



USC AIKEN GREENHOUSE

State Project #H29-I337

A/E Project #12036.01

APRIL 12, 2013

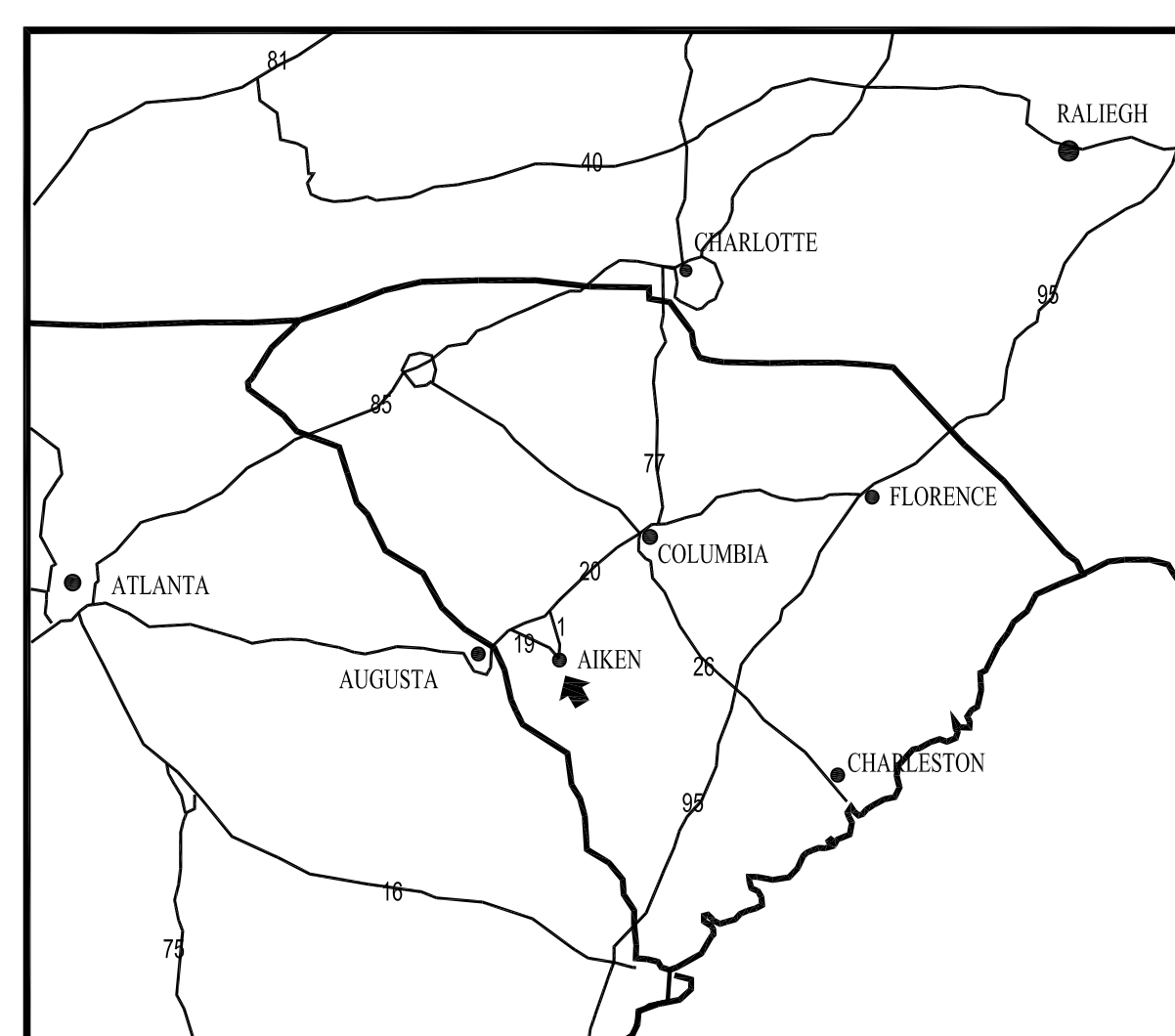
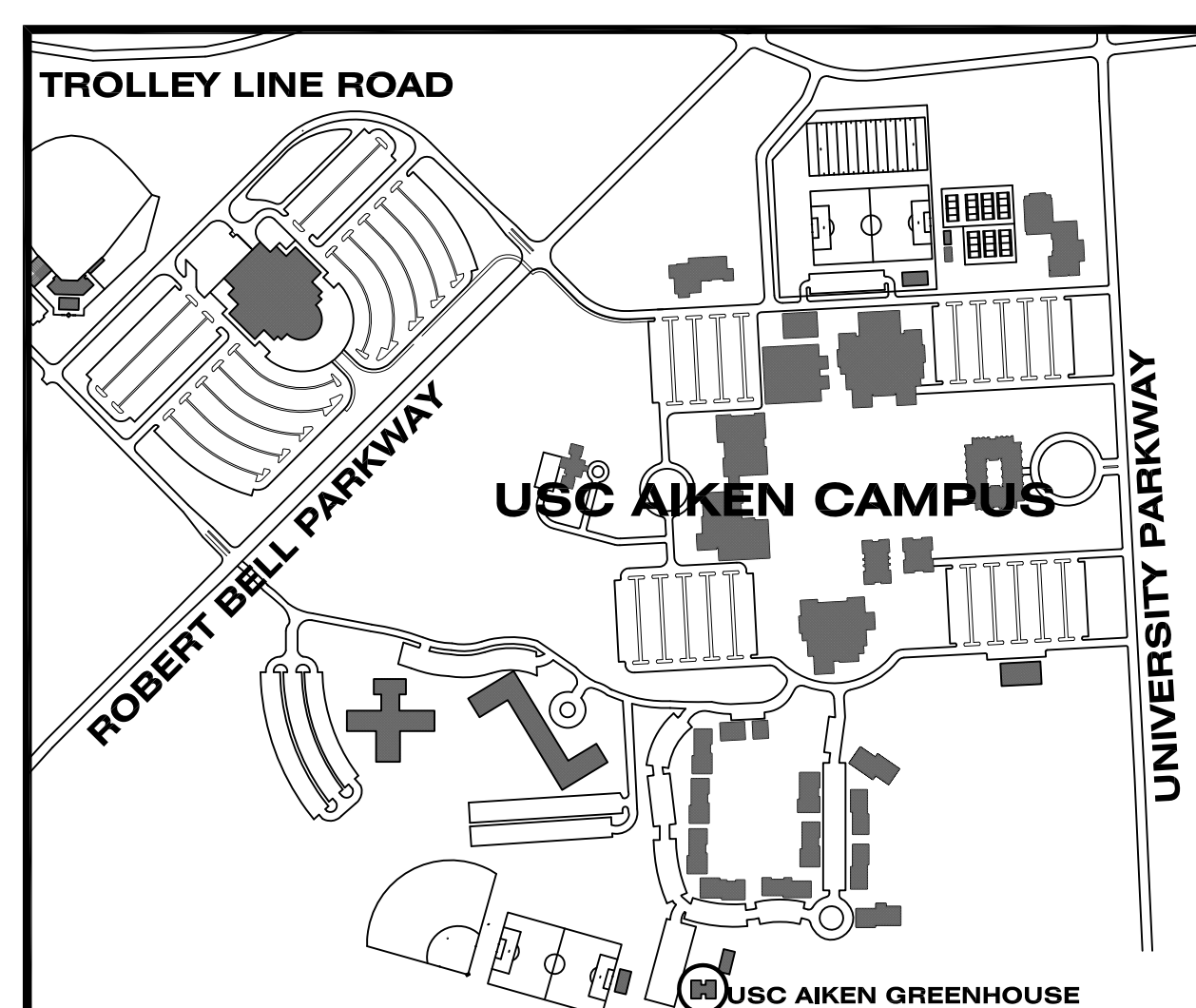
CONSTRUCTION DOCUMENTS

Prepared by:

GMK
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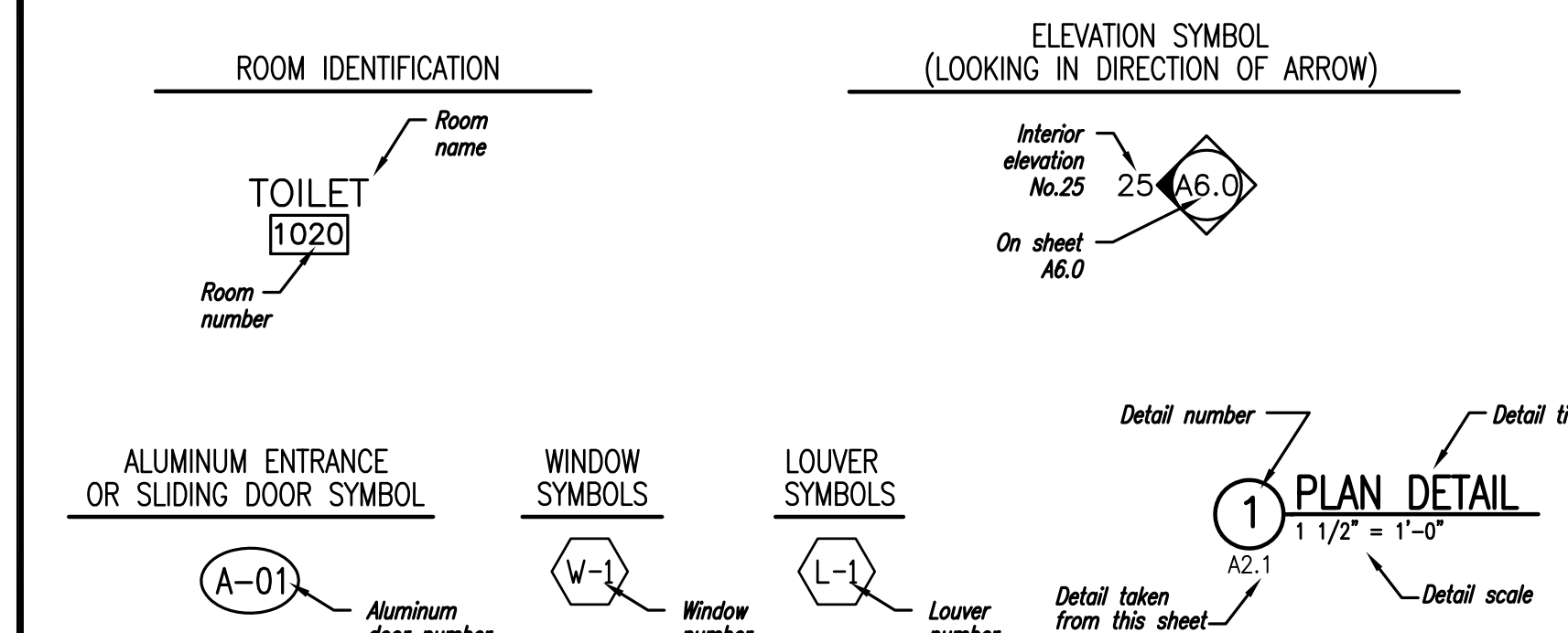
LOCATOR MAPS



1 GENERAL NOTES

1. NOTIFY THE ARCHITECT IMMEDIATELY UPON DISCOVERY OF EXISTING CONDITIONS THAT ARE CONTRARY TO THOSE REPRESENTED WITHIN THE DRAWINGS.
2. ALL NEW VERTICAL AND HORIZONTAL DUCTS, PIPES, CONDUITS, ETC. (WHETHER SHOWN OR NOT) IN FINISHED ROOMS OR AREAS THROUGHOUT BUILDING, NOT ENCASED IN MASONRY, METAL OR WOOD CONSTRUCTION SHALL BE FLURRED IN, THE FLURRING FINISHED TO MATCH ROOM FINISH.
3. ALL NEW PARTITIONS, UNLESS OTHERWISE SHOWN OR DETAILED, SHALL BE METAL STUDS OF THICKNESS TO ADEQUATELY COVER PIPING, CONDUITS, ETC.
4. PROVIDE AN EDGE STRIP, AS DETAILED, UNDER ALL DOORS WHERE NEW OR EXISTING FINISHES AND ADJACENT FLOOR ARE AT DIFFERENT LEVELS AND WHERE ADJACENT FLOOR FINISHES ARE OF DIFFERENT MATERIALS. SEE DETAIL 6/A0.0.
5. OFFSET ALL DOORS IN METAL STUD WALLS 6" FROM ADJACENT WALLS 6" IN CMU WALLS UNLESS OTHERWISE NOTED.
6. PROVIDE ACCESS PANELS, 24" X 24", OR OF SIZES REQUIRED, WHERE PLUMBING AND HEATING VALVES, WATER SWITCHES, OXYGEN PRESSURE SWITCHES, VENTILATION SPLITTER DAMPERS, ETC. ARE SHOWN ON PLUMBING, HEATING, AND VENTILATION DRAWINGS. SUCH ACCESS PANELS TO BE INSTALLED IN THE FOLLOWING:
 - (A) SUSPENDED PLASTER OR GYPSUM WALLBOARD CEILINGS
 - (B) METAL STUD OR MASONRY PARTITIONS
7. WALL ASSEMBLIES SHALL BE MAINTAINED AT ALL RECESSED FIRE EXTINGUISHER CABINETS AND ALL RECESSED EQUIPMENT.
8. PROVIDE FIRE EXTINGUISHING CABINETS OF THE TYPE SPECIFIED. REFER TO FLOOR PLANS (A2-SERIES) FOR LOCATIONS.
9. SUPPLY BLOCKING AT ALL WALL HUNG EQUIPMENT (I.E., GRAB BARS, CASEWORK MEDICAL EQUIPMENT, ETC.)
10. THE FIRE RATINGS OF ALL FIRE RATED WALLS SHALL BE STENCILED ABOVE CEILINGS, EACH SIDE OF WALL, BOTH SIDES OF CORRIDORS AND AS REQ'D BY IBC .

The reference system uses a number for each detail or item on a sheet combined with the sheet number on which it is located. Each detail or item on a sheet will be numbered.



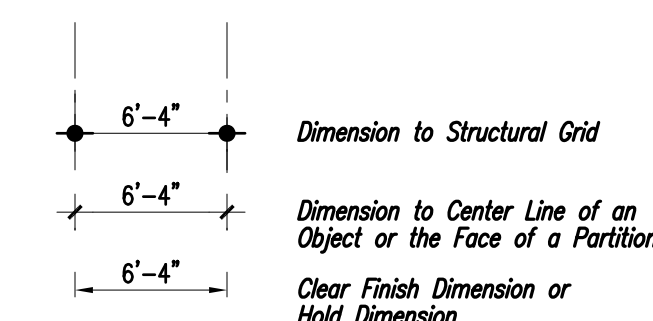
2 REFERENCE SYSTEM

DENOTES GENERAL PROJECT AREA. SOME WORK MAY OCCUR OUTSIDE PROJECT AREA AS IT IS INDICATED ON FLOOR PLAN.

EXISTING PARTITION TO REMAIN

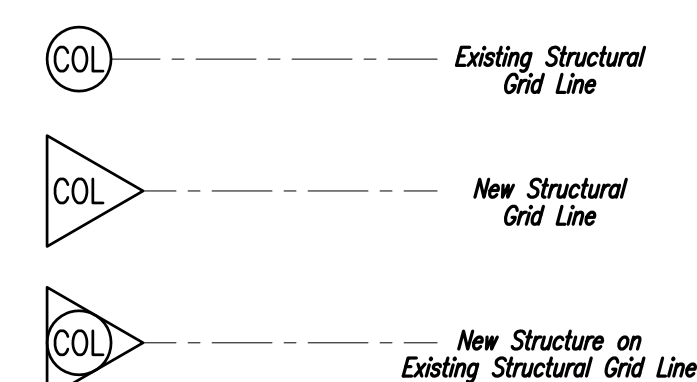
EXISTING PARTITION TO BE REMOVED. REFER TO NOTE INDICATED FOR INSTRUCTIONS (ON DEMOLITION PLAN).

3 PARTITION SYMBOLS



4 DIMENSION CONVENTIONS

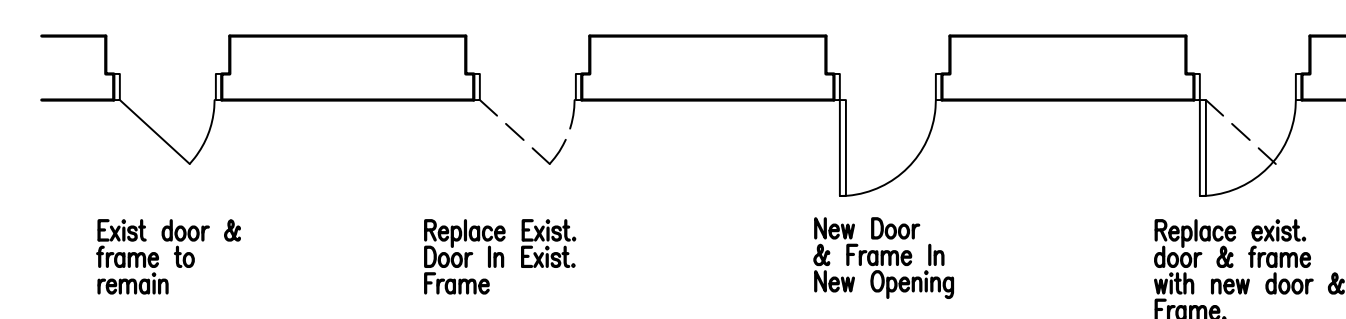
N.T.S.



5 STRUCTURAL GRID CONVENTIONS

N.T.S.

DOOR & FRAME PLAN SYMBOLS



DOOR NUMBERING LEGEND

Rooms with multiple doors have "A", "B", etc. designations. Doors shown at the right would be scheduled as "1020A" and "1020B", related to the room where (A) and (B) are shown.

Rooms with only one door have no door indication. The door number in the schedule will be the same as the room number.

In locations where necessary to avoid confusion, full door numbering is shown on plan.

6 INTERIOR OPENING SYMBOLS DOORS & VIEW WINDOWS

N.T.S.

DRAWING INDEX

CIVIL

C101 STAKEOUT AND WATER PLAN
C102 GRADING, DRAINAGE AND UTILITY PLAN

ARCHITECTURAL

A2.1 FLOOR PLAN, ROOF PLAN, ELEVATIONS AND TYPICAL WALL SECTION

PLUMBING

P1.0 GREENHOUSE PLAN PLUMBING PIPING, SCHEDULES, NOTES, SYMBOLS AND ABBREVIATIONS

ELECTRICAL

E2.0 GREENHOUSE SCHEDULES, POWER AND LIGHTING PLANS

DRAWING LEGEND

SET NO. _____



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QWERTY



USC AIKEN
471 UNIVERSITY PARKWAY
AIKEN, SOUTH CAROLINA 29801
project name
USC AIKEN GREENHOUSE
STATE PROJECT #H29-1337

project number
12036.01

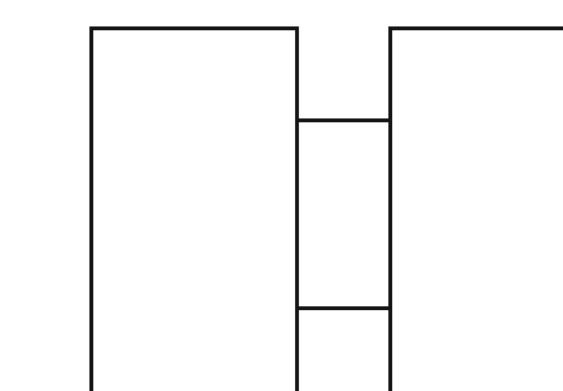
seals/signature

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date
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key plan



USC AIKEN GREENHOUSE

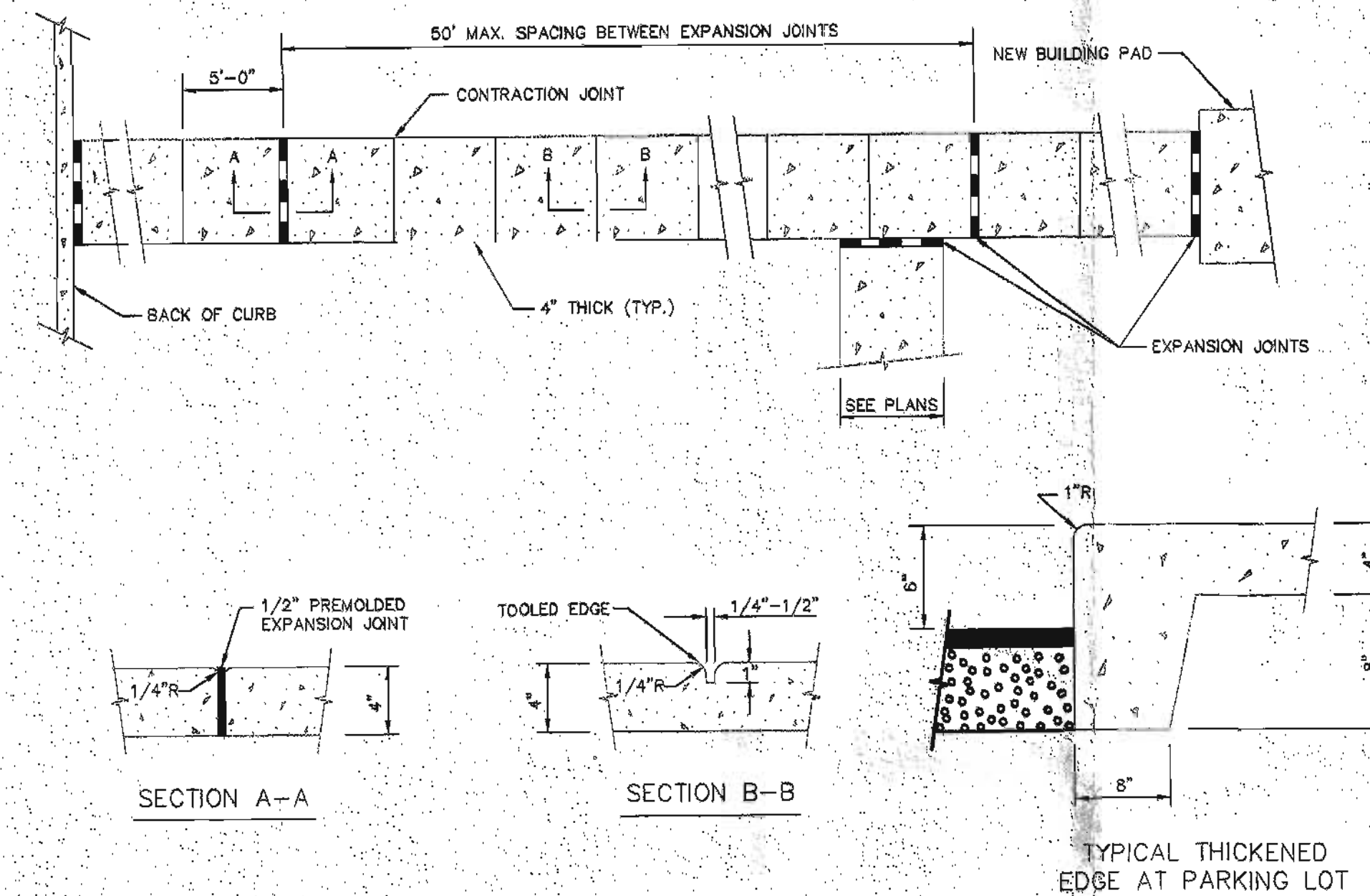
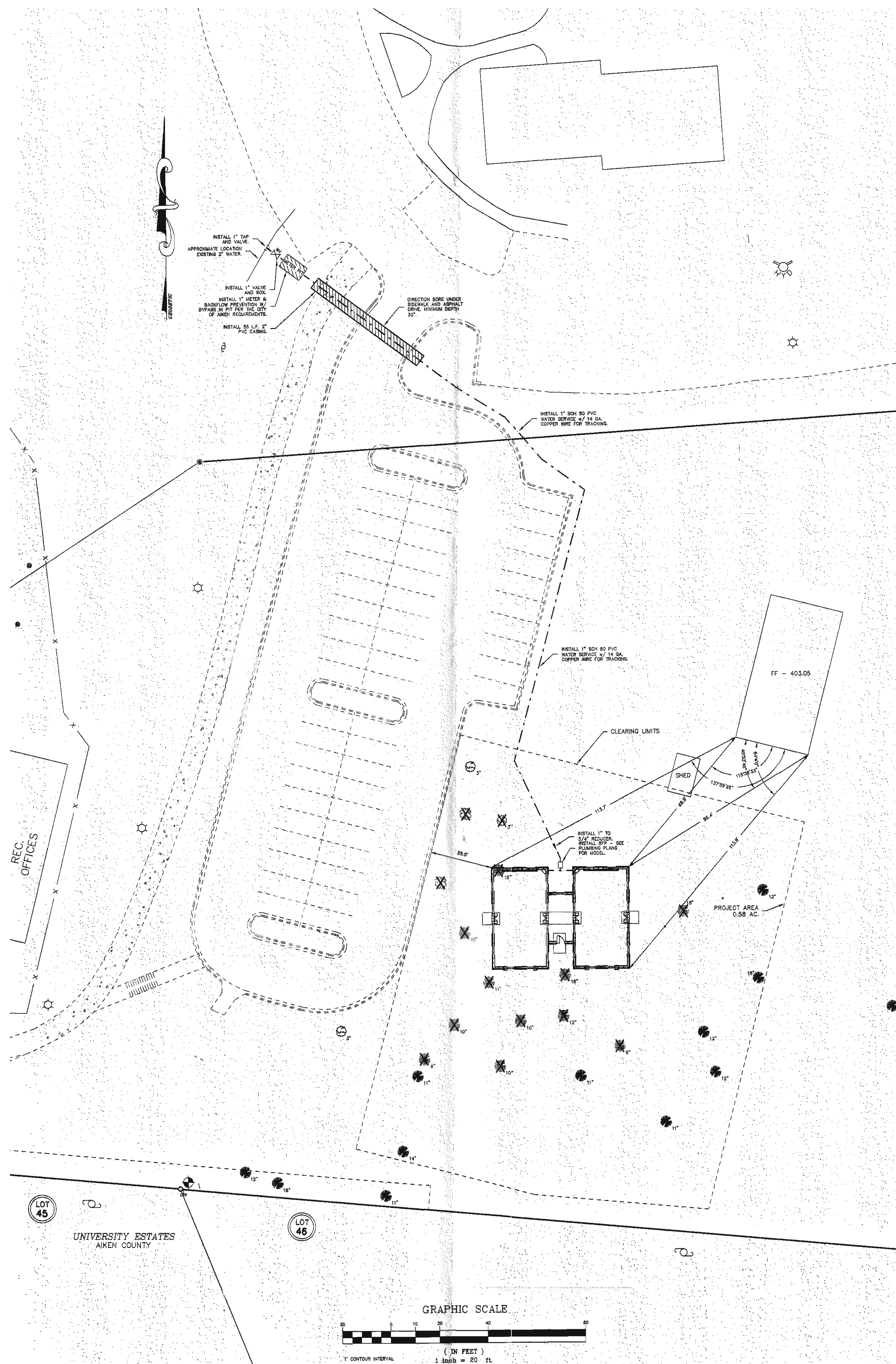


sheet title
STAKEOUT & WATER PLAN

sheet number

C-101

drawn by SLB
checked by HTH



CONCRETE SIDEWALKS STANDARDS

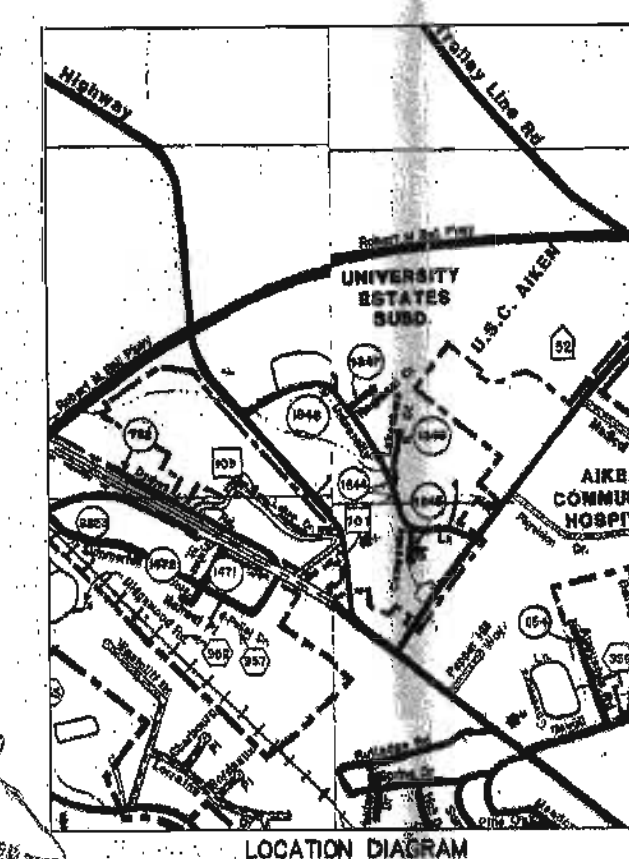
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Existing Conditions and Tree Replacement Calculations

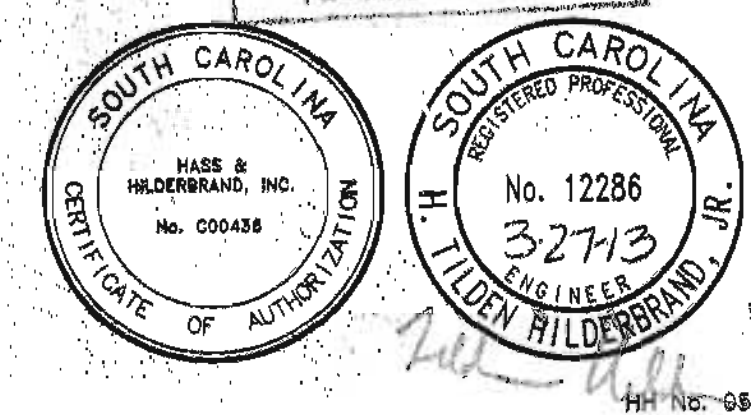
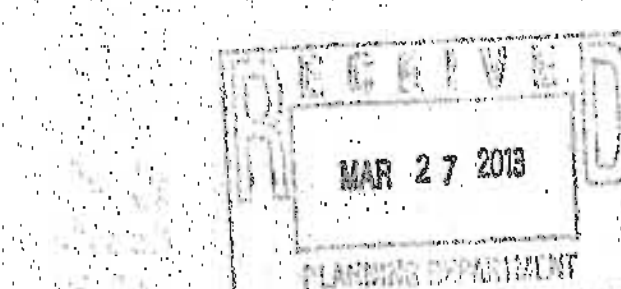
<u>Others</u>	
Project Area	0.58 ACRES
Percent of site to be Landscaped	48.77%
Number of Grand Trees	0
Number of Grand Trees to be removed	0
Total DBH Inches of Grand Trees on site	___ inches
Total DBH Inches of Significant Trees on site	231 inches
<u>Tree Removal and Replacement</u>	
Total DBH Inches to be removed	130 inches
Total DBH Inches to remain	101 inches
From approved list	8 inches
Not on approved list	106 inches
Trees to be removed	130 inches
Tree score credit	-12 inches
Subtract inches of newly planted X 2	___ inches
Inches to be replaced =	118 inches

GENERAL NOTES - SITEWORK

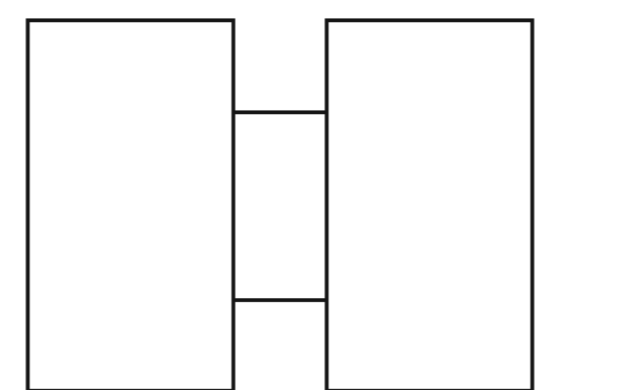
1. Boundary & topographic survey by Hoss & Hildebrand, Inc. dated July 19, 2012.
2. The contractor shall verify the location and extent elevation of all underground utilities, and verify property corners and topo before any construction is begun. Call utility companies before any excavation or locate work is begun.
3. The contractor should notify the engineers for a review should obstructions be discovered at the site or on the drawings.
4. All work shall be in the lines and grades shown. Proof-rolling and compaction tests shall be accomplished in the field to test all areas. The contractor shall retain the services of a testing engineer to test all areas.
5. The grading contractor shall proof-roll the construction area with heavy-pneumatic equipment. All soft spots shall be removed and replaced with compacted fill.
6. Topsoil to be stripped to a depth as required and stockpiled as directed by the owner's representative.
7. All grading contractor shall conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 feet. (Final graded surface under building slabs shall be within a tolerance of 3/8" when measured with a 10' straight edge).
8. All work and parking lots shall have a minimum 3"-6" well graded shoulder.
9. All utility trenches shall be thoroughly compacted to prevent settlement and damage to future pavement and structures.
10. All work done above buildings and pavement shall receive topsoil and be grassed in accordance with the specifications.
11. All work done below the face of the curb and the face of walls unless noted otherwise.
12. Contractor shall be responsible for all utility relocation required.
13. All work is to be done in accordance with the specifications. Materials are made from South Carolina State Highway Department's standard specification, latest edition.
14. The contractor shall remove all trees and vegetation that interfere with new construction.
15. All trees to be removed all debris to be removed and all trees that are to remain.
16. All fill material shall be from a source approved by the testing company and shall be free of trash and debris. Fillers shall be placed in lifts and compacted per the specifications.
17. All existing slopes steeper than 4:1 that will receive fill shall be plowed and scarified so new fill will bond.
18. All reinforced concrete pipe (RCP) shall be Class III unless noted on the drawings and shall conform to S.C.D.O.T. specifications.
19. All concrete curbs shall be constructed to lines and grades shown on the drawings.
20. The contractor shall provide a waterline clean-out at all bends and changes in grade in sewer lines.
21. All sewer lines in relation to water lines must conform to the State Department of Transportation, Section 29.3 at a minimum.
22. All construction shall conform to the specifications of the City of Aiken and all applicable Federal and Local regulations.
23. This construction will comply with all applicable Federal, State and Local regulations regarding H/C and other engineering and construction standards.
24. According to the state historic preservation office there are no historically significant structures on this site.
25. There are no endangered species on this site per the south south carolina reov, threatened & endangered species inventory map. species map of the usages quadrangle data last updated july 2011.
26. There are no apparent violations on this site.
27. No Swamp design needed.
28. Water by City of Aiken.
29. Based on observation of the site there are no apparent archeological resources on the site.
30. There are no trees in the report data.
31. According to the national flood insurance program MAP 450002 0135 B-1 an effective date of June 16, 2012 the property is located in a FLOOD ZONE.
32. Power provided by SCE&G.



APPROVED
Ernest Egan date 4/3/11
City of Aiken Planning Department



number	item	date



CONSTRUCTION SCHEDULE

Construction Start: February 2013
Final Stabilization: May 2013

SCHEDULE OF WORK:

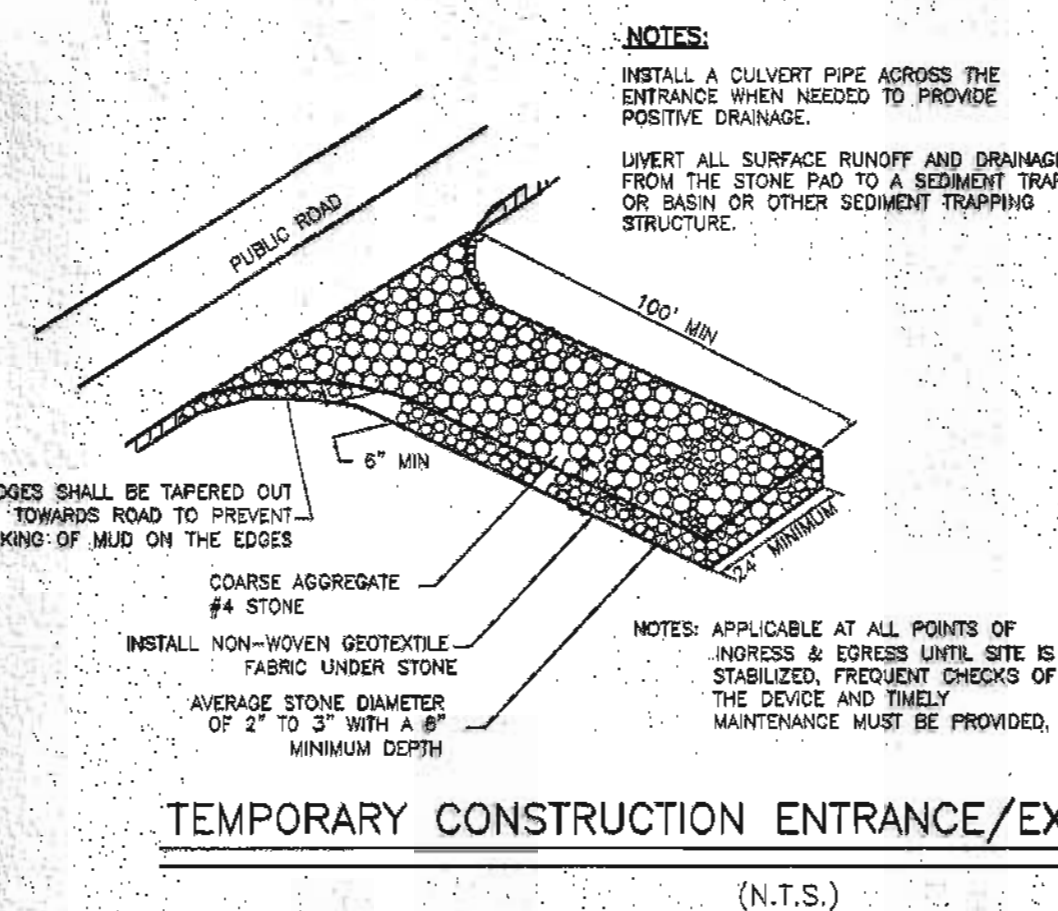
1. Receive NPDES coverage from DHEC	
2. Install construction entrance	1 Day
3. Clear & grub only as necessary to install perimeter controls	1 Day
4. Install silt fence and any other perimeter controls	1 Day
5. Clear & grub area for pond	1 Week
6. Install pond (outlet structures must be completely installed as shown on the details before proceeding to next step; areas draining to these structures cannot be disturbed until the structure is completely installed)	1 Week
7. Rough grade the site	1 Week
8. Install utilities	1 Week
9. Install building and pavement	12 Weeks
10. Final grading	1 Week
11. Final grading and permanent stabilization (mulch and fertilize per vegetative plan)	1 Week
12. Remove temporary sediment & erosion control measures after entire area draining the structure is finally stabilized (The Department recommends that the Project Owner/Operator have the SWPPP Inspector or registration equivalent approve the removal of temporary structures)	1 Week

Notes:

A. Installation of some permanent water quality devices should occur after the site is stabilized. Clean-out of other permanent water quality devices that were used during construction should occur after site stabilization.

B. The control of sediment shall be the responsibility of the contractor and/or his grading contractor. Total time for site development is contingent upon weather and/or upon building construction. Therefore, the schedule shown is not cumulative but represents the total time involved for development of the site.

- If necessary, slopes, which exceed eight (8) vertical feet should be stabilized with synthetic or vegetative mats. In addition to hydroseeding, it may be necessary to install temporary erosion control during construction. Temporary forms may be needed until the slope is brought to grade.
- Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than fourteen (14) days after work has ceased, except as stated below.
 - Where stabilization by the 14th day is precluded by snow cover or frozen ground conditions stabilization measures must be initiated as soon as practicable.
 - Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within 14 days, temporary stabilization measures do not have to be initiated on that portion of the site.
- All sediment and erosion control devices shall be inspected once every calendar week. If periodic inspection or other information indicates that a BMP has been improperly installed, maintained, or the Permittee must address the necessary replacement or modification required to correct the BMP within 48 hours of identification.
- Provide silt fence and/or other control devices as may be required to control soil erosion during utility construction. All disturbed areas shall be cleaned, graded, and stabilized with grassing immediately after the utility construction is completed. At the end of each day any recommended, if water is encountered while trenching, the water should be filtered to remove any sediments before being pumped back into any waters of the State.
- All erosion control devices shall be properly maintained during all phases of construction with the exception of all construction activities and all disturbed areas have been stabilized. Additional control devices may be required during construction in order to control erosion and/or silt sedimentation. All temporary control devices shall be removed once construction is complete and the site is stabilized.
- The contractor must take necessary action to minimize the tracking of mud onto paved roadway(s) from construction areas and the generation of dust. The contractor shall daily remove mud/soil from pavement, as may be required.
- Residential subdivisions require erosion control features for infrastructure as well as for individual lot construction. Individual property owners shall follow these plans during construction or obtain approval of an individual plan in accordance with S.C. Reg. 72-300 et seq. and SCDP0000.
- Temporary diversion berms and/or ditches will be provided as needed during construction to protect work areas from upstate runoff and/or to divert sediment-laden water to appropriate traps or stable outlets.
- All waters of the State (WQS), including wetlands, are to be flagged or otherwise clearly marked in this plan. A double row of silt fence is to be installed in all areas where a 50-foot buffer can't be maintained between the disturbed area and WQS. A 10-foot buffer should be maintained between the last row of silt fence and all WQS.
- Utility, construction debris, oils, fuels, and building products with significant potential for impact (such as shingles of freshly treated lumber) and construction chemicals that could be exposed to storm water must be prevented from becoming a pollutant source in storm water discharge.
- A copy of the SWPPP, inspection records and rainfall data must be retained at the construction site or a nearby location easily accessible during normal business hours, from the date of commencement of construction activities to the date that final stabilization is reached.
- Where stabilization measures on any exposed steep slope (20:1 or greater) where wind-disturbing activities have permanently or temporarily ceased, and will not be used for a period of 7 calendar days.
- Minimize soil compaction and/or erosion, unless otherwise specified.
- Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash water. Wash water must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
- Minimize the discharge of pollutants from discharging of trenches and excavated areas. These discharges are to be by means through appropriate traps (sediment basin, filter trap, etc.).
- The following discharges from sites are prohibited:
 - Wastewater from treatment of concrete, unless managed by an appropriate control.
 - Wastewater from removal and cleanup of excess paint, from release into surface water, groundwater and other sensitive resources.
 - Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
 - Spills or solvents used in vehicle and equipment washing.
- After construction activities begin, inspection must be conducted at a minimum of at least once every calendar week and must be conducted until final stabilization is reached on all areas of the project.
- If existing BMPs need to be modified or if additional BMPs are necessary to comply with the requirements of this permit and/or SCDP Water Quality Standards, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the SWPPP or otherwise BMPs must be implemented as soon as reasonably practicable.
- A Pre-Construction Conference must be held for each construction site with an approved Permittee before the implementation of construction activities. For particular projects that disturb 10 acres or more this conference must be held on-site unless the Department has approved otherwise.



WIDE AND WIDE TO USE 6" DRAINAGE CONSTRUCTION ENTRANCE SHALL BE USED AT ALL POINTS WHERE TRAFFIC WILL BE LOADED OR UNLOADED AND WHERE TRAFFIC WILL BE LOADED AND UNLOADED. IMPORTANT CONSIDERATIONS:

IF TRAFFIC IS USED, ENTRANCE MUST BE MADE TO PREVENT THE WASH WATER AND MUD FROM BEING SPILLED. IT IS ADVISED THAT, WHERE TRAFFIC SHALL BE REQUIRED TO STOP, A 10' MIN. DEPTH OF STONE SHALL BE PROVIDED. THE ENTRANCE MUST BE MADE TO PREVENT THE WASH WATER AND MUD FROM BEING SPILLED. IT IS ADVISED THAT, WHERE TRAFFIC SHALL BE REQUIRED TO STOP, A 10' MIN. DEPTH OF STONE SHALL BE PROVIDED. THE ENTRANCE MUST BE MADE TO PREVENT THE WASH WATER AND MUD FROM BEING SPILLED. IT IS ADVISED THAT, WHERE TRAFFIC SHALL BE REQUIRED TO STOP, A 10' MIN. DEPTH OF STONE SHALL BE PROVIDED.

INSTALLATION:

REMOVE ALL VEGETATION AND ANY OBSTRUCTIVE MATERIAL FROM THE FOUNDATION AREA.

INVERT ALL SURFACE RUNOFF AND DRAINAGE FROM EDGES TO A SEDIMENT TRAP OR BASIN.

INSTALL A NON-WOVEN GEOTEXTILE FABRIC PRIOR TO PLACING ANY STONE.

INSTALL A CULVERT PIPE ACROSS THE ENTRANCE WHEN NEEDED TO PROVIDE POSITIVE DRAINAGE.

THE ENTRANCE SHALL CONSIST OF 1" TO 3" STONE PLACED AT A MINIMUM DEPTH OF 4".

MINIMUM DIMENSIONS OF THE ENTRANCE SHALL BE 6' WIDE BY 10' LONG, AND MAY BE ADJUSTED AS NECESSARY TO ACCOMMODATE ANY COMMENTS.

THE EDGES OF THE ENTRANCE SHALL BE TAPERED OUT TOWARDS THE ROAD TO PREVENT TRACKING OF MUD AT THE END OF THE ENTRANCE.

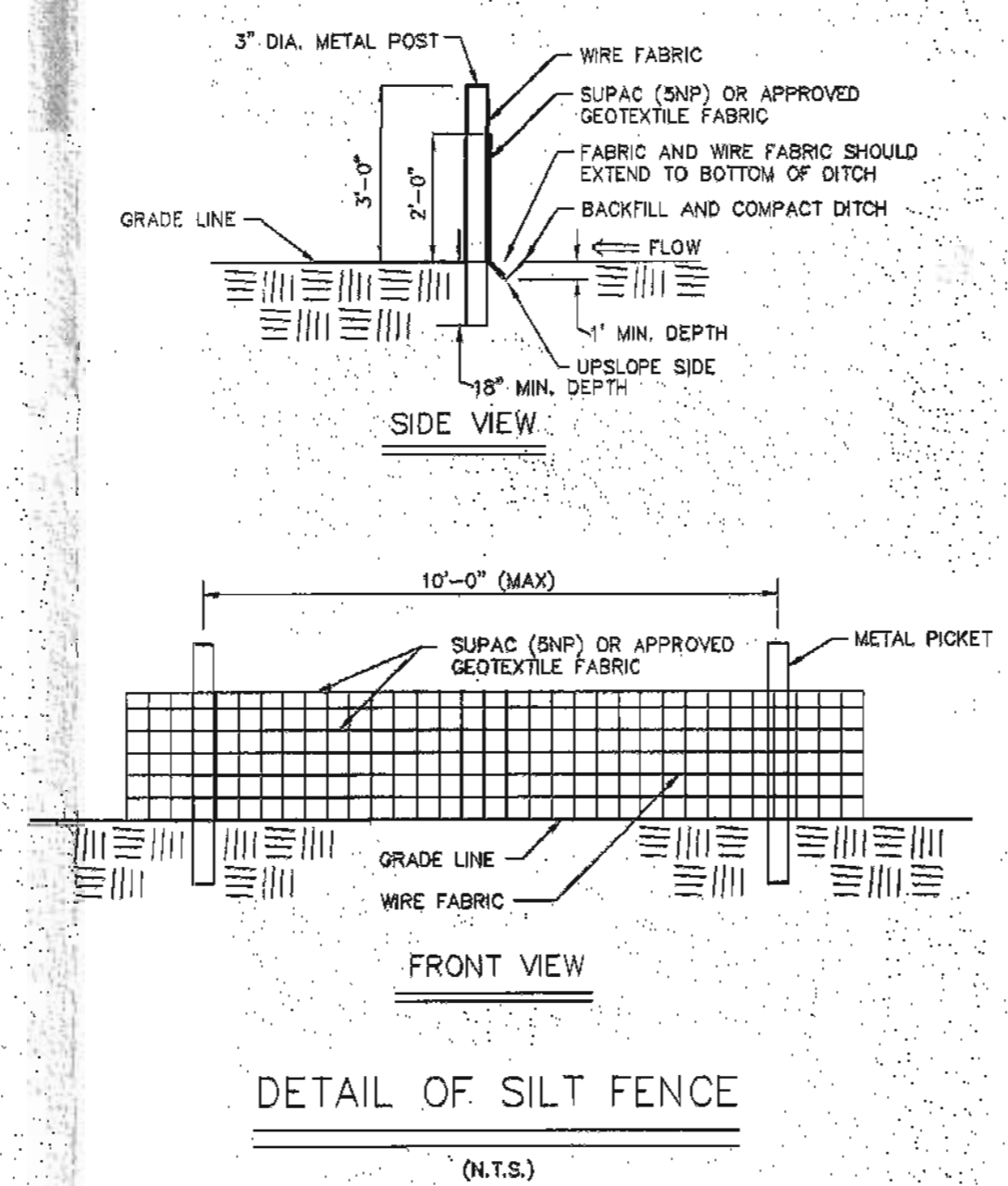
INSPECTION AND MAINTENANCE:

INSPECT CONSTRUCTION ENTRANCES EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS AFTER EACH RAINFALL EVENT THAT EXCEEDS 0.25 INCHES OF PRECIPITATION. ONLY APPROPRIATE PERSONNEL OF THE DEPARTMENT, WHOSE NAME IS REQUIRED AND MUST BE PROVIDED TO THE DEPARTMENT, SHALL BE USED TO INSPECT THE ENTRANCE AND MAKE ANY NECESSARY CORRECTIONS. REMOVE THE STONE PAD AS SOON AS THE DRAINAGE AND SEDIMENTATION ARE COMPLETE.

NOTE: IF TRAFFIC IS USED, ENTRANCE MUST BE MADE TO PREVENT THE WASH WATER AND MUD FROM BEING SPILLED. IT IS ADVISED THAT, WHERE TRAFFIC SHALL BE REQUIRED TO STOP, A 10' MIN. DEPTH OF STONE SHALL BE PROVIDED.

IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKING ON WASHES DURING RAINFALL. MUD SHALL BE REMOVED AS SOON AS POSSIBLE. MUD SHALL BE REMOVED AS SOON AS POSSIBLE. MUD SHALL BE REMOVED AS SOON AS POSSIBLE.

NEVER ALLOW SEDIMENT TRACKING.



- NOTES:
- INSTALL SILT FENCE BEFORE CONSTRUCTION IS BEGUN.
 - CONSTRUCT SILT FENCE AS ABOVE OR USE PRE-FABRICATED SILT FENCE (METROMOUNT 24-100X) OR APPROVED EQUAL.
 - SEDIMENT TO BE REMOVED FROM SILT FENCE WHEN DEPTH IS ABOUT 0.5 FEET AT THE FENCE.





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consultants

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UNIVERSITY OF
SOUTH CAROLINA
AIKEN

USC AIKEN
471 UNIVERSITY PARKWAY
AIKEN, SOUTH CAROLINA 29801
project name
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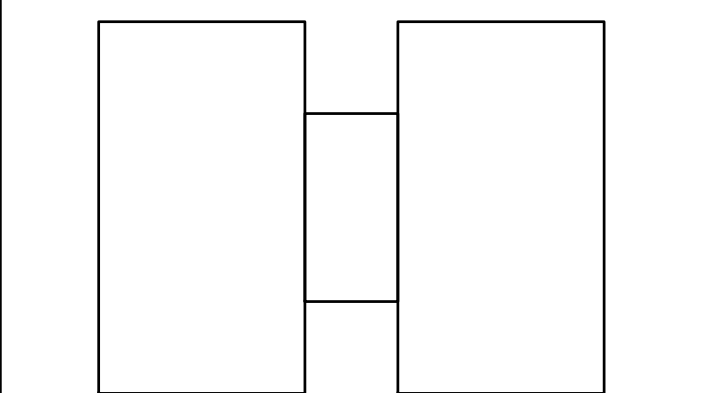
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key plan



USC AIKEN GREENHOUSE



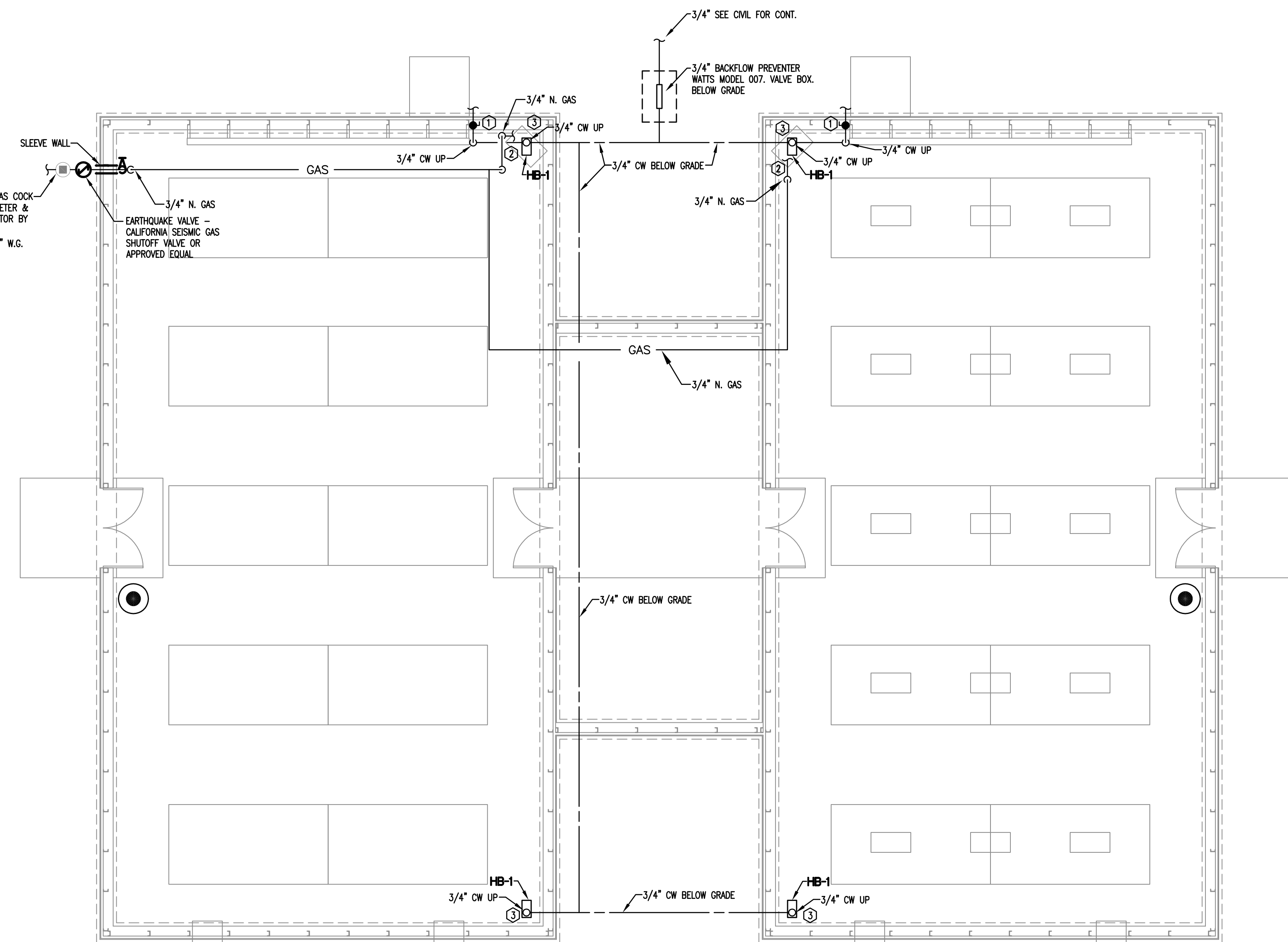
sheet title
FLOOR PLAN, ROOF PLAN,
ELEVATIONS AND TYPICAL WALL
SECTION

sheet number

A2.1

drawn by JKS
checked by





1 GREENHOUSE PLAN - PLUMBING PIPING
1/4"=1'-0"

KEYNOTES:

- ① PROVIDE 3/4" DOMESTIC WATER SUPPLY FOR EVAPORATIVE COOLER. PC SHALL MAKE FINAL CONNECTION. PROVIDE BALL VALVE AND DOUBLE CHECK VALVE IN-LINE BEFORE EQUIPMENT CONNECTION. BE SURE TO INCLUDE EXTERIOR TERMINATION. SLEEVES AND SEALANT SHALL NOT PENETRATION. ALTERNATE SHALL BE INTERIOR SUPPLY TERMINATION EVAPORATIVE COOLERS BY OTHERS.
- ② PROVIDE 3/4" NATURAL GAS SUPPLY TO UNIT HEATER. PC SHALL MAKE FINAL CONNECTION. ENSURE SUPPLY SIDE GAS COCK VALVE AT CONNECTION TO UNIT. GAS FIRED UNIT HEATERS BY OTHERS.
- ③ INSTALL WATER HYDRANTS ACCORDING TO MANUFACTURERS RECOMMENDATIONS. ENSURE APPROVED BACKFLOW PREVENTION DEVICE AT HOUSE CONNECTION.

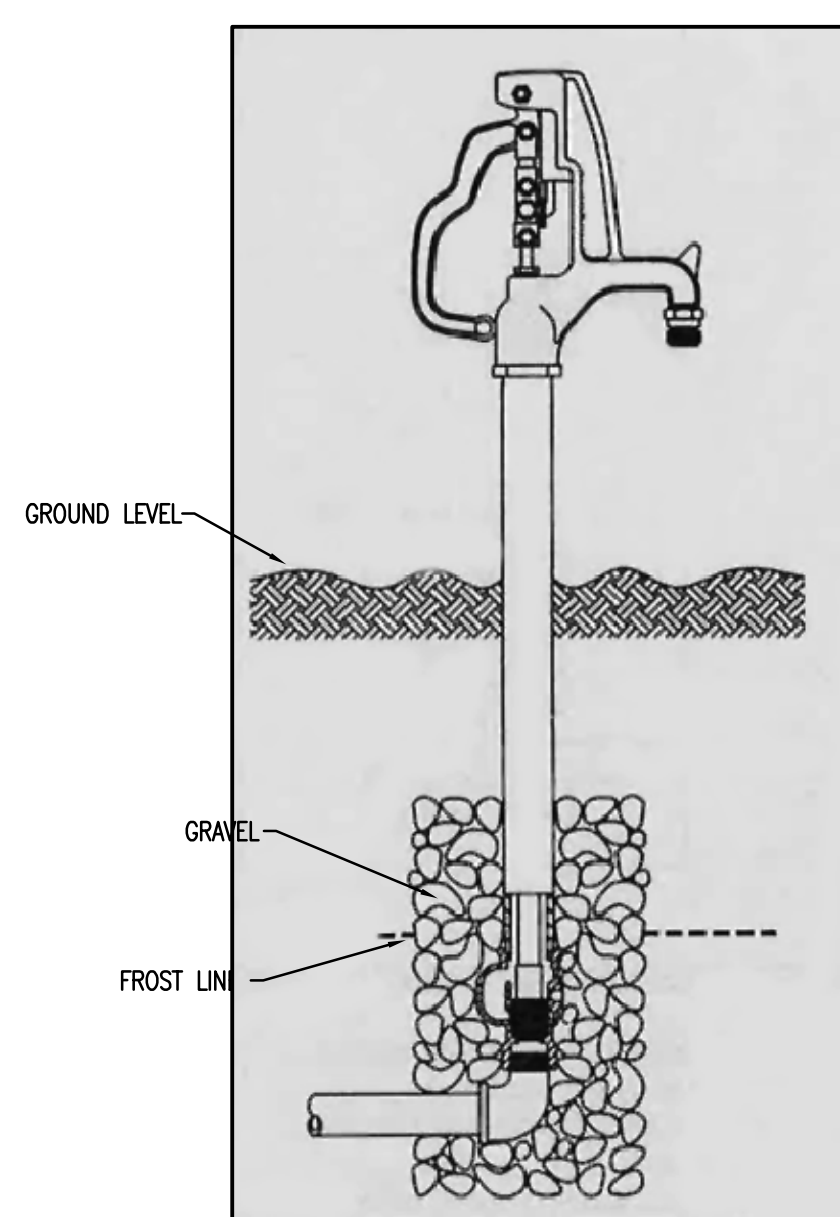
SYMBOL	DESCRIPTION
	COLD WATER LINE - (CW)
	PIPE DOWN OR DROP (DN OR DROP)
	PIPE UP
	PIPE BREAK OR CONTINUATION
	BALL VALVE
	PRV

SERVICE TYPE	DECAL IDENTIFICATION	TAPE COLOR
COLD WATER SERVICE	COLD WATER SUPPLY	GREEN

1. PIPE SIZES 1-1/4" TO 6", USE 2-1/4" LETTERING.
2. PIPE SIZES 1" OR LESS, USE 1-1/4" LETTERING.

MARK	WASTE	VENT	CW	HW
HB-1	---	---	3/4"	---

NOTE: USE THIS SIZE FOR FIXTURE CONNECTIONS UNLESS NOTED OTHERWISE



2 HYDRANT DETAIL

ABV	Above	NC	Normally Closed
AD	Access Door	NC	Natural Gas
AFP	Above Finished Floor	NC	Not in Contract
BFP	Backflow Preventer	NO	Normally Open
CB	Compressed Air	NT	National Fire Protection
CI	Cast Iron	NTS	Not To Scale
COL	Column Line	OFST	Over Flow Storm Drain
CONV	Convey	O	Oxygen
CW	Cold Water	PC	Pumbing Contractor
DI	Deionized Water	P-#	Pump - No.
DN	Down	PRV	Pressure Reducing Valve
EE	Electrical Contractor	PS	Pounds Per Square Inch
ELEV	Elevation	RO	Roof Drain
EG	Exposition Tank	SA	Shock Absorber
EW-#	Emergency Eycowash	SH	Shower
EW-#	Electric Water Cooled	SK	Skid
EXIST	Existing	SK	Stainless Steel
FD	Drain	STD	Storm Drain
FL	Floor	STD	Standard
FT	Feet	TEMP	Temperature
GC	General Contractor	T	Top of Steel
GPH	Gallons Per Hour	U	Typical
GPM	Gallons Per Minute	U-#	Urinal
HW	Hot Water	VAC	Vacuum
HWR	Hot Water Return	V-B	Vacuum Breaker
IE	Invert Elevation	V	Vanitary Vent
L-#	Level	V	Vent Thru Roof
MA	Medical Area	W	Sanitary Waste
MAX	Maximum	WB-#	Wall Box
MC	Mechanical Contractor	WB	Water Closet
MIN	Minimum	WTS	Water Tight Sleeve
MPT	Male Pipe Thread		
MSB-#	Map Sheet		
N/A	Not Applicable		
		NTS	Not All Abstractions Used

<p>HB-1; HOSE BIB / YARD HYDRANT (FROST PROOF)</p> <ol style="list-style-type: none"> 1. TYPE <ol style="list-style-type: none"> A. WOODFORD #1/2 BACKFLOW PROTECTED HYDRANT 2. FINISH <ol style="list-style-type: none"> A. GALVANIZED 3. HANDLE <ol style="list-style-type: none"> A. LEVER HANDLE 4. INLET <ol style="list-style-type: none"> A. 3/4" CW. 5. OUTLET <ol style="list-style-type: none"> A. 3/4" HOSE B. BACKFLOW PREVENTER 6. MOUNTING <ol style="list-style-type: none"> A. FOLLOW MANUFACTURERS RECOMMENDATIONS FOR INSTALLATION AND BURY DEPTH B. HOSE OUTLET 28-1/2" AFG. 	
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1. VERIFY EXACT LOCATION OF ALL PLUMBING FIXTURES IN OR ATTACHED TO CASEWORK WITH THE ARCHITECT AND THE MILLWORK SHOP DRAWINGS, COORDINATE PRIOR TO INSTALLATION.
2. ALL PIPES THROUGH FOOTINGS OR FOUNDATION WALLS SHALL BE SLEEVED IN ACCORDANCE WITH SECTION 305.5 OF THE INTERNATIONAL PLUMBING CODE.
3. LOCATE SHUT-OFF VALVES IN LOCATIONS ACCESSIBLE FOR SERVICE. LOCATION SHALL COMPLY WITH THE REQUIREMENTS OF ALL CODES REFERENCED HEREIN.
4. CONTRACTOR SHALL REFERENCE PLANS AND THE SPECIFICATIONS SHOWN ON THIS SHEET AND EQUIPMENT SCHEDULE FOR PLUMBING FIXTURES, EQUIPMENT AND MATERIALS.
5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT ITEMS TO BE FURNISHED FIT THE SPACE AVAILABLE.
6. THESE DRAWINGS ARE SCHEMATIC IN NATURE AND DO NOT SHOW EXACT LOCATIONS OF FIXTURES AND EQUIPMENT. ALL OFFSETS AND FITTINGS FOR COMPLETE INSTALLATION MAY NOT BE DEFINED ON THE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXACT DIMENSIONS AT THE BUILDING AND ANY NECESSARY CHANGES MADE IN ACCORDANCE WITH STRUCTURAL CONDITIONS. EQUIPMENT TO BE INSTALLED COORDINATE WITH OTHER SYSTEMS. IF CONFLICTS CANNOT BE RESOLVED THEY SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.
7. CONTRACTOR SHALL SECURE ALL PERMITS, INSPECTIONS, LICENSES AND TESTS REQUIRED FOR THIS WORK AND PAY ALL FEES IN CONNECTION THEREWITH.
8. ALL MATERIALS SHALL BEAR THE MANUFACTURER'S NAME, TRADE NAME AND BE U.L. LABELED IF REQUIRED, UNLESS SPECIFICALLY INDICATED OTHERWISE. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER. ALL EQUIPMENT OF A SIMILAR TYPE SHALL BE OF THE SAME MANUFACTURER.
9. CONTRACTOR SHALL PROVIDE AND LOCATE SLEEVES AND INSERTS REQUIRED BEFORE THE FLOOR AND WALLS ARE BUILT OR SHALL BE RESPONSIBLE FOR THE COST OF CUTTING AND PATCHING REQUIRED FOR PIPES WHERE SLEEVES AND INSERTS WERE NOT INSTALLED OR WHERE THEY WERE INCORRECTLY LOCATED.
10. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF CONSTRUCTION SELECTED BY THE CONTRACTOR OR OF THE SAFETY PRECAUTIONS AND PROGRAMS INCIDENT TO THE WORK. THE CONTRACTOR, THE ENGINEER, SHALL NOT BE RESPONSIBLE FOR THE FAILURE OF THE CONTRACTOR TO PERFORM THE CONSTRUCTION WORK IN ACCORDANCE WITH THE DRAWINGS.
11. IT IS THE INTENT AND MEANING OF THE DRAWINGS TO PROVIDE COMPLETE AND OPERABLE PLUMBING SYSTEM.
12. ALL PLUMBING LINE SIZE REDUCTIONS SHALL BE MADE WITH REDUCERS AND/OR REDUCING FITTINGS.
13. COORDINATION WITH OTHER DISCIPLINES IS MANDATORY.
14. THERE SHALL BE NO CONNECTIONS TO THE COLD WATER SERVICE PIPE THROUGHOUT THE BUILDING OTHER THAN WHAT IS INDICATED ON THE DRAWINGS. ALL DOMESTIC COLD WATER SERVICE BRANCHES SHALL BE TAKEN FROM THE DOMESTIC COLD WATER MAIN PIPING TO SUPPLY POTABLE WATER TO THE FIXTURES.

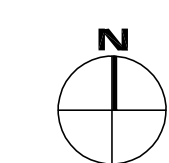
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date
APRIL 12, 2013

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key plan

USC AIKEN GREENHOUSE



sheet title
**GREENHOUSE PLAN
PLUMBING PIPING
SCHEDULES, NOTES, SYMBOLS
AND ABBREVIATIONS**

sheet number

P1.0

drawn by **JJR**
checked by **RLW JWB**

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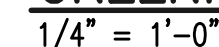
OWDE



USC AIKEN
471 UNIVERSITY PARKWAY
AIKEN, SOUTH CAROLINA 29801
project name
USC AIKEN GREENHOUSE
STATE PROJECT #H29-I337

project number
12036.01

seals/signature



GENERAL NOTES (GN):

GN1. ALL FEEDERS ENTERING OR LEAVING GREENHOUSE SHALL BE UNDERGROUND CROSSINGS. COORDINATE.

GN2. ROOF SHALL NOT PENETRATE POLYCARBONATE PANELS. COORDINATE.

POWER NOTES (PN):

PN1. CONTROLS - BOX FOR GREENHOUSE. COORDINATE EXACT LOCATION WITH M.C.

PN2. LIGHTS - LINE FROM GREENHOUSE. E-ALL CIRCUIT TO EACH ROOM AND OUTLET IN GREENHOUSE AND MAKE OPERABLE. COORDINATE.

PN3. MOTORIZED SHUTTER - BOX FOR GREENHOUSE. E-ALL CIRCUIT TO EACH MOTORIZED SHUTTER IN GREENHOUSE AND MAKE OPERABLE. COORDINATE. - BOX LOCATION WITH EXIST MOTORIZED SHUTTER LOCATION.

PN4. WASH FURNISHED AND INSTALLED BY GREENHOUSE MANUFACTURER. WIRED BY E-C. DEDICATED CIRCUIT.

PN5. UNIT HEATER FURNISHED AND INSTALLED BY GREENHOUSE MANUFACTURER. WIRED BY E-C. DEDICATED CIRCUIT.

PN6. EVAPORATIVE COOLER FURNISHED AND INSTALLED BY GREENHOUSE MANUFACTURER. WIRED BY E-C. DEDICATED CIRCUIT.

PN7. WATER SUPPLY - 1/2" METER BASE AND UTILITY SHALL PROVIDE METER

PANEL NAME										PANEL NAME									
TYPE										RMS SYS AMP									
BUS AMPS										42K AIC									
MAINS										SYSTEM									
VOLTAGE										NORMAL									
P1 A4, SURFACE 225 AMPS MAIN BREAKER (225A/3P/208V) 120-208V/3P/4W/5N										P2 42K AIC NORMAL									
LOAD NAME										LOAD NAME									
G1-ROOF VENTS										G1-RECTIFIERS									
G1-MOTORIZED SHUTTERS										G1-EXHAUST FAN									
G1-CONTROLS										G1-EXHAUST FAN									
G2-CEILING FANS										G2-ROOF VENTS									
G2-EXHAUST FAN										G2-MOTORIZED SHUTTERS									
G2-EXHAUST FAN										G2-CONTROLS									
G1-STRIP LIGHTING										G2-EXHAUST FAN-A									
G2-STRIP LIGHTING										G2-EXHAUST FAN-B									
OUTDOOR LIGHTING										G2-EXHAUST FAN-C									
G1-AG FIRE UNIT HTR										G2-EXHAUST FAN-D									
G1-EVAPORATIVE COOLER										G2-EXHAUST FAN-E									
G1-AG FIRE UNIT HTR										SPARE									
G2-EVAPORATIVE COOLER										SURGE SUPPRESSOR									
SPACE										SPACE									
G1-GREENHOUSE 1										G2-GREENHOUSE 2									

$$1/4^x = 1'-0$$

GENERAL NOTES (CON):

G01. ALL FEEDERS ENTERING OR LEAVING GREENHOUSE SHALL BE UNDERGROUND CIRCUITS, COORDINATE.

G02. EC SHALL NOT PENETRATE POLYCARBONATE PANELS. COORDINATE.

LIGHTING NOTES (CON):

L01. CONNECT TO THE LINE SIDE OF ANY SWITCHING.

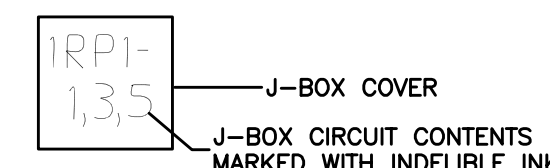
L02. 120V/15A MOUNTING BRACKET FROM GREENHOUSE STRUCTURE. COORDINATE EXISTING MOUNTING HEIGHT OF CHAIN HUNG FIXTURE WITH OWNER.

L03. MOUNT ELECTRICAL EQUIPMENT TO 2" UNITS. COORDINATE.

L04. 120V/15A HALL HELIOS - 4000K GROW LIGHTING CONTROLLER #702660, GROW LIGHT CONTROLLER SHALL CONTROL (3) GROW LIGHTS OVER A WORK BENCH IN GREENHOUSE 2. THE BALLAST OF EACH GROW LIGHT SHALL PLUG INTO DESIGNATED 120V/15A HALL CONTROLLER. COORDINATE LIGHTING DETAIL WITH SHEET 10. 1/2" STUB-UP. EC SHALL EXTEND REMOTE GROW BALLAST FEEDER THROUGH CON STUB-UP-UP TO GROW LIGHT CONTROLLER. COORDINATE.

L05. 120V/15A LIGHT REMOTE FEEDER SHALL BE 1/2" TO 2" UNITS. EC SHALL CONNECT DESIGNATED REMOTE BALLAST BRANCH CIRCUIT TO DESIGNATED GROW LIGHT CONTROLLER.

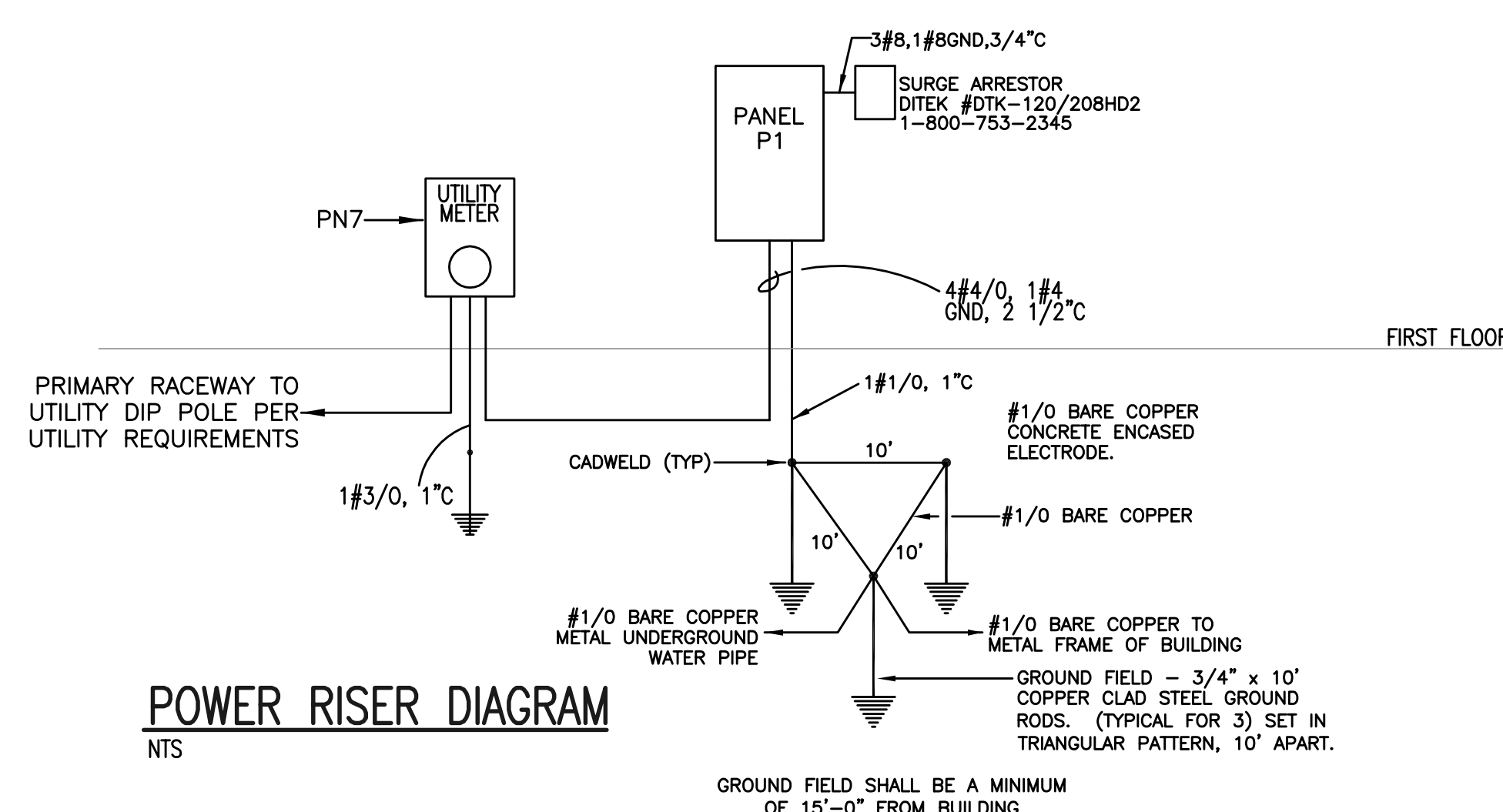
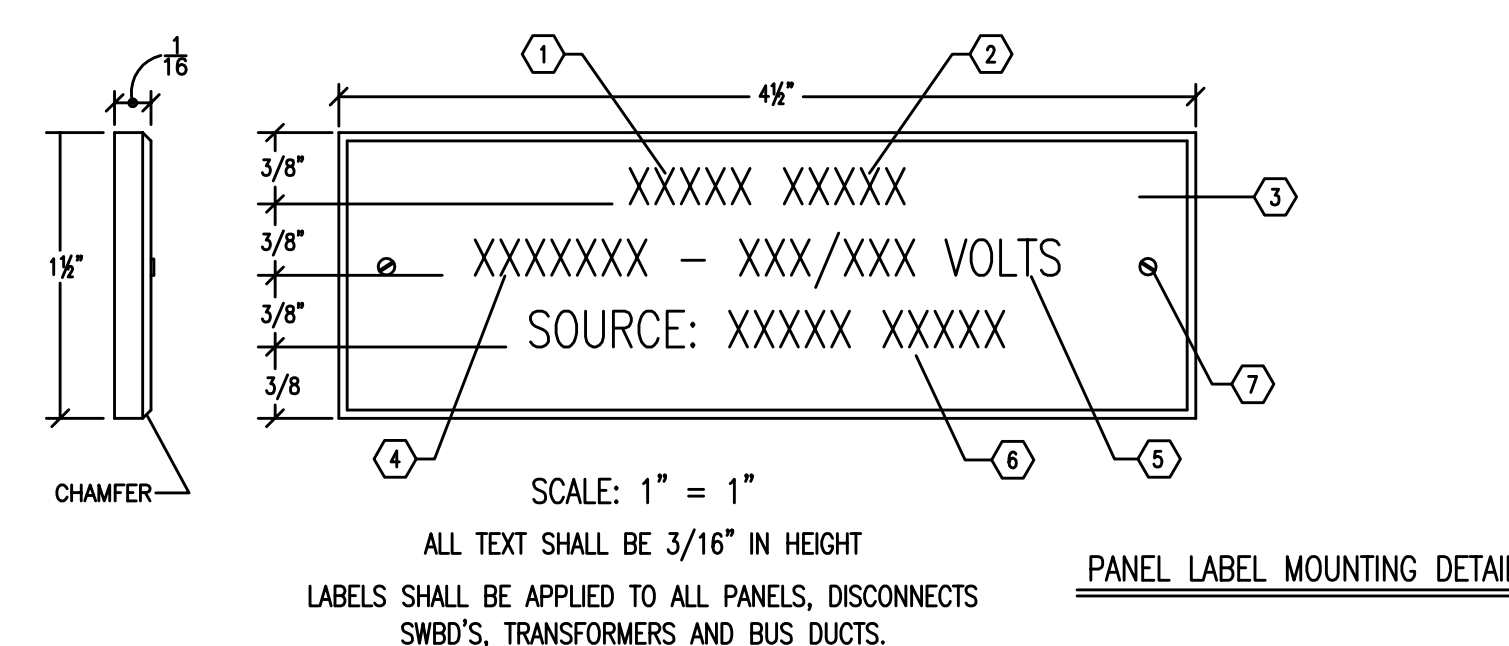
L07. GROW LIGHT. EC SHALL MOUNT FIXTURE 5' ABOVE WORK BENCH. LETTER SUBSCRIPTION FIXTURE CORRESPONDS TO A GROW LIGHT CONTROLLER LOCATED IN THE



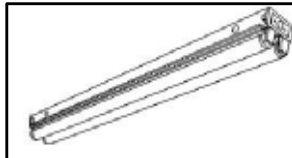







ALL EXPOSED J-BOXES, NOT INCLUDING ELECTRICAL OR MECHANICAL ROOMS, SHALL BE MARKED ON THE INSIDE COVER. ALL OTHERS SHALL BE MARKED ON THE OUTSIDE.

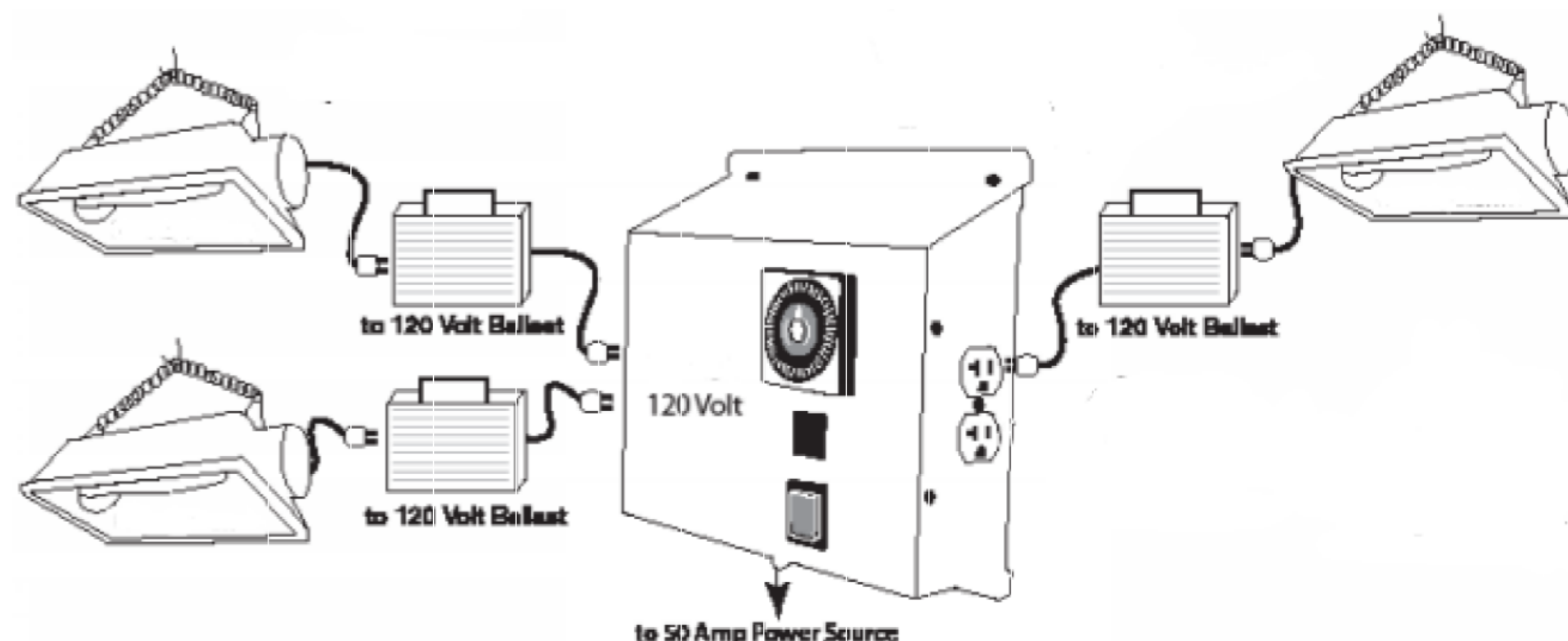


ELECTRICAL SYMBOL SCHEDULE			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	BRANCH CIRCUIT RACEWAY. RUN CONCEALED IN CEILING OR WALLS. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN.	A	AMPERE.
		AFF	ABOVE FINISHED FLOOR.
		ATS	AUTOMATIC TRANSFER SWITCH
		BKR	BREAKER.
		C	CONDUIT.
		CCCT	CIRCUIT.
		EC	ELECTRICAL CONTRACTOR, DIVISION 16.
		EF	EXHAUST FAN
		FCU	FAN COIL UNIT.
		GC	GENERAL CONTRACTOR, DIVISION 50 THROUGH 74
		GF	GROUND FAULT CIRCUIT INTERRUPTER
		JB	JUNCTION BOX.
		J-X	JUNCTION BOX.
		KVA	KILOVOLT AMPERES.
		KW	KILOWATT.
		MAX	MAXIMUM.
		MC	MECHANICAL CONTRACTOR, DIVISION 15.
		MDP	MAIN DISTRIBUTION PANEL.
		MIN	MINIMUM.
		VTD	VOLT.
		VFD	VARIABLE FREQUENCY DRIVE
		NEC	2017 NATIONAL ELECTRICAL CODE. (NFA 70).
		SWD	SWITCH
		TYP	TYPICAL.
		WC	WATER COOLER
		XFMR	TRANSFORMER.
	BRANCH CIRCUIT RACEWAY. RUN IN AND/OR UNDER SLAB. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE.		
	FLEXIBLE CONDUIT. WEATHERPROOF TYPE WHEN CONNECTED TO MOTORS. CROSSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE INSTALLED. INSTALL GROUND WIRE #12 AWG MINIMUM.		
	WALL MOUNTED FIXTURE. LETTER DENOTES TYPE OF FIXTURE. SEE FIXTURE SCHEDULE. NUMBER DENOTES CIRCUIT NUMBER. COORDINATE MOUNTING HEIGHT.		
	EXIT SIGN. REFER TO FIXTURE SCHEDULE. DARKENED AREA DENOTES SIGN FACE. NUMBER DENOTES CIRCUIT NUMBER. STEM DESIGNATES WALL MOUNTING. NO STEM DENOTES CEILING MOUNTED.		
	PE CELL. WALL MOUNT 1'-0" BELOW ROOF LINE, UNLESS OTHERWISE NOTED.		
	LIGHT SWITCH. 3-WAY, 20A, 48" AFF.		
	ELECTRICAL CIRCUIT BREAKER PANELBOARD. SEE PANEL SCHEDULE		
	DUPLEX RECEPTACLE, 120 VOLT, 20 AMP, WALL MOUNTED, GROUND FAULT CIRCUIT INTERRUPTER, 16" AFF. WALL. NUMBER DENOTES CIRCUIT NUMBER. "WP" DENOTES WEATHERPROOF COVER.		
	FLUSH MOUNT JUNCTION BOX, SIZED PER NEC. "WP" DENOTES NEMA 3R WEATHERPROOF. PROVIDE AND INSTALL FLUSH COVER PLATE.		
	DESIGNATES SURFACE MOUNTING DEVICE.		
	CONDUIT FLOOR STUB-UP.		

NT⁹

LABEL NOTES:		UNIT OF MEASUREMENT FOR ALL DATA:	
①	TYPE OF EQUIPMENT WHERE X'S ARE INDICATED. POSSIBLE CHOICES ARE: "PANEL" "VNER" "SWB DUCT" "SWBD"	⑤	INSERT VOLTAGE WHERE X'S ARE INDICATED. POSSIBLE CHOICES ARE: "277/480" "120/208" "480" "208"
②	EQUIPMENT NAME (EX. 1RP1)	FOR TRANSFORMER LABELS – THIS SPACE SHALL INDICATE THE KVA RATING AND SHALL BE SECURED TO THE TRANSFORMER WITH (4) FOUR STANDOUT STICKS (1/8") TO PREVENT DEFORMATION OR SHALL BE HEAT TOLERATE TO 350°	
③	COLOR: (FACE/LETTERING) (BLK/WH) = NORMAL POWER (RED/WH) = ALL EMERGENCY POWER (GRN/WH) = UPS POWER	⑥ INSERT SUPPLYING PANEL DESIGNATION WHERE X'S ARE INDICATED. (EX. PANEL 100M 1001). WHEN THE EQUIPMENT IS SERVED DIRECTLY FROM A TRANSFORMER, THE PANEL SERVING THE TRANSFORMER SHALL ALSO BE LISTED.	
④	SUPPLY SOURCE WHERE X'S ARE INDICATED. POSSIBLE CHOICES ARE: "NORMAL" "CRITICAL" "EMERGENCY" "UPS" "GENERATOR"	⑦ SECURE SCREWS TO OUTSIDE PANELED BOARD COVER WITH #4-40 STAINLESS STEEL LOCKWASHER SCREWS WITH MATCHING NUTS AND LOCKWASHERS. DO NOT COVER OTHER LABELS	

LIGHT FIXTURE SCHEDULE				
TYPE	DESCRIPTION	CATALOG NO.	LAMPS	
	C FLUORESCENT, 4 FOOT, 2 LAMP CHAIN HUNG STRIP LIGHT. WET LABEL, 120 VOLT	COLUMBIA #LUN4-232-EU-LUNHK 120 VOLT	2-F32T8/SPX41	
	F L.E.D. EXTERIOR WALL MOUNTED WALL PACK FIXTURE. 120 VOLT.	ELCAST CWP602-LED-120-SG	1-28W LED	
	G GREENHOUSE GROW LIGHT. HIGH PRESSURE SODIUM FIXTURE WITH A 400W SUPER BULB. REMOTE BALLAST. 120 VOLT.	P.L. LIGHT SYSTEMS #47-1500 120 VOLT	400W HPS	
	 L 2-1.5W LED SLEEK, LOW PROFILE EMERGENCY LIGHT. 120 VOLT.	LITHONIA ELM2-SD 120 VOLT	LED	
	N V L.E.D. WALL MOUNTED, OUTDOOR, REMOTE HEAD LIGHT, POWERED FROM INTERNAL BATTERIES, DAMP AND WET LOCATION.	LITHONIA AFN-BN-EXT #LUX-ZV	BY MANUFACTURER	
	 L WET LABEL, EXIT LIGHT, LED LAMPS, SINGLE FACED, WALL MOUNTED 6" ABOVE DOOR FRAME, RED LETTERING. SIGN HAS STEM IF WALL MOUNTED. 120 VOLT.	LITHONIA WLTE-W-1-R-SD-120	BY MANUFACTURER	



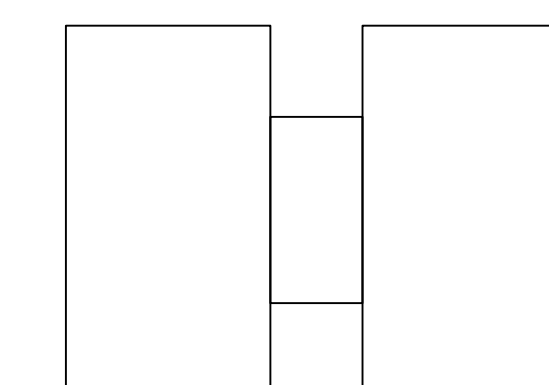
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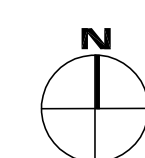
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key plan



USC AIKEN GREENHOUSE



sheet title
**GREENHOUSE SCHEDULES,
POWER AND
LIGHTING PLANS**

sheet number

E2.0

drawn by TLK
checked by JBF