USCA ENTRANCE LANDSCAPE MASTER PLAN/ IMPROVEMENTS
STATE PROJECT # H29-I340
471 UNIVERSITY PARKWAY
AIKEN, SOUTH CAROLINA
FOR
UNIVERSITY OF SOUTH CAROLINA - AIKEN

UNIVERSITY OF SOUTH CAROLINA AIKEN

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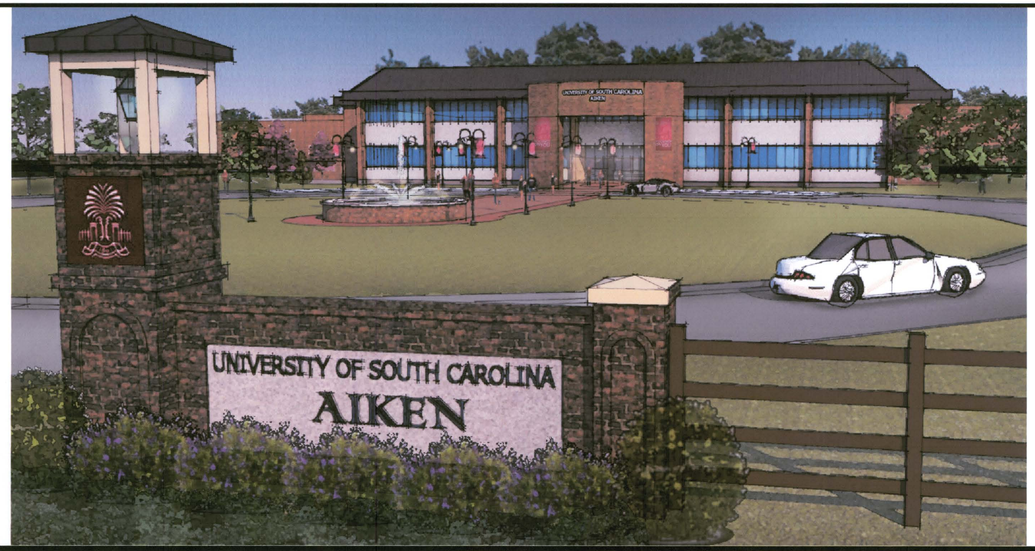

GENERAL NOTES

1. THE GENERAL CONTRACTOR AND HIS SUB-CONTRACTORS SHALL BE REQUIRED TO VISIT THE PREMISES TO INSPECT EXISTING CONDITIONS, BECOME FAMILIAR WITH LOCAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND CORRELATE PERSONAL OBSERVATIONS WITH REQUIREMENTS OF THE DRAWINGS.
2. ALL WORK PERFORMED SHALL BE IN STRICT COMPLIANCE WITH LOCAL CITY/COUNTY REGULATIONS AND CODES, O.S.H.A. STANDARDS, THE CODE STANDARDS LISTED BELOW, EXECUTED IN ACCORDANCE WITH ACCEPTED INDUSTRY STANDARDS, AND CONFORM TO SPECIFIC REGULATIONS AS MANDATED BY THE OWNER AND THE ARCHITECT.
3. IT SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY TO INSURE THE PROCUREMENT OF ALL REQUIRED AND NECESSARY PERMITS. ALL CONTRACTORS SHALL OBTAIN NECESSARY AND APPLICABLE, CITY/COUNTY & STATE PERMITS, INSPECTIONS AND APPROVAL PRIOR TO THE COMMENCEMENT OF ANY WORK AND CERTIFICATE OF OCCUPANCY UPON COMPLETION OF PROJECT. CONTRACTOR SHALL FURNISH COPIES OF PERMITS, INSPECTIONS AND CERTIFICATES TO OWNER UPON REQUEST.
4. CONTRACTOR SHALL BE REQUIRED TO COORDINATE WORK SCHEDULE TO MINIMIZE DISRUPTION OF NORMAL ACTIVITIES AND TO AVOID INTERFERENCE WITH ADJACENT OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING ADEQUATE PRECAUTIONS TO PROTECT SURROUNDINGS, MATERIALS AND EXISTING FINISHES THROUGHOUT ALL PHASES OF CONSTRUCTION AREAS AND OCCUPIED OR PUBLIC AREAS TO BE MAINTAINED BY CONTRACTOR. DAMAGE TO EXISTING-TO-REMAIN CONSTRUCTION, MATERIALS OR EQUIPMENT TO BE RESTORED TO ORIGINAL CONDITION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF TRASH AND DEBRIS FROM JOB SITE ON A DAILY BASIS. FINAL CLEAN-UP WITHIN SCOPE OF WORK: REMOVE DUST, DEBRIS, OILS, STAINS, FINGERPRINTS AND LABELS FROM ALL EXPOSED FINISHED SURFACES.
6. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL RELATED TRADES AND VENDORS NECESSARY TO THE COMPLETION OF THE JOB ON A TIMELY BASIS.
7. DO NOT SCALE DRAWINGS. USE WRITTEN DIMENSIONS ONLY. SUBMIT TO ARCHITECT ANY DISCREPANCIES FOR CLARIFICATION.
8. ALL WORK SHALL BE IN COMPLIANCE WITH THE INTERNATIONAL BUILDING CODE, AIA A-201 GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, CURRENT EDITION OF NATIONAL ELECTRIC CODE, INTERNATIONAL PLUMBING, MECHANICAL, AND ELECTRICAL CODE, RECOGNIZED INDUSTRY STANDARDS, CRAFTSMANSHIP STANDARDS IN THE AREA, ALL MANUFACTURERS RECOMMENDATIONS, AND ALL OTHER APPLICABLE CODES.
9. THE ARCHITECT DOES NOT GUARANTEE THE PERFORMANCE OF THE PROJECT IN ANY RESPECT OTHER THAN THAT OUR ARCHITECTURAL WORK AND JUDGEMENT RENDERED MEET THE STANDARDS OF CARE OF OUR PROFESSION.
10. PROVIDE ACCESSIBILITY FOR THE PHYSICALLY HANDICAPPED CONFORMING TO THE CURRENT EDITION OF ADA GUIDELINES, AND ANSI 117.1
11. THE LOCATION OF THE EXISTING UTILITIES AND STRUCTURES SHOWN HEREON ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE AND ACTUAL LOCATION OF SUCH, WHETHER SHOW HEREON OR NOT, PRIOR TO ANY EXCAVATION, ANY DAMAGES SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.
12. ALL NOTES AND REFERENCES FOR ONE SECTION OR DETAIL APPLY TO ALL OTHERS WHEN LIKE OR SIMILAR CONDITIONS ARE EVIDENT.
13. ALL WOOD BLOCKING, PLYWOOD AND NAILERS SHALL BE PRESSURE TREATED, TYPICAL.
14. PREVENT CONTACT OF DISSIMILAR METALS BY PROVIDING AN AIR SPACE OR PHYSICAL BARRIER (i.e. 15# FELT).
15. VERIFY MEASUREMENTS WITH CORRESPONDING CONSTRUCTED OR EXISTING CONDITIONS PRIOR TO PROCEEDING WITH THE WORK AND NOTIFY THE ARCHITECT IMMEDIATELY OF SIGNIFICANT DISCREPANCIES USING THE "CONSTRUCTION REQUEST FOR INFORMATION" FORM. PROVIDE SUPPLEMENTARY CONTRACTOR DETAILS AS REQUIRED.
16. CONCRETE TEST REPORTS SHALL BE AVAILABLE AT JOB SITE AT ALL TIMES.

PROJECT IDENTIFICATION SIGNS

GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR A MINIMUM OF ONE (1) PROJECT IDENTIFICATION SIGNS 8'-0"x4'-0"
THE SIGNS SHALL BE CONSTRUCTED OF COROPLAST, CORRUGATED PLASTIC, MOUNTED ON A PAINTED 2 X 4 FRAME, AND ATTACHED TO PAINTED 4 X 4 POSTS ANCHORED INTO THE GROUND. SIGNS SHALL BE FRAMED WITH PAINTED WOOD TRIM.

SILKSCREENED GRAPHICS INCLUDE:
USC AIKEN LOGO AND TEXT
JLA LOGO AND TEXT
GENERAL CONTRACTOR LOGO AND TEXT
MASTER PLAN/COLORED SITE PLAN

CONTACT JLA FOR HIGH RESOLUTION GRAPHICS AND SUBMIT TO SIGNAGE COMPANY FOR MOCK UP AND REVIEW PRIOR TO ORDERING SIGNS.

TEMPORARY SIGNS: PROVIDE OTHER SIGNS AS REQUIRED TO INFORM PUBLIC AND INDIVIDUALS SEEKING ENTRANCE TO PROJECT.
PROVIDE TEMPORARY, DIRECTIONAL SIGNS FOR CONSTRUCTION PERSONNEL AND VISITORS.
MAINTAIN AND TOUCHUP SIGNS SO THEY ARE LEGIBLE AT ALL TIMES.

PROJECT TEAM

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471 UNIVERSITY PARKWAY
AIKEN, SOUTH CAROLINA
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CODE DATA

APPLICABLE CODES

- IBC (INTERNATIONAL BUILDING CODE), 2006 EDITION
- IFGC (INTERNATIONAL FUEL GAS CODE), 2006 EDITION
- IMC (INTERNATIONAL MECHANICAL CODE), 2006 EDITION
- IPC(INTERNATIONAL PLUMBING CODE), 2006 EDITION
- NATIONAL ELECTRICAL CODE , 2008 EDITION
- INTERNATIONAL FIRE CODE, 2006 EDITION
- IECC, 2006 EDITION
- NFPA 101 LIFE SAFETY CODES, 2000 EDITION
- CURRENT EDITION OF ADA GUIDELINES
- ANSI 117.1

TYPE OF CONSTRUCTION 2006 IBC-SECTION 602

2B UNSPRINKLERED

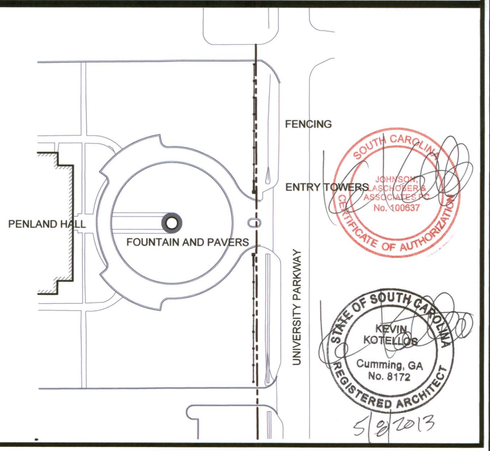
SCOPE OF WORK:

SELECTIVE DEMOLITION OF EXISTING PLANTER AND SURROUNDING PAVING, NEW CONSTRUCTION OF FOUNTAIN, PUMPS, VAULTS, PAVERS, ENTRY TOWERS, SIGNAGE, AND FENCING

PROJECT LOCATION MAP

471 UNIVERSITY PARKWAY
AIKEN, SOUTH CAROLINA

LOCATION MAP



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FILENAME: K:\69301204\ARCH\G001 COVER SHEET.DWG

REVISION: 9/4/2012 REV 0

LEGEND:

	EXISTING
BLDG. STRUCTURE	
SPOT ELEVATION	× 100.0
TREE LINE	
CONTOUR	100
SANITARY SEWER	SS MH JB
STORM DRAIN	SD
POTABLE WATER	PW
OVERHEAD POWER	OHP
DITCH/SWALE	
FENCE	(TYPE)
DIRECTION OF SURFACE DRAINAGE	

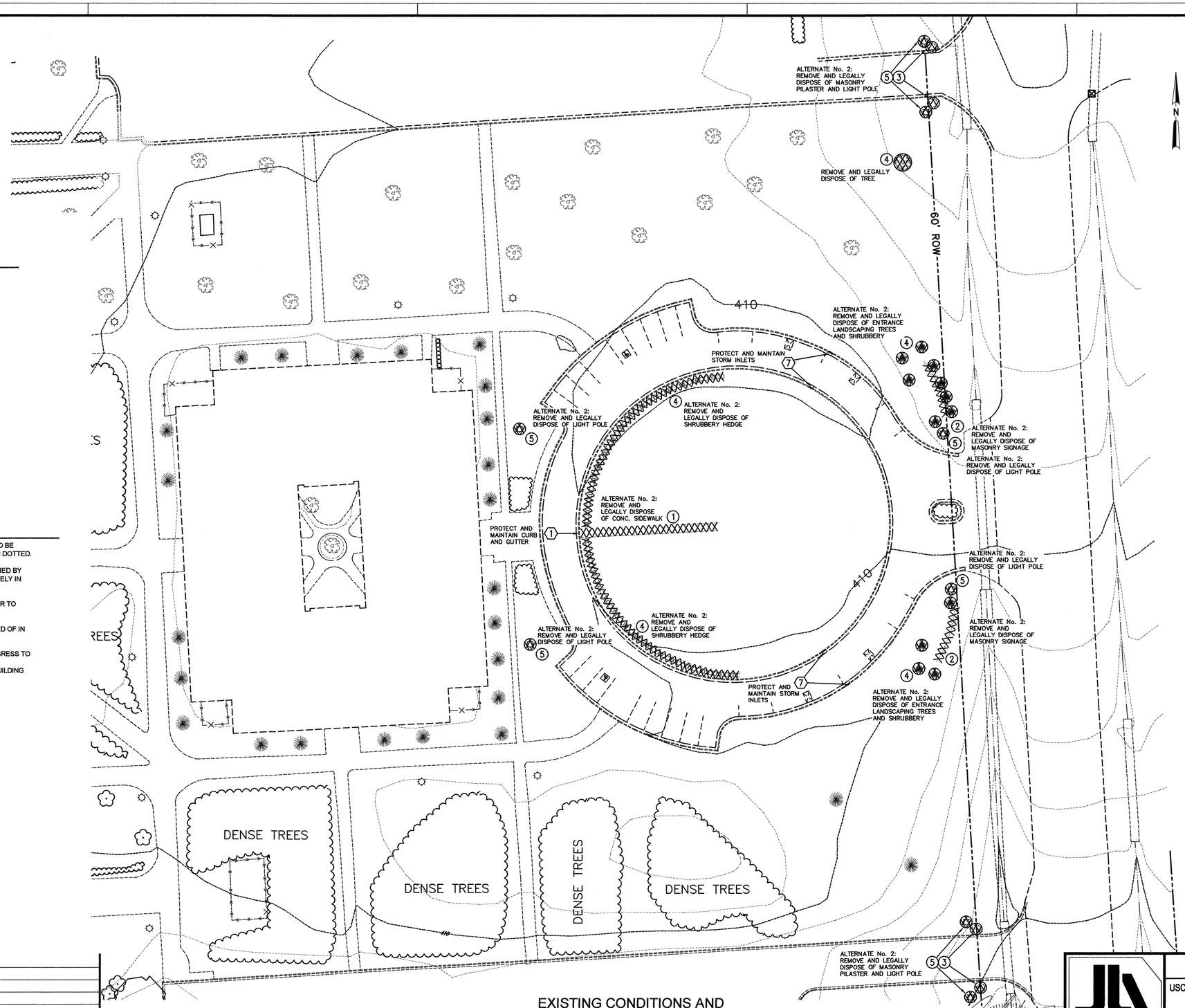
DEMOLITION LEGEND:

- (#) TO BE REMOVED
- (#) PROTECT & MAINTAIN
- (#) TO BE SALVAGED

1. CONC. PAVEMENT/PAD/SIDEWALK (SAWCUT OR REMOVE FROM NEAREST JOINT)
2. SIGNAGE
3. STRUCTURES
4. TREES/VEGETATION (NOT HATCHED FOR CLARITY, SEE CLEARING LIMITS)
5. LIGHTING/POWER
6. SITE FURNISHINGS
7. STORM DRAIN STRUCTURE/PIPE
8. UTILITY STRUCTURE/PIPE

DEMOLITION NOTES:

1. ALL ITEMS TO BE DEMOLISHED ARE DOUBLE HATCHED; ITEMS TO BE ABANDONED (IF ANY) ARE SINGLE HATCHED; AND BOTH SHOWN DOTTED.
2. ALL UNDERGROUND LOCATIONS ARE APPROXIMATE AND SUPPLIED BY VARIOUS UTILITY COMPANIES. NOTIFY THE ENGINEER IMMEDIATELY IN WRITING OF ANY CONFLICTS OR DISCREPANCIES.
3. CONTRACTOR TO VERIFY ALL EXISTING FIELD CONDITIONS PRIOR TO DEMOLITION & CONSTRUCTION WORK.
4. ALL DEMOLISHED ITEMS TO BE REMOVED FROM SITE & DISPOSED OF IN LEGAL MANNER OR UPON OWNER'S DISCRETION .
5. CONTRACTOR SHALL MAINTAIN AND PROVIDE SAFE INGRESS/EGRESS TO BUILDING DURING HOURS OF OPERATION. CONTRACTOR SHALL COORDINATE THIS WORK WITH PROGRAM DIRECTOR AND/OR BUILDING MANAGER.



REFERENCE DRAWINGS:

CG001	COVER SHEET
C101	LAYOUT, STAKING AND GRADING PLAN
L101	LANDSCAPE PLAN
A100	TOWER & FENCE SECTIONS AND DETAILS
A101	FOUNTAIN PLAN & DETAILS
E101	ELECTRICAL SITE PLAN
E201	ELECTRICAL DETAILS

REV	DATE	BY	DESCRIPTION
0	5/13/2013	ZKD	ISSUED FOR BID

REVISIONS

DRAWN BY: ZKD DATE: 11/19/12 CHECKED BY: ZKD DATE: 12/12/12

CADFILE: JLA24x36.DWG REV: 10/27/07 DRE

UTILITIES PROTECTION CENTER
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SOUTH CAROLINA - 1-800-922-0983

UTILITY WARNING:
The underground utilities shown have been located from field survey information and existing drawings. The engineer makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The engineer further does not warrant that the underground utilities shown are in the exact location indicated although he does certify that they are located as accurately as possible from information available. The engineer has not physically located the underground utilities.

EXISTING CONDITIONS AND DEMOLITION PLAN

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

SOUTH CAROLINA JOHNSON, LASCHOBER & ASSOCIATES, PC No. C1168 LANDSCAPE ARCHITECTURE CERTIFICATE OF AUTHORIZATION

REGISTERED South Carolina No. 1058 LANDSCAPE ARCHITECT 5/8/13 ZACHARY K. DAVIS

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USC AIKEN-STATE PROJECT # H29-I340
AIKEN, SOUTH CAROLINA

USCA ENTRANCE LANDSCAPE MASTER PLAN/IMPROVEMENTS

EXISTING CONDITIONS AND DEMOLITION PLAN

JOHNSON, LASCHOBER & ASSOCIATES, P.C.
1296 BROAD STREET AUGUSTA, GEORGIA 30901
TEL (706) 724-5756 FAX (706) 724-3955

SCALE	DATE	PROJECT NO.	DRAWING NO.	REV.
1"=30'	12/07/2012	6930.1204	CD001	0

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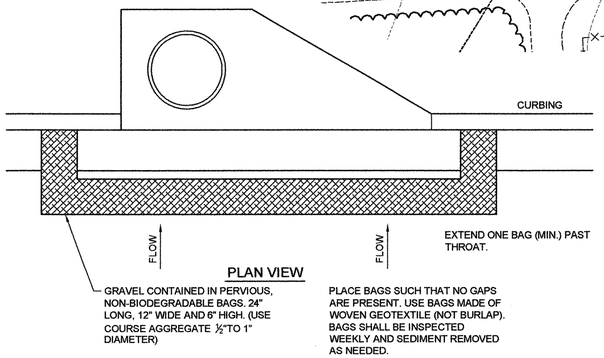
LEGEND:

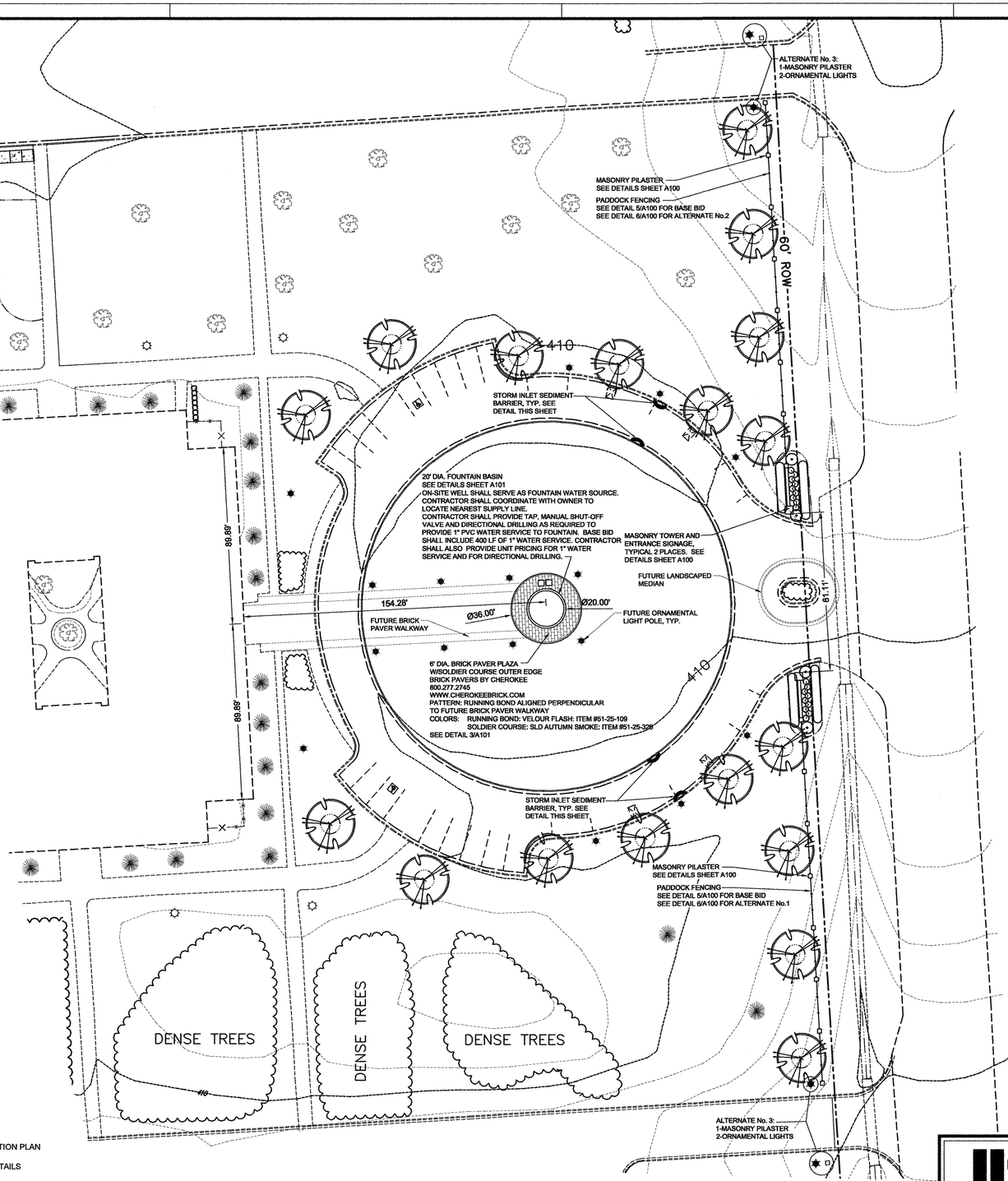
	EXISTING
BLDG. STRUCTURE	
SPOT ELEVATION	× 100.0
TREE LINE	
CONTOUR	100
SANITARY SEWER	SS MH
STORM DRAIN	SD JB
POTABLE WATER	PW
OVERHEAD POWER	OHP
DITCH/SWALE	
FENCE	(TYPE)
DIRECTION OF SURFACE DRAINAGE	



PLAN VIEW

INLET SEDIMENT BARRIER
GRAVEL BAGS

NO SCALE



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LAYOUT, STAKING AND GRADING PLAN

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

SOUTH CAROLINA JOHNSON, LASCHOBER & ASSOCIATES, PC No. C168 LANDSCAPE ARCHITECTURE CERTIFICATE OF AUTHORIZATION

STATE OF SOUTH CAROLINA No. 1058 REGISTERED LANDSCAPE ARCHITECT ZACHARY K. DAVIS 5/8/13

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USCA ENTRANCE LANDSCAPE MASTER PLAN/IMPROVEMENTS

LAYOUT, STAKING AND GRADING PLAN

JOHNSON, LASCHOBER & ASSOCIATES, P.C.
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TEL (706) 724-5756 FAX (706) 724-3955

SCALE	DATE	PROJECT NO.	DRAWING NO.	REV.
1"=30'	12/07/2012	6930.1204	C101	0

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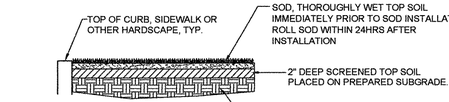
CADFILE: JLA24x36.DWG REV. 10/27/10 CRE



NOTE: AREAS RECEIVING SOD SHALL BE GRADED SUCH THAT ROUGH GRADES ARE SET TO RECEIVE SOD AND TOP SOIL THICKNESS.

SOD INSTALLATION DETAIL

NOT TO SCALE

IRRIGATION SPECS:

1. CONTRACTOR SHALL DESIGN AND INSTALL AN AUTOMATIC IRRIGATION SYSTEM FOR 100% COVERAGE OF ALL NEW TREES, SHRUBS, AND GRASS WITHIN THE IRRIGATION LIMITS. SHOP DRAWINGS OF THE PROPOSED SYSTEM LAYOUT AND PROPOSED EQUIPMENT SCHEDULE MUST BE SUBMITTED LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO CONSTRUCTION.
2. ALL IRRIGATION EQUIPMENT SHALL BE MANUFACTURED BY RAINBIRD INC, OR APPROVED EQUAL.
3. CONTRACTOR SHALL FIELD VERIFY EXISTING WATER PRESSURE AND AVAILABLE VOLUME FOR MINIMUM MANUFACTURED SPECIFIED WORKING PRESSURE BEFORE INSTALLING IRRIGATION SYSTEM.
4. CONTRACTOR WILL INSTALL HEADS AND NOZZLES THAT WILL LIMIT THE AMOUNT OF WATER THROWN ON IMPERVIOUS SURFACES AND STILL MAINTAIN 100% COVERAGE OF PLANTED AREAS WITHIN THE IRRIGATION LIMITS. WATER OVERSPRAY ONTO IMPERVIOUS SURFACES MUST BE MINIMIZED TO THE GREATEST EXTENT POSSIBLE.
5. CONTRACTOR SHALL LOCATE ALL UTILITIES BEFORE IRRIGATION INSTALLATION BEGINS.
6. IRRIGATION MAIN SUPPLY LINE SHALL BE 1" PVC MINIMUM OR LARGER AS REQUIRED BY EQUIPMENT MANUFACTURER TO MAINTAIN ADEQUATE PERFORMANCE AND COVERAGE.
7. ALL IN-GROUND WIRE CONNECTIONS MUST BE MADE WITH 3M-DBY WIRE CONNECTIONS OR EQUAL.
8. CONTROLLER SHALL BE RAIN BIRD TBOS BATTERY OPERATED TIMER CONTROLLER OR APPROVED EQUAL. CONTROLLER SHALL INCLUDE RAIN SENSOR. CONTROLLER SHALL BE WEATHER TIGHT CONSTRUCTION.
9. ALL CONTROL VALVES MUST BE BRASS OR SCHD. 80 PVC WITH A SCHD. 80 ISOLATION VALVE AT EACH CONTROL VALVE.
10. VALVES IN BOXES MUST BE EASILY ACCESSIBLE AND INSTALLED WITH 8" DRAINAGE ROCK IN BOTTOM.
11. ALL VALVE BOXES SHALL BE SET FLUSH OR NO LESS THAN 1/2" BELOW FINISHED GRADE.
12. NEW SOD WILL BE HAND WATERED BY CONTRACTOR DURING THE CONSTRUCTION SEQUENCE AND UNTIL THE CONTRACT IS SATISFIED.

SCREENED TOP SOIL NOTES:

IMPORTED SCREENED TOPSOIL MUST BE A FINE SANDY LOAM THAT CONTAINS BETWEEN 5% AND 10% ORGANIC MATTER. TOP SOIL ANALYSIS SHALL BE SUBMITTED AND APPROVED BY OWNER PRIOR TO INSTALLATION.

PLANT SCHEDULE

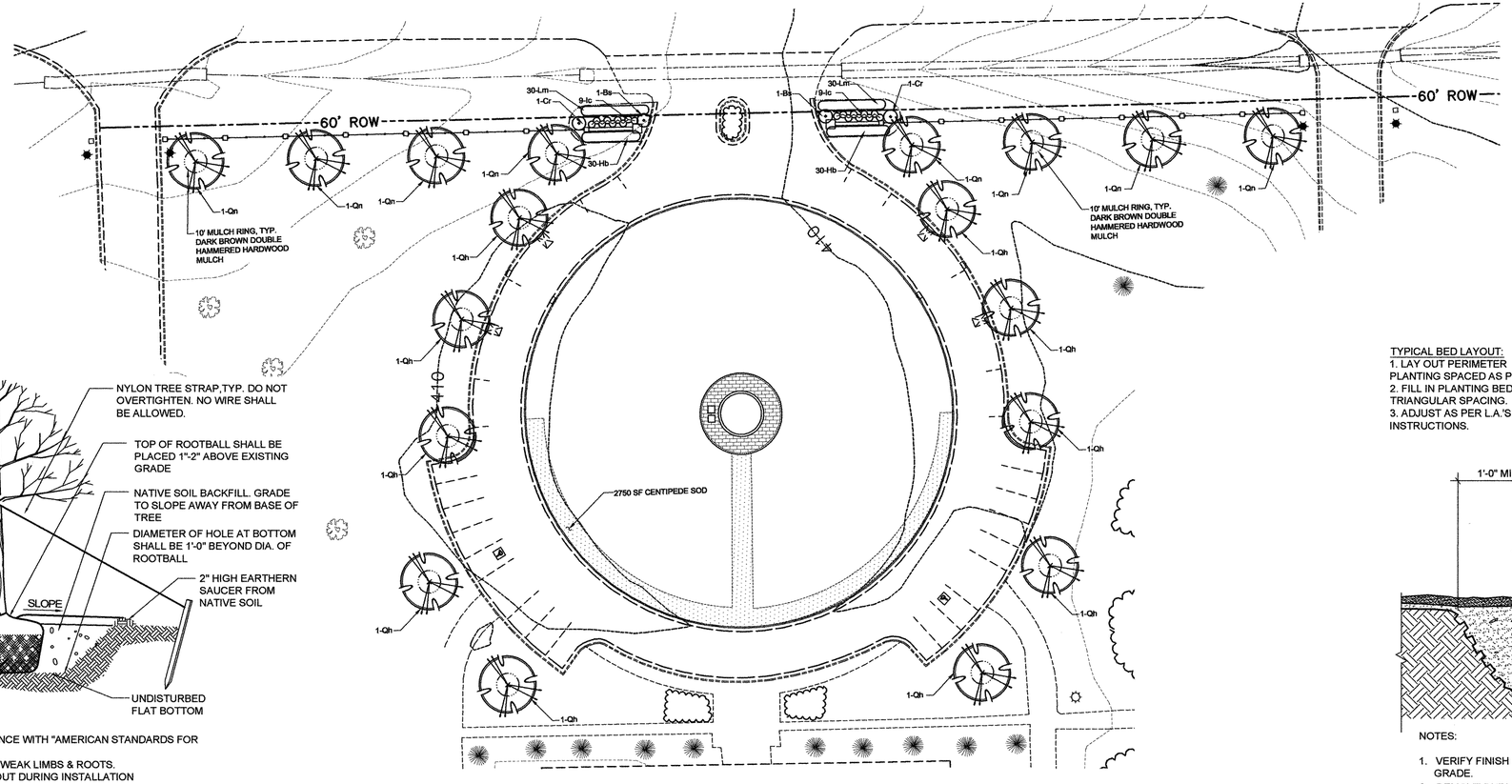
QTY.	SYMB.	SIZE	BOTANICAL NAME	COMMON NAME	HEIGHT	SPACING
10	Qh	3" CAL.	Quercus hemisphaerica 'Darlington'	Darlington Laurel Oak	12-14'	AS SHOWN
8	Qn	3" CAL.	Quercus nuttalli	Nuttall Oak	12-14'	AS SHOWN
2	Bs	FG B&B	Buxus sempervirens 'Vardar Valley'	Vardar Valley American Boxwood	26"-28"	AS SHOWN
2	Cr	15 GAL.	Cycas revoluta	Sago Palm	FULL	AS SHOWN
18	Ic	3 GAL.	Ilex cornuta 'Carissa'	Carissa Holly	FULL	3' O.C.
60	Hb	1 GAL.	Hemerocallis 'Blackeyed Stella'	Blackeyed Stella Daylily	FULL	18" O.C.
60	Lm	1 GAL.	Liriope muscari 'Big Blue'	Big Blue Liriope	FULL	18" O.C.

GRASS NOTES:

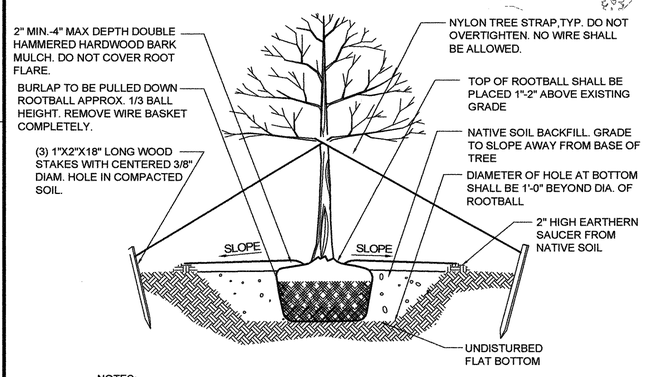
-ESTIMATED QUANTITY OF SOD NEEDED FOR PROJECT IS ±6700 SQUARE FEET OF CENTIPEDE SOD. BIDDER IS RESPONSIBLE TO DETERMINE QUANTITIES OF SOD AND ALL OTHER PLANTS AND MATERIALS TO PREPARE BID.
-CONTRACTOR IS RESPONSIBLE FOR RE-GRASSING ANY GRASSED AREAS DISTURBED AS A RESULT OF CONSTRUCTION ACTIVITIES.

PLANTING NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL LOCATE AND VERIFY THE EXISTENCE OF ALL UTILITIES PRIOR TO STARTING WORK.
2. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING SHOWN ON ALL DRAWINGS.
3. ALL MATERIAL SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARDS FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN. NO PLANT WILL BE ACCEPTED IF IT DOES NOT MEET THE PROJECT SPECIFICATIONS OR THESE STANDARDS.
4. ALL LANDSCAPE AND LAWN AREAS SHALL BE FINE GRADED AS APPROPRIATE TO PROVIDE POSITIVE DRAINAGE. NO PLANT SHALL BE PUT INTO THE GROUND BEFORE FINE GRADING IS COMPLETE AND APPROVED BY LANDSCAPE ARCHITECT.
5. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE BEFORE DIGGING.
6. ALL PLANTS SHALL BE BALLED AND WRAPPED OR CONTAINER GROWN AS SPECIFIED. NO CONTAINER GROWN STOCK WILL BE ACCEPTED IF IT IS ROOT BOUND. ALL ROOT WRAPPING MATERIAL MADE OF SYNTHETIC OR PLASTICS SHALL BE REMOVED AT THE TIME OF PLANTING.
7. PRIOR TO PLANTING, THE LOCATION OF TREES SHALL BE STAKED AND ALL PLANT MATERIAL SHALL BE INSPECTED FOR APPROVAL BY THE PROJECT LANDSCAPE ARCHITECT OR EQUAL. NO PLANT MATERIAL WILL BE ACCEPTED IF IT IS DAMAGED, DISEASED OR INADEQUATE IN SIZE AS SPECIFIED ON PLANS. SUBSTITUTIONS DUE TO AVAILABILITY MUST BE APPROVED BY THE LANDSCAPE ARCHITECT IN WRITING.
8. AT PLANTING TIME, ALL PLANTS SHALL BE PRUNED FOR OPTIMUM APPEARANCE AND DESIGN INTENT BY ELIMINATING TALL SHOOTS, DEAD WOOD AND SUCKERS.
9. ALL PLANTS SHALL BE INSTALLED AS PER DETAILS AND THE INSTALLATION SPECIFICATIONS.
10. THE LANDSCAPE CONTRACTOR SHALL PROVIDE FERTILIZER, PRE-EMERGENT HERBICIDE, LIME, TOPSOIL AND PLANTING MIXTURE AS PER SOIL TESTING REQUIRED.
11. BEDLINES SHALL HAVE A 3" DEEP SHOVEL CUT TRENCH EDGE WHERE MULCH MEETS GRASS, CONCRETE WALKS OR CURBS UNLESS OTHERWISE SPECIFIED. BEDLINES SHALL BE SMOOTH AND CONTINUOUS AND BE WITHIN A REASONABLE LOCATION AND SHAPE AS ILLUSTRATED ON PLANS.
12. BERM PLANTING AREAS W/ SCREENED TOP SOIL AS REQUIRED TO PROMOTE POSITIVE DRAINAGE AWAY FROM BUILDINGS AND STRUCTURES. MINIMUM SLOPE ON LANDSCAPE AREAS SHALL BE 2%. ALL LANDSCAPE AREAS SHOULD HAVE POSITIVE DRAINAGE AND NOT ENCOURAGE SATURATED ROOT SYSTEMS. SUPPLEMENT THESE AREAS WITH SCREENED TOPSOIL IF NEEDED TO PROVIDE POSITIVE DRAINAGE. ALL AREAS TO BE SODDED SHALL RECEIVE A MINIMUM OF 3 INCHES OF SCREENED TOP SOIL AFTER ROUGH GRADING IS COMPLETE. TOP SOIL SHALL BE EVENLY DISTRIBUTED OVER AREAS TO RECIEVE SOD AND FINISH GRADES MUST PROVIDE ADEQUATE DRAINAGE.
13. PLACE A MINIMUM 3" OF MULCH OVER ALL PLANTING BEDS; LONG LEAF PINE STRAW MULCH FOR ALL SHRUB & TREE BEDS. PLACE MULCH UNDER PLANTS AND INTO BEDLINE TRENCHES.
14. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR CLEAN UP OF ALL CONTAINERS, PALLETS, DEBRIS, ETC. RESULTING FROM HIS/HER WORK.
15. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL TREES, SHRUBS AND GRASS SHALL THEN BE WATERED WEEKLY OR AS NECESSARY TO MAINTAIN THE EQUIVALENT OF ONE INCH OF ABSORBED WATER
16. ALL PLANTS AND GRASS SHALL BE WARRANTED FOR ONE (1) YEAR. WARRANTY DOES NOT INCLUDE ACTS OF GOD OR VANDALISM.
17. THE LANDSCAPE CONTRACTOR SHALL PROVIDE FULL LANDSCAPE MAINTENANCE FOR THE WORK INSTALLED UNDER THIS CONTRACT UNTIL PROJECT COMPLETION AND OWNER ACCEPTANCE
18. TREE MAINTENANCE SHALL TAKE INTO ACCOUNT THE NATURAL SHAPE AND GROWTH PATTERN OF THE TREES. TREES INTENDED TO GROW TO THE GROUND SHALL NOT BE LIMBED UP; TREES SHALL NOT BE TOPPED OR PRUNED TO GROW AS SHRUBS.
19. NO TOPPING OR HEADING BACK OF A TREE SHALL BE PERMITTED WHICH INVOLVES THE CUTTING OF LIMBS BACK TO A STUB, BUD, OR LATERAL BRANCH NOT LARGE ENOUGH TO ASSUME THE TERMINAL ROLE. CROWN REDUCTION SHALL BE USED TO REDUCE THE SIZE OF A TREE AND IS BEST ACCOMPLISHED BY CUTTING LIMBS BACK TO LATERALS THAT ARE AT LEAST ONE THIRD THE DIAMETER OF THE PARENT LIMB.



NOTE: TREES TO BE WATERED THOROUGHLY AFTER PLANTING.

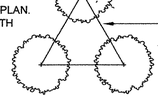


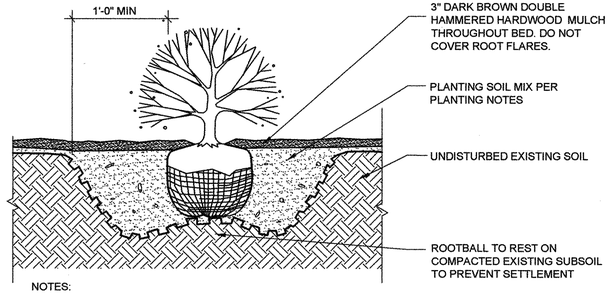
NOTES:
1. MIN. ROOT MASS TO BE IN ACCORDANCE WITH "AMERICAN STANDARDS FOR NURSERY STOCK"
2. PRUNE ALL DAMAGED, DISEASED OR WEAK LIMBS & ROOTS.
3. DO NOT ALLOW ROOT BALL TO DRY OUT DURING INSTALLATION PROCESS.
4. ALL STRAPS, STAKES AND ASSOCIATED MATERIALS SHALL BE REMOVED BY CONTRACTOR WITHIN ONE WEEK OF THE END OF THE 90 DAY MAINTENANCE PERIOD.

TYP. TREE PLANTING DETAIL

NO SCALE

TYPICAL BED LAYOUT:
1. LAY OUT PERIMETER PLANTING SPACED AS PER PLAN.
2. FILL IN PLANTING BED WITH TRIANGULAR SPACING.
3. ADJUST AS PER L.A.'S INSTRUCTIONS.





NOTES:
1. VERIFY FINISH GRADE ELEVATION. PLANT TOP OF ROOTBALL AT FINISH GRADE.
2. REMOVE BURLAP FROM TOP 1/3 OF BALL. REMOVE CONTAINER PLANTS FROM CONTAINERS AND CUT ANY CIRCLING ROOTS.

SHRUB PLANTING DETAIL

NOT TO SCALE

REFERENCE DRAWINGS:

CG001	COVER SHEET
CD001	EXISTING CONDITIONS AND DEMOLITION PLAN
C101	LAYOUT, STAKING AND GRADING PLAN
L102	LANDSCAPE AND MISCELLANEOUS NOTES AND DETAILS
A100	TOWER & FENCE SECTIONS AND DETAILS
A101	FOUNTAIN PLAN & DETAILS
E101	ELECTRICAL SITE PLAN
E201	ELECTRICAL DETAILS

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UTILITY WARNING:
The underground utilities shown have been located from field survey information and existing drawings. The engineer makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The engineer further does not warrant that the underground utilities shown are in the exact location indicated although he does certify that they are located as accurately as possible from information available. The engineer has not physically located the underground utilities.

LANDSCAPE PLAN

GRAPHIC SCALE

30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

REV	DATE	BY	DESCRIPTION
0	5/13/2013	ZKD	ISSUED FOR BID

REVISIONS

DRAWN BY: ZKD DATE: 11/19/12 CHECKED BY: ZKD DATE: 1/9/13

CADFILE: A-24x36.DWG REV. 10/27/07 DRE

JOHNSON, LASCHOBER & ASSOCIATES, PC. No. C168 LANDSCAPE ARCHITECTURE CERTIFICATE OF AUTHORIZATION SOUTH CAROLINA

Registered Landscape Architect SOUTH CAROLINA No. 1058 5/9/13 ZACHARY W. DAVIS

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SCALE	DATE	PROJECT NO.	DRAWING NO.	REV.
1"=30'	12/07/2012	6930.1204	L101	0

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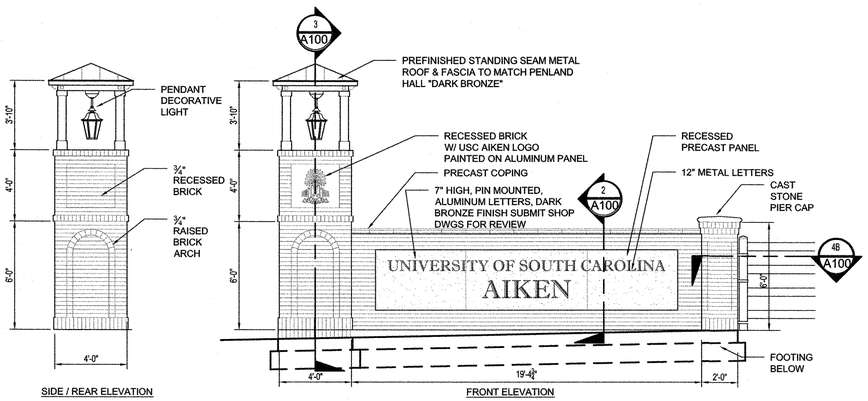
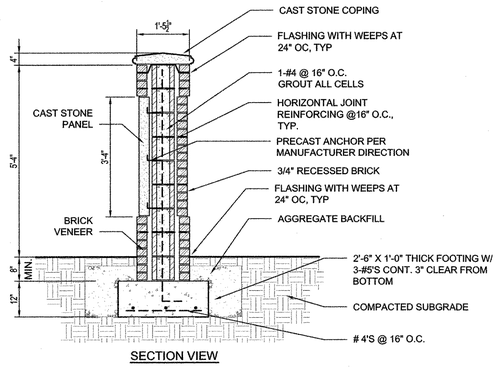


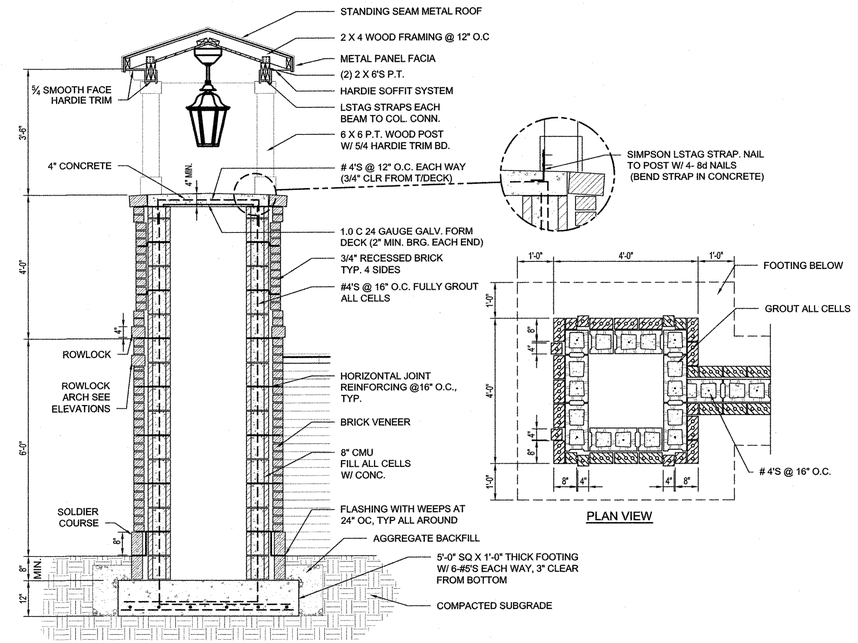
1 A100 ENTRANCE TOWER ELEVATION

SCALE: 1/4"=1'-0"



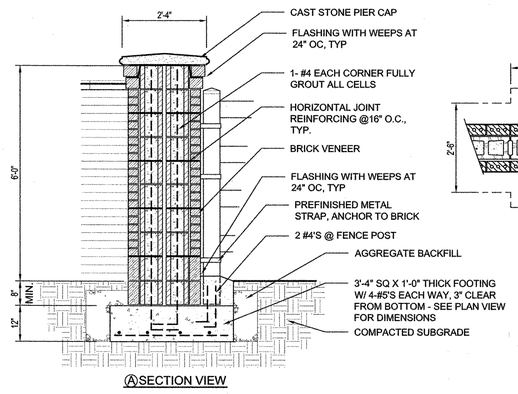
2 A100 SECTION - WALL

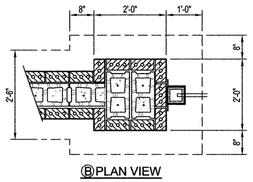
SCALE: 1/4"=1'-0"



3 A100 SECTION - ENTRANCE TOWER

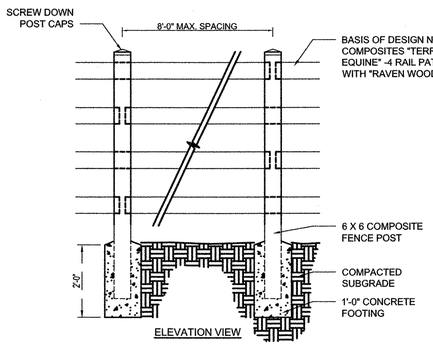
SCALE: 1/4"=1'-0"

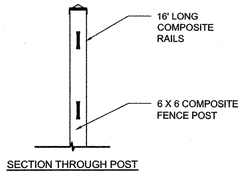




4 A100 SECTION -PILASTER ALTERNATE 1

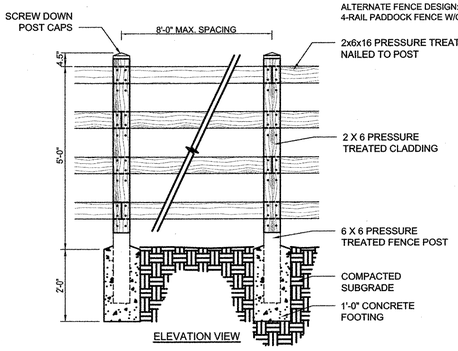
SCALE: 1/4"=1'-0"

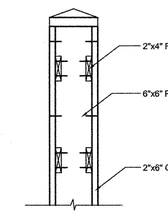




5 A100 BASE BID ALTERNATE 1

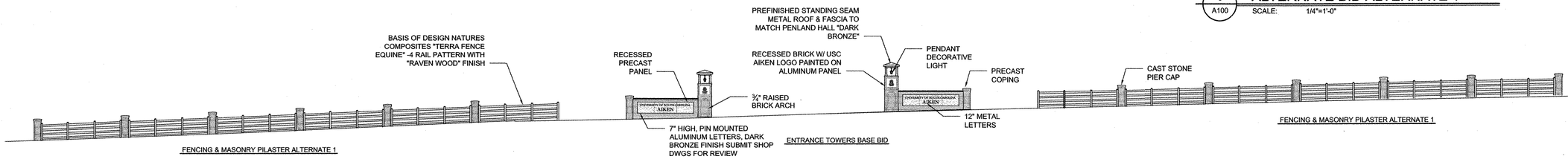
SCALE: 1/4"=1'-0"





6 A100 ALTERNATE BID ALTERNATE 1

SCALE: 1/4"=1'-0"



7 A100 TOWER & FENCE ELEVATION

SCALE: 1/16"=1'-0"

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0	05/13/2013	KK	ISSUED FOR BID

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DRAWN BY: JAP DATE: DATE CHECKED BY: KK DATE: DATE

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STATE OF SOUTH CAROLINA KEVIN KOTELLOS Cumming, GA No. 8172 REGISTERED ARCHITECT 5/8/2013

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VARIES	12/07/2012	6930.1204	A100	0

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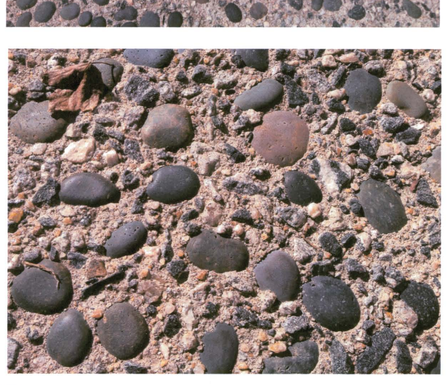
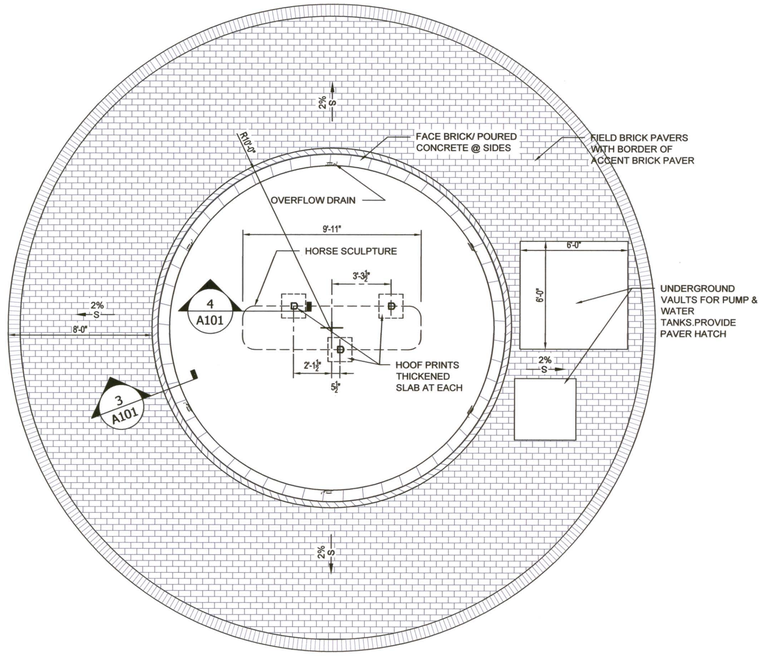


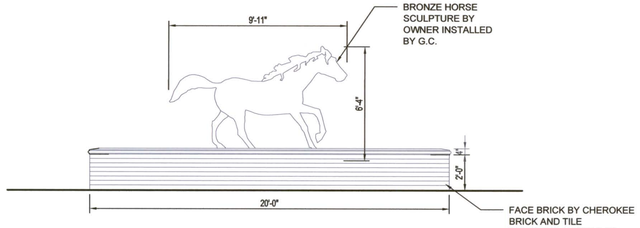
BLACK MEXICAN PEBBLE 1"-2", EXPOSED AGGREGATE CONCRETE @ POOL BOTTOM. PROVIDE INTEGRAL CRYSTALLINE WATERPROOFING OF CONCRETE- KRYSTOL INTERNAL MEMBRANE (KIM)

PROVIDE SAMPLE POUR OF FINISHED CONCRETE FOR APPROVAL PRIOR TO FINAL POUR OF FOUNTAIN BASIN.

6 A101 — EXPOSED AGGREGATE SAMPLES
SCALE: NTS



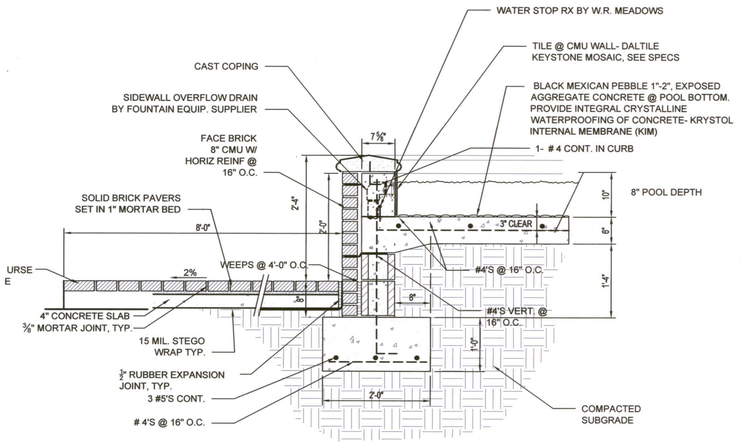
2 A101 — FOUNTAIN PLAN
SCALE: 1/4"=1'-0"



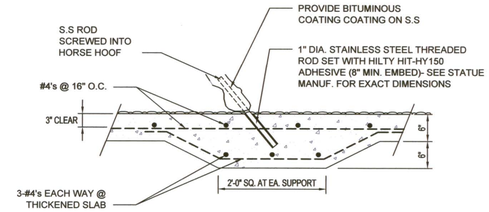
5 A101 — FOUNTAIN ELEVATION ELEVATION
SCALE: 1/4"=1'-0"

NOTE

COORDINATE LOCATIONS OF IMBEDS FOR "HOOF" SUPPORTS W/ SCULPTURE SUPPLIER & FOUNTAIN SUPPLIER



3 A101 — SECTION -FOUNTAIN WALL
SCALE: 1/2"=1'-0"



4 A101 — SECTION - SCULPTURE SUPPORT
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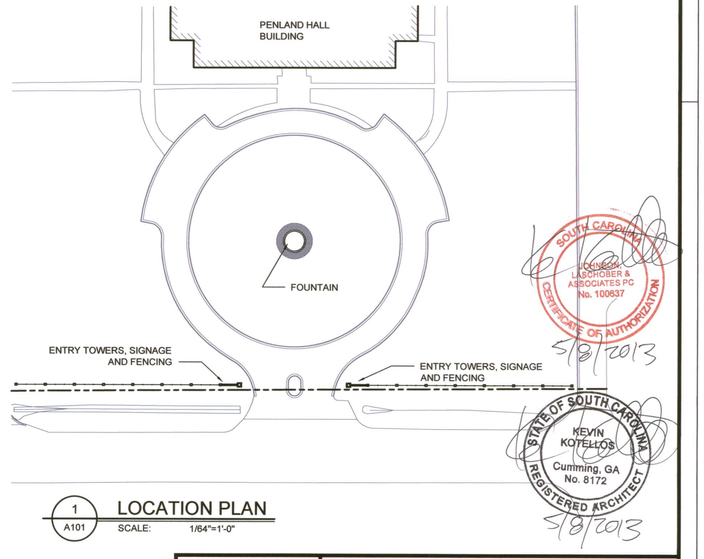

1 A101 — LOCATION PLAN
SCALE: 1/64"=1'-0"

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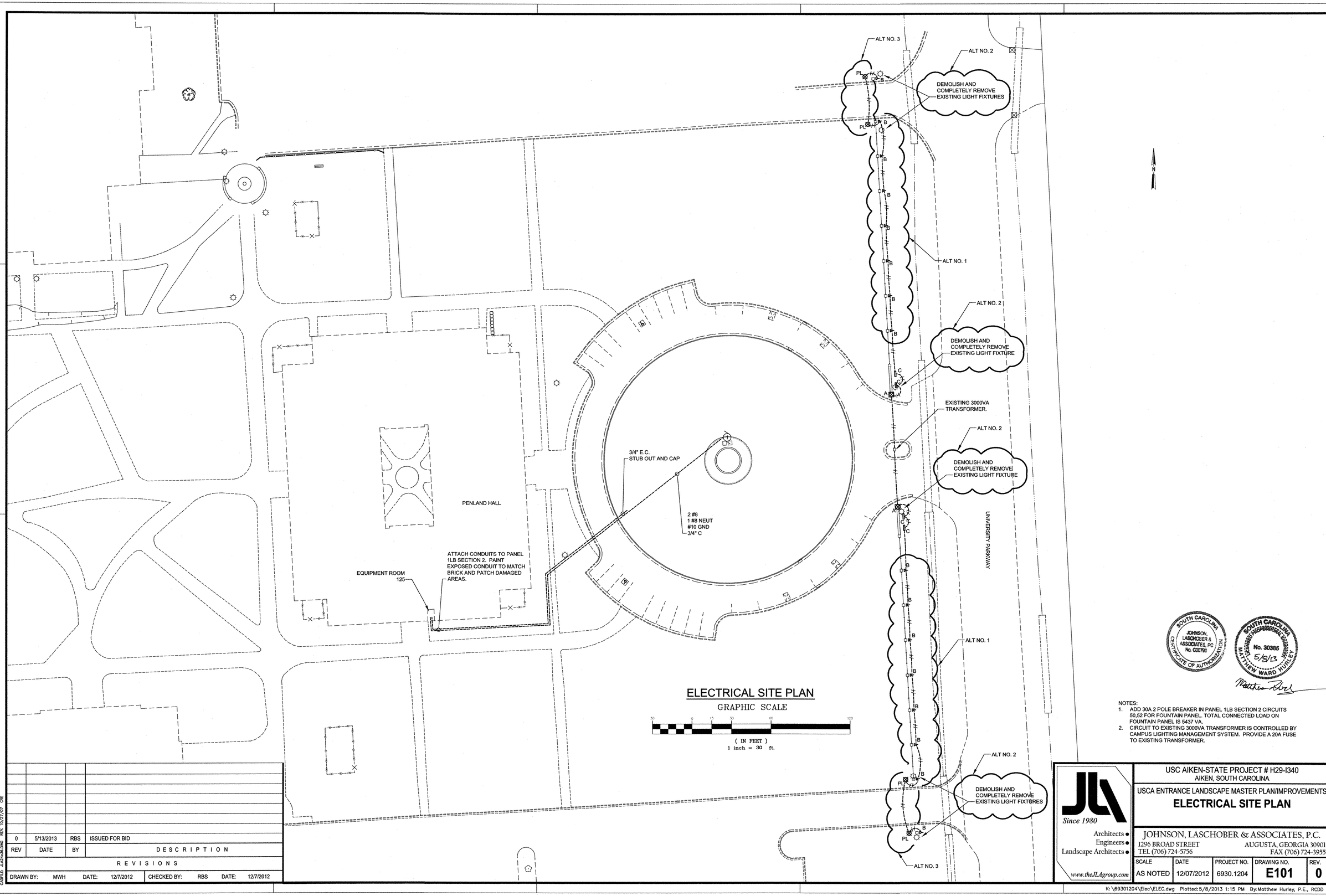

ELECTRICAL SITE PLAN

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

NOTES:
1. ADD 30A 2 POLE BREAKER IN PANEL 1LB SECTION 2 CIRCUITS 50,52 FOR FOUNTAIN PANEL. TOTAL CONNECTED LOAD ON FOUNTAIN PANEL IS 5437 VA.
2. CIRCUIT TO EXISTING 3000VA TRANSFORMER IS CONTROLLED BY CAMPUS LIGHTING MANAGEMENT SYSTEM. PROVIDE A 20A FUSE TO EXISTING TRANSFORMER.

SOUTH CAROLINA JOHNSON, LASCHOBER & ASSOCIATES, PC No. C00790 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 30385 5/8/13 MATTHEW WARD HURLEY

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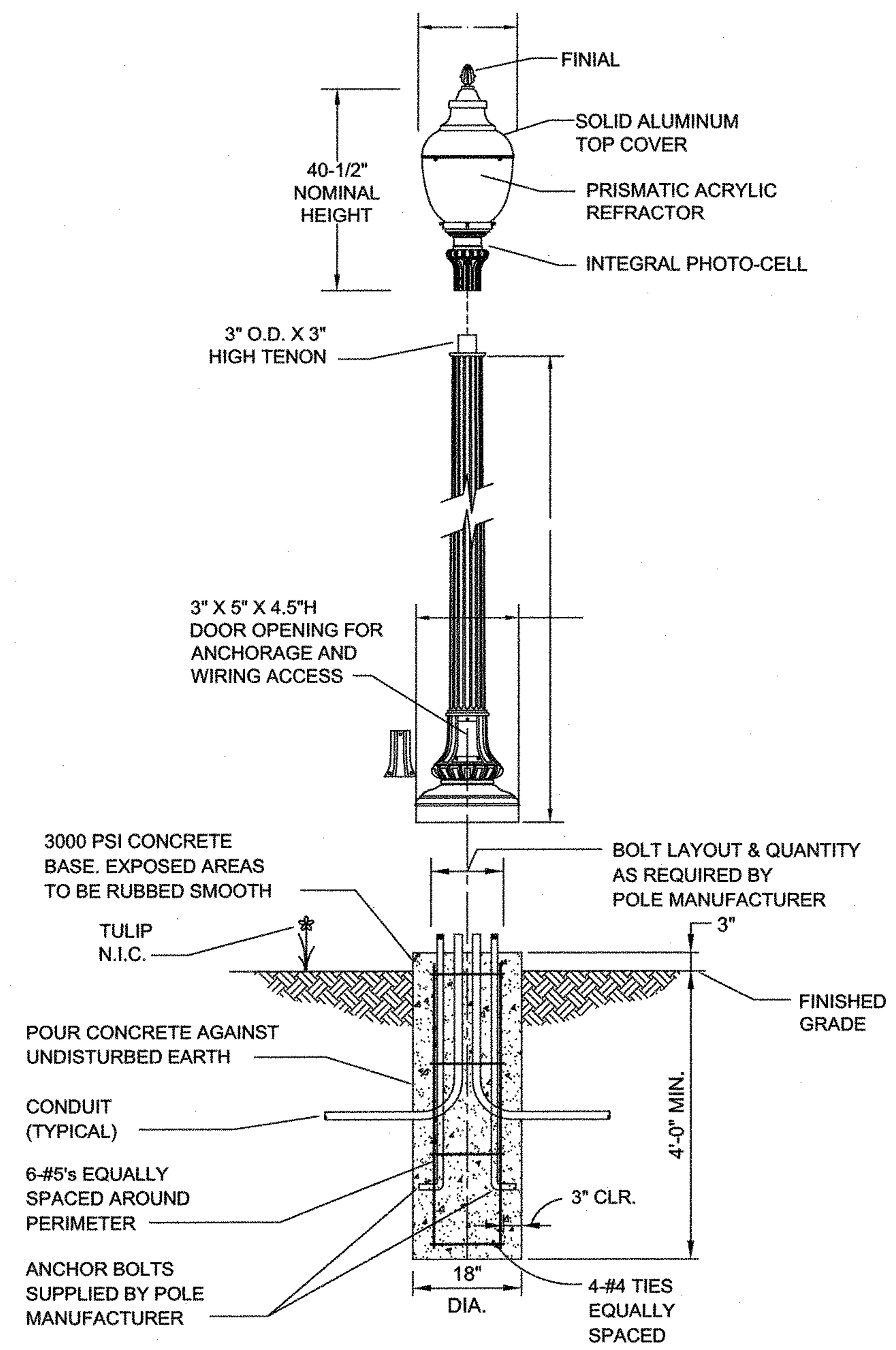


1 / E201 **DETAIL**

FIXTURE TYPES PL

SCALE: 1/2" = 1'-0"

SPECIFICATIONS

GENERAL - ALL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (NFPA 70-2012) AND ALL APPLICABLE STATE AND LOCAL CODES. ALL MATERIALS SHALL BE NEW AND UL LISTED/LABELED AS APPROPRIATE. FINAL LOCATIONS FOR ROUGH-INS SHALL BE VERIFIED WITH ACTUAL EQUIPMENT BEING CONNECTED. AFTER COMPLETING INSTALLATION, REMOVE BURRS, DIRT, AND CONSTRUCTION DEBRIS FROM ALL ELECTRICAL WORK.

CONDUCTORS - INSULATION SHALL COMPLY WITH NEMA WC 5. CONDUCTORS #8 AWG AND LARGER SHALL BE CONCENTRIC STRANDED. CONDUCTORS #10 AND SMALLER SHALL BE SOLID.

TYPE AND INSULATION (FEEDER): COPPER, TYPE THWN
TYPE AND INSULATION (BRANCH): COPPER, TYPE THWN

COLOR CODING (208/120 V, 3Ø): A-BLACK, B-RED, C-BLUE, N-WHITE, G-GREEN

RACEWAYS - CONDUIT BODIES AND FITTINGS FOR RIGID METAL CONDUIT SHALL BE CAST THREADED TYPE. CONDUIT FITTINGS FOR ELECTRICAL METALLIC TUBING SHALL BE COMPRESSION TYPE. INSTALL 200 lb NYLON PULL CORD IN ALL EMPTY RACEWAYS FOR FUTURE USE. APPLY FIRESTOPPING TO ELECTRICAL PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY.

OUTDOORS EXPOSED: RIGID GALVANIZED STEEL CONFORMING TO ANSI C80.5
OUTDOORS UNDERGROUND: RIGID NONMETALLIC CONDUIT (SCHEDULE 40 PVC) CONFORMING TO NEMA TC 2
OUTDOORS CONNECTED TO VIBRATING OR MOTORIZED EQUIPMENT: LIQUIDTIGHT FLEXIBLE METAL CONDUIT CONFORMING TO UL 360
INDOORS CONCEALED: ELECTRICAL METALLIC TUBING CONFORMING TO ANSI C80.3
INDOORS EXPOSED: ELECTRICAL METALLIC TUBING CONFORMING TO ANSI C80.3

PULL AND JUNCTION BOXES - BOXES SHALL BE HOT-DIPPED GALVANIZED STEEL. BOX COVERS SHALL BE GASKETED TYPE WITH SCREWED OR BOLTED FASTENERS.

GROUNDING - GROUNDING AND BONDING COMPONENTS SHALL COMPLY WITH UL 467. AN INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED WITH CIRCUIT CONDUCTORS FOR ALL FEEDER AND BRANCH CIRCUITS.

FUSES - FUSES SHALL BE NEMA FU 1 CARTRIDGE TYPE. VOLTAGE RATING SHALL BE CONSISTENT WITH CIRCUIT VOLTAGE. ARRANGE FUSES IN FUSIBLE DEVICES SO FUSE RATINGS ARE READABLE WITHOUT REMOVING FUSE. INSTALL TYPEWRITTEN LABELS ON INSIDE DOOR OF EACH FUSIBLE DEVICE TO INDICATE FUSE REPLACEMENT INFORMATION.

OTHER FEEDER AND BRANCH CIRCUITS: UL CLASS RK1, NON-TIME DELAY

LIGHTING - OTHER THAN POLE LIGHTING, FIXTURES ARE BASIS OF DESIGN. AIM ADJUSTABLE LIGHTING DURING PRESENCE OF ARCHITECT OR ENGINEER AT NIGHT FOR UNIFORM COVERAGE. ALLOW FOR TWO VISITS FOR RE-AIMING.

GENERAL NOTES

1. COORDINATE SITE LIGHTING AND SITE UTILITIES WITH LANDSCAPING PLANS AND DETAILS.
2. CONSULT MANUFACTURERS' SHOP DRAWINGS FOR REQUIREMENTS AND EXACT LOCATION OF ELECTRICAL CONNECTIONS FOR EQUIPMENT FURNISHED BY OTHERS. BRANCH CIRCUIT WIRING SHALL MEET ALL REQUIREMENTS OF THE EQUIPMENT MANUFACTURER.
3. SIZE FUSES IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURERS' RECOMMENDATIONS AND THE N.E.C.
4. DO NOT SCALE DRAWINGS. DEVICE LOCATIONS ARE APPROXIMATE UNLESS DIMENSIONED. ACTUAL DEVICE LOCATIONS SHALL BE FIELD COORDINATED WITH ALL OTHER TRADES AND APPLICABLE CODES.

DEMOLITION NOTES

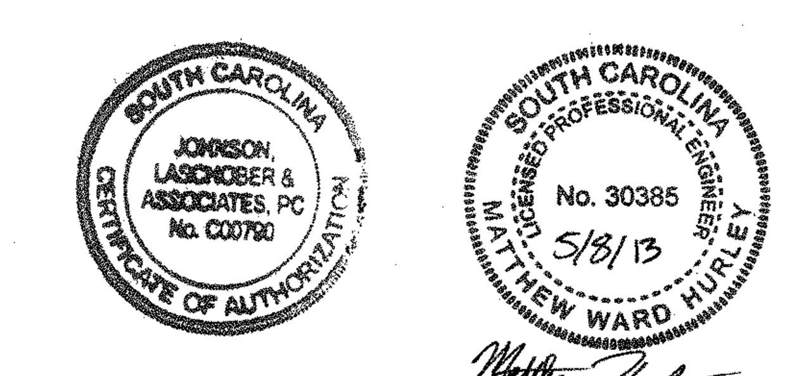
1. MAINTAIN CIRCUIT CONTINUITY FOR ALL REMAINING CIRCUIT

SYMBOLS

Symbol	Description
⊠	LANDSCAPING FIXTURE. SEE FIXTURE SCHEDULE.
◂	LANDSCAPING FIXTURE. SEE FIXTURE SCHEDULE.
(1)	FOUNTAIN MOTOR PANEL
—//→ A 1	BRANCH CIRCUIT RACEWAY CONCEALED IN WALLS OR ABOVE CEILING. ARROW SHOWS PANEL HOME RUN. CROSSLINES INDICATE NUMBER OF NEW NUMBER 10 WIRES. SUBSCRIPT SHOWS PANEL CIRCUIT NUMBER.
– –//– → A 1	UNDERGROUND RACEWAY AS ABOVE

LIGHTING FIXTURE SCHEDULE

ID	MANUFACTURER	MODEL NO.	VOLTAGE	REQUIRED LAMPS NUM.	REQUIRED LAMPS TYPE	MOUNTING	REMARKS
A	Philips-Hanover	L10957	120	1	LED	Pendant	PENDANT LIGHT FIXTURE. SEE ARCHITECTURAL PLANS FOR MOUNTING DETAILS.
B	Kim Lighting	EL731DB/SM18	120	1	LED	Stanchion Mount	MOUNT FIXTURE 12" FROM BASE OF COLUMN
C	Kim Lighting	4348/132T8/DB/SM18	120	2	F32T8	Stanchion Mount	STANCHION MOUNTED LINEAR SIGN LIGHTER 24" AWAY FROM SIGN.
PL	Sternberg	6ARC45T5 508 PEC1	120	1	LED	Post	MOUNT FIXTURE ON 4212-FP5 POLE ON CONCRETE BASE. SEE DETAIL 1/E201 INTEGRAL PHOTO CELL REQUIRED. ALL FINISHES SHALL BE BLACK.



REV	DATE	BY	DESCRIPTION
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DRAWN BY: MWH DATE: 12/7/2012 CHECKED BY: RBS DATE: 12/7/2012

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"Green Building Benefits" of Specifying and Constructing Decorative Architectural Fountains and Water Features By Roman Fountains

* Fountains use re-circulated water, minimizing water waste and run-off, providing for site water use reduction and water efficient landscaping.
* Fountains serve as sound masks and barriers to lessen urban environmental noise pollution.
* Fountains serve as air filters, removing dust, dirt, allergens and other pollutants, thereby improving air quality.
* Fountains serve as nature's air conditioners, reducing ambient temperatures surrounding the water feature, and providing thermal comfort at the fountain site.
* Fountains use less water on a per square foot basis than the same planted area requiring sprinkler and drip irrigation, providing for water efficient landscaping.
* Fountains reduce the 'heat island effect' generated by paved or concreted landscape and hardscape surfaces.
* Fountains enhance the 'urban livability' of the building environment and convey a positive quality of life to occupants and visitors.
* Fountains offer opportunities to optimize energy performance, efficiency and sustainability using energy efficient motors and LED lighting products.
* PVC pipe saves energy, reduces CO2 emissions and takes less energy to produce than many competing products. PVC pipe saves fossil fuels; the principal raw material (nearly 60%) is chlorine derived from common salt, one of the most plentiful natural resources on earth. PVC is 100% recyclable.

NOTICE OF STATED AND INTENDED USE FOR DECORATIVE ARCHITECTURAL VIEWING PURPOSES ONLY UNLESS SPECIFICALLY REPRESENTED, IDENTIFIED, OR OTHERWISE SPECIFIED AND DESIGNED AS A "WATERPLAY" FOUNTAIN

It is hereby acknowledged, agreed and understood by specifier / purchaser / owner/ operator of this equipment and/or system that its stated and intended use is for decorative viewing purposes only, and not for public bathing, swimming, public entry or public recreational use. As such Roman Fountains Corporation assumes no responsibility or liability whatsoever for personal injury, sickness, illness, disease, or other accidents which may occur as a result of the equipment/system being used, operated or otherwise maintained in a manner inconsistent with its stated and intended purpose. Specifier/Purchaser/Owner/Operator is solely responsible for determining whether any specific codes, rules, regulations or guidelines for fountains apply to this project prior to construction, installation and operation and for notifying the public of the stated and intended use and operation of this decorative architectural fountain and for lawful enforcement thereof, including posting any and all signs, notices, warnings, instructions and barriers and providing personnel as necessary to enforce compliance with its intended use.

NOTICE

ANY ALTERATIONS, ADDITIONS, DELETIONS, CHANGES, MARKINGS, OR MODIFICATIONS TO ROMAN FOUNTAINS NOTES, NOTICES, INSTRUCTIONS, WARNINGS, CAUTIONS, LISTED INSTALLER RESPONSIBILITIES, TERMS, CONDITIONS, ETC. ARE NULL & VOID' AND SHALL NOT BE CONSIDERED, ACCEPTED OR RECOGNIZED BY ROMAN FOUNTAINS AS PART OF THE REVIEW OR APPROVAL PROCESS.

U.S. GREEN BUILDING COUNCIL MEMBER

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS CORPORATE MEMBER

AIA Allied Member

APSP The Association of Pool & Spa Professionals®

roman fountains®

America's Fountain Company!SM

"Handcrafted In America . . . By American Craftsmen." SM

PREPARED FOR: Johnson, Laschober and Associates, PC / Augusta, Georgia

PROJECT NAME: USC Aiken Fountain / Aiken, South Carolina

DATE: November 30, 2012 REVISION #1: December 06, 2012

PROJECT LEAD: Tom Hanson / Atlanta Office - 1-877-794-1802

DESCRIPTION	DWG. #
GENERAL INSTALLATION NOTES	WFN-1
FOUNTAIN EQUIPMENT LIST AND PERFORMANCE CRITERIA	WFN-2
FOUNTAIN EQUIPMENT DETAIL SHEET	WFD-1
FOUNTAIN EMBED & EQUIPMENT LAYOUT PLAN	WFM-1
FOUNTAIN DRAIN, DRAIN RETURN & SUPPLY PIPING PLAN & SECTIONS	WFM-2
ENLARGED VIEW OF RDP-1-300-B (Special), ITEM #12 & RWST-500 (Special), ITEM #04 & SECTION	WFM-3
RDP-1-300-B (Special), ITEM #12, DIRECT BURIAL PUMP VAULT DETAILS	WFM-4
RDP-1, DIRECT BURIAL PUMP VAULT INSTALLATION DETAILS	WFM-5
RWST-500, ITEM #04, WATER STORAGE TANK INSTALLATION DETAILS	WFM-6
FOUNTAIN ELECTRICAL PLAN & INSTALLATION DETAIL	WFE-1
RDP-1-300-B (Special), ITEM #12, CONTROL PANEL WIRING DIAGRAM	WFE-2
TYPICAL ELECTRICAL DETAILS & ARTICLE 680 NEC REQUIREMENTS	WFI-1
TYPICAL PIPING AND PENETRATION DETAILS	WFI-2

IMPORTANT SCHEDULING NOTICE TO CLIENT

In accordance with Roman Fountains standard quotation and published terms and conditions of sale, orders for components and/or systems are not released for fabrication and shipment until one (1) set of submittals/shop drawings clearly marked "REVIEWED" by customer is received at our offices in Albuquerque, New Mexico.

Delivery times quoted in written proposals commence from the date one (1) complete set of reviewed submittal/shop drawings is received with no changes or revisions required.

This is a company policy requirement, to insure accurate client/manufacturer communication pertaining to scope of work & responsibility. Thank You.

DRAWING "REVIEWED" FOR SCOPE BY: _____
SIGNATURE OF AUTHORIZED INDIVIDUAL/COMPANY NAME

DATE:

NOTE: The proper design, operation, and performance of this system is based on the selection and use of equipment manufactured and/or selected by Roman Fountains Corporation, Albuquerque, New Mexico, USA, (505) 343-8082. Substitution of equipment, other than that selected and furnished by Roman Fountains, voids the system warranty and performance guaranty and installer assumes full responsibility for system installation, operation and performance.

ATTENTION: In accordance with Roman Fountains standard quotation and terms and conditions of sale, components and systems are not released for fabrication and shipment until approved submittals and shop drawings are received at factory.

IMPORTANT NOTICE TO CONTRACTOR AND OWNER: Certain events beyond the reasonable and foreseeable control of Roman Fountains Corporation can cause certain fountain system equipment damage or failure.

Control and removal of foreign objects entering the fountain such as coins, plastic and paper products, wrappers lint, dust, dirt, container lids and caps, pull tabs, glass, metal, surrounding landscape coverings such as leaves, twigs, soil, seeds, bark, wood chips, gravel cover, wood products, insects, vermin, animal wastes, vegetation, plant matter, algae, chemicals, detergents, fertilizers, or other objects either as a result of natural, willful or forced occurrence is the responsibility of the contractor and owner, and Roman Fountains shall not be held responsible or liable for any incidental or consequential equipment, component, structural or any other direct or indirect damage as a result of foreign objects or debris entering the fountain system by any means, including water quality and sanitation issues.

Contractor and owner shall take any and all precautions necessary in order to prevent damage to equipment and components, including providing adequate screening/grating devices and performing periodic inspection and cleaning of fountain pool, without impairing proper equipment operation, regardless of whether such devices are required per specification, or shown in manufacturers shop/installation drawings and details.

NOTICE: Roman Fountains Standard Warranty terms & conditions apply to all product/system sales. Contact factory for complete warranty form. Any and all terms to the contrary are "NULL & VOID".

CORPORATE OFFICE, MANUFACTURING & DISTRIBUTION FACILITY
Phone #: (800) 794-1801 Fax #: (505) 343-8086
P.O. Drawer 10190, Albuquerque, N.M. 87184
http://www.romanfountains.com

EASTERN ENGINEERING & SALES OFFICE
Phone #: (877) 794-1802 Fax #: (770) 300-0074
9875 Medlock Bridge Parkway
Suite 250
Johns Creek, GA. 30022

IMPORTANT NOTICE TO FOUNTAIN CONTRACTOR/INSTALLER (MECHANICAL AND ELECTRICAL):

NOTWITHSTANDING THE CONTRACT DOCUMENTS, INCLUDING ARCHITECT'S FINAL "FOR CONSTRUCTION" PLANS AND SPECIFICATION DATA, THE FOUNTAIN SYSTEM MUST BE INSTALLED IN ACCORDANCE WITH ROMAN FOUNTAINS FINAL AND APPROVED SET OF SHOP/INSTALLATION DRAWINGS, DETAILS AND INSTRUCTIONS, AND MAINTAINED IN STRICT ACCORDANCE WITH ROMAN FOUNTAINS OPERATION & MAINTENANCE MANUALS AND INSTRUCTIONS, OR ROMAN FOUNTAINS PRODUCT WARRANTY AND SYSTEM PERFORMANCE GUARANTEE IS VOID.

ELECTRICAL NOTES (RESPONSIBILITY OF INSTALLER) AS APPLICABLE TO THE SYSTEM

1. The installation of electrical equipment and wiring in water can produce extreme hazards. It is the responsibility of the installing contractor to consult and comply with all electrical codes and safety regulations prior to installation of electrical equipment. Local codes take precedence over the general notes where discrepancies or conflicts exist.
2. It is the responsibility of the installing contractor to verify all field dimensions critical to fountain equipment installation and performance and report any discrepancies, in writing, to Roman Fountains and the Architect/Engineer.
3. It is the responsibility of the installing contractor to insure that all electrical equipment is installed and wired by a QUALIFIED, LICENSED ELECTRICIAN experienced in fountain system wiring. Roman Fountains assumes no responsibility or liability whatsoever for installations not carried out by a qualified, licensed electrician in accordance with the approved shop drawings, and all provisions of the latest edition of NEC in general, Article 680 specifically, and local safety codes and regulations.
4. A Class 'A' ground fault circuit interrupter (GFCI) must be installed in each branch circuit supplying fountain equipment. Equipment operating at 15 volts or less must be protected by suitable transformer U.L. Listed and marked for the application.
5. Submersible lighting fixtures must be installed for operation at 150 volts or less between conductors. Submersible pumps must operate at 300 volts or less between conductors.
6. Submersible lighting fixtures must be installed with the top of the fixture lens a minimum of 2" below the normal operating water level and must have the lens adequately guarded to prevent contact by any person.
7. All electrical equipment which depends on submersion for safe operation must be protected against overheating by an independent low water cutoff device if the water level drops below normal operating level.
8. Per code, maximum length of exposed cord in the fountain is limited to 9 feet. Cords extending beyond fountain perimeter must be enclosed in approved wiring enclosures. Customer is responsible for any and all inspection issues resulting from requests or requirements for additional cord lengths.
9. All submersible niche lights must have sufficient cord length to allow removal from the water for relamping and normal maintenance. Fixtures cannot be permanently embedded in the fountain structure so that the water level must be reduced or the fountain drained for relamping, maintenance, or inspection.
10. Submersible equipment must be inherently stable or be securely fastened in place with non-corrosive fasteners suitable for the purpose (by installer).
11. Underwater junction boxes must be filled with an APPROVED RE-ENTERABLE ELECTRICAL POTTING COMPOUND (wax or paraffin is not acceptable) prior to filling pool and after all circuits have been checked to prevent the entry of moisture and be firmly attached to supports or directly to the fountain surface and bonded as required. All conduit stubbed up through pool floor must be red brass pipe, "Everdur", stainless steel or hard copper. PVC is not acceptable as a conduit support stub for submersible junction boxes. All conduit entries must be completely sealed prior to potting to prevent compound from entering conduit system.
12. All electrical conduit and conduit fittings between submersible light fixture niches, junction boxes and control panels shall be U.L. Listed rigid, nonmetallic, PVC Nema TC-2 max. 90°C, sunlight resistant for above and below ground use. All conduits shall be protected at all times from possible water ingress. Use only approved primer and PVC glue suitable for joining all PVC conduits and fittings per manufacturers instructions.
13. All underwater junction boxes must be equipped with threaded conduit entries and compression type cord connectors for cord entry. Strain relief connectors serving niche-mounted underwater lights shall be capable of sealing both the fixture cord and an AWG #8 insulated bonding wire which may be required by some local codes.
14. All electrical equipment must be properly bonded and grounded for safety, per the latest code requirements.
15. Use good quality thread sealant or PVC glue as required for conduit connections to eliminate all leaks. All conduit shall be sealed to prevent entry of moisture and to prevent water from draining into the fountain control panel.
16. All conduit connections between dissimilar metals must be made with dielectric fittings, and sealed with dielectric thread compound to prevent galvanic degradation.
17. Pull correct quantity and size conductors, wired with separate ground, through conduit into junction box. Make all splices and connections tight and well insulated. Connect ground wire to ground lug in junction box, or other suitable grounding location.
18 Insert each submersible cord through the brass cord seals provided on the junction box and tighten completely.
19. Do not operate submersible lights or pumps more than ten seconds unless completely submerged or damage will result and warranty will be void.
20. All starting and control equipment such as load centers, motor starters, GFCI's, conduit, fittings, brackets, pull boxes/condulets, etc. will be furnished by the installing contractor unless specifically quoted for and clearly labeled on blueprints as being furnished by Roman Fountains.

NOTE: Any & all costs associated in complying with the above are the responsibility of installer.

NOTE
CONDUITS ENTERING FOUNTAIN SYSTEM CONTROL PANELS SHALL BE INSTALLED INTO BOTTOM OF ENCLOSURE IN THE EVENT WATER ENTERS CONDUIT AND FLOWS INTO PANEL THROUGH CONDUIT OPENINGS. DO NOT INSTALL ANY WATER LINES ABOVE THE CONTROL PANEL. A DRAIN OPENING MUST BE MADE IN BOTTOM OF ENCLOSURE PAN TO ALLOW DRAINAGE OF WATER FROM ENCLOSURE IN THE EVENT OF WATER INGRESS.

NOTE: WHERE CONFLICTS EXIST, WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED MEASUREMENTS.

NOTE
DUE TO OUR CONTINUING PRODUCT IMPROVEMENT, ROMAN FOUNTAINS RESERVES THE RIGHT TO CHANGE PRODUCT AND SYSTEM SPECIFICATIONS WITHOUT NOTICE.

NOTICE TO CLIENT:
ROMAN FOUNTAINS SHALL NOT BE RESPONSIBLE FOR WATER QUALITY AND WATER CHEMISTRY ISSUES WHICH MAY RESULT IN HARDWATER SCALING, HIGH IRON CONTENT, STAINING OR ANY OTHER CHEMICAL ACTION OR REACTION TO EQUIPMENT OR STRUCTURES THAT MAY OCCUR AS A RESULT OF WATER CHEMISTRY ISSUES.

CLIENT SHALL BE SOLELY RESPONSIBLE FOR PERFORMING ANY AND ALL TESTING DEEMED NECESSARY TO ASCERTAIN FOUNTAIN WATER QUALITY AND CHEMISTRY ISSUES PRIOR TO CONSTRUCTING THE FOUNTAIN, AND FOR SELECTING AND PROVIDING ALL WATER TREATMENT EQUIPMENT AND/OR CHEMICAL ADDITIVES WHICH MAY BE REQUIRED TO RENDER THE WATER SUITABLE FOR THE FOUNTAIN APPLICATION, INCLUDING HEALTH, WATER QUALITY AND SANITATION ISSUES.

WATER CHEMISTRY FOR ALL CHEMICALLY TREATED WATER FEATURES SHALL BE MAINTAINED AS FOLLOWS

Free Chlorine: 1.0-3.0 ppm
Combined Chlorine: None
Bromine: 2.0-4.0 (If used in lieu of Chlorine)
pH: 7.4-7.6
Total Alkalinity: 80-100 ppm
TDS: 1000-2000 ppm
Calcium Hardness: 200-400 ppm
Cyanuric Acid: 20 ppm MAX (0 ppm in Spas and Indoor Features)

ROMAN FOUNTAINS SHALL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, DETERIORATION OR ANY OTHER ADVERSE EFFECTS TO SURROUNDING LANDSCAPE OR HARDSCAPE, FOUNTAIN STRUCTURE, PIPING OR ANY EQUIPMENT AS A RESULT OF WATER QUALITY AND CHEMISTRY ISSUES AND ASSUMES THAT PROPER WATER ANALYSIS AND APPROPRIATE TREATMENT HAS BEEN IMPLEMENTED PRIOR TO OBTAINING AND INSTALLING FOUNTAIN EQUIPMENT.

PIPING NOTES (RESPONSIBILITY OF INSTALLER) AS APPLICABLE TO THE SYSTEM

1. It is the installing contractor's responsibility to verify all field dimensions critical to fountain equipment installation and performance and report any discrepancies, in writing, to Roman Fountains and the Architect/Engineer.
2. It is the responsibility of the installing contractor to check and comply with all plumbing and building codes prior to installation of equipment, Local codes take precedence over general notes where discrepancies or conflicts exist.
3. All piping penetrations through any concrete wall or floor must be made with red brass, copper or Sch. 80 PVC pipe as specified for the installation, and must be flashed or fitted with waterstop flanges to prevent leakage.
4. Interconnecting piping between the pool and pump room must be PVC, copper or brass as suitable for the working pressure of the system specification requirements and local codes.
5. All pipe connections between dissimilar metals must be made with dielectric fittings, and dielectric thread sealing compound to prevent galvanic degradation.
6. Suction center line of pump must be located at or below lower pool floor elevation if flooded-end-suction type, and no more than 4 ft. above pool floor elevation if self-priming type. All reducing fittings must be concentric type on discharge line and eccentric type on suction line.
7. Suction line must be installed as a straight run into the pump suction connection of a least eight pipe diameters with no loops, high points or traps.
8. Use long radius elbows on all directional changes on suction and discharge lines where indicated on installation drawings. In some instances, piping diagrams are exaggerated for purposes of clarity. Make all suction and discharge pipe runs using the most direct routes possible and using the minimum number of fittings possible. Slope all lines down to pump, in all cases, with no loops, traps, or high points.
9. On suction lines use only butterfly, full-port or gate type valves. Never regulate or adjust flow from suction side of pump. Use suction valves for equipment isolation purposes only.
10. On discharge lines use only butterfly, globe, ball, plug or other low loss infinitely adjustable valves, for isolation and flow regulation (by installer unless otherwise specified).
11. An in-line basket strainer is recommended on the suction side of pumps, with basket perforations properly sized to protect the pump impeller, and fountain nozzle/jet orifices (by installer unless otherwise specified).
12. Provide adequate overflow drain and fill line capacity for the fountain system.
13. The piping system shall be water pressure tested for 4 hours prior to backfilling and shall then be buried and/or supported as required to protect the integrity of mechanical system. (Refer to PVC Installation Notes.)
14. Installer shall provide adequate access, lighting, drainage and ventilation in pump room to prevent flooding, condensation or overheating of equipment, and comply with all OSHA confined space regulations and requirements, before, during and after system installation.
15. Any pressurized city water lines supplying the fountain system shall be of Type K copper and shall be protected by an approved backflow prevention device and pressure reducing valve (by installer) set at 50 PSI maximum pressure and minimum of 30 PSI.
16. 'P' traps and vents shall be installed on any drain line connected to a sanitary sewer system, where and when required by plumbing code, regardless of whether shown on installation drawings (by installer).
17. When installing suction piping for self priming pump systems, the piping shall be installed in such a manner as to maintain a flooded suction pipe condition at all times until piping connects to the pump.
18. All piping is assumed to be buried below ground in all cases, and not installed on or above grade where an air trap, loop or high point could be created.

NOTE: Any & all costs associated in complying with above are responsibility of installer.

NOTICE TO CLIENT: ELECTRONIC FILE TRANSFER POLICY

As a courtesy, drawing files and other documents may be furnished to client, at clients request, in electronic format. Electronic file drawings and documents shall be used for general reference purposes only. The transfer and receipt of an electronic file from Roman Fountains does not constitute delivery of our work product. Only a printed/plotted hard copy issued from our office, as prepared by our staff for the specific project, and identified as such constitutes our work product, and shall be the operative document for all design, product detailing, product specification, layout and installation information and warranty and performance guaranty obligations.

Roman Fountains Corporation shall not be liable or responsible in any manner whatsoever for any modifications, revisions, alterations or other changes to electronic files not specifically originating from our company and our employees, or for any products, components, systems, equipment or services obtained through use of electronic files for which a printed hard copy has not been delivered, reviewed, formally approved under clients signature and on file at Roman Fountains Corporation, Albuquerque, New Mexico, prior to delivering any products, systems or services.

The recipient of any electronic file or document issued by Roman Fountains Corporation unconditionally agrees to and accepts this policy and further agrees to indemnify and hold harmless Roman Fountains Corporation for any and all irregularities, incomplete or illegible transfers, transcription defects, incidental or consequential damages or costs incurred in the use, misuse, revision, alteration or other manipulation of electronic files issued from Roman Fountains Corporation.

DEFINITIONS OF TERMINOLOGY APPEARING IN DOCUMENTS

The term "furnish" shall mean "to obtain and deliver to the jobsite". The term "install" shall mean "to fix in position and connect for use". The term "provide" shall mean "to furnish and install".

Where language indicates that one trade is to "install" and another trade is to "connect", the term "install" shall mean "to fix in position", and "connect" shall mean "to make plumbing, mechanical and electrical connections" as indicated on the construction plans.

Roman Fountains Corporation shall by definition "furnish" equipment, components, materials and documents to the job site.

ϟ DANGER ϟ

FATAL ELECTRICAL SHOCK CAN OCCUR IF FOUNTAIN ELECTRICAL EQUIPMENT IS NOT INSTALLED PROPERLY. THIS EQUIPMENT SHOULD ONLY BE INSTALLED BY QUALIFIED ELECTRICIANS WITH PROPER GROUNDING AND GROUND FAULT INTERRUPTION CIRCUIT BREAKERS IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE, SECTION 680, AND ALL OTHER APPLICABLE SECTIONS OF THE CODE.

DANGER

FATAL SUCTION ENTRAPMENT CAN OCCUR IF FOUNTAIN MECHANICAL EQUIPMENT & PIPING IS NOT INSTALLED CORRECTLY AS SHOWN. ANTI-VORTEX PLATES MUST BE SECURELY FASTENED TO SUMPS AND/OR POOL FLOOR USING SUITABLE VANDAL RESISTANT SAFETY FASTENERS AND ANCHORS AT ALL TIMES DURING OPERATION OF FOUNTAIN SYSTEM.

NOTE: CONTRACTOR/INSTALLER IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL DIMENSIONS AT JOBSITE. ROMAN FOUNTAINS IS NOT RESPONSIBLE FOR CONSTRUCTION/INSTALLATION MEANS, METHODS, TECHNIQUES, SEQUENCES, STEPS OR PROCEDURES, OR FOR ANY SAFETY REQUIREMENTS, CODES, PRECAUTIONS, RULES, REGULATIONS OR PROGRAMS PERTAINING TO THE CONSTRUCTION PROJECT, INCLUDING BUT NOT LIMITED TO OSHA CONFINED SPACE REQUIREMENTS FOR PUMP ROOMS, VAULTS OR PITS.

SYSTEM PERFORMANCE (RESPONSIBILITY OF INSTALLER) AS APPLICABLE TO THE SYSTEM

TESTING

1. Perform tests in the presence of the owner, architect, or authorized representative for designated duration with no pressure loss or noticeable leaks.
2. Do not include equipment in tests which could be damaged by high pressure.
3. Flush out all pipes with clean water prior to performing leak tests.
4. Perform tests as follows:

System	Test Pressure	Medium
Water	75 psi	Water
Drainage	10 ft.	Water

5. Automatic make-up water systems shall be thoroughly tested and operative at the time of final observation. Do not exceed 50 PSI line pressure.
6. After the system has operated for one week, contractor and owner's representative shall inspect water make-up rates and agree that water usage is appropriate for system of this type, are within local ordinances or codes, and that such rates are not indicative of excessive leakage from system. A water meter shall be placed on the fill line for this purpose, if necessary to document precise water usage.

PVC INSTALLATION NOTES

1. Unless architects or fountain designers specifications, or building codes indicate otherwise, the suggested minimum piping and fitting standard recommended for this installation is Type 1 Schedule 80 PVC to ASTM #D-1784, D-2464 and D-3467. Schedule 40 PVC pipe may be substituted if it is acceptable to mechanical/civil engineer and does not conflict with any specifications or building codes. Installer is responsible for any/all interconnecting piping, fittings and connections between equipment.
2. Use only clear PVC cleaner meeting NSF, UPC, and ASTM standards for cleaning and repairing PVC pipe and fitting surfaces for solvent cementing (IPS Corporation "Weld-On" Type C-65 or equivalent). Follow all directions and instructions appearing on product label.
3. Use only purple PVC primer meeting NSF, UPC, and ASTM #F-656 standards for softening and preparing pipe and fitting surfaces for solvent cementing (IPS Corporation "Weld-On" Type P-70 or equivalent). Follow all directions and instructions appearing on product label.
4. Use only gray, heavy bodied, medium setting PVC cement meeting NSF, UPC and ASTM #D-2564, standards for solvent cementing PVC plastic pipe and fittings (IPS Corporation "Weld-On" Type 711 or equivalent). Follow all directions and instructions on product label.
5. Pressure test all water piping prior to commencing backfill operations. (See #4 above) Hydrostatic (water) testing shall be the only approved method. DO NOT PRESSURE TEST WITH COMPRESSED AIR as severe pipe damage and bodily injury can occur. Do not exceed the rated operational pressure of the piping and/or fittings carrying the lowest pressure rating. Locate and repair any leaks and retest (per #4 above) prior to completion of backfill operations.
6. Concrete "thrust" blocking is recommended at all directional changes (tee's, elbows, etc.), reducer fittings and line terminations (bushings, end caps, plugs, etc.).
7. Perform adequate trenching and backfill operations when installing PVC piping below grade. Trench width should be minimum of "pipe O.D. plus 12 inches" and deep enough to allow piping to be buried minimum 12" below the maximum expected frost penetration line to avoid freeze damage. Lay piping in horizontal, parallel and perpendicular manner and allow for expansion and contraction. Avoid vertical stacking of pipes. Space minimum of 3" apart on all parallel runs.
8. Use only clean, free-flowing, non-expansive backfill material (naturally rounded 1/4" pea gravel or sand) and backfill in 8"-12" lifts with adequate and complete compaction between lifts to 90% of maximum density per ASTM 1557-70. Compaction to excessive loads shall not be permitted. A second pressure test on the piping system must be made at this time to insure that piping has not been damaged during backfill operations (see #4 above).

NOTE: Any & all costs associated in complying with above are responsibility of installer.

LIABILITY DISCLAIMER NOTICE

Roman Fountains shall not be responsible or liable for any civil or structural design drawings, details, notations or any other aspects of the project regarding fountain layout, structure or construction/building practices, including, but not limited to, concrete design, specifications and slab pour methods, concrete reinforcements such as rebar type, size and locations, or concrete structural waterproofing specifications, materials and methods, etc.

Any structure depicted or appearing on our plans shall be shown solely for dimensional reference and general structural orientation in order to adequately identify, coordinate, orient, locate and install our equipment package, and shall not be relied on for any other purposes.

Client is advised to enlist the services of a licensed professional engineer familiar and experienced with such work when designing/constructing any fountain pool or pump room structure, who shall accept complete responsibility and liability for all structural and civil engineering details pertaining to the project.

REQUEST TO PHOTOGRAPH, RECORD AND PUBLISH

ROMAN FOUNTAINS RESERVES THE RIGHT TO TAKE (OR CAUSE TO HAVE TAKEN) PHOTO AND/OR VIDEO IMAGES OF ITS FOUNTAIN SYSTEM EQUIPMENT AND/OR FOUNTAIN OPERATING EFFECTS (PRINT FILM, DIGITAL IMAGES, VIDEOTAPE OR OTHERWISE) AND TO PUBLISH SAID IMAGES IN ANY OF ITS SALES AND MARKETING BROCHURES, ADVERTISEMENTS, PRESENTATION AND SEMINAR HAND-OUTS, NEWSLETTERS, TRADESHOW EXHIBITS, WEBSITES, OR USE FOR LEGAL DOCUMENTATION PURPOSES. THIS RIGHT INCLUDES PRE-INSTALLATION IMAGES, INSTALLATION SEQUENCE IMAGES, START-UP AND COMMISSIONING IMAGES AND POST INSTALLATION IMAGES. ROMAN FOUNTAINS MAY, BUT SHALL NOT BE OBLIGATED TO IDENTIFY THE PROJECT, OR ANY OF THE PARTICIPANTS IN THE PROJECT, INCLUDING BUT NOT LIMITED TO OWNERS, PARTNERS, CORPORATIONS, ARCHITECTS, ENGINEERS, LANDSCAPE ARCHITECTS, CONSULTANTS, SPECIFIERS, DEVELOPERS, ETC. ALL IMAGES AND RECORDINGS SHALL REMAIN THE PROPERTY OF ROMAN FOUNTAINS CORPORATION, ITS SUCCESSORS OR ASSIGNS.

08/07/03

WATERPROOFING NOTICE OF RESPONSIBILITY

ROMAN FOUNTAINS RECOMMENDS ALL FOUNTAINS BE PROPERLY WATERPROOFED AND ALL FOUNTAIN COMPONENTS BE PROPERLY SEALED WITH A SUITABLE WATERPROOF CAULKING COMPOUND TO INSURE A WATERTIGHT FOUNTAIN INSTALLATION.

ANY WATERPROOFING DETAILS OR SPECIFICATIONS THAT MAY APPEAR ON ROMAN FOUNTAINS PLANS OR EQUIPMENT DETAILS ARE FOR GENERAL REFERENCE ONLY AND SHALL NOT BE INTERPRETED OR RELIED UPON AS A FORMAL SPECIFICATION OR RECOMMENDATION. CONVERSELY, THE ABSENCE OF WATERPROOFING DETAILS OR SPECIFICATION ON ROMAN FOUNTAINS PLANS, DETAILS OR PRODUCT SHEETS DOES NOT IMPLY THAT WATERPROOFING IS NOT A PROJECT REQUIREMENT.

IT IS THE RESPONSIBILITY OF THE PROJECT ARCHITECT/ENGINEER TO SPECIFY ANY AND ALL WATERPROOFING REQUIREMENTS, PRODUCTS, INSTALLATION/APPLICATION METHODS, PROCEDURES AND OTHER DETAILS AS MAY BE NECESSARY AND REQUIRED FOR THE FOUNTAIN STRUCTURE AND FOUNTAIN COMPONENTS.

IT IS THE RESPONSIBILITY OF THE WATERPROOFING CONTRACTOR TO REVIEW THE PROJECT SPECIFICATIONS FOR WATERPROOFING REQUIREMENTS FOR THE FOUNTAIN AND RELATED COMPONENTS AND PROVIDE THE SPECIFIED WATERPROOFING PRODUCTS AND SYSTEMS TO INSURE WATERPROOF INTEGRITY OF THE FOUNTAIN SYSTEM.

IT IS THE RESPONSIBILITY OF THE FOUNTAIN EQUIPMENT INSTALLER TO COORDINATE ALL WATERPROOFING MATERIALS, SYSTEMS, APPLICATIONS, PROCEDURES AND METHODS WITH THE WATERPROOFING CONTRACTOR, IN STRICT ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

ROMAN FOUNTAINS ASSUMES NO RESPONSIBILITY OR LIABILITY WHATSOEVER FOR ANY WATERPROOFING ISSUES RELATED TO ITS DESIGN PACKAGE, SCOPE OF WORK OR EQUIPMENT SUPPLY UNDER ANY CIRCUMSTANCES. IF THE FOUNTAINS CONTRACTOR/INSTALLER/WATERPROOFER HAS QUESTIONS PERTAINING TO WATERPROOFING, THE SHALL BE DIRECTED TO THE PROJECT ARCHITECT/ENGINEER WHO IS SOLELY RESPONSIBLE FOR SUCH MATTERS.

INTELLECTUAL PROPERTY AND COPYRIGHT NOTICE
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THIS IS AN ORIGINAL DESIGN CREATED BY ROMAN FOUNTAIN CORPORATION.

THE CONCEPTS, IDEAS, PLANS, NOTES AND DETAILS ARE THE INTELLECTUAL PROPERTY OF ROMAN FOUNTAINS CORPORATION.

NONE OF THE CONCEPTS, IDEAS, PLANS NOTES OR DETAILS SHALL BE USED OR DISCLOSED BY ANY INDIVIDUAL, ORGANIZATION OR CORPORATION FOR ANY PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT AND PERMISSION OF ROMAN FOUNTAINS CORPORATION, ALBUQUERQUE, NEW MEXICO.

NOTE: DRAWINGS, NOTES, DETAILS, EQUIPMENT LISTS, SPECIFICATIONS, INSTALLER REQUIREMENTS AND CALL-OUTS ARE "COMPLIMENTARY". WHAT IS INDICATED/REFERRED TO ON ANY DRAWING IN THE SET SHALL BE BINDING AS IF INDICATED/REFERRED TO ON ALL DRAWINGS IN THE SET, AS APPLICABLE.

NOTICE OF STATED AND INTENDED USE FOR DECORATIVE ARCHITECTURAL VIEWING PURPOSES ONLY UNLESS SPECIFICALLY REPRESENTED, IDENTIFIED, OR OTHERWISE SPECIFIED AND DESIGNED AS A "WATERPLAY" FOUNTAIN

It is hereby acknowledged, agreed and understood by specifier / purchaser / owner/ operator of this equipment and/or system that its stated and intended use is for decorative viewing purposes only, and not for public bathing, public entry or public recreational use. As such Roman Fountains Corporation assumes no responsibility or liability whatsoever for personal injury, sickness, illness, disease, or death which may occur as a result of the equipment/system being used, operated or otherwise maintained in a manner inconsistent with its stated and intended purpose. Specifier/Purchaser/Owner/Operator is solely responsible for notifying the public of the stated and intended use and operation of this decorative architectural fountain and for lawful enforcement thereof, including posting any and all signs, notices, warnings, instructions and barriers and providing personnel as necessary to enforce compliance with its intended use.

PURCHASER/OWNER INSTALLATION, MAINTENANCE & SERVICE RESPONSIBILITY

THIS FOUNTAIN SYSTEM IS DESIGNED, SPECIFIED, OFFERED AND SOLD UNDER THE ASSUMPTION AND UNDERSTANDING THAT THE PURCHASER/OWNER HAS REVIEWED, AND IS FAMILIAR WITH, THE FOUNTAIN PROJECT AND UNDERSTANDS THE COMPLEXITIES OF THE EQUIPMENT AND HAS, OR WILL CONTRACT WITH, COMPETENT AND EXPERIENCED INSTALLERS, AND THE PURCHASER/OWNER HAS, OR WILL CONTRACT WITH, COMPETENT AND EXPERIENCED OPERATION, MAINTENANCE AND SERVICE PERSONNEL FAMILIAR WITH SUCH EQUIPMENT TO PROPERLY CARE FOR THE EQUIPMENT. ROMAN FOUNTAINS SHALL IN NO WAY BE HELD RESPONSIBLE FOR DETERMINING WHETHER OR NOT PURCHASER/END USER HAS ADEQUATE KNOWLEDGE, RESOURCES, ABILITIES OR EXPERIENCED TRADES AND PERSONNEL TO INSTALL, MAINTAIN AND OPERATE THIS FOUNTAIN SYSTEM AND ITS ASSOCIATED EQUIPMENT PRIOR TO OFFER/PURCHASE AND AFTER SALE & INSTALLATION.

NOTICE TO INSTALLER

ALL FOUNTAIN SYSTEM EQUIPMENT & COMPONENTS FURNISHED BY ROMAN FOUNTAINS IS DESIGNED AND MANUFACTURED FOR USE IN FRESH WATER APPLICATIONS ONLY. DO NOT INSTALL OR OPERATE ANY EQUIPMENT IN SALT, BRINE OR BRACKISH WATER OR WARRANTY IS VOID.

RESPONSIBILITY FOR SPECIAL LABELING OR CERTIFICATION REQUIREMENTS

ALL COMPONENT ITEMS USED IN THE PRODUCTION OF OUR PRODUCTS ARE U.L. LISTED WHENEVER SUCH LABELING IS AVAILABLE FROM THE SOURCE EQUIPMENT OR MATERIAL.

SHOULD ANY PRODUCT REQUIRE A 'THIRD PARTY' LABEL OR CERTIFICATION AS AN ASSEMBLY (E.G. N.E.C., U.L. OR E.T.L. LISTING) SUCH REQUIREMENTS SHALL BE DETERMINED, CONTRACTED FOR, AND PAID BY OTHERS.

ROMAN FOUNTAINS SHALL NOT BE RESPONSIBLE OR LIABLE IN ANY MANNER WHATSOEVER FOR SPECIAL LABELING OR CERTIFICATION REQUIREMENTS, INCLUDING THIRD PARTY PRODUCT TESTING UNLESS SPECIFICALLY INCLUDED IN IT PROPOSALS, QUOTATIONS, DRAWING DESCRIPTIONS AND DETAILS, REGARDLESS OF PROJECT SPECIFICATION OR CODE REQUIREMENTS.

ELECTRONIC MEDIA USER ACCEPTANCE AGREEMENT

No warranties express or implied are made with respect to the electronic form of these drawings, including any implied warranties of merchantability or fitness for a particular purpose. It is understood the USER makes use of the electronic form of these drawings at USER's sole risk and that the drawings in electronic form are provided "as is" and "as received" without warranties of any kind. Roman Fountains shall have no obligation to or through the USER for use of the electronic form of these drawings, including any obligation or liability for the accuracy of the information furnished through the electronic form. In addition to and not withstanding the foregoing, in no event shall Roman Fountains be liable for any incidental, consequential or special damages or for any loss of profit sustained by user in connection with or arising out of the use of the electronic form of these drawings. January 1, 2003

OWNERS MAINTENANCE RESPONSIBILITY

For purposes of issuing this proposal and/or drawing package, Roman Fountains Corporation assumes client will commit the necessary manpower, equipment & financial resources necessary to properly, adequately & routinely maintain the fountain system in accordance with the Operation & Maintenance Manuals furnished by equipment supplier/manufacturer. Fountain system maintenance is the sole responsibility of the owner, not the fountain designer or system/equipment manufacturer/supplier.

NOTICE TO DRAWING RECIPIENT

Due diligence, good faith and care has been exercised in the preparation and production of these drawings, with reasonable and customary precautions, document quality control and redundant checking procedures having been taken to insure production of an accurate, informative, high quality drawing package.

However, in spite of these precautions and procedures, the possibility of errors and/or omissions always exists, as can be reasonably expected in the preparation of any complex technical drawing or document, regardless of circumstances. Therefore, the recipient is cautioned, and otherwise assumed to have carefully, completely and thoroughly examined all such drawings, including all details and notations incorporated herein, and shall immediately notify Roman Fountains Corporation in the event any errors or omissions are discovered or otherwise presumed.

All drawings are produced, prepared and submitted under the express condition and understanding that our contractual liability and responsibility is strictly limited to the correction and/or incorporation of information that has been determined or otherwise presumed to have been omitted, in error or otherwise excluded.

No liability or responsibility is assumed or otherwise accepted whatsoever by the company or its employees for any incidental or consequential damages or losses that occur as a result of possible, presumed or actual errors or omissions, whether we are notified or not.

NATURAL DISCOLORATION OF METALS

Discoloration of brass or copper fittings and components in fountains is a natural occurrence and is not considered by the company to be a product defect or warranty item. Water chemistry may turn the metal green or brown in appearance. Removal of the discoloration can be accomplished using a soft wire wheel brush and brass or copper cleaner if so desired. To minimize this natural occurrence, the material can be treated by owner with a clear epoxy spray coating or sealant.('Plasti-Kote' Clear Lacquer by Valspar or similar) prior to being installed into the fountain basin.

HUMIDITY, MOLD AND MILDEW

Roman Fountains is not responsible for any humidity, mold or mildew that may occur as a result of operating the fountain. Requirements for air dryers, de-humidifiers, and HVAC issues are the sole responsibility of others.

NOTICE REGARDING LINERS AND MEMBRANES

Equipment manufactured, supplied and otherwise furnished by Roman Fountains is primarily designed for embedment or casting directly into concrete or gunite structural material. It is not designed for natural or synthetic liner or membrane installation including fiberglass or metal liners, shells, covers or cladding. Any such requirement for liner or membrane installation or adaptation is the responsibility of the specifier, purchaser and installer, including but not limited to flanges, clamping devices, gaskets, fastening devices, coatings, adhesives or bonding agents.

CODE COMPLIANCE ISSUES ARE "BY OTHERS"

Sole responsibility and cost for ascertaining whether the fountain system design incorporated in this drawing package meets any/all building, civil, structural, mechanical, electrical or health/sanitation codes is "by others".

QUALIFICATIONS FOR BIDDERS/INSTALLERS

It is presumed that any/all entities bidding on this project are fully qualified and experienced to perform such work. It is not Roman Fountains responsibility to qualify bidders, or furnish installation instructions beyond what is furnished in these drawings. Architect/Owner is responsible for all contractor/installer qualifications and determinations as to suitability of bidders to perform the required work.

RESPONSIBILITY FOR OBTAINING PERMISSION AND PAYING ROYALTIES TO USE COPYRIGHTED MATERIALS IN MUSICAL FOUNTAIN SYSTEMS IS 'BY OTHERS'

Responsibility for obtaining any and all legal music licensing agreements, copyright permissions, royalty payments, playback or performance rights, etc. for the selection and use of any musical or other sound track recordings for use in musical fountain systems as may be required by BMI, ACSCAP, SESAC, by the artist or composer directly, or by any other permission or license granting body or organization is the sole responsibility of customer/client/owner of the fountain system. Roman Fountains does not quote, buy or sell music titles or licenses and bears no responsibility whatsoever, legally or finacially, for their use by owner. Roman Fountains accepts all music selections sent to us for programming into the musical fountain system with the sole understanding they are legally acquired, purchased, obtained and/or licensed by owner prior to sending them to Roman Fountains for incorporation into the fountain system. Roman Fountains accepts such material as "owners property".

LIMITED WARRANTY

THIS WARRANTY IS NOT IN FORCE UNTIL PAYMENT IS RECEIVED IN FULL FOR ALL MATERIALS ORDERED PER THE PURCHASE ORDER, INCLUDING CHANGE ORDERS AND/OR ADDENDUMS, AND FINAL APPROVED SHOP DRAWINGS.

Roman Fountains Corporation warrants its equipment to be free from defects in materials and workmanship, when properly installed and maintained, under normal use and service, for a period of one year from date of installation or eighteen (18) months from date of shipment, whichever occurs first. Equipment, components and items used by Roman Fountains, but manufactured by others, shall be warranted to the extent of the original manufacturer's warranty.

If the equipment is found defective under this warranty, the Buyer must notify Roman Fountains, in writing, within the warranty period. After receipt of shipping advice and Return Materials authorization (RMA) number, the Buyer may return the product directly to Roman Fountains Corporation, Customer Service Dept., 8600 Paseo Alameda Dr. N.E., Albuquerque, New Mexico, U.S.A., 87113.

All equipment returned to Roman Fountains must be carefully and properly packed and freight and insurance charges must be prepaid. Replacements or repaired equipment will be returned to the sender freight prepaid, F.O.B. Factory. This Warranty does not cover, and Roman Fountains is not responsible for, the removal or replacement of equipment on the job site and will not honor charges for such work. This Warranty does not cover, and Roman Fountains is not responsible for, any loss of use, time, incidental, or consequential damages should any of the equipment fail during the warranty period, but agrees only to put into proper operating condition or at Roman Fountains' option replace such equipment, free of all charges except transportation. The correction of any defects by repairs or, at Roman Fountains' option, replacement by Roman Fountains shall constitute fulfillment of all obligations and liability of Roman Fountains to the buyer under this Warranty and the contract of sale. Warranty on replaced or repaired equipment shall be 90 days from date of return shipment or expiration of the original warranty period, whichever comes last.

Roman Fountains is not responsible for damage to its equipment through improper installation, maintenance, use, or attempts to operate equipment above its rated capacity or voltage, intentionally or otherwise, or for unauthorized repairs, or damage due to flooding due to mechanical, electrical, or structural failure.

Failure to notify Roman Fountains of unsatisfactory operation or any improper or unauthorized installation, maintenance, use, repairs, or adjustments shall terminate this Warranty and shall relieve Roman Fountains from any further responsibility or obligation.

Buyer's exclusive and sole remedy under this Warranty is limited to repair or replacement of defective equipment returned "freight pre-paid" to Roman Fountains. Roman Fountains shall not be liable for special, consequential, incidental or other damages in any claim, action, suit or proceeding arising under this Warranty or the contract of sale, nor shall there be any liability thereunder for claims for labor, loss of profits or goodwill, repairs or other expenses incidental to replacement. This Warranty does not cover lenses, lamps, ballasts, batteries, or other equipment that may be supplied or warranted directly to the user by their manufacturers.

EXCEPT AS SPECIFICALLY PROVIDED ABOVE, ROMAN FOUNTAINS MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, AND NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE MADE, AND THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE OF THIS DOCUMENT. NO REPRESENTATIVE OR EMPLOYEE OF ROMAN FOUNTAINS IS AUTHORIZED TO EXTEND, EXPAND, OR AMEND THIS WARRANTY IN ANY MANNER WHATSOEVER.

NOTICE

All shipments, unless otherwise noted, are F.O.B. factory, Albuquerque, New Mexico, U.S.A., freight collect.

The Buyer is advised to immediately inspect for shipping damage, apparent and /or hidden. If detected, notify the transportation company immediately and file your claim. The freight company is responsible for paying claims.

Buyer agrees that installation of all equipment shall be performed in strict accordance with Article 680 of the latest version of the NEC and in accordance with all national, state and local codes, by a licensed and experienced contractor / electrician qualified to perform such work.

Prior to re-lamping or performing other work that exposes an individual to lethal electrical power, ALWAYS turn all power OFF, in accordance with OSHA regulations and guidelines.

01-02-12
(SUPERSEDES ANY AND ALL PRIOR WARRANTIES.)

SCOPE OF RESPONSIBILITY AND PERFORMANCE GUARANTEE

Roman Fountains will guarantee the decorative fountain system to perform to the specified operating heights, spray patterns, and water volumes, and to create the designed lighting effects, provided the entire equipment package as listed on our final submittal documents is supplied by Roman Fountains, and the installation, operation and maintenance of the equipment is in strict accordance with Roman Fountains installation and operating instructions, submittals, shop drawings and installation blueprints.

Roman Fountains will provide consultation and design services as they pertain to the fountain equipment package supplied, including the fountain display system, filtration system, water treatment system, overflow and drain system, water makeup and low level protection system, pump and lighting control system, lighting fixture and electrical junction box system, pump selection and pump room layout, electrical conduit and conductor sizing as it pertains to our equipment package, and suction and discharge sump design, as applicable.

The consultation and design information will be detailed on schematic, installation and submittal blueprints showing correct orientation and installation of Roman Fountains equipment as coordinated with the contract drawings. Upon receipt and acceptance of a bona-fide written purchase order with all terms and conditions satisfied, final installation drawings will be furnished to the owner/architect/engineer/contractor, as required by Roman Fountains as an integral part of its fountain equipment package. Any drawings or documents marked "preliminary" shall not be used for installation purposes.

Roman Fountains will not install, or accept responsibility for (1) the actual installation of the system equipment, (2) the design of the power distribution system, or (3) any other portion of the project not specifically enumerated, such as pool structure, hardscape design and construction and equipment room structural design and construction, or health code requirements.

Equipment not included in this scope of work: interconnecting piping, misc. plumbing and electrical fittings, filter media, water treatment chemicals, conduit, wiring, electrical load centers, electrical transformers, pipe hangers, pump and strainer supports or housekeeping pads, companion flanges, gaskets, fasteners, reducers, increasers and other equipment required to complete the installation unless specifically enumerated and identified as being furnished by Roman Fountains. This scope further does not include provisions for specially designed or fabricated waterstop equipment or penetrating sleeves, clamping or flashing rings, special sumps or other similar items unless specifically included in Roman Fountains system equipment lists and/or shop/installation drawings.

Engineer stamped or sealed drawings are not included in this scope and it shall be the responsibility of the client to obtain and pay the cost of such engineering certifications if so required.

roman fountains®
America's Fountain Company!℠

USC - Aiken
Aiken, South Carolina
For Johnson, Laschober and Associates, PC
Augusta, Georgia

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Scale:	None
Drawn By:	F. Gorman
Checked By:	S. Shadle
Date:	11/30/12

Revisions:

No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

GENERAL INSTALLATION NOTES

Drawing Number:

WFN-1

USC – AIKEN
FOUNTAIN PERFORMANCE CRITERIA

Fountain Information

Area of Pool: 256 sq. ft.

Depth of Pool: 6-3/8" static water level

Volume of Pool: 692 Gallons

RWST-500 (Special) Volume: 595 Gallons

Total System Water Volume: 1287 Gallons

Display
This fountain will consist of a 20'-0" diameter, single level basin with a bronze horse sculpture placed in the center. All four hoofs on the horse will have a RCHM-150; Hoof nozzle to give the appearance the horse is running through the water. Night illumination will consist of (2) RFL-CG-HP-LED-RGB; Hockey Puck color-changing underwater light fixtures and (2) RFL-CG-HP-LED-W; Hockey Puck White underwater light fixture at each of the Special-Hoof nozzle location. The water produced from the (4) Hoof nozzles will flow into (6) ROVS-200-W; sidewall overflow fittings, and gravity drain to a RWST-500 (Special); 595 gallon storage tank. The mechanical equipment will be supplied to jobsite, pre-assembled and factory tested in our RDP-1-300-B (Special) Direct Burial Vault. This vault will be equipped with a tile-set access hatch, ventilation fan, gravity floor drain, 3 HP pump with basket strainer, cartridge filter, chemical feeder, auto-water fill manifold and a U.L. Listed electrical control panel.

Combined Pump Requirement: 159 GPM

Filtration Type: 50 sq. ft. Cartridge Filter

Filtration Turnover Rate: 1 Hour/7 minutes @ 19 GPM

Shut Down Gain: 20" in RWST-500 (Special)

CLIENT NOTE
PLEASE READ THIS CRITERIA CAREFULLY. IF THIS IS NOT YOUR UNDERSTANDING AND EXPECTATION OF THE AESTHETICS, OPERATION AND PERFORMANCE OF THIS FOUNTAIN FEATURE, PLEASE NOTIFY US IN WRITING IMMEDIATELY, OTHERWISE THIS DESCRIPTION WILL BE THE BASIS FOR THE DESIGN, MANUFACTURE AND SUPPLY OF THIS SYSTEM.

USC – Aiken Fountain
Equipment List – By Roman Fountains

Item No.	Quan.	Model No.	Description
01	4	RCHN-150	Custom 'Hoof' Nozzle Assembly, PVC, copper and brass construction, 1 1/2" hose & clamp connection.
*02	4	RWS-150-S	Slab Penetration Fitting, machined cast brass, one-piece construction, with integral waterstop flange, brass bonding screw and 1 1/2" (F) N.P.T. connections.
03	4	RBB-150-T	Threaded Brass Ball Valve, cast bronze machined body, brass full port ball, silicone bronze stem, Teflon seat, stainless steel handle nut, vinyl covered stainless steel handle, 400 PSI max. operating pressure at 150 deg., and 1 1/2" (F) N.P.T. end connections.
04	1	RWST-500 (Special)	Water Storage/Surge Tank, 500 gallon with brown gel-coat exterior and 36" sq. hatch opening with **RBH-TS: TILE-SET VAULT HATCHWAY**. Fiberglass construction, with ladder, all required fittings per shop drawings & RCOM-RNFT level sensor installed.
*05	1	RFD-200	Machined Cast Bronze Floor-Drain Fitting, with integral waterstop flange, bonding screw, threaded closure plug with recessed head and 2" (F) N.P.T. outlet connection
*06	6	ROVS-200-W	Sidewall Overflow Drain, machined bronze drain body, integral waterstop flange with bonding screw, removable bronze grate, S.S. fasteners, bonding screw and 2" (F) N.P.T. connection.
07	8	RFL-CG-HP-LED-RGB	ETL Listed 'Hockey Puck' LED Submersible Light Fixture, small diameter, 12VDC, low profile **RGB LED** submersible light fixture for floor or wall mounting, high output LED diodes, stainless steel housing and fasteners with two mounting tabs, tempered glass lens, silicone lens gasket, chromed brass cord entrance fitting and 20 feet of 18 AWG SJOW cable.
08	8	RFL-CG-HP-LED-W	ETL Listed 'Hockey Puck' LED Submersible Light Fixture, small diameter, 12VDC, low profile **WHITE LED** submersible light fixture for floor or wall mounting, high output LED diodes, stainless steel housing and fasteners with two mounting tabs, tempered glass lens, silicone lens gasket, chromed brass cord entrance fitting and 20 feet of 18 AWG SJOW cable.
09	2	RJB-8-100-C	UL Listed Conduit Mounted Submersible Junction Box, cast bronze construction with neoprene gasket, brass fasteners, (1) 1" (F) N.P.T. bottom power conduit connection, and two (8) 3/4" N.P.T. side connection with brass cord seal fitting (shipped loose, installed in field). Junction box shall have a minimum volume of 40.0 cubic inches and shall include an internal grounding lug.
10	2	RPC-2114-D	Potting Compound, re-enterable electrical insulating and potting compound, designed for use in RJB-Series junction boxes (required by NEC 680). 21.2 oz. size.
*11	2	RWS-100-L	Slab Penetration Fitting, constructed of a Schedule 40 red brass pipe body to ASTM-B-16 brass waterstop/concrete key, continuously welded to pipe at the midpoint, brass bonding screw and 1" (M) N.P.T. connections at each end.
12	1	RDP-1-300-B (Special)	Series 1-B Direct Burial Pump Vault, consisting of a 3'-5" sq. X 25" deep FRP vault with **RBH-TS: TILE-SET VAULT HATCHWAY**, containing a RWSP-300; 3 HP re-circulating pump, a RCCF-050; 50 S.F. cartridge filter; **RBU-320-IL: IN-LINE CHEMICAL FEEDER; RMS-075-N: 3/4" FILL MANIFOLD**; integral floor sump with 2" floor drain; 3" vent connections with 105 CFM vent fan; isolation and throttling valves as shown; fittings and piping (Schedule 80 PVC) as shown; RPCPRLCP; U.L. 508 listed control panel, containing: main disconnect; pump starter with circuit breaker, contactor & adjustable, solid-state overload, single channel programmable time switches, for pump and lights, 1500 watt lighting circuit with class 'A' G.F.C.I. breaker, H.O.A. switch, and water level/low level cutoff control circuit ; **RCLG-Series: 12VDC POWER SUPPLY AND RLIN-720: "DMX" DRIVER.** All pre-wired in a Nema 4 enclosure. Unit is factory engineered, assembled and tested prior to shipment. Power requirement: 120-208V., single-phase.
13	2	RPVC-300	3" PVC Vent Cap, Schedule 40 PVC construction and 1/4" stainless steel fasteners. Low profile corrosion resistant design. Standard brown color.

***NOTE: CONCRETE EMBED ITEM, REQUIRED FOR POUR.**

SYSTEM POWER REQUIREMENT:
120–208V., SINGLE PHASE, 3–WIRE + GND. @ 30.0 AMPS
CONTACT FACTORY IMMEDIATELY IF NOT AVAILABLE.
(NOTE: SEE SHEET WFI–1 FOR POWER DIAGRAM)

NOTE:
POWER SHALL BE VERIFIED & CONFIRMED BY CONTRACTOR WITH REVIEWED DRAWINGS. IF THERE ARE NO CHANGES INDICATED ON THE REVIEWED DRAWINGS SET, THE POWER REQUIREMENT LISTED ABOVE WILL APPLY TO THE MANUFACTURE OF THIS EQUIPMENT PACKAGE.

PROJECT ID: Johnson, Laschober & Assoc / USC-Aiken
PANEL ID: USC - Aiken **LOCATION:** V-1-L **MOUNT:** NEMA 4, 20x16x06
VOLTAGE: 120/208 **AMPS:** 30 **TYPE:** Bolt-On

LOAD DESCRIPTION:	BKR Size	CKT No.	VA/Phase A	VA/Phase B	Duty Factor		LOAD	
USC - Aiken								
Control Circuit, Timer, Vent Fan	15	CB3		200	1.00	=	200	VA
Display Pump 3 HP (208V/60/1)	30	CB1	1,945	1,945	1.25	=	4,863	VA
Water Level Control	15	CB4		150	1.00	=	150	VA
LED Lights 12VDC, 16@14W	15	CB2*	224		1.00	=	224	VA
VA/Phase TOTAL:			**2,169**	**2,295**			**5,437**	VA

NOTE: * GFI Breaker 5mA

TOTAL LOAD:	5,437 VA	/	208 V	/	1	=	**26**	AMPS
REQ'D. FEED:							**30**	AMPS
EEDER CONDUIT:							**3/4**	inch

roman fountains®
America's Fountain Company!℠

USC - Aiken
Aiken, South Carolina
For Johnson, Laschober and Associates, PC
Augusta, Georgia

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Scale:	As Noted
Drawn By:	F. Gorman
Checked By:	S. Shadle
Date:	11/30/12

Revisions:

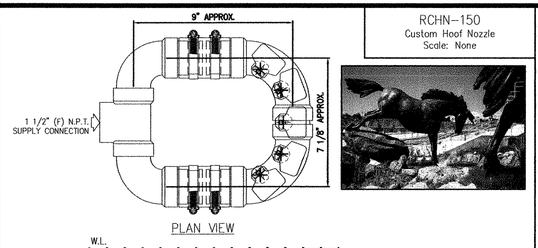
No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

FOUNTAIN EQUIPMENT LIST & PERFORMANCE CRITERIA

Drawing Number:

WFN-2

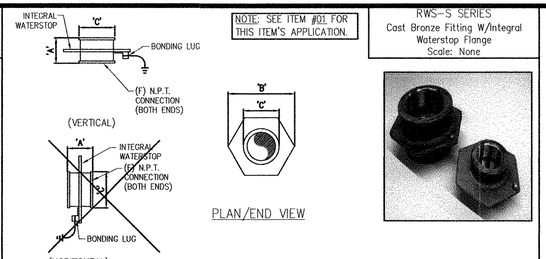
RCHN-150
Custom Hoof Nozzle
Scale: None



SPECIFICATION DATA: Custom 'Hoof' nozzle assembly, PVC copper and brass construction, 1 1/2" (F) N.P.T. supply connection.

TYP. (4) | ITEM # 01

RWS-S SERIES
Cast Bronze Fitting W/Integral Waterstop Flange
Scale: None



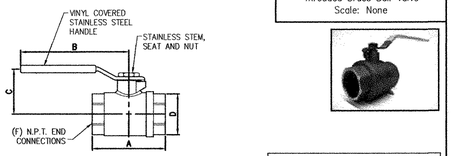
NOTE: SEE ITEM #01 FOR THIS ITEM'S APPLICATION.

TECHNICAL DATA				
MODEL	N.P.T.	LENGTH 'A'	FLANGE SIZE 'B'	EXPOSED 'C'
RWS-150-S	1 1/2"	2 1/4"	5"	2 7/16"
RWS-200-S	2"	2 3/8"	5 1/2"	3"
RWS-300-S	3"	3"	6 1/2"	4 5/16"
RWS-400-S	4"	3 5/8"	7"	5 3/8"

SPECIFICATION DATA: Slab Penetration Fitting (Short Style); machined cast bronze, one-piece construction, with integral waterstop flange, bonding lug, and (F) N.P.T. connection; both ends.

TYP. (4) | ITEM # 02

RBB-T Series
Threaded Brass Ball Valve
Scale: None



NOTE: FOR SUBMERSIBLE APPLICATIONS REMOVE VALVE HANDLE ONCE ADJUSTED.

TECHNICAL DATA					
MODEL	SIZE	A	B	C	D
RBB-050-T	1/2"	2 3/16"	3 1/16"	1 3/8"	5/8"
RBB-075-T	3/4"	2 1/2"	3 13/16"	1 3/4"	7/8"
RBB-100-T	1"	3"	3 13/16"	2"	1 3/16"
RBB-125-T	1 1/4"	3 7/8"	3 13/16"	2 1/16"	1 7/16"
RBB-150-T	1 1/2"	3 3/4"	4 13/16"	2 3/8"	1 11/16"
RBB-200-T	2"	4 3/8"	4 13/16"	2 11/16"	2 3/16"
RBB-250-T	2 1/2"	5 1/2"	4 13/16"	3 1/4"	2 13/16"
RBB-300-T	3"	6 5/16"	4 13/16"	3 5/8"	3 1/4"

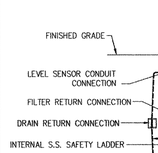
NOTE: SEE ITEM #01 FOR THIS ITEM'S APPLICATION.

SPECIFICATION DATA: Threaded Brass Ball Valve; Cast bronze machined body, brass full port ball, silicone bronze stem, Teflon seat, stainless steel handle nut, vinyl covered stainless steel handle, 400 PSI maximum operating pressure at 150°, and (F) N.P.T. threaded end connections.

TYP. (4) | ITEM # 03

NOTE: SEE DWG. WFM-6 FOR SPECIFIC 'TANK' DETAILS

RWST Series (Special)
Water Storage/Surge Tank
Scale: None



TANK ELEVATION

NOTE:
FITTING SIZES AND LOCATIONS SHOWN 'TYPICAL' ONLY. FINAL SIZING AND LOCATIONS WILL DEPEND ON SPECIFIC JOB REQUIREMENTS.
NOTE:
ELECTRONIC LEVEL SENSOR CONTROL AVAILABLE AS A SEPARATE ITEM. (USE RCOM-RN SERIES). CONTACT FACTORY FOR ASSISTANCE & SPECIFICATIONS.

TECHNICAL DATA				
MODEL	CAPACITY	HEIGHT 'A'	DIA. 'B'	HATCHWAY
RWST-500	500 GAL.	60"	60"	36x36
RWST-1000	1000 GAL.	72"	72"	36x36
RWST-1500	1500 GAL.	84"	72"	36x36
RWST-2000	2000 GAL.	72"	96"	36x36

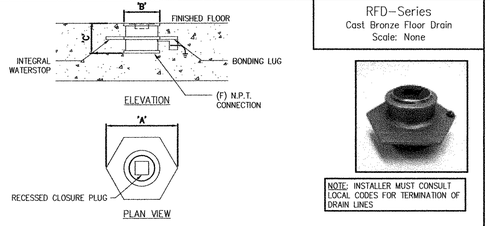
NOTE: FOLLOW ALL 'OSHA' CONFINED SPACE PROCEDURES FOR MAINTENANCE & SERVICING OF TANK.
DO NOT USE FOR DRINKING WATER
DO NOT INSTALL IN PATH OF VEHICLES
DO NOT INSTALL IN HIGH WATER TABLE AREAS.

WARNING: FOR 'DRY HOLE' INSTALLATION ONLY.

SPECIFICATION DATA: Water Storage/Surge Tank, 500 gallon with brown gel-coat exterior and 36" sq. hatch opening with RBH-TS; TILE-SET VAULT HATCHWAY, Fiberglass construction, with ladder, all required fittings per shop drawings & RCOM-RNFT level sensor installed.

TYP. (1) | ITEM # 04

RFD-Series
Cast Bronze Floor Drain
Scale: None



NOTE: INSTALLER MUST CONSULT LOCAL CODES FOR TERMINATION OF DRAIN LINES

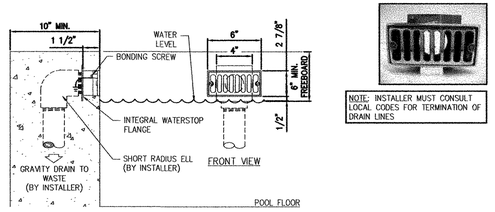
TECHNICAL DATA						
MODEL	CONNECTION SIZE	DIMENSION 'A'	DIMENSION 'B'	DIMENSION 'C'	SLAB THICKNESS
RFD-150	1 1/2"	4 7/8"	2 1/2"	2 3/16"	4" MIN.
RFD-200	2"	5 5/8"	3"	2 5/16"	6" MIN.
RFD-300	3"	6 1/2"	4 3/8"	3 1/8"	6" MIN.
RFD-400	4"	8 1/8"	5 1/2"	3 3/4"	6" MIN.

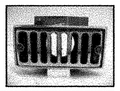
NOTE: A 'P'-TRAP MAY BE REQUIRED PER CODE; BY INSTALLER

SPECIFICATION DATA: Cast Bronze Floor Drain Fitting; with integral waterstop flange; bonding screw, threaded closure plug with recessed head and (F) N.P.T. outlet connection

TYP. (1) | ITEM # 05

ROVS-200-W
2" Sidewall Overflow Drain
Scale: None



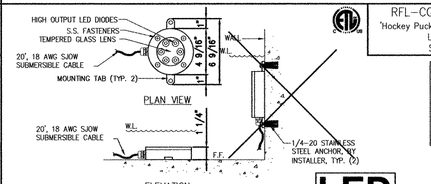


NOTE: INSTALLER MUST CONSULT LOCAL CODES FOR TERMINATION OF DRAIN LINES

SPECIFICATION DATA: Sidewall Overflow Drain; Bronze drain body, removable bronze grille-type face plate, stainless steel fasteners, integral waterstop flange, bonding screw, 2" (F) N.P.T. connection and natural bronze finish.

TYP. (6) | ITEM # 06

RFL-CG-HP-LED-RGB
'Hockey Puck' RGB LED Submersible Light Fixture
Scale: None



S.S. WIRE LENS GUARD AVAILABLE AS AN ACCESSORY ITEM; CONSULT FACTORY.

NOTE: THIS PRODUCT HAS BEEN CERTIFIED BY ETL TO MEET THE U.L. 676 STANDARD FOR UNDERWATER LIGHTING FIXTURES.

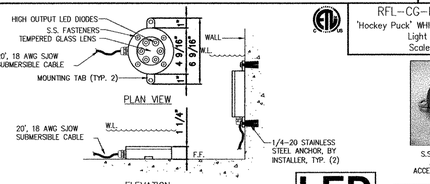
NOTE: POWER SUPPLY REQUIRED TO OPERATE FIXTURES. CONTACT FACTORY FOR REQUIREMENTS.
NOTE: PROCESSOR REQUIRED TO OPERATE 'RGB' FIXTURES IN PROGRAMMABLE MODE. CONTACT FACTORY FOR REQUIREMENTS.

TECHNICAL DATA								
MODEL NO.	LIGHT SOURCE	LIGHT COLOR	BEAM ANGLE	INPUT VOLTAGE	WATTS	CABLE TYPE	MAX. CABLE LENGTH	IP RATING
RFL-CG-HP-LED-W	(6) WHITE DIODES	COOL "WHITE"	45 DEG.	12V. DC	13.5	18-3 AWG SJOW	20'	68
RFL-CG-HP-LED-RGB	(6) RGB DIODES	"RGB"	45 DEG.	12V. DC	13.5	18-5 AWG SJOW	20'	68

SPECIFICATION DATA: Small diameter, low profile LED submersible light fixture for floor or wall mounting. High output RGB LED diodes, stainless steel housing and fasteners with two mounting tabs, tempered glass lens, silicone lens gasket, chromed brass cord entrance fitting; 20' of 18 AWG SJOW cable.

TYP. (8) | ITEM # 07

RFL-CG-HP-LED-W
'Hockey Puck' WHITE LED Submersible Light Fixture
Scale: None



S.S. WIRE LENS GUARD AVAILABLE AS AN ACCESSORY ITEM; CONSULT FACTORY.

NOTE: THIS PRODUCT HAS BEEN CERTIFIED BY ETL TO MEET THE U.L. 676 STANDARD FOR UNDERWATER LIGHTING FIXTURES.

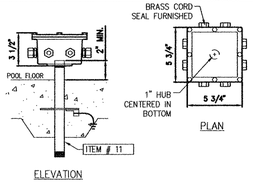
NOTE: POWER SUPPLY REQUIRED TO OPERATE FIXTURES. CONTACT FACTORY FOR REQUIREMENTS.
NOTE: PROCESSOR REQUIRED TO OPERATE 'RGB' FIXTURES IN PROGRAMMABLE MODE. CONTACT FACTORY FOR REQUIREMENTS.

TECHNICAL DATA								
MODEL NO.	LIGHT SOURCE	LIGHT COLOR	BEAM ANGLE	INPUT VOLTAGE	WATTS	CABLE TYPE	MAX. CABLE LENGTH	IP RATING
RFL-CG-HP-LED-W	(6) WHITE DIODES	COOL "WHITE"	45 DEG.	12V. DC	13.5	18-3 AWG SJOW	20'	68
RFL-CG-HP-LED-RGB	(6) RGB DIODES	"RGB"	45 DEG.	12V. DC	13.5	18-5 AWG SJOW	20'	68

SPECIFICATION DATA: Small diameter, low profile LED submersible light fixture for floor or wall mounting. High output WHITE LED diodes, stainless steel housing and fasteners with two mounting tabs, tempered glass lens, silicone lens gasket, chromed brass cord entrance fitting; 20' of 18 AWG SJOW cable.

TYP. (8) | ITEM # 08

RJB-8-100-C
Conduit Mounted Submersible Junction Box
Scale: None



NOTE: NOT TO BE USED IN SWIMMING POOL OR SPA APPLICATIONS.

NOTE: ONCE WIRING IS COMPLETED, FLASH LIGHTING CIRCUITS MOMENTARILY (10 SECONDS) TO VERIFY PROPER OPERATION. THEN CAULK OR PUTTY ALL CONDUIT CONNECTIONS IN J-BOX WITH RPC-2114-D ITEM #10 POTTING COMPOUND.

NOTE: CORD COMPRESSION SEALS FURNISHED BY ROMAN FOUNTAINS, INSTALLED INTO BOX BY ELECTRICIAN.

SPECIFICATION DATA: Conduit Mounted Submersible Junction Box, cast bronze construction, with neoprene gasket, stainless steel fasteners, (1) 1" (F) N.P.T. bottom power conduit connection, and (8) 1/2" N.P.T. side connection with brass cord seal fitting (shipped loose and installed in filed). Junction box shall be U.L. Listed, having a minimum volume of 40.0 cubic inches and shall include an internal grounding lug.

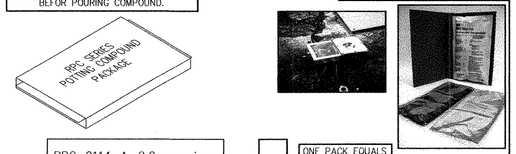
INSTALLATION: Roman Fountains recommends the following procedures be followed when installing underwater junction boxes.
1. Check local electrical code before installing. Must comply with NEC article 680.
2. Use only 'Everdur' or brass pipe for conduit where exposed to pool water.
3. After making and verifying all connections, use putty provided to seal all conduit entries into j-box.
4. Once conduits are sealed, pot junction box with RPC-2114-D potting compound (Item #10).
5. Use good quality thread sealant on junction boxes.
6. Test conduit system to eliminate all leaks.

TYP. (2) | ITEM # 09

INSTALLER NOTE
DO NOT OPEN AND MIX CONTENTS UNTIL READY TO POUR!!! PLUG ALL CONDUITS BEFOR POURING COMPOUND.

NOTE: SEE ITEM #09 FOR THIS ITEM'S APPLICATION.

RPC-2114 SERIES
Potting Compound
Scale: None



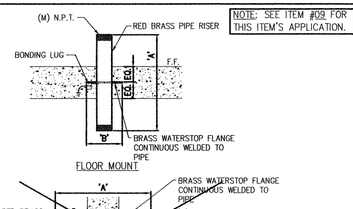
NOTE: ARTICLE 680-52(b) OF THE NATIONAL ELECTRICAL CODE (N.E.C.) REQUIRES THAT ALL UNDERWATER JUNCTION BOXES AND ALL UNDERWATER ENCLOSURES BE FILLED WITH AN APPROVED POTTING COMPOUND TO PREVENT THE ENTRY OF MOISTURE.

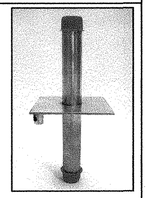
SPECIFICATION DATA: Potting Compound, re-enterable, electrical insulating and poting compound, designed for use in RJB-Series junction boxes (required by NEC 680)

TYP. (2) | ITEM # 10

NOTE: SEE ITEM #09 FOR THIS ITEM'S APPLICATION.

RWS-L SERIES
Slab Penetration Fitting (Long Series)
Scale: None





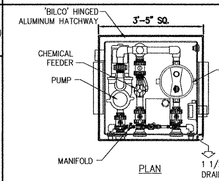
TECHNICAL DATA			
MODEL	N.P.T.	LENGTH 'A'	FLANGE SIZE 'B'
RWS-050-L	1/2"	10"	4" Sq.
RWS-075-L	3/4"	10"	4" Sq.
RWS-100-L	1"	10"	4" Sq.
RWS-125-L	1 1/4"	12"	4" Sq.

NOTE: SPECIAL LENGTHS AVAILABLE ON SPECIAL ORDER; CONSULT FACTORY.

SPECIFICATION DATA: Slab Penetration Fitting (Long Style); Sch. 40 Red Brass pipe body to ASTM-B-16, brass waterstop flange/concrete key, continuous welded to pipe at the midpoint, brass threaded bond screw, N.P.T. male threads at each end.

TYP. (2) | ITEM # 11

RDP-1-300-RBU-Bilco
Pre-Fabricated Direct Burial Pump Vault W/ 'Bilco' Hatchway
Scale: None



NOTE: SEE DWG. WEM-4 FOR SPECIFIC 'VAULT' DETAILS

WARNING: FOR 'DRY HOLE' INSTALLATION ONLY.

TECHNICAL AND HYDRAULIC DATA		
MODEL NO.	PUMP HP	AVAILABLE SYSTEM POWER OPTIONS
RDP-1-050-Bilco	1/2	120/208-240v., 1ø; 208/240/460v., 3ø
RDP-1-075-Bilco	3/4	120/208-240v., 1ø; 208/240/460v., 3ø
RDP-1-100-Bilco	1	120/208-240v., 1ø; 208/240/460v., 3ø
RDP-1-150-Bilco	1-1/2	120/208-240v., 1ø; 208/240/460v., 3ø
RDP-1-200-Bilco	2	120/208-240v., 1ø; 208/240/460v., 3ø
RDP-1-300-Bilco	3	208-240v., 1ø; 208/240/460v., 3ø

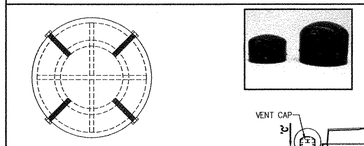
OPTIONS:
☐ 1. 36" Sq. 'BILCO' locking aluminum Diamond Plate Hatchway with lock-open arm.
☒ 2. 36" Sq. 'BILCO' Tileset Hatchway with lock-open arm.

NOTES:
1. Hatch opening must be located in flood-safe area.
2. Slope finished grade away from pump module.
3. Protect pump module gravity drain from back flow and gas.
4. Top of pump module must be at, or below lowest pool water level.

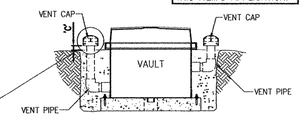
SPECIFICATION DATA: Series 1-B Direct Burial Pump Vault, consisting of a 3'-5" sq. X 25" deep FRP vault with RBH-TS; TILE-SET VAULT HATCHWAY, containing a RWSP-300, 3 HP re-circulating pump, a RCCF-050; 50 S.F. cartridge filter; RBU-300-R; IN-LINE CHEMICAL FEEDER, RMS-075-N; 3/4" FILL MANIFOLD; integral floor sump with 2" floor drain; 3" vent connections with 105 CFM vent fan; isolation and throttling valves as shown; fittings and piping (Schedule 80 PVC) as shown; RPCP/RLCP; U.L. 508 listed control panel, containing: main disconnect; pump starter with circuit breaker, contactor, single channel programmable time switches, for pump and lights, 1500 watt lighting circuit with class 'A' G.F.C.I. breaker; H.O.A. switch, and water level/low level cutoff control circuit; RCLC-Series; 12VDC POWER SUPPLY AND RUN-720; 'DMX' DRIVER. All pre-wired in a Nema 4 enclosure. Unit is factory engineered, assembled and tested prior to shipment.
Power requirement: 120-208V., single-phase.

TYP. ( ) | ITEM # 12

RPVC Series
PVC Vent Cap
Scale: NONE



NOTE: SEE ITEM #12 FOR THIS ITEM'S APPLICATION.



TYPICALLY ATTACHED TO THE ENDS OF THE TWO VAULT VENTILATION PIPES AS SHOWN IN THIS ELEVATION VIEW

DIMENSIONAL INFORMATION				
MODEL	PIPE SIZE	OVERALL DIAMETER 'A'	CAP HEIGHT 'B'	MIN. CLEARANCE ABOVE GRADE 'C'
RPVC-300	3"	6-5/32"	4-1/2"	2"
RPVC-400	4"	7-1/4"	5"	3"
RPVC-600	6"	9-5/16"	6-3/8"	6"
RPVC-800	8"	11-13/16"	5-1/4"	6"

SPECIFICATION DATA: PVC Vent Cap, Constructed of Schedule 40 PVC, and 1/4" stainless steel fasteners and internal safety stop. Low profile corrosion resistant design. Standard brown color.

TYP. (2) | ITEM # 13

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For Johnson, Laschober and Associates, PC
Augusta, Georgia
Aiken, South Carolina
USC - Aiken

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Scale:	As Noted
Drawn By:	F. Gorman
Checked By:	S. Shadle
Date:	11/30/12

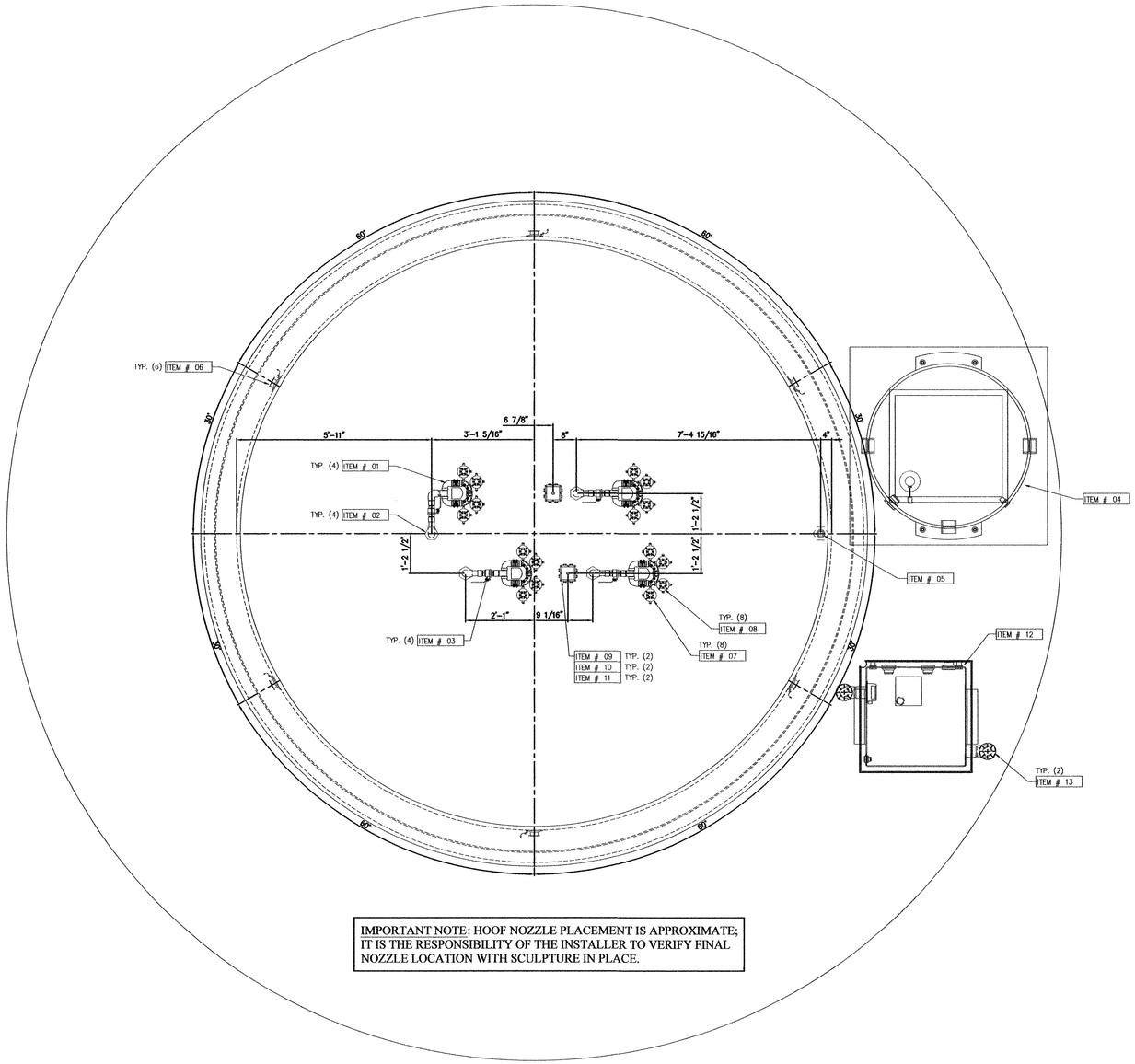
Revisions:

No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

FOUNTAIN EQUIPMENT DETAIL SHEET

Drawing Number:

WFD-1



IMPORTANT NOTE: HOOF NOZZLE PLACEMENT IS APPROXIMATE; IT IS THE RESPONSIBILITY OF THE INSTALLER TO VERIFY FINAL NOZZLE LOCATION WITH SCULPTURE IN PLACE.

FOUNTAIN EMBED & EQUIPMENT LAYOUT PLAN

SCALE: 1/2"=1'-0"

USC – Aiken Fountain
Equipment List – By Roman Fountains

Item No.	Quan.	Model No.	Description
01	4	RCHN-150	Custom 'Hoof' Nozzle Assembly
*02	4	RWS-150-S	1 1/2" Slab Penetration Fitting
03	4	RBB-150-T	1 1/2" Threaded Brass Ball Valve
04	1	RWST-500 (Special)	Water Storage/Surge Tank, 500 gallon.
*05	1	RFD-200	2" Machined Cast Bronze Floor-Drain Fitting.
*06	6	ROVS-200-W	2" Sidewall Overflow Drain.
07	8	RFL-CG-HP-LED-RGB	ETL Listed 'Hockey Puck' RGB LED Submersible Light Fixture.
08	8	RFL-CG-HP-LED-W	ETL Listed 'Hockey Puck' WHITE LED Submersible Light Fixture.
09	2	RJB-8-100-C	UL Listed Conduit Mounted Submersible Junction Box.
10	2	RPC-2114-D	Potting Compound, 21.2 oz. size.
*11	2	RWS-100-L	1" Slab Penetration Fitting.
12	1	RDP-1-300-B (Special)	3HP Series 1-B Direct Burial Pump Vault. Power requirement: 120-208V., single-phase.
13	2	RPVC-300	3" PVC Vent Cap.

NOTE: FOR COMPLETE EQUIPMENT SPECIFICATIONS, SEE DWG. WFN-2.
*NOTE: CONCRETE EMBED ITEM, REQUIRED FOR POUR.

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Scale:	As Noted
Drawn By:	F. Gorman
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Date:	11/30/12

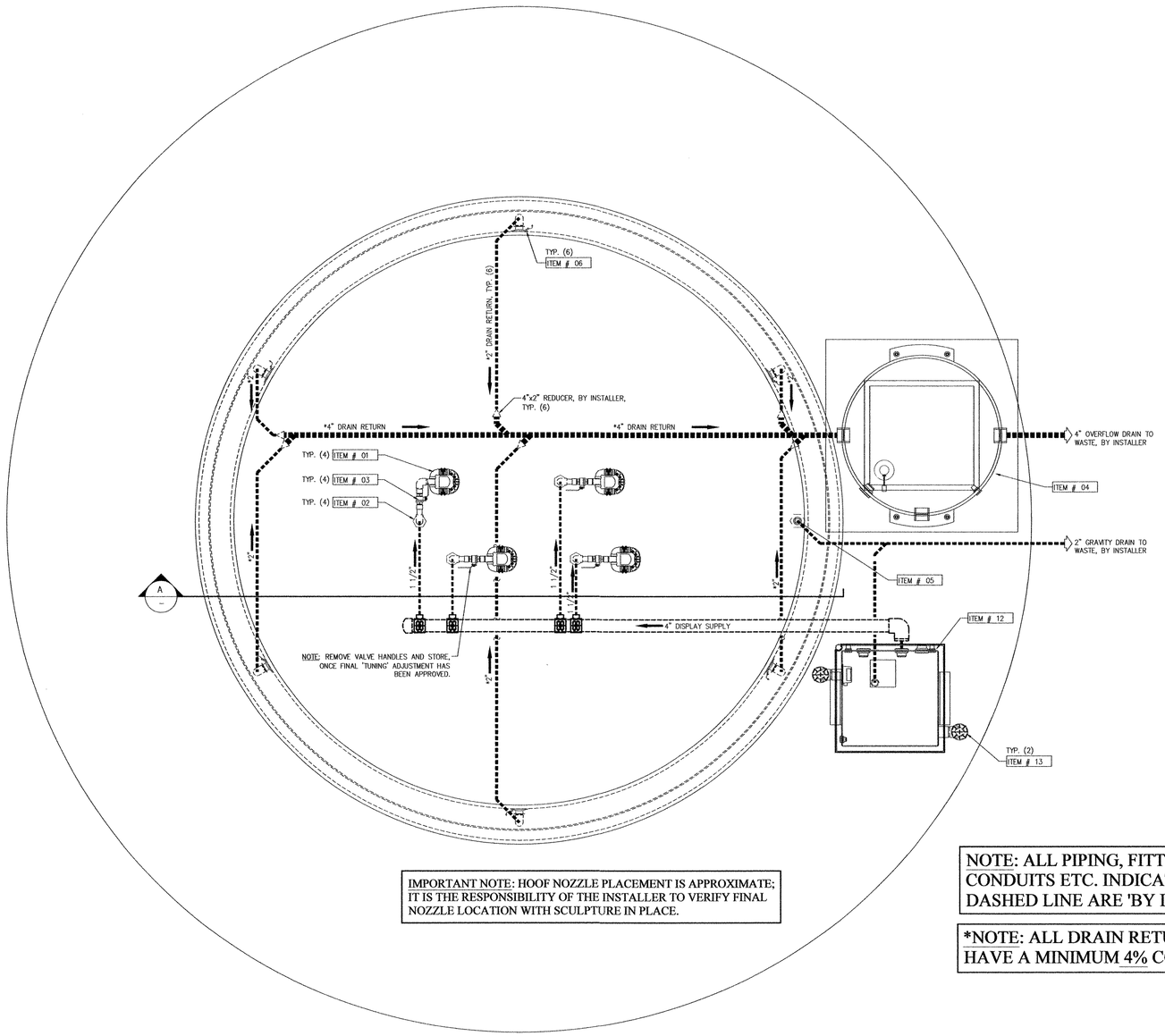
Revisions:

No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

FOUNTAIN EMBED & EQUIPMENT LAYOUT PLAN

Drawing Number:

WFM-1



USC – Aiken Fountain
Equipment List – By Roman Fountains

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*02	4	RWS-150-S	1 1/2" Slab Penetration Fitting
03	4	RBB-150-T	1 1/2" Threaded Brass Ball Valve
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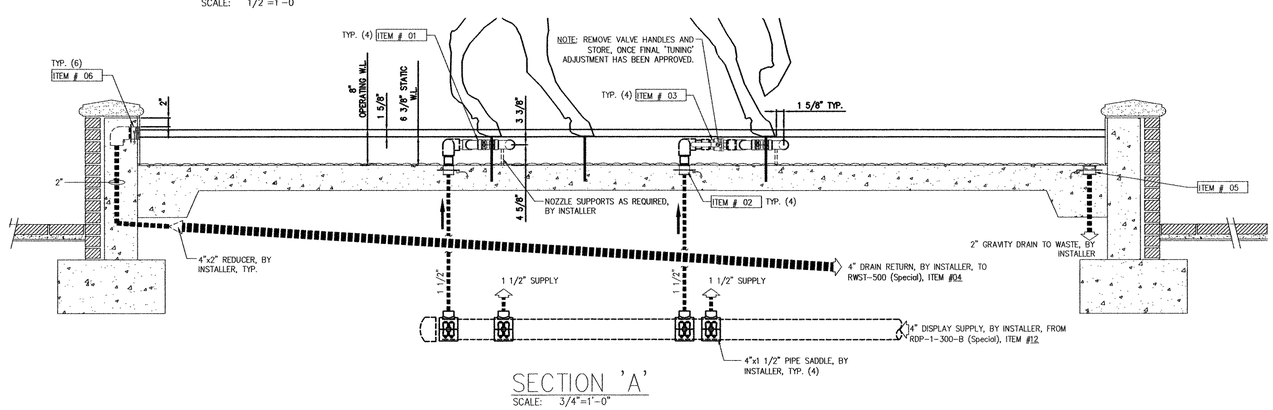
*05	1	RFD-200	2" Machined Cast Bronze Floor-Drain Fitting.
*06	6	ROVS-200-W	2" Sidewall Overflow Drain.
07	8	RFL-CG-HP-LED-RGB	ETL Listed 'Hockey Puck' RGB LED Submersible Light Fixture.
08	8	RFL-CG-HP-LED-W	ETL Listed 'Hockey Puck' WHITE LED Submersible Light Fixture.
09	2	RJB-8-100-C	UL Listed Conduit Mounted Submersible Junction Box.
10	2	RPC-2114-D	Potting Compound, 21.2 oz. size.
*11	2	RWS-100-L	1" Slab Penetration Fitting.
12	1	RDP-1-300-B (Special)	3HP Series 1-B Direct Burial Pump Vault. Power requirement: 120-208V., single-phase.
13	2	RPVC-300	3" PVC Vent Cap.

NOTE: FOR COMPLETE EQUIPMENT SPECIFICATIONS, SEE DWG. WFN-2.
***NOTE: CONCRETE EMBED ITEM, REQUIRED FOR POUR.**

NOTE: ALL PIPING, FITTINGS, VALVES, CONDUITS ETC. INDICATED WITH A DASHED LINE ARE 'BY INSTALLER'.

*NOTE: ALL DRAIN RETURN PIPING TO HAVE A MINIMUM 4% CONTINUOUS FALL

FOUNTAIN DRAIN, DRAIN RETURN & DISPLAY SUPPLY PIPING PLAN
SCALE: 1/2"=1'-0"



SECTION 'A'
SCALE: 3/4"=1'-0"

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Drawn By:	F. Gorman
Checked By:	S. Shadle
Date:	11/30/12

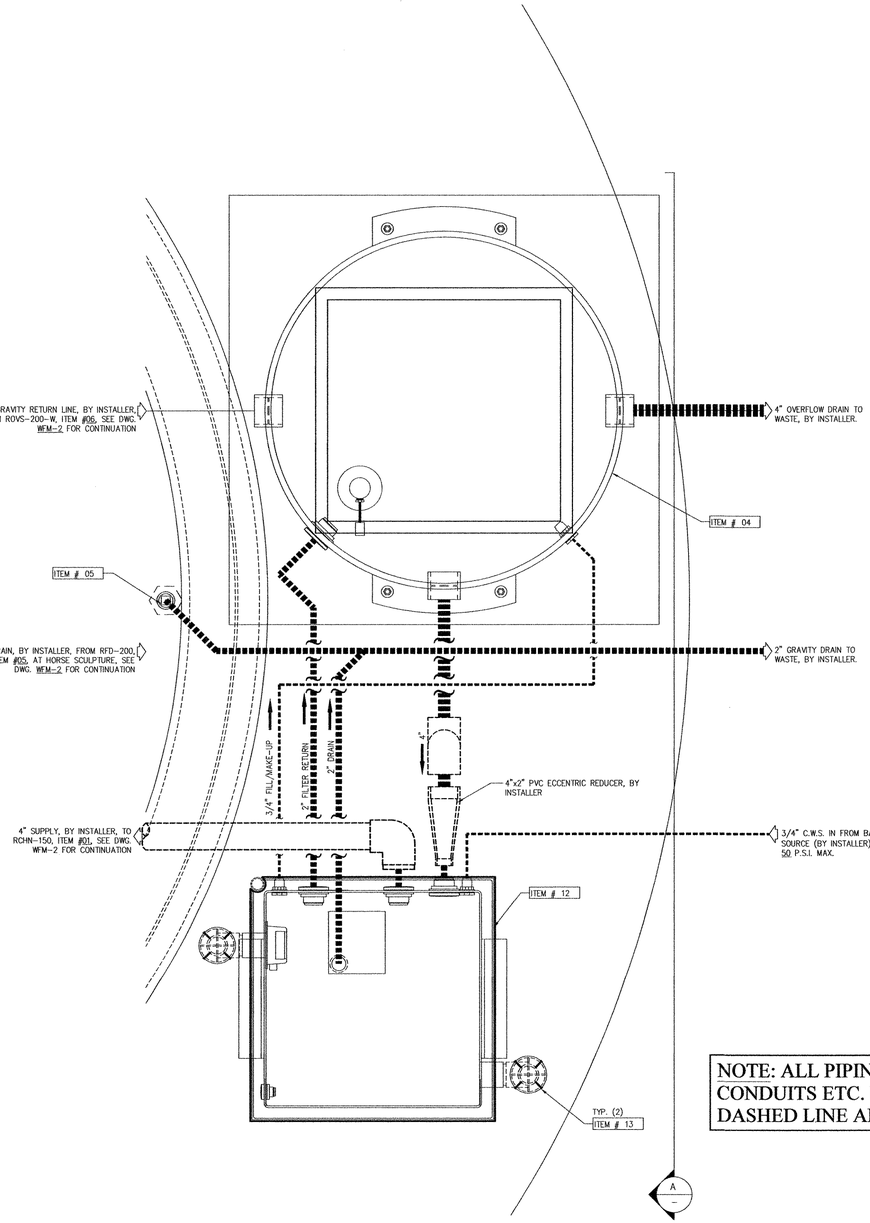
Revisions:

No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

FOUNTAIN DRAIN, DRAIN RETURN & SUPPLY PIPING PLAN & SECTIONS

Drawing Number:

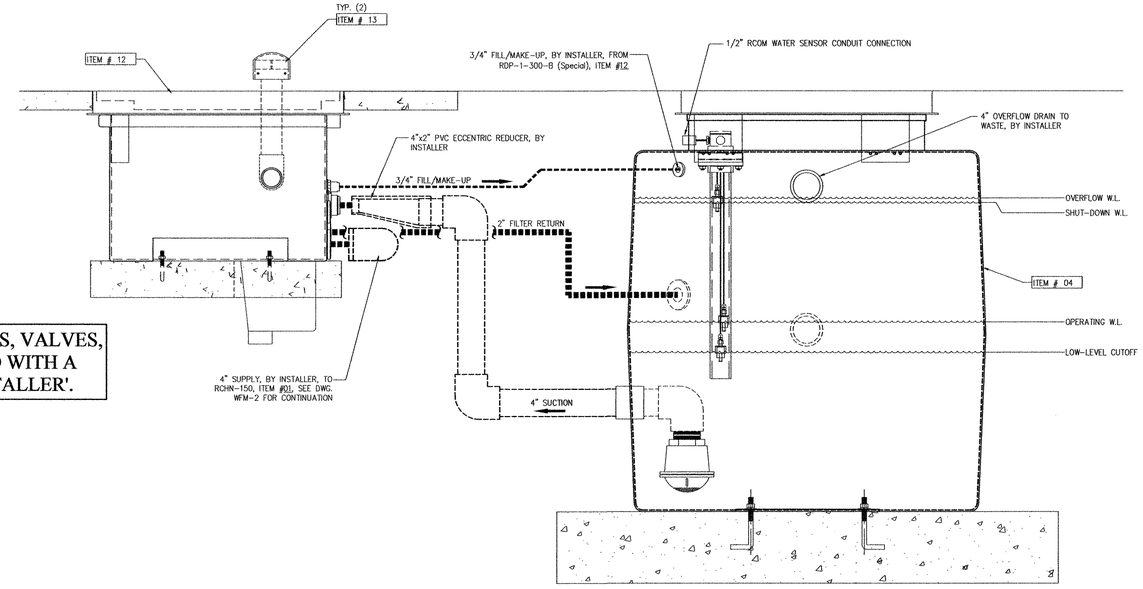
WFM-2



ENLARGED VIEW OF RDP-1-300-B (Special), ITEM #12 & RWST-500 (Special), ITEM #04

SCALE: 1"=1'-0"

NOTE: ALL PIPING, FITTINGS, VALVES, CONDUITS ETC. INDICATED WITH A DASHED LINE ARE 'BY INSTALLER'.



SECTION 'A'

SCALE: 1"=1'-0"

USC – Aiken Fountain
Equipment List – By Roman Fountains

Item No.	Quan.	Model No.	Description
01	4	RCHN-150	Custom 'Hoof' Nozzle Assembly
*02	4	RWS-150-S	1 1/2" Slab Penetration Fitting
03	4	RBB-150-T	1 1/2" Threaded Brass Ball Valve
04	1	RWST-500 (Special)	Water Storage/Surge Tank, 500 gallon.
*05	1	RFD-200	2" Machined Cast Bronze Floor-Drain Fitting.
*06	6	ROVS-200-W	2" Sidewall Overflow Drain.
07	8	RFL-CG-HP-LED-RGB	ETL Listed 'Hockey Puck' RGB LED Submersible Light Fixture.
08	8	RFL-CG-HP-LED-W	ETL Listed 'Hockey Puck' WHITE LED Submersible Light Fixture.
09	2	RJB-8-100-C	UL Listed Conduit Mounted Submersible Junction Box.
10	2	RPC-2114-D	Potting Compound, 21.2 oz. size.
*11	2	RWS-100-L	1" Slab Penetration Fitting.
12	1	RDP-1-300-B (Special)	3HP Series 1-B Direct Burial Pump Vault. Power requirement: 120-208V., single-phase.
13	2	RPVC-300	3" PVC Vent Cap.

NOTE: FOR COMPLETE EQUIPMENT SPECIFICATIONS, SEE DWG. WFN-2.
*NOTE: CONCRETE EMBED ITEM, REQUIRED FOR POUR.

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USC - Aiken
Aiken, South Carolina
Johnson, Laschober and Associates, PC
Augusta, Georgia
For Johnson, Laschober and Associates, PC

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Scale:	As Noted
Drawn By:	F. Gorman
Checked By:	S. Shadle
Date:	11/30/12

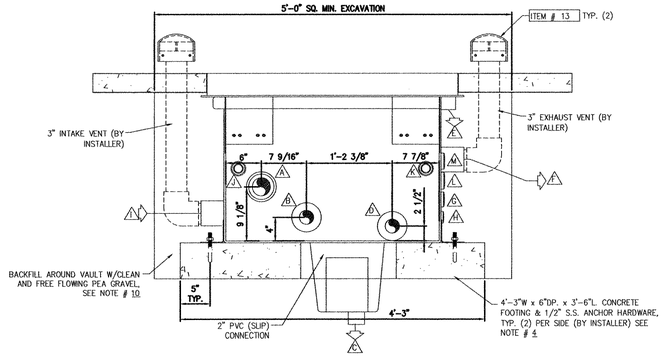
Revisions:

No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

ENLARGED VIEW OF RDP-1-300-B (Special), ITEM #12 & RWST-500 (Special), ITEM #04 & SECTION

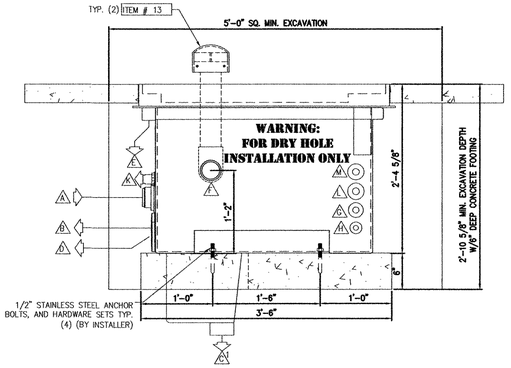
Drawing Number:

WFM-3



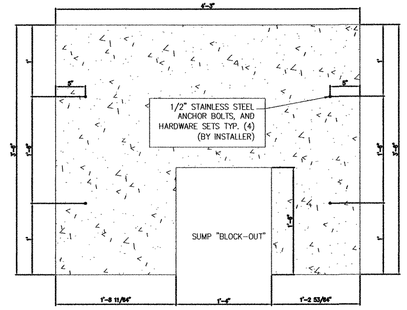
VAULT: FRONT DETAIL

SCALE: 1"=1'-0"



VAULT: SIDE DETAIL

SCALE: 1"=1'-0"



ANCHOR PAD: PLAN VIEW

SCALE: 1"=1'-0"

NOTE: TOP OF VAULT TO BE AT OR BELOW FOUNTAIN OPERATING WATER LEVEL FOR OPTIMUM OPERATION.

*ALL INTERCONNECTING PIPE, FITTINGS, CONDUIT, ETC. ARE BY INSTALLER

CAUTION

"ALL VAULT DIMENSIONS, PENETRATIONS AND SLEEVE LOCATIONS ARE APPROXIMATE.

IF FINAL INSTALLATION TOLERANCES/ELEVATIONS/LOCATIONS/POSITIONS ARE CRITICAL INSTALLER SHALL CONTACT ROMAN FOUNTAINS PRIOR TO FINALIZING TRENCHING DEPTHS, EXCAVATION AND ANCHOR SLAB POUR FOR CERTIFICATION OF ACTUAL FINISHED VAULT DIMENSIONS."

CAUTION

ANY AND ALL VOIDS, POCKETS AND 'DEAD AIR SPACE' BENEATH A DIRECT BURIAL PUMP VAULT UNIT 'MUST' BE COMPLETELY FILLED IN AND ADEQUATELY COMPACTED PRIOR TO FINAL BACKFILLING AROUND VAULT UNIT. USE A PROPERLY FORMULATED, LOW CEMENTITIOUS CONTENT 'FLOWABLE FILL' MIXTURE OR OTHER FREE FLOWING MATERIAL TO COMPLETELY FILL ALL VOIDS, AS SPECIFIED AND APPROVED BY THE PROJECT ENGINEER.

SYSTEM POWER REQUIREMENT:
120-208V., SINGLE-PHASE, 3-WIRE FEEDER + GND. @ 30.0 AMPS
CONTACT FACTORY IMMEDIATELY IF NOT AVAILABLE.
(NOTE: SEE SHEET WFI-1 FOR POWER DIAGRAM)

NOTICE

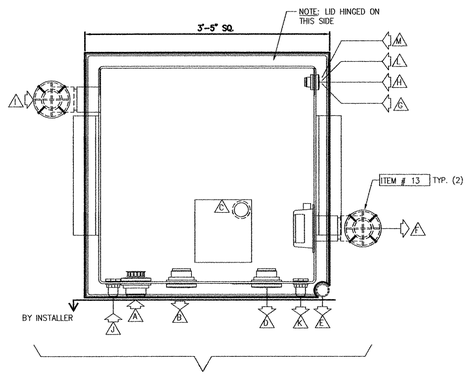
THIS VAULT PRODUCT IS NOT OFFERED AS A 'UL' OR 'ETL' LISTED ASSEMBLY. SHOULD THE LOCAL INSPECTING AUTHORITY HAVING JURISDICTION (AHJ) REQUIRE SUCH A LISTING THE CUSTOMER SHALL BEAR ALL RESPONSIBILITY FOR OBTAINING SUCH A LISTING.

UL CAN BE CONTACTEDAT UL CUSTOMER SERVICE (877) 854-3577 OR VIA E-MAIL AT ULFieldinspections@UL.com TO REQUEST/SCHEDULE AN ON-SITE FIELD INSPECTION.

ANY AND ALL COSTS AND POSSIBLE CONSTRUCTION DELAYS ASSOCIATED WITH SAID FIELD INSPECTION SHALL BE THE RESPONSIBILITY OF THE CUSTOMER AND NOT ROMAN FOUNTAINS.

RDP SERIES I PUMP VAULT INSTALLATION NOTES
PLEASE READ CAREFULLY

1. The gravity floor drain (located inside the Series I Vault) must be immediately connected to storm drain, sanitary sewer, or 'day-lighted, as required. If drain is not able to be connected DO NOT install vault until it can be connected.
2. Do not install pump vault into any location below sea level, or where a high water table exists, or in any area subject to periodic or repeated flooding, or groundwater saturation, as the unit is not designed to be surrounded by ground water; damage and/or leakage may occur. If periodic ground water flooding is possible, an adequately sized drainage system (French drain or sump pump well type) must be designed (by project engineer) and provided (by installer) around the module to move surrounding ground water away from the unit to a lower elevation.
3. In all cases finished grade around the pump vault must be sloped away from the access hatchway in all directions so no water flows into the pump vault (see installation details this sheet). Do not allow water to "pool" around vault under any circumstances.
4. Prior to pump vault installation, a level smooth, steel reinforced concrete pad, measuring 3'-6"x4'-3"x6" minimum thickness, must be poured, and must include the four (4) installer provided 1/2" stainless steel "L"-bolts (see installation drawing). Concrete shall have a minimum compression strength at 28 days of 3000 PSI and have a reinforcing steel conforming to ASTM A 615-40. Reinforced concrete pad, anchoring "L"-bolts are provided and installed by the installing contractor.
5. The pump module must be lifted using a properly weighted and balanced fork lift with extended forks or a boom crane and girdle straps. The weight of the vault for transportation and lifting purposes is 1,500 pounds unless otherwise indicated on the installation drawings, submittal data, or freight bill of lading.
6. Lower the pump vault into the excavation using a two part lifting sling with padded straps to ensure a true vertical lift. DO NOT LIFT FROM TOP AND DO NOT USE CHAINS FOR LIFTING AS THEY MAY DAMAGE FIBERGLASS. All off-loading and lifting equipment and labor is the responsibility of the installing contractor.
7. Lower the vault into the excavation slowly and center it on the concrete pad. Insure the concrete pad is level and thoroughly cleaned of debris that could damage the vault floor prior to placing the unit on the pad.
8. Securely anchor the vault to the stainless steel anchor bolts previously installed into the concrete pad (cable, straps and bolts furnished by the installing contractor). Vault must be plumb and level prior to hook-up and backfill. Pressure test all piping to be connected prior to backfill operations. HYDROSTATIC (WATER) TESTING SHALL BE THE ONLY APPROVED METHOD, DO NOT USE COMPRESSED AIR TO PERFORM ANY PRESSURE TESTS ON PVC PIPING.
9. After the vault is securely in position, outside piping and conduits must be aligned and connected to insure a true fit without excessive lateral force applied to piping, conduits or fittings.
10. CAUTION any and all voids, pockets and 'dead air space' beneath a direct burial pump vault unit 'MUST' be completely filled in and adequately compacted prior to final backfilling around vault unit. Use a [rp[er;y formulated, low cementitious content 'flowable fill' mixture or other free flowing material to completely fill all voids, as specified and approved by the project engineer.
11. Backfill around the pump vault using an approved granular material free of trash, debris, roots, rocks, vegetation, or other deleterious material. Under no circumstances shall construction waste, large rocks, concrete waste, clay based soil or any other unsuitable backfill be used. A naturally rounded aggregate of 1/4" nominal size ranging from 1/8" to 3/4" diameter, or 1/8" to 1/2" diameter stone crushings, clean and free flowing, may be used. Insure that backfill fills all voids, especially beneath all vault piping and fittings.
12. Spread backfill material in 6" to 8" lifts, and compact to at least 95% of maximum density as determined by ASTM 1557-70.
13. Use manual compaction equipment being careful not to damage pump vault, piping or conduit due to excessive compaction. A single lift of backfill material around pump vault with a final compaction to excessive loads shall not be permitted.
14. A second pressure test of piping should be made after backfilling to ensure that piping has not been damaged during backfill operations.
15. It is the responsibility of the installing contractor to ensure the all electrical equipment is installed and wired by a QUALIFIED, LICENSED ELECTRICIAN, experienced in industrial wiring. All electrical equipment must be installed in accordance with the NATIONAL ELECTRICAL CODE, and any local codes and regulations.
16. OSHA confined space requirements and safety procedures are the sole responsibility of the installer. (See insert below) This product IS NOT U.L. listed as an assembly.



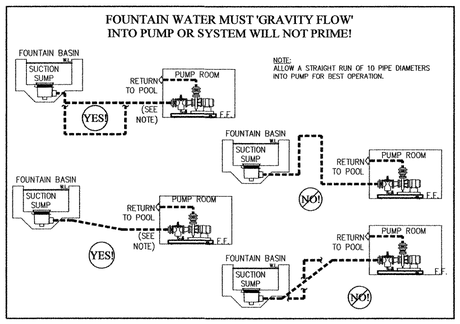
VAULT: PLAN VIEW

SCALE: 1"=1'-0"

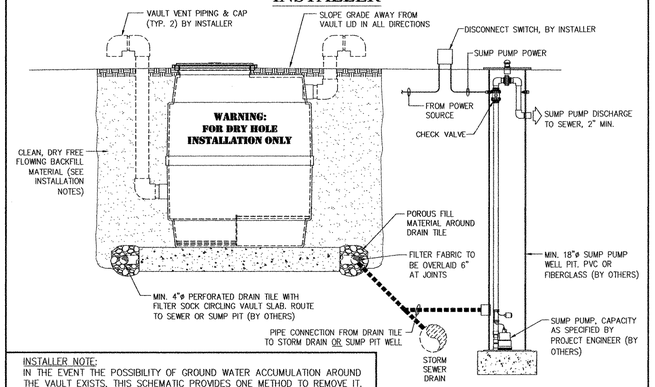
PROJECT ID: Johnson, Laschober & Assoc / USC-Aiken								
PANEL ID: USC - Aiken		LOCATION: V-1-L			MOUNT: NEMA 4, 20x16x06			
VOLTAGE: 120/208		AMPS: 30			TYPE: Bolt-On			
LOAD DESCRIPTION:	BKR Size	CKT No.	VA/Phase A	VA/Phase B	Duty Factor		LOAD	
USC - Aiken								
Control Circuit, Timer, Vent Fan	15	CB3		200	1.00	=	200	VA
Display Pump 3 HP (208V/60/1)	30	CB1	1,945	1,945	1.25	=	4,863	VA
Water Level Control	15	CB4		150	1.00	=	150	VA
LED Lights 12VDC, 16@14W	15	CB2*	224		1.00	=	224	VA
VA/Phase TOTAL:			2,169	2,295			5,437	VA
NOTE: * GFI Breaker 5mA								
TOTAL LOAD: 5,437 VA / 208 V / 1 = 26 AMPS								
REQ'D. FEED:							30	AMPS
FEEDER CONDUIT:							3/4	inch

SPECIFICATION DATA: Series 1-B Direct Burial Pump Vault, consisting of a 3'-5" sq. X 25" deep FRP vault with RBH-TS; TILE-SET VAULT HATCHWAY containing a RWSP-300; 3 HP re-circulating pump, a RCCF-050; 50 S.F. cartridge filter; RBH-320-IL; IN-LINE CHEMICAL FEEDER; RMS-075-N; 3/4" FILL MANIFOLD; integral floor sump with 2" floor drain; 3" vent connections with 105 GPM vent fan; isolation and throttling valves as shown; fittings and piping (Schedule 80 PVC) as shown; RPCP/RLCP; U.L. 508 listed control panel, containing: main disconnect; pump starter with circuit breaker, contactor, single channel programmable time switches, for pump and lights, 1500 watt lighting circuit with class 'A' G.F.C.I. breaker; H.O.A. switch, and water level/low level cutoff control circuit; RGLC-Series; 12VDC POWER SUPPLY AND RUN-720; "DMX" DRIVER. All pre-wired in a Nema 4 enclosure. Unit is factory engineered, assembled and tested prior to shipment.
Power requirement: 120-208V., single-phase.

PIPING LEGEND		
SYM.	SIZE	DESCRIPTION
A	2"	DISPLAY SUCTION CONNECTION, INCREASE TO 4" IMMEDIATELY OUTSIDE OF VAULT USING 4"x2" PVC ECCENTRIC REDUCER
A1	2"	DISPLAY SUPPLY CONNECTION, INCREASE TO 4" IMMEDIATELY OUTSIDE OF VAULT
A2	2"	GRAVITY DRAIN CONNECTION
A3	2"	FILTER RETURN CONNECTION
A4	1 1/2"	HATCH DRAIN CONNECTION
A5	3"	EXHAUST VENT CONNECTION
A6	3/4"C.	120-208V., SINGLE-PHASE, 3-WIRE, FEEDER + GND. @ 30.0 AMPS
A7	1/2"C.	RCOM WATER SENSOR CONTROL WIRE CONNECTION
A8	3"	INTAKE VENT CONNECTION
B	3/4"	3/4" C.W.S. IN FROM BACKFLOW PROTECTED SOURCE (BY INSTALLER) REGULATE PRESSURE TO 50 P.S.I. MAX.
B1	3/4"	FILL/MAKE-UP TO RWST-500, ITEM #04
C	1"C.	LIGHTING CONDUIT CONNECTION
C1	1"C.	LIGHTING CONDUIT CONNECTION



DIRECT BURIAL VAULT DEWATERING SYSTEM, IF REQUIRED, BY INSTALLER



INSTALLER NOTE:
IN THE EVENT THE POSSIBILITY OF GROUND WATER ACCUMULATION AROUND THE VAULT EXISTS, THIS SCHEMATIC PROVIDES ONE METHOD TO REMOVE IT. ALL MATERIALS, INSTALLATION AND COSTS ARE "BY OTHERS". CONSULT WITH CIVIL ENGINEER PRIOR TO USING THIS METHOD.

OSHA DEFINED "CONFINED SPACE" INFORMATION

Certain sites contain spaces that are considered to be "confined" because their configurations hinder the activities of any individual who must enter into, work in, and exit from them. In many instances, individuals who work in confined spaces also face increased risk of exposure to serious physical injury from hazards such as entrapment, engulfment, and hazardous atmospheric conditions. Confinement itself may pose entrapment hazards, and work in confined spaces may keep an individual closer to hazards, such as machinery components, than they would otherwise. For example, confinement, limited access, and restricted airflow can result in hazardous conditions that would not normally arise in an open workplace.

The term **"PERMIT-REQUIRED CONFINED SPACE"** (i.e. permit space) refers to those spaces that meet the definition of a "confined space" and contain health or safety hazards, thereby requiring a permit for entry.

A confined space has limited or restricted means of entry or exit, is large enough for an individual to enter and perform assigned work, and is not designed for continuous occupancy by the individual. These spaces may include, but are not limited to underground vaults, tanks, pits and containment vessels.

A **"PERMIT-REQUIRED CONFINED SPACE"** is one that meets the definition of a confined space and has one or more of these characteristics: (1) contains or has the potential to contain a hazardous atmosphere, (2) contains a material that has the potential for engulfing an entrant, (3) has an internal configuration that might cause and entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section, and/or (4) contains any other recognized serious safety or health hazards.

Owner assumes all responsibility & liability for ascertaining whether direct-burial pump stations meet the definition of **"PERMIT-REQUIRED CONFINED SPACE"** and implementing any/all 'OSHA' requirements for identification, notification, entry and, safety, including any additional safety equipment that may be required for such entry.

WARNING:

DIRECT-BURIAL PUMP VAULTS ARE DESIGNED AND CONSTRUCTED FOR 'DRY-HOLE' INSTALLATIONS ONLY AND ARE NOT DESIGNED, CONSTRUCTED, OR SOLD AS WATERTIGHT OR WATERPROOF CONTAINERS AND ARE NOT TO BE INCORPORATED INTO ANY PROJECT WHERE POTENTIAL GROUND WATER SATURATION (WHETHER TEMPORARY OR PERMANENT OR DUE TO RAIN, FLOODS OR IRRIGATION) OR NATURAL GEOLOGICAL HIGH WATER TABLE CONDITIONS MAY EXIST.

AS SUCH, ROMAN FOUNTAINS IS NOT RESPONSIBLE FOR ANY GROUNDWATER INTRUSION INTO ANY FIBERGLASS EQUIPMENT VAULT UNDER ANY CIRCUMSTANCES WHATSOEVER.

THE SPECIFIER/PURCHASER/INSTALLER/OWNER OF ANY VAULT PRODUCT SHALL MAKE ANY AND ALL DETERMINATIONS AS TO THE SUITABILITY OF SAID PRODUCT FOR THE APPLICATION, INCLUDING GROUND WATER CONDITIONS.

roman fountains®
America's Fountain Company!℠

USC - Aiken
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Scale:	As Noted
Drawn By:	F. Gorman
Checked By:	S. Shadle
Date:	11/30/12

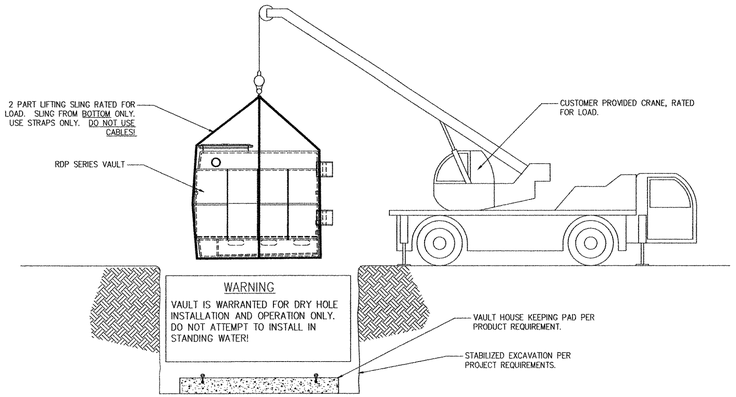
Revisions:

No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

RDP-1-300-B (Special), ITEM #12, DIRECT BURIAL PUMP VAULT DETAILS

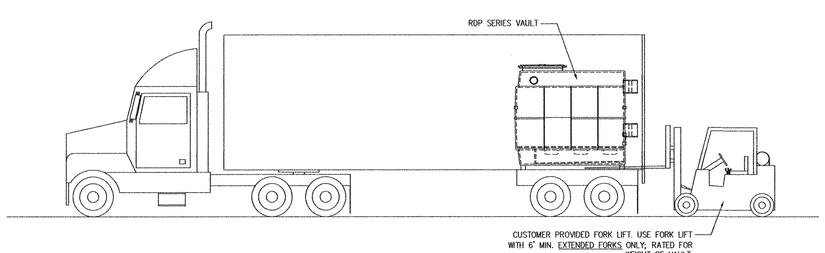
Drawing Number:

WFM-4



VAULT BEING REMOVED FROM TRUCK

VAULT OFF-LOADED FROM TRUCK



CAUTION

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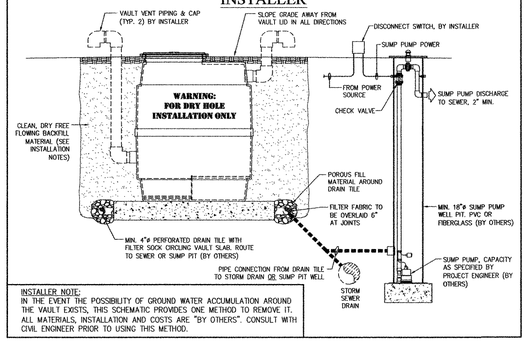
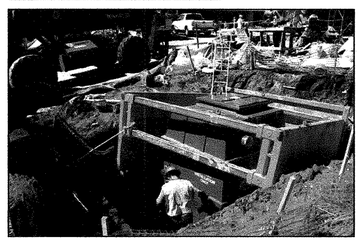
DIRECT BURIAL VAULT DEWATERING SYSTEM, IF REQUIRED, BY INSTALLER



GROSS WEIGHT OF VAULT

☒	RDP-1 Series	500 LBS
☐	RDP-2-S Series	1,000 LBS
☐	RDP-250 Series	2,000 LBS
☐	RDP-3 Series	3,000 LBS
☐	RDP-4 Series	5,000 LBS
☐	RDP-5 Series	10,000 LBS



VAULT IN POSITION PROTECTED BY 'CAVE-IN' BARRIER

NOTES:
1. HATCHWAY OPENING MUST BE LOCATED IN A AREA SAFE FROM FLOODING; SLOPE GRADE AWAY FROM VAULT.
2. PROTECT THE FURNISHED DRAIN LINE FROM POSSIBLE BACKFLOW AND SEWER GAS, AS REQUIRED.
3. VAULT SUCTION INTAKE MUST BE MIN. 1'-0" BELOW THE LOWEST POOL OPERATING WATER LEVEL.
4. ALL VAULT AND PENETRATIONS ARE APPROXIMATE.

*ALL INTERCONNECTING PIPE, FITTINGS, CONDUIT, ETC. ARE BY INSTALLER

NOTE: INSURE FILL MATERIAL FILLS ALL VOIDS BENEATH VAULT. HAND FEED FILL MATERIAL AS NECESSARY TO FILL ALL POTENTIAL VOIDS. DO NOT USE SHARP ROCKS AS FILL BENEATH VAULT.

CAUTION: INSTALLER TO VERIFY THAT ELEVATIONS AND OTHER DIMENSIONAL INFORMATION PROVIDED HEREIN, AGREE WITH ACTUAL SITE CONDITIONS. PLEASE REPORT ANY DEVIATIONS, OR POTENTIAL INSTALLATION CHANGES IMMEDIATELY TO ROMAN FOUNTAINS. PHONE: (505) 343-8082.

NOTE: THE PROPER DESIGN, OPERATION AND PERFORMANCE OF THIS SYSTEM IS BASED ON THE SELECTION AND USE OF EQUIPMENT MANUFACTURED AND/OR SELECTED BY ROMAN FOUNTAINS CORPORATION, ALBUQUERQUE, NEW MEXICO, U.S.A.; PHONE: (505) 343-8082. SUBSTITUTION OF EQUIPMENT OTHER THAN THAT SELECTED AND FURNISHED, VOIDS THE SYSTEM WARRANTY AND PERFORMANCE GUARANTEE, AND INSTALLER ASSUMES FULL RESPONSIBILITY FOR ITS OPERATION AND PERFORMANCE.

LIFTING FORK CRANE WITH DOUBLE STRAP SLING

⚡ DANGER ⚡

FATAL ELECTRICAL SHOCK CAN OCCUR IF FOUNTAIN ELECTRICAL EQUIPMENT IS NOT INSTALLED PROPERLY. THIS EQUIPMENT SHOULD ONLY BE INSTALLED BY QUALIFIED ELECTRICIANS WITH PROPER GROUNDING AND GROUND FAULT INTERRUPTION CIRCUIT BREAKERS IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE, SECTION 680, AND ALL OTHER APPLICABLE SECTIONS OF THE CODE.

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WARNING:

DIRECT-BURIAL PUMP VAULTS ARE DESIGNED AND CONSTRUCTED FOR 'DRY-HOLE' INSTALLATIONS ONLY AND ARE NOT DESIGNED, CONSTRUCTED, OR SOLD AS WATERTIGHT OR WATERPROOF CONTAINERS AND ARE NOT TO BE INCORPORATED INTO ANY PROJECT WHERE POTENTIAL GROUND WATER SATURATION (WHETHER TEMPORARY OR PERMANENT OR DUE TO RAIN, FLOODS OR IRRIGATION) OR NATURAL GEOLOGICAL HIGH WATER TABLE CONDITIONS MAY EXIST.

AS SUCH, ROMAN FOUNTAINS IS NOT RESPONSIBLE FOR ANY GROUNDWATER INTRUSION INTO ANY FIBERGLASS EQUIPMENT VAULT UNDER ANY CIRCUMSTANCES WHATSOEVER.

THE SPECIFIER/PURCHASER/INSTALLER/OWNER OF ANY VAULT PRODUCT SHALL MAKE ANY AND ALL DETERMINATIONS AS TO THE SUITABILITY OF SAID PRODUCT FOR THE APPLICATION, INCLUDING GROUND WATER CONDITIONS.

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Aiken, South Carolina
For Johnson, Laschober and Associates, PC
Augusta, Georgia

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Scale:	As Noted
Drawn By:	F. Gorman
Checked By:	S. Shadle
Date:	11/30/12

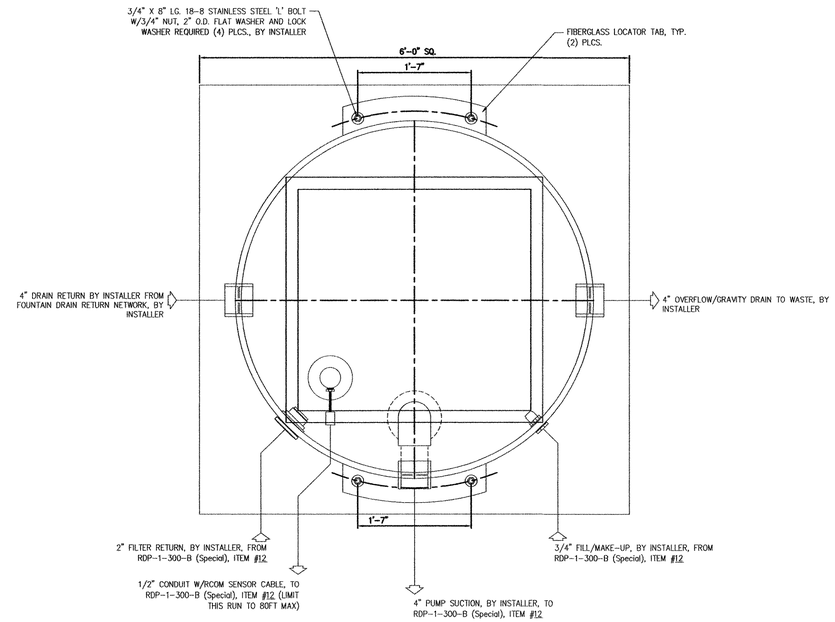
Revisions:

No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

RDP-1, DIRECT BURIAL PUMP VAULT INSTALLATION DETAILS

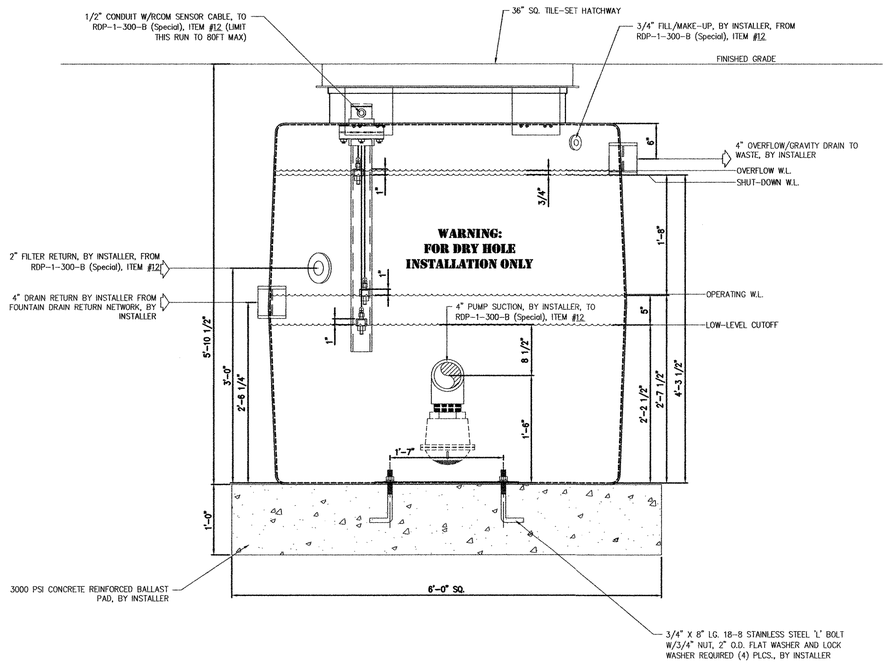
Drawing Number:

WFM-5



WATER STORAGE TANK PLAN VIEW

SCALE: 1"=1'-0"



WATER STORAGE TANK ELEVATION VIEW

SCALE: 1"=1'-0"

DANGER

FATAL ELECTRICAL SHOCK CAN OCCUR IF FOUNTAIN ELECTRICAL EQUIPMENT IS NOT INSTALLED PROPERLY. THIS EQUIPMENT SHOULD ONLY BE INSTALLED BY QUALIFIED ELECTRICIANS WITH PROPER GROUNDING AND GROUND FAULT INTERRUPTION CIRCUIT BREAKERS IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE, SECTION 680, AND ALL OTHER APPLICABLE SECTIONS OF THE CODE.

THE PROPER DESIGN, OPERATION AND PERFORMANCE OF THIS SYSTEM IS BASED ON THE SELECTION AND USE OF EQUIPMENT MANUFACTURED AND/OR SELECTED BY ROMAN FOUNTAINS CORPORATION, ALBUQUERQUE, NEW MEXICO, USA, (505) 343-8082. SUBSTITUTION OF EQUIPMENT OTHER THAN SELECTED AND FURNISHED VOIDS THE SYSTEM WARRANTY AND PERFORMANCE GUARANTY AND INSTALLER ASSUMES FULL RESPONSIBILITY FOR ITS OPERATION AND PERFORMANCE.

NOTES:
1. THE SUGGESTED MEANS FOR DRAINING WATER STORAGE TANK; INSTALLER TO PROVIDE PORTABLE 1/2 HP MANUAL SUMP PUMP, TETHER LINE (FOR LOWERING INTO TANK AND RETRIEVAL) EXTENSION CORD, MINIMUM 1 1/2" FLEX HOSE AND NECESSARY HOSE CLAMPS AND FITTINGS, AS REQUIRED.

2. TO SIMPLIFY THE DRAIN-DOWN PROCESS THE ___" COUPLING MOLDED INTO THE TANK FOR GRAVITY OVERFLOW DRAIN, MAY BE USED IN CONJUNCTION WITH A PVC ___" X 1 1/2" OR 2" (AS REQUIRED) PRESS-FIT, FOR SUMP PUMP DISCHARGE (LOCAL CODES PERMITTING) AND REMOVED AFTER DRAINING. DO NOT RESTRICT OVERFLOW DRAIN FOR NORMAL OPERATION.

3. CAUTION: DO NOT LEAVE TANK EMPTY AND LONGER THAN NECESSARY, TO AVOID HYDRO-STATIC 'LIFTING' POTENTIAL, SHOULD GROUND BECOME WATER SATURATED DURING SUDDEN STORM, ETC.

OSHA DEFINED "CONFINED SPACE" INFORMATION

Certain sites contain spaces that are considered to be "confined" because their configurations hinder the activities of any individual who must enter into, work in, and exit from them. In many instances, individuals who work in confined spaces also face increased risk of exposure to serious physical injury from hazards such as entrapment, engulfment, and hazardous atmospheric conditions. Confinement itself may pose entrapment hazards, and work in confined spaces may keep an individual closer to hazards, such as machinery components, than they would otherwise. For example, confinement, limited access, and restricted airflow can result in hazardous conditions that would not normally arise in an open workplace.

The term **"PERMIT-REQUIRED CONFINED SPACE"** (i.e. permit space) refers to those spaces that meet the definition of a "confined space" and contain health or safety hazards, thereby requiring a permit for entry.

A confined space has limited or restricted means of entry or exit, is large enough for an individual to enter and perform assigned work, and is not designed for continuous occupancy by the individual. These spaces may include, but are not limited to underground vaults, tanks, pits and containment vessels.

A **"PERMIT-REQUIRED CONFINED SPACE"** is one that meets the definition of a confined space and has one or more of these characteristics: (1) contains or has the potential to contain a hazardous atmosphere, (2) contains a material that has the potential for engulfing an entrant, (3) has an internal configuration that might cause and entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section, and/or (4) contains any other recognized serious safety or health hazards.

Owner assumes all responsibility & liability for ascertaining whether direct-burial pump stations meet the definition of **"PERMIT-REQUIRED CONFINED SPACE"** and implementing any/all 'OSHA' requirements for identification, notification, entry and, safety, including any additional safety equipment that may be required for such entry.

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RWST-SERIES, FIBERGLASS WATER STORAGE TANK INSTALLATION NOTES, PLEASE READ CAREFULLY

1. In all cases finished grade around the tank must be sloped away from the access hatchway in all directions so no water flows into the tank (see installation details this sheet). Do not allow water to "pool" around tank under any circumstances.
2. Prior to tank installation, a level smooth, steel reinforced concrete pad, as sized on this drawing sheet, must be poured, and must include the four (4) installer provided 3/4" stainless steel "L"-bolts (see installation drawing).
3. The tank must be lifted using a properly weighted and balanced fork lift with extended forks or a boom crane and girdle straps. The maximum tank weight for transportation and lifting purposes is 1,000 pounds unless otherwise indicated on the installation drawings or submittal data.
4. Lower the tank into the excavation using a two part lifting sling with padded straps to insure a true vertical lift. DO NOT LIFT FROM TOP AND DO NOT USE CHAINS FOR LIFTING AS THEY MAY DAMAGE FIBERGLASS SKIN. All off-loading and lifting equipment and labor is the responsibility of the installing contractor.
5. Lower the tank into the excavation slowly and center it on the concrete pad. Insure the concrete pad is level and thoroughly broomed and brushed free of debris that could puncture the tank prior to placing the unit on the pad.
6. Securely anchor the tank to the stainless steel anchor bolts previously installed into the concrete pad. Tank must be plumb and level prior to hook-up and backfill.
7. After the tank is securely in position, outside piping and conduits must be aligned and connected to insure a true fit without excessive lateral force applied to piping, conduits or fittings.
8. Pressure test all piping to be connected prior to backfill operations. HYDROSTATIC (WATER) TESTING SHALL BE THE ONLY APPROVED METHOD, DO NOT USE COMPRESSED AIR TO PERFORM ANY PRESSURE TESTS.
9. Once piping/conduits have all been installed and pressure tested, immediately fill tank with water to the point of overflow.
10. Backfill around the tank with 6" to 12" width of approved granular material free of trash, debris, roots, vegetation, or other deleterious material. Under no circumstances shall construction waste, large rocks, concrete waste, clay based soil or any other unsuitable backfill be used. A naturally rounded aggregate of 1/4" nominal size ranging from 1/8" to 3/4" diameter, or 1/8" to 1/2" diameter stone crushings, clean and free flowing, may be used. Insure that backfill fills all voids, especially under tank piping and fittings.
11. Spread backfill material in 6" to 8" lifts. Compact to at least 95% of maximum density as determined by ASTM 1557-70.
12. Use manual compaction equipment being careful not to damage the tank, piping or conduit due to excessive compaction. A single lift of backfill material around pump module with a final compaction to excessive loads shall not be allowed.
13. A second pressure test of piping should be made after backfilling to insure that piping has not been damaged during backfill operations.
14. CAUTION: Never allow installed tank to sit empty, as a down-pour, flood or other ground water condition may cause tank to rise out of the ground! Never drain tank if a known ground water condition exists and be sure to refill tank immediately when drained for maintenance purposes.
15. It is the responsibility of the installing contractor to insure the all electrical equipment is installed and wired by a QUALIFIED, LICENSED ELECTRICIAN, experienced in fountain/pool wiring. All electrical equipment must be installed in accordance with the NATIONAL ELECTRICAL CODE.

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Scale:	As Noted
Drawn By:	F. Gorman
Checked By:	S. Shadle
Date:	11/30/12

Revisions:

No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

RWST-500, ITEM #04, WATER STORAGE TANK INSTALLATION DETAILS

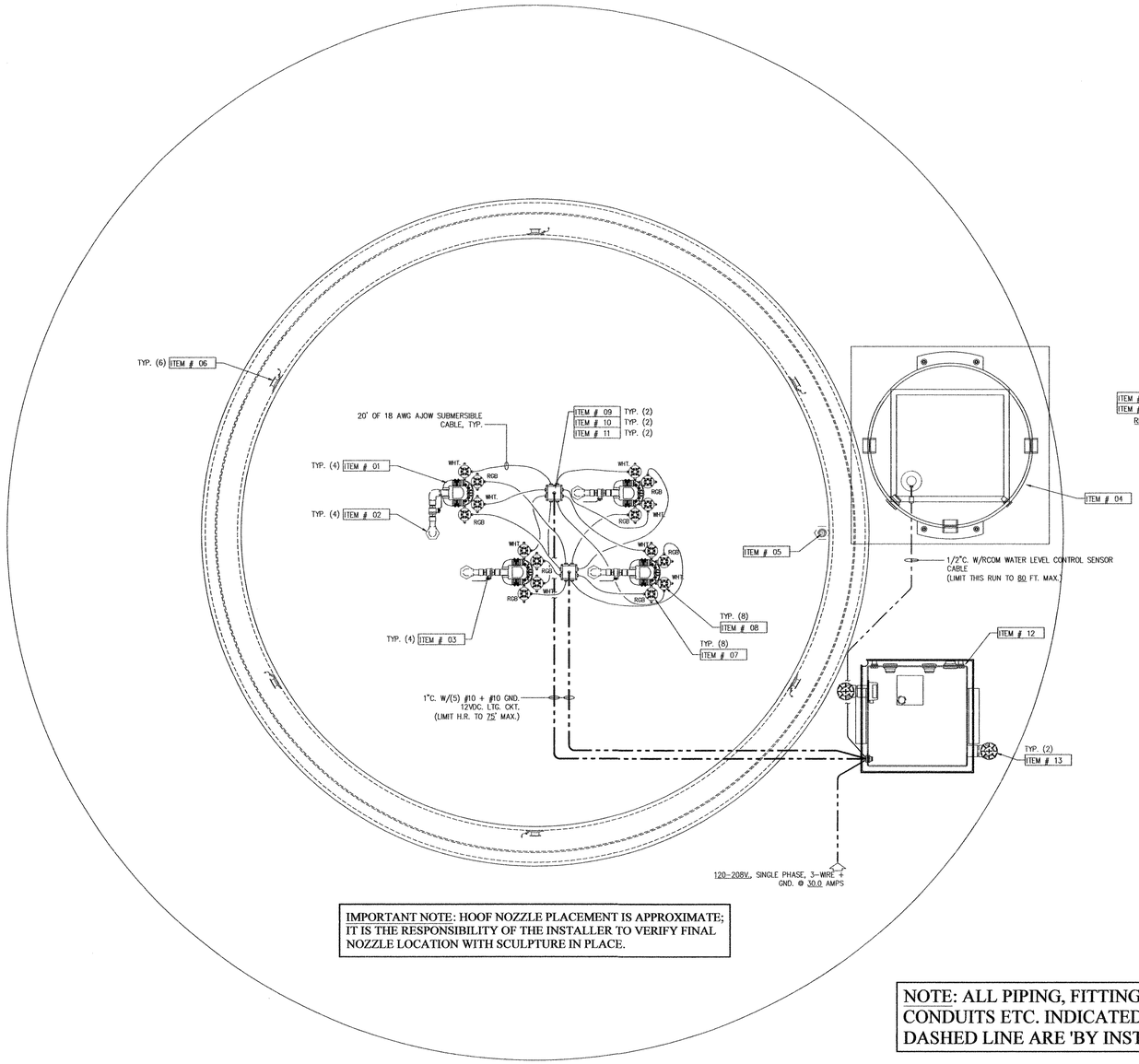
Drawing Number:

WFM-6

USC – Aiken Fountain
Equipment List – By Roman Fountains

Item No.	Quan.	Model No.	Description
01	4	RCHN-150	Custom 'Hoof' Nozzle Assembly
*02	4	RWS-150-S	1 1/2" Slab Penetration Fitting
03	4	RBB-150-T	1 1/2" Threaded Brass Ball Valve
04	1	RWST-500 (Special)	Water Storage/Surge Tank, 500 gallon.
*05	1	RFD-200	2" Machined Cast Bronze Floor-Drain Fitting.
*06	6	ROVS-200-W	2" Sidewall Overflow Drain.
07	8	RFL-CG-HP-LED-RGB	ETL Listed 'Hockey Puck' RGB LED Submersible Light Fixture.
08	8	RFL-CG-HP-LED-W	ETL Listed 'Hockey Puck' WHITE LED Submersible Light Fixture.
09	2	RJB-8-100-C	UL Listed Conduit Mounted Submersible Junction Box.
10	2	RPC-2114-D	Potting Compound, 21.2 oz. size.
*11	2	RWS-100-L	1" Slab Penetration Fitting.
12	1	RDP-1-300-B (Special)	3HP Series 1-B Direct Burial Pump Vault. Power requirement: 120-208V., single-phase.
13	2	RPVC-300	3" PVC Vent Cap.

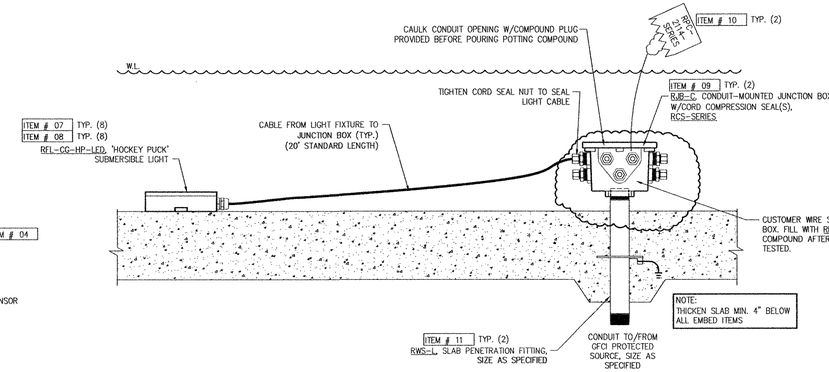
NOTE: FOR COMPLETE EQUIPMENT SPECIFICATIONS, SEE DWG. WFN-2.
***NOTE: CONCRETE EMBED ITEM, REQUIRED FOR POUR.**



IMPORTANT NOTE: HOOF NOZZLE PLACEMENT IS APPROXIMATE; IT IS THE RESPONSIBILITY OF THE INSTALLER TO VERIFY FINAL NOZZLE LOCATION WITH SCULPTURE IN PLACE.

NOTE: ALL PIPING, FITTINGS, VALVES, CONDUITS ETC. INDICATED WITH A DASHED LINE ARE 'BY INSTALLER'.

FOUNTAIN ELECTRICAL PLAN
SCALE: 1/2"=1'-0"



DANGER

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NOTE:
INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN EXPERIENCED IN POOL WIRING, AND IN STRICT CONFORMANCE WITH NEC SECTION 680, AND ALL LOCAL CODE REQUIREMENTS.

TYPICAL RFL-CG-HP-LED TO RJB-C DETAIL
SCALE: NONE (REF. ITEM #'S 07, 08, 09, 10 & 11)

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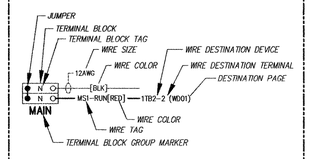
FOUNTAIN ELECTRICAL PLAN & INSTALLATION DETAIL

Drawing Number:

WFE-1

PROJECT ID: Johnson, Laschober & Assoc / USC-Aiken								
PANEL ID: USC - Aiken			LOCATION: V-1-L			MOUNT: NEMA 4, 20x16x06		
VOLTAGE: 120/208			AMPS: 30			TYPE: Bolt-On		
LOAD DESCRIPTION:	BKR Size	CKT No.	VA/Phase A	VA/Phase B		Duty Factor		LOAD
USC - Aiken								
Control Circuit, Timer, Vent Fan	15	CB3		200		1.00	=	200 VA
Display Pump 3 HP (208V/60/1)	30	CB1	1,945	1,945		1.25	=	4,863 VA
Water Level Control	15	CB4		150		1.00	=	150 VA
LED Lights 12VDC, 16@14W	15	CB2*	224			1.00	=	224 VA
VA/Phase TOTAL:			2,169	2,295				5,437 VA
NOTE: * GFI Breaker 5mA								
TOTAL LOAD: 5,437 VA			/ 208 V		/ 1	=		26 AMPS
REQ'D. FEED:								30 AMPS
FEEDER CONDUIT:								3/4 inch

WIRING LEGEND



WIRING NOTES

BLK – BLACK
WH – WHITE
GRN – GREEN
BLU – BLUE
① ORG – ORANGE
RED – RED
GRY – GRAY
PUR – PURPLE
BRN – BROWN
YEL – YELLOW

② TAG WIRES THAT HAVE THE TAG NAME & WIRE COLOR ONLY.

③ POWER DIST WIRING (BLK, WH, BLU, RED, ORG, BRN, YEL) IS NOT TAGGED

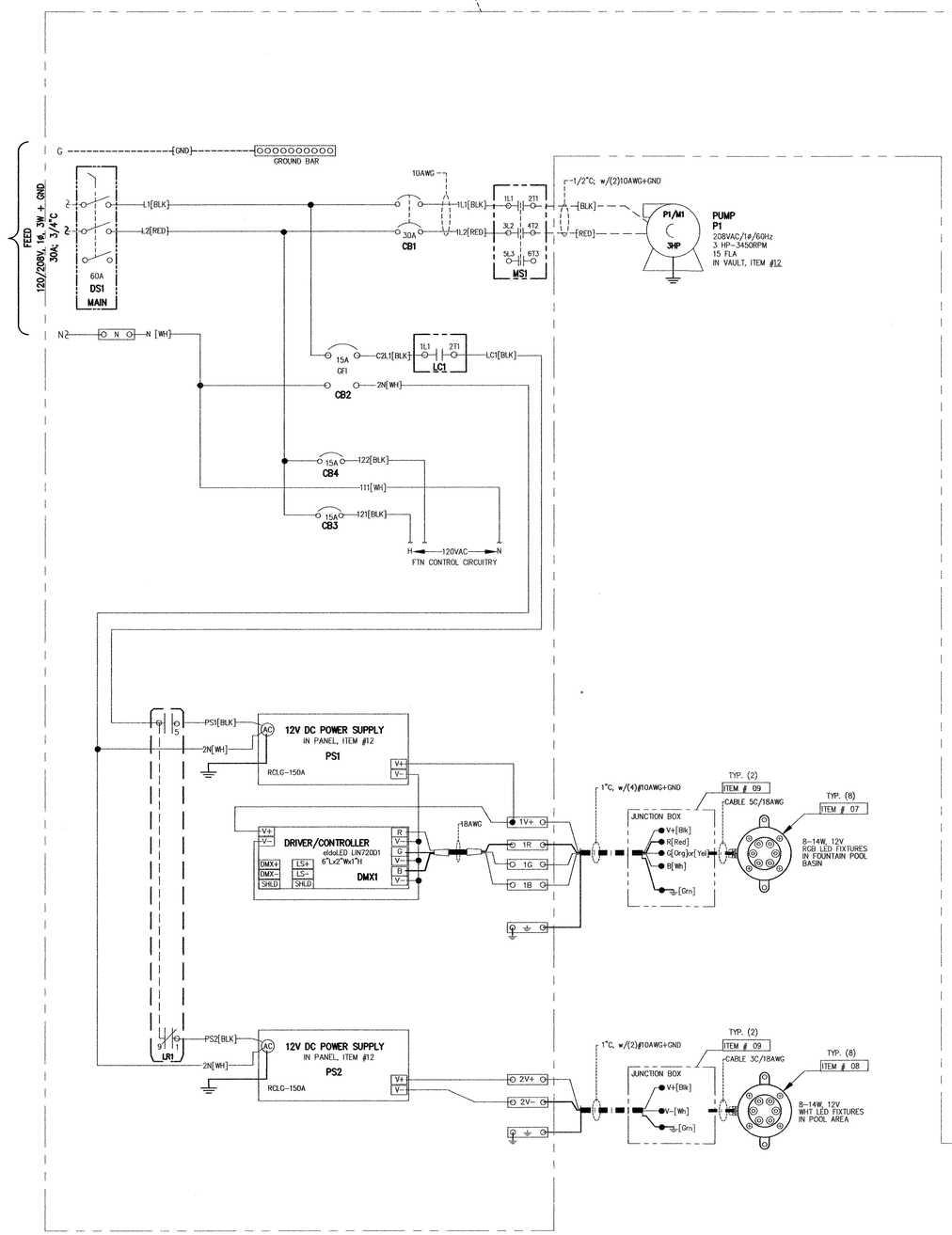
④ INTERNAL PANEL WIRING 16AWG MTW UNLESS OTHERWISE INDICATED.

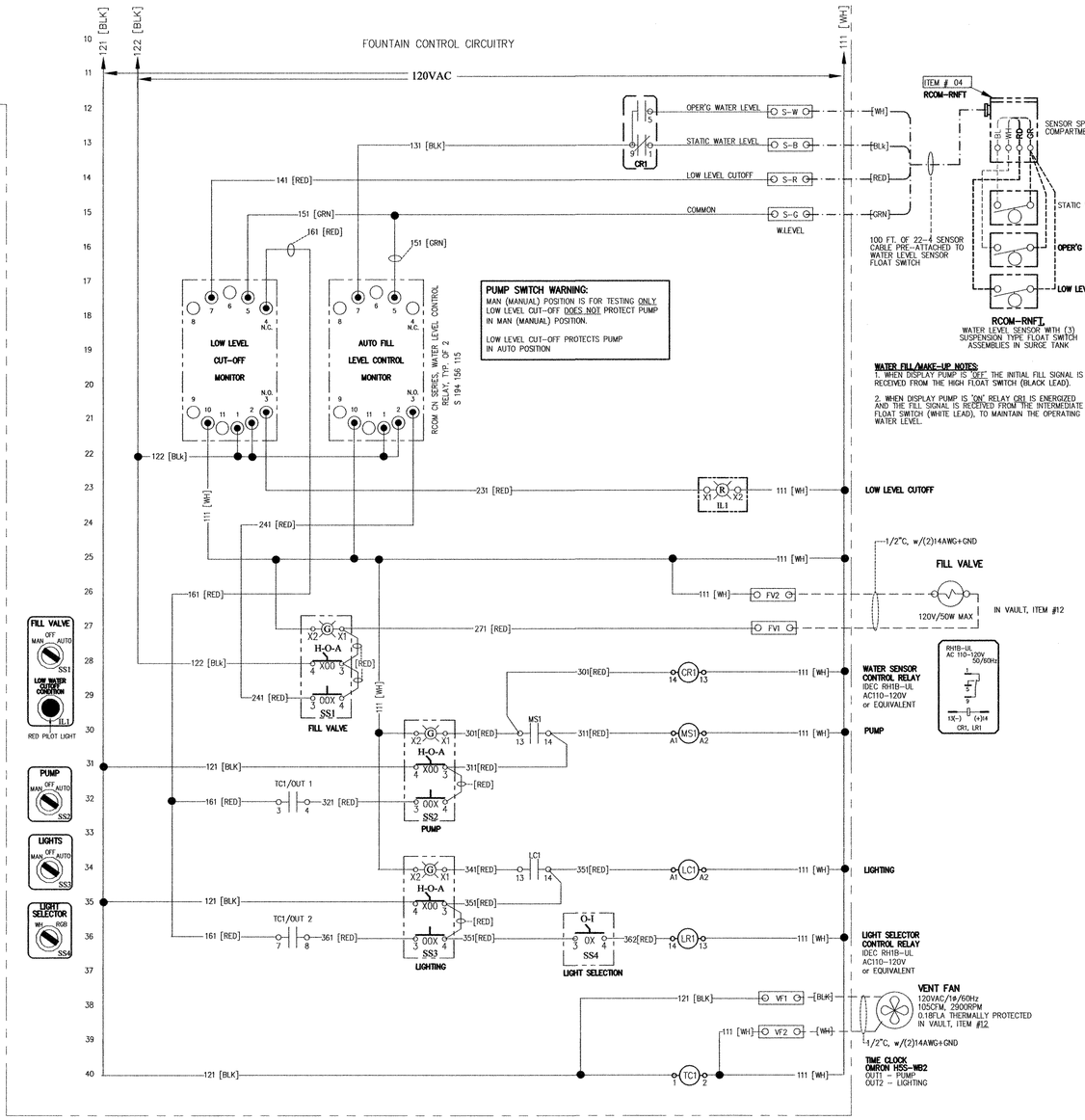
⑤ —·—·— FIELD INSTALLED WIRES

⑥ ——— SHOP WIRING PRE-INSTALLED BY ROMAN FOUNTAINS

⑦ ——— U.L. PANEL SHOP WIRING

NEMA 4 ENCLOSURE CONTROL PANEL MOUNTED UNDERSIDE OF LID IN A SERIES 1 VAULT. ITEM #12
REQUESTED PANEL SIZE: 20"Hx16"Wx06"D





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RDP-1-300-B (Special), ITEM #12, CONTROL PANEL WIRING DIAGRAM

Drawing Number:

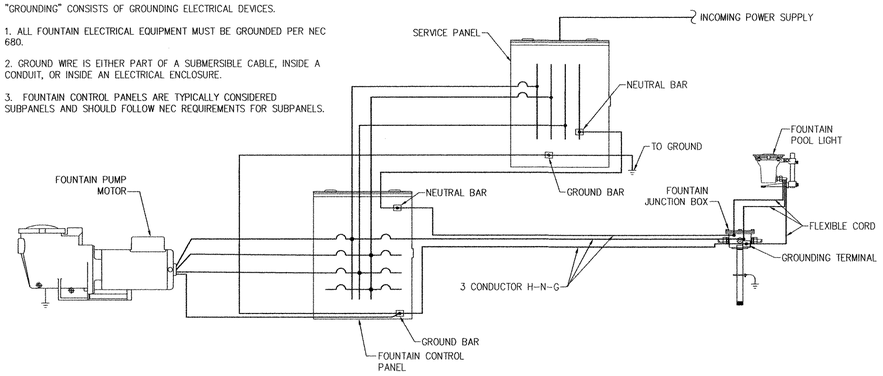
WFE-2

"GROUNDING" CONSISTS OF GROUNDING ELECTRICAL DEVICES.

1. ALL FOUNTAIN ELECTRICAL EQUIPMENT MUST BE GROUNDED PER NEC 680.

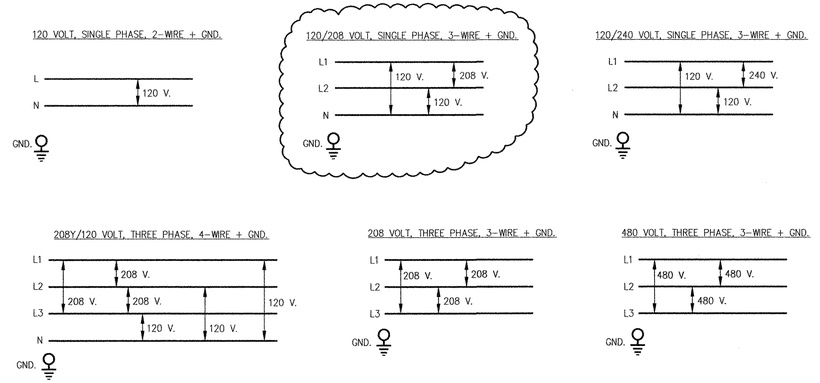
2. GROUND WIRE IS EITHER PART OF A SUBMERSIBLE CABLE, INSIDE A CONDUIT, OR INSIDE AN ELECTRICAL ENCLOSURE.

3. FOUNTAIN CONTROL PANELS ARE TYPICALLY CONSIDERED SUBPANELS AND SHOULD FOLLOW NEC REQUIREMENTS FOR SUBPANELS.



TYPICAL FOUNTAIN "GROUNDING" SCHEMATIC

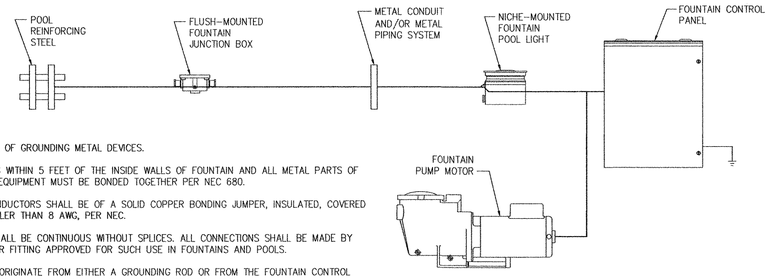
SCALE: NONE



INSTALLER NOTE: POWER REQUIRED FOR THIS PROJECT IS "CLOUDED"

ELECTRICAL POWER SUPPLY OPTIONS

SCALE: NONE



"BONDING" CONSISTS OF GROUNDING METAL DEVICES.

1. ALL METAL PARTS WITHIN 5 FEET OF THE INSIDE WALLS OF FOUNTAIN AND ALL METAL PARTS OF ASSOCIATED METAL EQUIPMENT MUST BE BONDED TOGETHER PER NEC 680.

2. ALL BONDING CONDUCTORS SHALL BE OF A SOLID COPPER BONDING JUMPER, INSULATED, COVERED OR BARE, NOT SMALLER THAN 8 AWG, PER NEC.

3. ALL BONDING SHALL BE CONTINUOUS WITHOUT SPLICES. ALL CONNECTIONS SHALL BE MADE BY EXOTHERMIC WELD OR FITTING APPROVED FOR SUCH USE IN FOUNTAINS AND POOLS.

4. BONDING WIRES ORIGINATE FROM EITHER A GROUNDING ROD OR FROM THE FOUNTAIN CONTROL PANEL (IF PANEL FEED IS WITH A MINIMUM #8 AWG BOND/GROUND WIRE).

5. BONDING WIRES ARE TYPICALLY EXTERNAL FROM CONDUITS BUT COULD ORIGINATE FROM THE FOUNTAIN CONTROL PANEL TO A SUBMERSIBLE JUNCTION BOX, THROUGH A CONDUIT, TO AN INTERNAL BONDING LUG. BUT THEN THE REST OF THE BONDING WIRES SHOULD RUN EXTERNAL BY USE OF JUNCTION BOX EXTERNAL BONDING LUG TO THE POOL REINFORCING STEEL (REBAR) AND TO OTHER POOL METAL DEVICES SUCH AS NICHE LIGHTS.

6. FOUNTAIN CONTROL PANELS ARE TYPICALLY CONSIDERED SUBPANELS AND SHOULD FOLLOW NEC REQUIREMENTS FOR SUBPANELS.

TYPICAL FOUNTAIN "BONDING" SCHEMATIC

SCALE: NONE

RECOMMENDED WIRE COLOR CODE

Color code for conductors for general wiring;
1. Color code conductors insulation as follows:

CONDUCTOR	208-240/120	440-480/277	12-24/AC-DC
Phase A	BLACK (BL)	BROWN (BR)	GRAY (GY), BROWN (BR)
Phase B	RED (RD)	ORANGE (OR)	
Phase C	BLUE (BU)	YELLOW (YL)	
NEUTRAL (COM)	WHITE (WH)		PURPLE (PU), BLUE (BU)
GROUND	GREEN (GRN)	GREEN (GRN)	GREEN (GRN)

2. For conductors #6 AWG or larger, permanent plastic – colored tape may be used to mark conductor insulation. Tape shall cover not less than 2 inches of conductor insulation within enclosure.

CONDUCTOR	DEVICES	LIGHT FIXTURES	SOLENOIDS	PLC-INPUTS	PLC-OUTPUTS
Phase	RED (RD)	BLACK (BL)	BLACK (BL)	YELLOW (YL)	ORANGE (OR), RED (RD)
NEUTRAL (COM)	WHITE (WH)	WHITE (WH)	WHITE (WH)	WHITE (WH)	WHITE (WH)
GROUND	GREEN (GRN)	GREEN (GRN)	GREEN (GRN)	GREEN (GRN)	GREEN (GRN)

EXCERPT FROM 2011 EDITION OF NEC ARTICLE 680 PERTAINING TO DECORATIVE FOUNTAINS

V. Fountains

680.50 General. The provisions of Part I and Part V of this article shall apply to all permanently installed fountains as defined in 680.2. Fountains that have water common to a pool shall additionally comply with the requirements in Part II of this article. Part V does not cover self-contained, portable fountains. Portable fountains shall comply with Parts II and III of Article 422.

680.51 Luminaires, Submersible Pumps, and Other Submersible Equipment.
(A) Ground-Fault Circuit Interrupter. Luminaires, submersible pumps, and other submersible equipment, unless listed for operation at low voltage contact limit or less and supplied by a transformer or power supply that complies with 680.23(A)(2), shall be protected by a ground-fault circuit interrupter.
(B) Operating Voltage. No luminaires shall be installed for operation on supply circuits over 150 volts between conductors. Submersible pumps and other submersible equipment shall operate at 300 volts or less between conductors.
(C) Luminaire Lenses. Luminaires shall be installed with the top of the luminaire lens below the normal water level of the fountain unless listed for above-water locations. A luminaire facing upward shall comply with either (1) or (2):
(1) Have the lens adequately guarded to prevent contact by any person
(2) Be listed for use without a guard
(D) Overheating Protection. Electrical equipment that depends on submersion for safe operation shall be protected against overheating by a low-water cutoff or other approved means when not submerged.
(E) Wiring. Equipment shall be equipped with provisions for threaded conduit entries or be provided with a suitable flexible cord. The maximum length of each exposed cord in the fountain shall be limited to 3.0 m (10 ft). Cords extending beyond the fountain perimeter shall be enclosed in approved wiring enclosures. Metal parts of equipment in contact with water shall be of brass or other approved corrosion-resistant metal.
(F) Servicing. All equipment shall be removable from the water for relamping or normal maintenance. Luminaires shall not be permanently embedded into the fountain structure such that the water level must be reduced or the fountain drained for relamping, maintenance, or inspection.
(G) Stability. Equipment shall be inherently stable or be securely fastened in place.

680.52 Junction Boxes and Other Enclosures.
(A) General. Junction boxes and other enclosures used for other than underwater installation shall comply with 680.24.
(B) Underwater Junction Boxes and Other Underwater Enclosures. Junction boxes and other underwater enclosures shal meet the requirements of 680.52(B)(1) and (B)(2).
(1) Construction.
(a) Underwater enclosures shall be equipped with provisions for threaded conduit entries or compression glands or seals for cord entry.
(b) Underwater enclosures shall be submersible and made of copper, brass, or other approved corrosion-resistant material.
(2) Installation. Underwater enclosure installations shall comply with (a) and (b).
(a) Underwater enclosures shall be filled with an approved potting compound to prevent the entry of moisture.
(b) Underwater enclosures shall be firmly attached to the supports or directly to the fountain surface and bonded as required. Where the junction box is supported only by conduits in accordance with 314.23(E) and (F), the conduits shall be of copper, brass, stainless steel, or other approved corrosion-resistant metal. Where the box is fed by nonmetallic conduit, it shall have additional supports and fasteners of copper, brass, or other approved corrosion-resistant material.

V. Fountains (Cont.)

680.53 Bonding.
All metal piping systems associated with the fountain shall be bonded to the equipment grounding conductor of the branch circuit supplying the fountain.
Informational Note: See 250.122 for sizing of these conductors.

680.54 Grounding.
The following equipment shall be grounded:
(1) Other than listed low-voltage luminaires not requiring grounding, all electrical equipment located within the fountain or within 1.5 m (5 ft) of the inside wall of the fountain
(2) All electrical equipment associated with the recirculating system of the fountain
(3) Panelboards that are not part of the service equipment and that supply any electrical equipment associated with the fountain

680.55 Methods of Grounding.
(A) Applied Provisions. The provisions of 680.21(A), 680.23(B)(3), 680.23(F)(1) and (F)(2), 680.24(F), and 680.25 shall apply.
(B) Supplied by a Flexible Cord. Electrical equipment that is supplied by a flexible cord shall have all exposed non-current-carrying metal parts grounded by an insulated copper equipment grounding conductor that is an integral part of this cord. The equipment grounding conductor shall be connected to an equipment grounding terminal in the supply junction box, transformer enclosure, power supply enclosure, or other enclosure.

680.56 Cord-and-Plug-Connected Equipment.
(A) Ground-Fault Circuit Interrupter. All electrical equipment, including power-supply cords, shall be protected by ground-fault circuit interrupters.
(B) Cord Type. Flexible cord immersed in or exposed to water shall be of a type for extra-hard usage, as designated in Table 400.4, and shall be a listed type with a "W" suffix.
(C) Sealing. The end of the flexible cord jacket and the flexible cord conductor termination within equipment shall be covered with, or encapsulated in, a suitable potting compound to prevent the entry of water into the equipment through the cord or its conductors. In addition, the ground connection within equipment shall be similarly treated to protect such connections from the deteriorating effect of water that may enter into the equipment.
(D) Terminations. Connections with flexible cord shall be permanent, except that grounding-type attachment plugs and receptacles shall be permitted to facilitate removal or disconnection for maintenance, repair, or storage of fixed or stationary equipment not located in any water-containing part of a fountain.

NOTE: For a complete copy of 2011 edition of NEC Article 680 (680.1 through 680.74) please contact:
NFPA
1 Batterymarch Park
Quincy, MA 02169-7471

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Scale:	As Noted
Drawn By:	F. Gorman
Checked By:	S. Shadle
Date:	11/30/12

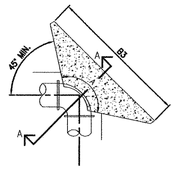
Revisions:

No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

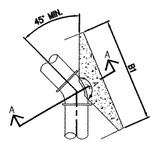
TYPICAL ELECTRICAL DETAILS & ARTICLE 680 NEC REQUIREMENTS

Drawing Number:

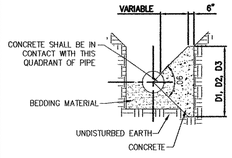
WFI-1



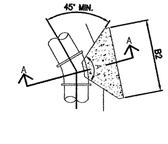
PLAN – 45° 90° BENDS



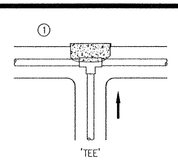
PLAN – 22 1/2°–45°BENDS



SECTION A–A

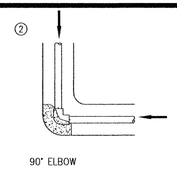


PLAN – 0°–22 1/2° BENDS



"TEE"

"CROSS" & REDUCER



90° ELBOW

DOUBLE OFFSET

45° ELBOW

1. THRU LINE CONNECTION, TEE
2. DIRECTION CHANGE, 90° ELBOW
3. CROSS AND REDUCER
4. DIRECTION CHANGE–OFFSET
5. DIRECTION CHANGE–45° ELBOW

INDICATES FLOW DIRECTION

NOTE:
1. SHAPE OF BACK OF BUTTRESS MAY VARY AS LONG AS POUR IS AGAINST FIRM UNDISTURBED EARTH.
2. DIMENSION 'A' SHOULD BE AS LARGE AS POSSIBLE.
3. PLAN FOR 45°–90° BENDS & SECTION A–A SHALL APPLY TO TEES.

BUTTRESS DIMENSIONS						
PIPE SIZE	22 1/2° BEND		45° BEND		90° BEND	
	B1	D1	B2	D2	B3	D3
4"	1'–5"	1'–5"	1'–5"	1'–5"	2'–1"	1'–6"
6"	1'–5"	1'–5"	1'–5"	1'–5"	2'–1"	1'–6"
8"	1'–5"	1'–5"	2'–1"	1'–6"	2'–8"	2'–0"
10"	1'–8"	1'–8"	2'–11"	1'–10"	4'–0"	2'–4"
12"	1'–10"	1'–10"	3'–4"	2'–0"	4'–9"	2'–6"
16"	3'–0"	2'–0"	3'–10"	3'–0"	6'–2"	3'–6"
18"	3'–3"	2'–4"	4'–6"	3'–4"	7'–0"	4'–0"
20"	3'–6"	2'–8"	5'–6"	3'–4"	8'–4"	4'–0"
24"	4'–4"	3'–0"	6'–10"	3'–10"	9'–8"	5'–0"

PROVIDE AT BURIED WATER SERVICE PIPING BENDS

WATER HAMMER:
FOUNTAIN PIPING SYSTEMS SHOULD BE DESIGNED AND CONSTRUCTED TO AVOID EXCESSIVE WATER HAMMER. WATER HAMMER CAN CAUSE DAMAGE AND FAILURE TO PIPES, VALVES AND FITTINGS WITHIN THE PIPING SYSTEM.

THIS IS A GENERAL GUIDELINE ONLY. CONTACT PROJECT ENGINEER FOR ACTUAL THRUST BLOCKING SPECIFICATIONS AND INSTRUCTIONS FOR THIS PROJECT.

THRUST BLOCKING:
WATER UNDER PRESSURE EXERTS THRUST FORCES IN PIPING SYSTEMS. THRUST BLOCKING SHOULD BE PROVIDED, AS NECESSARY AND REQUIRED BY PROJECT ENGINEER, TO PREVENT MOVEMENT OF PIPE OR APPURTENANCES IN RESPONSE TO THRUST. THRUST BLOCKING IS RECOMMENDED WHEREVER THE PIPELINE:

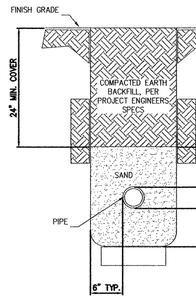
* CHANGES DIRECTION (E.G., TEES, BENDS, ELBOWS, AND CROSSES)
* CHANGES SIZE AT REDUCERS/INCREASERS/BUSHINGS
* STOPS AS IT DEAD ENDS

SIZE AND TYPE OF THRUST BLOCKING DEPENDS ON:

* MAXIMUM SYSTEM PRESSURE
* PIPE SIZE & PIPE MATERIAL (PVC, COPPER, STEEL, ETC.)
* APPURTENANCE SIZE
* TYPE OF FITTINGS OR METHODS USED TO CONNECT/JOIN PIPING
* LINE PROFILE (HORIZONTAL OR VERTICAL BENDS)
* SOIL TYPE

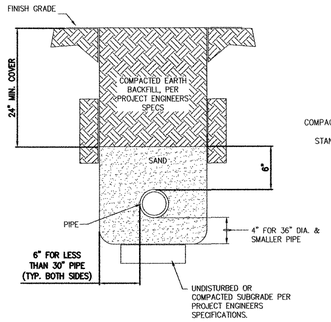
TYPICAL "THRUST BLOCKING" FOR FOUNTAIN SYSTEM PIPING

SCALE: NONE



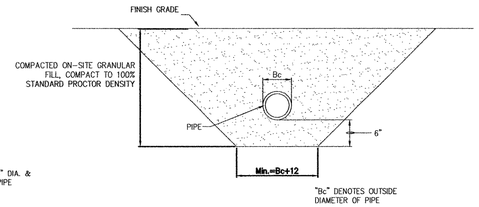
3" & SMALLER PIPE-TRENCH DETAIL

SCALE: NONE



4" & LARGER PIPE-TRENCH DETAIL

SCALE: NONE



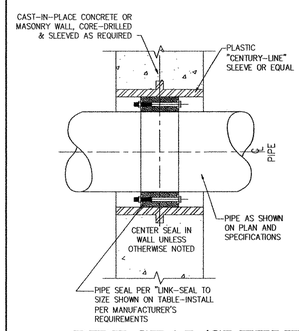
ALTERNATE PIPETRENCH DETAIL

SCALE: NONE

PIPING INSTALLATION NOTE:
ALL PIPING RELATED TO THE INSTALLATION OF THE FOUNTAIN SYSTEM(S) SHALL BE INSTALLED IN PARALLEL RUNS WITH ADEQUATE SPACE AND PROPER SUPPORT AND BACKFILL OVER, UNDER AND BETWEEN PIPE RUNS. PIPING SHALL NOT CRISS-CROSS AND SHALL NOT BE BUNDLED OR STACKED TOGETHER, OR MAKE CONTACT WITH ADJACENT PIPING. ELECTRICAL CONDUITS SHALL NOT BE RUN IN SAME TRENCH AS FOUNTAIN PIPING. PROJECT CIVIL ENGINEER IS RESPONSIBLE FOR, AND SHALL HAVE FINAL AUTHORITY OVER ALL PIPE INSTALLATION MEANS METHODS AND PRACTICES, INCLUDING PROPER BURIAL DEPTHS FOR THE PROJECT LOCATION.

TYPICAL "TRENCH & BACKFILL" DETAILS FOR FOUNTAIN SYSTEM PIPING

SCALE: NONE

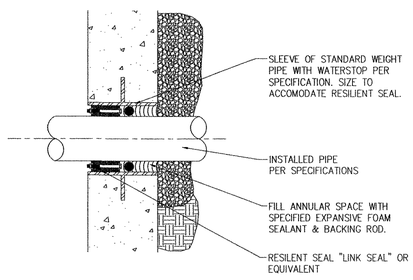


PIPE SIZE (NOMINAL)	OUTSIDE DIAMETER (PIPE O.D.)	CAST OR DRILLED CONCRETE HOLE INSIDE DIA. (I.D.) IN.	LINK SEAL SIZE NO.	NO. OF LINKS PER SEAL
1/2"	0.840	2.0	LS–200	4
3/4"	1.050	3.0	LS–315	4
1"	1.315	3.0	LS–300	4
1 1/4"	1.660	3.0	LS–275	8
1 1/2"	1.900	4.0	LS–315	6
2"	2.375	4.0	LS–300	6
2 1/2"	2.875	4.0	LS–200	9
3"	3.506	5.0	LS–300	8
3 1/2"	4.00	6.0	LS–315	10
4"	4.50	6.0	LS–300	10
5"	5.563	8.0	LS–340	13
6"	6.625	10.0	LS–475	10
8"	8.625	12.0	LS–475	12
10"	10.75	14.0	LS–475	14
12"	12.75	16.0	LS–475	17

"LINK–SEAL" AND "CENTURY–LINE" IS A PRODUCT OF THUNDERLINE CORPORATION, HOUSTON, TX.

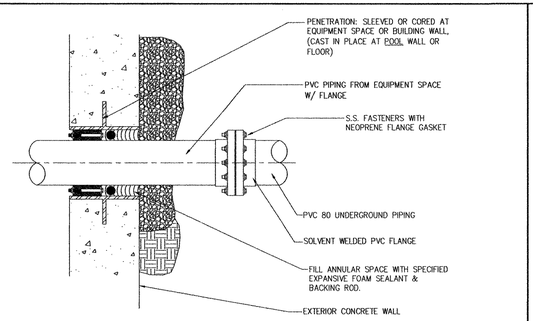
PIPE SEAL/SLEEVE SIZE TABLE

SCALE: NONE INSTALLATON DETAIL (TYP.)



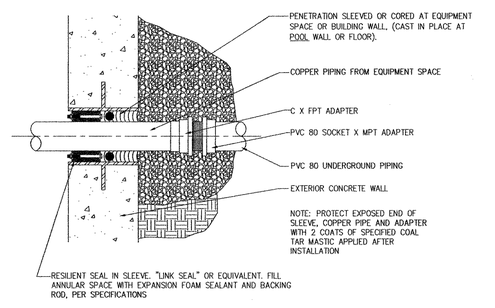
PENETRATION, SLEEVED (EXTERIOR WALL)

SCALE: NONE INSTALLATON DETAIL (TYP.)



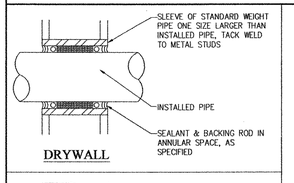
UNDERGROUND PVC PIPING TRANSITION

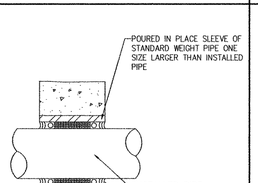
SCALE: NONE INSTALLATON DETAIL (TYP.) (EXTERIOR WALL)



UNDERGROUND PIPING TRANSITION

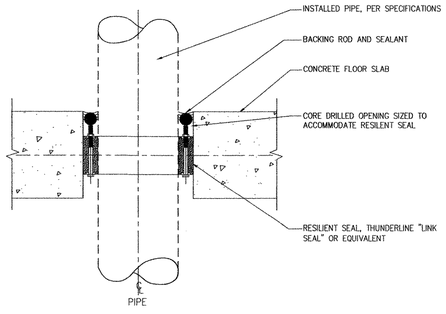
SCALE: NONE INSTALLATON DETAIL (TYP.) (THREADED)





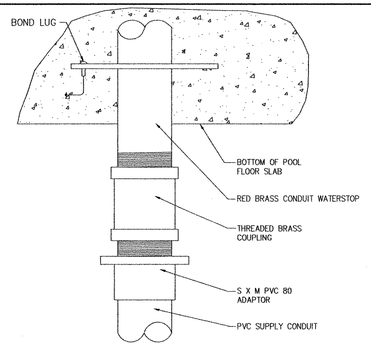
PENETRATION, SLEEVED (INTERIOR WALL OR FLOOR)

SCALE: NONE INSTALLATON DETAIL (TYP.)



PENETRATION, CORE DRILLED

SCALE: NONE INSTALLATON DETAIL (TYP.)



CONDUIT WATER STOP TRANSITION

SCALE: NONE INSTALLATON DETAIL (TYP.)

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Scale:	As Noted
Drawn By:	F. Gorman
Checked By:	S. Shadle
Date:	11/30/12

Revisions:

No.	Date	By	Comments
1	12/06/12	FG	REVISE BASIN

TYPICAL PIPING AND PENETRATION DETAILS

Drawing Number:

WFI-2