

**IRRIGATION SYSTEM GENERAL DESCRIPTION**

TO FACILITATE NEW LANDSCAPE AT THE COLUMBARIUM THE FOLLOWING MODIFICATIONS WILL BE MADE TO THE EXISTING IRRIGATION IN THE LOCATION SHOWN ON THE DRAWINGS.

1. THE IRRIGATION POINT-OF-CONNECTION (POC) IS THE EXISTING 3-INCH PVC CL 200 MAINLINE PIPE.
2. NEW CLASS 200 PVC MAINLINE PIPE IS ROUTED TO REDUCE CONFLICTS WITH NEW TREES.
3. ONE REMOTE CONTROL VALVE ASSEMBLY WILL BE RELOCATED.
4. THE EXISTING REMOTE CONTROL VALVES WILL BE USED, NO NEW ONES ARE ADDED.
5. AS MUCH EXISTING PIPE AS POSSIBLE HAS BEEN SAVED NAD WILL BE RECONNECTED TOT HE NEW LATERAL PIPE.

**GENERAL NOTES**

1. THE SYSTEM DESIGN ASSUMES A MINIMUM DYNAMIC PRESSURE FOR THE IRRIGATION SYSTEM OF 90 PSI AT THE POINTS-OF-CONNECTION. VERIFY PRESSURE AND FLOW ON SITE PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES WITH THE ASSUMPTIONS.
2. READ THOROUGHLY AND BECOME FAMILIAR WITH THE SPECIFICATIONS AND INSTALLATION DETAILS FOR THIS AND RELATED WORK PRIOR TO CONSTRUCTION.
3. COORDINATE UTILITY LOCATES (GOPHER ONE CALL 1-800-252-1166) OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
4. DO NOT PROCEED WITH THE INSTALLATION OF THE IRRIGATION SYSTEM WHEN IT IS OBVIOUS IN THE FIELD THAT OBSTRUCTIONS OR GRADE DIFFERENCES EXIST THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING, OR IF DISCREPANCIES IN CONSTRUCTION DETAILS, LEGEND, NOTES, OR SPECIFICATIONS ARE DISCOVERED. BRING ALL SUCH OBSTRUCTIONS OR DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
5. THE DRAWINGS ARE DIAGRAMMATIC. THEREFORE, THE FOLLOWING SHOULD BE NOTED:
  - A. IRRIGATION COMPONENTS MAY BE SHOWN OUTSIDE PLANTING AREAS FOR CLARITY. AVOID CONFLICTS BETWEEN THE IRRIGATION SYSTEM, PLANTING MATERIALS, AND ARCHITECTURAL FEATURES. INSTALL IRRIGATION PIPE AND WIRING IN LANDSCAPED AREAS WHENEVER POSSIBLE.
  - B. USE ONLY STANDARD TEES AND ELBOW FITTINGS. USE OF CROSS TYPE FITTINGS IS NOT PERMITTED.
6. PROVIDE THE FOLLOWING COMPONENTS TO THE OWNER PRIOR TO THE COMPLETION OF THE PROJECT:
  - A. TWO OPERATING KEYS FOR ISOLATION GATE VALVE ASSEMBLY.
  - B. TWO QUICK COUPLING KEYS, EACH WITH ATTACHED SWIVEL HOSE ELL FOR OPERATION OF THE QUICK COUPLING VALVES SHOWN ON THE DRAWINGS.
7. SELECT NOZZLES FOR SPRAY AND ROTARY SPRINKLERS WITH ARCS WHICH PROVIDE COMPLETE AND ADEQUATE COVERAGE WITH MINIMUM OVERSPRAY FOR THE SITE CONDITIONS. CAREFULLY ADJUST THE RADIUS OF THROW AND ARC OF COVERAGE OF EACH ROTARY SPRINKLER TO PROVIDE THE BEST PERFORMANCE.
8. THE IRRIGATION CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF IRRIGATION SLEEVING. SLEEVES ARE TO BE INSTALLED FOR BOTH PIPING AND ELECTRICAL WIRING AT EACH HARDSCAPE CROSSING. COORDINATE INSTALLATION OF SLEEVING WITH OTHER TRADES. ANY PIPE OR WIRE WHICH PASSES BENEATH EXISTING HARDSCAPE WHERE SLEEVING WAS NOT INSTALLED, REQUIRES HORIZONTAL BORING BY THE IRRIGATION CONTRACTOR.
9. INSTALL ALL ELECTRICAL POWER TO THE IRRIGATION CONTROL SYSTEM IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND ALL APPLICABLE LOCAL ELECTRIC UTILITY CODES.
10. WITH REGARD TO PIPE SIZING, THE FOLLOWING SHOULD BE NOTED:
  - A. IF A SECTION OF UNSIZED PIPE IS LOCATED BETWEEN TWO IDENTICALLY SIZED SECTIONS, THE UNSIZED PIPE IS THE SAME NOMINAL SIZE AS THE TWO SIZED SECTIONS. THE UNSIZED PIPE SHOULD NOT BE CONFUSED WITH THE DEFAULT PIPE SIZE NOTED IN THE LEGEND.
11. RESEED ALL AREAS DISTURBED DURING IRRIGATION SYSTEM INSTALLATION. REFER TO LANDSCAPE SPECIFICATIONS FOR SEED TYPE AND APPLICATION RATE. ENSURE GRADE MATCHES THE SURROUNDING CONDITIONS.

**LEGEND**

- EXISTING MAINLINE PIPE
- > CAPPED EXISTING MAINLINE PIPE
- EXISTING LATERAL PIPE
- > CAPPED EXISTING LATERAL PIPE
- ⊕ EXISTING QUICK COUPLING VALVE ASSEMBLY
- ⊙ EXISTING REMOTE CONTROL VALVE ASSEMBLY
- ⊗ EXISTING POP-UP SPRAY SPRINKLER ASSEMBLY
- EXISTING POP-UP MP ROTATOR SPRINKLER ASSEMBLY
- ⊞ EXISTING POP-UP ROTOR SPRINKLER ASSEMBLY
- NEW MAINLINE PIPE
- | NEW MAINLINE PIPE POINT-OF-CONNECTION TO EXISTING LATERAL PIPE
- | NEW LATERAL PIPE: CLASS 160 PVC (1-INCH SIZE UNLESS OTHERWISE INDICATED)
- | NEW LATERAL PIPE POINT-OF-CONNECTION TO EXISTING LATERAL PIPE
- ↗ UNCONNECTED PIPE CROSSING
- NEW POP-UP SPRAY SPRINKLER: STREAM BUBBLER NOZZLE  
PRESSURE: 30 PSI RADIUS: 5 FEET  
FLOW (GPM): Q - 0.10 H - 0.20 F - 0.41
- ▲▲▲ NEW POP-UP SPRAY SPRINKLER:  
PRESSURE: 30 PSI RADIUS: 8 FEET  
FLOW (GPM): Q - 0.26 H - 0.52 F - 1.05
- NEW POP-UP SPRAY SPRINKLER:  
PRESSURE: 30 PSI RADIUS: 10 FEET  
FLOW (GPM): Q - 0.39 H - 0.79 F - 1.58
- ◆■■ NEW POP-UP SPRAY SPRINKLER:  
PRESSURE: 30 PSI RADIUS: 12 FEET  
FLOW (GPM): Q - 0.65 H - 1.30 F - 2.60
- NEW POP-UP SPRAY SPRINKLER:  
PRESSURE: 30 PSI RADIUS: 15 FEET  
FLOW (GPM): Q - 0.92 H - 1.85 F - 3.70
- ⊕⊕ NEW MP ROTATOR MP 2000  
PRESSURE: 50 PSI RADIUS: 21 FEET  
FLOW (GPM): Q - 0.44 H - 0.83 F - 1.64
- ⊞⊞ NEW MP ROTATOR MP 3000  
PRESSURE: 50 PSI RADIUS: 30 FEET  
FLOW (GPM): Q - 0.96 H - 2.04 F - 4.07
- 1-2 - INDICATES CONTROLLER AND CONTROLLER STATION NUMBER
- 107 - INDICATES LATERAL DISCHARGE IN GPM
- 2" - INDICATES REMOTE CONTROL VALVE SIZE IN INCHES
- 

**FLAG NOTES**

- 1 EXCAVATE AND EXPOSE THE EXISTING MAINLINE PIPE AT THE APPROXIMATE LOCATION SHOWN. CONNECT TO THE EXISTING MAINLINE PIPE USING DUCTILE IRON REPAIR COUPLINGS. CONNECT TO THE EXISTING IRRIGATION CONTROL WIRE AND INSTALL NEW USING THE SAME COLOR OF WIRE AND 3M DBY SPLICES. INSTALL SPLICES IN A STANDARD VALVE BOX. INSTALL THRUST BLOCK, BACKFILL HOLES, AND COMPACT TO MATCH EXISTING CONDITIONS.
- 2 CONNECT TO EXISTING CAPPED LATERAL AT APPROXIMATE LOCATION INDICATED. USE SOLVENT WELD FITTINGS. INSTALL NEW SPRINKLERS AS SHOWN. MATCH ALL NEW SPRINKLER HEADS TO EXISTING MANUFACTURER AND MODEL USED IN THE EXISTING COLUMBARIA. BACKFILL AND COMPACT TO MATCH EXISTING CONDITIONS.
- 3 VERIFY OPERATION OF REMOTE CONTROL VALVE ASSEMBLIES 6-6 THROUGH 6-18 AFTER THE NEW CONTROL WIRE AND SPLICES HAVE BEEN MADE.

**100% CONSTRUCTION DOCUMENTS**

Revisions	Date



**Aqua Engineering Inc.**  
Innovative Water Solutions

4803 Innovation Drive  
Plymouth, MN 55425  
952.226.9688 office  
952.226.9699 fax  
www.aquaengineering.com

**Anderson Engineering of Minnesota, LLC**

13605 1st AVENUE NORTH, SUITE 100, PLYMOUTH, MN 55441  
TEL (763) 412-4000 FAX (763) 412-4090  
www.ae-mn.com



NATIONAL  
CEMETERY  
ADMINISTRATION

Drawing Title <b>IRRIGATION COVER SHEET</b>		Project Title <b>FORT SNELLING NATIONAL CEMETERY MEMORIAL MARKER WALL</b>		Date <b>3-15-2011</b>
Approved: Director, Office of Construction Management		Building Number	Checked <b>JDL</b>	Drawn <b>CAM</b>
Approved: Director, Project Management Service		Location <b>7601 34th AVENUE, SOUTH MINNEAPOLIS, MINNESOTA</b>		DRAWING NO. <b>I-1</b> Dwg. 15 Of 20