

FHWA REGION	STATE	PROJECT	
5	OHIO		

35-A
101

LAKE COUNTY
LAK-306-6.15

GENERAL NOTES

PUMP STATION, ELECTRICAL

INDEX - ELECTRICAL SPECIFICATION

FLEXIBLE COUPLINGS:

FLEXIBLE COUPLINGS SHALL BE CONSTRUCTED OF CAST IRON SLEEVES CONFORMING TO ASTM A 126, CLASS B, MALLEABLE OR DUCTILE IRON FOLLOWERS, RUBBER GASKETS AND HIGH STRENGTH LOW ALLOY GALVANIZED STEEL BOLTS. FLEXIBLE COUPLINGS SHALL BE TYPE 441 BY ROCKWELL, MODEL F-253 BY CLOW OR EQUAL.

FLANGE ADAPTERS:

FLANGE ADAPTERS SHALL BE CONSTRUCTED OF FABRICATED STEEL BODIES WITH DUCTILE IRON OR ROLLED STEEL FOLLOWER FLANGES, RUBBER GASKETS AND HIGH STRENGTH LOW ALLOY GALVANIZED STEEL BOLTS. ADAPTERS SHALL BE TYPE 913 BY ROCKWELL, STYLE 128 BY DRESSER OR EQUAL.

FLAP VALVES:

FLAP VALVES SHALL BE FLANGE-FRAMED WITH A RESILIENT SEAT, SPECIFICALLY DESIGNED FOR PUMP DISCHARGE SERVICE. THE BODY SHALL BE CAST IRON CONFORMING TO ASTM A 126 CLASS B, AND THE COVER FLAP SHALL BE DUCTILE IRON CONFORMING TO ASTM A 339. THE VALVE HINGE SHALL HAVE HIGH TENSILE BRONZE LINKS WITH TYPE 304 STAINLESS STEEL HINGE PINS. BOTH LOWER AND UPPER HINGE PIVOTS WILL BE SUPPLIED WITH A LUBRICATION FITTING. AN ANTI-LOCKING BAR SHALL BE LOCATED BETWEEN THE HINGE ARMS TO ASSURE POSITIVE CLOSING. A STEEL LEAF SPRING WITH RUBBER BUMPER SHALL BE PROVIDED TO LIMIT THE TRAVEL OF THE COVER FLAP. THE FLAP VALVES SHALL BE MODEL FV-ACP BY RODNEY HUNT, FIGURE B-175, TYPE M-R BY BROWN AND BROWN INC., OR EQUAL.

SLUICE GATES:

SLUICE GATES SHALL BE FURNISHED AS INTEGRATED UNITS, INCLUDING WALL THIMBLES, GATE AND FRAME, STEM, STEM GUIDES, STEM COUPLINGS, GATE OPERATOR AND STEM COVER AND SHALL COMPLY WITH AWA C 501 EXCEPT AS MODIFIED HEREIN. SLUICE GATES SHALL BE SUITABLE FOR OPERATION ON AN UNSEATING HEAD OF 20 FEET, AND SHALL HAVE A CIRCULAR FLANGE FRAME, WITH FULL SEATING WEDGES AND RISING STEM. THE WEDGES SHALL BE SOLID CAST BRONZE MACHINED ON ALL CONTACT SURFACES, AND THE SEAT FACES SHALL BE MALLEABLE EXTRUDED BRONZE.

WALL THIMBLES SHALL BE CAST IRON AND SHALL BE PLAIN END BY TAPPED FLANGE, OR MECHANICAL JOINT BY TAPPED FLANGE, FOR MOUNTING SLUICE GATES. A CONTINUOUS CENTER RING OR WATER STOP IS REQUIRED.

GATE OPERATING STEMS SHALL BE 2 1/2" MINIMUM DIAMETER, CONSTRUCTED OF STAINLESS STEEL, DESIGNED TO TRANSMIT AT LEAST TWICE THE COMPRESSIVE OUTPUT OF THE FLOOR STAND AND DESIGNED TO SAFELY OPERATE THE GATE UNDER NORMAL FORCES. OPERATING NUT SHALL BE BRONZE. STEM GUIDES SHALL BE CAST IRON, BRONZE BUSHED AND MOUNTED ON CAST IRON BRACKETS.

THE MANUAL SLUICE GATE OPERATOR SHALL BE A FLOOR STAND-MOUNTED, CRANK-DRIVEN CAST IRON UNIT. STANDARD DESIGN FEATURES SHALL INCLUDE TAPERED ROLLER BEARINGS, SELF-LOCKING AT ANY POSITION OF STEM TRAVEL, MECHANICAL SEALS, BRONZE OPERATING NUT AND MACHINE CUT GEARS. OPERATOR SHALL BE SINGLE SPEED, 4:1 RATIO, WITH REMOVABLE CRANK, AND SHALL BE CAPABLE OF MOVING THE GATE WITH A 40 POUND PULL ON THE CRANK HANDLE. THE MAXIMUM CRANK RADIUS SHALL BE 15 INCHES, AND CRANK SHALL HAVE A ROTATING BRASS GRIP. THE OPERATOR SHALL BE EQUIPPED WITH A CAST METAL STEM COVER AND POINTER-AND-SLOT STEM POSITION INDICATOR DENOTING THE OPEN AND CLOSED POSITIONS OF THE GATE.

THE MOTORIZED SLUICE GATE OPERATOR SHALL BE A 460 VOLT, 3 PHASE, 60 HERTZ, FLOOR STAND-MOUNTED, MOTORIZED, GEAR-REDUCER DRIVEN UNIT WITH GALVANIZED SCHEDULE 40 STEEL PIPE STEM COVER WITH CAP, MANUAL CRANK OPERATOR, LOCAL MECHANICAL DIAL POSITION INDICATOR, POSITION AND DIRECTION INDICATING LIGHTS AND CONTROL PUSHBUTTONS, AND SHALL BE LIMITORQUE SMB-00 WITH GG CONTROL CONFIGURATION, PHILADELPHIA GEAR, LINK-BELT, OR EQUAL.

GANTRY CRANE:

AN ADJUSTABLE GANTRY CRANE SHALL BE FURNISHED FOR HOISTING THE STORM WATER PUMPS OUT OF THE STATION WELL FOR SERVICING. GANTRY SHALL BE FULLY ADJUSTABLE AS TO HEIGHT, TREAD AND SPAN, AND SHALL BE B. E. WALLACE PRODUCTS CORP. MODEL NO. 1015 S-15S, WITH NO. 3036 KART KIT, MODEL NO. 51111-12 HOIST, MODEL NO. 70-1015 TROLLEY, WITH 15" I-BEAM FOR 12' SPAN, MATERIAL FLOW INC., STANDARD HANDLING DEVICES, OR EQUAL.

OPERATION & MAINTENANCE MANUALS:

FOUR COPIES OF A COMPLETE O&M MANUAL, INCLUDING DATA ON ALL MECHANICAL AND ELECTRICAL EQUIPMENT FURNISHED IN THE PROJECT SHALL BE PREPARED AND FURNISHED BY THE CONTRACTOR. THESE MANUALS SHALL CONFORM TO THE DESCRIPTION OF "OWNER'S HANDBOOK" GIVEN IN 28B. OF THE ELECTRICAL GENERAL NOTES, AND SHALL INCLUDE THE RECORDS OF ALL SHOP AND FIELD TESTS ON THE STATION PUMPS. ONE COPY OF THE O&M MANUAL SHALL BE RETAINED BY THE ENGINEER.

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1. GENERAL CONDITIONS

- A. ALL WORK SHALL CONFORM TO THE CMS, AND THE SPECIAL REQUIREMENTS OF THE DRAWINGS AND THESE GENERAL NOTES.

2. SCOPE OF WORK

- A. FURNISH ALL MATERIALS, LABOR, TOOLS, TRANSPORTATION, INCIDENTALS AND APPURTENANCES TO COMPLETE IN EVERY DETAIL AND LEAVE IN WORKING ORDER ALL ITEMS OF WORK CALLED FOR HEREIN AND/OR SHOWN ON THE ACCOMPANYING DRAWINGS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ITEMS LISTED ON THE INDEX TO THIS SPECIFICATION.
- B. IT IS THE INTENT THAT THE ENSUING WORK SHALL BE COMPLETE IN EVERY RESPECT AND THAT ANY MATERIAL OR WORK NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, BUT NECESSARY TO FULLY COMPLETE THE WORK, SHALL BE FURNISHED.

3. CODES

- A. ALL WORK PERFORMED UNDER SPECIFICATION SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, NEC HEREINAFTER, AS PREPARED AND PUBLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION AND ANY STATE CODES OR LOCAL CODES APPLYING.

4. PERMITS

- A. OBTAIN AND PAY FOR ANY AND ALL PERMITS REQUIRED BY ALL LAWS AND REGULATIONS OR PUBLIC AUTHORITY HAVING SUCH JURISDICTION.

5. INSPECTIONS AND TESTS

- A. OBTAIN ALL INSPECTIONS REQUIRED BY ALL LAWS, ORDINANCES, RULES, REGULATIONS OR PUBLIC AUTHORITY HAVING JURISDICTION AND OBTAIN CERTIFICATES OF SUCH INSPECTIONS AND SUBMIT SAME TO THE ENGINEER. PAY ALL FEES, CHARGES AND OTHER EXPENSES IN CONNECTION THEREIN.
- B. BEFORE ANY ELECTRICAL WORK IS COVERED, THE ENGINEER WILL INSPECT THE ELECTRICAL WORK COMPLETED AT THAT TIME. ON COMPLETION OF THE ELECTRICAL WORK, THE ENGINEER WILL MAKE FINAL INSPECTION OF ALL ELECTRICAL WORK AND ORDER TESTS PERFORMED AS DEEMED NECESSARY. THESE TESTS MAY INCLUDE OPERATION OF LIGHTS AND EQUIPMENT, CONTINUITY OF CONDUIT SYSTEM, GROUNDING RESISTANCES AND INSULATION RESISTANCES.
- C. SUBMIT DATA TAKEN DURING SUCH TEST TO ENGINEER. PAY ALL PROFESSIONAL ENGINEERING FEES INVOLVED IN REQUIRED TESTING OF EQUIPMENT.
- D. WORK FOUND UNACCEPTABLE BY THE ENGINEER SHALL BE IMMEDIATELY CORRECTED. WORK SHALL BE UNACCEPTABLE WHEN CONTRARY TO THE PLANS AND/OR SPECIFICATIONS AND/OR CODES SPECIFIED AND/OR ACCEPTED STANDARDS OF GOOD WORKMANSHIP.
- E. ALL WORK SHALL BE INSPECTED BY THE DEPARTMENT OF INDUSTRIAL RELATIONS, 2323 WEST FIFTH AVENUE, COLUMBUS, OHIO, AND UPON COMPLETION OF THE WORK, THE ELECTRICAL CONTRACTOR SHALL FURNISH TO OWNER A CERTIFICATE OF INSPECTION AND APPROVAL FROM SAID DEPARTMENT BEFORE FINAL PAYMENT ON THE CONTRACT WILL BE ALLOWED. FEE FOR INSPECTIONS SHALL BE A PART OF THIS CONTRACT.

6. CONTRACT DRAWINGS

- A. THE DRAWINGS ACCOMPANYING THESE SPECIFICATIONS ARE COMPLEMENTARY EACH TO THE OTHER AND WHAT IS CALLED FOR BY ONE SHALL BE AS IF CALLED FOR BY BOTH.
- B. CONSULT ALL CONTRACT DRAWINGS WHICH MAY AFFECT THE LOCATION OF EQUIPMENT, CONDUIT AND WIRING AND MAKE MINOR ADJUSTMENTS IN LOCATION TO SECURE COORDINATION.
- C. WIRING LAYOUT IS SCHEMATIC AND EXACT LOCATIONS SHALL BE DETERMINED BY STRUCTURAL AND OTHER CONDITIONS. THIS SHALL NOT BE CONSTRUED TO MEAN THAT THE DESIGN OF THE SYSTEM MAY BE CHANGED; IT REFERS ONLY TO THE EXACT LOCATIONS OF CONDUIT AND EQUIPMENT TO FIT INTO THE BUILDING AS CONSTRUCTED AND WITH THE COORDINATION OF CONDUIT AND OTHER EQUIPMENT WITH PIPING AND EQUIPMENT INCLUDED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS. LOCATIONS OF STRUCTURAL SYSTEMS, HEATING WORK AND PLUMBING LINES SHALL TAKE PREFERENCE OVER LOCATIONS OF CONDUIT LINES WHERE CONFLICT OCCURS.
- D. OTHER THAN MINOR ADJUSTMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE PROCEEDING WITH THE WORK.
- E. FURNISH AND INSTALL ALL NECESSARY HANGERS, SUPPORTS, STRAPS, BOXES, FITTINGS AND OTHER SIMILAR APPURTENANCES NOT INDICATED ON THE DRAWINGS BUT WHICH ARE REQUIRED FOR A COMPLETE AND PROPERLY INSTALLED SYSTEM CONSISTENT WITH THE ARCHITECTURAL TREATMENT OF THE BUILDING.
- F. MAINTAIN AT THE SITE, ONE (1) COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA, APPROVED SHOP DRAWINGS, CHANGE ORDERS AND OTHER MODIFICATIONS, IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION. THESE SHALL BE AVAILABLE TO THE ENGINEER. THE DRAWINGS MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION SHALL BE DELIVERED TO THE ENGINEER FOR THE OWNER UPON COMPLETION OF THE WORK. AN ADDITIONAL SET OF DRAWINGS WILL BE FURNISHED BY THE ENGINEER FOR THIS PURPOSE UPON REQUEST.

7. SUPERVISION OF WORK

- A. CONTRACTOR SHALL HAVE IN CHARGE OF THE WORK, ALL TIMES DURING THE CONSTRUCTION, A COMPETENT SUPERINTENDENT WITH 5 YEARS MINIMUM EXPERIENCE IN THE WORK TO BE DONE UNDER THIS SPECIFICATION.