIELD VERIFY ALL SITE CONDITIONS, DIMENSIONS, EQUIPMENT LAYOUT, CLEARANCES AND PIPING PRIOR TO PROCURING MATERIALS OR BEGINNING INSTALLATION OF NEW WORK. ALL DEVIATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER.
- EQUIPMENT SELECTIONS INDICATED FROM A SPECIFIC MANUFACTURER IS BASIS FOR DESIGN AND FOR REFERENCE ONLY. EQUIPMENT OF EQUAL QUALITY AND PERFORMANCE FROM OTHER MANUFACTURERS MAY BE SUBMITTED TO THE CONTRACTING OFFICER FOR APPROVAL BY THE ENGINEER. CONTRACTOR SHALL SUBMIT REVISED DESIGN INCLUDING LAYOUT, STRUCTURAL SUPPORT AND ANY OTHER DESIGN CHANGES FOR EQUIPMENT OTHER THAN INDICATED. ALL EQUIPMENT INSTALLATION SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. THE REDESIGN COST SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTING EXISTING EQUIPMENT AND FINISHES PRIOR TO COMMENCING WORK, AND RECORDING AND REPORTING ANY DAMAGE TO THE CONTRACTING OFFICER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE INCURRED DURING THE WORK EFFORT. SUCH DAMAGE SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR, TO THE CONTRACTING OFFICER'S SATISFACTION.
- PIPE ENDS THAT ARE EXPOSED BY DEMOLITION AND ARE TO BE REUSED IN THE NEW WORK SHALL BE COVERED AND PROTECTED FROM CONTAMINATION AND DAMAGE.
- CONTRACTOR SHALL PERFORM TO GREATEST EXTENT POSSIBLE, ALL OF THE FABRICATION, EXAMINATION, AND TESTING WORK IN SHOP TO LIMIT THE TIME OF FIELD WORK AND DOWNTIME OF FACILITY OPERATIONS.
- THE CONTRACTOR SHALL PROVIDE TOUCH-UP PAINT ON PIPING, FITTINGS AND SUPPORTS AS NECESSARY AFTER INSTALLATION AND INSPECTION FOR LEAKS IS COMPLETE. SURFACES SHALL BE CLEANED, PRIMED AND PAINTED WITH ONE COAT INHIBITIVE METAL PRIMER AND TWO COATS OF ENAMEL PAINT (COLOR SHALL MATCH EXISTING). PAINT MATERIALS SHALL BE APPROVED BY THE CONSTRUCTION MANAGER.
- ALL PIPING SHALL BE LABELED TO DESIGNATE SERVICE AND PRESSURE. EACH LABEL SHALL INCLUDE AN ARROW TO INDICATE FLOW DIRECTION. ALL LABELS SHALL BE VISIBLE AND LEGIBLE FROM THE PRIMARY SERVICE AND OPERATING AREA. LABELS SHALL BE MADE OF SELF-STICKING PLASTIC FILM DESIGNED FOR PERMANENT INSTALLATION. LABELING SHALL BE IN ACCORDANCE WITH LPR 1740.2, FACILITY SAFETY REQUIREMENTS, CHAPTER 2 AND APPENDIX A. REFER TO PIPING SYSTEM DESIGN REQUIREMENTS SCHEDULE THIS SHEET.
- THE CONTRACTOR SHALL SALVAGE EXISTING VALVE TAGS AND REUSE TO TAG ALL NEW VALVES AND COMPONENTS FOR EACH SYSTEM WITH THE NUMBERS AS GIVEN ON THE DRAWINGS.
- THE CONTRACTOR SHALL TAG ALL NEW VALVES AND COMPONENTS FOR EACH SYSTEM WITH THE NUMBERS AS GIVEN ON THE DRAWINGS. VALVE AND COMPONENT TAGS SHALL BE IN ACCORDANCE WITH NASA LANGLEY HANDBOOK LPR 1710.40, PRESSURE SYSTEMS HANDBOOK. THE BUILDING NUMBER IDENTIFIER FOR BUILDING 1225 IS 044. THIS NUMBER SHALL APPEAR ON ALL VALVE AND COMPONENT TAGS WITHIN THE FACILITY.
 - VALVE AND EQUIPMENT IDENTIFICATION TAGS SHALL BE MADE OF BRASS OR ALUMINUM, SHALL BE 2 INCHES IN DIAMETER AND MARKING SHALL BE STAMPED. DESIGNATION NUMBER SHALL MATCH DRAWING OR CONTROL DIAGRAM DESIGNATION. TAGS SHALL BE WIRED TO VALVE OR EQUIPMENT ITEMS WITH NO. 12 AWG 0.0808-INCH DIAMETER CORROSION-RESISTANT STEEL WIRE.
- PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH MSS SP-58 AND MSS SP-69.
- HYDROSTATIC TESTING PER ASME B31.3 SHALL BE PERFORMED ON ALL PIPING. ALL LEAKS OR FAILURES SHALL BE REPAIRED AND THE TEST(S) REPEATED AT NO ADDITIONAL COST. THE CONTRACTOR SHALL SUPPLY ALL THE EQUIPMENT AND MATERIALS NEEDED TO PERFORM THE HYDROSTATIC TESTING. HYDROSTATICALLY TEST SYSTEM AT 1.5 TIMES MAXIMUM ALLOWABLE WORKING PRESSURE. HYDROSTATIC TEST PLANS AND PROCEDURES SHALL BE APPROVED BY THE NASA STANDARD PRACTICE ENGINEER FOR PRESSURE SYSTEMS (LPR 1710.40, CHAPTER 8.2(i)).

| LINE LEGEND | |
|-------------|--|
| | NEW PIPING/EQUIPMENT |
| | EXISTING PIPING & EQUIPMENT TO REMOVE |
| | EXISTING PIPING, STRUCTURE & EQUIPMENT |

| GENERAL MECHANICAL SYMBOL LEGEND | | | |
|----------------------------------|----------------------------|--|---------------|
| | POINT OF DISCONNECT | | NEW WORK NOTE |
| | NEW TO EXISTING CONNECTION | | REMOVAL NOTE |
| | GATE VALVE | | PRESSURE GAGE |
| | PRESSURE REDUCING VALVE | | UNION |
| | REDUCER/INCREASER | | |

| LINE DESIGNATOR | |
|--------------------|--|
| PIPE SPECIFICATION | |
| DESIGN PRESSURE | |
| SYSTEM DESIGNATOR | |
| LINE SIZE | |

3/4 LPA (120) CS1

| ABBREVIATIONS / SYSTEM DESIGNATOR | | | |
|-----------------------------------|---|-------|----------------------|
| APPROX | APPROXIMATELY | LPA | LOW PRESSURE AIR |
| ASTM | AMERICAN SOCIETY FOR TESTING & MATERIAL | MIN. | MINIMUM |
| BLDG | BUILDING | NPT | NATIONAL PIPE THREAD |
| C.S. | CARBON STEEL | PC | PUMPED CONDENSATE |
| DCW | DOMESTIC COLD WATER | PI | PRESSURE INDICATOR |
| EXIST | EXISTING | P/N | PART NUMBER |
| GFE | GOVERNMENT FURNISHED EQUIPMENT | REQ'D | REQUIRED |
| LTR | SCHEDULED INFORMATION | SCH | SCHEDULE |
| | | TYP | TYPICAL |

| VALVE AND FITTING SCHEDULE | | | | | | | | | |
|----------------------------|------|---------|------------|--------------------------------|-----------|----------------|-------------|------------------------|------------------------------|
| ITEM NO. | SIZE | SERVICE | FUNCTION | TYPE | ACTUATION | END CONNECTION | POSITION | DESIGN PRESSURE RATING | NOTES |
| 1 | 3/4" | AIR | ISOLATION | BALL VALVE | MANUAL | SOLDERED | IN-POSITION | 150 | NIBCO MODEL S-590-Y-66 |
| 2 | 3/4" | AIR | COUPLING | QUICK CONNECTION FOR AIR HOSE | - | NPT | - | 150 | SWAGELOK MODEL B-QF12-B-12PF |
| 3 | 3/4" | AIR | COUPLING | QUICK CONNECTION FOR AIR HOSE | - | NPT | - | 150 | SWAGELOK MODEL B-QF12-B-12PF |
| 4 | 1/2" | WATER | ISOLATION | BALL VALVE | MANUAL | SOLDERED | - | 150 | NIBCO MODEL S-590-Y-66 |
| 5 | 1/2" | WATER | CONNECTION | END CONNECTION FOR SOFT TUBING | - | NPT | - | 150 | SWAGELOK MODEL B-8-HC-1-B |

| PIPING SPECIFICATION TABLE | | | | | | | |
|----------------------------|---|---|-----------|--|---|----------------------|------------------------|
| PIPE SPECIFICATION | SYSTEM | APPLICABLE PIPE CODE | PIPE SIZE | PIPE | PIPE FITTINGS | TESTING | EXAMINATION |
| CS1 | LPA DESIGN PRESSURE: 120 PSIG DESIGN TEMPERATURE: 100°F | FABRICATE ASSEMBLE, ERECT, TEST, & EXAMINE TO ASME B31.3 FOR A NORMAL FLUID | 3/4" | SCHEDULE 40 SEAMLESS CARBON STEEL IN ACCORDANCE WITH ASTM A106 GR. B | PRESSURE CLASS 150# THREADED FITTINGS IN ACCORDANCE WITH ASTM A105 AND ASME B16.11. OTHER FITTINGS AS SPECIFIED | OPERATION LEAK CHECK | 100% VISUAL INSPECTION |
| CS2 | DOMESTIC COLD WATER DESIGN PRESSURE: 100 PSIG DESIGN TEMPERATURE: 100°F | FABRICATE ASSEMBLE, ERECT, TEST, & EXAMINE TO ASME B31.3 FOR A NORMAL FLUID | 1/2" | TYPE L COPPER IN ACCORDANCE WITH ASTM A106 GR. B | | OPERATION LEAK CHECK | 100% VISUAL INSPECTION |

| PIPING SYSTEM DESIGN REQUIREMENTS | |
|-----------------------------------|---------------------|
| SYSTEM: | DOMESTIC COLD WATER |
| SYSTEM DESIGNATOR: | DCW |
| SYSTEM FLUID: | COLD WATER |
| DESIGN PRESSURE: | 100 PSIG |
| DESIGN TEMPERATURE: | 100°F |
| SYSTEM PIPE LABEL: | DOM COLD WTR |
| PIPE BAND COLOR: | NONE |
| SYSTEM: | LOW PRESSURE AIR |
| SYSTEM DESIGNATOR: | LPA |
| SYSTEM FLUID: | AIR |
| DESIGN PRESSURE: | 120 PSIG |
| DESIGN TEMPERATURE: | 100°F |
| SYSTEM PIPE LABEL: | AIR SHOP 110 PSI |
| PIPE BAND COLOR: | NONE |

1. ALL PIPING SHALL BE LABELED AND BANDED, AS REQUIRED, TO DESIGNATE SERVICE, PRESSURE, AND TEMPERATURE. EACH LABEL SHALL INCLUDE AN ARROW TO INDICATE FLOW DIRECTION. ALL LABELS SHALL BE VISIBLE AND LEGIBLE FROM THE PRIMARY SERVICE AND OPERATING AREA. LABELS SHALL BE MADE OF SELF-STICKING PLASTIC FILM DESIGNED FOR PERMANENT INSTALLATION. LABELING AND BANDING SHALL BE AS INDICATED IN TABLE ABOVE, IN ACCORDANCE WITH NASA LANGLEY DOCUMENT LPR 1740.2, FACILITY SAFETY REQUIREMENTS, CHAPTER 2 AND APPENDIX A.

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| APPROVALS | |
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| NAME | DATE |
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| J. MENKE | 06/21/10 |
| R. CRAIG | 06/21/10 |
| J. BRANNICK | 06/21/10 |

| APPROVALS | | | |
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FOR DRAWING INDEX SEE DRAWING 1271748

NATIONAL AERONAUTICS & SPACE ADMINISTRATION
LANGLEY RESEARCH CENTER
HAMPTON, VIRGINIA 23681-2199

PROJECT TITLE: PROVIDE UTILITIES FOR NEW AGE CHARMELLIS FI 6400CS EDM WIRE MACHINE

DRAWING TITLE: MECHANICAL LEGEND, SPECIFICATION, SCHEDULES AND GENERAL NOTES

BUILDING NO. 1225 SIZE DRAWING NO. M-001

SHEET NO. D 1271751

ELECTRICAL GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE 2008 EDITION OF THE NATIONAL ELECTRICAL CODE AND THE LATEST REVISION TO THE FOLLOWING NASA/LARC DOCUMENTS: LPR 1710.6- ELECTRICAL SAFETY, AND LPR 1740.2- FACILITY SAFETY REQUIREMENTS.
2. CONTRACTOR SHALL COORDINATE WITH THE CONTRACTING OFFICER PRIOR TO ANY WORK INVOLVING THE ELECTRICAL SYSTEM. ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE WITH OTHER TRADES TO AVOID ANY CONFLICT IN LOCATION AND INSTALLATION OF DEVICES AND EQUIPMENT.
3. CONTRACTOR SHALL FURNISH ALL EQUIPMENT, TOOLS, MATERIAL, LABOR AND SERVICES NECESSARY FOR OR INCIDENTAL TO A COMPLETE AND FINISHED JOB AS SHOWN ON THE DRAWING. DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS, BENDS, CONDUIT OR OTHER SPECIFIC ELEMENTS THAT MAY BE REQUIRED FOR PROPER INSTALLATION OF THE WORK. SUCH WORK SHALL BE VERIFIED AT THE SITE. EXCEPT WHERE SHOWN IN DIMENSIONAL DETAIL, THE LOCATION OF DEVICES, FITTINGS, CONDUIT AND OTHER EQUIPMENT SHOWN ON THE PLANS ARE APPROXIMATE. SUCH ITEMS SHALL BE PLACED TO ELIMINATE INTERFERENCE WITH DUCTS, PIPING AND EQUIPMENT. EXACT LOCATIONS SHALL BE VERIFIED IN THE FIELD.
4. PLASTIC, BLACK WITH WHITE LETTERING, TWO LAYER LAMINATED NAMEPLATES SHALL BE PROVIDED FOR EACH NEW ELECTRICAL EQUIPMENT INSTALLED IN THIS PROJECT. PLATE SHALL LIST THE NAME AND FUNCTION OF EACH PIECE OF EQUIPMENT AND ITS POWER SOURCE. AFTER COMPLETION OF ELECTRICAL INSTALLATION, PROVIDE NEW TYPED ELECTRICAL PANEL DIRECTORIES FOR EXISTING PANELS AFFECTED BY THIS PROJECT. PROVIDE A COPY OF THESE PANEL DIRECTORIES TO THE CONTRACTING OFFICER TO BE ENTERED INTO NASA'S ELECTRICAL PANEL DATABASE.
5. ALL NEW ELECTRICAL EQUIPMENT SHALL BE UNDERWRITERS LABORATORY LISTED OR NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION APPROVED FOR ITS SPECIFIC USE. ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH APPLICABLE SECTION OF THE NATIONAL ELECTRICAL CODE.
6. UNLESS OTHERWISE NOTED ALL CONDUCTORS SHALL BE IN CONDUIT AND COPPER WITH TYPE THHN INSULATION. ALL CONDUIT SHALL BE A MINIMUM OF 3/4" UNLESS OTHERWISE NOTED WITH RIGID GALVANIZED STEEL CONDUIT FOR OUTDOOR LOCATIONS AND ELECTRICAL METALLIC TUBING FOR INDOOR LOCATIONS. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR MOTOR CONNECTIONS.
7. THE COMPLETE ELECTRICAL INSTALLATION SHALL BE TESTED FOR FUNCTIONAL AND OPERATIONAL TESTS. SUCCESSFUL OPERATIONAL TEST OBSERVED BY CONTRACTING OFFICER, WILL BE BASIS FOR ACCEPTANCE.

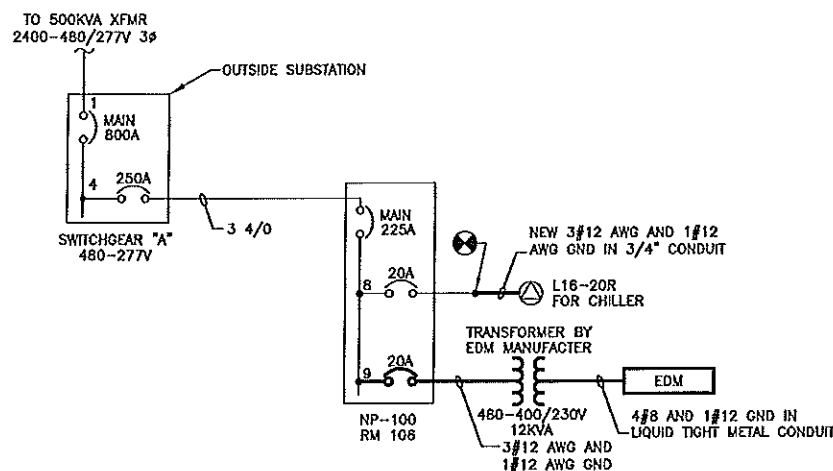
8. ELECTRICAL REMOVAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND THE LATEST REVISION TO THE FOLLOWING NASA/LARC DOCUMENTS: LPR 1710.10- SAFETY CLEARANCE PROCEDURES FOR THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT), LPR 1740.2- FACILITY SAFETY REQUIREMENTS, AND LPR 8800.1- ENVIRONMENTAL PROGRAM MANUAL.
9. CONTRACTOR SHALL COORDINATE ALL POWER OUTAGES WITH THE CONTRACTING OFFICER. ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE WITH OTHER TRADES TO AVOID ANY CONFLICT IN THE REMOVAL OF DEVICES AND EQUIPMENT.
11. LABEL EXISTING WIRING PRIOR TO DEMOLITION WORK WHENEVER CIRCUITRY IS INDICATED TO BE MODIFIED OR RECONNECTED. REMOVE ALL ASSOCIATED WIRING AND ACCESSIBLE CONDUIT FROM EQUIPMENT OR DEVICES INDICATED AS BEING REMOVED BACK TO INDICATED TERMINATION. REMOVE ALL OTHER ASSOCIATED CONDUIT WHICH IS NOT RE-USED. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ELECTRICAL CONTINUITY AND INTEGRITY OF EXISTING DEVICES TO REMAIN. CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS.

ELECTRICAL REMOVAL NOTES

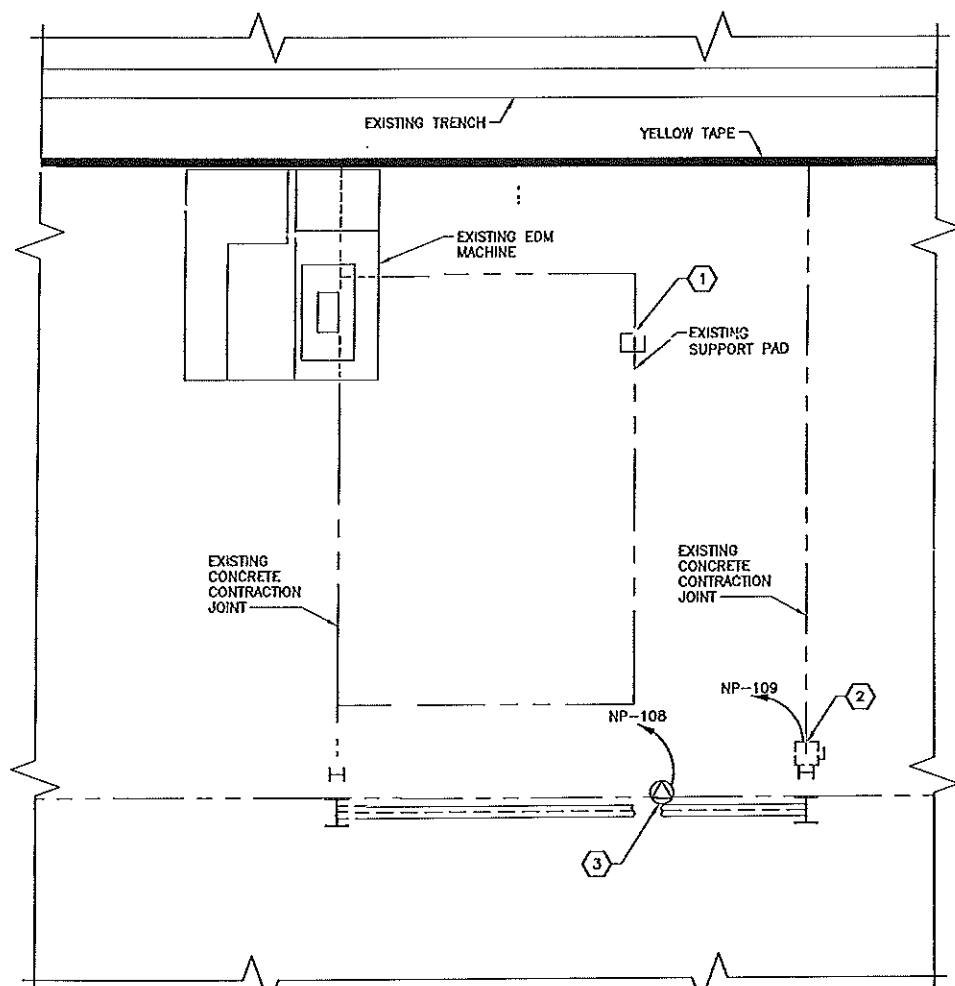
1. EXISTING POWER AND DATA CONDUITS STUB UPS TO BE REMOVED. CUT CONDUITS AT FLOOR LEVEL AND FILL WITH CONCRETE. MAKE FLUSH WITH EXISTING FLOOR.
2. EXISTING 480V, 3 POLE, 30 AMP DISCONNECT AND L16-20R TYPE RECEPTACLE TO BE REMOVED AND RELOCATED. REMOVE WIRE FOR DISCONNECT BACK TO SOURCE PANEL. REMOVE CONDUIT FOR BOTH DEVICES BACK TO "T" JOINT LOCATED ABOVE DISCONNECT. PROTECT AND MAINTAIN DEVICES DURING CONSTRUCTION.
3. REMOVE EXISTING 30AMP 3POLE 480V CIRCUIT BREAKER IN PANEL NP-100 CIRCUIT 9.

ELECTRICAL NEW WORK NOTES

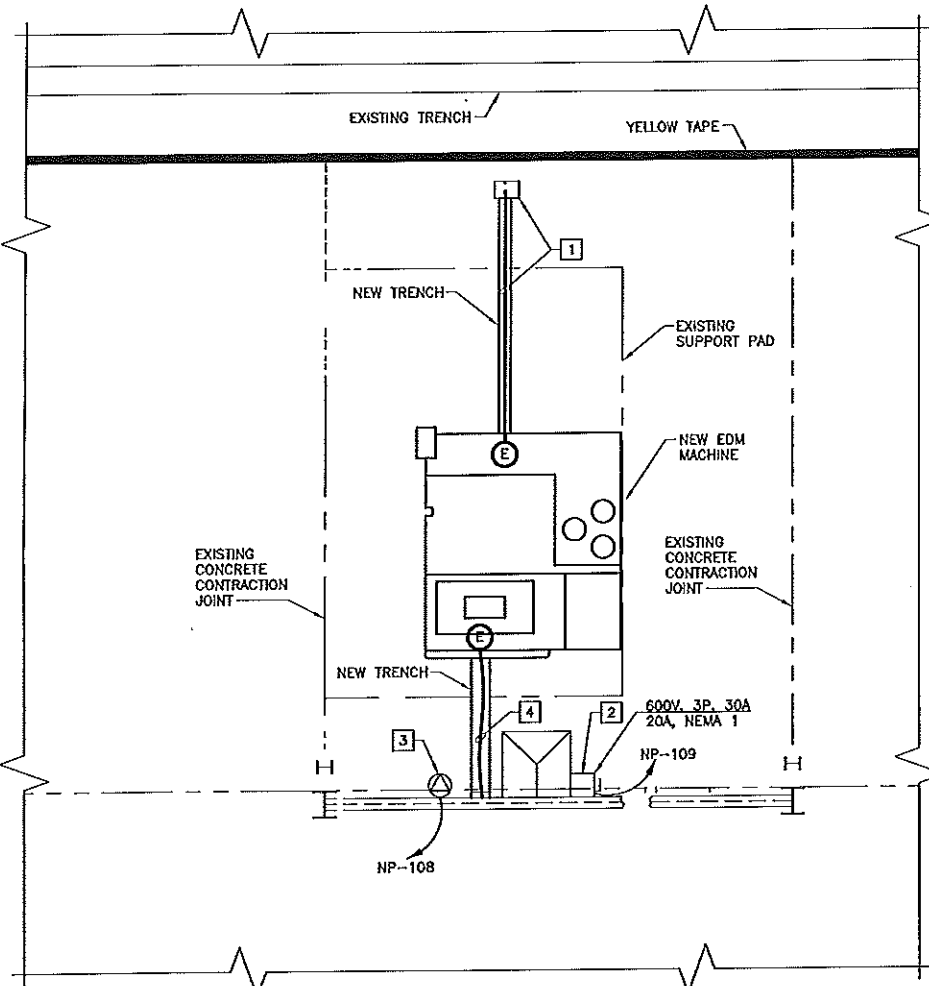
1. PROVIDE NEW 1" RIGID GALVANIZED STEEL CONDUIT FROM EXISTING POWER AND DATA LOCATION TO UNDER NEW EDM MACHINE. STUB CONDUIT UP 6" AT BOTH ENDS. PROVIDE PULL STRING IN CONDUIT.
2. EXISTING 30 AMP, 3 POLE, DISCONNECT RELOCATED. MOUNT DISCONNECT TO SIDE OF TRANSFORMER PROVIDED BY MANUFACTURER INTERCEPT AND EXTEND BRANCH CIRCUIT FROM "T" JOINT TO NEW LOCATION. PROVIDE NEW 4#12 AWG AND 1#12 GND BACK TO PANEL NP-100. PROVIDE NEW 20 AMP 3 POLE 480V CIRCUIT BREAKER IN SPACE MADE AVAILABLE DURING DEMOLITION. PROVIDE NEW 20 AMP FUSES FOR DISCONNECT.
3. RELOCATE EXISTING 20 AMP, 3 POLE, NEMA L16-20R RECEPTACLE. VERIFY EXACT LOCATION PRIOR TO ROUGH IN WITH CONTRACTING OFFICER. EXTEND EXISTING CONDUIT AND WIRE FROM EXISTING "T" JOINT TO NEW LOCATION.
4. PROVIDE 4#8 AWG AND 1#12 GND IN LIQUID TIGHT FLEXIBLE METAL CONDUIT. RUN CONDUIT THROUGH TRENCH TO TOP OF MACHINE. COORDINATE ROUTING WITH CONTRACTING OFFICER PRIOR TO INSTALLATION.



ONE-LINE DIAGRAM - NEW WORK



ELECTRICAL REMOVAL PLAN - FIRST FLOOR
SCALE: 1/4" = 1'-0"



ELECTRICAL NEW WORK PLAN - FIRST FLOOR
SCALE: 1/4" = 1'-0"

LEGEND

- EXISTING TO REMAIN (solid line)
- NEW WORK (dashed line)
- EXISTING TO BE REMOVED (dotted line)
- SINGLE RECEPTACLE, 480V, 3P (circle with triangle)
- DISCONNECT SWITCH (square with diagonal line)
- ELECTRICAL EQUIPMENT CONNECTION (circle with 'E')
- HOME RUN WITH PANEL AND CIRCUIT NUMBER DESIGNATIONS, CONTAINS 2#12 & 1#12 GND, 1/2" C, UON (line with 'L-219')
- POINT OF CONNECTION (circle with dot)

OVERDRUP REVIEW PRINT SIGN-OFF

NAME: *[Signature]* DATE: 6/30/2010

Responsible Individual:

| REVISIONS | | | | REVISIONS | | | |
|-----------|-----|------|-------------|-----------|-----|------|-------------|
| DATE | LTR | FREQ | DESCRIPTION | DATE | LTR | FREQ | DESCRIPTION |
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WORK ORDER NO. AE02737

| APPROVALS | DATE |
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| DESIGNED: K. FALZONE | 06/29/10 |
| CHECKED: S. HARWAN | 06/29/10 |
| APPROVED: J. MEDRANA | 06/29/10 |
| PREP. PROJ. ENR: J. BRANNICK | 06/29/10 |

| APPROVALS | | | |
|-----------|--------------|------|------|
| NAME | ORGANIZATION | DATE | DATE |
| | | | |
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| FOR DRAWING INDEX SEE DRAWING 1271748 | | | |
| NATIONAL AERONAUTICS & SPACE ADMINISTRATION LANGLEY RESEARCH CENTER HAMPTON, VIRGINIA 23681-2199 | | | |
| PROJECT TITLE: PROVIDE UTILITIES FOR NEW AGIE | | | |
| DRAWING TITLE: CHARMELLIS FI 640CCS EDM WIRE MACHINE ELECTRICAL DEMOLITION, NEW WORK AND DIAGRAMS | | | |
| BUILDING NO. 1225 | SIZE D | DRAWING NO. 1271753 | LATEST REV. |
| SHEET NO. E-101 | | | |