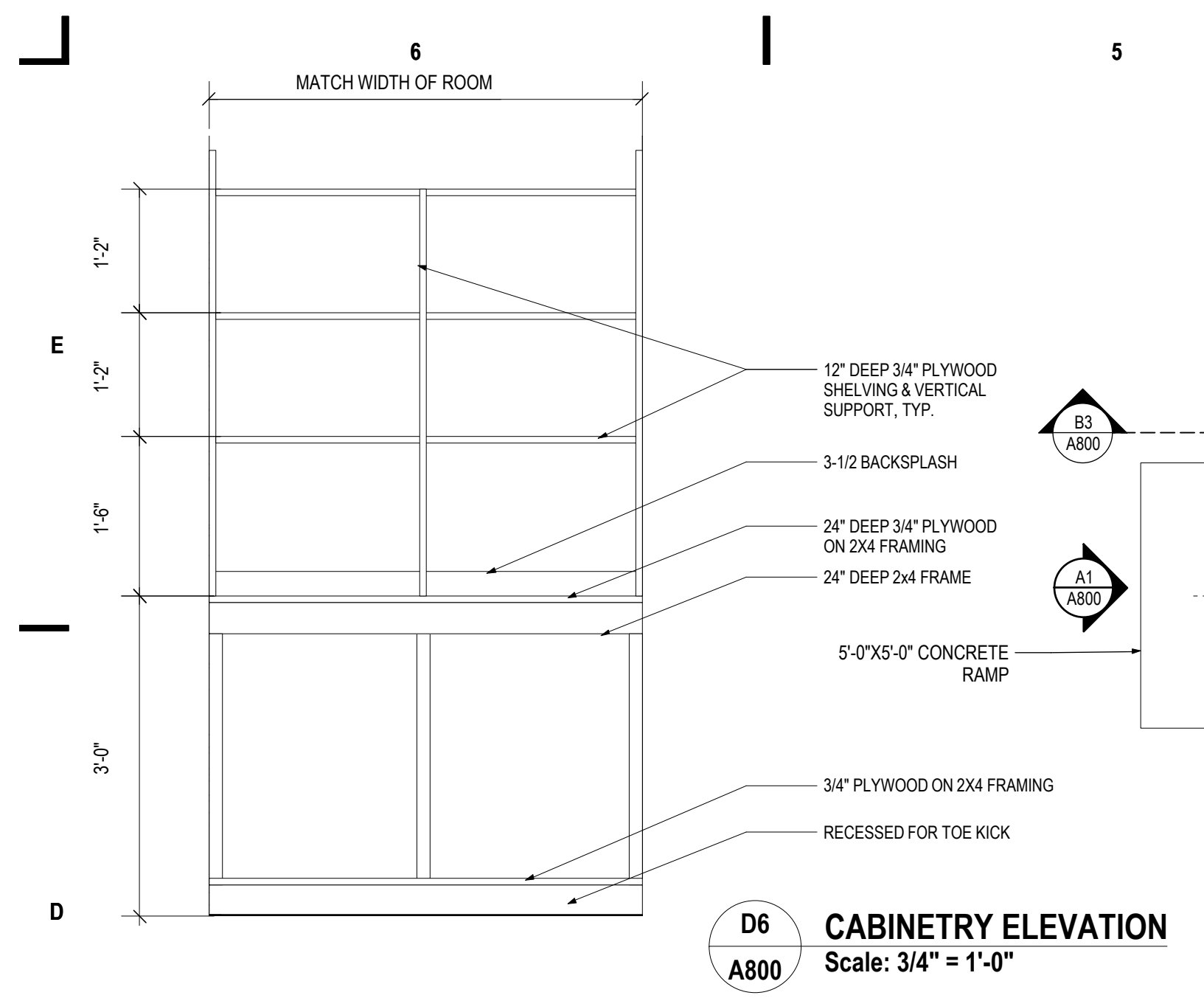


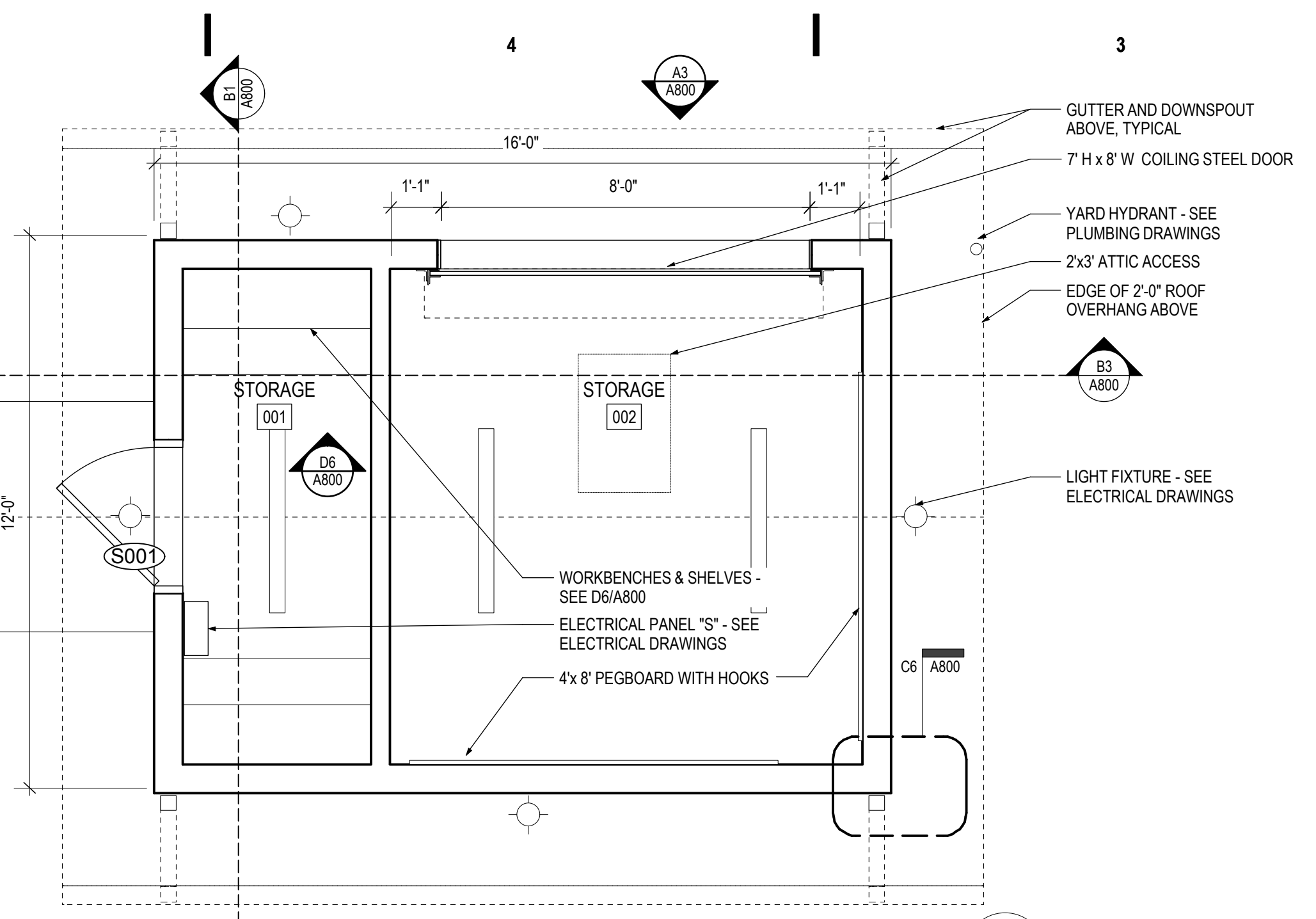
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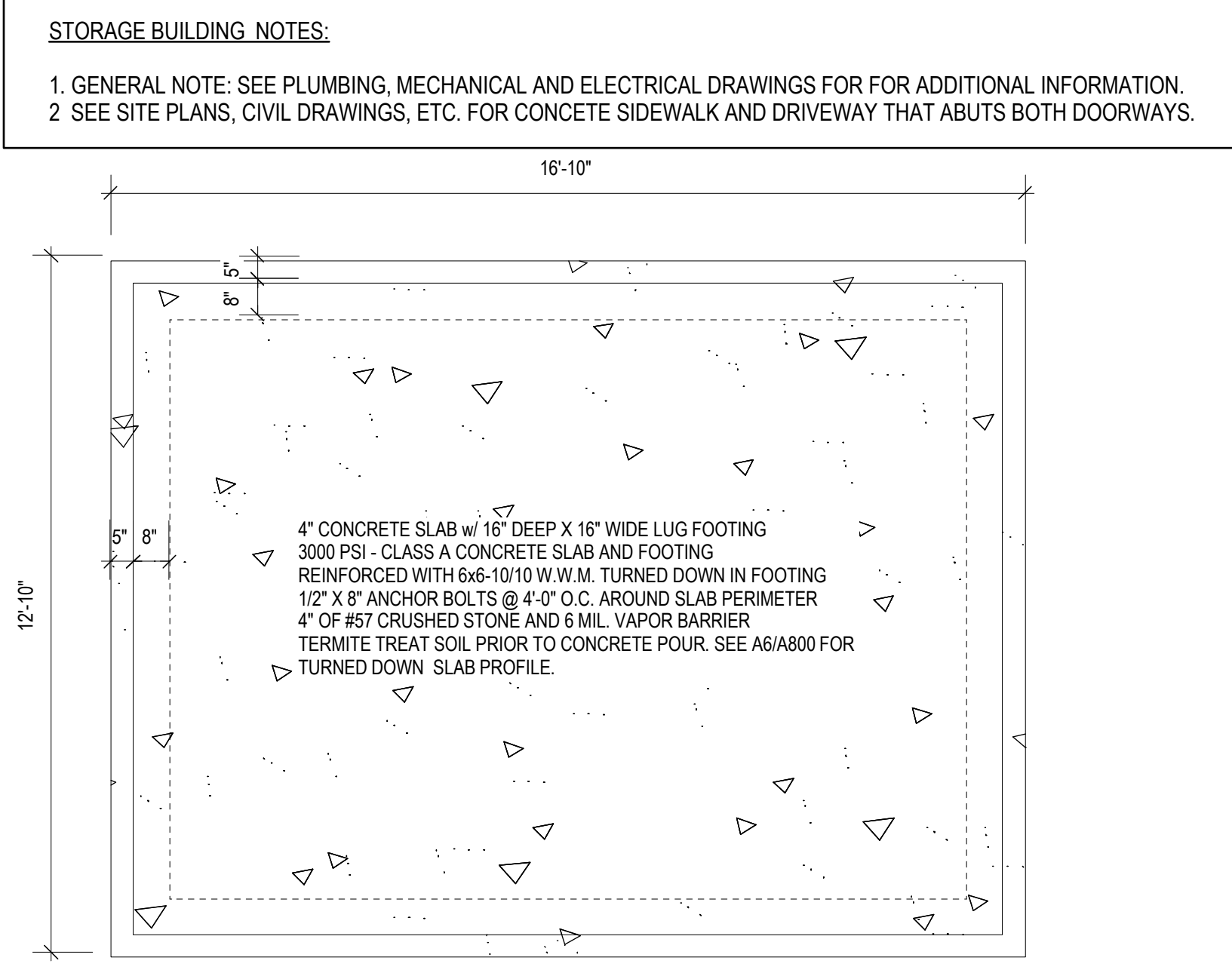
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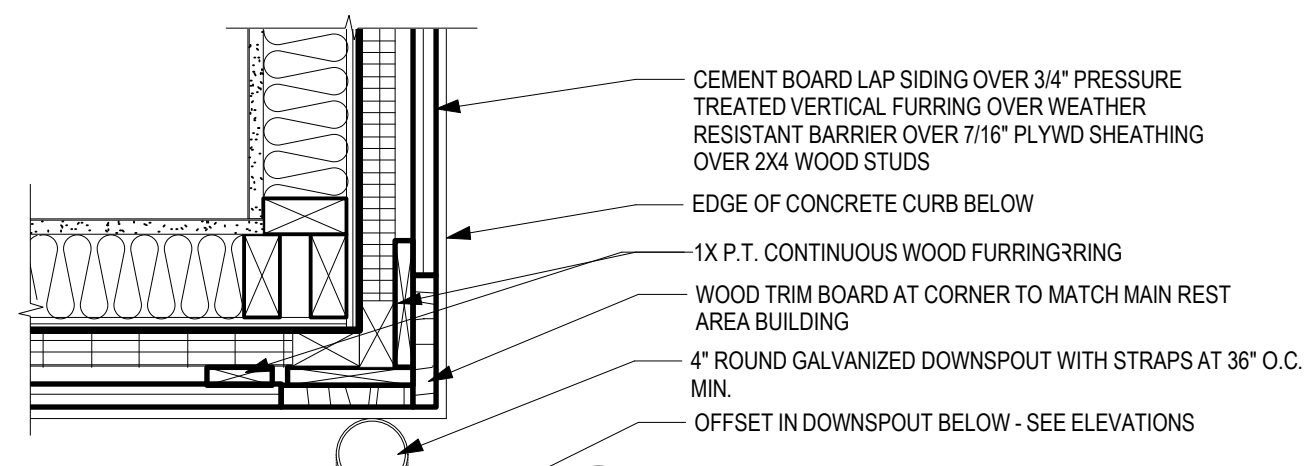
**D6 CABINERY ELEVATION**  
Scale: 3/4" = 1'-0"



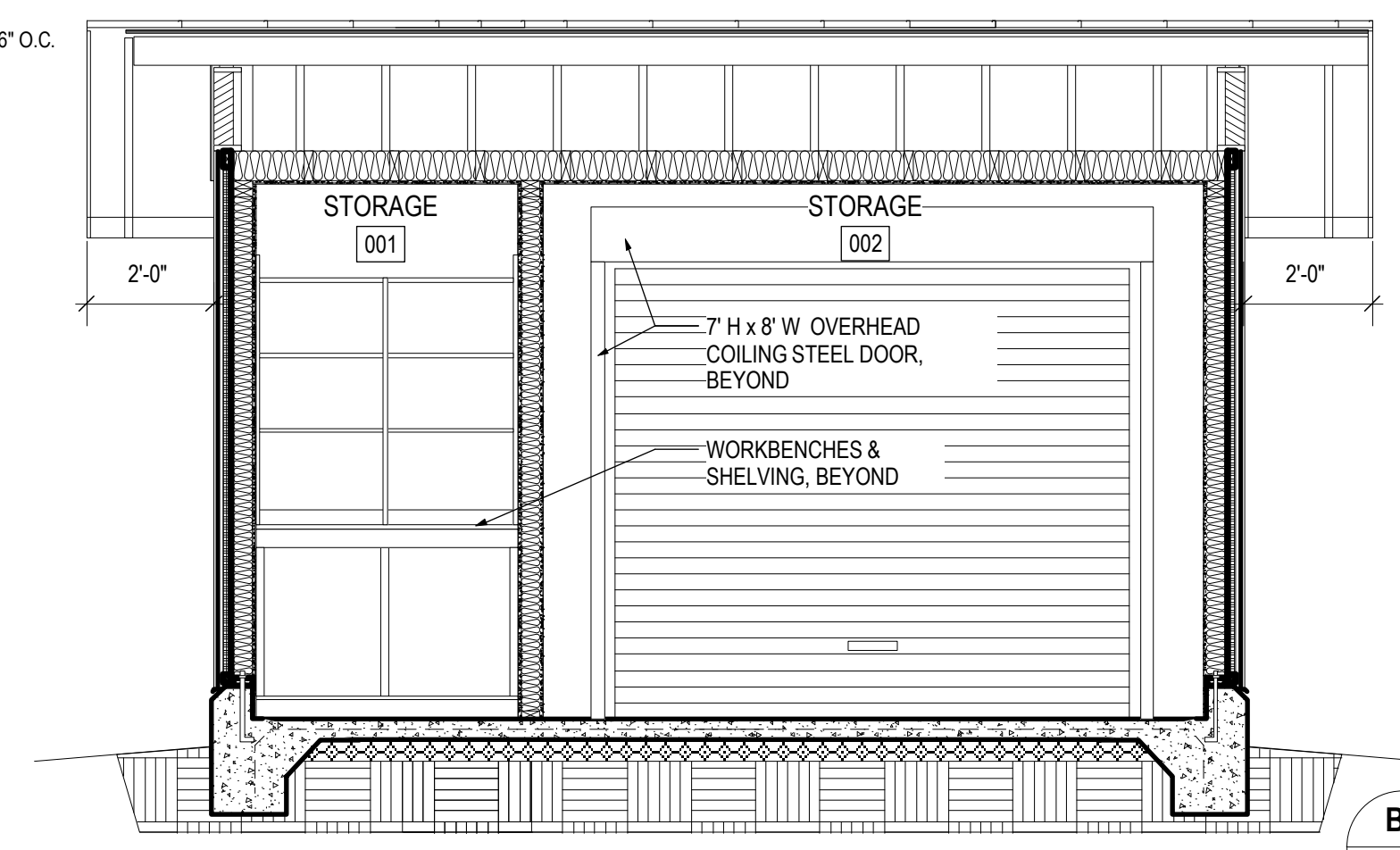
**D3 FLOOR PLAN**  
Scale: 3/8" = 1'-0"



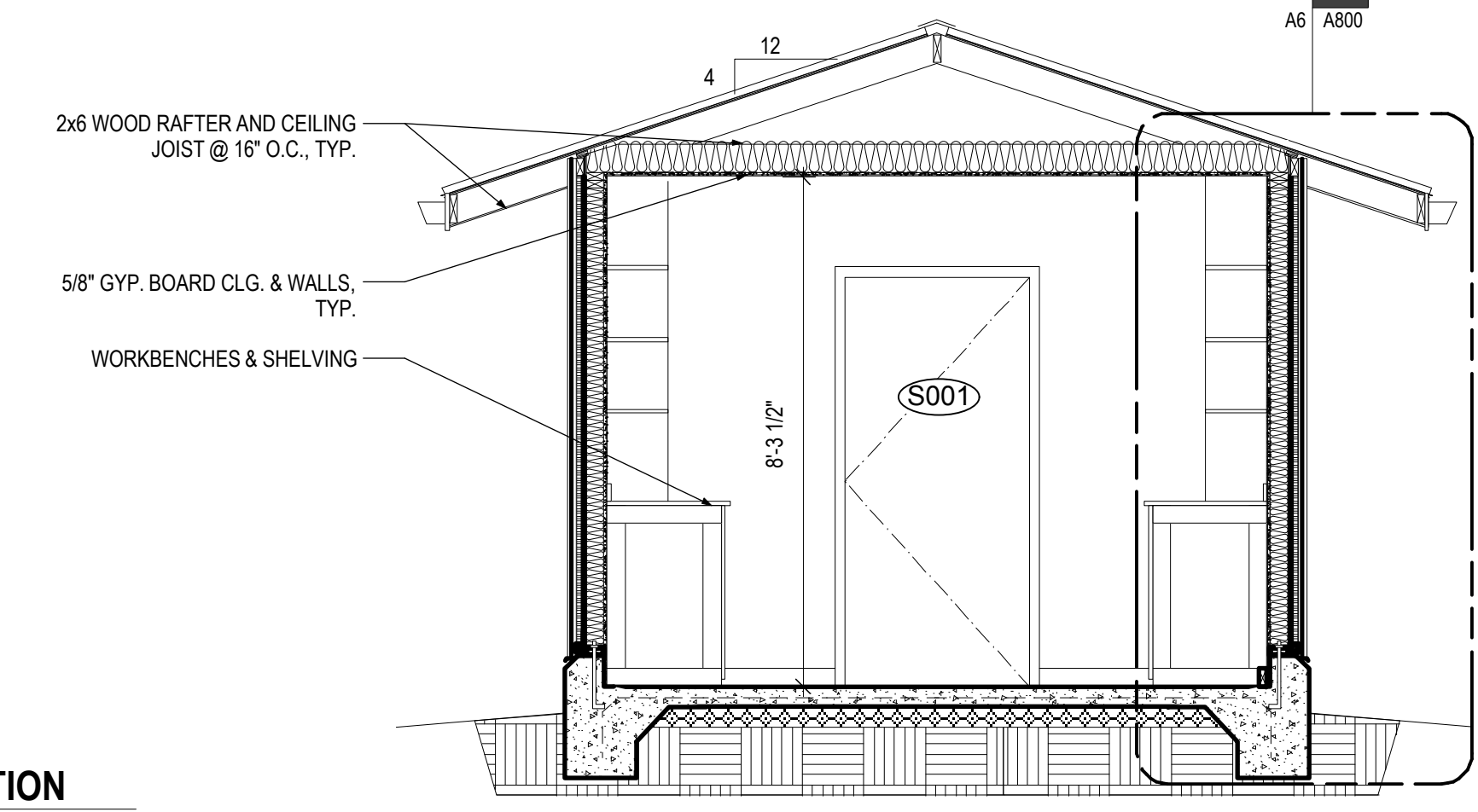
**D1 FOUNDATION PLAN**  
Scale: 3/8" = 1'-0"



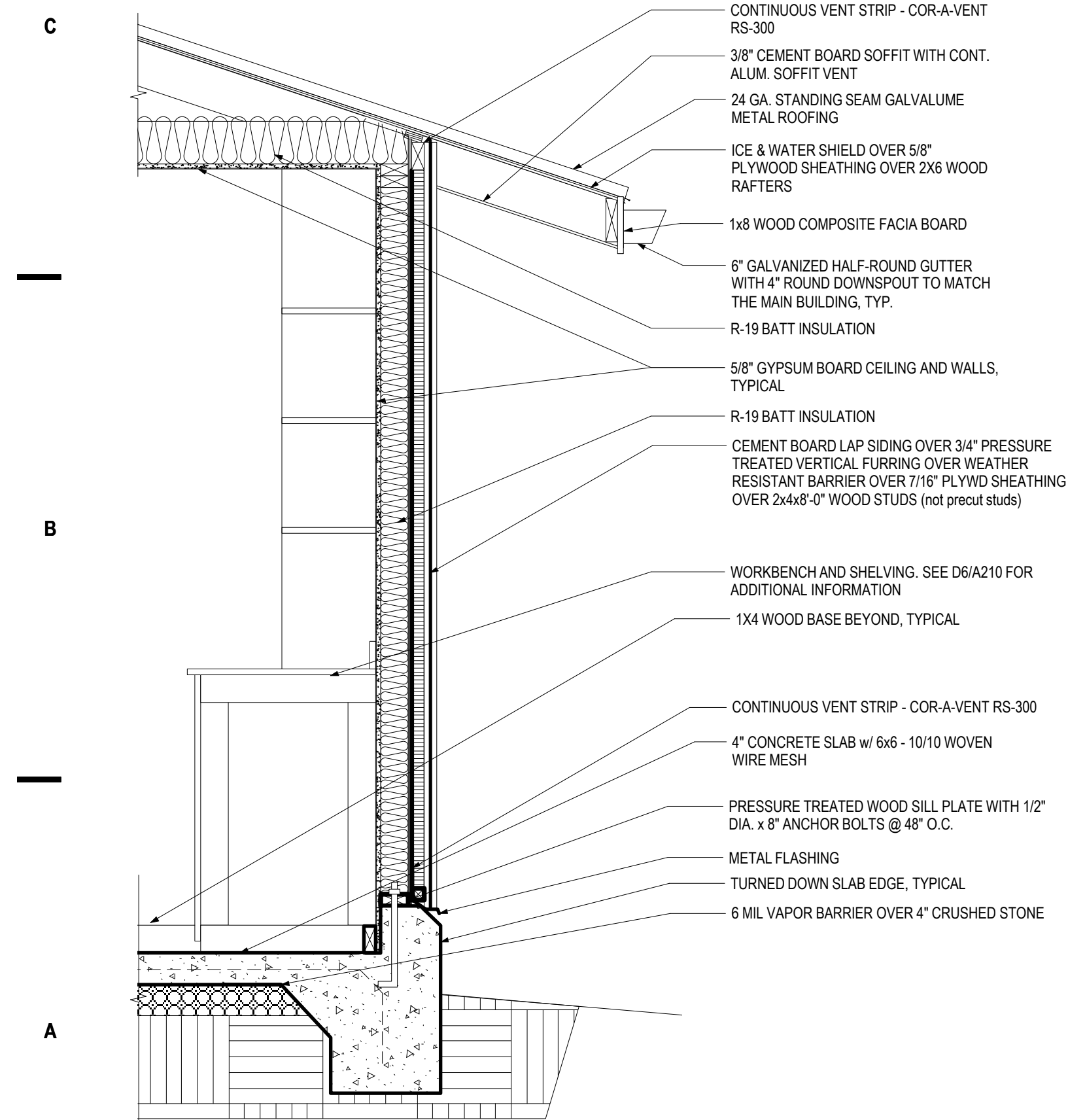
**C6 PLAN DETAIL**  
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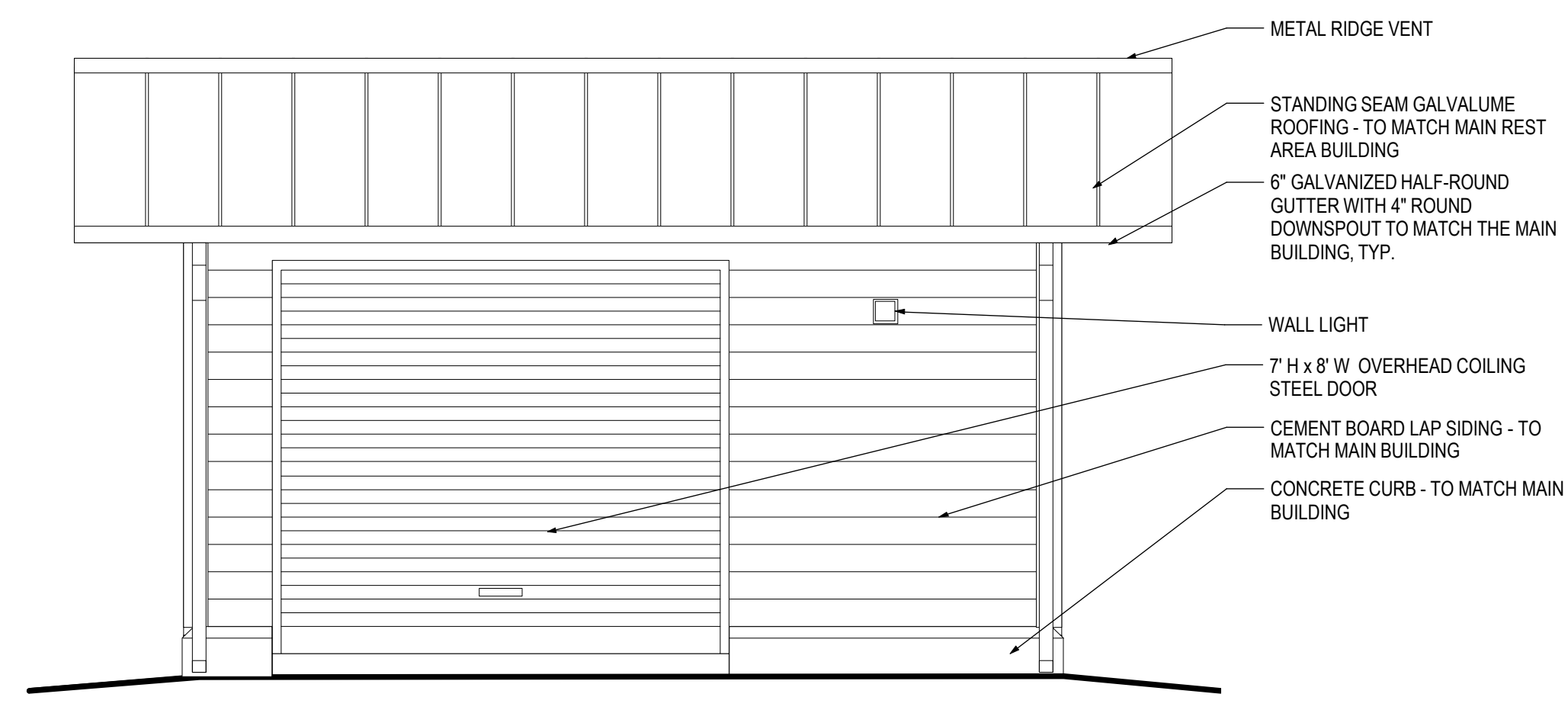
**B3 SECTION**  
Scale: 3/8" = 1'-0"



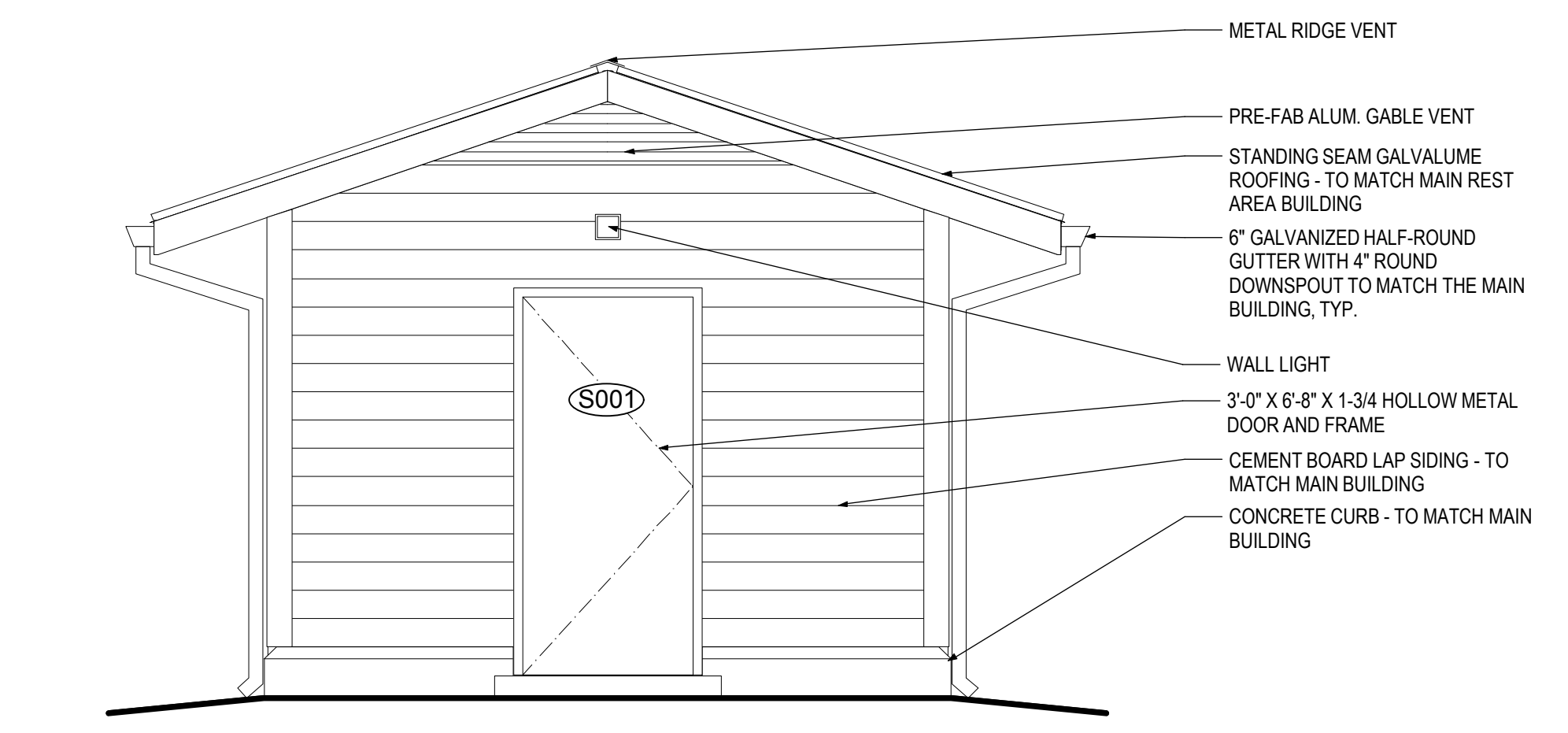
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Scale: 3/8" = 1'-0"



**A6 WALL SECTION**  
Scale: 3/4" = 1'-0"



**A3 ELEVATION**  
Scale: 3/8" = 1'-0"



**A1 ELEVATION**  
Scale: 3/8" = 1'-0"

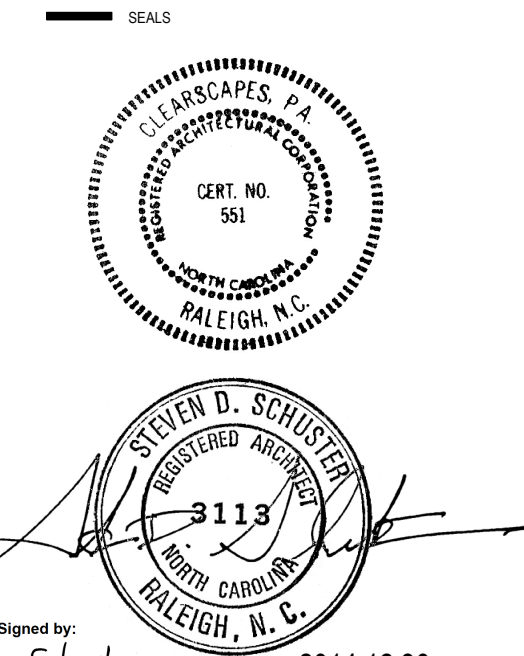
**STORAGE BUILDING NOTES:**  
1. GENERAL NOTE: SEE PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.  
2. SEE SITE PLANS, CIVIL DRAWINGS, ETC. FOR CONCRETE SIDEWALK AND DRIVEWAY THAT ABUTS BOTH DOORWAYS.

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Proj. Contract #: 6300036020  
TIP Project #: K-4908  
WBS#: 39894.3.1  
F.A. Project #: IMS-77-1(177)39



DocuSigned by:  
Steve Schuster  
2014.12.30  
**BID DOCUMENTS**  
2014/12/30

PROJECT  
**I-77**  
**REST AREA**  
Iredell County, NC

REVISIONS

NO.	DATE OF REVISION

PROJECT DATA

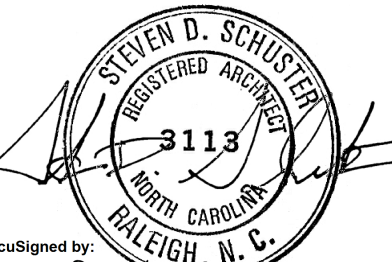
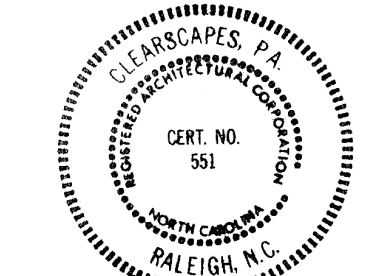
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CHECKED:	SJS
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PROJECT NO.:	2013_0260
PRINTING:	Bid Documents

SHEET DATA

**STORAGE BUILDING**

SHEET NO.  
**A800**





DocuSign by  
Steven D. Schuler  
2014.12.30

**BID DOCUMENTS**  
2014/12/30

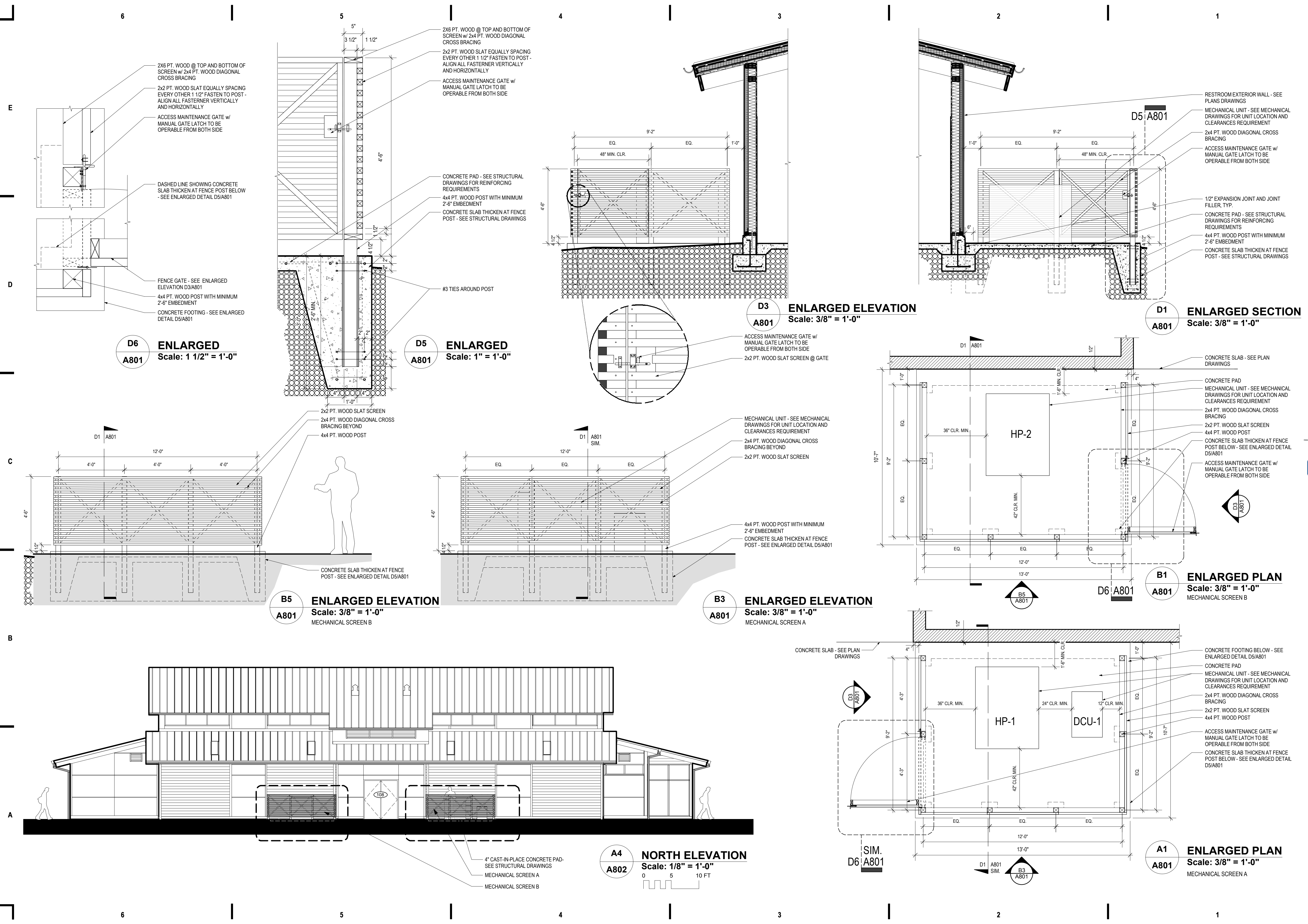
**I-77**  
**REST AREA**  
Iredell County, NC

NO.	DATE OF REVISION

DATE: 2014.12.30  
DRAWN: RW/MH  
CHECKED: SDS  
FILENAME: CD\_2D\_FloorPlans.vwx  
PROJECT NO: 2013\_0260  
PRINTING: Bid Documents

MECHANICAL SCREENS

**A801**



**D6**  
**A801**  
ENLARGED  
Scale: 1 1/2" = 1'-0"

**D5**  
**A801**  
ENLARGED  
Scale: 1" = 1'-0"

**D3**  
**A801**  
ENLARGED ELEVATION  
Scale: 3/8" = 1'-0"

**D1**  
**A801**  
ENLARGED SECTION  
Scale: 3/8" = 1'-0"

**B5**  
**A801**  
ENLARGED ELEVATION  
Scale: 3/8" = 1'-0"  
MECHANICAL SCREEN B

**B3**  
**A801**  
ENLARGED ELEVATION  
Scale: 3/8" = 1'-0"  
MECHANICAL SCREEN A

**B1**  
**A801**  
ENLARGED PLAN  
Scale: 3/8" = 1'-0"  
MECHANICAL SCREEN B

**A1**  
**A801**  
ENLARGED PLAN  
Scale: 3/8" = 1'-0"  
MECHANICAL SCREEN A

**A4**  
**A802**  
NORTH ELEVATION  
Scale: 1/8" = 1'-0"  
0 5 10 FT







**GENERAL STRUCTURAL NOTES**

**GENERAL**

THESE DRAWINGS, AS INSTRUMENTS OF PROFESSIONAL SERVICE, ARE THE PROPERTY OF LYSAGHT & ASSOCIATES, P.A. FOR USE SOLELY WITH THIS PROJECT AND SHALL NOT BE REPRODUCED FOR OTHER PURPOSES.

THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THESE DRAWINGS IS THE PROJECT STRUCTURAL ENGINEER-OF-RECORD (SER) WHO BEARS LEGAL RESPONSIBILITY FOR THE PERFORMANCE OF THE STRUCTURAL FRAMING RELATING TO PUBLIC HEALTH, SAFETY AND WELFARE. NO OTHER PARTY, WHETHER OR NOT A PROFESSIONAL ENGINEER, MAY COMPLETE, CORRECT, REVISE, DELETE OR ADD TO THESE CONSTRUCTION DOCUMENTS OR PERFORM INSPECTIONS OF THE WORK WITHOUT THE WRITTEN PERMISSION OF THE SER.

USE STRUCTURAL DRAWINGS IN CONJUNCTION WITH JOB SPECIFICATIONS, AND OTHER DRAWINGS.

SECTIONS AND DETAILS SHOWN SHALL BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS.

CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD AND TAKE ALL NECESSARY FIELD MEASUREMENTS.

**SHOP DRAWINGS**

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR EACH STRUCTURAL COMPONENT. THESE SHOP DRAWINGS SHALL HAVE BEEN CHECKED BY, AND STAMPED WITH THE APPROVAL OF, THE CONTRACTOR. DETAILS SHOWN ON THE SHOP DRAWINGS SHALL BE COMPLETE WITH RESPECT TO DIMENSIONS, DESIGN CRITERIA AND SIGNED AND SEALED BY A PROFESSIONAL ENGINEER (WHERE APPLICABLE) REGISTERED IN THE STATE THAT THE PROJECT IS LOCATED.

REVIEW OF SHOP DRAWINGS BY THE ENGINEER IS LIMITED TO COMPLIANCE OF THE COMPLETED STRUCTURE WITH THE DESIGN CONCEPT AND INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS, QUANTITIES, PERFORMANCE, SAFETY, COORDINATION WITH OTHER WORKS, AND ALL OTHER REQUIREMENTS OF THE CONTRACT DOCUMENTS. REVIEW DOES NOT AUTHORIZE CHANGES TO THE CONTRACT.

**DIMENSIONS**

THE CONTRACTOR, BEFORE STARTING ANY WORK, SHALL CHECK ALL DIMENSIONS GIVEN ON THE STRUCTURAL DRAWINGS, RELATING TO GRID LINES, COLUMN AND WALL LOCATIONS, STRUCTURAL AND FINISHED FLOOR ELEVATIONS, MEMBER SIZES, ETC., WITH THE ARCHITECTURAL DRAWINGS. IF ANY DISCREPANCY IS NOTICED, IT SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER AND WORK SHALL NOT COMMENCE UNTIL INSTRUCTIONS ARE RECEIVED FROM THE ENGINEER.

THE CONTRACTOR SHALL SEEK INSTRUCTION FROM THE ENGINEER FOR ANY DIMENSION NOT GIVEN OR OBTAINABLE FROM THE DRAWINGS. THE CONTRACTOR SHALL NOT USE SCALE TO OBTAIN OR VERIFY ANY DIMENSION SHOWN ON THESE DRAWINGS.

**SCOPE OF STRUCTURAL ENGINEERING SERVICES**

THE STRUCTURAL ENGINEER HAS PERFORMED THE STRUCTURAL DESIGN AND REVIEWED THE ARCHITECTURAL PLANS FOR THIS PROJECT. THREE SITE VISITS ARE ALSO INCLUDED IN THE FEE (IF THE ARCHITECT, CONTRACTOR OR OWNER CONTACTS THE STRUCTURAL ENGINEER AT THE APPROPRIATE TIME) BUT WILL NOT BE BILLED UNTIL EACH SITE VISIT HAS BEEN COMPLETED. THE ARCHITECT, CONTRACTOR OR OWNER MUST CONTACT THE STRUCTURAL ENGINEER AT THE FOLLOWING STAGES OF CONSTRUCTION FOR A FIELD REVIEW OF THE WORK (OR THE SITE VISITS WILL BE EXCLUDED FROM THE SCOPE OF SERVICES):

1. AFTER PLACEMENT OF FOOTING REBAR, BEFORE CONCRETE POUR
2. AFTER ERECTION OF THE STRUCTURAL FRAMING.
3. AT ANY STAGE OF CONSTRUCTION WHEN DESIGN OR CONSTRUCTION PROBLEMS ARE ENCOUNTERED.

A "CONSTRUCTION REVIEW REPORT" WILL BE SENT TO THE CONTRACTOR AND THE ARCHITECT FOLLOWING EACH FIELD TRIP.

PORTIONS OF THE STRUCTURAL DESIGN (AS NOTED ON THE DRAWINGS) ARE THE RESPONSIBILITY OF THE MATERIAL SUPPLIERS.

THE STRUCTURAL ENGINEER IS RESPONSIBLE FOR THE DESIGN OF THE PRIMARY STRUCTURAL SYSTEM, EXCEPT FOR THE COMPONENTS NOTED ABOVE. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR ANY SECONDARY STRUCTURAL AND NON-STRUCTURAL SYSTEMS NOT SHOWN ON THE STRUCTURAL PLANS.

THE STRUCTURAL ENGINEER HAS NOT DONE A SUBSURFACE INVESTIGATION (HE IS NOT A SOILS SPECIALIST). THE FOUNDATION DESIGN IS BASED UPON AN ASSUMED ALLOWABLE BEARING PRESSURE AS SHOWN IN THE "FOUNDATION" STRUCTURAL NOTES. THIS ALLOWABLE BEARING PRESSURE MUST BE VERIFIED BY THE CONTRACTOR OR OWNER. IF PROBLEMS ARE ENCOUNTERED, A SOILS ENGINEER SHOULD BE RETAINED TO EVALUATE THE CONDITIONS AND RECOMMEND THE APPROPRIATE FOUNDATION SYSTEM.

THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK; NOR WILL HE BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

FIELD MEASUREMENTS AND THE VERIFICATION OF FIELD DIMENSIONS ARE NOT PART OF LYSAGHT & ASSOCIATES' RESPONSIBILITY. THE CONTRACTOR MUST CHECK ALL (ASSUMED) EXISTING CONDITIONS SHOWN ON THESE DRAWINGS FOR ACCURACY AND NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES.

**ABBREVIATIONS**

- AB ANCHOR BOLT
- AFF ABOVE FINISH FLOOR
- BOD BOTTOM OF DECK
- C/C CENTER TO CENTER
- C-J CONTROL OR CONSTRUCTION JOINT IN SLAB
- EJ EXPANSION JOINT
- EOS EDGE OF SLAB
- EN EACH WAY
- FF FINISH FLOOR
- FFE FINISH FLOOR ELEVATION
- JBE JOIST BEARING ELEVATION
- LVL LAMINATED VENEER LUMBER
- NTS NOT TO SCALE
- OC ON CENTER
- PAF POWDER ACTUATED FASTENER
- SER STRUCTURAL ENGINEER-OF-RECORD
- TOP TOP OF FOOTING
- UNO UNLESS NOTED OTHERWISE
- VIF VERIFY IN FIELD
- W.P. WORK POINT
- W/WF WELDED WIRE FABRIC

**CODE**

NORTH CAROLINA STATE BUILDING CODE, 2012 EDITION

**DESIGN DATA**

ALLOWABLE STRESS DESIGN OCCUPANCY CATEGORY	II
FLOOR LIVE LOAD	100 PSF
ROOF DEAD LOAD	12 PSF
ROOF LIVE LOAD	20 PSF
GROUND SNOW LOAD	20 PSF
FLAT ROOF SNOW LOAD	20 PSF
SNOW EXPOSURE FACTOR	1.0
SNOW LOAD IMPORTANCE FACTOR	1.0
THERMAL FACTOR	1.0
BASIC WIND SPEED (3-SECOND GUST)	90 MPH
WIND IMPORTANCE FACTOR	1.0
WIND EXPOSURE	C
INTERNAL PRESSURE COEFFICIENT	0.18

ROOF Design Pressures for Components & Cladding Design						
Effective Wind Area (ft <sup>2</sup> )	Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3
	Positive Pressure (psf)	Negative Pressure (psf)	Positive Pressure (psf)	Negative Pressure (psf)	Positive Pressure (psf)	Negative Pressure (psf)
10	10.0	-17.7	10.0	-29.5	8.1	-44.5
20	10.0	-17.2	10.0	-26.4	8.1	-36.9
50	10.0	-16.6	10.0	-22.3	8.1	-26.7
100 or more	10.0	-16.1	10.0	-19.1	8.1	-19.1

WALL Design Pressures for Components & Cladding Design				
Effective Wind Area (ft <sup>2</sup> )	Zone 4	Zone 4	Zone 5	Zone 5
	Positive Pressure (psf)	Negative Pressure (psf)	Positive Pressure (psf)	Negative Pressure (psf)
10	17.7	-19.1	17.7	-23.6
20	16.8	-18.3	16.8	-22.0
50	15.7	-17.3	15.7	-20.0
100	15.0	-16.5	15.0	-18.3
500	13.2	-14.6	13.2	-14.6

SEISMIC IMPORTANCE FACTOR	1.00
MAPPED SPECTRAL RESPONSE COEFFICIENT	Ss 0.25
MAPPED SPECTRAL RESPONSE COEFFICIENT	S1 0.04
SITE CLASS	D
SPECTRAL RESPONSE COEFFICIENT	Sds 0.27
SPECTRAL RESPONSE COEFFICIENT	Sd1 0.14
SEISMIC DESIGN CATEGORY	B

BASIC SEISMIC FORCE-RESISTING SYSTEM:  
BEARING WALL SYSTEM  
LIGHT FRAMED WALLS WITH WOOD STRUCTURAL PANELS

DESIGN BASE SHEAR	7.9	KIPS
SEISMIC RESPONSE COEFFICIENT	Cs	0.041
RESPONSE MODIFICATION FACTOR	R	6.5

ANALYSIS PROCEDURE:  
EQUIVALENT LATERAL FORCE

**FOUNDATIONS**

ALL FOOTINGS SHALL REST ON SOIL CAPABLE OF SAFELY SUPPORTING 2000 PSF. CONTACT STRUCTURAL ENGINEER IF UNSATISFACTORY SUBSURFACE CONDITIONS ARE ENCOUNTERED.

FOOTINGS SHALL BE CARRIED TO A LOWER ELEVATION THAN THOSE INDICATED ON THESE DRAWINGS IF NECESSARY TO REACH FIRM UNDISTURBED SOIL.

THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 1'-0" BELOW FINISHED GRADE.

SLAB ON GRADE SHALL BE FOUNDED ON STABLE NATURAL SOIL OR CONTROLLED COMPACTED FILL.

ALL FILL SHALL BE PLACED IN 8" MAXIMUM LOOSE LIFTS AND SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D-698 (STANDARD PROCTOR METHOD). THIS REQUIREMENT SHALL BE INCREASED TO 98 PERCENT OF ASTM D-698 IN THE FINAL FOOT BENEATH FLOOR SLABS AND PAVEMENTS.

THE SURFACE AREA ADJACENT TO THE FOUNDATION WALL SHALL BE PROVIDED WITH ADEQUATE DRAINAGE AND SHALL BE GRADED SO AS TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS.

WHEN TOP OR SUBSOILS ARE EXPANSIVE, COMPRESSIBLE OR SHIFTING, SUCH SOILS SHALL BE REMOVED TO A DEPTH AND WIDTH SUFFICIENT TO ASSURE STABLE MOISTURE CONTENT IN EACH ACTIVE ZONE AND SHALL NOT BE USED AS FILL.

**CONCRETE**

CONCRETE SHALL BE PROPORTIONED, MIXED AND PLACED IN ACCORDANCE WITH ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE," AND ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS." ANY ADMIXTURES MUST BE APPROVED BY THE STRUCTURAL ENGINEER.

CONCRETE SHALL BE NORMAL WEIGHT CONCRETE.

MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 4,000 PSI.

USE WATER REDUCING ADMIXTURES TO REDUCE WATER, INCREASE WORKABILITY AND DECREASE SHRINKAGE CRACKS. USE A MID-RANGE WATER REDUCING ADMIXTURE FOR SLABS AND A HIGH RANGE WATER REDUCING ADMIXTURE FOR POURED CONCRETE WALLS.

**SLAB-ON-GRADE CONSTRUCTION**

PLACE FLOOR SLAB ON A WELL COMPACTED BASE. THE SUBGRADE SHALL BE GRANULAR, NON-EXPANSIVE SOIL (THAT IS, WITHOUT CLAY), WHICH HAS BEEN COMPACTED TO AT LEAST 95% AND VERIFIED BY ON-SITE TESTING.

SUPPORT THE 6" X 6" - W2.1 X W2.1 WELDED WIRE MESH AS REQUIRED TO INSURE THAT IT WILL BE LOCATED IN THE TOP 1/3 OF SLAB DEPTH.

CONCRETE STRENGTH SHALL BE 4000 PSI AT 28 DAYS. USE A WATER REDUCING ADMIXTURE TO REDUCE WATER, INCREASE WORKABILITY AND DECREASE SHRINKAGE CRACKS.

USE 6% AIR ENTRAINMENT ON EXTERIOR SLABS. DO NOT USE AIR ENTRAINMENT ON INTERIOR SLABS (3% MAXIMUM AIR ENTRAINMENT).

THE CONTROL JOINT SPACING SHALL BE APPROXIMATELY 12' FOR A 4" THICK SLAB. PLACE CONTROL JOINTS TO AVOID REENRANT CORNERS. MAKE SAWCUTS TO FORM WEAKEN PLANE CONTROL JOINTS AS SOON AS POSSIBLE.

LIGHTLY DAMPEN THE SUBGRADE BEFORE PLACING CONCRETE TO PREVENT THE SUBGRADE FROM ABSORBING WATER FROM CONCRETE MIX. APPLY WATER AT NEARLY THE SAME RATE IT SOAKS INTO THE SUBGRADE SURFACE.

STEEL TROWEL THE CONCRETE TO A SHINY FINISH WHICH RESULTS IN A HARD, DENSE SURFACE.

DURING HOT WEATHER, USE A FOG SPRAY TO KEEP THE SURFACE DAMP BEFORE APPLYING CURING COMPOUND.

START CURING AS SOON AS THE FINISHERS ARE DONE. APPLY THE CURING COMPOUND IN TWO COATS AT RIGHT ANGLES TO EACH OTHER AND NOT MORE THAN 300 SQUARE FEET PER GALLON, ABOUT 15 MINUTES APART.

**REINFORCING STEEL**

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE LATEST "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES," ACI 315.

REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. CLEAR CONCRETE COVER OVER BARS SHALL BE 3" FOR FOOTINGS.

PROVIDE CORNER BARS AT ALL FOOTING STEPS AND CORNERS. BARS SHALL BE A MINIMUM OF 2'-6" LONG AND SHALL HAVE THE SAME SIZE AND SPACING AS HORIZONTAL REINFORCING.

LAP ALL SPLICES IN CONCRETE AS SPECIFICALLY CALLED FOR, BUT AT LEAST 48 BAR DIAMETERS (24" MINIMUM) FOR TENSION OR COMPRESSION.

**SOLID WOOD FRAMING, HEADERS AND PLYWOOD**

ALL SOLID WOOD FRAMING SHALL COMPLY WITH THE NATIONAL FOREST PRODUCTS ASSOCIATION "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION." ROOF JOISTS SHALL BE THE GRADE AND SPECIES SHOWN ON THE STRUCTURAL DRAWINGS.

PLYWOOD SHALL CONFORM TO THE AMERICAN PLYWOOD ASSOCIATION "PLYWOOD DESIGN SPECIFICATION". PLYWOOD SHALL BE CDX (NO).

ALL MEMBERS SHALL BE FRAMED, ANCHORED, TIED AND BRACED IN ACCORDANCE WITH GOOD CONSTRUCTION PRACTICE AND THE NORTH CAROLINA STATE BUILDING CODE.

LVL HEADERS THAT ARE DOUBLED OR TRIPLED MUST BE NAILED TOGETHER WITH 2 ROWS OF 16d NAILS @ 12" O.C. STAGGERED. PROVIDE CONTINUOUS LATERAL SUPPORT FOR TOP OF HEADER. STRENGTH OF LVL HEADERS MUST BE EQUAL TO THAT PROVIDED BY MICROLAM HEADERS AS MANUFACTURED BY TRUS JOIST: Fv = 285 PSI, Fb = 2600 PSI, E = 1900 KSI.

REMOVE GRADE MARKS FROM EXPOSED WOOD MEMBERS.

**LIGHT GAGE SIMPSON CONNECTIONS**

SOME PRESERVATIVE TREATED WOOD HAS A CORROSIVE EFFECT ON LIGHT GAGE CONNECTIONS. USE STAINLESS STEEL SIMPSON CONNECTORS AND NAILS AT TREATED WOOD LOCATIONS UNLESS THE TREATER SPECIFICALLY RECOMMENDS AN ALTERNATE TYPE OF PROTECTION.

**SINGLE TONGUE AND GROOVE SOLID WOOD ROOF DECK**

THICKNESS: 2" NOMINAL, 1-1/2" ACTUAL  
1" NOMINAL, 3/4" ACTUAL

SPECIES: SOUTHERN PINE

LAYOUT: CONTROLLED RANDOM AT 2" NOMINAL

SPECIFIED LENGTHS AT 1" NOMINAL FOR THREE SPAN MINIMUM LAYOUT.

INSTALL PER MANUFACTURERS RECOMMENDATIONS.

REMOVE GRADE MARKS FROM EXPOSED WOOD MEMBERS.

WOOD HEADER SCHEDULE			
MK#	WOOD SIZE AT 2 X 6 STUDS	MAX. SPAN	NOTES
H1	(3) 2 X 10	4'-0"	1 - 3
H2	(3) 2 X 10	6'-0"	1 - 3
H3	(3) 2 X 12	8'-0"	1 - 3
H4	(3) 1 3/4 X 9 1/2 LVL	10'-0"	1 - 2, 4
H5	(3) 1 3/4 X 11 1/4 LVL	12'-0"	1 - 2, 4

- NOTES
1. PROVIDE ONE STUD UNDER AND TWO FULL HEIGHT STUDS BEYOND EACH END OF H1 AND H2. PROVIDE TWO STUDS UNDER AND THREE FULL HEIGHT STUDS BEYOND EACH END OF H3, H4, AND H5.
  2. USE #2 GRADE SOUTHERN PINE FOR SOLID HEADERS.
  3. Fv = 285 PSI, Fb = 2600 PSI, E = 1900000 PSI FOR LVL HEADERS.
  4. CONTACT STRUCTURAL ENGINEER FOR WIDER OPENINGS.

**WOOD STUD WALL FRAMING NOTES**

1. EXTERIOR WALLS SHALL BE CONSTRUCTED AS LOAD BEARINGS. INTERIOR LOAD BEARING STUD WALLS ARE SHOWN ON THE DRAWINGS. STUD SIZES ARE SHOWN IN THE SCHEDULE BELOW. STUDS SHALL BE SPACED AT 16" O.C. WITH EXTRA STUDS AT SIDES OF OPENINGS AND AT CORNERS (SEE NOTES BELOW).

STUD WALL SCHEDULE					
MK#	NOMINAL SIZE	SPAC.	TYPE	MAX HGT UNBRACED	NOTES
SW1	2 X 6	16"	STUD GRADE S-P-F	N/A	1
SW2	2 X 6	16"	#2 GRADE S-P-F	14'	2
SW3	2 X 6	16"	TIMBERSTRAND LSL	22'	3,4

- NOTES
1. USE AT INTERIOR LOAD BEARING STUD WALLS.
  2. USE AT EXTERIOR LOAD BEARING STUD WALLS WITH 14" MAX UNBRACED HEIGHT.
  3. USE AT EXTERIOR WALLS WITH UNBRACED HEIGHT GREATER THAN 14'.
  4. USE 1.5E TIMBERSTRAND LSL STUDS BY TRUS JOIST.

2. NON-LOAD BEARING STUDS SHALL BE CONSTRUCTED WITH STUD GRADE S-P-F 2 X 4'S OR 2 X 6'S (AS SHOWN ON ARCHITECTURAL PLANS) AT 16" O.C.

3. USE THREE STUDS (MINIMUM) IN EACH CORNER. PROVIDE PRESERVATIVE TREATED SILL PLATES AT ALL FIRST FLOOR WALLS.

4. WOOD SILLS SHALL BE ATTACHED TO FOUNDATION WALLS WITH 5/8" DIAMETER ANCHOR BOLTS SPACED NOT MORE THAN 4' APART AND EMBEDDED AT LEAST 6" INTO CONCRETE. ALTERNATE ATTACHMENT SYSTEMS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

5. ALL EXTERIOR WALLS AND INTERIOR SHEAR WALLS SHALL BE SHEATHED WITH 7/16" PLYWOOD OR OSB STRUCTURAL SHEATHING TO RESIST LATERAL LOADS ON THE BUILDING. SHEATHING SHALL BE NAILED TO STUDS WITH 8d NAILS AT 4" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS. ALL EDGES OF PLYWOOD WALL SHEATHING SHALL BE BLOCKED SOLID.

6. HOLD DOWN ANCHORS DENOTED AS "HD" ON FOUNDATION DRAWINGS SHALL BE SIMPSON "PHD5-SD3" PREDEFLECTED COVER OVER BARS SHALL BE 3" FOR FOOTINGS. PROVIDE CORNER BARS AT ALL FOOTING STEPS AND CORNERS. BARS SHALL BE A MINIMUM OF 2'-6" LONG AND SHALL HAVE THE SAME SIZE AND SPACING AS HORIZONTAL REINFORCING.

7. THE MAXIMUM SIZE HOLE THAT MAY BE DRILLED INTO A STUD IS 2 3/16" DIAMETER LOCATED AT LEAST 5/8" FROM THE EDGE OF THE STUD. THIS SIZE HOLE MAY BE CUT ANYWHERE ALONG THE LENGTH OF THE STUD.

8. THE MAXIMUM SIZE NOTCH THAT MAY BE CUT INTO A STUD IS 1 3/8" X 3 1/2". THE NOTCH CAN BE CUT ANYWHERE EXCEPT IN MIDDLE 1/3 OF THE LENGTH OF THE STUD. STUDS MUST BE DOUBLED WHEN NOTCHED IN MIDDLE 1/3 OF LENGTH.

9. NOTCHES AND HOLES SHALL NOT OCCUR IN THE SAME CROSS SECTION.

10. USE TRIPLE STUDS UNDER LVL OR GLULAM HEADERS AND BEAMS.

11. BUILT-UP STUD COLUMNS MUST BE SECURELY NAILED TOGETHER TO ACT AS A COMPOSITE MEMBER. USE (2) 12d NAILS FOR EACH STUD AT 12"

HANGER SCHEDULE		
SIZE	SST HANGER	ALLOW. LOAD
2 X 6	LUS26	100#
(2) 2 X 6	LUS26-2	820#
(3) 2 X 6	LUS26-3	820#
2 X 8	LUS28	1050#
(2) 2 X 8	LUS28-2	1050#
(3) 2 X 8	LUS28-3	1085#
2 X 10	LUS210	1085#
(2) 2 X 10	LUS210-2	1465#
(3) 2 X 10	LUS210-3	1465#
2 X 12	LUS212	1085#
(2) 2 X 12	LUS212-2	1465#
(3) 2 X 12	LUS212-3	1465#
1 3/4 X 9 1/4 LVL	HJH	2090#
3 1/2 X 9 1/4 LVL	HJUS410	4385#
5 1/4 X 9 1/4 LVL	HJUS510	2090#
1 3/4 X 11 1/4 LVL	HJH	2550#
3 1/2 X 11 1/4 LVL	HJUS410	4385#
5 1/4 X 11 1/4 LVL	HJUS510	4385#

**NOTES**

1. SST DENOTES SIMPSON STRONG TIE. USE HANGER PER SCHEDULE ABOVE (OR EQUIVALENT METAL HANGER) UNLESS HANGER IS NOTED ON PLANS. ALL FLUSH WOOD/WOOD CONNECTIONS SHALL BE MADE WITH HANGERS.
2. INSTALL HANGERS PER MANUFACTURER'S SPECIFICATIONS.
3. USE STAINLESS STEEL HANGERS IF EXPOSED TO THE ELEMENTS OR IN CONTACT WITH TREATED WOOD. (GALVANIZED HANGERS MAY BE USED IN LIEU OF STAINLESS STEEL IF SPECIFICALLY RECOMMENDED BY THE TREATING COMPANY.)

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SEALS



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Charles Lysaght 12/29/2014

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PROJECT

**I-77**  
**REST AREA**

Iredell County, NC

REVISIONS

NO. DATE OF REVISION

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FOOTING SCHEDULE			
MK#	SIZE	REINFORCING	NOTES
WI	24" WIDE X 12" THICK	(3) #4 CONT BOTTOM BARS	1,2
TDS2	8" WIDE X 16" THICK	(3) #4 CONT BOTTOM BARS	1,3
TSI	18" WIDE X 12" THICK	(3) #4 CONT BOTTOM BARS	1,4
TSFI	24" X 24" X 12" THICK	(3) #4'S EACH WAY	1,5

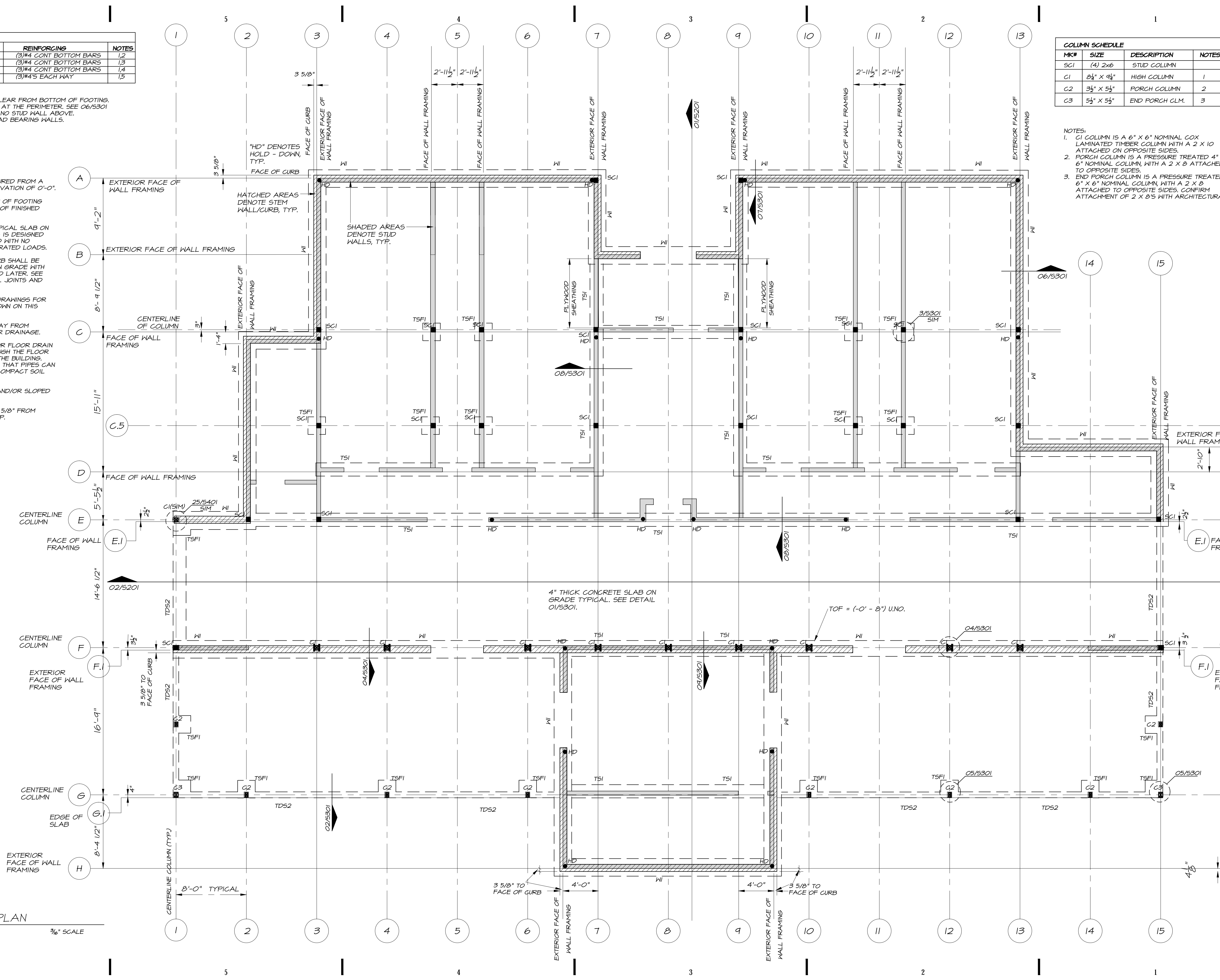
- NOTES:  
 1 REBARS ARE LOCATED 3" CLEAR FROM BOTTOM OF FOOTINGS.  
 2 USE UNDER CURB/STEM WALL. AT THE PERIMETER. SEE 06/5301  
 3 USE AT THE PERIMETER WITH NO STUD WALL ABOVE.  
 4 USE UNDER THE INTERIOR LOAD BEARING WALLS.  
 5 USE UNDER PORCH COLUMNS.

**FOUNDATION PLAN NOTES**

- 1 ALL ELEVATIONS ARE MEASURED FROM A REFERENCE FINISHED FLOOR ELEVATION OF 0'-0".  
 2 TOF (-0'-8") DENOTES A TOP OF FOOTING ELEVATION OF 0'-8" BELOW TOP OF FINISHED FLOOR.  
 3 SEE DETAIL 01/5301 FOR TYPICAL SLAB ON GRADE CONSTRUCTION. THE SLAB IS DESIGNED FOR 100 PSF UNIFORM LIVE LOAD WITH NO PROVISION FOR HEAVY CONCENTRATED LOADS.  
 4 THE STRIP FOOTINGS AND CURB SHALL BE POURED FIRST, THEN THE SLAB ON GRADE WITH THE TURN DOWN SHALL BE POURED LATER. SEE S104 FOR LOCATION OF CONTROL JOINTS AND EXTENT OF CURB.  
 5 REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS NOT SHOWN ON THIS PLAN.  
 6 SLOPE EXTERIOR SLABS AWAY FROM BUILDING FOUNDATION WALLS FOR DRAINAGE.  
 7 SEE PLUMBING DRAWINGS FOR FLOOR DRAIN AND PIPING PENETRATIONS THROUGH THE FLOOR SLAB AND FOR PIPES ENTERING THE BUILDING. STEP FOOTINGS AS REQUIRED SO THAT PIPES CAN GO UNDER OR OVER FOOTINGS. COMPACT SOIL AROUND PIPES.  
 8 SEE S104 FOR DEPRESSED AND/OR SLOPED SLAB AREAS.  
 9 OUTSIDE FACE OF CURB IS 3 5/8" FROM OUTSIDE FACE OF STUD WALL. TYP.

COLUMN SCHEDULE			
MK#	SIZE	DESCRIPTION	NOTES
SCI	(4) 2x6	STUD COLUMN	
C1	8 1/2" X 9 1/2"	HIGH COLUMN	1
C2	3 1/2" X 5 1/2"	PORCH COLUMN	2
C3	5 1/2" X 5 1/2"	END PORCH CLM.	3

- NOTES:  
 1. C1 COLUMN IS A 6" X 6" NOMINAL COX LAMINATED TIMBER COLUMN WITH A 2 X 10 ATTACHED ON OPPOSITE SIDES.  
 2. PORCH COLUMN IS A PRESSURE TREATED 4" X 6" NOMINAL COLUMN, WITH A 2 X 8 ATTACHED TO OPPOSITE SIDES.  
 3. END PORCH COLUMN IS A PRESSURE TREATED 6" X 6" NOMINAL COLUMN, WITH A 2 X 8 ATTACHED TO OPPOSITE SIDES. CONFIRM ATTACHMENT OF 2 X 8'S WITH ARCHITECTURAL.



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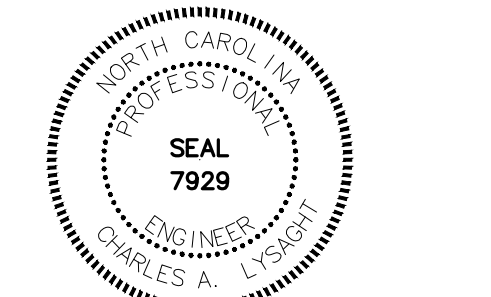
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**FOUNDATION PLAN**

SHEET NO.

FOUNDATION PLAN  
 3/8" SCALE





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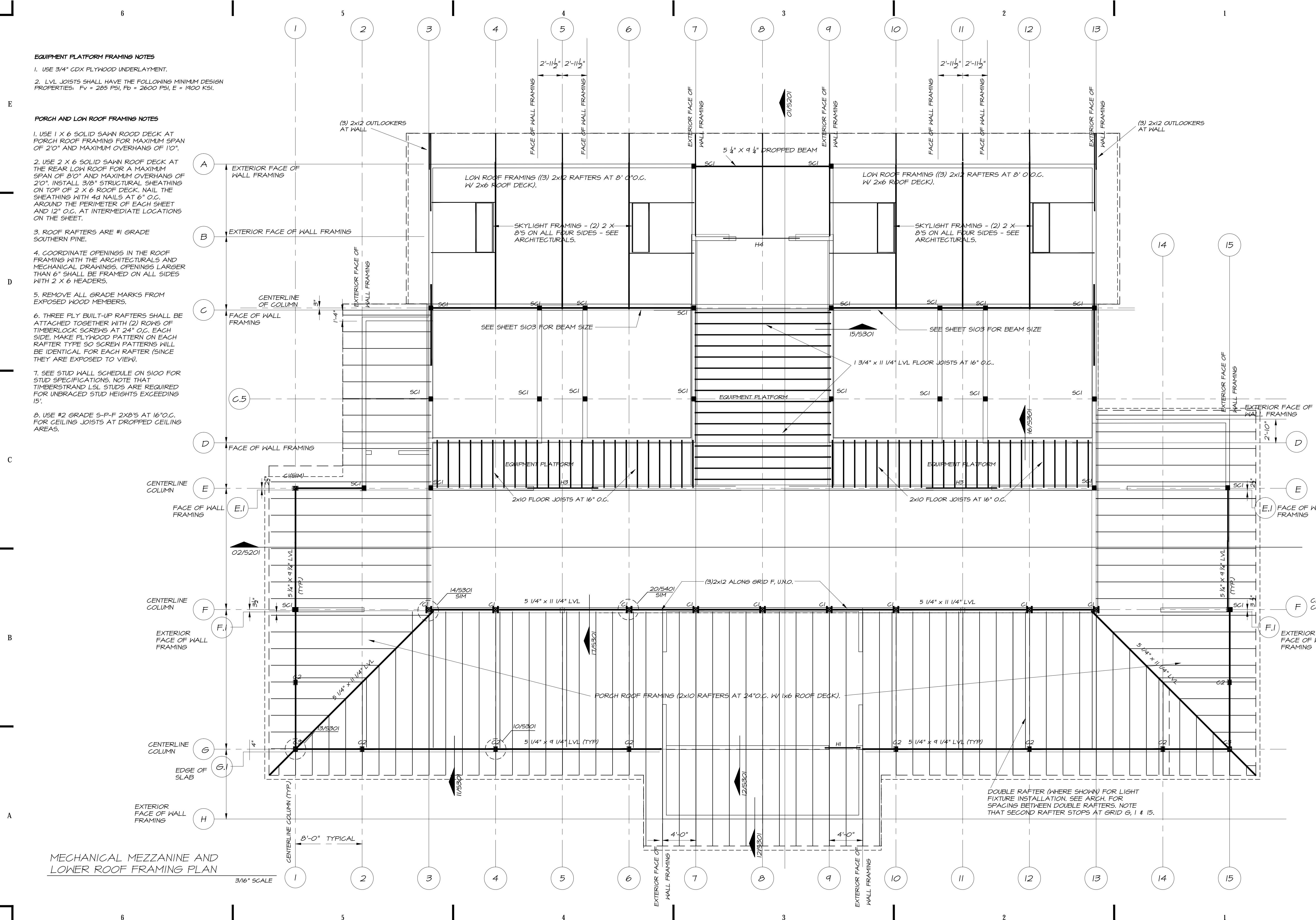
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SHEET DATA

**MECHANICAL MEZZANINE AND LOWER ROOF FRAMING PLAN**

SHEET NO.

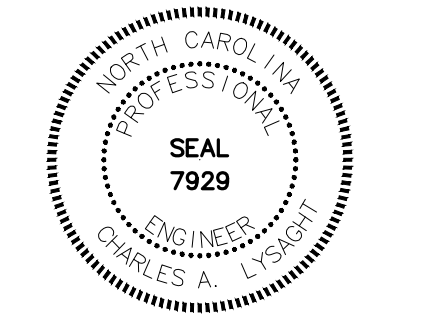
**S102**



MECHANICAL MEZZANINE AND LOWER ROOF FRAMING PLAN

3/16" SCALE





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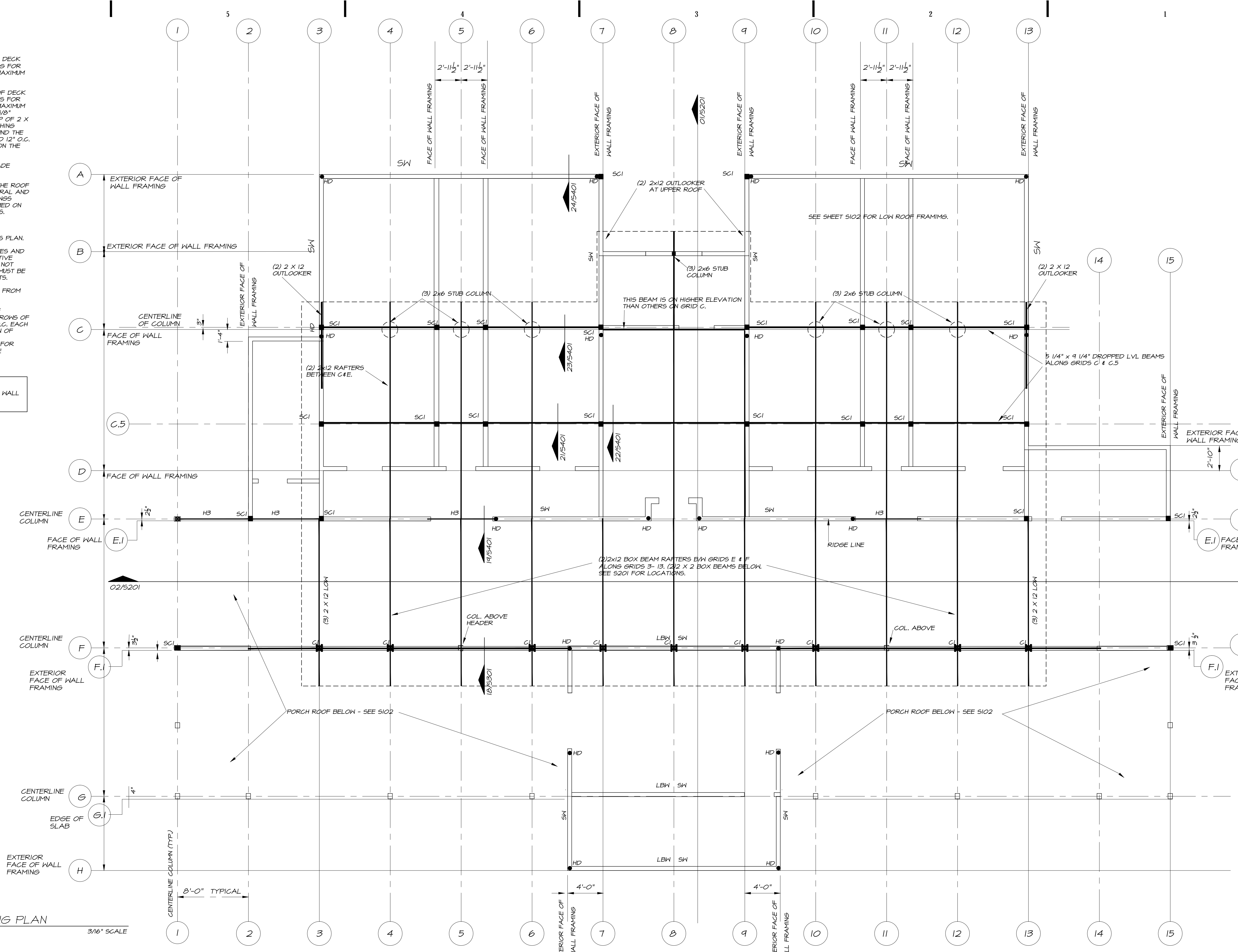
**UPPER ROOF FRAMING PLAN**

SHEET NO.

**ROOF FRAMING NOTES**

1. USE 1 X 6 SOLID SAWN ROOF DECK AT LOW ROOF (PORCH) FRAMING FOR MAXIMUM SPAN OF 2'-0" AND MAXIMUM OVERHANG OF 1'-0".
2. USE 2 X 6 SOLID SAWN ROOF DECK AT HIGH ROOF AND BATHROOMS FOR MAXIMUM SPAN OF 8'-0" AND MAXIMUM OVERHANG OF 2'-0". INSTALL 3/8" STRUCTURAL SHEATHING ON TOP OF 2 X 6 ROOF DECK. NAIL THE SHEATHING WITH 4d NAILS AT 6" O.C. AROUND THE PERIMETER OF EACH SHEET AND 12" O.C. AT INTERMEDIATE LOCATIONS ON THE SHEET.
3. ROOF RAFTERS ARE #1 GRADE SOUTHERN PINE.
4. COORDINATE OPENINGS IN THE ROOF FRAMING WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS. OPENINGS LARGER AN 6" SHALL BE FRAMED ON ALL SIDES WITH 2 X 6 HEADERS.
5. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS NOT SHOWN ON THIS PLAN.
6. PORCH COLUMNS, SILL PLATES AND FASCIAS SHALL BE PRESERVATIVE TREATED. ALL OTHER WOOD IS NOT PRESERVATIVE TREATED AND MUST BE PROTECTED FROM THE ELEMENTS.
7. REMOVE ALL GRADE MARKS FROM EXPOSED WOOD MEMBERS.
8. BUILT UP RAFTERS SHALL BE ATTACHED TOGETHER WITH (2) ROWS OF TIMBERLOCK SCREENS AT 24" O.C. EACH SIDE. MAKE PLYWOOD PATTERN OF EACH RAFTER TYPE SO SCREEN PATTERNS WILL BE IDENTICAL FOR EACH RAFTER (SINCE THEY ARE EXPOSED TO VIEW).

**SHEAR WALL REQUIREMENTS**  
SW = PLYWOOD OR OSB SHEAR WALL  
HD = HOLD DOWN

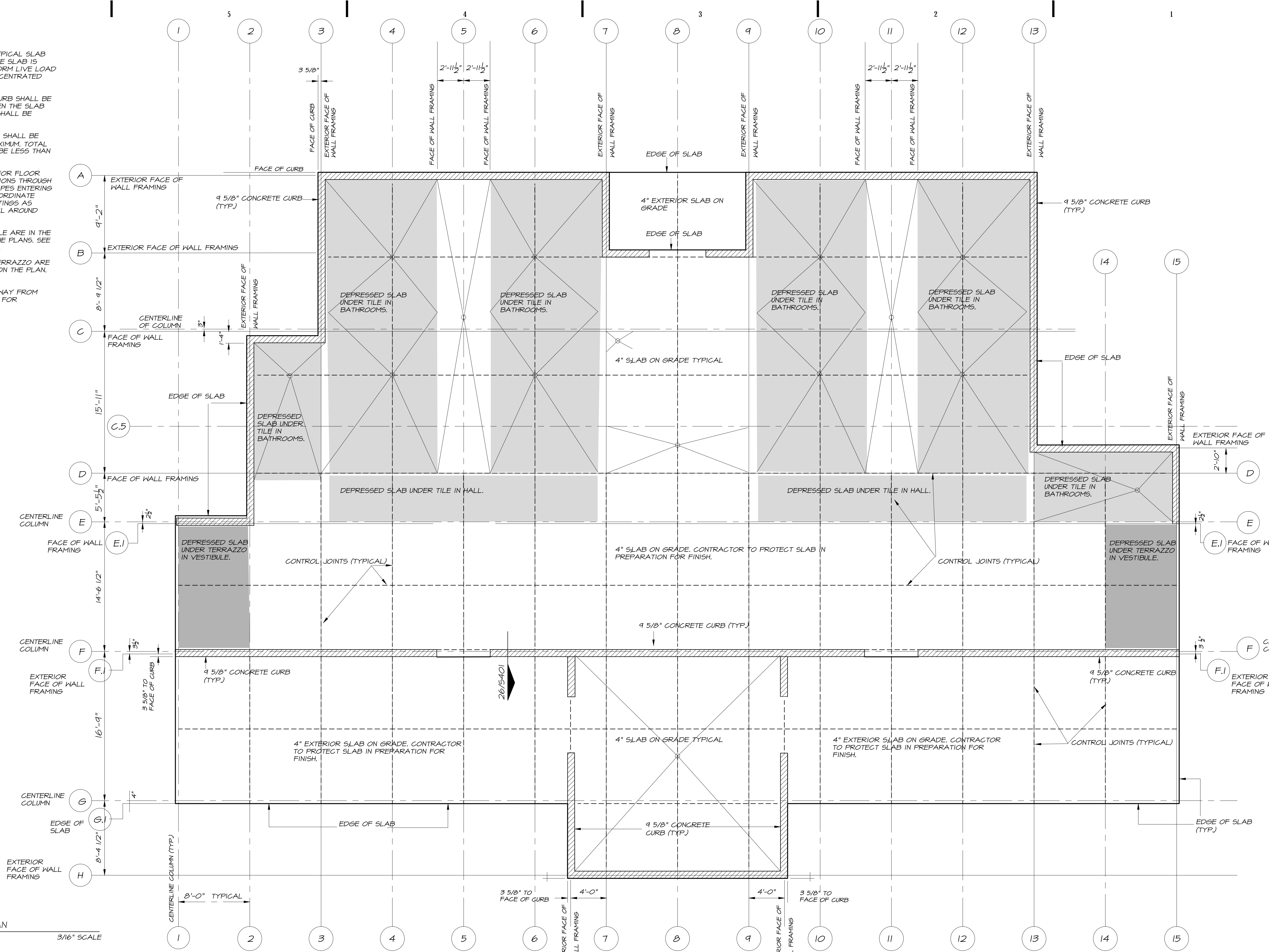


**UPPER ROOF FRAMING PLAN**  
3/16" SCALE



SLAB PLAN NOTES

- 1. SEE DETAIL 01/5301 FOR TYPICAL SLAB ON GRADE CONSTRUCTION. THE SLAB IS DESIGNED FOR 100 PSF UNIFORM LIVE LOAD WITH NO PROVISION FOR CONCENTRATED LOADS.
- 2. THE STRIP FOOTING AND CURB SHALL BE POURED TOGETHER FIRST, THEN THE SLAB ON GRADE WITH TURN DOWN SHALL BE POURED LATER.
- 3. SLOPED SLABS AS SHOWN SHALL BE SLOPED AT 1/4" PER FOOT MAXIMUM. TOTAL SLAB THICKNESS SHALL NOT BE LESS THAN 4".
- 4. SEE PLUMBING DRAWINGS FOR FLOOR DRAIN AND PIPING PENETRATIONS THROUGH THE FLOOR SLAB AND FOR PIPES ENTERING THE BUILDING. G.C. SHALL COORDINATE UNDER THICKENED SLAB FOOTINGS AS REQUIRED, AND COMPACT SOIL AROUND PIPES.
- 5. DEPRESSED SLABS FOR TILE ARE IN THE BATHROOMS AS SHOWN ON THE PLANS. SEE ARCHITECTURALS FOR DEPTH.
- 6. DEPRESSED SLABS FOR TERRAZZO ARE IN THE VESTIBULE AS SHOWN ON THE PLAN. SEE ARCHITECTURALS.
- 7. SLOPE EXTERIOR SLABS AWAY FROM BUILDING FOUNDATION WALLS FOR DRAINAGE.



SLAB PLAN  
3/16" SCALE

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SLAB PLAN

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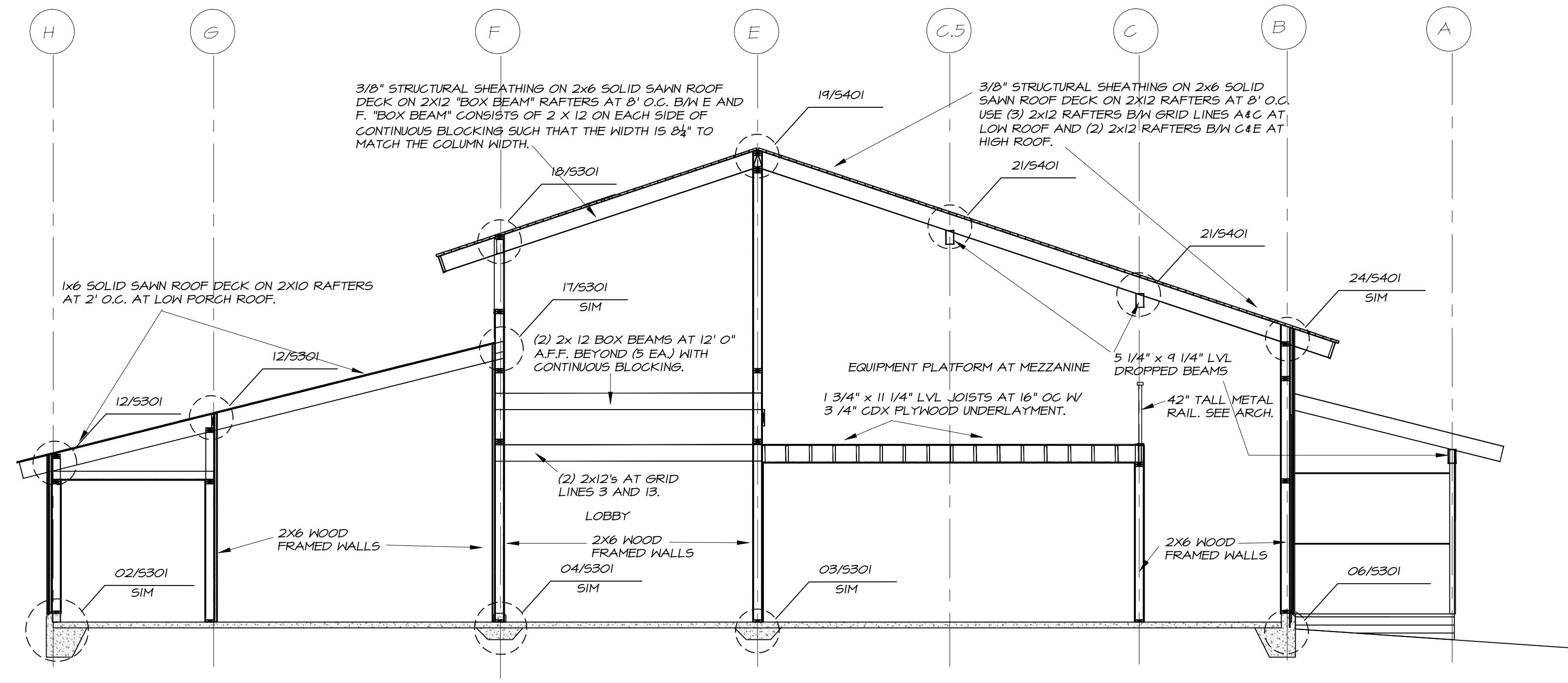
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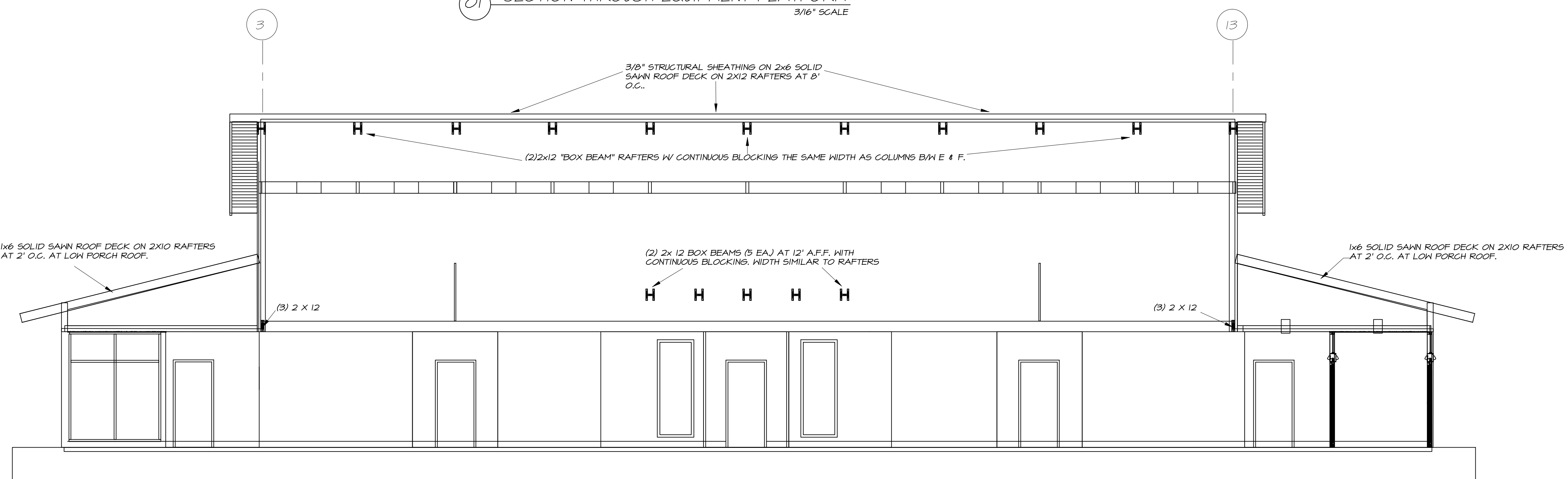
**BUILDING SECTIONS**

SHEET NO.

**S201**



**01 SECTION THROUGH EQUIPMENT PLATFORM**  
3/16" SCALE



**02 SECTION THROUGH LOBBY**  
3/16" SCALE

6

5

4

3

2

1

6

5

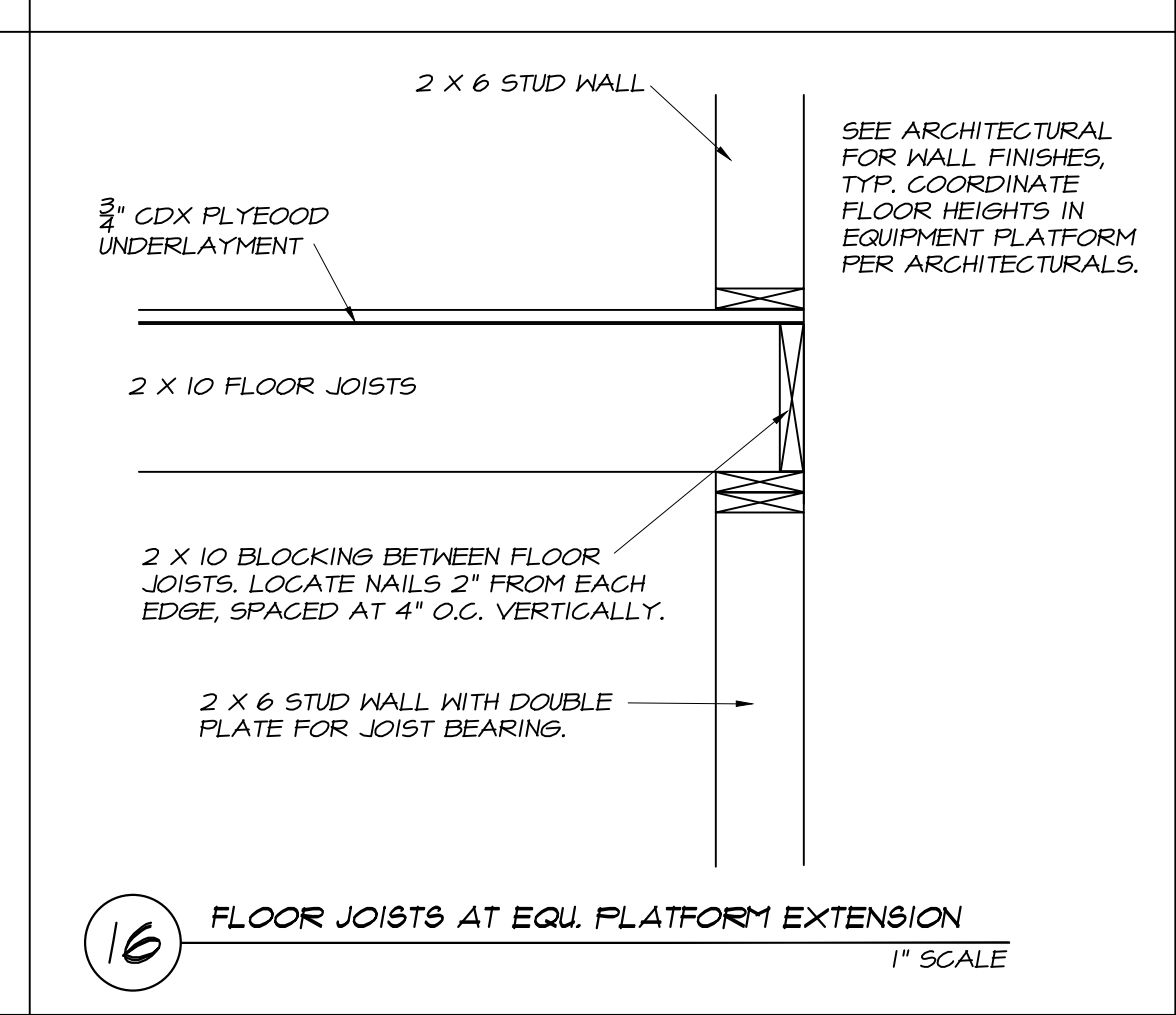
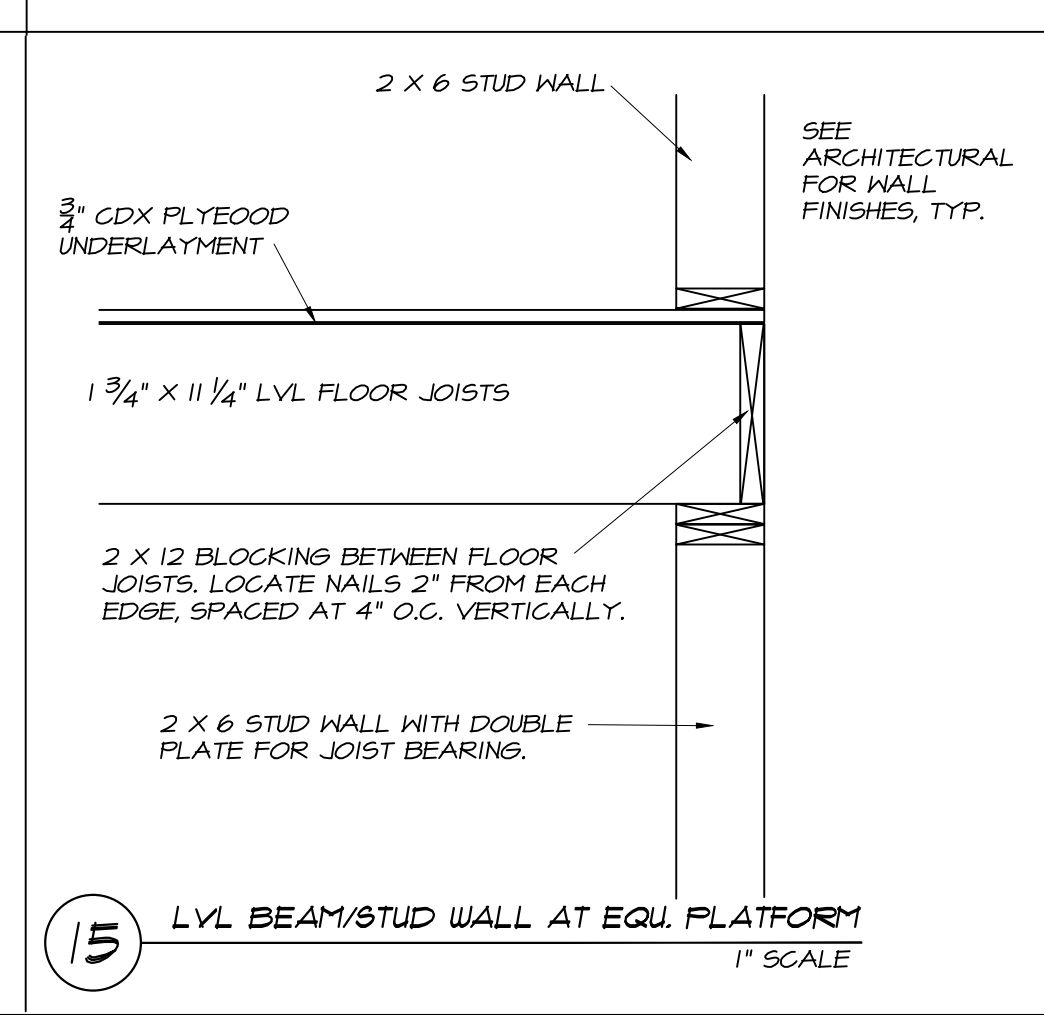
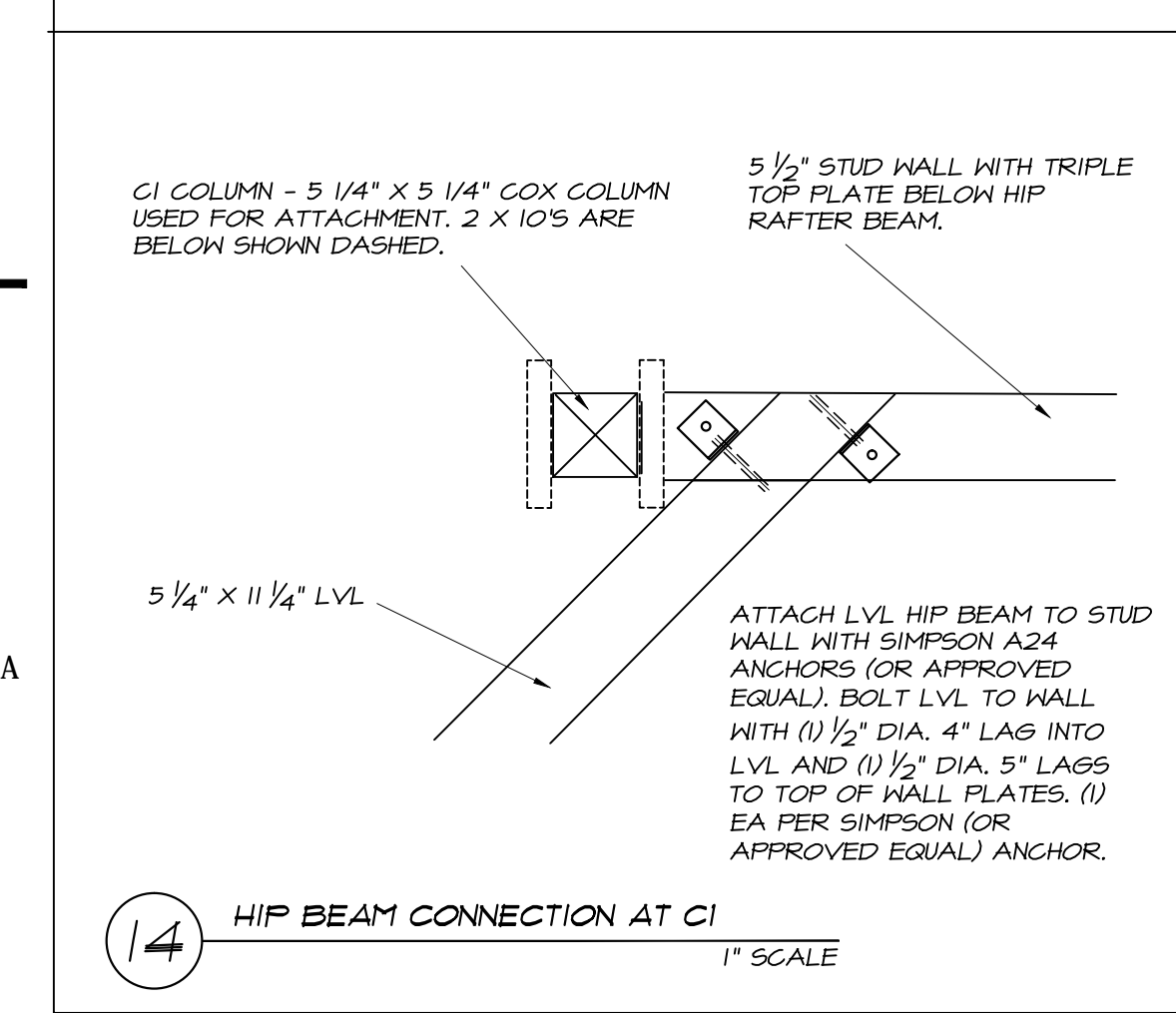
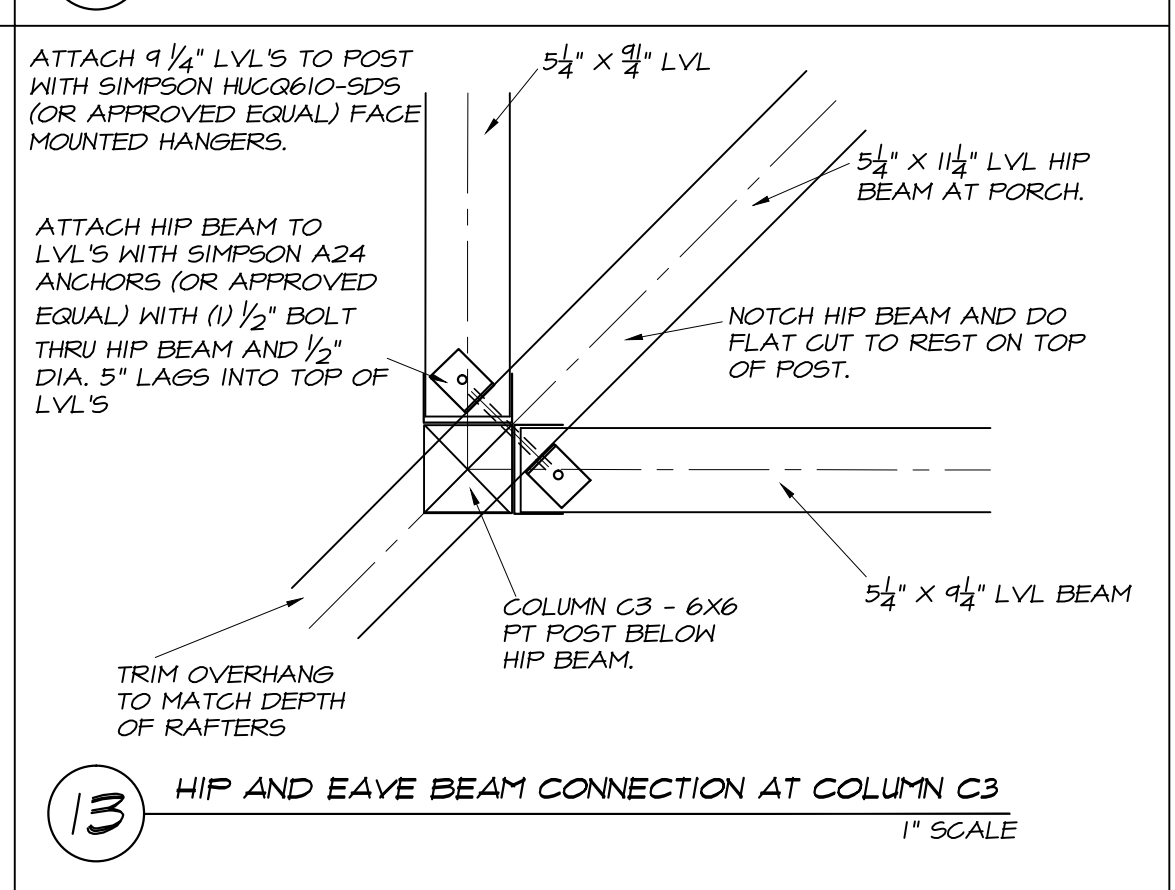
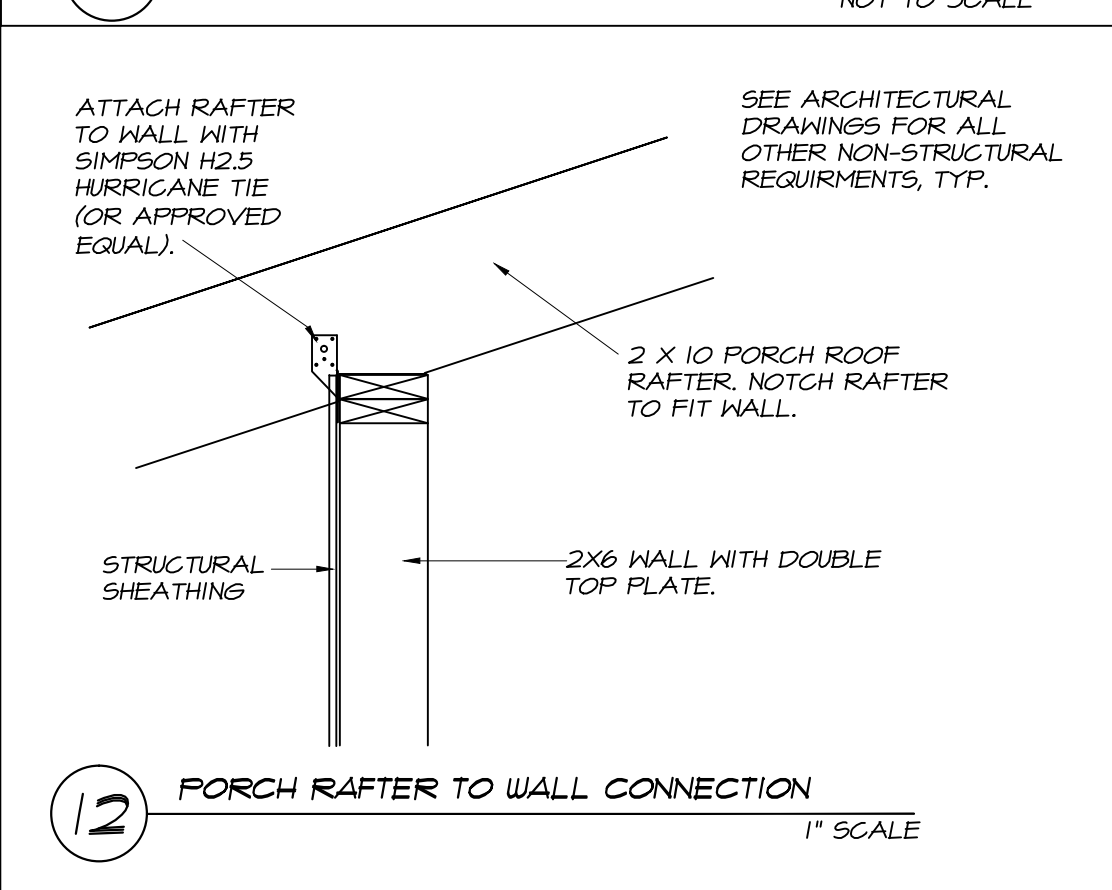
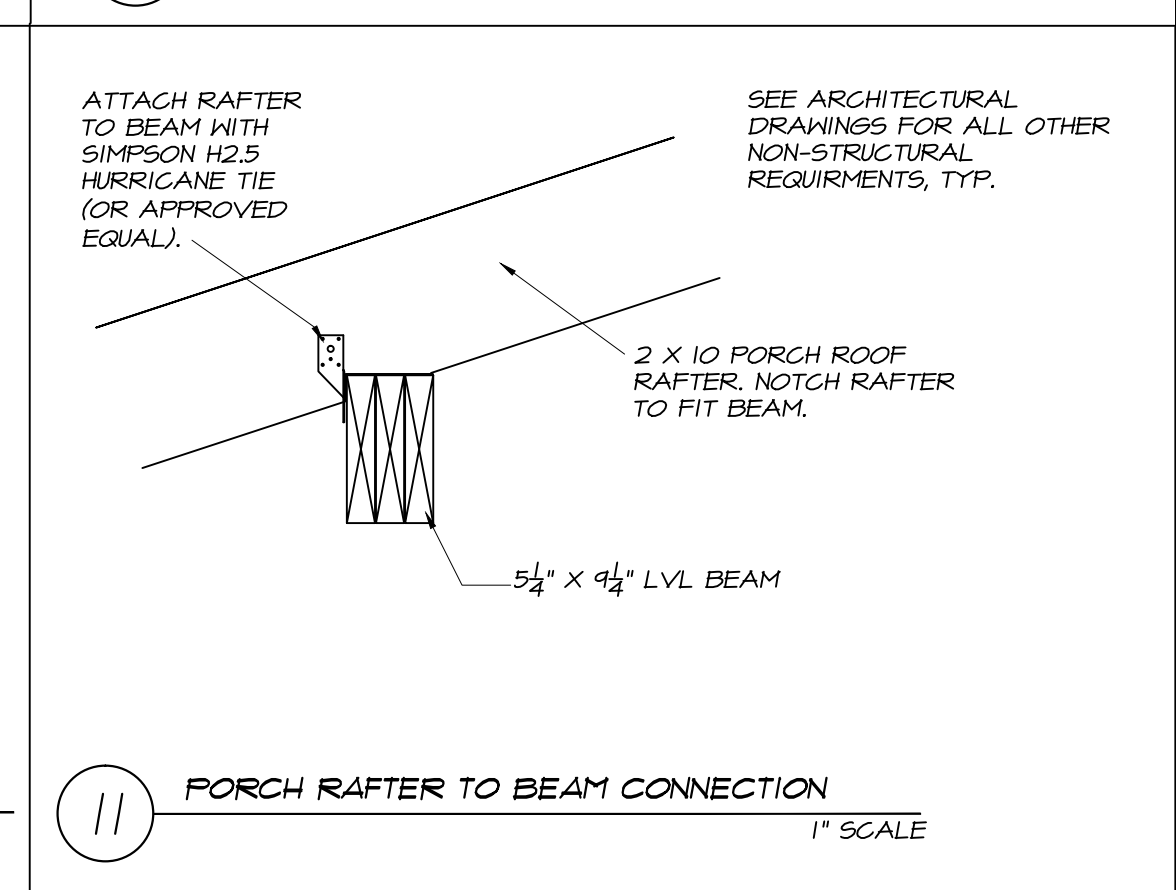
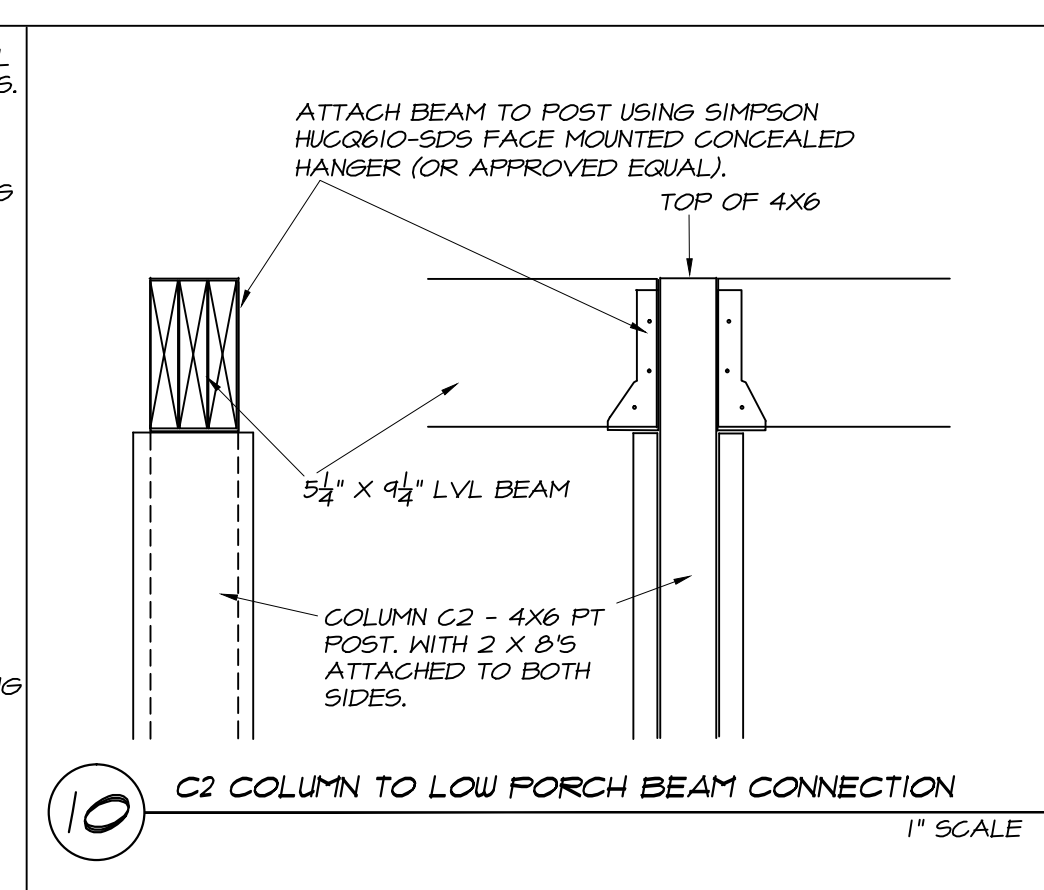
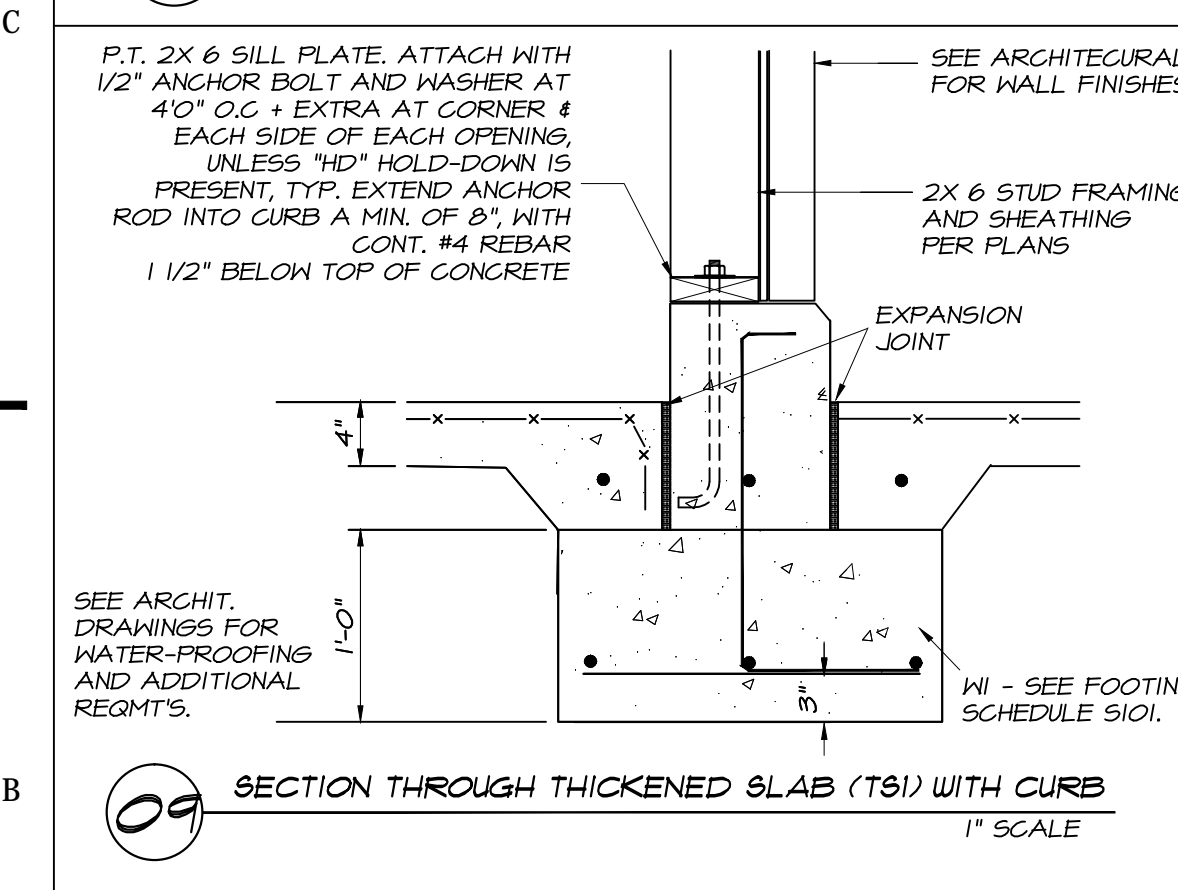
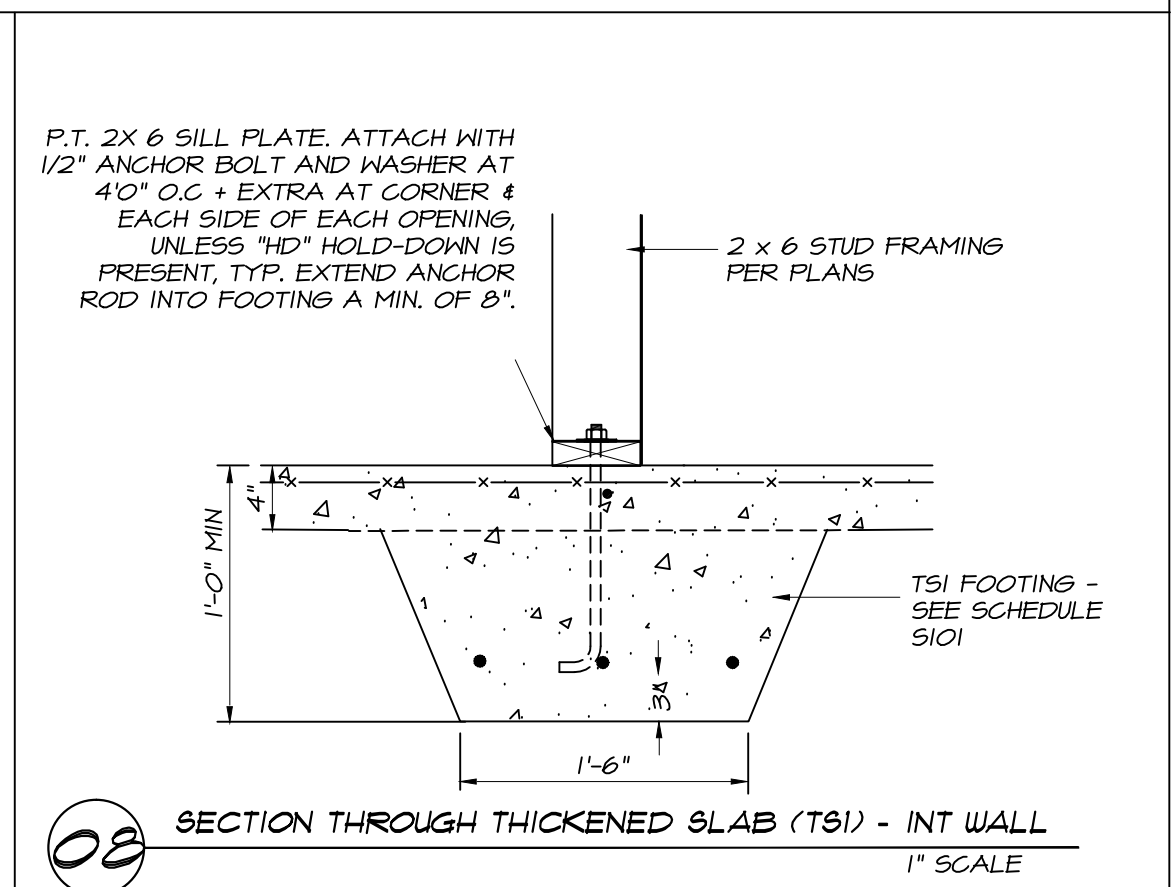
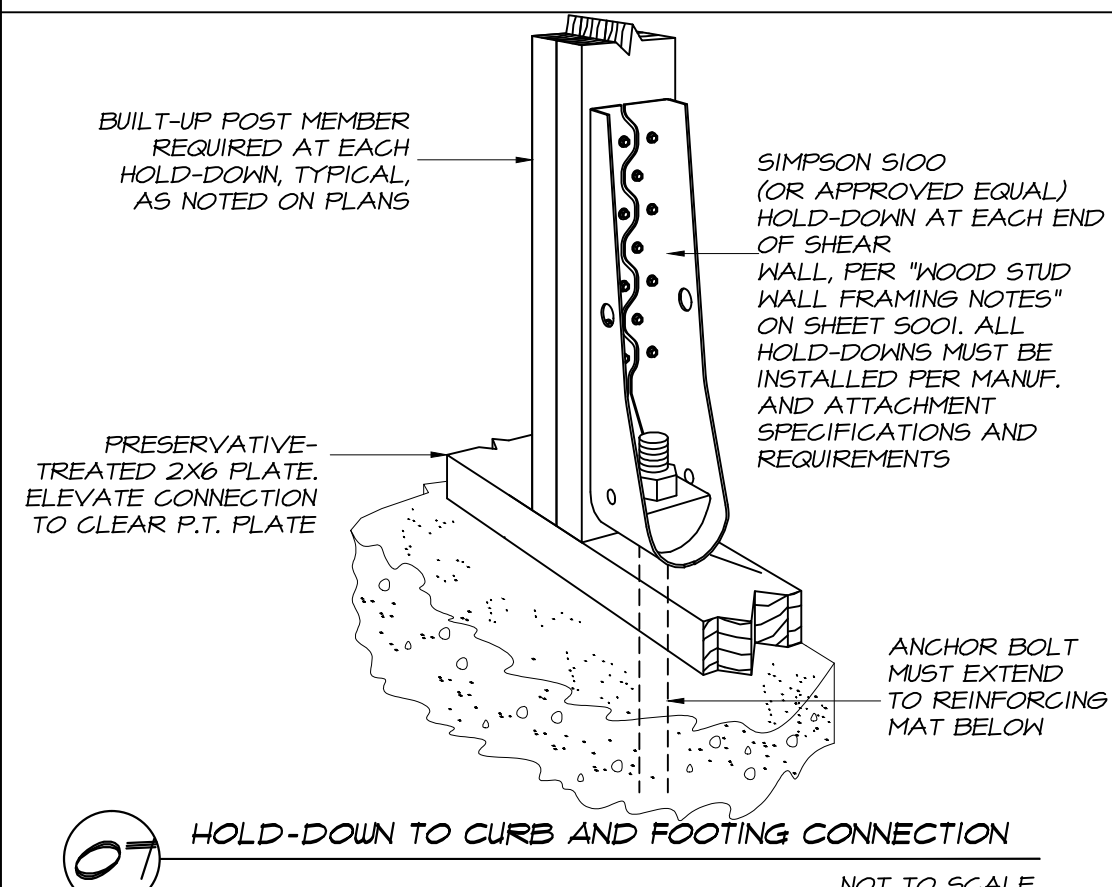
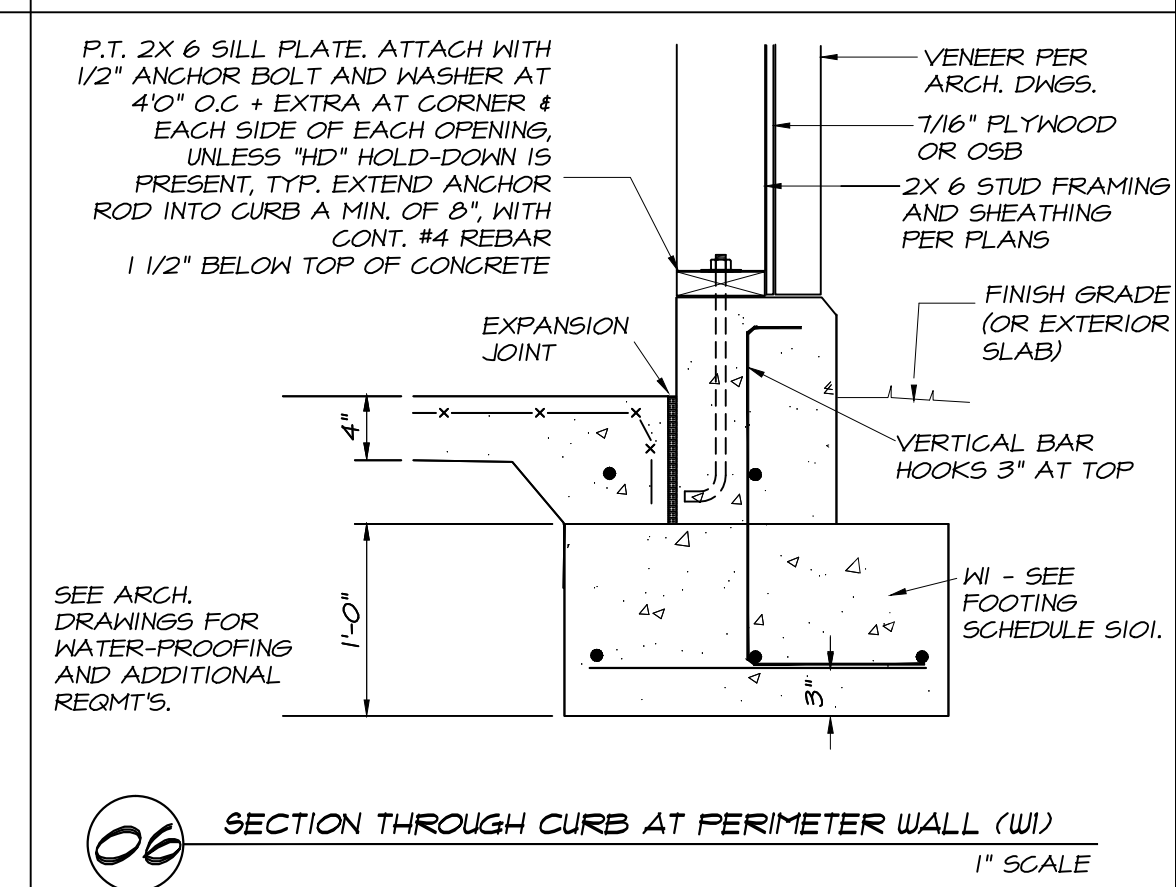
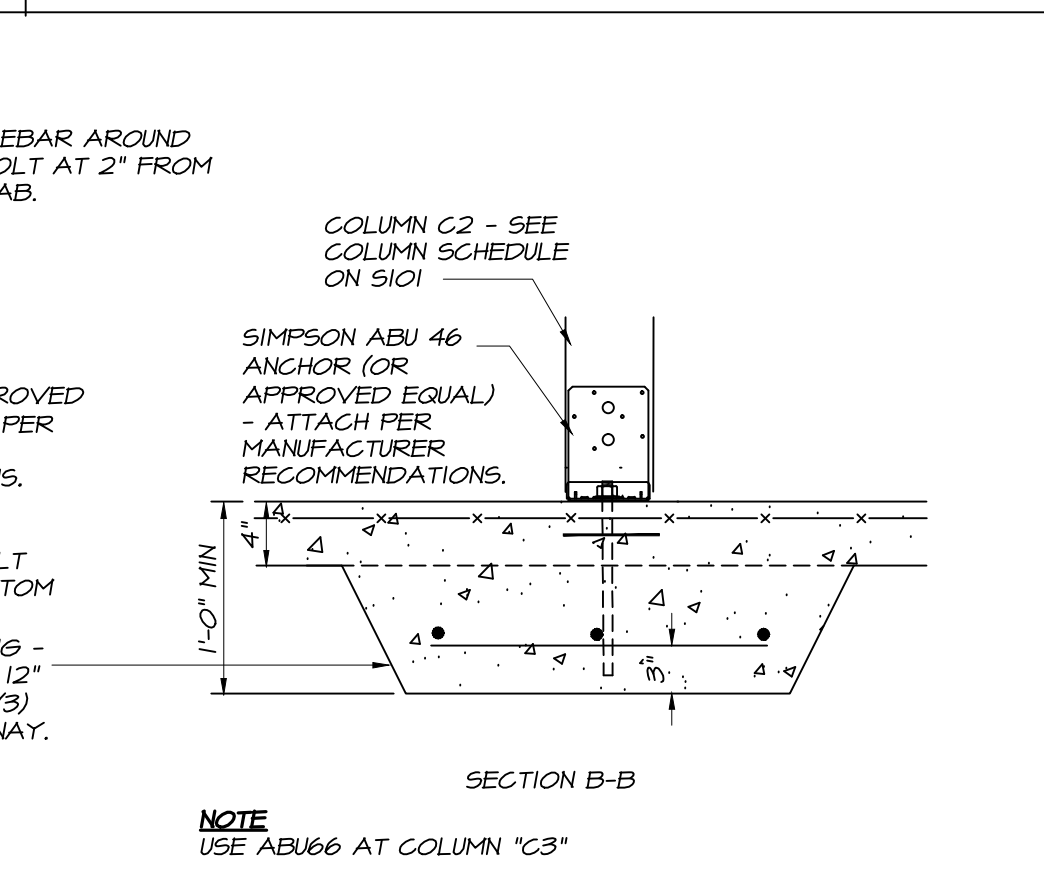
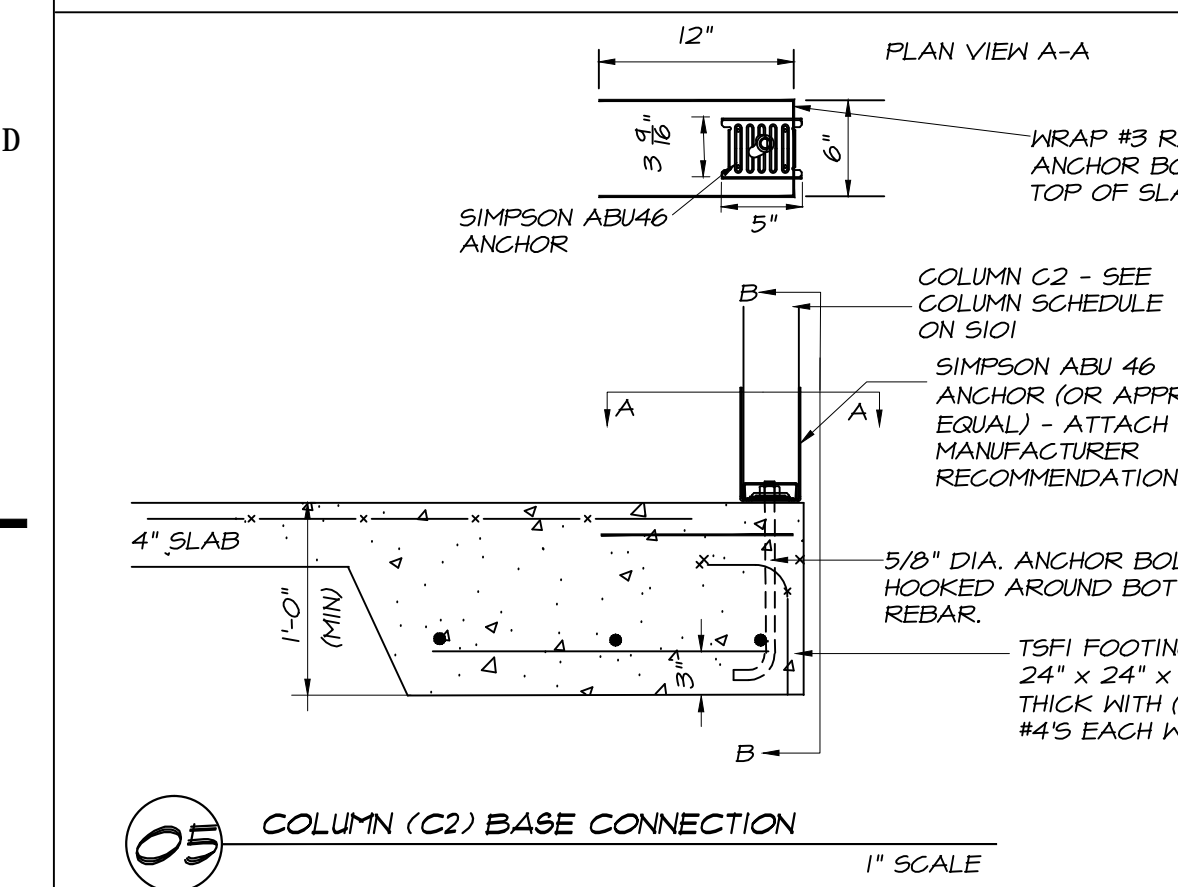
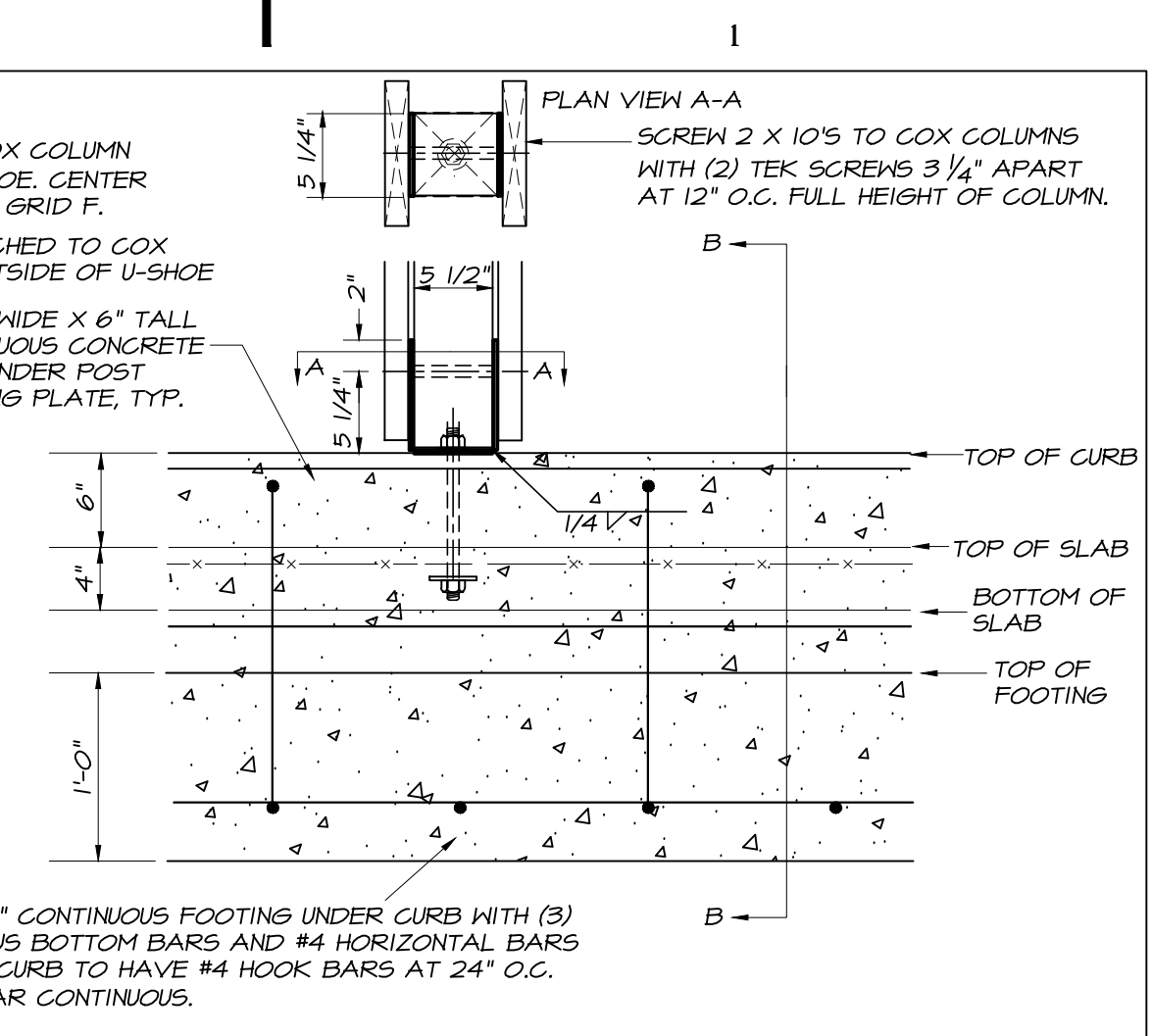
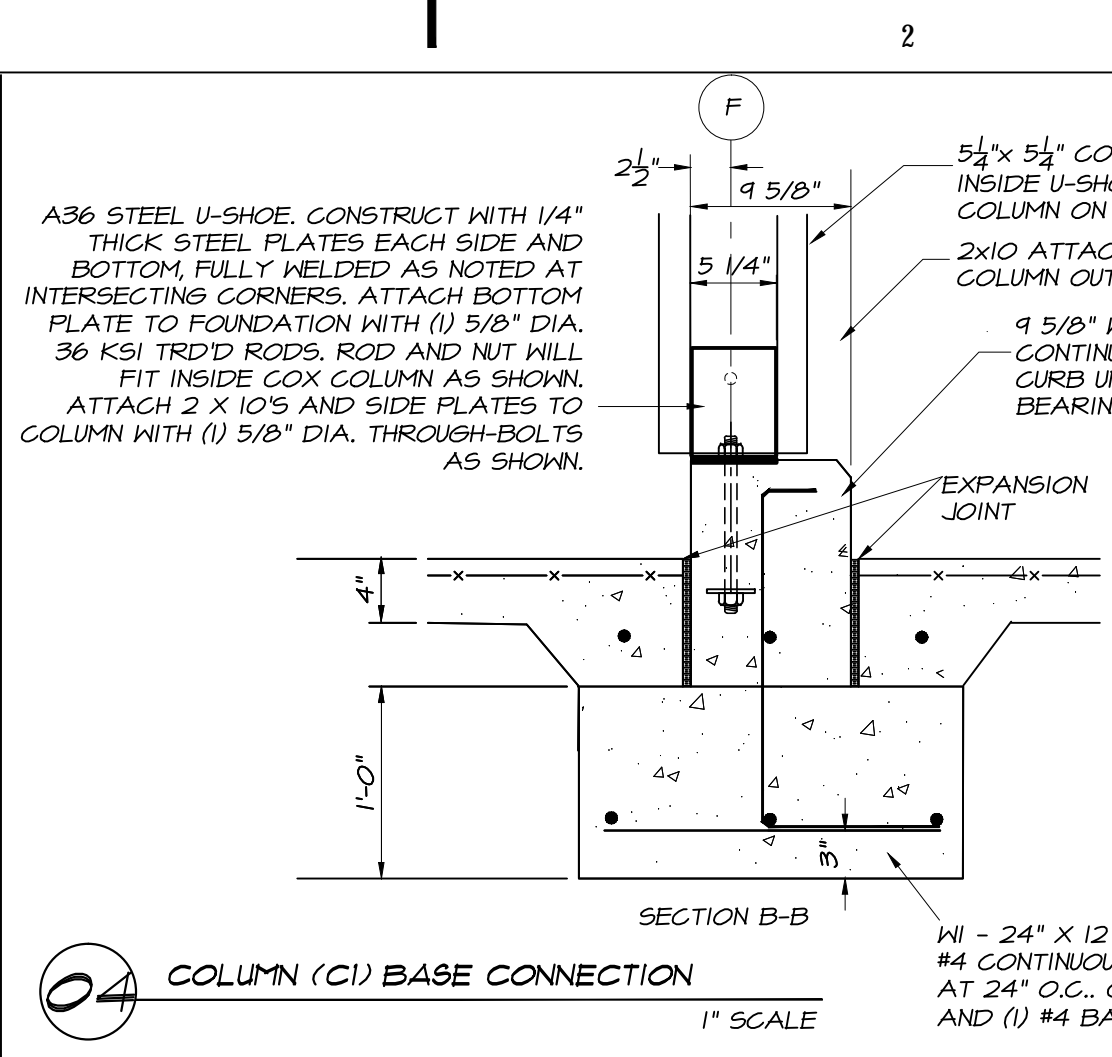
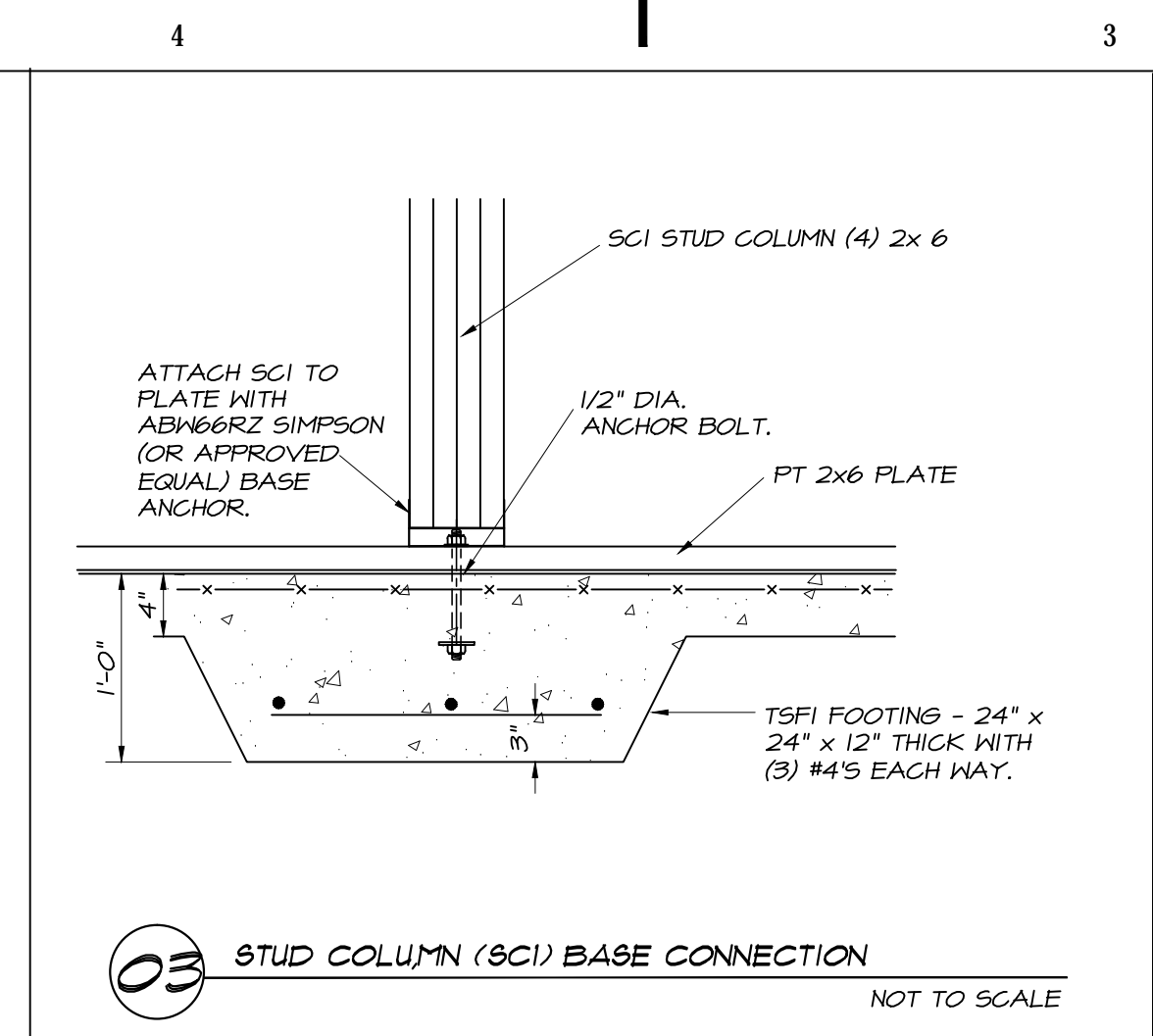
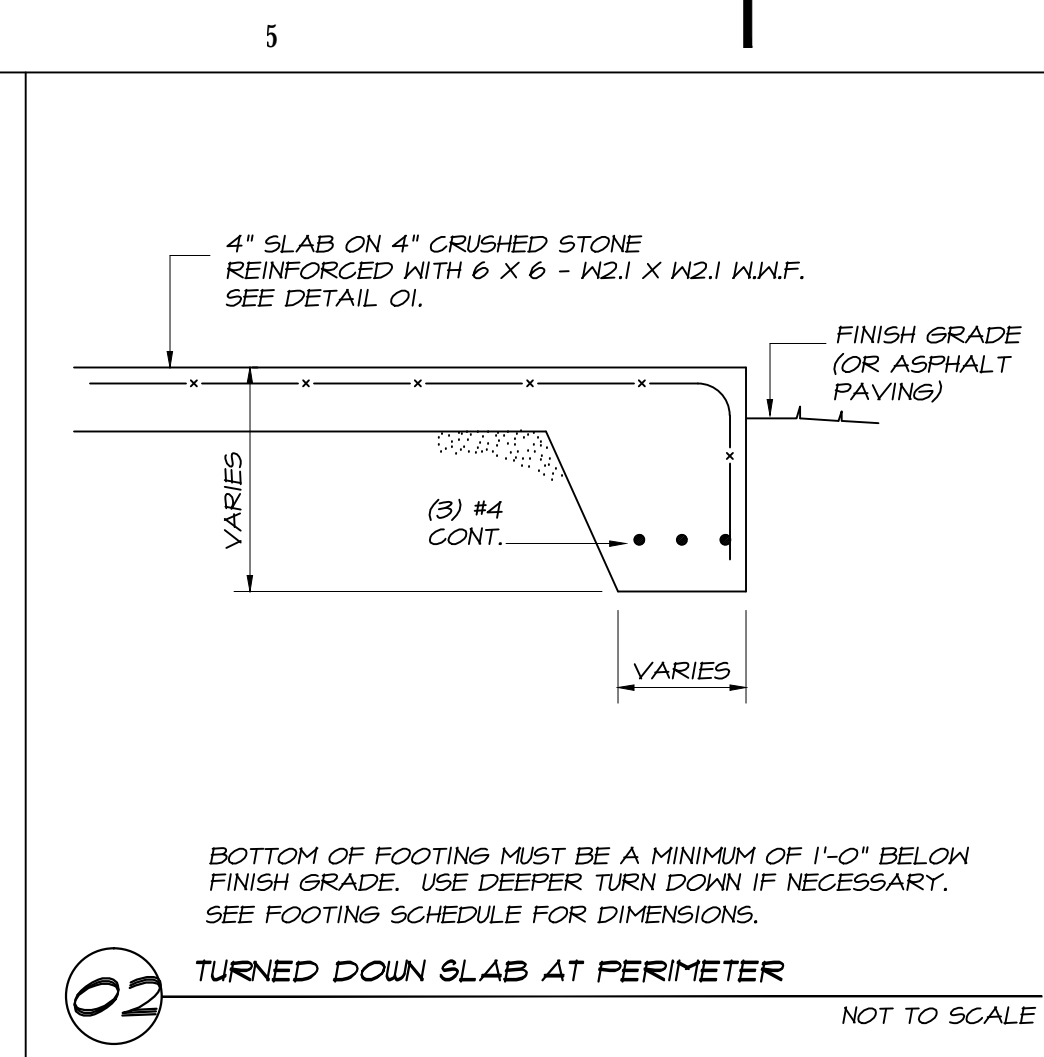
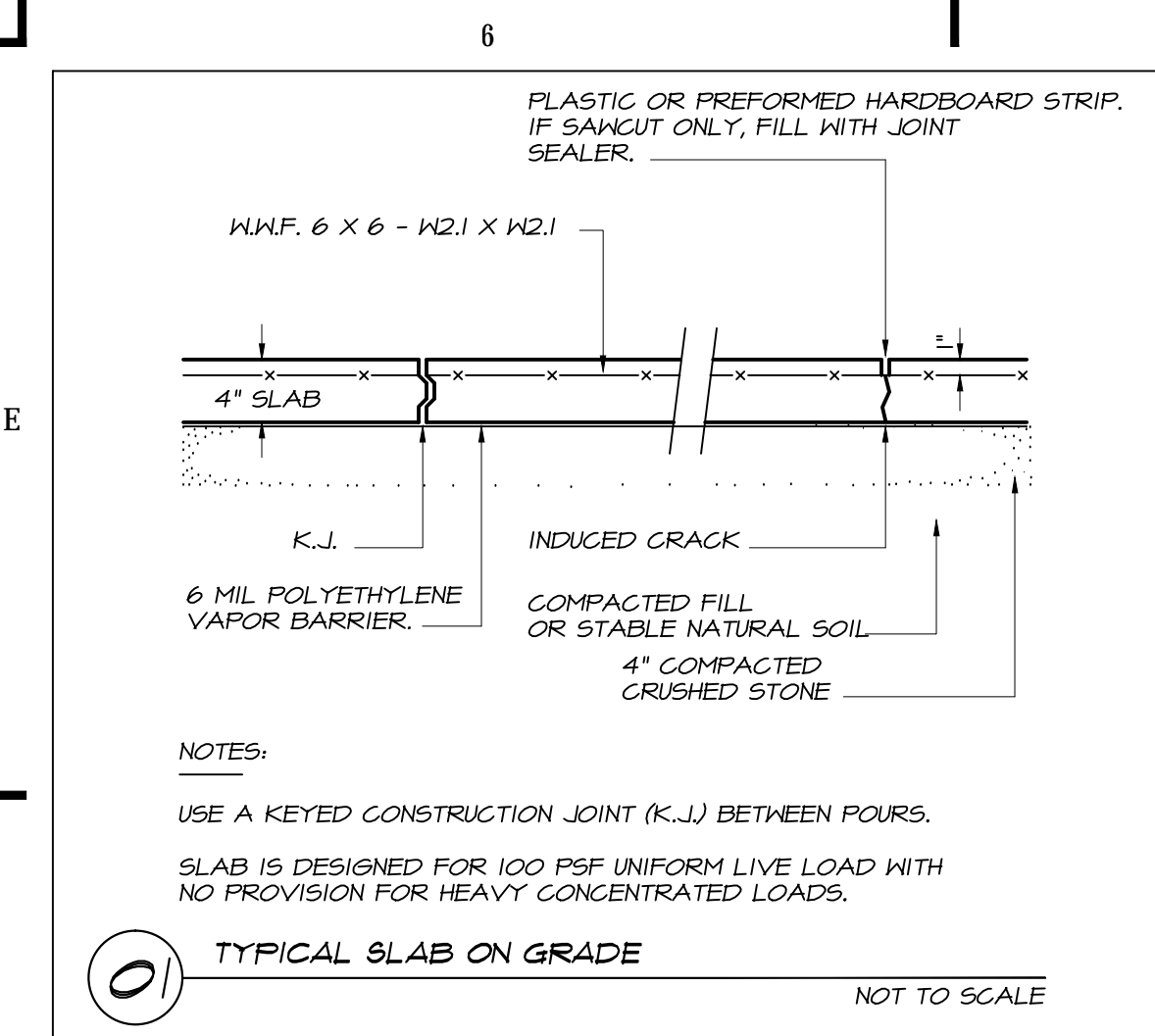
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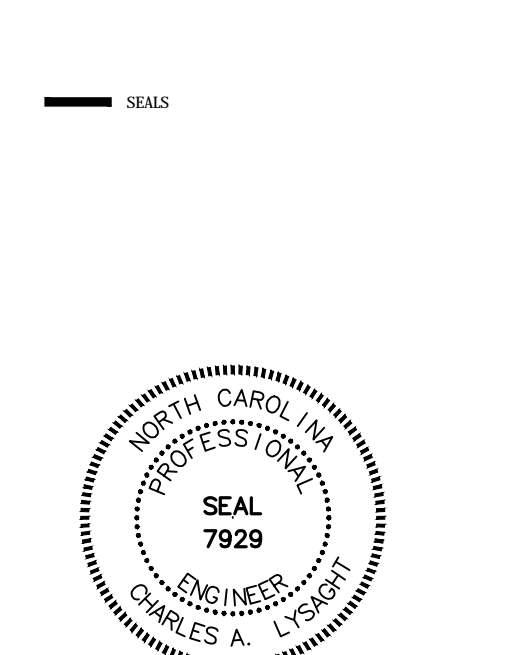
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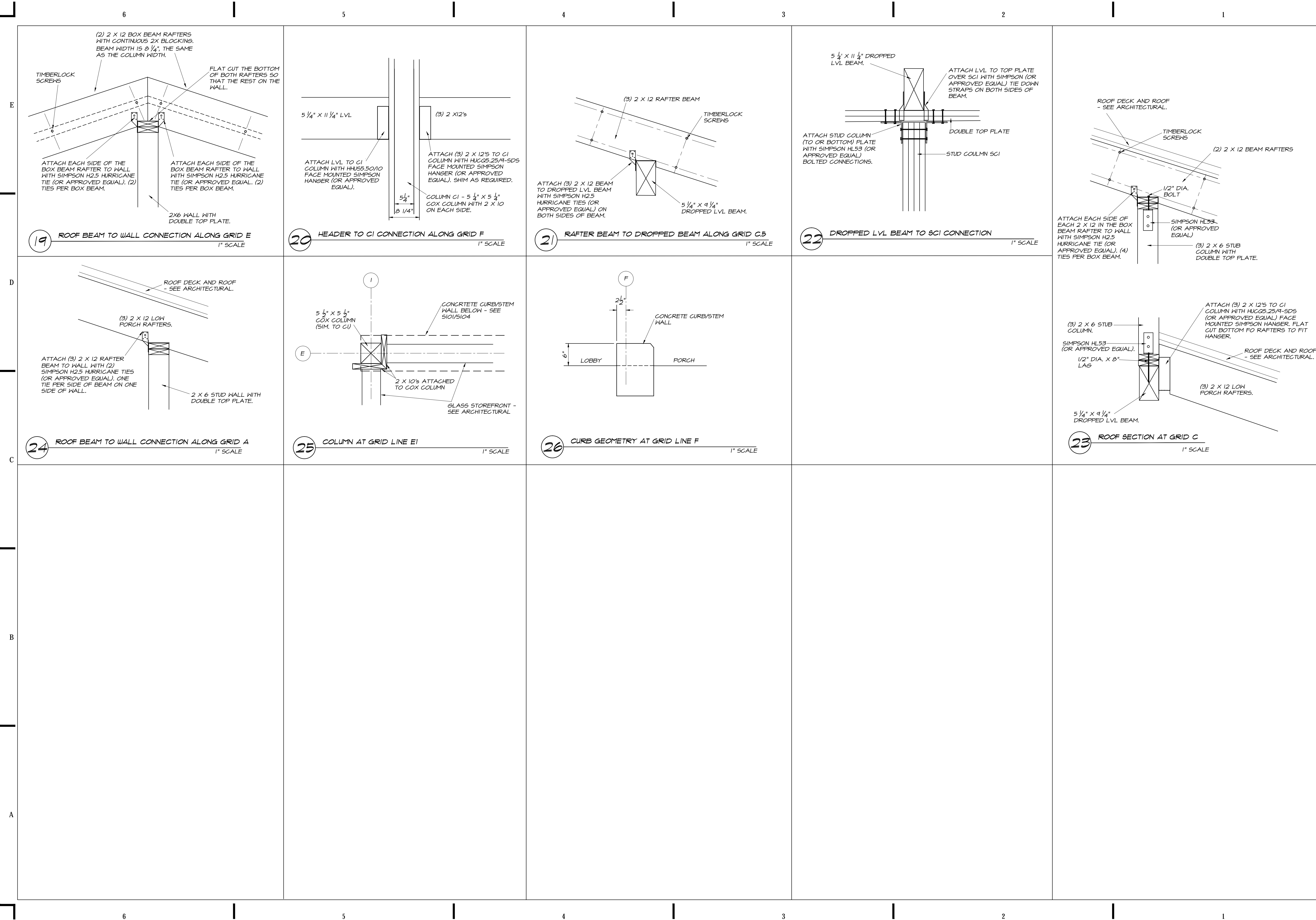
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**FOUNDATION AND FRAMING DETAILS**

SHEET NO.  
**S301**





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FRAMING  
DETAILS

SHEET NO.

**S401**



PLUMBING FIXTURE SCHEDULE \*

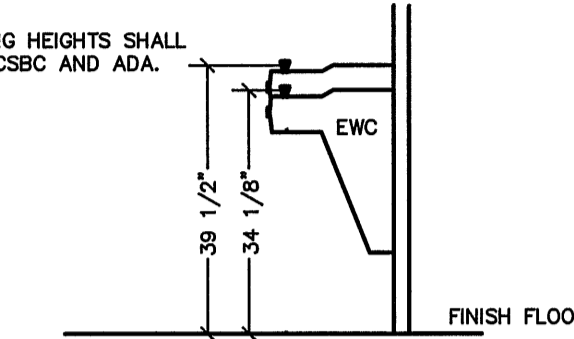
MARK	DESCRIPTION	ALTERNATE MANUFACTURER/MODEL	ALTERNATE MANUFACTURER/MODEL
WC	WATER CLOSET (WALL MOUNT BACK SPUD) AMERICAN STANDARD "TRICLO FLOWISE" #3353.001, ELONGATED BOWL, 1.28 GPF, VITREOUS CHINA, AND 1 1/2" BACK SPUD. WCHC TO BE ADA COMPLIANT. PROVIDE OPEN FRONT SEAT, AND SENSOR W/ MANUAL OVERRIDE FLUSH VALVE, EQUAL TO SLOAN OPTIMA MODEL 152-1.28-ES-5 (AC POWERED) FLUSH VALVE.	ZURN #Z5617 FIXTURE. ZURN #ZEMS6140AV FLUSH VALVE.	KOHLER KINGSTON #K-4329 FIXTURE. HYDROTEK H-8000C-CB FLUSH VALVE.
WCHC	WATER CLOSET (FLOOR MOUNT BACK SPUD) AMERICAN STANDARD "TRICLO FLOWISE" #3353.001, ELONGATED BOWL, 1.28 GPF, VITREOUS CHINA, AND 1 1/2" BACK SPUD. WCHC TO BE ADA COMPLIANT. PROVIDE OPEN FRONT SEAT, AND SENSOR W/ MANUAL OVERRIDE FLUSH VALVE, EQUAL TO SLOAN OPTIMA 140-1.28-ES-5 (AC POWERED) FLUSH VALVE.	ZURN Z5647-BWL FIXTURE, ZURN #ZEMS6152AV-HET, 1.28 GPF VALVE.	FIXTURE-NO 3RD CHOICE AVAILABLE. HYDROTEK H-8CB-128, 1.28 GPF VALVE.
WC-1	WATER CLOSET (FLOOR MOUNT TOP SPUD) AMERICAN STANDARD "MADERA FLOWISE" #3461.001, ELONGATED BOWL, 1.28 GPF, VITREOUS CHINA, AND 1 1/2" TOP SPUD, ADA COMPLIANT. PROVIDE OPEN FRONT SEAT, AND SENSOR W/ MANUAL OVERRIDE FLUSH VALVE, EQUAL TO SLOAN OPTIMA 111-1.28-ES-5 (AC POWERED) FLUSH VALVE.	ZURN #Z5665 FIXTURE. ZURN #ZEMS6000IS FLUSH VALVE.	KOHLER HIGHCREST #K-4302 FIXTURE. HYDROTEK HB-128 VALVE.
UR	URINAL AMERICAN STANDARD "WASHBROOK FLOWISE" #6515.001, 1.0 GPF, VITREOUS CHINA, 3/4" BACK SPUD, AND SENSOR W/ MANUAL OVERRIDE FLUSH VALVE SLOAN #195-1.0-ES-S-TMO (AC POWERED). ADA COMPLIANT.	ZURN #5760 WITH ZURN ZEMS6195AV-08 FLUSH VALVE.	TOTO #UT104EV WITH TOTO #TEU2LN11 FLUSH VALVE.
L1	LAVATORY (ACCESSIBLE, WALL HUNG) AMERICAN STANDARD "LUCERNE" # 0356.421 WHITE WITH CONCEALED ARM CARRIER AND DRAIN ASSEMBLY (7723.018). ADA COMPLIANT. FURNISH WITH SLOAN ET-610 AC POWERED SENSOR FAUCET. PROVIDE ACCESSORIES AS REQUIRED. COORDINATE TRIM AND SINK FAUCET DRILLING FOR SINGLE HOLE OR AS REQUIRED PER OWNER.	KOHLER GREENWICH #K-2032 WITH HYDROTEK H-1000C FAUCET.	ELIER MURRAY II #051-0244 WITH AMERICAN STANDARD INNSBROOK #6059.205.
L2	2- STATION LAVATORY (ACCESSIBLE) WILLOUGHBY MODEL WAW-232-DMF, ADA COMPLIANT. VERIFY COLOR W/ARCH. FURNISH WITH SLOAN OPTIMA EAF-275 SOLAR POWERED FAUCETS. PROVIDE BATTERY POWERED SOAP DISPENSER ESD-350.	BRADLEY MODEL EXD-2N WITH HYDROTEK 7000SLR SOLAR SENSOR FAUCETS.	SLOAN SLOANSTONE #ELS-72275-MSD WITH TOTO TEL3610 SOLAR SENSOR FAUCETS.
MS	MOP SINK ACORN SERIES TRH, TERRAZZO SERVICE BASIN WITH REDUCED HEIGHT AND STAINLESS STEEL GRID STRAINER WITH 3" PIPE CONNECTION, 24" UNIT SIZE FAUCET. ACORN MODEL KFC CHROME PLATED SERVICE FAUCET WITH VACUUM BREAKER, INTEGRAL STOPS, ADJUSTABLE WALL BRACE, PAIL HOOK AND 3/4" HOSE THREAD ON SPOUT. HOSE & HOSE BRACKET: ACORN MODEL KH36 LONG FLEXIBLE 5/8" RUBBER HOSE, CLOTH REINFORCED.	FLORESTONE SERIES 92 WITH SPEAKMAN #MR-371 FAUCET, HOSE AND MOP HANGER.	CRANE MOP SINK #TSB-3002 WITH #830-AA FAUCET, #632-AA HOSE, #1453-BB STRAINER, #689-CC MOP HANGER, #E-77-AA BUMPER GUARD, AND STAINLESS STEEL SPLASH GUARD.
US	UTILITY SINK ADVANCE TABCO STAINLESS STEEL STANDING UNIT, 600 SERIES #6-41-24 WITH 1-1/2" DRAIN OPENING. PROVIDE KOHLER FAUCET #K-8924-CP WITH HOSE THREAD OUTLET. PROVIDE P-TRAP AND SHUT-OFF VALVES.	JUST #J-127 WITH CHICAGO FAUCET #305-RFC.	GRIFFIN T60-144 WITH DELTA FAUCET #28C2213.
CP	CIRCULATING PUMP BELL & GOSSET, SERIES NBF-22 IN-LINE CIRCULATOR PUMP, 1/12 HP, 115 VAC, FLA=0.8 1 PH, 3/4" CONN., WITH A MAXIMUM OF 22 GPM AND 15' TDH. PUMP TO BE ALL BRONZE CONSTRUCTION, COORDINATE WITH ELEC. CONTRACTOR FOR POWER FEED. PROVIDE DISCONNECT SWITCH.	TACO MODEL #110.	ARMSTRONG MODEL #65-25.
EWC	HIGH/LOW ELECTRIC WATER COOLER OASIS DUAL LEVEL ELECTRIC WATER COOLER. MODEL # P8ACSL, ADA COMPLIANT. PIPE TO SINGLE DRAIN AND SUPPLY LINE. VERIFY HIGH/LOW UNIT MOUNTING SIDES AND MODEL.	HALSEY TAYLOR #HACBL-Q.	ELKAY MODEL #EZSLBLC.
TPV	TRAP PRIMER VALVE PPP INC. MODEL# PR-500, 1/2" INLET, 1/2" OUTLET	JOSAM #88300.	WATTS #A200.
WCS	WATER CLOSET SUPPORTS ZURN 4" NO HUB #Z1203-N FOR WC. COORDINATE MODEL WITH LEFT/RIGHT FLOW DIRECTION AS REQUIRED.	JAY R. SMITH #210 SERIES.	JOSAM STD. 4" NO HUB, 2" VENT.
URS	URINAL SUPPORTS ZURN Z-1222 WITH ADJUSTABLE PLATES.	JAY R. SMITH #0637.	JOSAM #17550.
HB	HOSE BIBB ZURN Z-1330-C, 3/4" WALL HYDRANT WITH VANDAL RESISTANT VACUUM BREAKER. ENCASED WITH KEY LOCK.	WATTS #HY-330.	JAY R. SMITH #5509QT.
EW-1	ELECTRIC WATER HEATER #1 W/4 GAL. EXPANSION TANK A.O. SMITH MODEL DRE-120-24, 119 GALLON, 24,000 WATT, 197 GPH RECOVERY AT 50 DEGREE TEMPERATURE RISE. 1-1/4" INLET AND OUTLET, 200V, 3 PH. PROVIDE DRAIN PAN, PRESSURE RELIEF VALVE, AND AO SMITH EXPANSION TANK PMC-5.	RHEEM #ES120-24-G. AMTROL ST-12-G EXPANSION TANK.	BRADFORD WHITE #M-11-120-24. STATE ETC-5X EXPANSION TANK.
EW-2	ELECTRIC WATER HEATER #2 W/2 GAL. EXPANSION TANK A.O. SMITH MODEL EJC-10, 10 GALLON, 1,650 WATT, 3/4" INLET AND OUTLET, 120V. MOUNT ON WALL. MODEL# PMC-2 EXPANSION TANK.	RHEEM #B1VP10S. AMTROL ST-5-C EXPANSION TANK.	BRADFORD WHITE #M-1-10U6SS. STATE ETC-2X EXPANSION TANK.
FD	FLOOR DRAIN ZURN ZN-415 WITH DEEP SEAL P-TRAP, 5" X 5" TYPE "S" SQUARE STRAINER AND 3" CONNECTION, VANDAL-PROOF TOP. PROVIDE MODEL WITH TRAP PRIMER CONNECTION ONLY FOR FLOOR DRAINS IN AREAS NOTED ON SHEET P300.	JOSAM #30000-S.	JAY R. SMITH #2005-B.
MTR	WATER METER NEPTUNE. 3" TURBINE METER INDICATION SHALL BE WITH BOTTOM OF GAUGE TOWARD FLOOR.	PARK ENVIRONMENTAL EQUIP. 3" TURBINE.	HERSEY HORIZON 3" TURBINE.
FPHB	FREEZE-PROOF HOSEBIBB ZURN Z-1320-C, 3/4" NON FREEZE WALL HYDRANT WITH VANDAL RESISTANT VACUUM BREAKER. ENCASED WITH KEY LOCK.	JAY R. SMITH #5509QT.	WATTS HY-725.
RPZ	3" REDUCED PRESSURE BACKFLOW PREVENTER WATTS MODEL #0090T-3" REDUCED PRESSURE BACKFLOW PREVENTER, CAST IRON CONSTRUCTION.	ZURN #375-3"	FEBCO #860-3"
VB	VALVE BOX OATY GALVANIZED METAL VALVE BOX #38686 WITH 1/4" TURN BRASS BALL VALVE.	IPS GUY GRAY #MIB1AB	LSP # 08-504

\* OR APPROVED EQUAL

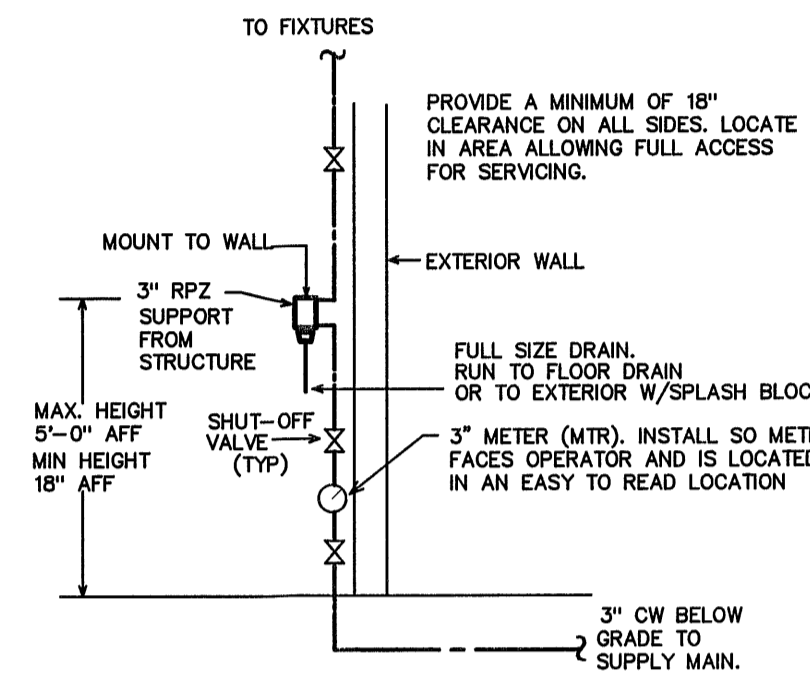
GENERAL NOTES - PLUMBING

- PREPLAN ALL WORK PRIOR TO ORDERING, PURCHASING, OR FABRICATING ANY PART OF THE WORK DESCRIBED BY THIS DRAWING.
- IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONFLICTS WITH EXISTING FIELD CONDITIONS OR THE WORK OF OTHER TRADES.
- RESOLVE ALL CONFLICTS PRIOR TO INCURRING ANY MATERIAL OR LABOR EXPENSES.
- COMPLY WITH THE MANUFACTURER'S TECHNICAL INSTRUCTIONS WHEN INSTALLING PLUMBING FIXTURES, MATERIALS, AND DEVICES.
- LOCATE FIXTURES AND EQUIPMENT GENERALLY AS SHOWN ON THE PLANS; HOWEVER, COORDINATE LOCATIONS WITH ACTUAL FIELD CONDITIONS TO PRESERVE ALL CODE-REQUIRED AND MANUFACTURER-REQUESTED SERVICE CLEARANCES.
- COORDINATE ROUTING OF ALL PIPING WITH BUILDING STRUCTURE AND WITH THE WORK OF OTHER TRADES. OFFSET VENT PIPING AROUND BEAMS AND JOISTS AS NECESSARY.
- ALL HANDICAP FIXTURES AND INSTALLATION OF HANDICAP FIXTURES SHALL CONFORM TO ADA REQUIREMENTS.
- AT EXTERIOR WALL, INSTALL WATER PIPING ON HEATED SIDE OF WALL INSULATION.
- PROVIDE WATER HAMMER ARRESTORS AT THE END OF EACH COLD AND HOT WATER BRANCH RISER. SIZE ARRESTOR APPROPRIATELY.
- PROVIDE CONCRETE RING FOR ALL EXTERIOR CLEAN-OUTS.
- REVIEW SITE PLAN FOR UTILITIES AND ORIENTATION PRIOR TO START OF WORK.
- G.C. TO PROVIDE ROOF PENETRATIONS.
- PROVIDE HTHW AT 120 DEGREES (F) AND LTHW AT 90 DEGREES (F).

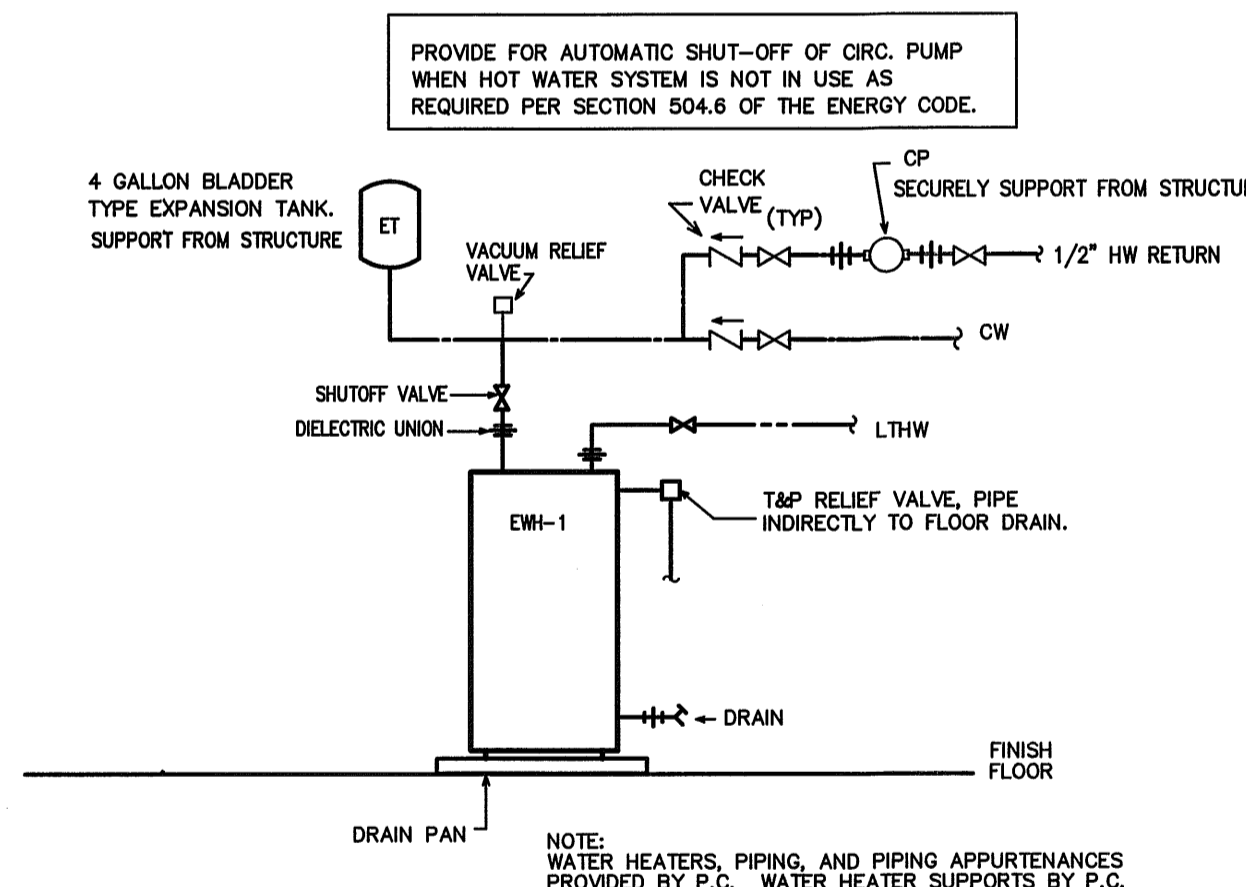
NOTE: ALL MOUNTING HEIGHTS SHALL MEET THE NCSBC AND ADA.



1 EWC DETAIL  
SCALE: NOT TO SCALE



3 RPZ MOUNTING DETAIL  
SCALE: NOT TO SCALE



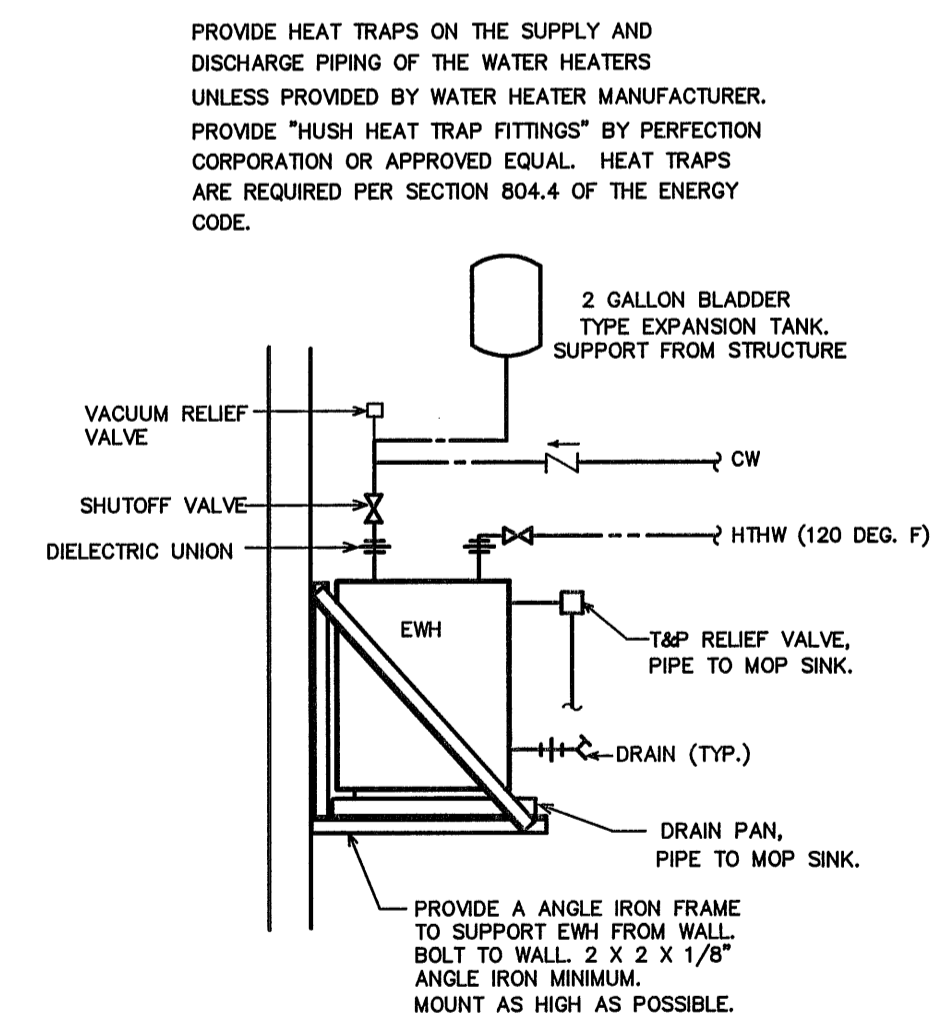
4 EWH-1 DETAIL  
SCALE: NOT TO SCALE

SYMBOL LEGEND - PLUMBING

SYMBOL	DESCRIPTION
---	WASTE PIPING (W)
---	VENT PIPING (V)
---	COLD WATER PIPING (CW)
---	HOT WATER PIPING (HW)
---	HOT WATER RETURN PIPING (HWR)
---	HIGH TEMPERATURE HW PIPING (HTHW) 120 DEG. F
---	LOW TEMPERATURE HW PIPING (LTHW) 90 DEG. F
○	CLEANOUT FINISH FLOOR
⊥	WALL/HORIZONTAL CLEANOUT
⊕	CLEANOUT FINISH GRADE-PROVIDE FLUSH CONCRETE COLLAR AND BRONZE COVER
⊕	DIELECTRIC UNION
⊕	SHUT-OFF VALVE
⊕	CHECK VALVE
⊕	BALANCING VALVE
⊕	CIRCULATION PUMP (CP)
⊕	WATER METER (MTR)
⊕	VENT THRU ROOF (VTR)
⊕	THERMOSTATIC MIXING VALVE (TMV)

LOAD SUMMARY - PLUMBING

WASTE DEMAND (GPM)	WATER DEMAND (GPM)	WATER DEMAND (GPM)
229.0	408.0	127.9



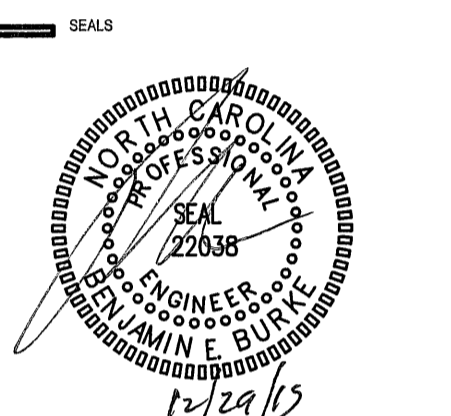
2 EWH DETAIL  
SCALE: NOT TO SCALE

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Proj. Contract #: 6300036020  
TIP Project #: K-4908  
WBS#: 39894.3.1  
F.A. Project #: IMS-77-1(177)39



DocuSigned by:  
Ben Burke  
18EA355AD474DC

BID DOCUMENTS  
2014/12/29

PROJECT

I-77 REST AREA

Iredell County, NC

REVISIONS  
NO. DATE OF REVISION

PROJECT DATA  
DATE: 2014.12.30  
DRAWN: DS  
CHECKED: BEB  
FILENAME:  
PROJECT NO: 2013\_0260  
PRINTING: Bid Documents

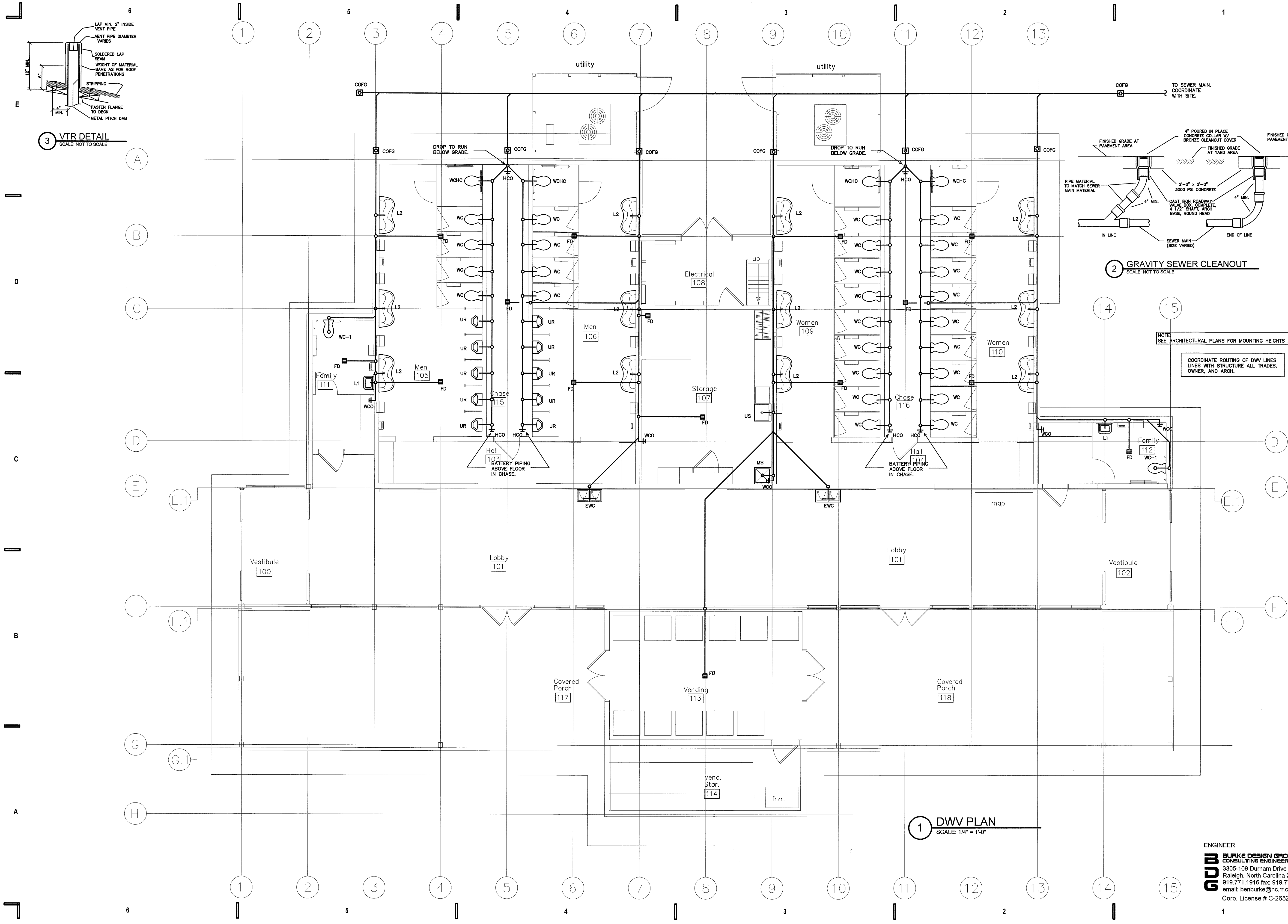
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SCHEDULES DETAILS

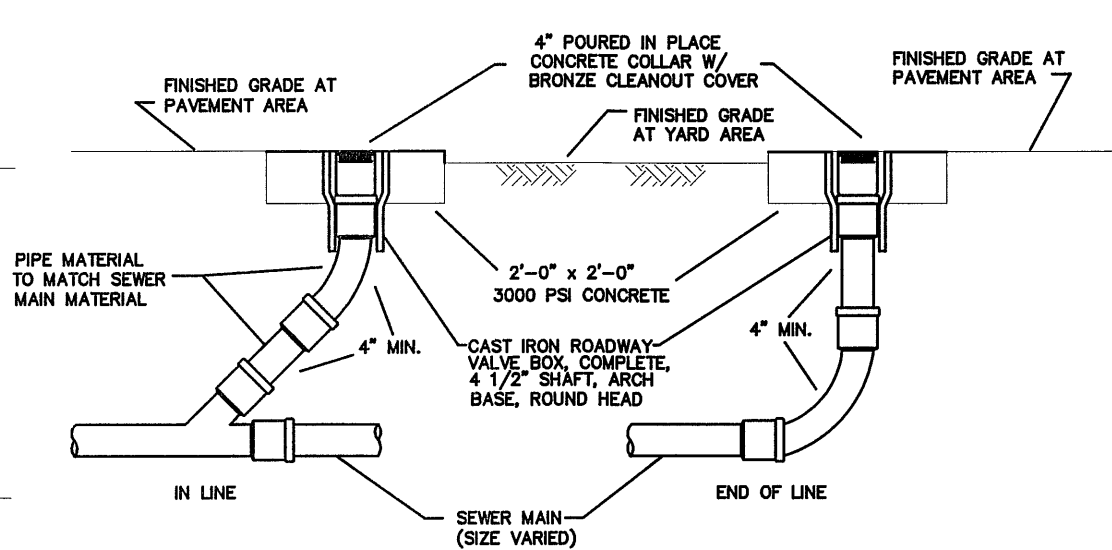
ENGINEER  
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SHEET NO.  
**P100**





**1 DWV PLAN**  
SCALE: 1/4" = 1'-0"

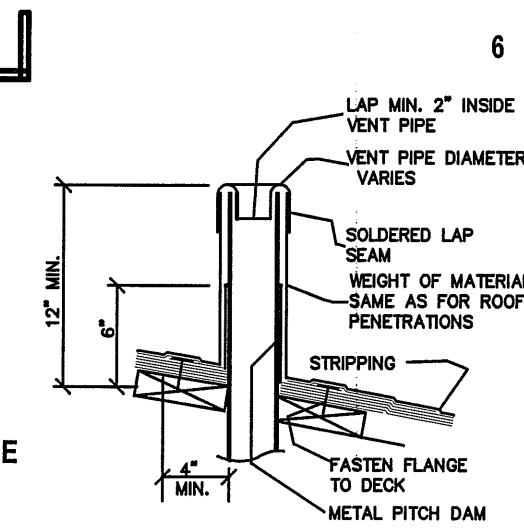


**2 GRAVITY SEWER CLEANOUT**  
SCALE: NOT TO SCALE

NOTE: SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS AND LOCATIONS

COORDINATE ROUTING OF DWV LINES LINES WITH STRUCTURE ALL TRADES, OWNER, AND ARCH.

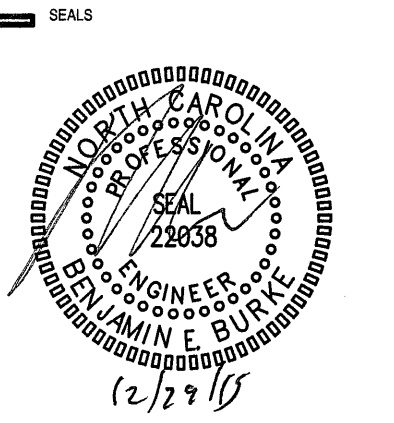
**3 VTR DETAIL**  
SCALE: NOT TO SCALE



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Proj. Contract #: 6300036020  
TIP Project #: K-4908  
WBS#: 39894.3.1  
F.A. Project #: IMS-77-1(177)39



DocuSigned by:  
Ben Burke  
18E4A355AD474DC

**BID DOCUMENTS**  
2014/12/29

**I-77 REST AREA**

Iredell County, NC

NO.	DATE OF REVISION

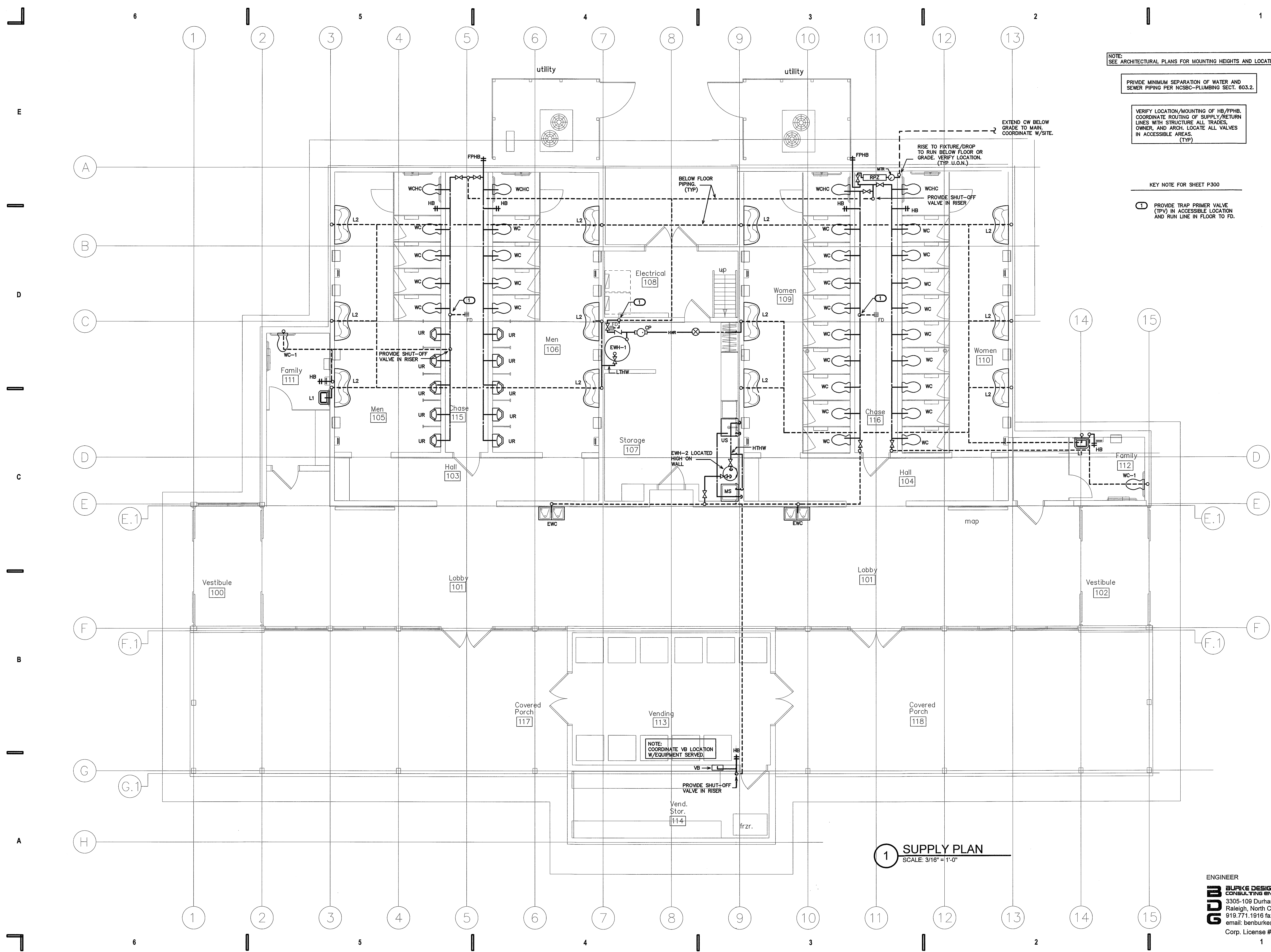
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DATE: 2014.12.30  
DRAWN: DS  
CHECKED: BEB  
FILENAME:  
PROJECT NO: 2013\_0260  
PRINTING: Bid Documents

DWV PLAN

ENGINEER  
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SHEET NO.  
**P200**





NOTE:  
SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS AND LOCATIONS

PROVIDE MINIMUM SEPARATION OF WATER AND SEWER PIPING PER NCSBG-PLUMBING SECT. 803.2.

VERIFY LOCATION/MOUNTING OF HB/FPHB. COORDINATE ROUTING OF SUPPLY/RETURN LINES WITH STRUCTURE ALL TRADES, OWNER, AND ARCH. LOCATE ALL VALVES IN ACCESSIBLE AREAS. (TYP)

KEY NOTE FOR SHEET P300

1 PROVIDE TRAP PRIMER VALVE (TPV) IN ACCESSIBLE LOCATION AND RUN LINE IN FLOOR TO FD.

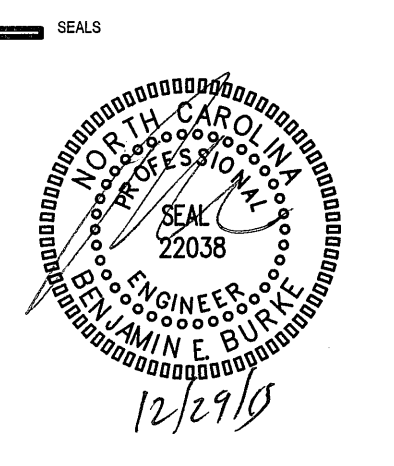
**1 SUPPLY PLAN**  
SCALE: 3/16" = 1'-0"

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Proj. Contract #: 6300036020  
TIP Project #: K-4908  
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F.A. Project #: IMS-77-1(177)39



DocuSigned by:  
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18E4A355AD474DC

**BID DOCUMENTS**  
2014/12/29

**I-77 REST AREA**  
Iredell County, NC

REVISIONS	
NO.	DATE OF REVISION

PROJECT DATA	
DATE:	2014.12.30
DRAWN:	DS
CHECKED:	BEB
FILENAME:	
PROJECT NO:	2013_0260
PRINTING:	Bid Documents

SHEET DATA  
**SUPPLY PLAN**

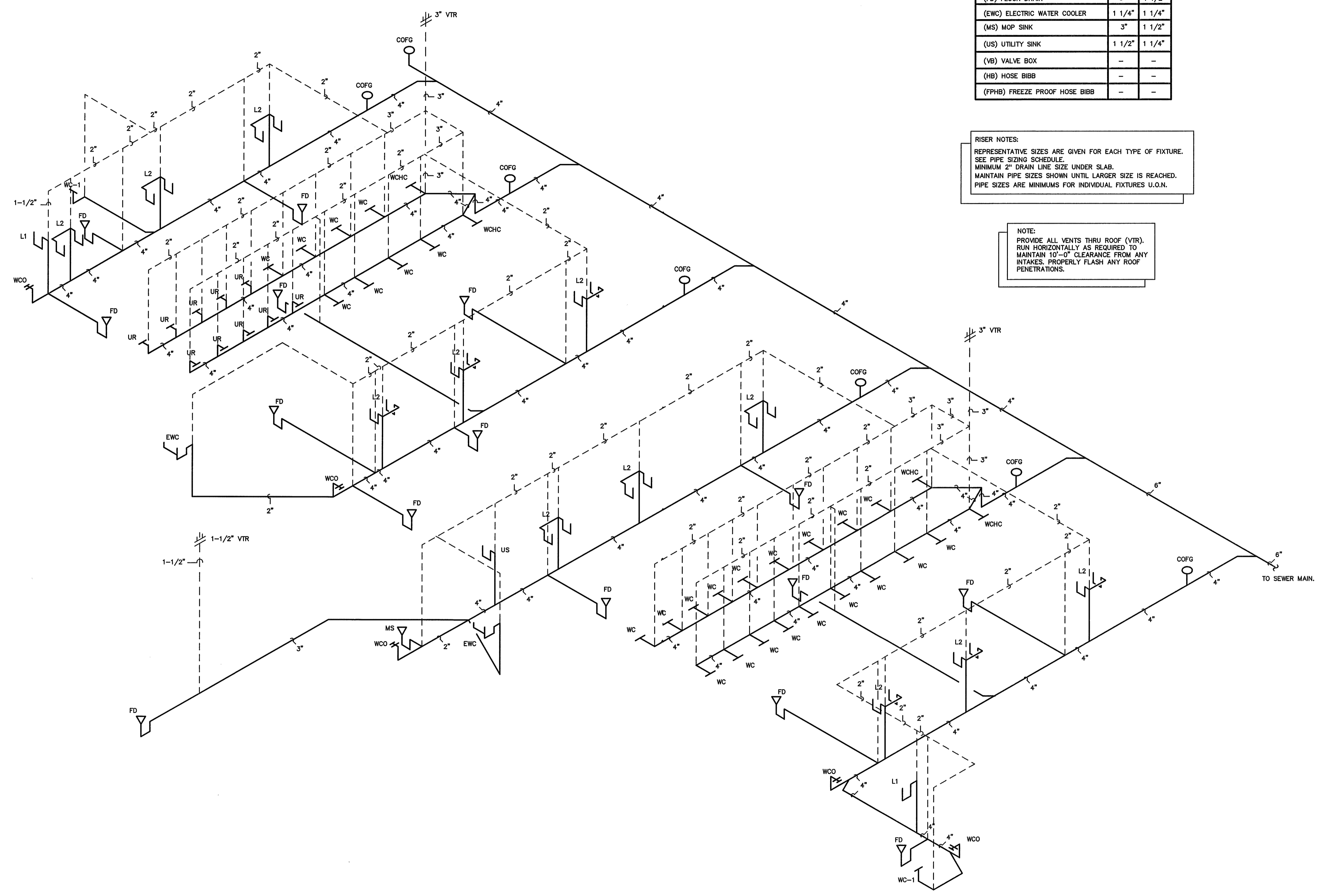
SHEET NO.  
**P300**

ENGINEER  
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6 5 4 3 2 1

E  
D  
C  
B  
A



PIPE SIZING SCHEDULE		
FIXTURE TYPE	DRAIN	VENT
(WC) FLUSH VALVE WATER CLOSET	3"	1 1/2"
(L) LAVATORY	1 1/2"	1 1/4"
(UR) URINAL	2"	1 1/2"
(FD) FLOOR DRAIN	3"	1 1/2"
(EWC) ELECTRIC WATER COOLER	1 1/4"	1 1/4"
(MS) MOP SINK	3"	1 1/2"
(US) UTILITY SINK	1 1/2"	1 1/4"
(VB) VALVE BOX	-	-
(HB) HOSE BIBB	-	-
(FPHB) FREEZE PROOF HOSE BIBB	-	-

**RISER NOTES:**  
 REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE.  
 SEE PIPE SIZING SCHEDULE.  
 MINIMUM 2" DRAIN LINE SIZE UNDER SLAB.  
 MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED.  
 PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

**NOTE:**  
 PROVIDE ALL VENTS THRU ROOF (VTR).  
 RUN HORIZONTALLY AS REQUIRED TO  
 MAINTAIN 10'-0" CLEARANCE FROM ANY  
 INTAKES. PROPERLY FLASH ANY ROOF  
 PENETRATIONS.

**1 DWV RISER**  
 SCALE: NOT TO SCALE

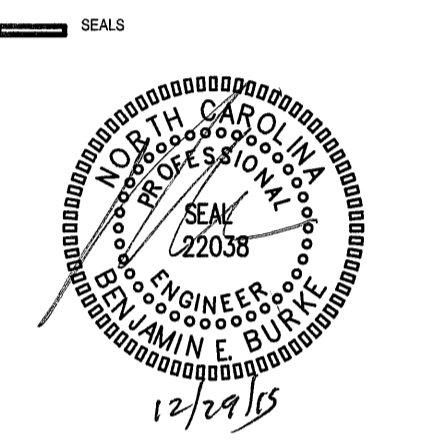
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Proj. Contract #: 6300036020  
 TIP Project #: K-4908  
 WBS#: 39894.3.1  
 F.A. Project #: IMS-77-1(177)39



Designed by:  
*Ben Burke*  
 18E4355AD47ADC

**BID DOCUMENTS**  
 2014/12/29

**I-77 REST AREA**  
 Iredell County, NC

**REVISIONS**

NO.	DATE OF REVISION

**PROJECT DATA**

DATE: 2014.12.30  
 DRAWN: DS  
 CHECKED: BEB  
 FILENAME:  
 PROJECT NO: 2013\_0280  
 PRINTING: Bid Documents

ENGINEER  
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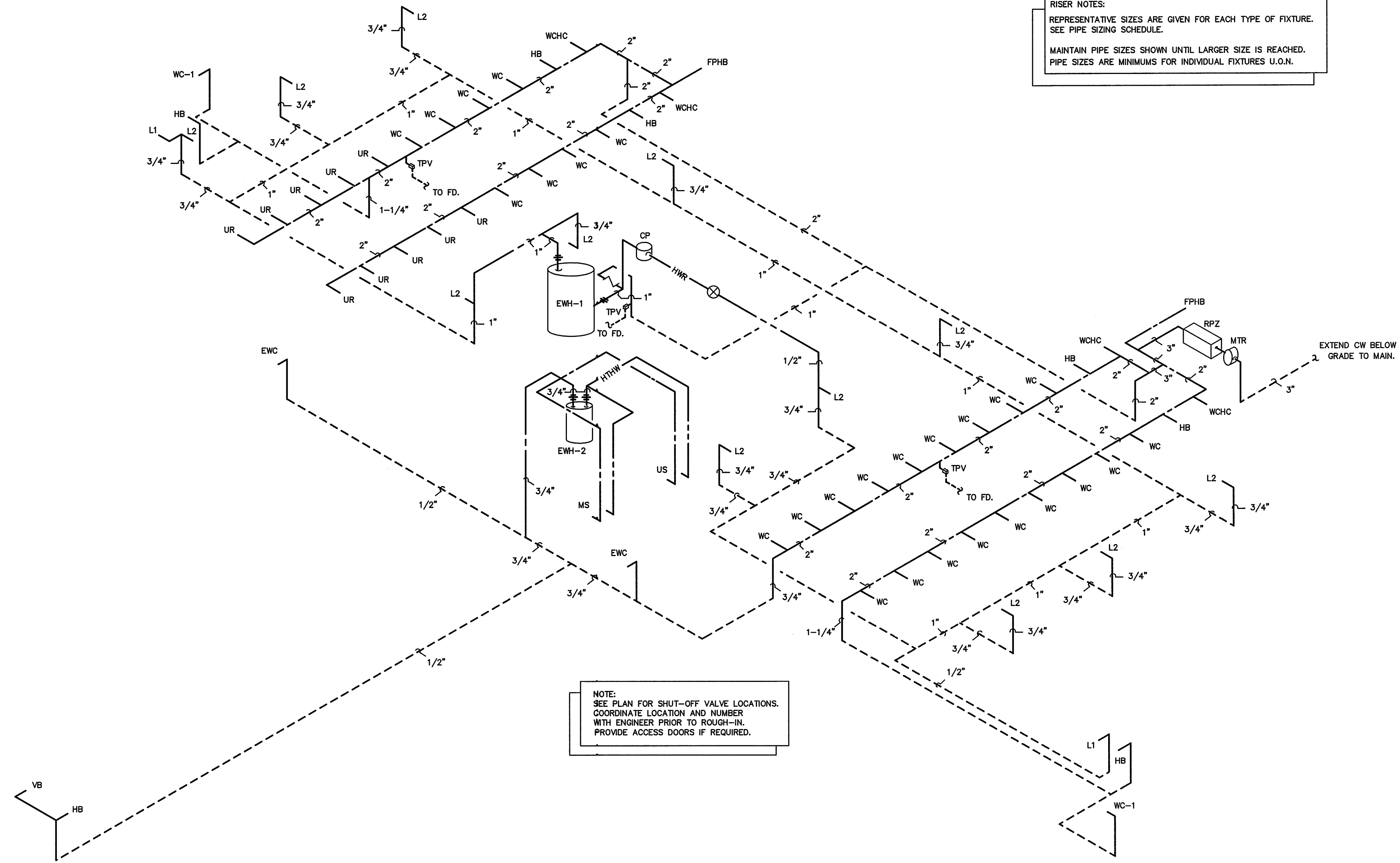
DWV RISER  
 SHEET NO.  
**P400**

6 5 4 3 2 1



PIPE SIZING SCHEDULE		
FIXTURE TYPE	CW	HW
(WC) FLUSH VALVE WATER CLOSET	1"	-
(L) LAVATORY	-	1/2"
(UR) URINAL	3/4"	-
(EWC) ELECTRIC WATER COOLER	1/2"	-
(MS) MOP SINK	1/2"	1/2"
(US) UTILITY SINK	1/2"	1/2"
(VB) VALVE BOX	1/2"	-
(HB) HOSE BIBB	1/2"	-
(FPHB) FREEZE PROOF HOSE BIBB	1/2"	-

RISER NOTES:  
REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE. SEE PIPE SIZING SCHEDULE.  
MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED. PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

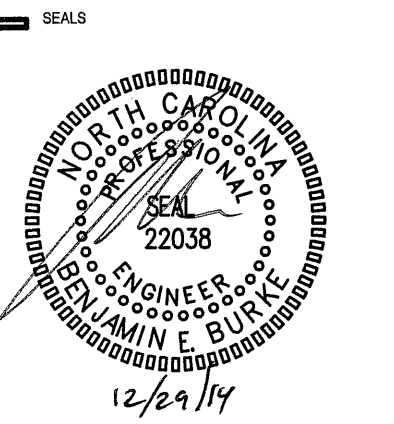


NOTE:  
SEE PLAN FOR SHUT-OFF VALVE LOCATIONS.  
COORDINATE LOCATION AND NUMBER  
WITH ENGINEER PRIOR TO ROUGH-IN.  
PROVIDE ACCESS DOORS IF REQUIRED.

1 SUPPLY RISER  
SCALE: NOT TO SCALE

ENGINEER  
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18E4A355AD474DC

BID DOCUMENTS  
2014/12/29

I-77 REST AREA  
Iredell County, NC

REVISIONS	
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PROJECT DATA	
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PROJECT NO:	2013_0260
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SUPPLY RISER

SHEET NO.  
**P500**



HVAC SYSTEM #1	
AHU #1 DIRECT EXPANSION FAN COIL UNIT	* CARRIER MODEL #40RUQA081A5-0A0A0 FAN COIL UNIT. 11.3 KW ELECTRIC HEAT. NOMINAL CAPACITY = 92,000 BTUH. 3000 CFM NOMINAL. PROVIDE HARD SHUT-OFF TXV VALVE. 7 1/2 TON NOMINAL. PROVIDE PROGRAMMABLE THERMOSTAT AND FILTER RACK WITH HINGED DOOR. 2.4 HP, 2.6A MOTOR FLA, 31.3A ELEC. HEAT FLA, 208V, 3 PH, 52.9 MCA, 60A MOCP.
HP #1 OUTDOOR HEAT PUMP UNIT	* CARRIER MODEL #38AUQA08A0A5-0A0A0, 7 1/2 TON OUTDOOR HEAT PUMP UNIT, 11.0 EER, PROVIDE CYCLE PROTECTOR, LOW PRESSURE SWITCH, CRANKCASE HEATER LOW AMBIENT OPERATION, 208 VOLT, 3 PHASE. COMP 25A RLA, FANS (2) @ 1.5A FLA, OUTDOOR HEAT PUMP 34.4A MCA, 50A MOCP.
HVAC SYSTEM #2	
AHU #2 DIRECT EXPANSION FAN COIL UNIT	* CARRIER MODEL #40RUQA081A5-0A0A0 FAN COIL UNIT. 11.3 KW ELECTRIC HEAT. NOMINAL CAPACITY = 92,000 BTUH. 3000 CFM NOMINAL. PROVIDE HARD SHUT-OFF TXV VALVE. 7 1/2 TON NOMINAL. PROVIDE PROGRAMMABLE THERMOSTAT AND FILTER RACK WITH HINGED DOOR. 2.4 HP, 2.6A MOTOR FLA, 31.3A ELEC. HEAT FLA, 208V, 3 PH, 52.9 MCA, 60A MOCP.
HP #2 OUTDOOR HEAT PUMP UNIT	* CARRIER MODEL #38AUQA08A0A5-0A0A0, 7 1/2 TON OUTDOOR HEAT PUMP UNIT, 11.0 EER, PROVIDE CYCLE PROTECTOR, LOW PRESSURE SWITCH, CRANKCASE HEATER LOW AMBIENT OPERATION, 208 VOLT, 3 PHASE. COMP 25A RLA, FANS (2) @ 1.5A FLA, OUTDOOR HEAT PUMP 34.4A MCA, 50A MOCP.

\* OR APPROVED EQUAL  
NOTE: 1. AHU HEATER KW RATINGS ARE AT 208 VOLTS.  
2. PROVIDE OUTDOOR TSTAT TO PREVENT ELECTRIC HEAT OPERATION WHEN HEAT PUMP CAN MEET THE HEATING LOAD

- SCHEDULE NOTES:**
- PROVIDE WITH DISCONNECT SWITCH, ELECTRONIC PROGRAMMABLE THERMOSTAT WITH LOCKING COVER, TIME DELAY RELAY, FILTER RACK WITH FILTERS, AND HEAD PRESSURE CONTROLLER AND SINGLE POINT POWER CONNECTIONS.
  - PROVIDE MINIMUM OUTDOOR AIR FLOW SETTINGS AS PER PLAN.
  - AHU's ARE BASED ON 1/2" EXT. WATER COLUMN STATIC.

DUCTLESS SPLIT SYSTEM AIR CONDITIONING SCHEDULE	
DFC-1 DIRECT EXPANSION FAN COIL UNIT	* CARRIER MODEL #40MVC018-3-01 FAN COIL UNIT. NET COOLING CAPACITY = 17,500 BTUH, 560 CFM. 1.5 TON NOMINAL. PROVIDE WIRED PROGRAMMABLE THERMOSTAT AND CONDENSATE PUMP. FAN MOTOR 0.26 FLA 208 VOLT, SINGLE PHASE.
DHP-1 OUTDOOR HEAT PUMP UNIT	* CARRIER MODEL #38MVC018-3-01, 1.5 TON OUTDOOR CONDENSING UNIT, 13 SEER. PROVIDE THE FOLLOWING FACTORY ACCESSORIES: LOW AMBIENT KIT, WINTER START CONTROL, ISOLATION RELAY, LIQUID LINE SOLENOID VALVE, CRANKCASE HEATER, AND WIND Baffles. 208 VOLT, 1 PHASE, COMP 7.3A RLA, HEAT PUMP 11A MCA, 20A MOCP. FAN COIL UNIT IS POWERED VIA FACTORY PROVIDED FIELD INSTALLED POWER CABLE FROM OUTDOOR UNIT. THE POWER CABLE IS ROUTED WITH-IN THE REFRIGERANT LINE SET. PROVIDE THE OPTIONAL MC CABLE SET SOUTH/WIRE "EZ IN Mini-Split Cable".

\* OR APPROVED EQUAL

ENERGY RECOVERY UNIT SCHEDULE															
FANS / MOTORS					THERMAL PERFORMANCE										
EQUIP. NUMBER	MODEL NO.	FLOW	STATIC PRESSURE (EXTERNAL)	FAN MOTORS (EXTERNAL)	FLA (FOR UNIT SINGLE POINT)	VOLTS/PHASE/HZ	MCA	FUSE/CB MAX	ENERGY RECOVERY (THERMAL) CAPACITY		INLET / OUTLET CONDITIONS				NOTES:
									COOLING CAPACITY (MBH / TON)	HEATING CAPACITY (MBH)	OUTSIDE AIR TEMP (°F) & HUMIDITY (DB) / (WB)		ROOM AIR TEMP (°F) & HUMIDITY (DB) / (WB OR RH)		
									TOTAL	TOTAL	SUMMER	WINTER	SUMMER	WINTER	
ERV-1 & 2	MICROMETL FWC22H2000HEF	1600 CFM	0.5 IN H <sub>2</sub> O	(2) FOR FANS	11.41 A	208-230V 3 PH 60 HZ	14.26 A	20 A	26.24/2.18	61.04	94F / 73F	18F	75F / 50%	72F / 50%	ALL

- NOTES:**
- FLOW & LOADS BASED ON ARI-1060 PERFORMANCE & CERTIFIED CORE.
  - SHUT DOWN ALL FANS ON DUCT SMOKE DETECTOR ALARM CONDITION.
  - VENTILATION TYPE: ERV WHEEL, HEAT & HUMIDITY TRANSFER.
  - INCLUDE INTEGRAL DISPOSABLE FILTERS (OUTSIDE AND ROOM AIR) WITH MERV8 OR BETTER RATING.
  - INCLUDE SINGLE POINT ELECTRICAL POWER CONNECTION.
  - HOUSING SHALL BE GALVANIZED, .20 GAUGE (OR THICKER) STEEL WITH LAPPED CORNERS.
  - OR APPROVED EQUALS.
  - SERVICE ACCESS DOORS SHALL BE GASKETED & PROVIDE ACCESS FOR MAINTENANCE OF ALL COMPONENTS.
  - INCLUDE INSULATION ON ALL CASE WALLS & DOORS.
  - INCLUDE THERMALLY PROTECTED MOTORS WITH STARTERS.
  - UL LISTED 1995
  - PROVIDE WITH FUSED DISCONNECT SWITCH.

EXHAUST FAN SCHEDULE	
EF-1	
EXHAUST FAN #1	* CARNES MODEL# VCDD015C EXHAUST FAN, 140 CFM @ 1/4" SP, 710 RPM, 1.4 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, 8" RIGID DUCT TO WALL LOUVER. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EF-2	
EXHAUST FAN #2	* CARNES MODEL# VCDD015C EXHAUST FAN, 140 CFM @ 1/4" SP, 710 RPM, 1.4 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, 8" RIGID DUCT TO WALL LOUVER. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EF-3	
EXHAUST FAN #3	* CARNES MODEL# VEDK-08-J2 ROOF MOUNTED EXHAUST FAN, 533 CFM @ 0.25" SP, 1250 RPM, 1/8 HP, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, GRAVITY BACKDRAFT DAMPER, AND FACTORY PREFAB ROOF CURB. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES. PROVIDE FACTORY SPEED CONTROLLER FOR BALANCING FAN. PROVIDE WALL MOUNTED THERMOSTAT TO CONTROL FAN.

\* OR APPROVED EQUAL

OUTDOOR AIR CALCULATIONS	
OUTDOOR VENTILATION AIR PROVIDED PER TABLE 403.3, 2012 NORTH CAROLINA STATE BUILDING CODE MECHANICAL CODE.	
APPLICATION	CFM/FLUSHING FIXTURE
GANG TOILET ROOMS	70 CFM EACH
40 FLUSHING FIXTURES X 70 CFM = 2800 CFM 3200 CFM EXHAUST PROVIDED BY (2) ERVS	
APPLICATION	CFM/FLUSHING FIXTURE
FAMILY TOILET ROOMS	70 CFM EACH
2 FLUSHING FIXTURE X 70 CFM = 140 CFM 140 CFM EXHAUST PROVIDED IN EACH TOILET BY INDIVIDUAL INTERMITTENT FAN MAKE UP AIR BY TRANSFER AIR	
APPLICATION	CFM/SQ.FT.
CORRIDORS	0.08 CFM/SQ.FT.
2080 SQ. FT. X 0.08 CFM/SQ.FT. = 1224 CFM	
APPLICATION	CFM/SQ.FT.
STORAGE	0.06 CFM/SQ.FT.
470 SQ. FT. X 0.06 CFM/SQ.FT. = 282 CFM	
TOTAL OUTSIDE AIR REQUIRED = 2980 CFM TOTAL OUTSIDE PROVIDED = 3200 CFM AHU #1 = 1800 CFM PROVIDED AHU #2 = 1200 CFM PROVIDED	

## GENERAL NOTES - MECHANICAL

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE AND ALL LOCAL AND OTHER APPLICABLE CODES.
- ANY PERMITS AND INSPECTION FEES SHALL BE SECURED AND PAID FOR BY THE MECHANICAL CONTRACTOR (MC).
- ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE MC SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC) AND OTHER TRADES.
- THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES.
- THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. FOR DIMENSIONS REFER TO THE ARCHITECTURAL PLANS.
- THE MC SHALL BE RESPONSIBLE FOR ALL ELECTRICAL STARTERS INTERLOCKS, CONTROL WIRING CONDUIT AND POWER WIRING FROM DISCONNECTS TO HIS EQUIPMENT, USING A LICENSED ELECTRICIAN.
- THE MC SHALL USE FIRE DAMPERS FOR PROTECTION OF THE OPENING IN ACCORDANCE WITH STATE AND LOCAL CODES IN ALL LOCATIONS WHERE PENETRATIONS OF RATED WALLS AND FLOORS OCCUR. SEE ARCHITECTURAL PLANS FOR RATED WALL AND FLOOR LOCATIONS. PROVIDE ACCESS DOORS AT ALL DAMPER LOCATIONS. LOCATE DOORS FOR EASY ACCESS. THERE ARE NO RATED WALLS PENETRATED IN THIS HVAC UPFIT.
- INSTALL FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCTWORK AHU. ALL MECHANICAL EQUIPMENT SHALL OPERATE FREE OF OBJECTIONAL NOISE AND VIBRATION.
- INSTALL TURNING VANES IN SUPPLY DUCTS AT ALL ELBOWS AND SPLITTER DAMPERS. PROVIDE BALANCING DAMPERS IN ALL DUCTS WHERE SHOWN OR REQUIRED FOR SYSTEM BALANCING. PROVIDE SPIN IN STARTING COLLARS WITH DAMPERS AT ALL SUPPLY TAKEOFFS.
- DUCT DIMENSIONS ARE SHOWN INSIDE CLEAR. COORDINATE EXACT SIZE WITH SPACE AVAILABLE. DUCT INSULATION SHALL BE 2" FIBERGLASS EXTERIOR DUCT INSULATION WITH FOL FACING.
- THERMOSTAT, WIRING AND CONDUIT ARE TO BE FURNISHED BY THE MC. MOUNT THERMOSTAT 48" ABOVE THE FINISHED FLOOR. COORDINATE LOCATION WITH OWNER. PROVIDE AUTO CHANGEOVER THERMOSTAT WITH UNIT OFF POSITION AS MINIMUM. PROVIDE AN EMERGENCY SHUT-OFF SWITCH ABOVE THE THERMOSTAT. PROPERLY LABEL SHUT-OFF SWITCH.
- THE MC SHALL KEEP THE PREMISES CLEAR OF DEBRIS FROM HIS WORK DURING CONSTRUCTION AND LEAVE THE AREA AND BUILDING CLEAN AT THE COMPLETION OF HIS WORK. HE SHALL ALSO LEAVE CLEAN ALL EXPOSED EQUIPMENT IN HIS CONTRACT.
- COORDINATE DIFFUSER AND CEILING EXHAUST GRILLE LOCATIONS WITH LIGHTS AND GRID. COORDINATE MOUNTING FRAME WITH CEILING TYPE.
- THE M.C. SHALL COORDINATE WITH AND PROVIDE EQUIPMENT SPEC. SHEETS TO THE GENERAL AND ELECTRICAL CONTRACTORS FOR REVIEW PRIOR TO ORDERING EQUIPMENT.
- PROPERLY SUPPORT FLEXIBLE DUCT, MINIMUM 75% DEFORMATION. PROVIDE SHEET METAL ELBOWS AT ALL 90 DEGREE BENDS.
- ALL DUCT JOINTS SHALL BE SEALED AIRTIGHT WITH FIBER ENPREGNATED MASTIC OR HARDCAST AND TAPE.
- SUPPORT AHU, EXHAUST FANS, HEAT WHEEL AND ALL DUCTWORK, ETC. FROM STRUCTURE. PIPE STRAPPING WILL NOT BE ALLOWED.

## LEGEND - MECHANICAL

	RECTANGULAR GALVANIZED STEEL DUCTWORK
	RIGID ROUND GALVANIZED STEEL DUCTWORK
	RIGID ROUND RUNOUT DUCT TO SUPPLY DIFFUSER
	SUPPLY DIFFUSER
	RETURN GRILLE
	THERMOSTAT WITH LOCKING, VANDAL PROOF COVER
	REMOTE WALL MOUNTED TEMPERATURE SENSOR
	GRILLE TYPE
	MIN. CFM
	CONDENSATE DRAIN PIPING
	REFRIGERANT PIPING
	DUCT TYPE SMOKE DETECTOR
	REMOTE ALARM INDICATING DEVICE "RAID" FOR DUCT MOUNTED SMOKE DETECTOR

## MECHANICAL SYSTEMS AND EQUIPMENT

### METHOD OF COMPLIANCE:

Prescriptive  Energy Cost Budget

Thermal Zone 3A

#### Exterior Design Conditions

winter dry bulb 22 F  
summer dry bulb 94 F

#### Interior Design Conditions

winter dry bulb 72 F  
summer dry bulb 75 F  
relative humidity 50%

Building Heating Load 212,4000 BTU/hr  
-122,280 BTU/hr (energy recovery unit reduction)  
90,120 BTU/hr

Building Cooling Load 147,800 BTU/hr  
-52,480 BTU/hr (energy recovery unit reduction)  
95,320 BTU/hr

#### Mechanical Spacing Conditioning System

Unitary - The building is served by (2) 7.5 ton split system heat pumps with an energy recovery ventilator.

Boiler - Not applicable to this project.

Chiller - Not applicable to this project.

#### Equipment efficiencies

Efficiencies and outputs are listed on equipment schedules - See drawings.

#### Equipment schedules with motors.

Motors used on this project are included in the efficiency rating of the unit. See drawings for efficiencies.

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Proj. Contract #: 6300036020  
TIP Project #: K-4908  
WBS#: 39894.3.1  
F.A. Project #: IMS-77-1(177)39

#### SEALS



**BID DOCUMENTS**  
2014/12/29

#### PROJECT

**I-77 REST AREA**

Iredell County, NC

#### REVISIONS

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**SCHEDULES DETAILS**

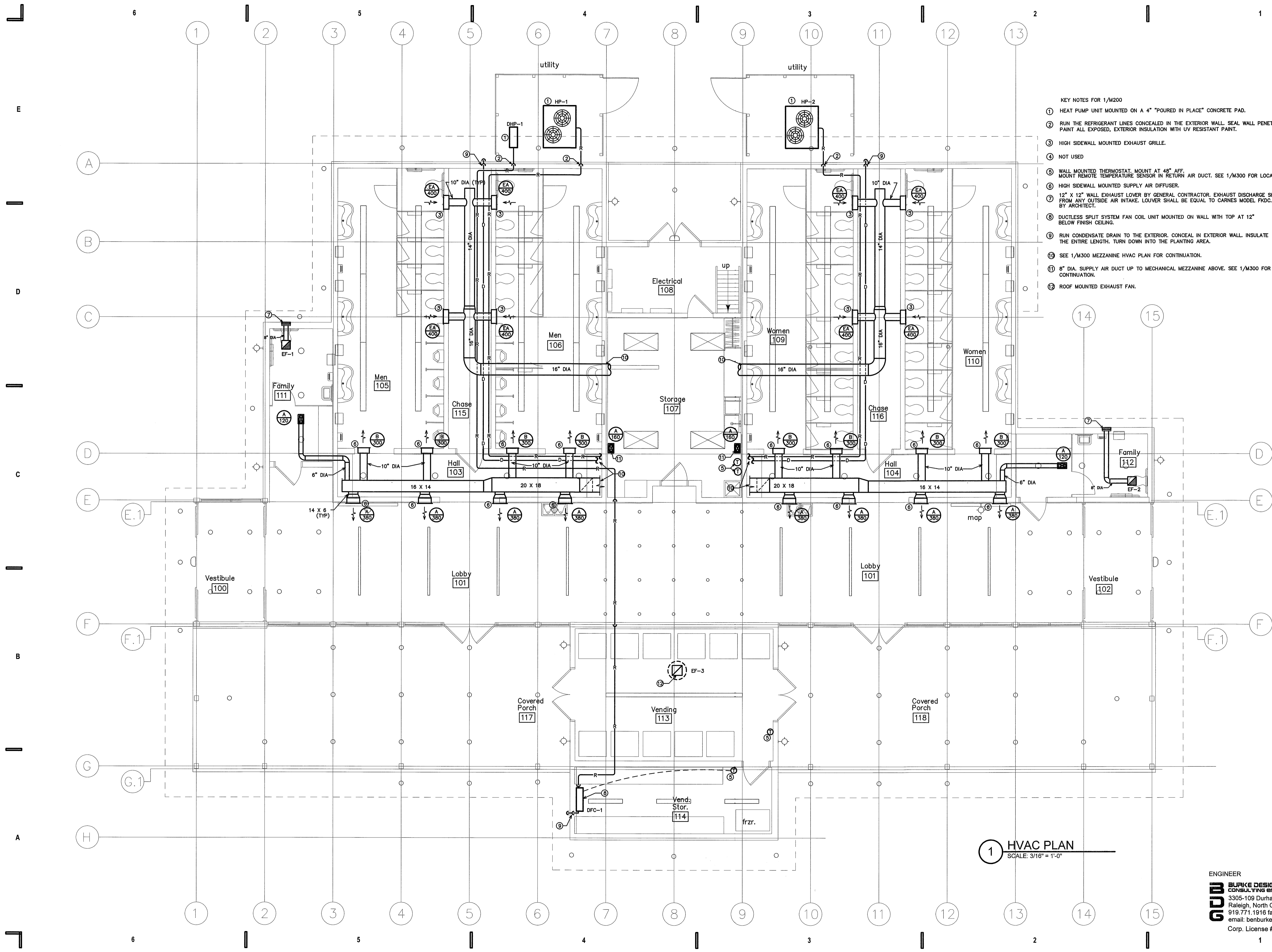
#### ENGINEER

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#### SHEET NO.

**M100**





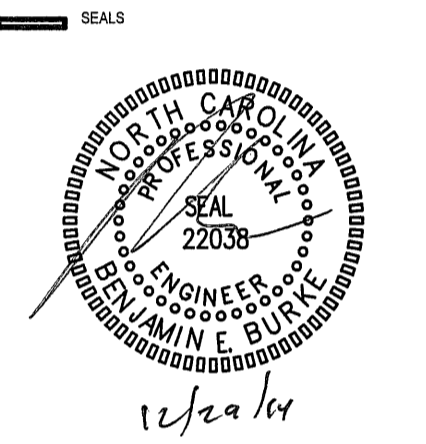
- KEY NOTES FOR 1/M200
- ① HEAT PUMP UNIT MOUNTED ON A 4" "POURED IN PLACE" CONCRETE PAD.
  - ② RUN THE REFRIGERANT LINES CONCEALED IN THE EXTERIOR WALL. SEAL WALL PENETRATION. PAINT ALL EXPOSED, EXTERIOR INSULATION WITH UV RESISTANT PAINT.
  - ③ HIGH SIDEWALL MOUNTED EXHAUST GRILLE.
  - ④ NOT USED
  - ⑤ WALL MOUNTED THERMOSTAT. MOUNT AT 48" AFF. MOUNT REMOTE TEMPERATURE SENSOR IN RETURN AIR DUCT. SEE 1/M300 FOR LOCATIONS
  - ⑥ HIGH SIDEWALL MOUNTED SUPPLY AIR DIFFUSER.
  - ⑦ 12" X 12" WALL EXHAUST LOUVER BY GENERAL CONTRACTOR. EXHAUST DISCHARGE SHALL BE 10'-0" MIN. FROM ANY OUTSIDE AIR INTAKE. LOUVER SHALL BE EQUAL TO CARNES MODEL FKDC. COLOR SELECTED BY ARCHITECT.
  - ⑧ DUCTLESS SPLIT SYSTEM FAN COIL UNIT MOUNTED ON WALL WITH TOP AT 12" BELOW FINISH CEILING.
  - ⑨ RUN CONDENSATE DRAIN TO THE EXTERIOR. CONCEAL IN EXTERIOR WALL INSULATE THE ENTIRE LENGTH. TURN DOWN INTO THE PLANTING AREA.
  - ⑩ SEE 1/M300 MEZZANINE HVAC PLAN FOR CONTINUATION.
  - ⑪ 8" DIA. SUPPLY AIR DUCT UP TO MECHANICAL MEZZANINE ABOVE. SEE 1/M300 FOR CONTINUATION.
  - ⑫ ROOF MOUNTED EXHAUST FAN.

**1 HVAC PLAN**  
SCALE: 3/16" = 1'-0"

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**BID DOCUMENTS**  
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**I-77 REST AREA**

Iredell County, NC

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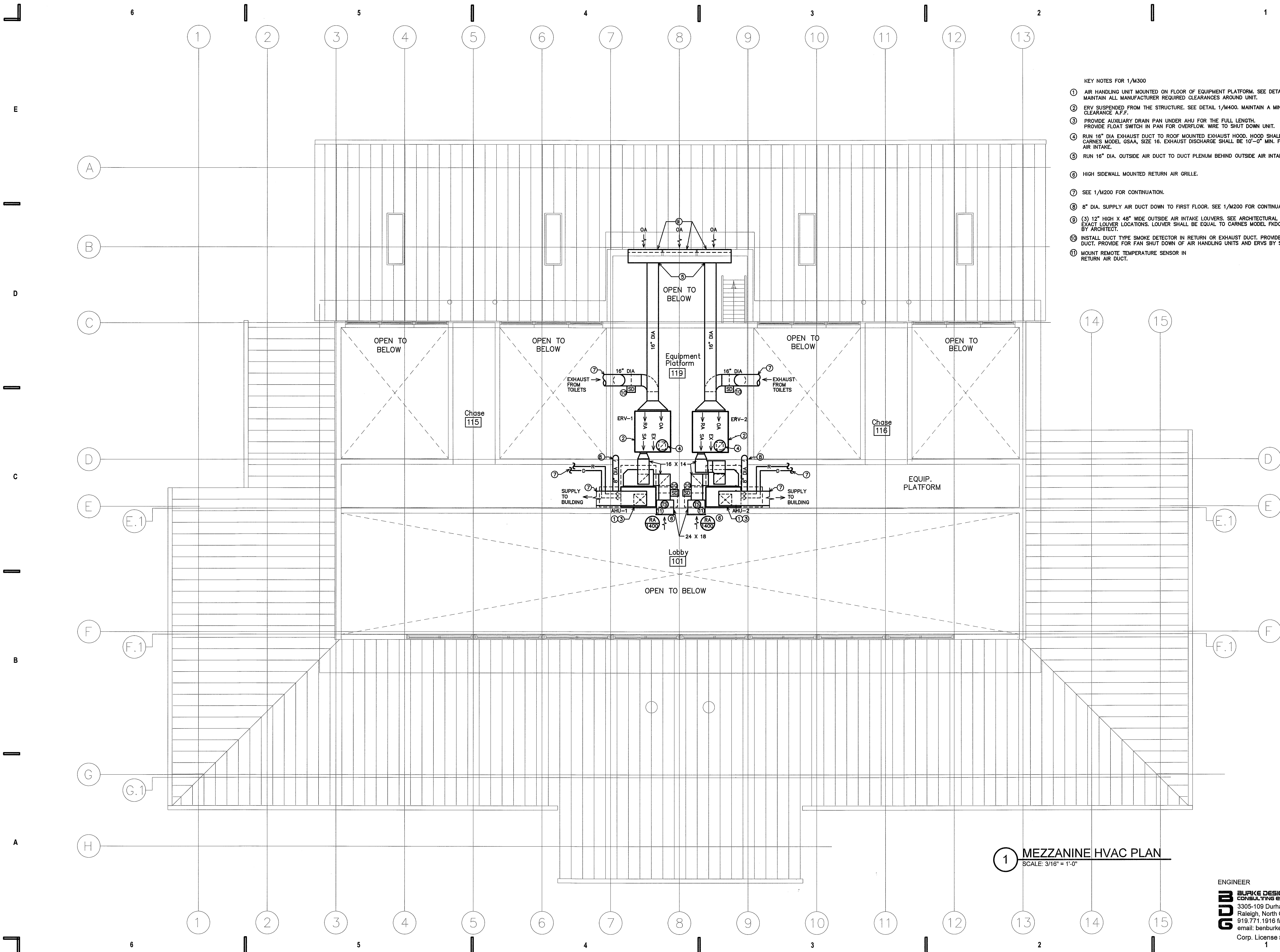
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HVAC PLAN

SHEET NO.  
**M200**

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- KEY NOTES FOR 1/M300
- ① AIR HANDLING UNIT MOUNTED ON FLOOR OF EQUIPMENT PLATFORM. SEE DETAIL 1/M400 MAINTAIN ALL MANUFACTURER REQUIRED CLEARANCES AROUND UNIT.
  - ② ERV SUSPENDED FROM THE STRUCTURE. SEE DETAIL 1/M400. MAINTAIN A MINIMUM OF 6'-6" CLEARANCE A.F.F.
  - ③ PROVIDE AUXILIARY DRAIN PAN UNDER AHU FOR THE FULL LENGTH. PROVIDE FLOAT SWITCH IN PAN FOR OVERFLOW. WIRE TO SHUT DOWN UNIT.
  - ④ RUN 16" DIA EXHAUST DUCT TO ROOF MOUNTED EXHAUST HOOD. HOOD SHALL BE EQUAL TO CARNES MODEL G5AA, SIZE 16. EXHAUST DISCHARGE SHALL BE 10'-0" MIN. FROM OUTSIDE AIR INTAKE.
  - ⑤ RUN 16" DIA. OUTSIDE AIR DUCT TO DUCT PLENUM BEHIND OUTSIDE AIR INTAKE LOUVERS.
  - ⑥ HIGH SIDEWALL MOUNTED RETURN AIR GRILLE.
  - ⑦ SEE 1/M200 FOR CONTINUATION.
  - ⑧ 8" DIA. SUPPLY AIR DUCT DOWN TO FIRST FLOOR. SEE 1/M200 FOR CONTINUATION.
  - ⑨ (3) 12" HIGH X 48" WIDE OUTSIDE AIR INTAKE LOUVERS. SEE ARCHITECTURAL ELEVATIONS FOR EXACT LOUVER LOCATIONS. LOUVER SHALL BE EQUAL TO CARNES MODEL FK0C. COLOR SELECTED BY ARCHITECT.
  - ⑩ INSTALL DUCT TYPE SMOKE DETECTOR IN RETURN OR EXHAUST DUCT. PROVIDE ACCESS DOOR IN DUCT. PROVIDE FOR FAN SHUT DOWN OF AIR HANDLING UNITS AND ERVS BY SMOKE DETECTORS.
  - ⑪ MOUNT REMOTE TEMPERATURE SENSOR IN RETURN AIR DUCT.

**1 MEZZANINE HVAC PLAN**  
SCALE: 3/16" = 1'-0"

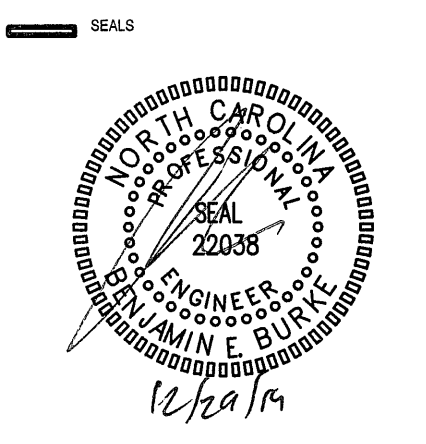
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Proj. Contract #: 6300036020  
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**I-77 REST AREA**

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**MECHANICAL MEZZANINE PLAN**

SHEET NO.  
**M300**

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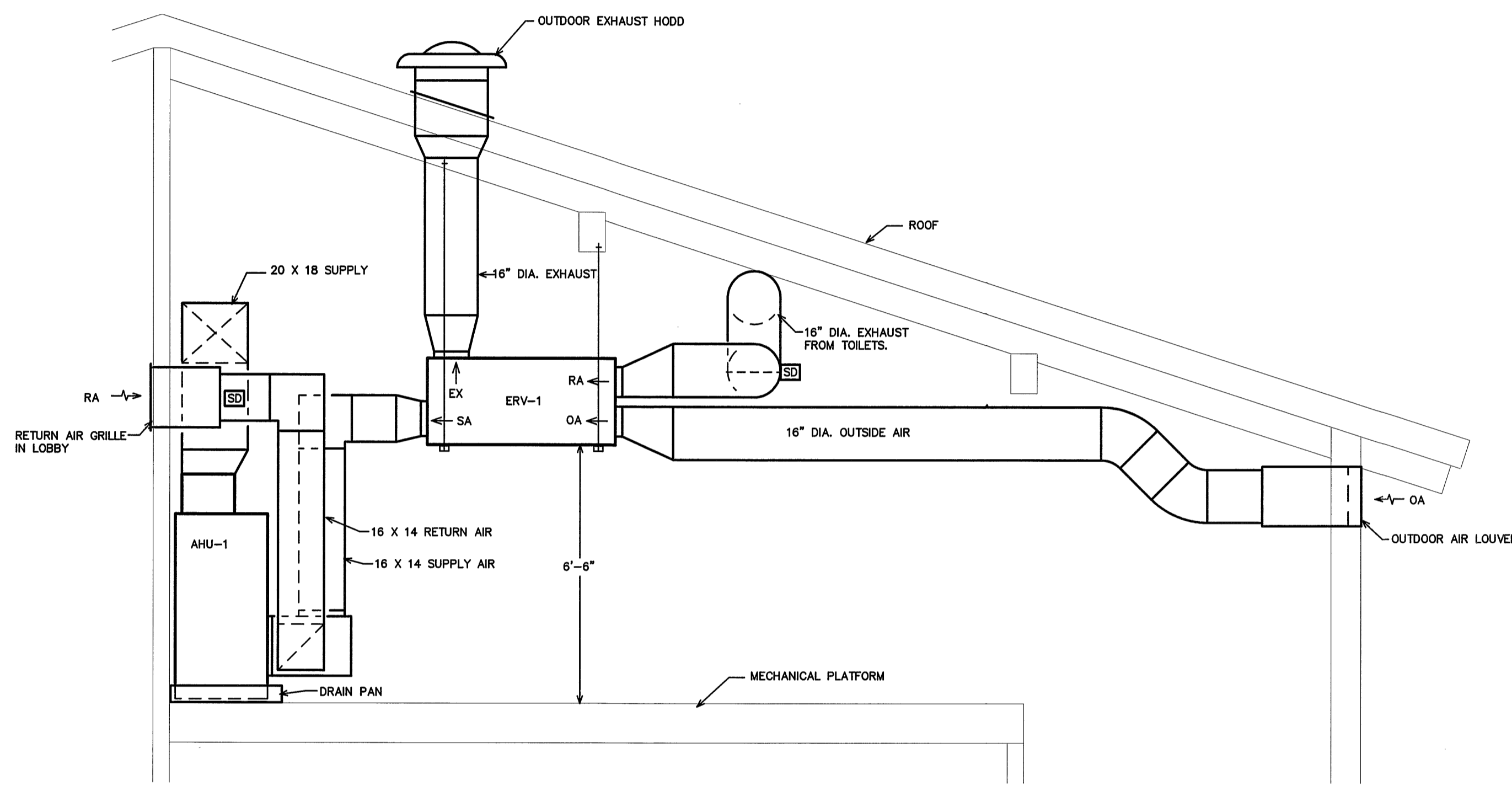
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**1 MECHANICAL ROOM SECTION**  
SCALE: 3/8" = 1'-0"

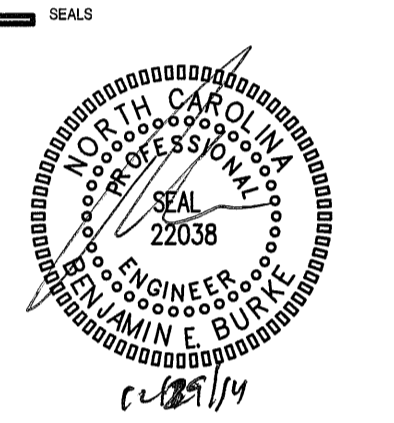
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1BE4A355AD474DC

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HVAC DETAILS

SHEET NO.

**M400**

ENGINEER

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DIVISION 16 - ELECTRICAL

PART 1 - GENERAL

1.1 DESCRIPTION OF THE WORK

- A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
1. Lighting and power distribution system.
2. Provide lighting fixtures selected by owner with lamps to match.
3. Wiring devices, boxes, cover plates, etc.
4. Source of power for all items of equipment.
5. Grounding.
6. Other requirements and/or systems where shown.
B. All work shall be complete and items, equipment, etc., shall be electrically connected for proper and correct operation.
C. All work under this contract shall be installed in accordance with the latest edition of the following codes and standards insofar as they apply:
1. The 2011 National Electrical Code.
2. The National Electrical Safety Code.
3. Underwriter's Laboratories, Inc., Standards and approved listings or other approved 3rd party listing agency.
4. Electrical Testing Laboratories standards.
5. 2012 North Carolina State Building Code.
6. 2012 North Carolina State Energy Code.
D. The Electrical Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.
E. Local permits are not required. All work must be inspected by the Office of State Construction state electrical inspector and the Engineer of Record. Provide certificate of inspection and approval from the state electrical inspector prior to the final inspection. The electrical contractor is responsible for contacting the state electrical inspector for all required inspections.
F. All work shall be done by skilled mechanics and shall present a neat, trim, workmanlike condition when complete.

1.2 INTENT

- A. The intent of these specifications and the accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Electrical Contractor shall take this into consideration and include in his bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.

1.3 COORDINATION

- A. Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.
B. Locations shown are approximate. The drawings do not give exact details as to elevations and locations of various pipes, fittings, ducts, conduit, etc., and do not show all offsets and other installation details which may be required. Coordinate all locations with architect before any rough-in.

1.4 SHOP DRAWINGS

- A. Shop drawings shall be submitted for panels and service equipment, lighting, wiring devices, and cover plates. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.

PART 2 - PRODUCTS AND MATERIALS

2.1 GENERAL

- A. All material shall be new and shall bear the manufacturer's name, trade name, and be third party acceptable to NCDOL listed and labeled where such standard has been established for the particular material. Materials shall be the standard products of manufacturer's regularly engaged in the manufacturer of the required type of equipment and the manufacturer's latest approved design.
1. Boxes installed in concealed locations shall be set flush with the finished surfaces.
2. Provide rated boxes in all fire barriers & walls installed per code.

2.2 CONDUCTORS

- A. Conductors shall be color coded, sizes #8 and larger may be color taped on the job. Color coding shall comply with 2011 NEC 200.6.
B. Conductors shall be manufactured by Bodge, Southwire or approved equal. Conductors shall meet the latest requirements of NEMA and IPECA and shall be third party acceptable to NCDOL approved.
C. Metallic sheathed "MC" cable should not be used for this project, without designer authorization. MC cable is allowed for light whips 6"-0" or less and where concealed with-in existing construction to minimize demolition work. If used, MC cable shall be 1/2" with minimum #12 AWG copper wire and green insulated copper ground.
D. Conductors shall be spliced and taped as follows:
1. Size #10 and #12, use ideal "Wing Nuts" or T&E "Piggy" connectors. Connectors shall be rated for 150 degrees C for use in recessed lighting fixtures.
2. Size #8 and larger shall be solderless screw and screw-clamping type, smoothly covered and shaped with rubber gum type with final cover vinyl plastic electrical type. In lieu of rubber gum and vinyl plastic type, factory fabricated approved preformed insulating covers may be used. All connectors shall be UL approved.
3. No split-bolt type connectors may be used.
E. All branch wire and connections shall be copper and sized per National Electric Code.
F. All conductors shall be continuous without splice between junction, outlet, device boxes, etc. No splicing will be permitted in panelboard cabinets, safety switches, etc.
G. All wiring in mechanical spaces shall be plenum rated.
H. Provide GFI protection within 6'-0" of any sink.
I. All multi-wire branch circuits shall comply with 2011 NEC, 210.4(B).
J. All wiring at medical facilities shall comply with 2011 NEC, 517.1.

2.3 PANELBOARDS, SAFETY SWITCHES

- A. Panelboards shall comply with NEMA Standard PB 1 - Latest Edition and as manufactured by Square D or ITE-Siemens. All panel boards must have copper buses.
B. Safety switches shall be heavy duty type, size and rating as required for load service. Safety switches shall be fused or unfused as shown and/or as required. Safety switches serving motor loads shall be horsepower rated for load served.

2.4 WIRING DEVICES

- A. Wiring devices shall be commercial grade by Bryant, Leviton, or approved equal. With matching cover. Color by Architect.
B. Wiring devices installed under a Kitchen Hood shall have stainless steel covers.
C. Wiring devices installed over counters shall comply with ANSI A117.1.

2.5 CONDUIT

- A. PVC conduit will be allowed under slab. Provide rigid turn-ups.
B. All exposed conduit shall be rigid where exposed to the elements, located less than 8'-0" above grade or where exposed to hazardous conditions.

PART 3 - EXECUTION

3.1 CIRCUIT GROUNDING

- A. All circuits shall contain an insulated, green, copper grounding conductor, sized in accordance with Table 250-122 of the NEC. Grounding conductors shall be connected to equipment grounding bus in panelboard and securely attached and grounded to the device or enclosure at the other end.
3.2 GROUNDING TYPE CONVENIENCE OUTLETS AND SWITCHES
A. Outlets and switches shall be solidly grounded to equipment grounding system with a green colored insulated conductor. Electrical connections shall be continuous from equipment ground bus in panelboard to the hex nut on the convenience outlet or switch.
3.3 MOTORS
A. All motors shall be connected to conduit system with short length (minimum length 24" and maximum length 36") of flexible liquidtight conduit.

3.4 EQUIPMENT LABELING

- A. Provide permanent penolic plastic name plates for all panelboards, safety switches, wiring troughs, etc., for identification of equipment controlled, services, etc. Nameplates shall be securely and permanently attached to equipment with stainless steel screws. Nameplates shall include the name of the equipment and where it is fed from.
B. All switch plates, receptacle plates and outlet covers shall be labeled with machine printed vinyl labels identifying the circuit(s) within.
C. All empty conduit runs shall be identified and indicated where they terminate.
D. Provide typewritten directory in each panelboard to clearly identify each circuit, service, etc.

3.5 JUNCTION AND/OR PULL BOXES

- A. Boxes shall be installed where necessary to avoid excessive runs and/or too many bends between outlets.

3.6 PULL WIRE

- A. Leave pull wire in each empty conduit run.

3.7 GROUNDING

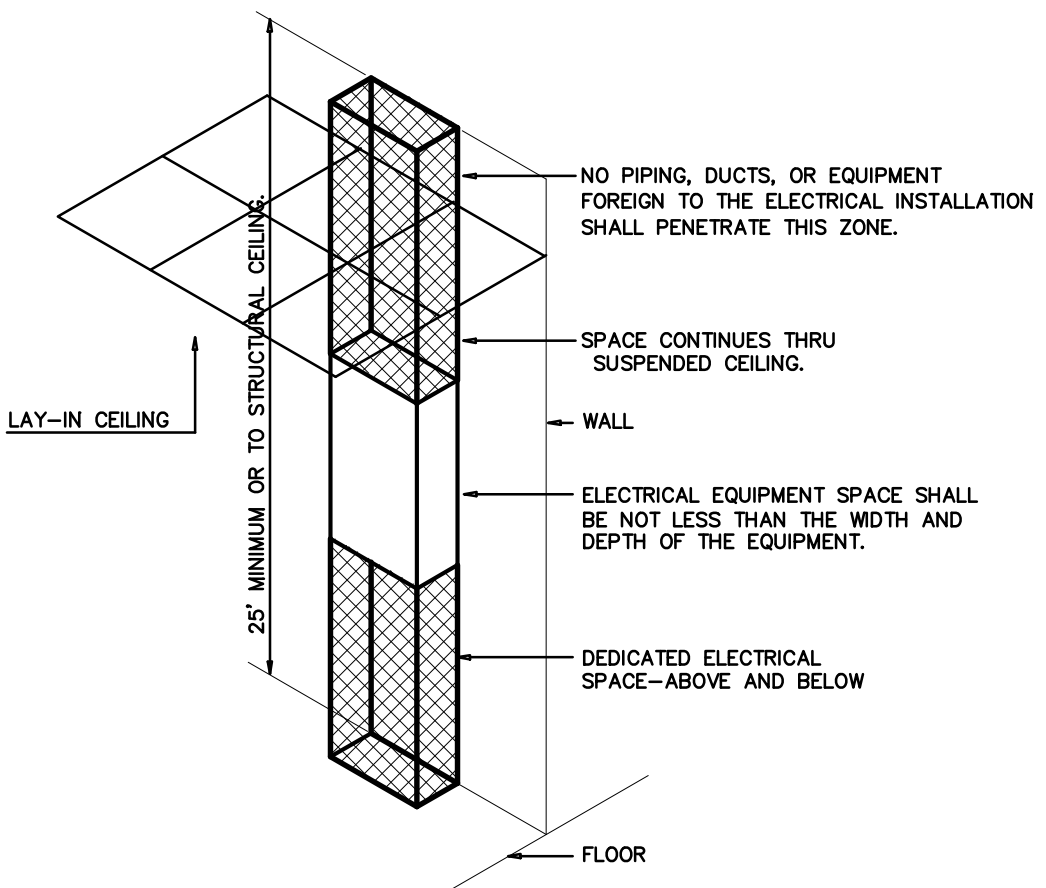
- A. All grounding shall be in accordance with Article 250 of the NEC. In addition, the following requirements shall be met:
1. Grounding conductors shall be installed as to permit the shortest and most direct path from equipment to ground. All connections to grounding conductors shall be accessible.
2. Equipment ground continuity shall be maintained through flexible metal conduit.
3. All wiring devices equipped with grounding connection shall be solidly grounded to ground system with grounding conductors.
4. The frame of all lighting fixtures shall be securely grounded to the equipment ground system with grounding conductors.
5. All equipment enclosures, and non-current-carrying metallic parts of electrical equipment, raceway systems, etc., shall be effectively and adequately bonded to ground.
6. All equipment enclosures, and non-current-carrying metallic parts of electrical equipment, raceway systems, etc., shall be effectively and adequately bonded to ground.
3.8 ELECTRICAL WORK IN CONNECTION WITH OTHER WORK
A. The trade(s) furnishing equipment will provide disconnect switches, motor starters, and make final equipment connections. ELECTRICAL CONTRACTOR will make line side connections to disconnect switches or motor starters.

3.9 CLEAN UP

- A. During construction, keep the site clean of debris. Upon completion, and before final inspection, clean up the premises to remove all evidence of work. In addition upon completion of construction leave equipment clean.

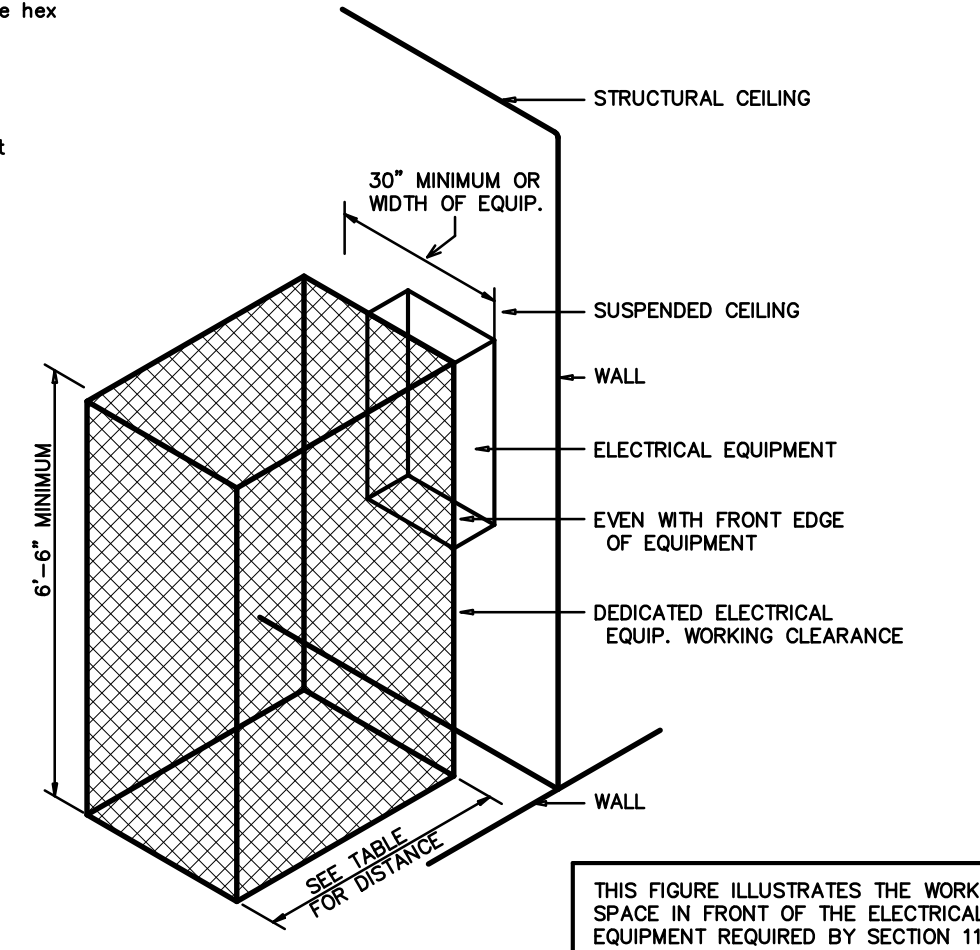
3.10 GUARANTEE

- A. Guarantee all materials and labor included in the electrical work for a period of one year from date of final acceptance by the Owner. Any part or parts of the work or equipment which prove to be defective during the guarantee period shall be replaced at no additional cost to the Owner.



ELECTRICAL EQUIPMENT DEDICATED SPACE PER ARTICLE 110.26.F.1 OF N.E.C.

1 DEDICATED SPACE NOT TO SCALE



ELECTRICAL EQUIPMENT WORKING CLEARANCE PER ARTICLE 110.26 OF N.E.C.

Table with 2 columns: VOLTAGE TO GROUND NOMINAL (0-150, 151-600) and MIN. CLEAR DISTANCE IN FEET (CONDITIONS 1, 2, 3, 4).

- WHERE THE CONDITIONS ARE AS FOLLOWS:
1 EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.
2 EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE, BRICK OR TILE WALLS SHALL BE CONSIDERED AS GROUNDED.
3 EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE.

2 ELECTRICAL CLEARANCES NOT TO SCALE

ELECTRICAL NOTES

- 1 ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES HAVING JURISDICTION.
2 ALL BRANCH CIRCUIT CONDUCTORS TO BE COPPER (SERVICE CONDUCTORS MAY BE ALUMINUM WITH SAME AMPACITY AS COPPER CONDUCTORS. RE-SIZE CONDUCTORS AND CONDUIT PER NEC.)
3 ALL CIRCUITS TO BE 2 #12, 1 #12 GND IN 1/2" EMT CONDUIT AS A MINIMUM. PROVIDE WIRING FOR LARGER CIRCUITS AS REQUIRED BY NEC. RIGID CONDUIT IS REQUIRED WHERE EXPOSED BELOW 8'-0" A.F.F.
4 ALL EMPTY CONDUIT RUNS IN EXCESS OF 10 FEET SHALL BE PROVIDED WITH A PULL WIRE OR FISH TAPE/CORD.
5 CONTRACTOR SHALL VERIFY THAT ALL DOOR SWINGS ARE CORRECT BEFORE INSTALLING LIGHT SWITCH OUTLETS.
6 ALL BRANCH CIRCUIT CONDUCTORS FROM THE PANEL TO THE FIRST OUTLET SHALL BE INCREASED TO THE NEXT LARGER SIZE WHERE THE LENGTH OF THE HOME RUN EXCEEDS 120 FEET ON 120V AND 208V CIRCUITS.
7 THE CORRECT NUMBER OF WIRES MAY NOT BE INDICATED FOR ALL CIRCUITS, ONLY THOSE WHERE CLARIFICATION IS NECESSARY. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRES NECESSARY FOR THE PROPER FUNCTION OF THE SYSTEM WHETHER INDICATED ON DRAWINGS OR NOT.
8 THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTLY PHASING THE CIRCUITS IN THE PANELBOARDS.
9 THE ELECTRICAL CONTRACTOR SHALL VERIFY THE TYPE OF CEILING SYSTEM WITH THE GENERAL CONTRACTOR TO INSURE THAT ALL LIGHTING FIXTURES ARE COMPATIBLE WITH THE CEILING SYSTEM BEING INSTALLED. LIGHTING FIXTURES SHOULD NOT BE ORDERED UNTIL TYPE OF CEILING HAS BEEN DETERMINED.
10 ELECTRICAL REQUIREMENTS INDICATED ON DRAWINGS MAY DIFFER FROM ACTUAL EQUIPMENT FURNISHED. IF FURNISHED EQUIPMENT DIFFERS FROM RATINGS ON DRAWINGS CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER FOR APPROPRIATE ACTION TO BE TAKEN.
11 IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE EXACT BREAKER REQUIREMENTS FOR ALL EQUIPMENT PRIOR TO ORDERING PANEL. ADJUST BREAKER AND WIRE SIZES AS REQUIRED.
12 PROVIDE BOXES, JACKS, WIRING AND CONDUIT FROM LOCATIONS SHOWN TO MTP LOCATION. VERIFY EXACT REQUIREMENTS WITH OWNER.
13 ELECTRICAL CONTRACTOR SHALL PROVIDE ALL DISCONNECTS FOR MECHANICAL AND PLUMBING EQUIPMENT. DISCONNECTS SHALL BE PER THE MANUFACTURER'S RECOMMENDATIONS AND FUSED PER NAME PLATE. PROVIDE NEMA 3R ENCLOSURES ON EXTERIOR. COORDINATE FUSE SIZES.
14 THE EC SHALL MEET WITH THE ARCHITECT AND TENANT PRIOR TO INSTALLING OUTLET BOXES TO VERIFY LOCATIONS AND MOUNTING HEIGHTS OF RECEPTACLES AND TELEPHONE OUTLETS.

ELECTRICAL LEGEND

- [Symbol] LIGHT FIXTURE: LETTER DENOTES TYPE OF LIGHT FIXTURE (REFER TO LIGHTING PLAN AND FIXTURE SCHEDULE).
[Symbol] CABINET EXHAUST FAN
[Symbol] DUPLEX RECEPTACLE - 120V; MOUNT 18" TO CENTER AFF UNLESS NOTED OTHERWISE; "WP" INDICATES WEATHER PROOF, "GFI" INDICATES GROUND FAULT CURRENT INTERRUPT PROTECTED.
[Symbol] QUADRAPLEX RECEPTACLE - 120V
[Symbol] LIGHT SWITCH
[Symbol] LIGHT SWITCH WITH INTEGRAL INFRARED MOTION SENSOR FOR AUTOMATIC SHUT-OFF WITH UP TO 2 HOUR ADJUSTABLE DELAY.
[Symbol] MOTOR RATED SWITCH
[Symbol] JUNCTION BOX
[Symbol] TELE/DATA OUTLET - PROVIDE JUNCTION BOX AND 3/4" CONDUIT BACK TO ELECTRICAL ROOM & MTP; PROVIDE CAT 5E CABLING BACK TO MTP. MTP SHALL CONSIST OF TELEPHONE DEMARK BOX ON EXTERIOR OF BUILDING. COORDINATE WITH LOCAL TELEPHONE COMPANY. PROVIDE CONDUIT FROM DEMARK TO TELEPHONE RIGHT OF WAY.
[Symbol] TIME CLOCK (MULTI-CIRCUIT AS REQUIRED)
[Symbol] SINGLE-POLE HOMERUN TO PANELBOARD
[Symbol] TWO-POLE OR 3-POLE HOMERUN TO PANELBOARD
[Symbol] EMERGENCY LIGHT
[Symbol] EXIT LIGHT
[Symbol] COMBINATION EXIT/EMERGENCY LIGHT
[Symbol] BRANCH CIRCUIT WIRING
[Symbol] SWITCH LEG
[Symbol] GROUND CONNECTION
[Symbol] DISTRIBUTION PANELBOARD
[Symbol] DISCONNECTING MEANS AS REQUIRED BY CODE
[Symbol] EXTERIOR PHOTOCELL (PC)

LIGHTING SCHEDULE \*

Table with columns: MARK, MANUFACTURER, CATALOG NO., VOLT, LAMPS NO., TYPE, W, BALLAST TYPE, W/FIXTURE, REMARKS. Includes items like FINELITE, DAY-BRITE, COLUMBIA, etc.

\* OR APPROVED EQUALS. PROVIDE CUT SHEETS FOR OWNER APPROVAL PRIOR TO ORDERING FIXTURES. FOR FLUORESCENT FIXTURES CONTROLLED BY MOTION SENSOR, PROVIDE "PROGRAMMED RAPID START" BALLASTS. CATALOG NUMBERS ARE FOR REFERENCE ONLY, ACTUAL NUMBERS MAY VARY. "EB" DENOTES ELECTRONIC BALLAST.
\*\* VERIFY FIXTURE HAS INTEGRAL LOCAL DISCONNECTING MEANS PER NEC 410.130 (G) (2011).

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Proj. Contract #: 6300036020
TIP Project #: K-4908
WBS#: 39894.3.1
F.A. Project #: IMS-77-1(177)39

Professional Engineer Seal for Ben Burke, State of North Carolina, License No. 16644355407400, dated 3/11/2015.

BID DOCUMENTS
2014/12/29

I-77 REST AREA

Iredell County, NC

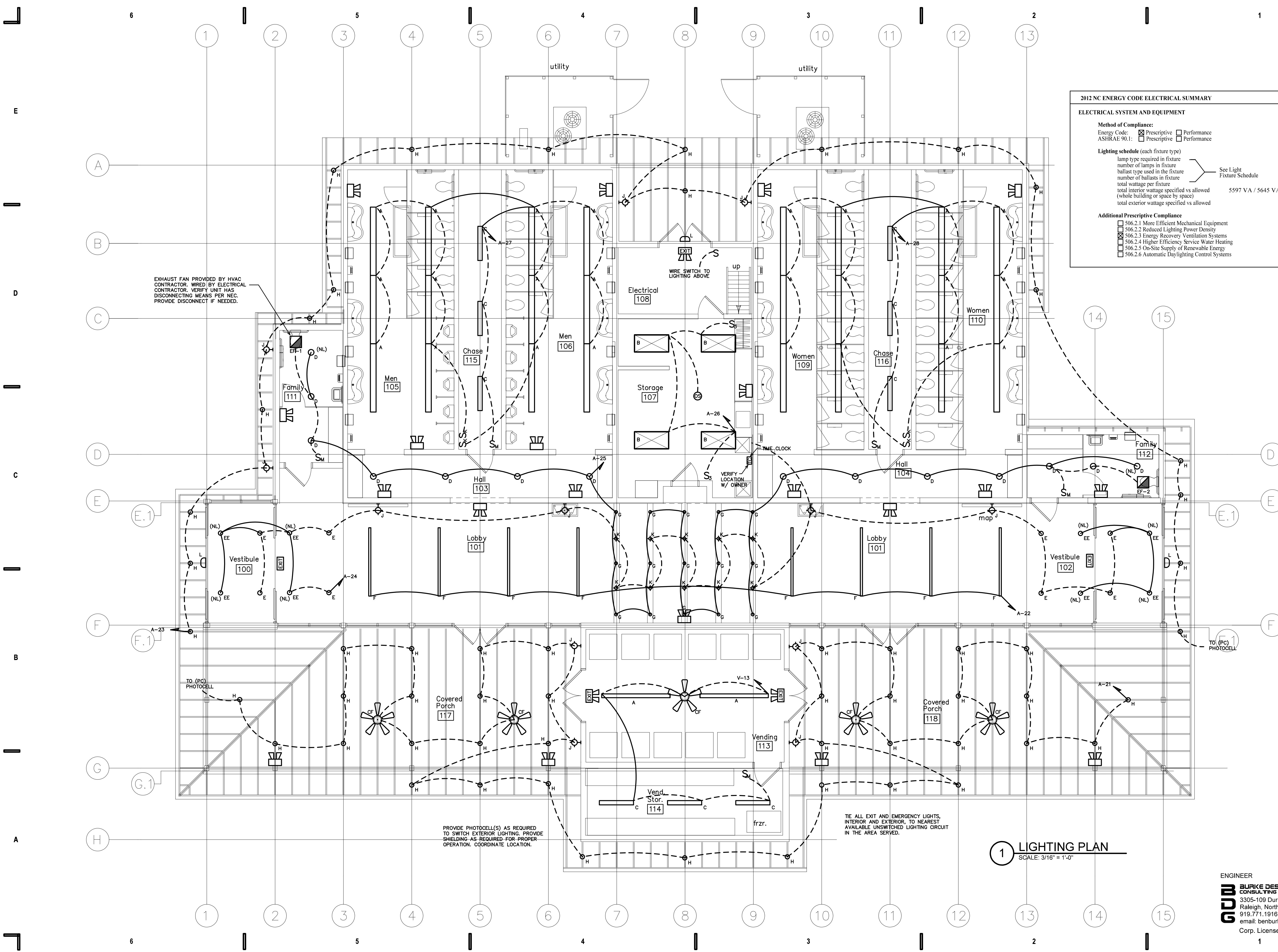
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ELEC DETAILS

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E100





**2012 NC ENERGY CODE ELECTRICAL SUMMARY**

**ELECTRICAL SYSTEM AND EQUIPMENT**

**Method of Compliance:**  
 Energy Code:  Prescriptive  Performance  
 ASHRAE 90.1:  Prescriptive  Performance

**Lighting schedule (each fixture type)**  
 lamp type required in fixture  
 number of lamps in fixture  
 ballast type used in the fixture  
 number of ballasts in fixture  
 total wattage per fixture  
 total interior wattage specified vs allowed (5597 VA / 5645 VA)  
 total exterior wattage specified vs allowed

**Additional Prescriptive Compliance**

- 506.2.1 More Efficient Mechanical Equipment
- 506.2.2 Reduced Lighting Power Density
- 506.2.3 Energy Recovery Ventilation Systems
- 506.2.4 Higher Efficiency Service Water Heating
- 506.2.5 On-Site Supply of Renewable Energy
- 506.2.6 Automatic Daylighting Control Systems

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Proj. Contract #: 6300036020  
 TIP Project #: K-4908  
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 F.A. Project #: IMS-77-1(177)39



**BID DOCUMENTS**  
 2014/12/29

**I-77 REST AREA**  
 Iredell County, NC

**REVISIONS**

NO.	DATE OF REVISION

**PROJECT DATA**

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FILENAME:	
PROJECT NO:	2013_0260
PRINTING:	Bid Documents

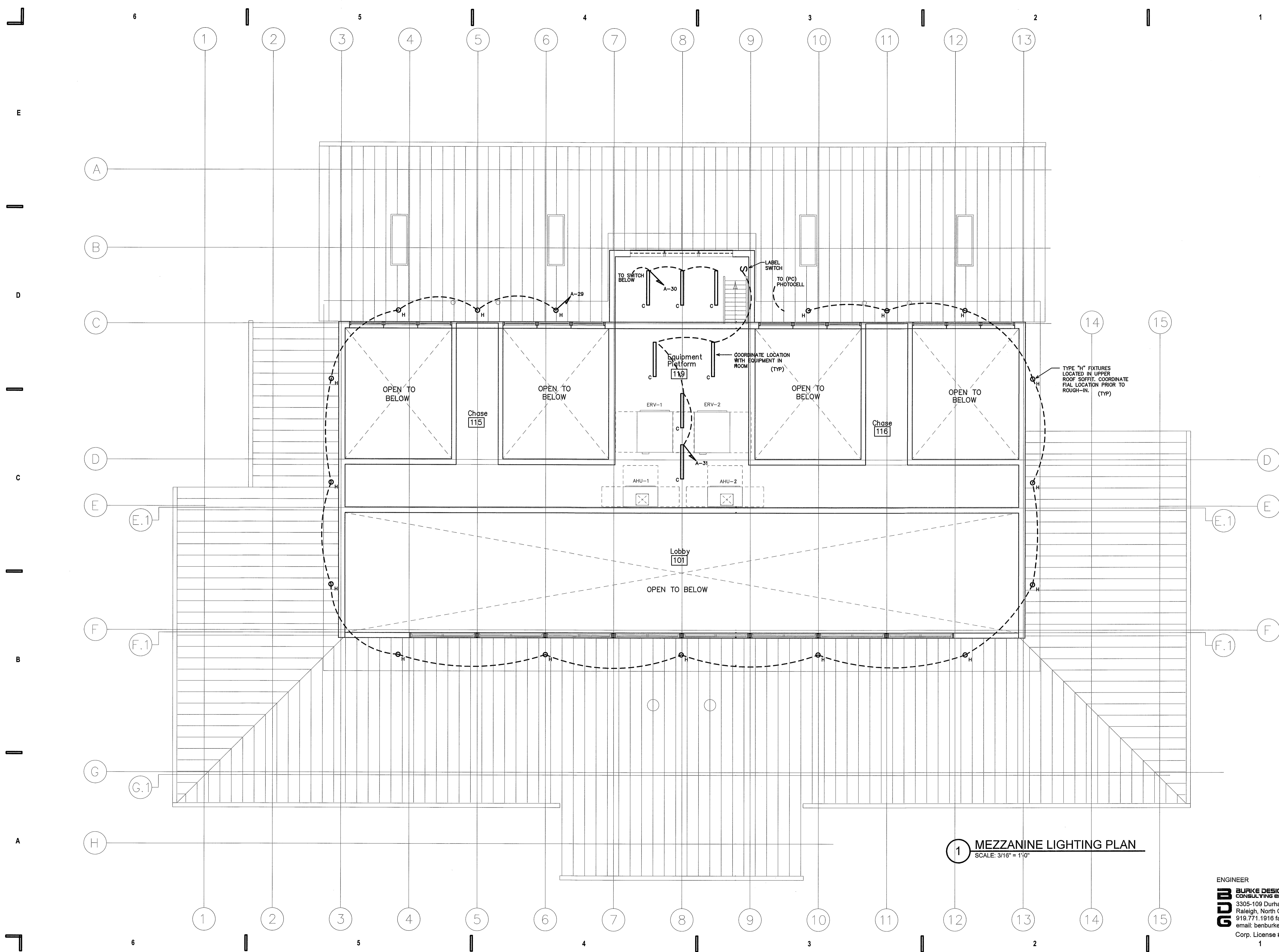
**LIGHTING PLANS**

**E200**

**1 LIGHTING PLAN**  
 SCALE: 3/16" = 1'-0"

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**1 MEZZANINE LIGHTING PLAN**  
SCALE: 3/16" = 1'-0"

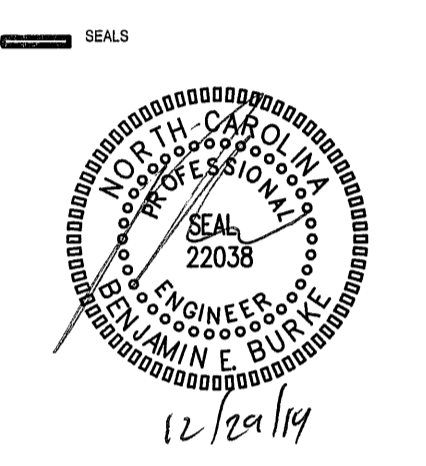
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Proj. Contract #: 6300036020  
TIP Project #: K-4908  
WBS#: 39894.3.1  
F.A. Project #: IMS-77-1(177)39



DocuSigned by:  
*Ben Burke*  
15E4A355AD74DC

**BID DOCUMENTS**  
2014/12/29

**I-77 REST AREA**  
Iredell County, NC

REVISIONS

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PROJECT DATA

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FILENAME:	
PROJECT NO.:	2013_0260
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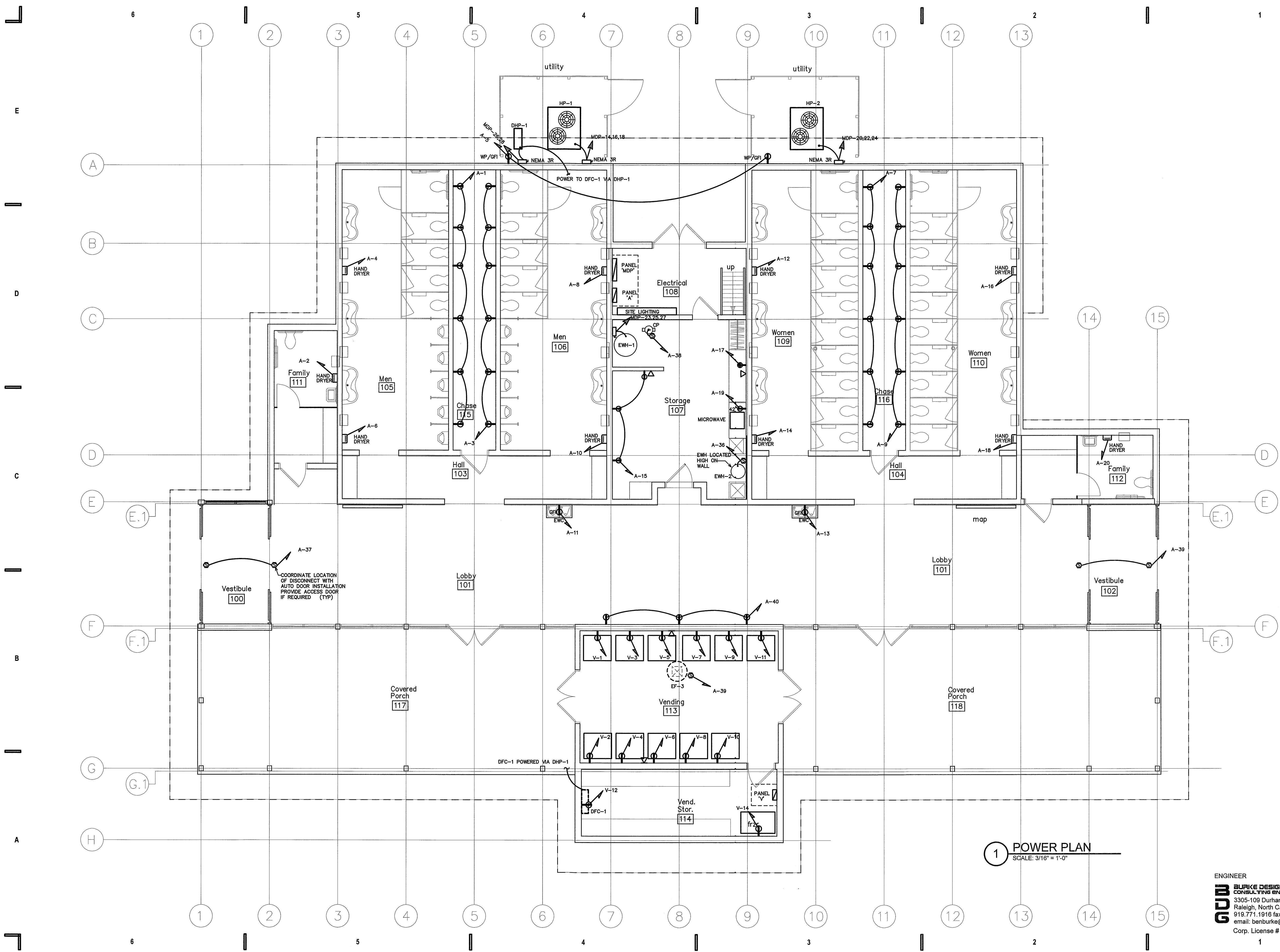
**LIGHTING PLAN**

ENGINEER

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SHEET NO.  
**E300**





**1 POWER PLAN**  
SCALE: 3/16" = 1'-0"

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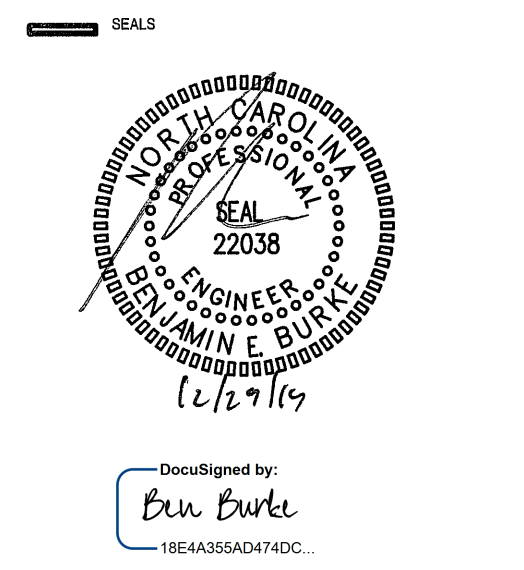
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 Iredell County, NC

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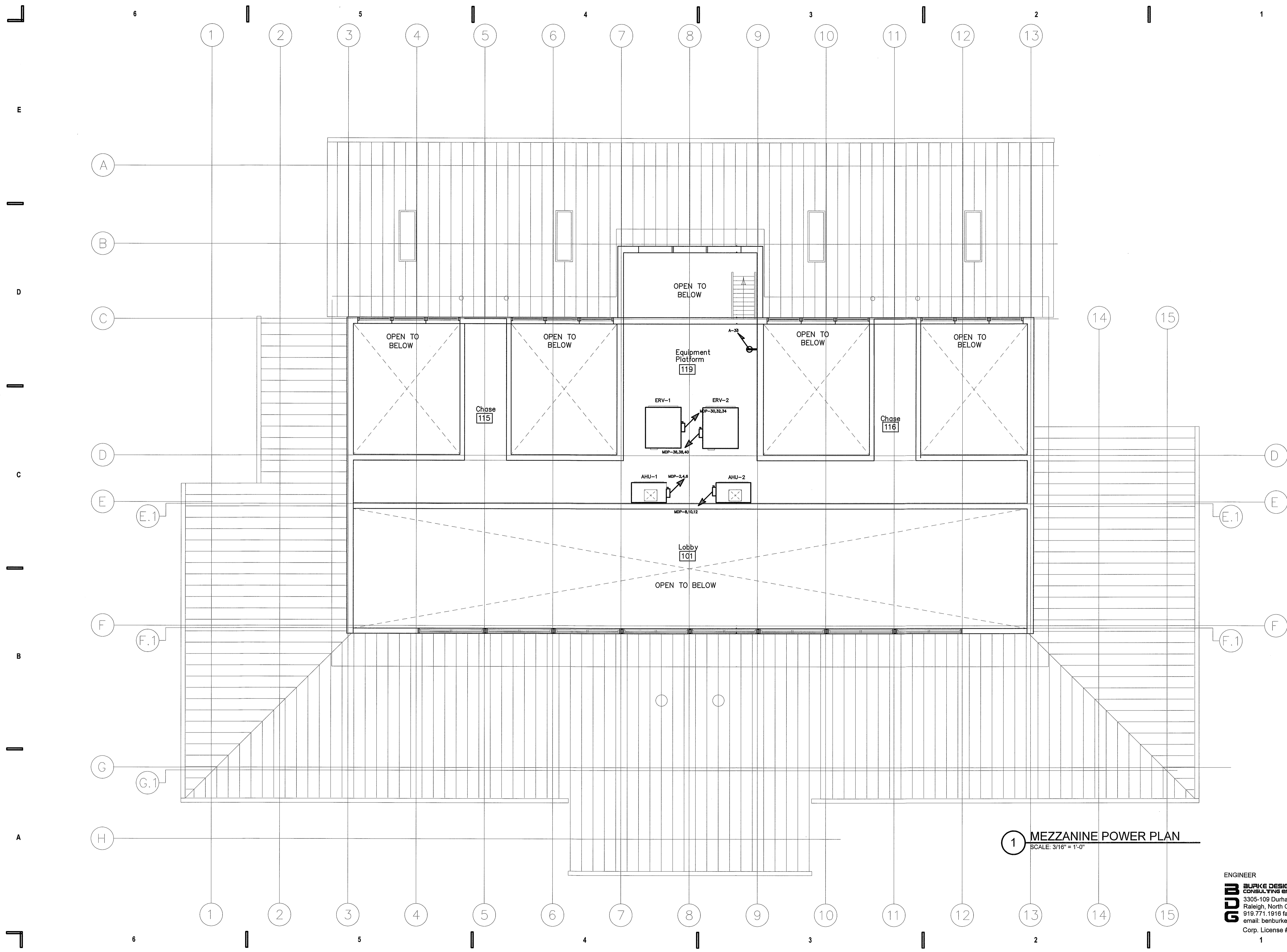
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POWER PLAN

SHEET NO.  
**E400**





**1 MEZZANINE POWER PLAN**  
SCALE: 3/16" = 1'-0"

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SEALS

DocuSigned by:  
 Ben Burke  
 18CA355A0474DC

**BID DOCUMENTS**  
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**I-77 REST AREA**  
 Iredell County, NC

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POWER PLAN

SHEET NO.  
**E500**



NEW PANEL - 'MDP'		MAKE: CUTLER HAMMER			RATING: 208/120V 3 PHASE 4 WIRE			M.L.O. MAIN CIRCUIT BREAKER				
LOAD SERVICE		TYPE: PRL3a			MOUNTING SURFACE			EQUIPMENT GROUND BUS <input type="checkbox"/> YES <input type="checkbox"/> NO				
OR APPROVED EQUAL		MINIMUM AIC: 22,000A			SERVICE ENTRY RATED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			OR APPROVED EQUAL				
LOAD SERVICE	CKT BRKR	WATTS PER PHASE			NEUTRAL A B C			WATTS PER PHASE			LOAD SERVICE	
PANEL 'A'	200A	16147	11078	11040	1	2	4	4068	4068	60A	AHU-1 MOTOR 2.6 FLA, HEAT 31.3 FLA (2.4 HP)	
PANEL 'V'	100A	9128	7200	7200	7	8	10	4068	4068	60A	AHU-2 MOTOR 2.6 FLA, HEAT 31.3 FLA (2.4 HP)	
PANEL 'S'	100A	360	540	540	13	14	16	3360	3360	50A	HP-1 COMP. 25.0 FLA, FANS(2) 1.5 FLA (34.4 MCA)	
SITE LIGHTING	200A	---	---	---	17	18	22	3360	3360	50A	HP-2 COMP. 25.0 FLA, FANS(2) 1.5 FLA (34.4 MCA)	
EWH-1	90A	8000	8000	8000	23	24	26	3360	3360	20A	DFC-1 & DOU-1 COMP. 7.3 RLA	
SPACE	---	---	---	---	29	30	32	1369	1369	20A	ERV-1 11.41 FLA	
SPACE	---	---	---	---	31	32	34	1369	1369	20A	ERV-2 11.41 FLA	
SPACE	---	---	---	---	33	34	36	1369	1369	20A	SPACE	
SPACE	---	---	---	---	35	36	38	1369	1369	20A	SPACE	
SPACE	---	---	---	---	37	38	40	1369	1369	20A	SPACE	
SPACE	---	---	---	---	39	40	42	1369	1369	20A	SPACE	
SPACE	---	---	---	---	41	42	---	---	---	---	SPACE	
NOTES		SUB-TOTALS 'B'			800A BUS			SUB-TOTALS 'A'			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		32635 26818 26240			18353 18353 17994			32635 26818 26240			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		800A FEED			50988 45171 43834			800A FEED			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		VERIFY SIZE			425A 376A 365A			VERIFY SIZE			TOTAL CONNECTED LOAD	

NEW PANEL - 'V'		MAKE: CUTLER HAMMER			RATING: 208/120V 3 PHASE 4 WIRE			M.L.O. MAIN CIRCUIT BREAKER				
LOAD SERVICE		TYPE: PRL1A			MOUNTING SURFACE			EQUIPMENT GROUND BUS <input type="checkbox"/> YES <input type="checkbox"/> NO				
OR APPROVED EQUAL		MINIMUM AIC: 22,000A			SERVICE ENTRY RATED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			OR APPROVED EQUAL				
LOAD SERVICE	CKT BRKR	WATTS PER PHASE			NEUTRAL A B C			WATTS PER PHASE			LOAD SERVICE	
VENDING MACHINE	20A	1800	1800	1800	1	2	4	1800	1800	20A	VENDING MACHINE	
VENDING MACHINE	---	---	---	---	3	4	6	1800	1800	20A	VENDING MACHINE	
VENDING MACHINE	---	---	---	---	5	6	8	1800	1800	20A	VENDING MACHINE	
VENDING MACHINE	---	---	---	---	7	8	10	1800	1800	20A	VENDING MACHINE	
VENDING MACHINE	---	---	---	---	9	10	12	1800	1800	20A	VENDING MACHINE	
VENDING MACHINE	---	---	---	---	11	12	14	1800	1800	20A	VENDING MACHINE	
LTS: VEND. & VEND. STOR.	128	1800	1800	1800	13	14	16	1800	1800	20A	RECP STORAGE	
SPARE	---	---	---	---	15	16	18	---	---	---	FREEZER	
SPARE	---	---	---	---	17	18	20	---	---	---	SPARE	
SPARE	---	---	---	---	19	20	22	---	---	---	SPARE	
SPARE	---	---	---	---	21	22	24	---	---	---	SPARE	
SPARE	---	---	---	---	23	24	26	---	---	---	SPARE	
SPARE	---	---	---	---	25	26	28	---	---	---	SPARE	
SPARE	---	---	---	---	27	28	30	---	---	---	SPARE	
SPARE	---	---	---	---	29	30	---	---	---	---	SPARE	
NOTES		SUB-TOTALS 'B'			100A BUS			SUB-TOTALS 'A'			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		3728 3600 3600			5400 3600 3600			3728 3600 3600			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		100A FEED			9128 7200 7200			100A FEED			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		VERIFY SIZE			76A 60A 60A			VERIFY SIZE			TOTAL CONNECTED LOAD	

NEW PANEL - 'A'		MAKE: CUTLER HAMMER			RATING: 208/120V 3 PHASE 4 WIRE			M.L.O. MAIN CIRCUIT BREAKER				
LOAD SERVICE		TYPE: PRL1A			MOUNTING SURFACE			EQUIPMENT GROUND BUS <input type="checkbox"/> YES <input type="checkbox"/> NO				
OR APPROVED EQUAL		MINIMUM AIC: 22,000A			SERVICE ENTRY RATED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			OR APPROVED EQUAL				
LOAD SERVICE	CKT BRKR	WATTS PER PHASE			NEUTRAL A B C			WATTS PER PHASE			LOAD SERVICE	
REC: MEN'S LEFT CHASE	20A	1080	1080	1080	1	2	4	1920	1920	20A	HAND DRYER LEFT FAMILY	
REC: MEN'S RIGHT CHASE	---	---	---	---	3	4	6	1920	1920	20A	HAND DRYER LEFT MEN'S	
REC: OUTDOORS	---	---	---	---	5	6	8	1920	1920	20A	HAND DRYER LEFT MEN'S	
REC: WOMEN'S LEFT CHASE	---	---	---	---	7	8	10	1920	1920	20A	HAND DRYER RIGHT MEN'S	
REC: WOMEN'S RIGHT CHASE	---	---	---	---	9	10	12	1920	1920	20A	HAND DRYER RIGHT MEN'S	
EWC	---	---	---	---	11	12	14	1920	1920	20A	HAND DRYER LEFT WOMEN'S	
EWC	---	---	---	---	13	14	16	1920	1920	20A	HAND DRYER LEFT WOMEN'S	
REC: STORAGE	---	---	---	---	15	16	18	1920	1920	20A	HAND DRYER RIGHT WOMEN'S	
REC: DESK	---	---	---	---	17	18	20	1920	1920	20A	HAND DRYER RIGHT WOMEN'S	
REC: MICROWAVE	---	---	---	---	19	20	22	1920	1920	20A	HAND DRYER RIGHT FAMILY	
LTS: COVERED PORCH FRONT	---	---	---	---	21	22	24	866	866	20A	LTS: RIGHT & LEFT LOBBY	
LTS: COVERED PORCH SIDE/REAR	---	---	---	---	23	24	26	790	790	20A	LTS: VESTIBULE & CENTER LOBBY	
LTS: BATHROOMS & LOBBY	---	---	---	---	25	26	28	384	384	20A	LTS: GENERAL STORAGE	
LTS: MEN'S BATHROOM	---	---	---	---	27	28	30	408	408	20A	LTS: WOMEN'S BATHROOM	
LTS: EXTERIOR 2ND FLOOR	---	---	---	---	29	30	32	192	192	20A	LTS: ELECTRICAL	
LTS: EQUIP. MEZZ.	---	---	---	---	31	32	34	---	---	20A	SPARE	
REC: EQUIP. MEZZ	---	---	---	---	33	34	36	---	---	20A	SPARE	
AUTOMATIC DOORS	---	---	---	---	35	36	38	1650	1650	20A	EWH-2	
AUTOMATIC DOORS	---	---	---	---	37	38	40	528	528	20A	CIRC. PUMP (4.4 FLA)	
EF-3	---	---	---	---	39	40	42	540	540	20A	REC: LOBBY	
SPARE	---	---	---	---	41	42	---	---	---	20A	SPARE	
NOTES		SUB-TOTALS 'B'			200A BUS			SUB-TOTALS 'A'			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		7555 4244 3648			8592 8834 8392			7555 4244 3648			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		200A FEED			16147 11078 11040			200A FEED			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		VERIFY SIZE			135A 92A 100A			VERIFY SIZE			TOTAL CONNECTED LOAD	

NEW PANEL - 'S'		MAKE: CUTLER HAMMER			RATING: 120/208 1 PHASE 3 WIRE			M.L.O. MAIN CIRCUIT BREAKER				
LOAD SERVICE		TYPE: PRL1A			MOUNTING SURFACE			EQUIPMENT GROUND BUS <input type="checkbox"/> YES <input type="checkbox"/> NO				
OR APPROVED EQUAL		MINIMUM AIC: 10,000A			SERVICE ENTRY RATED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			OR APPROVED EQUAL				
LOAD SERVICE	CKT BRKR	WATTS PER PHASE			NEUTRAL A B C			WATTS PER PHASE			LOAD SERVICE	
LTS: STORAGE SHED	20A	360	360	360	1	2	4	---	---	---	SPACE	
REC: STORAGE SHED	20A	---	---	---	3	4	6	---	---	---	SPACE	
SPACE	---	---	---	---	5	6	8	---	---	---	SPACE	
SPACE	---	---	---	---	7	8	10	---	---	---	SPACE	
SPACE	---	---	---	---	9	10	12	---	---	---	SPACE	
SPACE	---	---	---	---	11	12	---	---	---	---	SPACE	
NOTES		SUB-TOTALS 'B'			100A BUS			SUB-TOTALS 'A'			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		360 540			360 540			360 540			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		100A FEED			360 540			100A FEED			TOTAL CONNECTED LOAD	
OR APPROVED EQUAL BY GE OR SQUARE D		VERIFY SIZE			3A 5A			VERIFY SIZE			TOTAL CONNECTED LOAD	

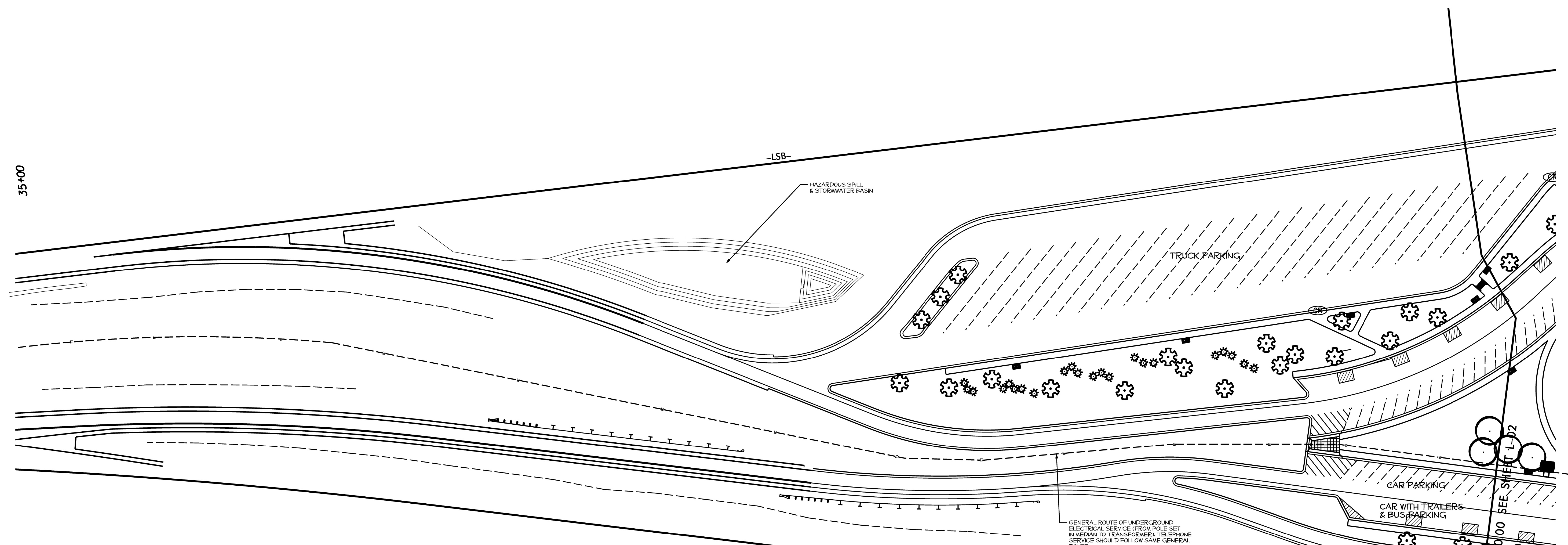
NEW PANEL - 'MDP'		MAKE: CUTLER HAMMER			RATING: 208/120V 3 PHASE 4 WIRE			M.L.O. MAIN CIRCUIT BREAKER			
LOAD SERVICE		TYPE: PRL3a			MOUNTING SURFACE			EQUIPMENT GROUND BUS <input type="checkbox"/> YES <input type="checkbox"/> NO			
OR APPROVED EQUAL		MINIMUM AIC: 22,000A			SERVICE ENTRY RATED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			OR APPROVED EQUAL			
LOAD SERVICE	CKT BRKR	WATTS PER PHASE			NEUTRAL A B C			WATTS PER PHASE			LOAD SERVICE
GENERAL LIGHTING	---	125%			2514 3048 2528			125%			8190
TRACK LIGHTING	---	125%			---			125%			---
GENERAL USE RECEPTACLES	---	125%			720 360 1080			125%			1080
MOTORS AND EQUIPMENT	---	125%			2400 2400 2400			125%			7200
WATER HEATERS	---	100%			11136 8000 5088			100%			22224
KITCHEN EQUIPMENT	---	100%			2063 2063			100%			2063
FIX. ELEC. SPACE HEAT.	---	100%			---			100%			---
SHOW WINDOW LIGHTS	---	125%			---			125%			---
SIGN	---	100%			---			100%			---
MISC	---	100%			---			100%			---
PHASE (TOTAL VA)		18150 12168 12439			40757			PHASE (TOTAL VA)			40757
TOTAL AMPS		135A 101A 104A			VOLT AMPS VOLTS X 1.732 = 113A			TOTAL AMPS			113A

NEW PANEL - 'S'		MAKE: CUTLER HAMMER			RATING: 120/208 1 PHASE 3 WIRE			M.L.O. MAIN CIRCUIT BREAKER			
LOAD SERVICE		TYPE: PRL1A			MOUNTING SURFACE			EQUIPMENT GROUND BUS <input type="checkbox"/> YES <input type="checkbox"/> NO			
OR APPROVED EQUAL		MINIMUM AIC: 10,000A			SERVICE ENTRY RATED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			OR APPROVED EQUAL			
LOAD SERVICE	CKT BRKR	WATTS PER PHASE			NEUTRAL A B C			WATTS PER PHASE			LOAD SERVICE
GENERAL LIGHTING	---	125%			450			125%			450
TRACK LIGHTING	---	125%			---			125%			---
GENERAL USE RECEPTACLES	---	125%			540 540			125%			540
MOTORS AND EQUIPMENT	---	125%			---			125%			---
WATER HEATERS	---	100%			---			100%			---
KITCHEN EQUIPMENT	---	100%			---			100%			---
FIX. ELEC. SPACE HEAT.	---	100%			---			100%			---
SHOW WINDOW LIGHTS	---	125%			---			125%			---
SIGN	---	100%			---			100%			---
MISC	---	100%			---			100%			---
PHASE (TOTAL VA)		450 540 990			990			PHASE (TOTAL VA)			990
TOTAL AMPS		4A 5A			VOLT AMPS VOLTS X 1.732 = 4A			TOTAL AMPS			4A

NEW PANEL - 'V'		MAKE: CUTLER HAMMER			RATING: 208/120V 3 PHASE 4 WIRE			M.L.O. MAIN CIRCUIT BREAKER			
LOAD SERVICE		TYPE: PRL3a			MOUNTING SURFACE			EQUIPMENT GROUND BUS <input type="checkbox"/> YES <input type="checkbox"/> NO			
OR APPROVED EQUAL		MINIMUM AIC: 22,000A			SERVICE ENTRY RATED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			OR APPROVED EQUAL			
LOAD SERVICE	CKT BRKR	WATTS PER PHASE			NEUTRAL A B C			WATTS PER PHASE			LOAD SERVICE
GENERAL LIGHTING	---	125%			160			125%			160
TRACK LIGHTING	---	125%			---			125%			---
GENERAL USE RECEPTACLES	---	125%			180 180			125%			180
MOTORS AND EQUIPMENT	---	125%			2250 2250 2250			125%			6750
WATER HEATERS	---	100%			7200 5400 3600			100%			16200
KITCHEN EQUIPMENT	---	100%			---			100%			---
FIX. ELEC. SPACE HEAT.	---	100%			---			100%			---
SHOW WINDOW LIGHTS	---	125%			---			125%			---
SIGN	---	100%			---			100%			---
MISC	---	100%			---			100%			---
PHASE (TOTAL VA)		5610 7650 6030			23290			PHASE (TOTAL VA)			23290
TOTAL AMPS		80A 64A 50A			VOLT AMPS VOLTS X 1.732 = 65A			TOTAL AMPS			65A

NEW PANEL - 'A'		MAKE: CUTLER HAMMER			RATING: 208/120V 3 PHASE 4 WIRE			M.L.O. MAIN CIRCUIT BREAKER		
LOAD SERVICE		TYPE: PRL1A			MOUNTING SURFACE			EQUIPMENT GROUND BUS <input type="checkbox"/> YES <input type="checkbox"/> NO		
OR APPROVED EQUAL		MINIMUM AIC: 2								





**NOTES**

DASHED CONTOUR LINES REPRESENT EXISTING GRADES (PRE CONST)

ALL SIDEWALKS HAVE 2% CROSS-SLOPE UNLESS NOTED

**CR** CONCRETE CURB RAMP PER SPECIFICATIONS

**DC** DEPRESSED SIDEWALK RAMP (PER DETAILS)

FARM POST & RAIL FENCE

PROPOSED STONE WALL (SEE DETAILS).

TPF TREE PROTECTION FENCE

VEGETATION REMOVAL FOR TRAIL

**PS** PICNIC SHELTER

**FP** 40' FLAGPOLE

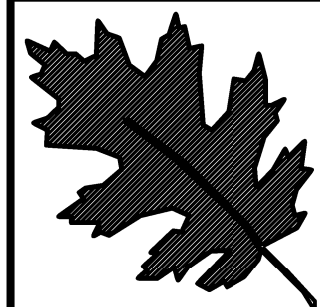
**YH** YARD HYDRANT

**5'** 5' POLYWOOD BENCH (SET ON 30" X 66" CONC. PAD; ADJACENT TO SIDEWALK)

**4' X 7'** 4' X 7' CONC PAD WITH MATCHING WASTE AND RECYCLE CONTAINERS

2 PICNIC TABLES W/ CONCRETE BASE (NO SHELTER) SHALL BE LOCATED ON SITE DURING CONSTRUCTION (SEE PICNIC TABLE DETAIL FOR FURTHER INFORMATION).

GENERAL ROUTE OF UNDERGROUND ELECTRICAL SERVICE (FROM POLE SET IN MEDIAN TO TRANSFORMER). TELEPHONE SERVICE SHOULD FOLLOW SAME GENERAL ROUTE.

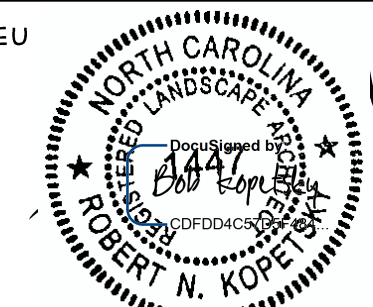


NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
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**I- 77 IREDELL Co  
 REST AREA CONSTRUCTION**

CONTRACT #:

REU



SHEET DESCRIPTION:

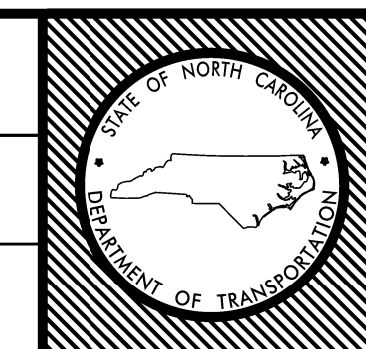
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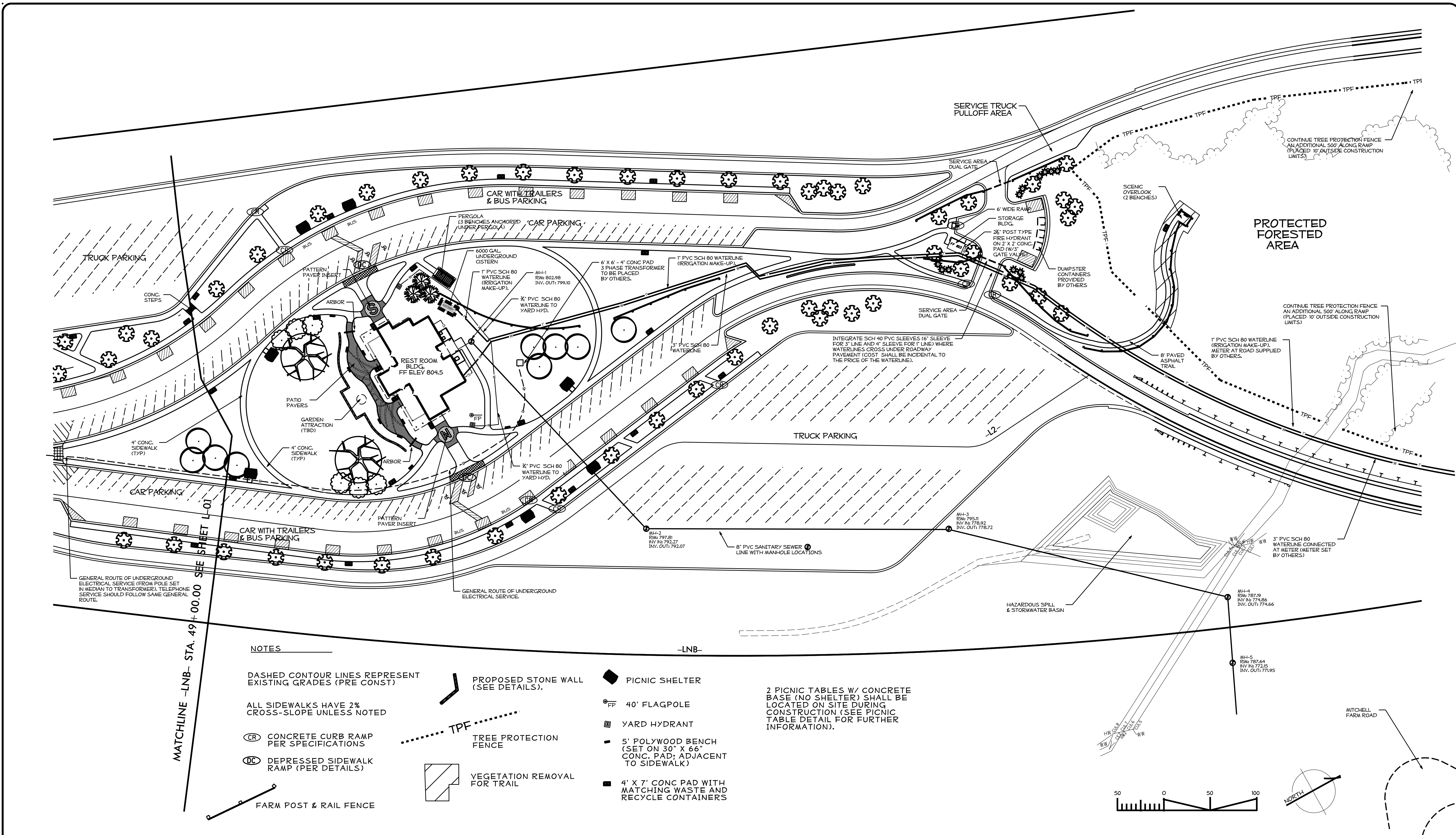
I-77 REST AREA

SITE PLAN 1/2



T.I.P. # K-4908  
 WBS # 39894.3.FS1  
 FED I.D. # IMS-77-1(177)39  
 SHEET NO: L- 01  
 TOTAL SHEET NO:





GENERAL ROUTE OF UNDERGROUND ELECTRICAL SERVICE (FROM POLE SET IN MEDIAN TO TRANSFORMER). TELEPHONE SERVICE SHOULD FOLLOW SAME GENERAL ROUTE.

GENERAL ROUTE OF UNDERGROUND ELECTRICAL SERVICE.

MATCHLINE -LNB- STA. 49+00.00 SEE SHEET L-01

**NOTES**

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- ALL SIDEWALKS HAVE 2% CROSS-SLOPE UNLESS NOTED
- CR CONCRETE CURB RAMP PER SPECIFICATIONS
- DC DEPRESSED SIDEWALK RAMP (PER DETAILS)
- FARM POST & RAIL FENCE

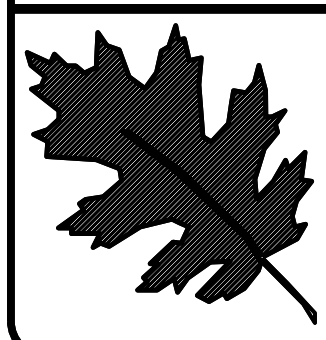
PROPOSED STONE WALL (SEE DETAILS).

TPF TREE PROTECTION FENCE

VEGETATION REMOVAL FOR TRAIL

- PICNIC SHELTER
- 40' FLAGPOLE
- YARD HYDRANT
- 5' POLYWOOD BENCH (SET ON 30" X 66" CONC. PAD; ADJACENT TO SIDEWALK)
- 4' X 7' CONC PAD WITH MATCHING WASTE AND RECYCLE CONTAINERS

2 PICNIC TABLES W/ CONCRETE BASE (NO SHELTER) SHALL BE LOCATED ON SITE DURING CONSTRUCTION (SEE PICNIC TABLE DETAIL FOR FURTHER INFORMATION).

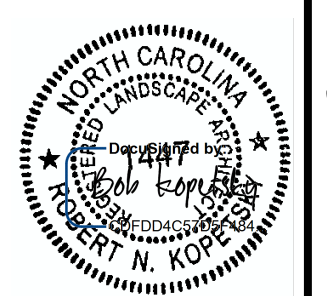


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**I- 77 IREDELL Co  
 REST AREA CONSTRUCTION**

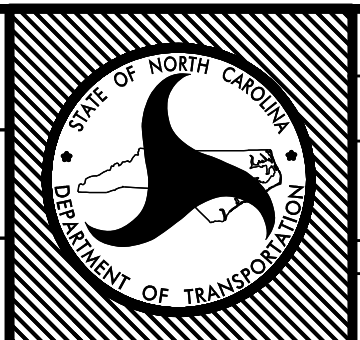
CONTRACT #:

REU ENGINEER :



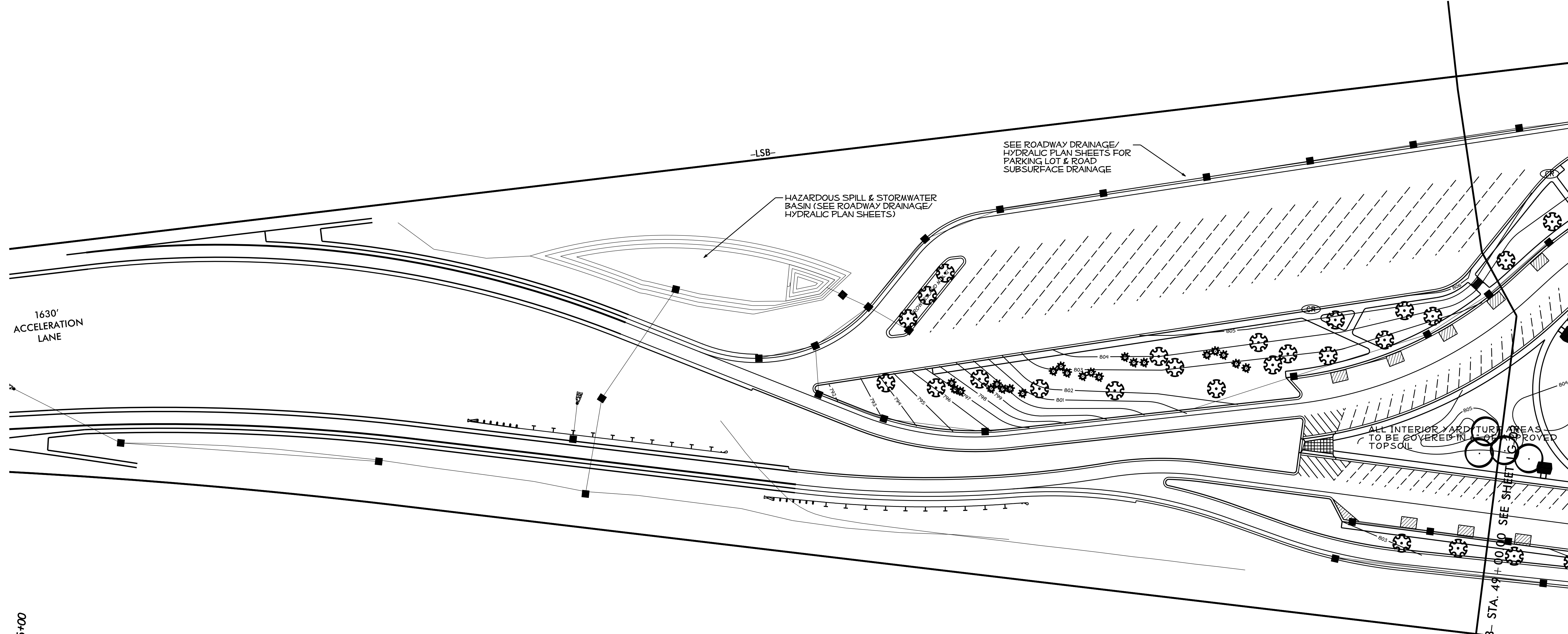
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I-77 REST AREA
SITE PLAN 2/2



T.I.P. #	K-4908
WBS #	39894.3.FS1
FED I.D. #	IMS-77-1(177)39
SHEET NO :	TOTAL SHEET NO :
L- 02	





35+00

**NOTES**

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FARM POST & RAIL FENCE

PROPOSED STONE WALL (SEE DETAILS).

TPF TREE PROTECTION FENCE

VEGETATION REMOVAL FOR TRAIL

PICNIC SHELTER

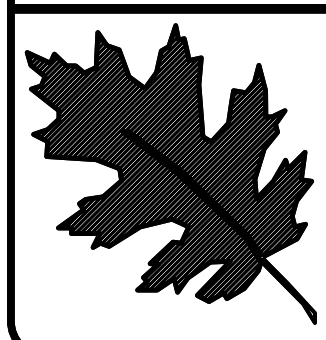
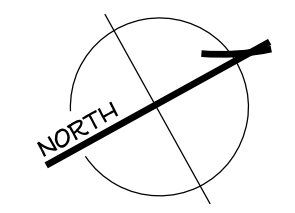
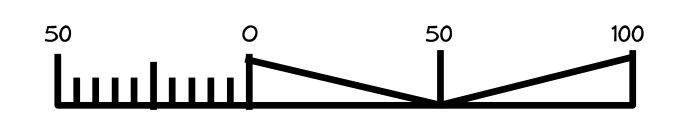
40' FLAGPOLE

D.I. 840.14 DROP INLET - STD. 840.14 GRATE - STD. 840.16 (NARROW SLOTS)

Y.I. (12") YARD INLET - 12" SQUARE POLYPROPYLENE (LEAF MOTIF POLYOLEFIN GRATE)

RAISED PLANT BED ADD 12" TOPSOIL (ABOVE GRADE)

FINISHED GRADE CONTOUR

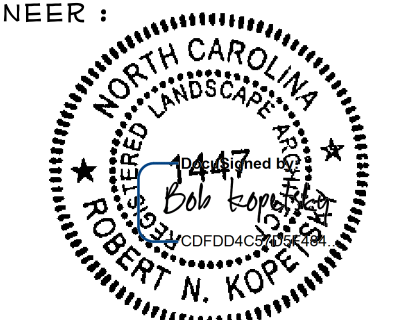


NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
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**I- 77 IREDELL Co REST AREA CONSTRUCTION**

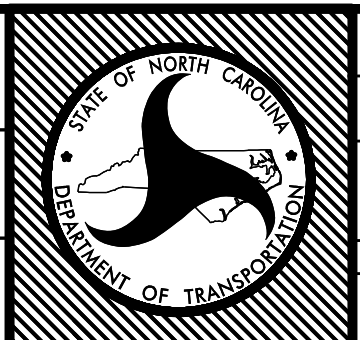
CONTRACT #:

REU ENGINEER :



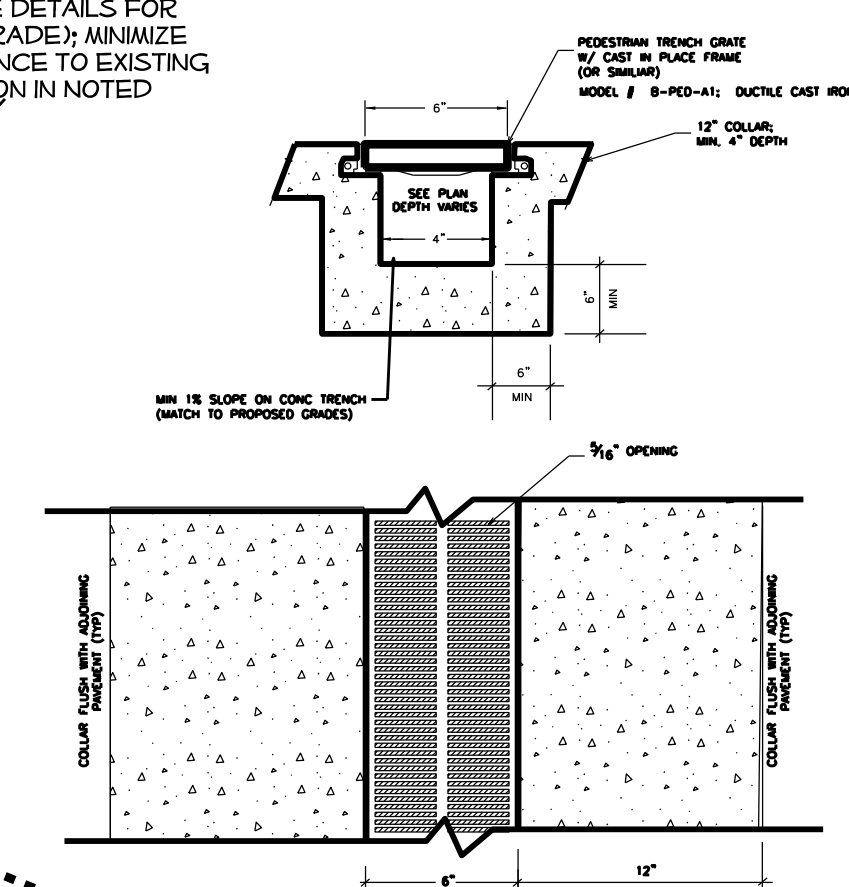
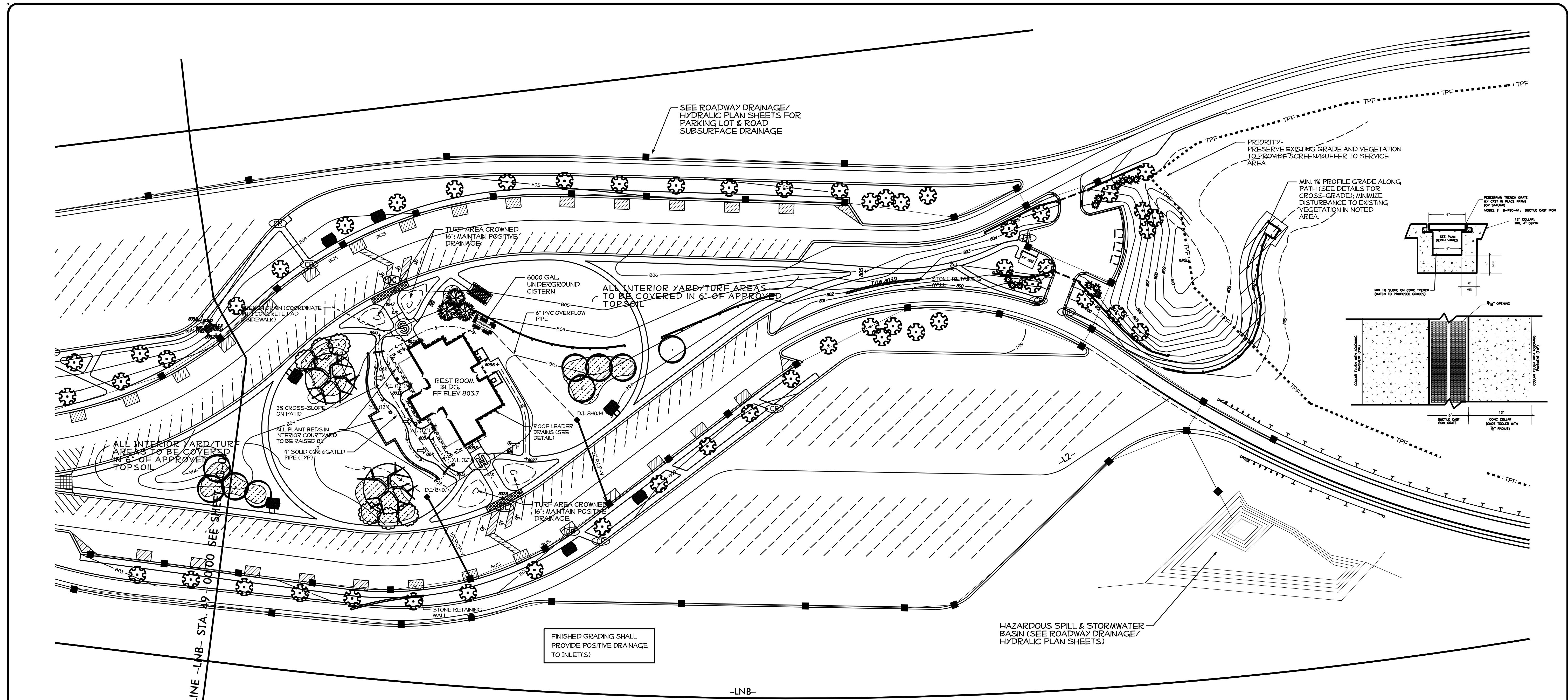
PREL DESIGN DATE :	JUNE/ 14
CHECKED BY & DATE :	
FINAL DESIGN DATE :	

**I-77 REST AREA**  
**GRADING PLAN 1/2**



T.I.P. #	K-4908
WBS #	39894.3.FS1
FED I.D. #	IMS-77-1(177)39
SHEET NO :	TOTAL SHEET NO :
LG- 01	





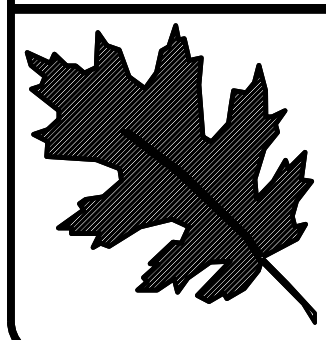
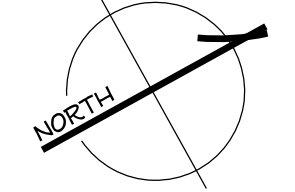
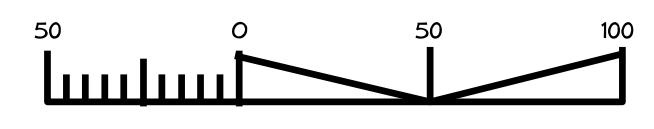
**NOTES**

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- ALL SIDEWALKS HAVE 2% CROSS-SLOPE UNLESS NOTED
- CR CONCRETE CURB RAMP PER SPECIFICATIONS
- DC DEPRESSED SIDEWALK RAMP (PER DETAILS)
- FARM POST & RAIL FENCE

- PROPOSED STONE WALL (SEE DETAILS).
- TPF TREE PROTECTION FENCE
- VEGETATION REMOVAL FOR TRAIL

- PICNIC SHELTER
- FF 40' FLAGPOLE
- D.I. 840.14 DROP INLET - STD. 840.14 GRATE - STD. 840.16 (NARROW SLOTS)
- Y.I. (12') YARD INLET - 12" SQUARE POLYPROPYLENE (LEAF MOTIF POLYOLEFIN GRATE)

- RAISED PLANT BED ADD 12" TOPSOIL (ABOVE GRADE)
- FINISHED GRADE CONTOUR
- CREATE MINIMAL SWALES TO CREATE POSITIVE DRAINAGE



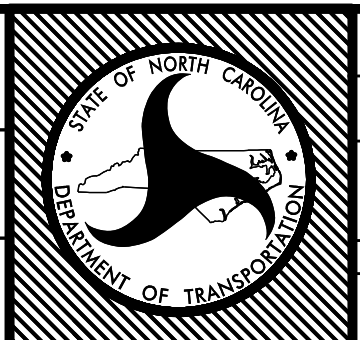
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**I- 77 IREDELL Co**  
**REST AREA CONSTRUCTION**  
 CONTRACT #:

REU ENGINEER:  
  
 ROBERT N. KOPE

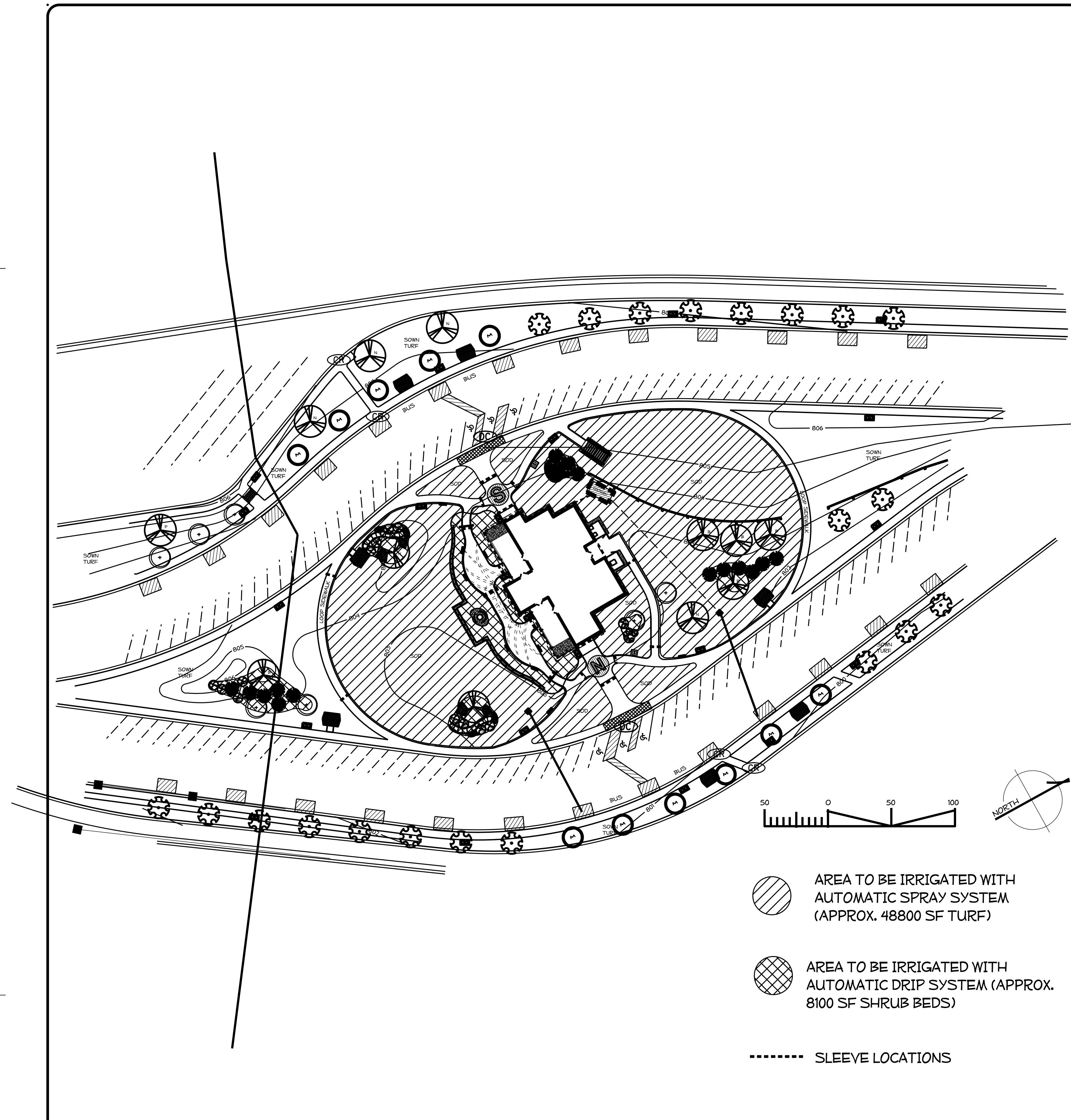
SHEET DESCRIPTION:  
 PREL DESIGN DATE: JUNE/14  
 CHECKED BY & DATE:  
 FINAL DESIGN DATE:

**I-77 REST AREA**  
**GRADING PLAN 2/2**



T.I.P. # K-4908  
 WBS # 39894.3.FS1  
 FED I.D. # IMS-77-1(177)39  
 SHEET NO: TOTAL SHEET NO:  
**LG- 02**





- AREA TO BE IRRIGATED WITH AUTOMATIC SPRAY SYSTEM (APPROX. 48800 SF TURF)
- AREA TO BE IRRIGATED WITH AUTOMATIC DRIP SYSTEM (APPROX. 800 SF SHRUB BEDS)
- ..... SLEEVE LOCATIONS

**HEADS**

- A SERIES 570 PRX-6P POP UP - 6" POP UP SPRINKLER HEAD FITTED WITH PRECISION SPRAY 570 SERIES SPRAY NOZZLE OR COMPARABLE BRAND.
- ALL HEADS WITH A 12" POP UP STROKE, IF INSTALLED WITH LESS THAN 1/3 OF THE SPINKLER BODY EXPOSED ABOVE GRADE, SHALL BE INSTALLED ON POLYETHYLENE FLEX SWING JOINTS POLY PIPE FITTED WITH (3/8" INSERT BY "M.P.T. AND/OR "INSERT BY "M.P.T.) ELBOWS. IF GREATER THAN 1/3 OF THE SPRINKLER BODY IS EXPOSED THEN THE 12" POP-UP HEAD SHALL BE MOUNTED ON A SCHEDULE 40 PVC PIPE RISER AS DESCRIBED BELOW IN RELATION TO MOUNTING SHRUB HEAD MODELS. IN MOUNTING 12" POP UP HEADS ON SHRUBS TYPE RISERS CARE SHALL BE TAKEN TO INSTALL THE HEAD IN SUCH A MANNER THAT SURROUNDING PLANT MATERIAL (PLANNED OR EXISTING) WILL HIDE THE BODY OF THE SPRINKLER AS WELL AS POSSIBLE WHILE THE NOZZLE IN THE POPPED UP OPERATING POSITION WILL PROVIDE FOR AN UNOBSTRUCTED PATTERN.
- ALL POP UP IRRIGATION HEADS DESIGNED ADJACENT TO CURBS OR PAVEMENT SHALL BE INSTALLED WITH A CLEARANCE OF 1" FROM THE EDGES OF ALL PAVED AREAS TO PROVIDE FOR EDGING AND MAINTENANCE OPERATIONS. HEADS INSTALLED ON SHRUBS RISER OR WITH THE TOP OF THE HEAD MORE THAN ABOVE GRADE SHALL BE INSTALLED WITH A MINIMUM 6" CLEARANCE FROM PAVED AREAS.
- ALL THREADED PIPE CONNECTIONS SHALL BE ASSEMBLED USING TEFLON THREAD SEALING TAPE.
- ALL HEADS MOUNTED IN THE LAWN AREAS SHALL BE MOUNTED ON TORO POLYETHYLENE PIPE FLEX SWING JOINTS COMPOSED OF MODEL #850-01 1" I.D. POLY PIPE FITTED WITH #850-31 (3/8" INSERT BY "M.P.T.) ELBOWS.

**PIPE**

- MINIMUM DEPTH OF COVER OVER LATERAL PIPING TO BE 12" LATERAL PIPING SIZING SCHEDULE SUMMATION OF GALLONAGE DEMAND ON THE PARTICULAR BRANCHES OF PIPE WITHIN A CONTROL SECTION SHALL BE DETERMINED BY USING THE GPM FOR A NOZZLE BASED ON A 50 PSI BASE OF HEAD PRESSURE AND FULL RADIUS AT THAT PRESSURE AS REPORTED IN THE TORO 2010 IRRIGATION PRODUCTS CATALOG. PIPE SIZES FOR THE LATERALS SHALL BE AS FOLLOWS:
- ZERO TO FIFTEEN GPM ACCUMULATED FLOW USE 1" PR 200 PVC PIPE
- GREATER THAN FIFTEEN UP TO THIRTY-FIVE GPM USE 1-1/2" PR 200 PVC PIPE
- FRICTION LOSS ALLOWANCES FOR THIS PROJECT HAVE BEEN DETERMINED USING THE ABOVE FLOW RANGES AND DEMANDS PR 200 MAIN LINE PIPING. SIZE OF PIPE TO BE 1-1/2" IN MINIMUM DEPTH OF COVER MAINLINE PIPING TO BE 18" - PIPING SHALL BE PR 200 SOLVENT WELD PVC PIPE WITH SCHEDULE 40 PVC SOLVENT WELD FITTING UNLESS OTHERWISE NOTED.
- ALL PIPING RUNS SHALL BE "SNAKED" IN THE TRENCH DURING INSTALLATION TO PREVENT EXCESSIVE STRAIN DUE TO THERMAL EXPANSION OR CONTRACTION.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID DAMAGING PLANTINGS (INCLUDING ROOTS) DURING INSTALLATION OF THE IRRIGATION SYSTEM AND SHALL COORDINATE HIS EFFORTS WITH THE LANDSCAPE CONTRACTOR SO AS TO OPTIMIZE THE EFFICIENCY AND THE AESTHETIC QUALITY OF THE INSTALLATION.

**DRIP IRRIGATION**

- DRIP IRRIGATION IS TO BE TORO NETAFIM TECHLINE "P.E. TUBING, 18" EMITTER SPACING INTERVALS AT 1 GPM EMITTERS INLINE APPROVED INLINE EMITTER DRIPLINE /TECHLINE TO BE INSTALLED UNDER MULCH IN LANDSCAPE AREAS AS SHOWN ON THE IRRIGATION PLAN.
- LOCATION OF DRIP VALVE ASSEMBLY WHICH INCLUDES 250 SERIES REMOTE CONTROL VALVE WITH FLOW CONTROL FEATURE, INLINE EMITTER DRIPLINE /TECHLINE 200 MESH FILTER #DF150-140, AND INLINE EMITTER DRIPLINE /TECHLINE PRESSURE

**DRIP IRRIGATION CONT.**

- REGULATOR #PYR15045 FLOW CONTROL VALVES SHALL BE AS NOTED ON BOXES WITH LIDS MOUNTED AT GRADE LEVEL.
- MIN. 2 EMITTERS PER SHRUB AND 3 EMITTERS PER TREE.
- NO EMITTERS NEEDED FOR ORNAMENTAL GRASS.
- IF REQUESTED, MICROSPRAYS WILL BE INSTALLED FOR THE "ANNUAL" BED LOCATION (AT NO ADDITIONAL COST).

**HEAD RADII**

- THE IRRIGATION CONTRACTOR SHALL ADJUST THE RADIUS AND THROW OF EACH SPRINKLER HEAD TO PROVIDE OPTIMUM COVERAGE WHILE MINIMIZING OVERTSPRAY ONTO HARDSCAPES OR BUILDINGS. ADJUST HEADS TO ELIMINATE DRY SPOTS. COVERAGE MUST BE HEAD TO HEAD.
- APPROXIMATE ARC AND RADIUS OF INDIVIDUAL SPINKLER HEAD COVERAGE SHALL BE AS ILLUSTRATED. INDIVIDUAL HEAD OR NOZZLE MODEL NUMBERS MAY BE DEPENDENT UPON THESE SPECIFIC CHARACTERISTICS.

**VALVES**

- ELECTRIC 24 V.A.C. REMOTE CONTROL VALVE WITH FLOW CONTROL FEATURE - ALL IN-LINE REMOTE CONTROL VALVES SHALL BE INSTALLED IN CARSON VALVE BOXES WITH LIDS MOUNTED AT GRADE LEVEL. SINGLE VALVES MAY BE INSTALLED IN APPROVED VALVE BOX WITH COVER. WHILE MULTIPLE VALVES (UP TO, TWO 1" VALVES OR ONE, 1-1/2" SHALL BE INSTALLED IN CARSON MODEL #1419-1 BOX WITH #1419-2 COVER.

**BACKFLOW PREVENTION - TO BE PROVIDED BY OTHERS**

- REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY WHICH SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR. THE BACKFLOW SHALL BE 1" IN SIZE. THE BACKFLOW ASSEMBLY SHALL BE INSTALLED DOWNSTREAM OF THE IRRIGATION METER. THE UNIT MUST BE INSTALLED IN ACCORDANCE WITH ALL LOCAL AND STATE CODE REQUIREMENTS AND SHALL HAVE AN APPROVED COVER.

**WATER SUPPLY/METER - TO BE PROVIDED BY OTHERS**

- THE METER SHALL BE THE OWNER'S RESPONSIBILITY. THE METER IS 1" IN SIZE. SINCE THE WATER SUPPLY FOR THE SYSTEM SHALL BE POTABLE WATER, THE CONTRACTOR WILL BE REQUIRED TO INSTALL BACKFLOW PREVENTION DEVICE WHICH WILL BE LOCATED DOWNSTREAM OF THE IRRIGATION METER MAXIMUM WITH ONE CONTROL STATION OPERATING AT A TIME AT 60 PSI AT THE BASE OF THE HEAD FOR OPTIMUM PERFORMANCE OF THE IRRIGATION SYSTEM.

**CONTROLLER**

- THE CONTROLLER SHALL BE CUSTOM COMMAND SOLID STATE UNIT WHICH SHALL BE OF THE WALL MOUNT STYLE WITH LOCKABLE BOX CABINET. THE CONTROLLER SHALL INCORPORATE 24 V.A.C. APPROXIMATE LOCATION APPROVED BY THE NCDOT ENGINEER.
- ALL ELECTRICAL CONNECTIONS AND INSTALLATIONS SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
- ALL 120 VAC WIRING SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE ELECTRICAL CODE REQUIREMENTS.
- THE CONTRACTOR SHALL INSTALL A WIRED RAIN SENSOR (COMPATIBLE MAKE/MODEL AS THE CONTROLLER).

NOTE: THE OWNER SHALL BE RESPONSIBLE FOR PROVIDING A 120 VAC POWER CIRCUIT AT THE CONTROLLER LOCATION. THE POWER SOURCE SHALL BE CAPABLE OF SUPPORTING A 10 AMPERE LOAD AT 120 VAC.

**SLEEVING - TO BE PROVIDED BY OTHERS**

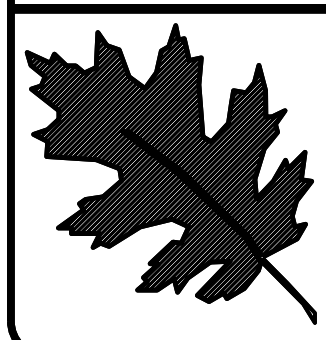
- SLEEVES SHALL BE 3" PVC FOR 24 VAC WIRING PER ELECTRICAL CODE. THE IRRIGATION CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE IRRIGATION SYSTEM WITH THE LANDSCAPE CONTRACTOR TO INSURE PROPER INSTALLATION OF BOTH THE IRRIGATION SYSTEM WITH THE LANDSCAPE AND HARDSCAPE.

**24 VAC CONTROL WIRING**

- ALL 24 V.A.C. CONTROL WIRING SHALL BE SINGLE STRAND COPPER WIRE WITH POLYETHYLENE PE DIRECT BURIAL INSULATION RATED FOR 300 V.A.C. VALVE "COMMON" WIRES SHALL HAVE WHITE INSULATION WHILE VALVE "HOT" WIRES SHALL HAVE INSULATION RED IN COLOR. THE "COMMON" WIRES SHALL BE #14 AWG. "HOT" WIRES SHALL BE #14 AWG. VALVE WIRING SHALL FOLLOW MAINLINE PIPING WHERE FEASIBLE AND SHALL BE LAID IN A COMMON TRENCHLINE WITH THE MAINLINE PIPING AND IN THE BOTTOM OF THE TRENCH. WIRING SHALL BE "BUNDLED" AND TAPED AT INTERVALS OF APPROXIMATELY TEN FEET. ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
- WIRE SPLICES SHALL BE KEPT TO AN ABSOLUTE MINIMUM. WHERE MAJOR CONCENTRATIONS OF SPLICES ARE NECESSARY SAID SPLICES SHALL BE PLACED IN A APPROVED VALVE BOX, WITH #910-2 COVER INSTALLED AT GRADE LEVEL. SPLICES AT VALVE LOCATIONS SHALL BE MADE INSIDE OF THE VALVE BOX. ALL SPLICE LOCATIONS SHALL BE NOTED ON THE AS BUILT PLAN.
- WIRE RUNS SHALL BE INSTALLED WITH ENOUGH SLACK AND /OR OCCASIONAL EXPANSION LOOPS TO PREVENT EXCESSIVE STRAIN DUE TO THERMAL CONTRACTION.
- ALL WIRE SPLICES SHALL BE MADE USING UL APPROVED DIRECT BURIAL CONNECTORS AND WATERPROOFING MATERIALS. ALL ELECTRICAL WORK SHALL BE INSTALLED ACCORDING TO CODE.

**GENERAL NOTES**

- PLACES VALVES (BOXES) IN PLANT BEDS WHERE-EVER POSSIBLE.
- CONTRACTOR IS TO MINIMIZE DISTURBANCE IN SOD AREA (CUT AND REPLACE SOD).
- PLACE PRESSURE REDUCING VALVE IN DISCREET LOCATION.
- THE IRRIGATION SYSTEM IS DISPLAYED SCHEMATIC IN NATURE. THE IRRIGATION CONTRACTOR MAY BE REQUIRED TO MAKE MINOR ADJUSTMENTS IN THE FIELD. THESE MINOR ADJUSTMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER BUT SHALL BE MADE ONLY AFTER NOTIFICATION IS MADE TO OWNER (NC DOT).
- THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE SO THAT HE IS AWARE OF ANY SPECIAL CONDITIONS WHICH EXIST THAT MAY AFFECT HIS BID PROPOSAL AND SHALL HEREAFTER BE RESPONSIBLE FOR ALL COST INCURRED BY HIMSELF IN RELATION TO THE INSTALLATION.
- ALL IRRIGATION PRODUCTS ARE TO BE TORO, HUNTER, RAINBIRD OR COMPARABLE BRAND (AS APPROVED BY THE ENGINEER).
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING "AS BUILT" PLANS TO THE OWNER (NCDOT) AT THE TIME OF PROJECT APPROVAL. THE PLANS SHALL BE CLEAR, CONCISE, AND SHOW ALL ELEMENTS OF THE IRRIGATION SYSTEM, THE LOCATION OF ALL EQUIPMENT, IRRIGATION LINES, NUMBERED ZONES, CONTROLLER(S), HEADS AND VALVES.
- THE IRRIGATION INSTALLER SHALL BE PROPERLY LICENSED WITHIN THE STATE OF NORTH CAROLINA.



NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
**LANDSCAPE DESIGN & DEVELOPMENT**  
 1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557  
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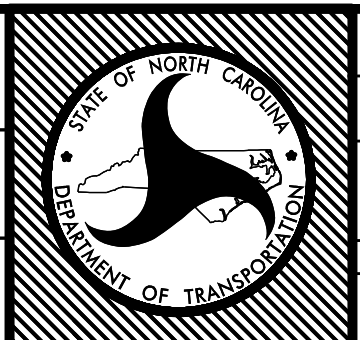
**I- 77 IREDELL Co**  
**REST AREA CONSTRUCTION**  
 CONTRACT #:

REU ENGINEER :



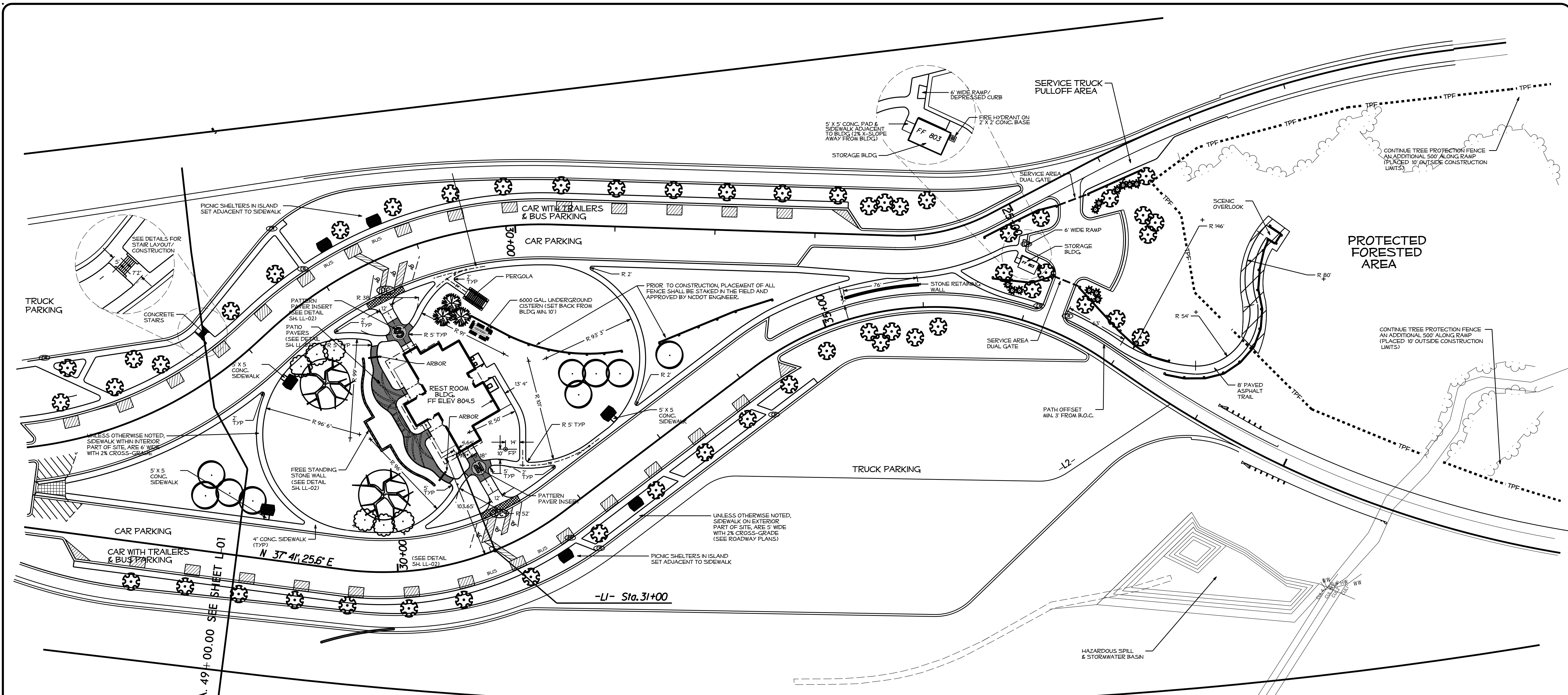
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**I-77 REST AREA**  
**IRRIGATION PLAN**

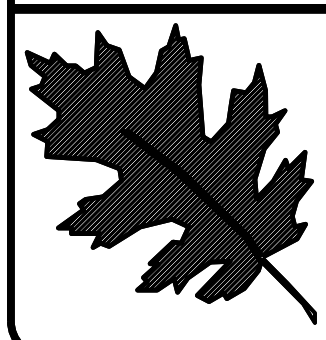
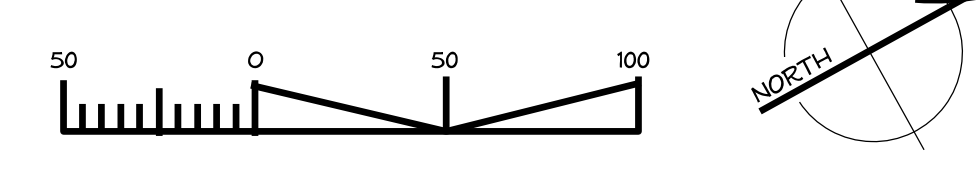


T.I.P. #	K-4908
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SHEET NO :	TOTAL SHEET NO :
LI	





- NOTES**
- DASHED CONTOUR LINES REPRESENT EXISTING GRADES (PRE CONST)
  - ALL SIDEWALKS HAVE 2% CROSS-SLOPE UNLESS NOTED
  - CONCRETE CURB RAMP PER SPECIFICATIONS
  - DEPRESSED SIDEWALK RAMP (PER DETAILS)
  - FARM POST & RAIL FENCE
  - PROPOSED STONE WALL (SEE DETAILS).
  - PICNIC SHELTER
  - 40' FLAGPOLE
  - TREE PROTECTION FENCE
  - VEGETATION REMOVAL FOR TRAIL



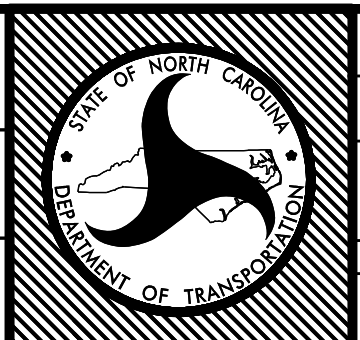
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**I- 77 IREDELL Co**  
**REST AREA CONSTRUCTION**  
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REV ENGINEER :  
  
 ROBERT N. KOPP

SHEET DESCRIPTION:  
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**I-77 REST AREA**  
**LAYOUT & DIMENSION**



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ADJOINING CONC. SIDEWALK (TYP)

COURTYARD PRIMARY AREA - MEDIUM GREY PAVERS

PAVERS FLUSH WITH PORCH (TYP)

9" CONC BAND (TYP)

WHEAT PATTERN BANDS - MEDIUM BEIGE/SAND PAVERS; MAINTAIN CONSISTANT SMOOTH ALIGNMENT OF PATTERN.

GRAPH DISPLAYED WITHIN LAYOUT OF PAVERS ARE 1' SQUARES; USE GRAPH LAYOUT TO ASSIST IN DETERMINING MEASUREMENTS.

ARBOR

SBL ENTRANCE

CONTRACTOR RESPONSIBLE FOR PROVIDING A MIN. 8' X 8' SAMPLE OF EACH SEPERATE DECORATIVE PAYER LAYOUT; APPROVAL OF ENGINEER AND LANDSCAPE ARCHITECT NECESSARY PRIOR TO START OF FINAL WORK.

COVERED PORCH

REST ROOM BLDG. FF ELEV 804.5

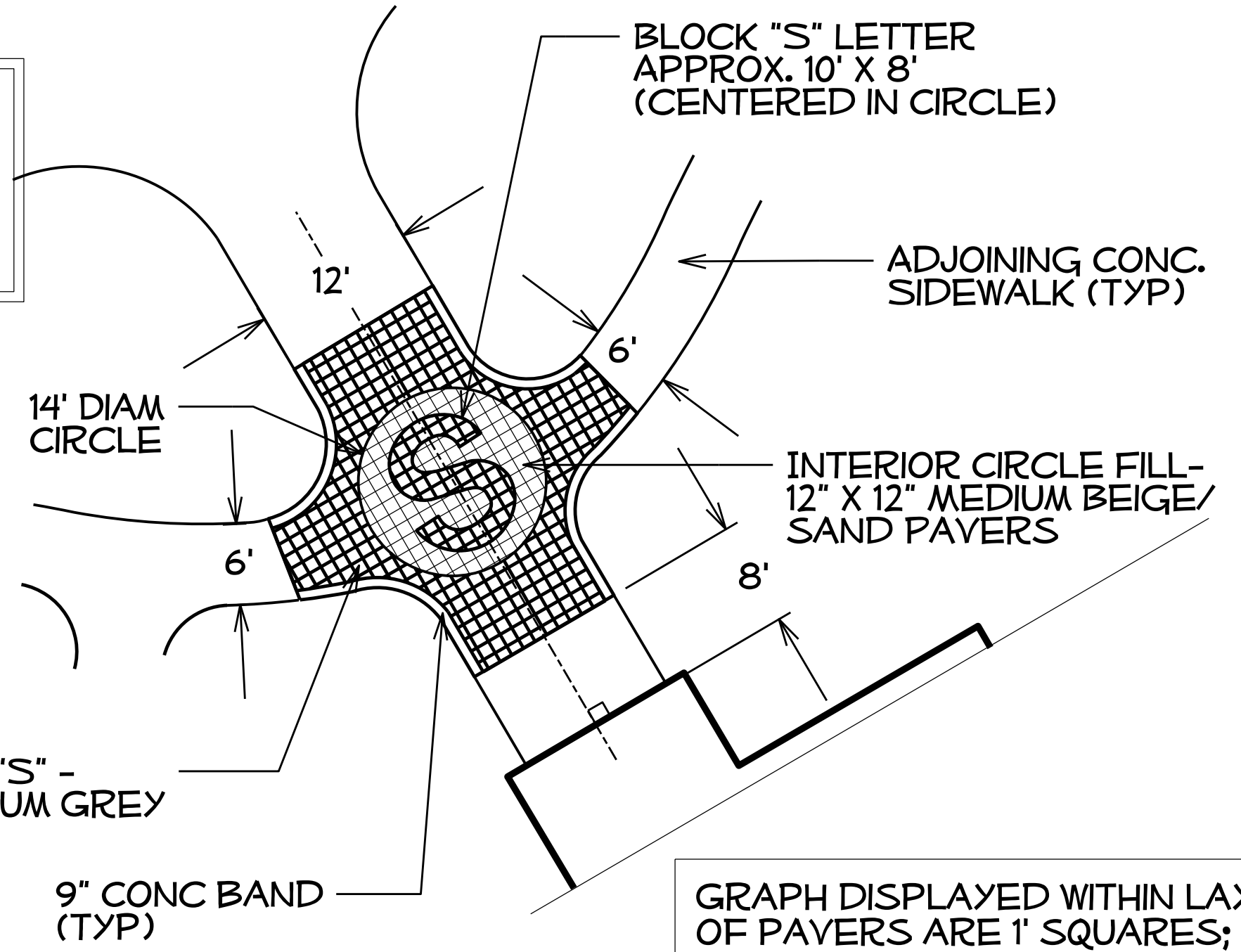
VENDING

COVERED PORCH

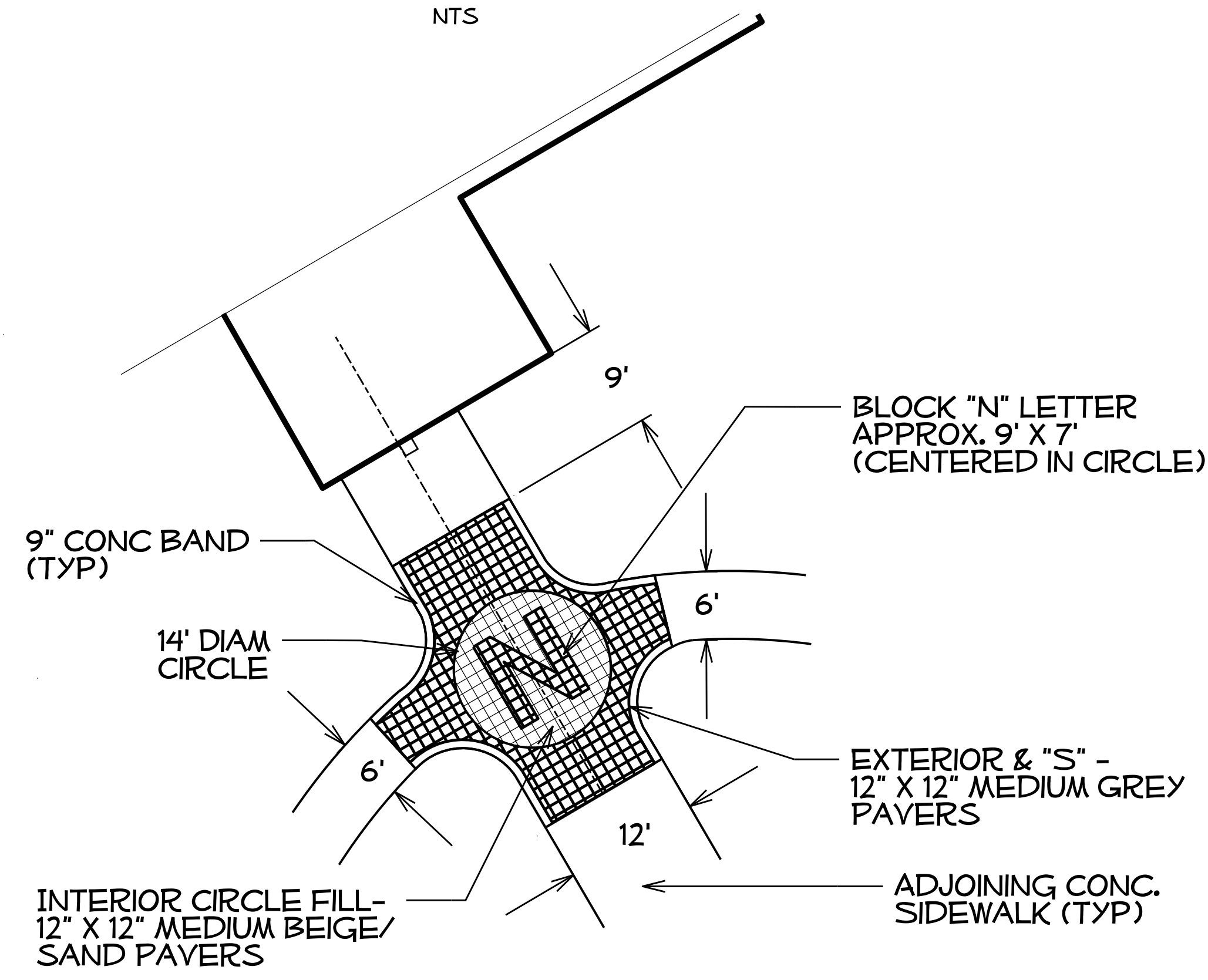
NBL ENTRANCE

ARBOR

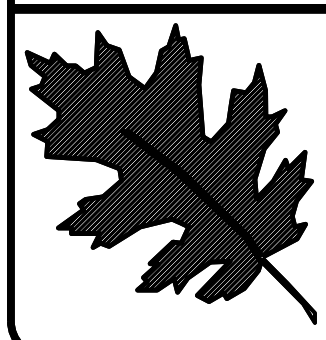
PP1 LL2 GARDEN COURTYARD LAYOUT WAVES OF WHEAT NTS



PP2 LL2 SBL ENTRANCE PAYER PATTERN NTS



PP3 LL2 NBL ENTRANCE PAYER PATTERN NTS



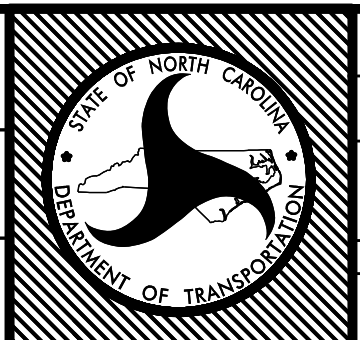
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I- 77 IREDELL Co  
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I-77 REST AREA  
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 DETAILS

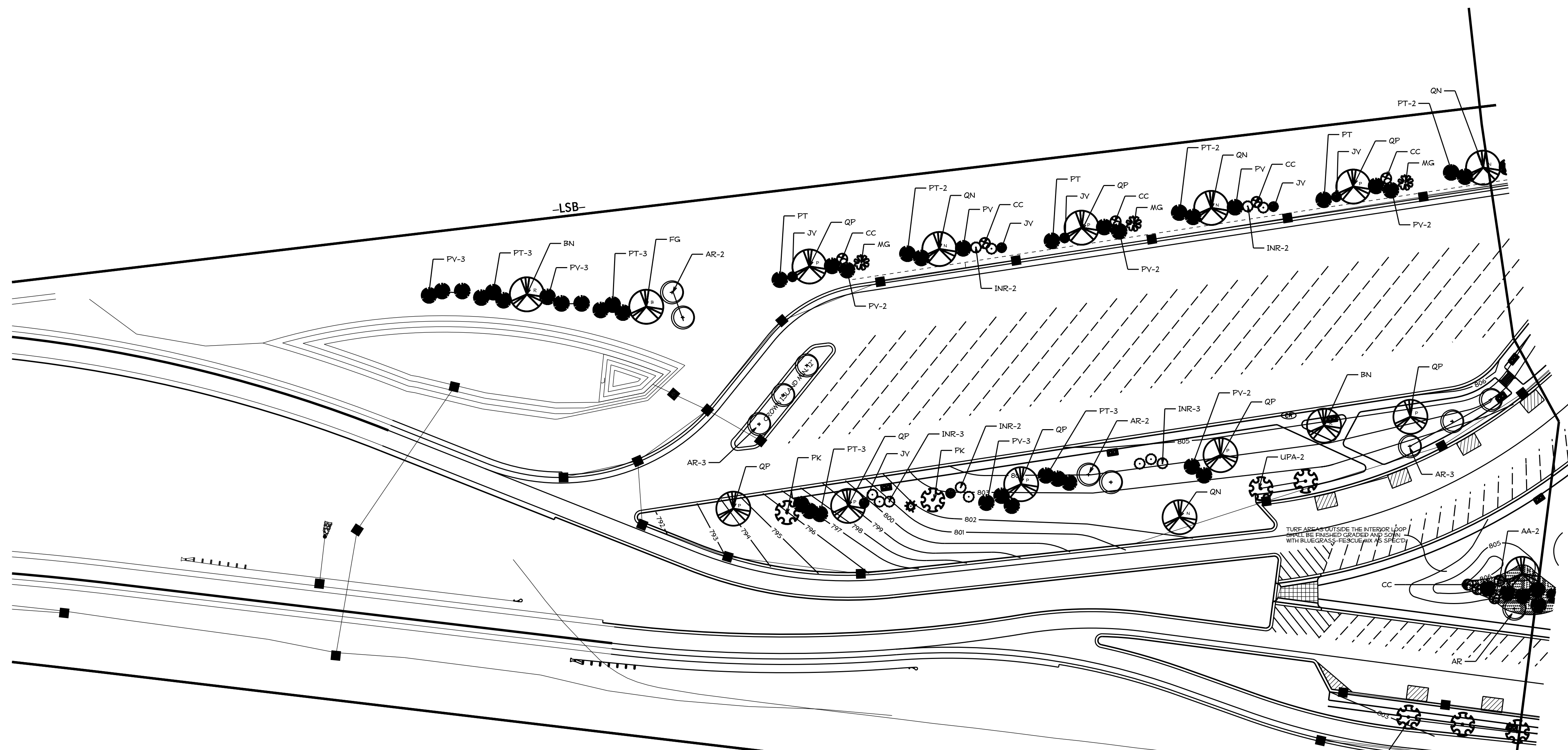


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 LL-02



PLANT KEY

KEY	BOTANICAL NAME	COMMON NAME
<b>Trees</b>		
AA	<i>Amelanchier arborea</i> 'Autumn Brilliance'	Serviceberry
API	<i>Acer palmatum dissectum</i> 'Inaba Shindare'	Cutleaf Japanese Maple
APV	<i>Acer palmatum dissectum</i> 'Viridis'	Cutleaf Japanese Maple
AR	<i>Acer rubrum</i> 'Autumn Blaze'	Autumn Blaze Red Maple
BN	<i>Betula nigra</i> 'Dura Heat'	Dura-Heat River Birch
CC	<i>Cercis canadensis</i> var. <i>texensis</i> 'Oklahoma'	Oklahoma Redbud
FG	<i>Fagus grandiflora</i>	American Beech
HI	<i>Hamamelis x intermedia</i> 'Arnold Promise'	Arnold Promise Witch Hazel
HR	<i>Ilex x 'Nette R Stevens'</i>	Nette R Stevens Holly
JV	<i>Juniperus virginiana</i>	Eastern Red Cedar
LI	<i>Lagerstroemia indica</i> 'Muskogee'	Muskogee' Crape Myrtle
MG	<i>Magnolia grandiflora</i> 'Little Gem'	Little Gem Southern Magnolia
PT	<i>Pinus taeda</i>	Loblolly Pine
PV	<i>Pinus virginiana</i>	Virginia Pine
PK	<i>Prunus serrulata</i> 'Kwanzan'	Kwanzan Cherry
QN	<i>Quercus nuttallii</i>	Nuttall Oak
QP	<i>Quercus palustris</i>	Pin Oak
SJ	<i>Syrax japonicus</i> 'Emerald Pagoda'	Japanese Snowbell
TO	<i>Thuja occidentalis</i> 'Dedroot's Spire'	Dedroot's Spire Arborvitae
UA	<i>Ulmus americana</i> 'Princeton'	Princeton Elm
UPA	<i>Ulmus parvifolia</i> 'Atlas'	Emer II Lacebark Elm
<b>Shrubs</b>		
BT	<i>Berberis thunbergii</i> 'Atropurpurea'	Red Japanese Barberry
IC	<i>Ilex crenata</i> 'Helleri'	Helleri Holly
IW	<i>Ilex verticillata</i> 'Red Sprite'	Winterberry (10% must be male)
JN	<i>Juniperus procumbens</i> 'Nana'	Japanese Garden Juniper
LC	<i>Loropetalum chinensis rubrum</i> 'Blush'	Blush Loropetalum
PM	<i>Pinus mugo</i> 'Mughus'	Mugo Pine
<b>Grasses &amp; Vines</b>		
BC	<i>Bignonia capreolata</i> 'Tangerine Beauty'	Tangerine Beauty Cross Vine
CA	<i>Clematis armandii</i> 'Snowdrift'	Snowdrift Clematis
JE	<i>Juncus effusus</i>	Soft Rush
LM	<i>Liriope muscari</i> 'Big Blue'	Big Blue Liriope
LS	<i>Liriope spicata</i> 'Silver Dragon'	Silver Dragon Liriope
OJ	<i>Ophiopogon japonicus</i>	Mondo Grass
GJN	<i>Ophiopogon japonicus</i> 'Nana'	Dwarf Mondo Grass
PVS	<i>Panicum virgatum</i> 'Squaw'	Squaw Switch Grass
WF	<i>Wisteria frutescens</i> 'Amethyst Falls'	Amethyst Falls Wisteria
<b>Perennials</b>		
AC	<i>Ajuga x 'Chocolate Chip'</i>	Chocolate Chip Ajuga
AN	<i>Athyrium niponicum</i> 'Pictum'	Japanese Painted Fern
DC	<i>Delosperma cooperi</i>	Hardy Ice Plant
DE	<i>Dryopteris erythrosora</i>	Autumn Fern
EPM	<i>Echinacea purpurea</i> 'Magnus'	Magnus Coneflower
EPR	<i>Echinacea purpurea</i> 'Ruby Star'	Ruby Star Coneflower
EPW	<i>Echinacea purpurea</i> 'White Swan'	White Swan Coneflower
HC	<i>Hemerocallis</i> 'Chicago Apache'	Chicago Apache Daylily
HM	<i>Heuchera x 'Midnight Bayou'</i>	Midnight Bayou Coral Bells
HS	<i>Hemerocallis</i> 'Star Struck'	Star Struck Daylily
HE	<i>Hosta Elegans</i>	Elegant Hosta
MJ	<i>Monarda didyma</i> 'Jacob Cline'	Jacob Cline Red Bee Balm
PS	<i>Phlox subulata</i> 'Drummond Pink'	Drummond Creeping Phlox
VWP	<i>Verbena canadensis</i> 'Homesead Purple'	Homesead Purple Verbena
SA	<i>Sedum x 'Autumn Fire'</i>	Autumn Fire Sedum



NOTES

DASHED CONTOUR LINES REPRESENT EXISTING GRADES (PRE CONST)

ALL SIDEWALKS HAVE 2% CROSS-SLOPE UNLESS NOTED

HC CONCRETE CURB RAMP PER SPECIFICATIONS

DC DEPRESSED SIDEWALK RAMP (PER DETAILS)

FARM POST & RAIL FENCE

PROPOSED STONE WALL (SEE DETAILS).

TPF TREE PROTECTION FENCE

VEGETATION REMOVAL FOR TRAIL

PICNIC SHELTER

FF 40' FLAGPOLE

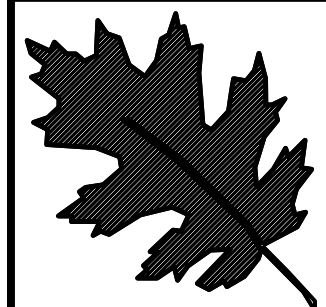
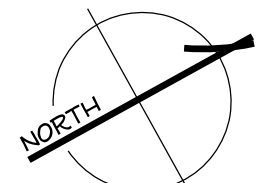
YD YARD HYDRANT

5' POLYWOOD BENCH (SET ON 30" X 66" CONC. PAD; ADJACENT TO SIDEWALK)

4' X 7' CONC PAD WITH MATCHING WASTE AND RECYCLE CONTAINERS

RAISED PLANT BED ADD 12" TOPSOIL (ABOVE GRADE)

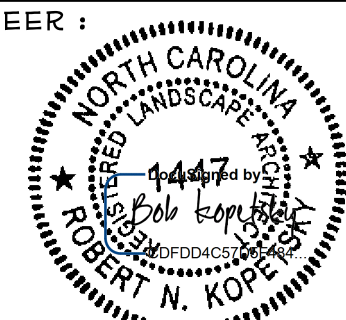
ALL TREES, OUTSIDE OF PLANT BEDS, SHALL HAVE A 5' DIAM. TREE RING; MULCHED AND RAISED 6" (ABOVE NATURAL GRADE) WITH TOPSOIL; UNDER NO CONDITIONS SHALL THE COLLAR OF A TREE BE PLANTED BELOW FINISHED GRADE.



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I- 77 IREDELL Co  
 REST AREA CONSTRUCTION  
 CONTRACT #:

REU ENGINEER :



SHEET DESCRIPTION:

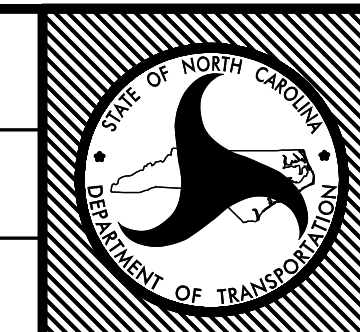
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I-77 REST AREA

LANDSCAPE PLANTING



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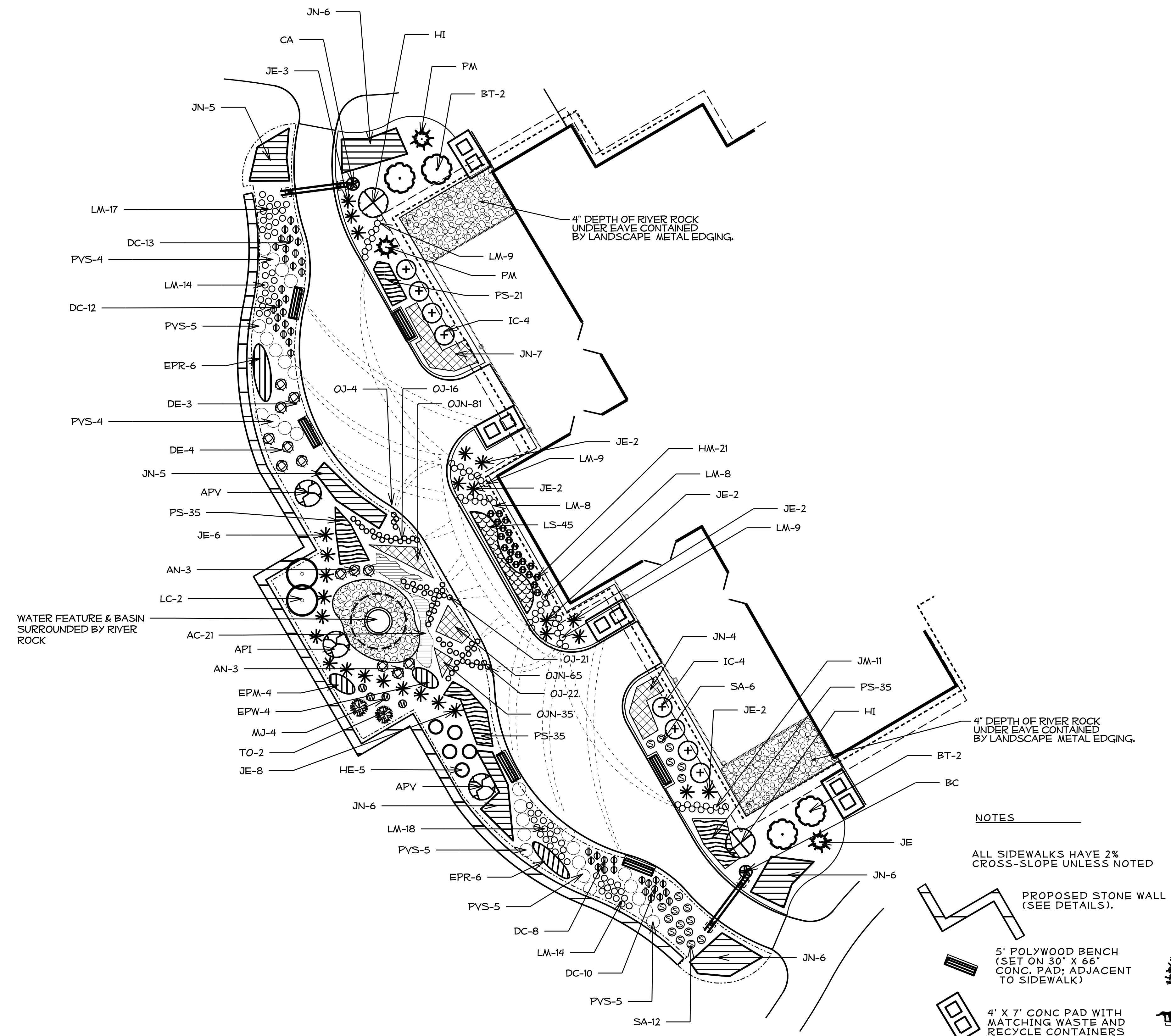






LANDSCAPE PLANTING - SUMMARY OF QUANTITIES

QTY.	UNIT	KEY	BOTANICAL NAME	COMMON NAME	FURNISH	REMARKS
<b>Trees</b>						
5	EA	AA	<i>Amelanchier arborea</i> 'Autumn Brilliance'	Serviceberry	7-8' #10 cont	
1	EA	API	<i>Acer palmatum dissectum</i> 'Inaba Shindare'	Cutleaf Japanese Maple	4' #15 cont	
2	EA	APV	<i>Acer palmatum dissectum</i> 'Viridis'	Cutleaf Japanese Maple	4' #15 cont	
19	EA	AR	<i>Acer rubrum</i> 'Autumn Blaze'	Autumn Blaze Red Maple	10-12', 2-2.5" cal. B&B	
4	EA	BN	<i>Betula nigra</i> 'Dura-Heat'	Dura-Heat River Birch	8-10' B&B	
13	EA	CC	<i>Cercis canadensis</i> var. <i>Texensis</i> 'Oklahoma'	Oklahoma Redbud	6-8' B&B	
9	EA	FG	<i>Fagus grandiflora</i>	American Beech	8-10' B&B	
2	EA	HI	<i>Hamamelis x intermedia</i> 'Arnold Promise'	Arnold Promise Witch Hazel	3-4', #10 Cont	
21	EA	INR	<i>Ilex x 'Nellie R Stevens'</i>	Nellie R Stevens Holly	6-8' B&B	
25	EA	JV	<i>Juniperus virginiana</i>	E. astern Red Cedar	6-8' B&B	
11	EA	LI	<i>Lagerstomia indica</i> 'Muskogee'	Muskogee' Crape Myrtle	10-12', 2-2.5" cal. B&B	Full
17	EA	MG	<i>Magolia grandiflora</i> 'Little Gem'	Little Gem Southern Magnolia	6-8' B&B	
63	EA	PT	<i>Pinus taeda</i>	Loblolly Pine	6-8' B&B	
40	EA	PV	<i>Pinus virginiana</i>	Virginia Pine	6-8' B&B	
5	EA	PK	<i>Prunus serrulata</i> 'Kwanzan'	Kwanzan Cherry	8-10', 1.5-1.75" cal. B&B	
15	EA	QN	<i>Quercus nuttallii</i>	Nuttall Oak	10-12', 2-2.5" cal. B&B	
14	EA	QP	<i>Quercus palustris</i>	Pin Oak	10-12', 2-2.5" cal. B&B	
8	EA	SJ	<i>Styrax japonicus</i> 'Emerald Pagoda'	Japanese Snowbell	6-8' B&B	
2	EA	TO	<i>Thuja occidentalis</i> 'Degroot's Spire'	Degroot's Spire Arborvitae	3-4', #10 Cont	
23	EA	UA	<i>Ulmus americana</i> 'Princeton'	Princeton Elm	8-10', 1.5-1.75" cal. B&B	
9	EA	UPA	<i>Ulmus parvifolia</i> 'Ailee'	Emer II Lacebark Elm	8-10', 1.5-1.75" cal. B&B	
<b>Shrubs</b>						
4	EA	BT	<i>Berberis thunbergii</i> 'Atropurpurea'	Red Japanese Barberry	#3 Cont	
11	EA	IC	<i>Ilex crenata</i> 'Helleri'	Helleri Holly	#3 Cont	
20	EA	IW	<i>Ilex verticillata</i> 'Red Sprite'	Winterberry (10% must be male-Jim Dan)	#3 Cont	3 1/2' O.C.
82	EA	JN	<i>Juniperus procumbens</i> 'Nana'	Japanese Garden Juniper	#1 Cont	3' O.C.
5	EA	LC	<i>Loropetalum chinensis rubrum</i> 'Blush'	Blush Loropetalum	#3 Cont	5' O.C.
3	EA	PM	<i>Pinus mugo</i> 'Mughus'	Mugo Pine	#3 Cont	
<b>Grasses &amp; Vines</b>						
1	EA	BC	<i>Bignonia capreolata</i> 'Tangerine Beauty'	Tangerine Beauty Cross Vine	#1 Cont	
1	EA	CA	<i>Clematis armandii</i> 'Snowdrift'	Snowdrift Clematis	#1 Cont	
28	EA	JE	<i>Juncus effusus</i>	Soft Rush	#1 Cont	
117	EA	LM	<i>Liriope muscari</i> 'Big Blue'	Big Blue Liriope	#1 Cont	12" O.C.
45	EA	LS	<i>Liriope spicata</i> 'Silver Dragon'	Silver Dragon Liriope	#1 Cont	12" O.C.
63	EA	OJ	<i>Ophiopogon japonicus</i>	Mondo Grass	#1 Cont	12" O.C.
181	EA	OJN	<i>Ophiopogon japonicus</i> 'Nana'	Dwarf Mondo Grass	#5P4, QT	6" O.C.
28	EA	PVS	<i>Panicum vitigatum</i> 'Squaw'	Squaw Switch Grass	#3 Cont	
1	EA	WF	<i>Wisteria frutescens</i> 'Amethyst Falls'	Amethyst Falls Wisteria	#1 Cont	
<b>Perennials</b>						
21	EA	AC	<i>Ajuga x 'Chocolate Chip'</i>	Chocolate Chip Ajuga	#5P4, QT	18" O.C.
6	EA	AN	<i>Athyrium niponicum</i> 'Pictum'	Japanese Painted Fern	#1 Cont	18" O.C.
43	EA	DC	<i>Delosperma cooperi</i>	Hardy Ice Plant	#1 Cont	12" O.C.
7	EA	DE	<i>Dryopteris erythrosora</i>	Autumn Fern	#1 Cont	18" O.C.
4	EA	EPM	<i>Echinacea purpurea</i> 'Magnus'	Magnus Coneflower	#1 Cont	18" O.C.
12	EA	EPR	<i>Echinacea purpurea</i> 'Ruby Star'	Ruby Star Coneflower	#1 Cont	18" O.C.
4	EA	EPW	<i>Echinacea purpurea</i> 'White Swan'	White Swan Coneflower	#1 Cont	18" O.C.
15	EA	HC	<i>Hemerocallis</i> 'Chicago Apache'	Chicago Apache Daylily	#1 Cont	2' O.C.
21	EA	HM	<i>Heuchera x 'Midnight Bayou'</i>	Midnight Bayou Coral Bells	#1 Cont	12" O.C.
15	EA	HS	<i>Hemerocallis</i> 'Star Struck'	Star Struck Daylily	#1 Cont	2' O.C.
5	EA	HE	<i>Hosta 'Elegans'</i>	Elegans Hosta	#1 Cont	2' O.C.
4	EA	MJ	<i>Monarda didyma</i> 'Jacob Cline'	Jacob Cline Red Bee Balm	#1 Cont	
126	EA	PS	<i>Phlox subulata</i> 'Drummond Pink'	Drummond Creeping Phlox	#1 Cont	12" O.C.
28	EA	VHP	<i>Verbena canadensis</i> 'Homestead Purple'	Homestead Purple Verbena	#1 Cont	18" O.C.
18	EA	SA	<i>Sedum x 'Autumn Fire'</i>	Autumn Fire Sedum	#1 Cont	2' O.C.



**NOTES**

COURTYARD LANDSCAPE BEDS SHALL HAVE 8" OF TOPSOIL ADDED ABOVE FINISHED GRADE

MAINTAIN POSITIVE DRAINAGE (SWALES) TO YARD INLETS.

COORDINATE ALL LANDSCAPE WORK WITH LIGHTING, IRRIGATION, WATER FEATURE (CONST), & BLDG CONST., & PAYER INSTALLATION.

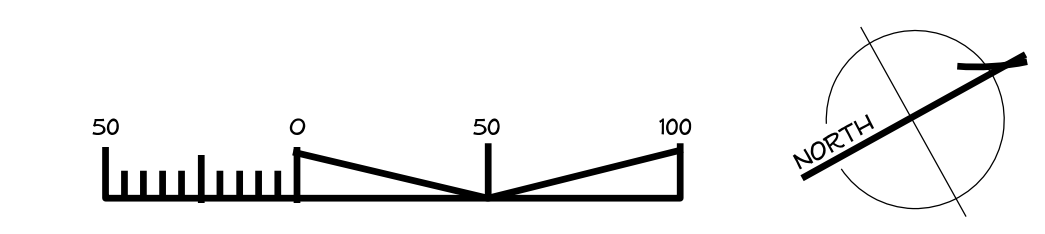
ALL TREES, OUTSIDE OF PLANT BEDS, SHALL HAVE A 5' DIAM. TREE RING; MULCHED AND RAISED 6" (ABOVE NATURAL GRADE) WITH TOPSOIL; UNDER NO CONDITIONS SHALL THE COLLAR OF A TREE BE PLANTED BELOW FINISHED GRADE.

ALL SIDEWALKS HAVE 2% CROSS-SLOPE UNLESS NOTED

PROPOSED STONE WALL (SEE DETAILS).

5' POLYWOOD BENCH (SET ON 30" X 66" CONC. PAD; ADJACENT TO SIDEWALK)

4' X 7' CONC PAD WITH MATCHING WASTE AND RECYCLE CONTAINERS



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**I- 77 IREDELL Co REST AREA CONSTRUCTION**

CONTRACT #:

REU ENGINEER :

PREL. DESIGN DATE : JUNE/ 14

CHECKED BY & DATE :

FINAL DESIGN DATE :

**I-77 REST AREA**

**LANDSCAPE PLANTING**

**COURTYARD**

T.I.P. # **K-4908**

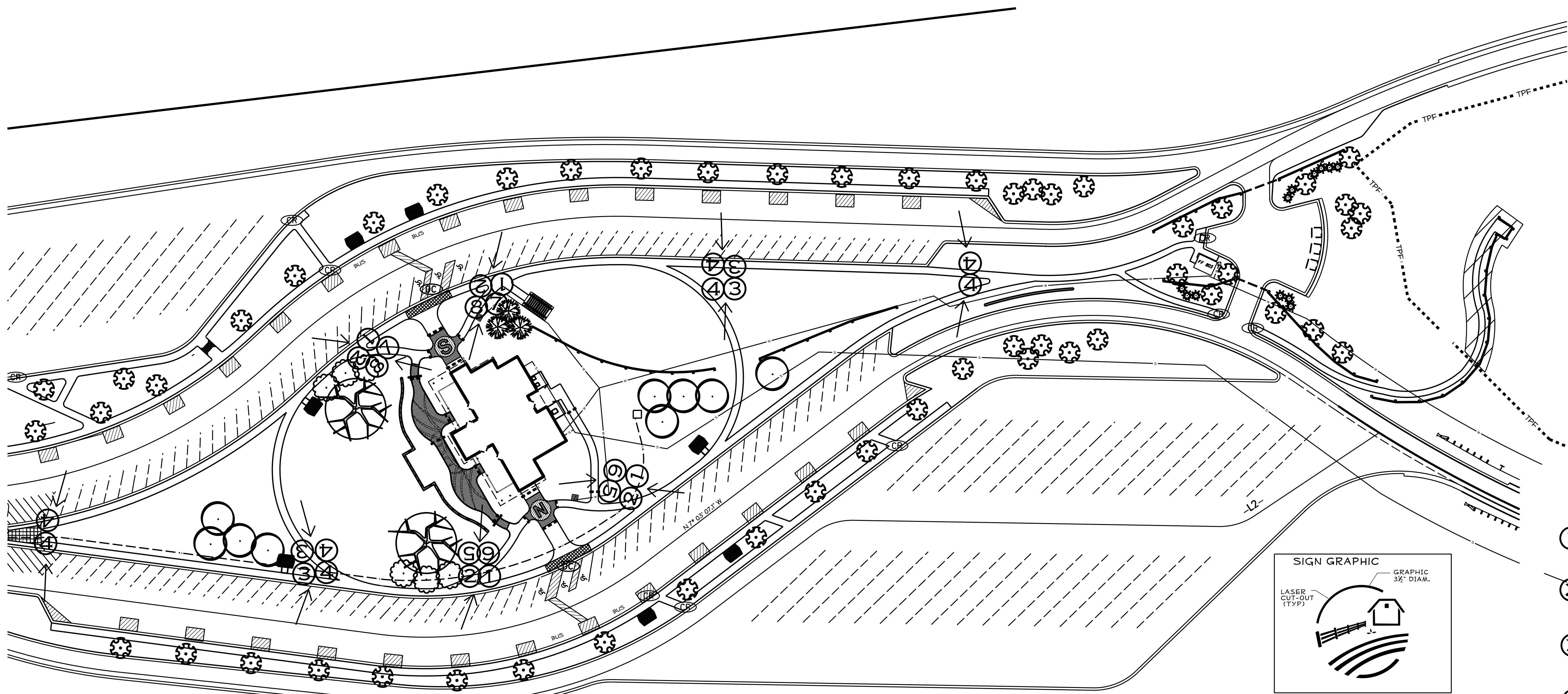
WBS # **39894.3.FS1**

FED I.D. # **IMS-77-1(177)39**

SHEET NO : TOTAL SHEET NO :

**LP-03**



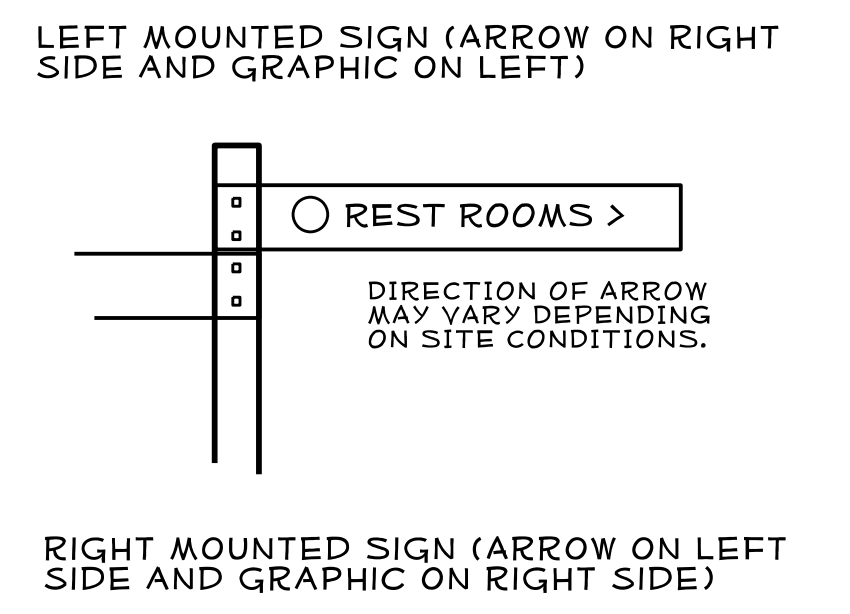


**NOTES**

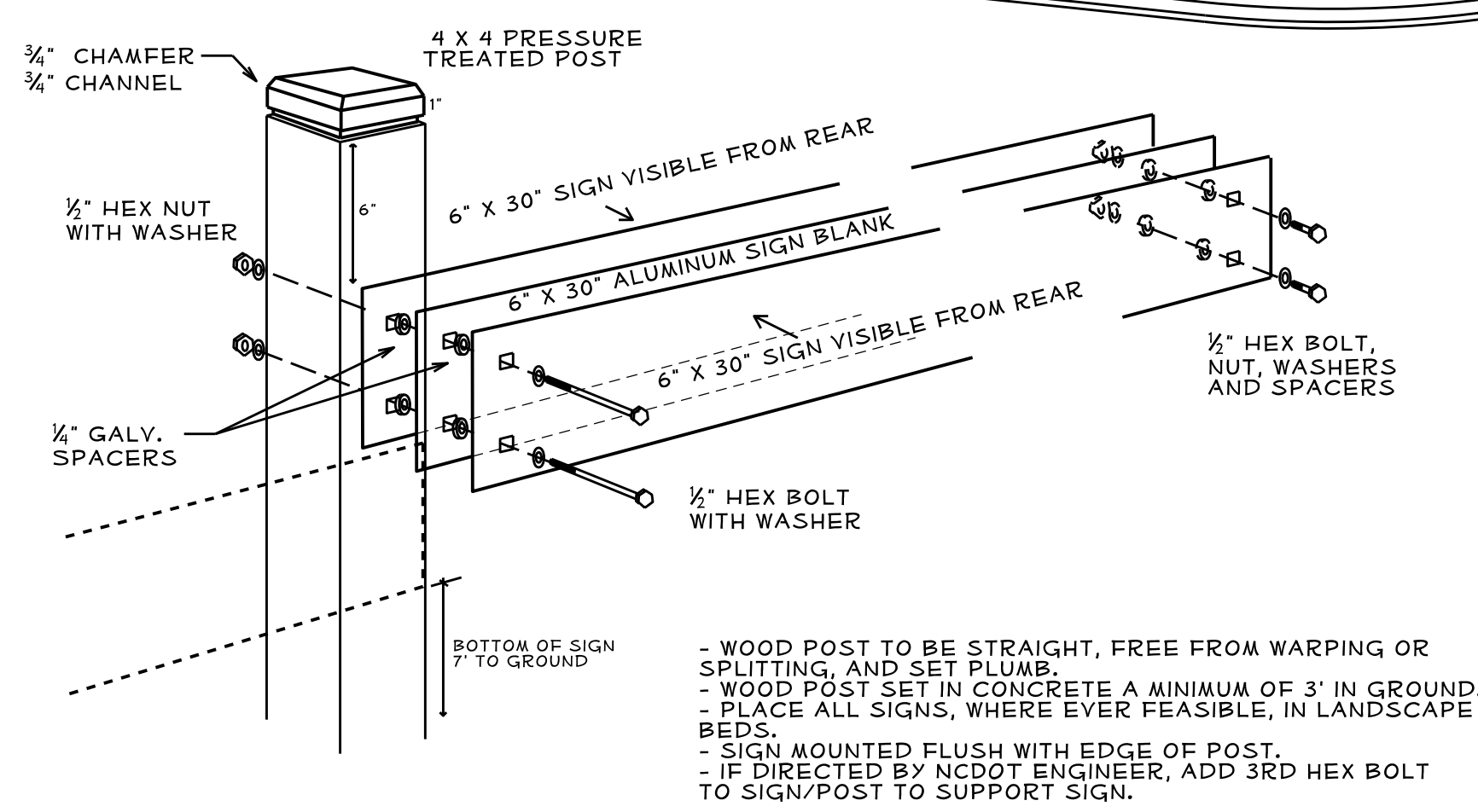
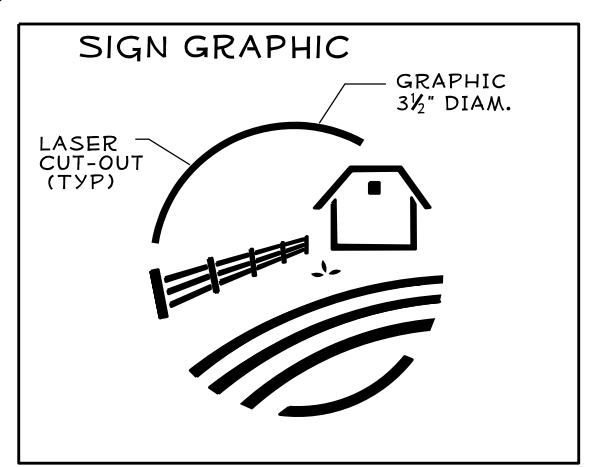
Ⓢ DESIGNATED SIGN LOCATION (DIRECTION TO BE VIEWED).

ADJUST AS NEEDED IN THE FIELD.

TYPICALLY, 2 SIGNS PER POST.



- ① REST ROOMS ⇨
- ② ⇨ VENDING
- ③ PET EXERCISE AREA ⇨
- ④ ⇨ WALKABLE LOOP 1/5 MI
- OUTSIDE LOOP 1/3 MI



- WOOD POST TO BE STRAIGHT, FREE FROM WARPING OR SPLITTING, AND SET PLUMB.
- WOOD POST SET IN CONCRETE A MINIMUM OF 3' IN GROUND.
- PLACE ALL SIGNS, WHERE EVER FEASIBLE, IN LANDSCAPE BEDS.
- SIGN MOUNTED FLUSH WITH EDGE OF POST.
- IF DIRECTED BY NCDOT ENGINEER, ADD 3RD HEX BOLT TO SIGN/POST TO SUPPORT SIGN.

REST ROOM AND VENDING FONT 2" TALL



PET, LOOP, & CITY SIGNS FONT 1 1/2" TALL



GRAPHICS, WORDS, ARROWS, ETC. CUT OUT OF SIGN

GRAPHICS OFFSET DUE TO POST MOUNTING

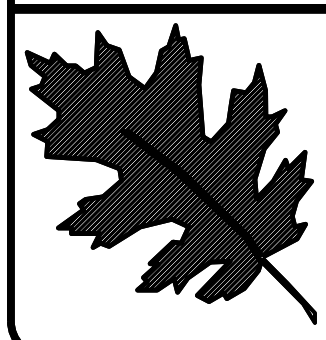
- FINAL GRAPHICS AND SIGN LAYOUT TO BE APPROVED BY LANDSCAPE ARCHITECT.
- FONT STYLE: BOLD ARIAL (TO BE APPROVED; ADJUSTMENTS WILL BE NEEDED FOR MANUFACTURING PURPOSES).
- MOUNTING HOLES SHALL NOT INTERFERE WITH SIGN GRAPHICS.
- ALL SIGNS/BLANKS ARE 6" X 30" .080 GAUGE ALUMINUM.
- GRAPHICS, ARROW, AND LETTERS LASER CUT.
- SIGNS POWDER COATED WITH DARK BROWN PAINT (FRONT & BACK).
- SIGN BLANKS USED IN MIDDLE BETWEEN THE TWO SIGNS TO REMAIN NON-PAINTED ALUMINUM.

SIGN TYPE	QUAN	MOUNT	ARROW
1- REST ROOMS	2(3)	LEFT	UP
1- REST ROOMS	2(3)	RIGHT	UP
2- VENDING	1(2)	LEFT	UP
2- VENDING	1(2)	RIGHT	UP
2- VENDING	1(2)	RIGHT	LEFT
2- VENDING	1(2)	LEFT	RIGHT
3- PET EXERCISE AREA	2(3)	RIGHT	LEFT
3- PET EXERCISE AREA	2(3)	LEFT	RIGHT
4- WALKABLE LOOP	2(3)	RIGHT	LEFT
4- WALKABLE LOOP	2(3)	LEFT	RIGHT
4- OUTSIDE LOOP	2(3)	RIGHT	LEFT
4- OUTSIDE LOOP	2(3)	LEFT	RIGHT
5- CHARLESTON	2(3)	LEFT	RIGHT
6- CLEVELAND	2(3)	RIGHT	LEFT
7- CHARLOTTE	2(3)	LEFT	LEFT
8- COLUMBIA	2(3)	RIGHT	LEFT
TOTAL	28(44)		

QUANTITIES SHOW TRUE NUMBER OF MOUNTED AND ERECTED SIGNS (+)  
AN ADDITIONAL SIGN OF EACH (FOR SURPLUS)

\*CITY\* SIGNS ATTACHED TO BACK OF VENDING AND REST ROOM SIGNS; VIEWABLE AS YOU LEAVE THE BLDG.

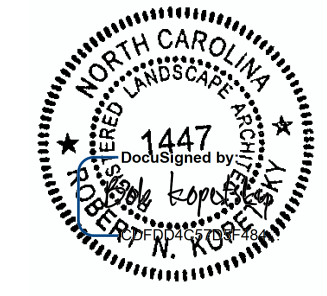
- ⑤ ⇨ CHARLESTON WV 216 MI
- ⑥ ⇨ CLEVELAND OH 467 MI
- ⑦ ⇨ CHARLOTTE NC 51 MI
- ⑧ ⇨ COLUMBIA SC 142 MI



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I- 77 IREDELL Co  
 REST AREA CONSTRUCTION  
 CONTRACT #:

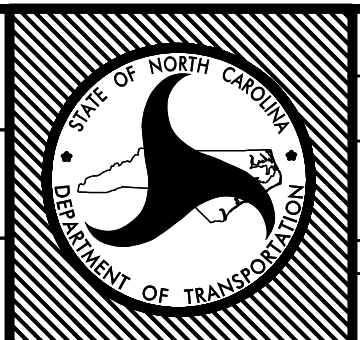
REU ENGINEER :



SHEET DESCRIPTION:

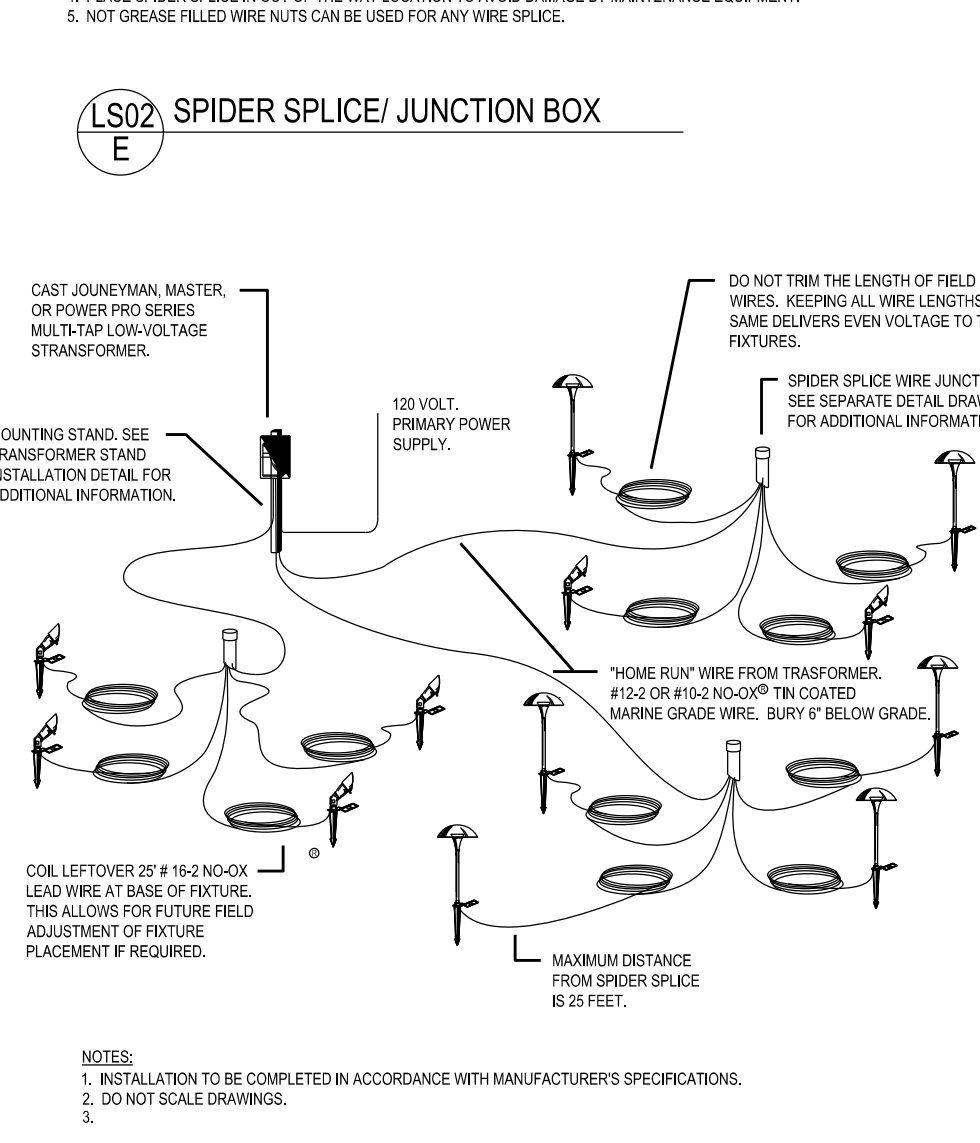
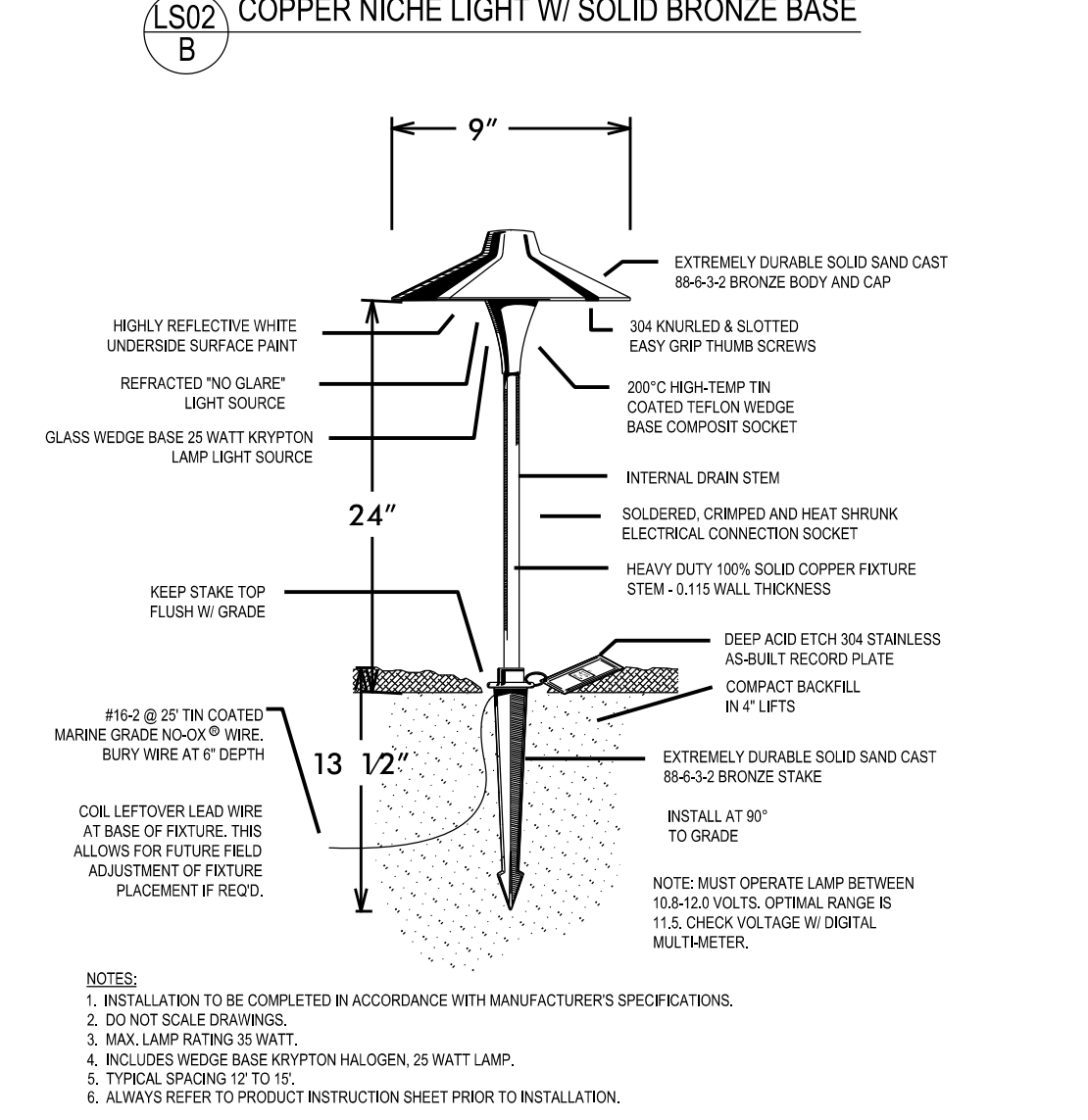
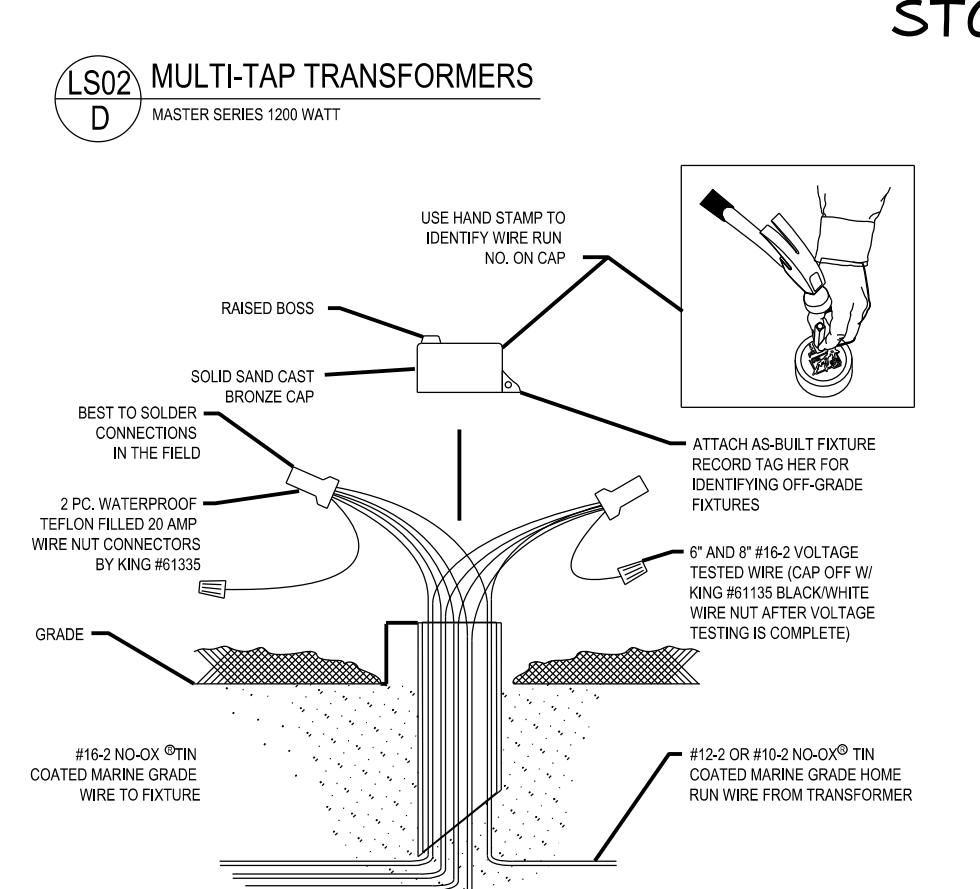
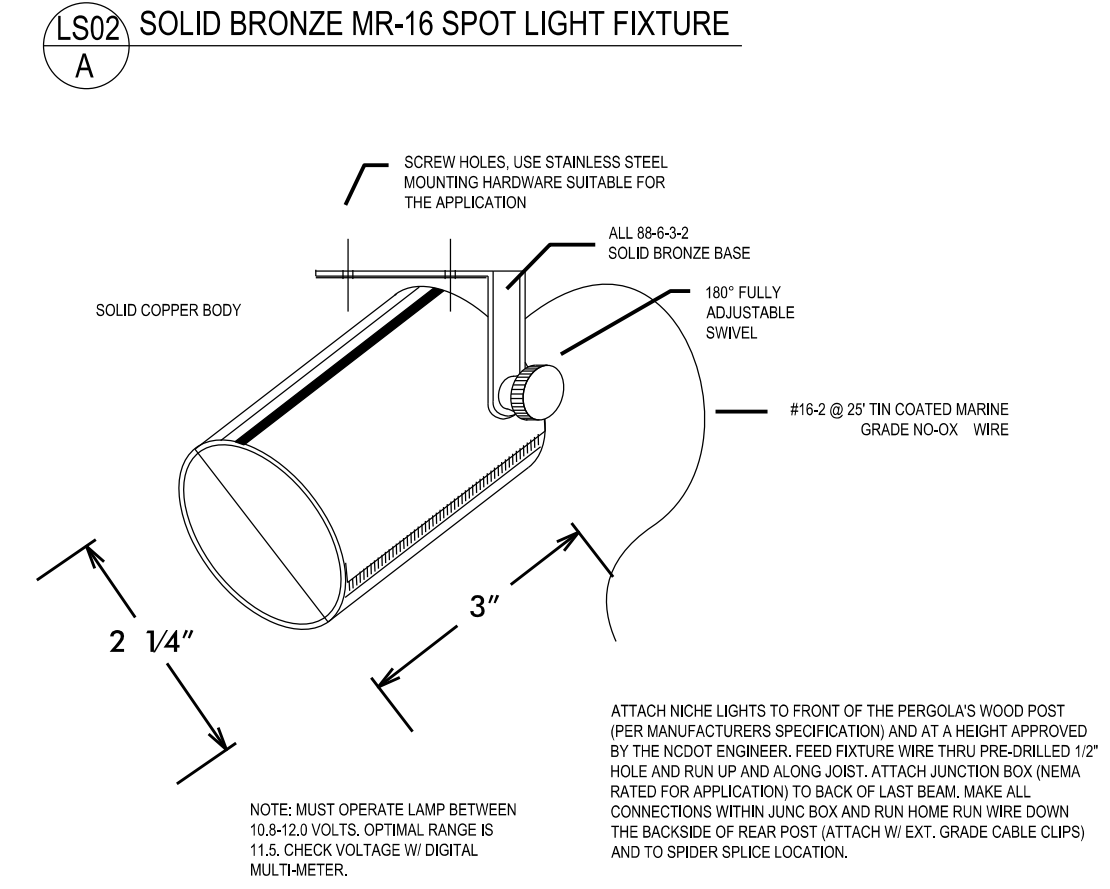
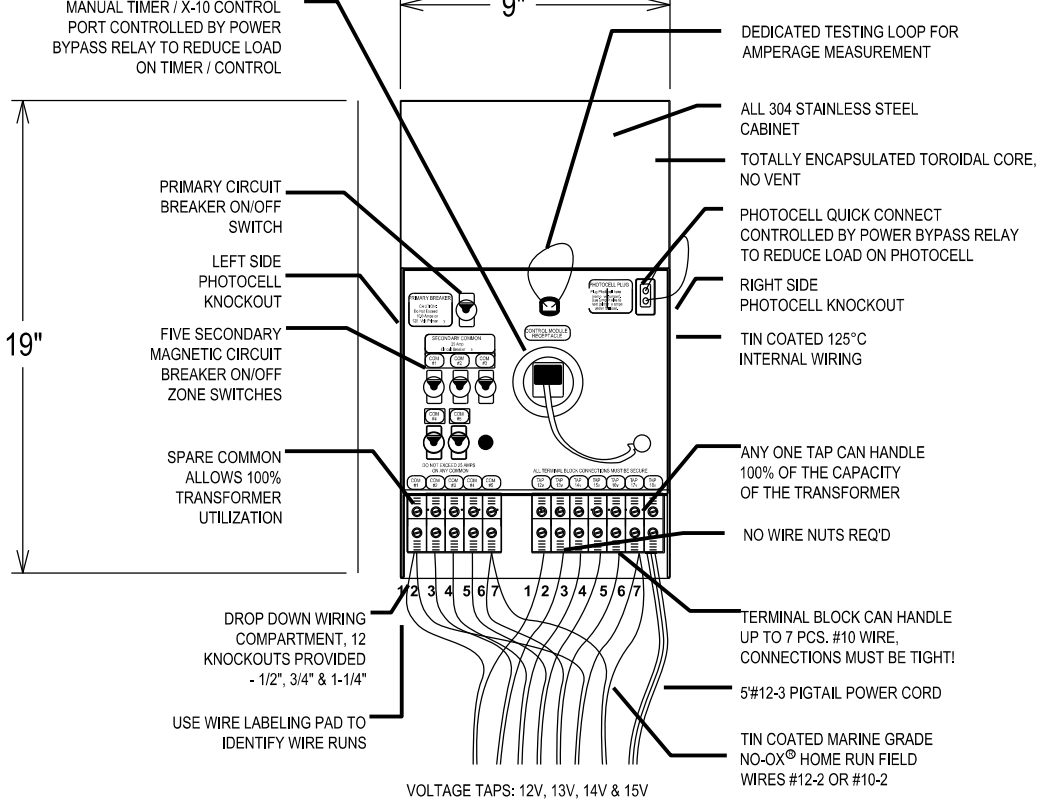
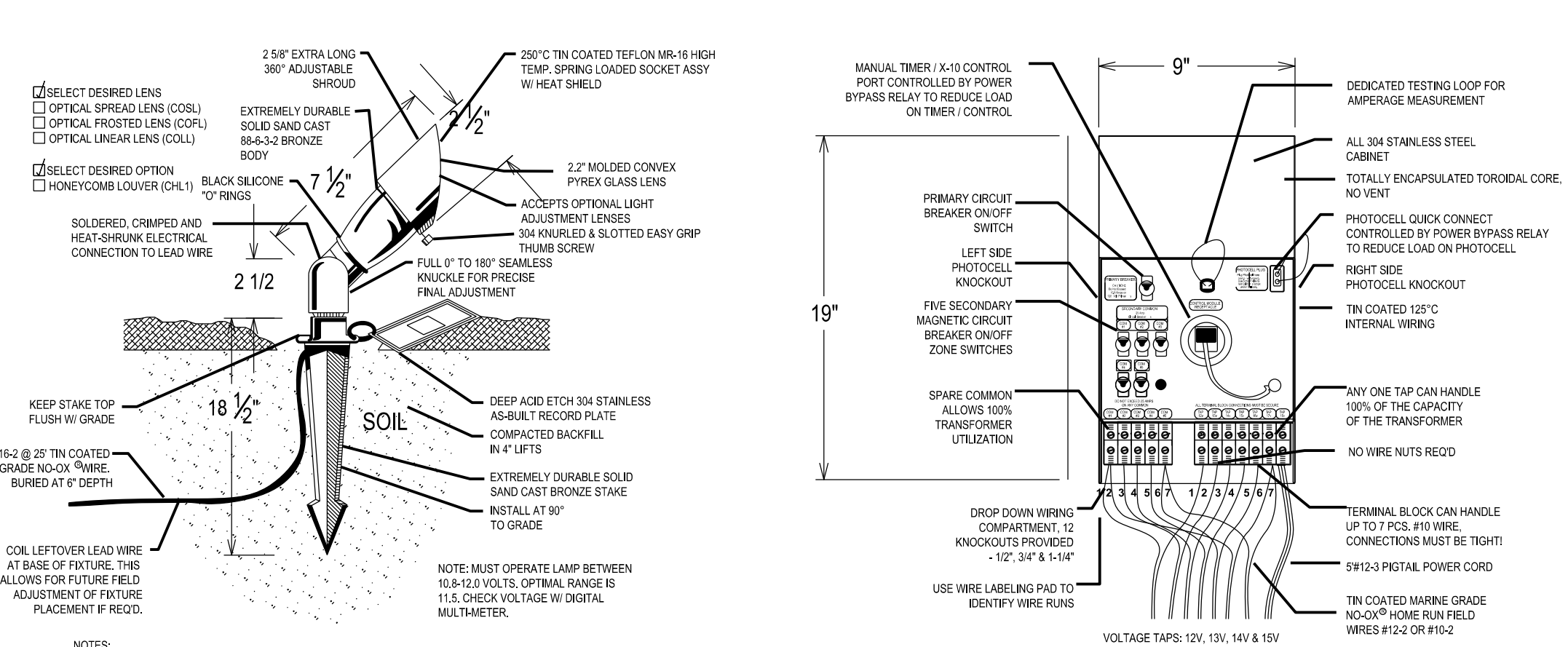
PREL DESIGN DATE: JUNE/ 14  
 CHECKED BY & DATE:  
 FINAL DESIGN DATE:

I-77 REST AREA  
 SITE SIGNING



T.I.P. # K-4908  
 WBS # 39894.3.FS1  
 FED I.D. # IMS-77-1(177)39  
 SHEET NO: TOTAL SHEET NO:  
 LS-01





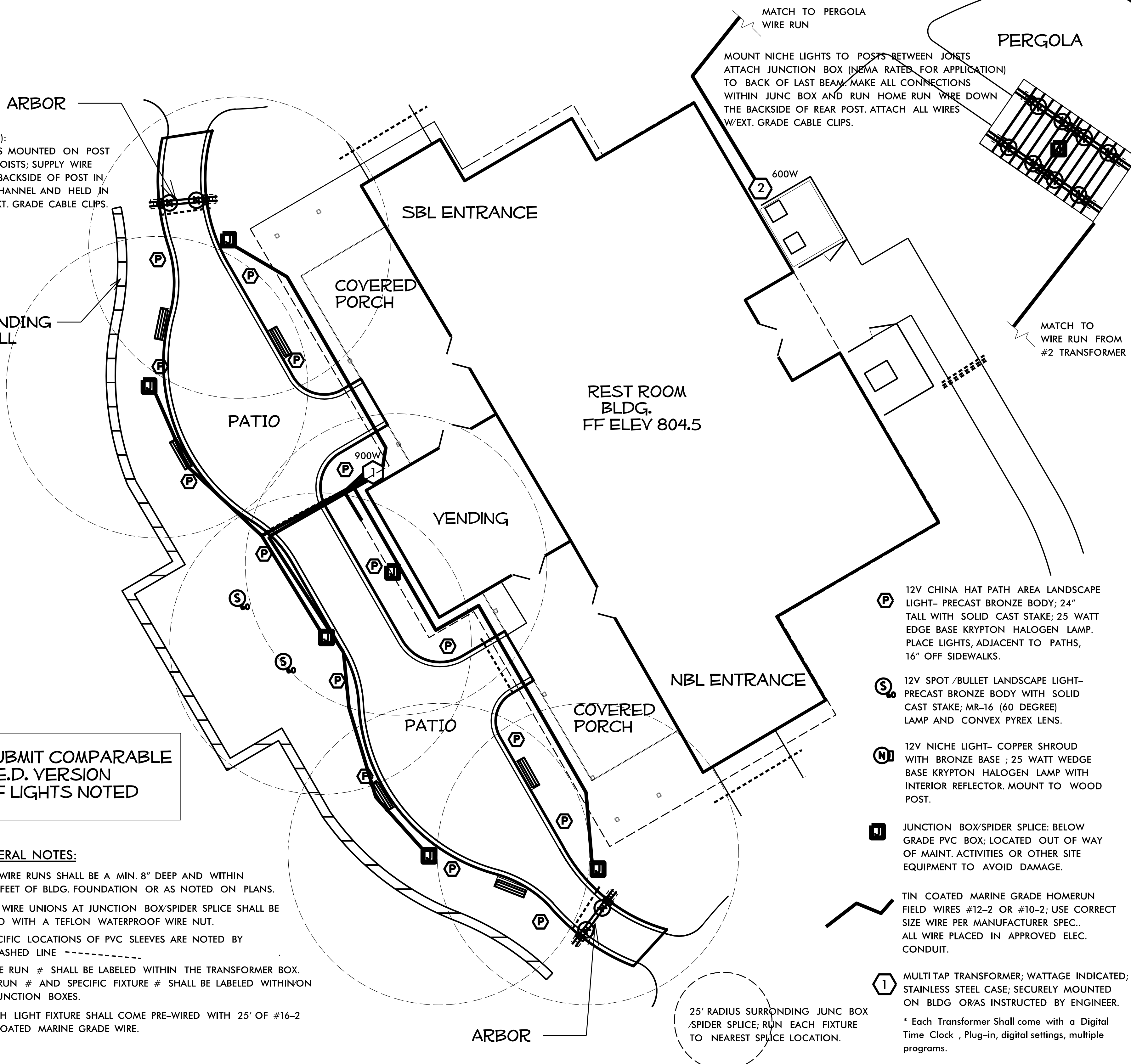
**ARBOR**

ARBOR (TYP): NICHE LGTS MOUNTED ON POST BETWEEN JOISTS; SUPPLY WIRE RUN ON BACKSIDE OF POST IN ROUTED CHANNEL AND HELD IN PLACE W/EXT. GRADE CABLE CLIPS.

**FREE STANDING STONE WALL**

**SUBMIT COMPARABLE L.E.D. VERSION OF LIGHTS NOTED**

- GENERAL NOTES:**
1. ALL WIRE RUNS SHALL BE A MIN. 8" DEEP AND WITHIN TWO FEET OF BLDG. FOUNDATION OR AS NOTED ON PLANS.
  2. ALL WIRE UNIONS AT JUNCTION BOX/SPIDER SPLICE SHALL BE JOINED WITH A TEFLON WATERPROOF WIRE NUT.
  3. SPECIFIC LOCATIONS OF PVC SLEEVES ARE NOTED BY THE DASHED LINE
  4. WIRE RUN # SHALL BE LABELED WITHIN THE TRANSFORMER BOX. WIRE RUN # AND SPECIFIC FIXTURE # SHALL BE LABELED WITHIN THE JUNCTION BOXES.
  5. EACH LIGHT FIXTURE SHALL COME PRE-WIRED WITH 25' OF #16-2 TIN COATED MARINE GRADE WIRE.



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**I- 77 IREDELL Co**  
**REST AREA CONSTRUCTION**  
 CONTRACT #:

REV ENGINEER :

**ROBERT N. KOPE**

SHEET DESCRIPTIONS:

PREL. DESIGN DATE : JUNE/14

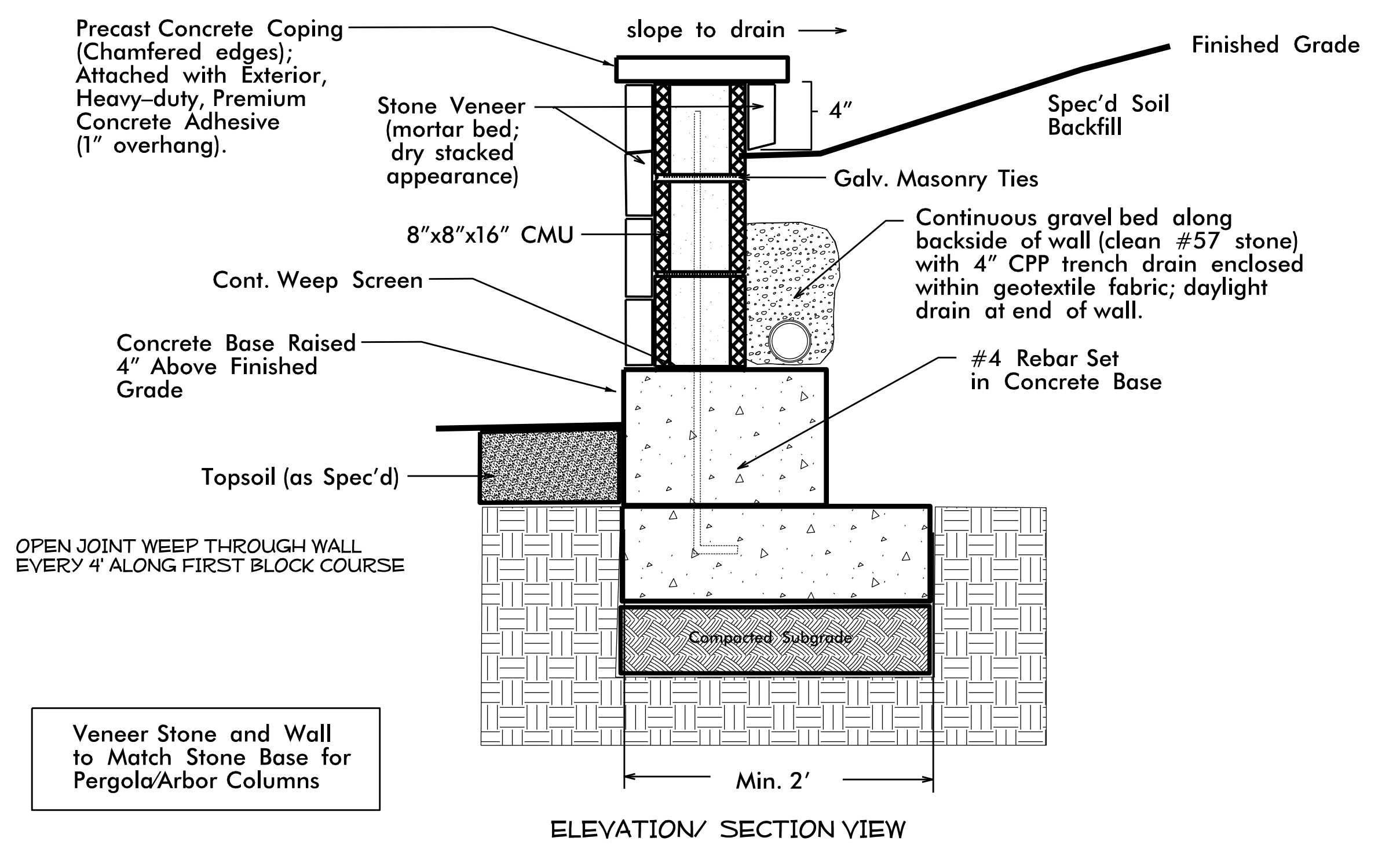
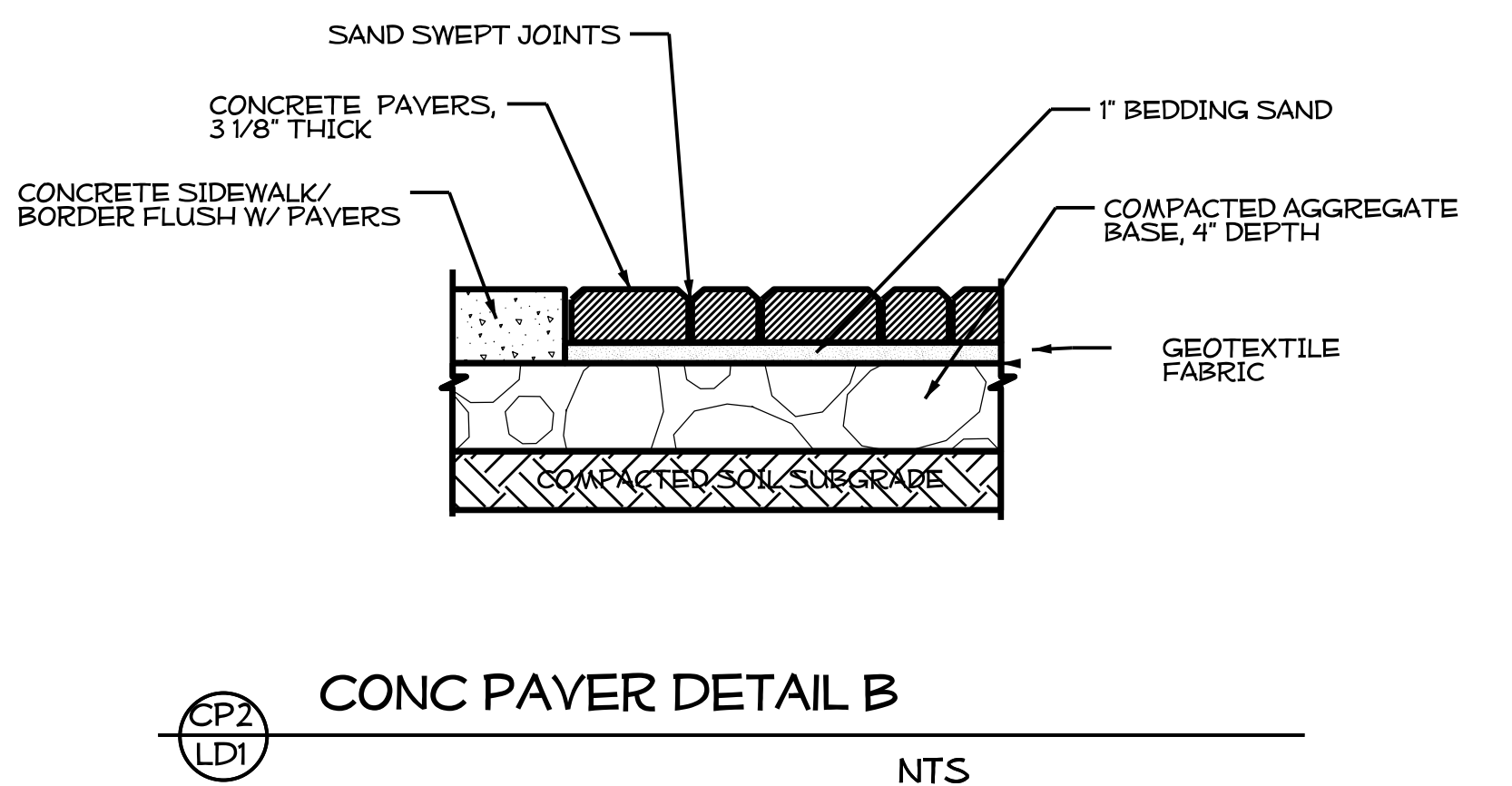
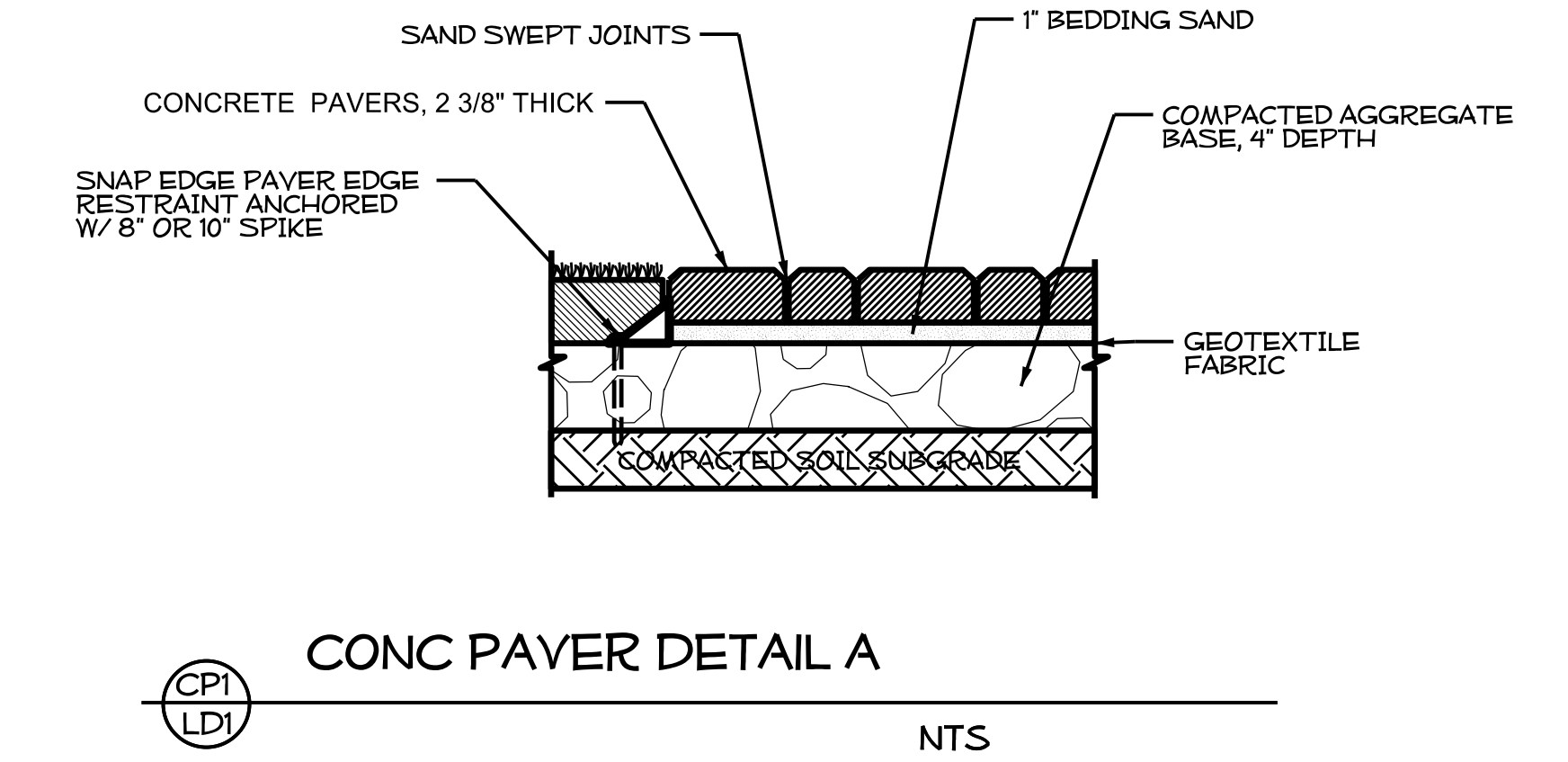
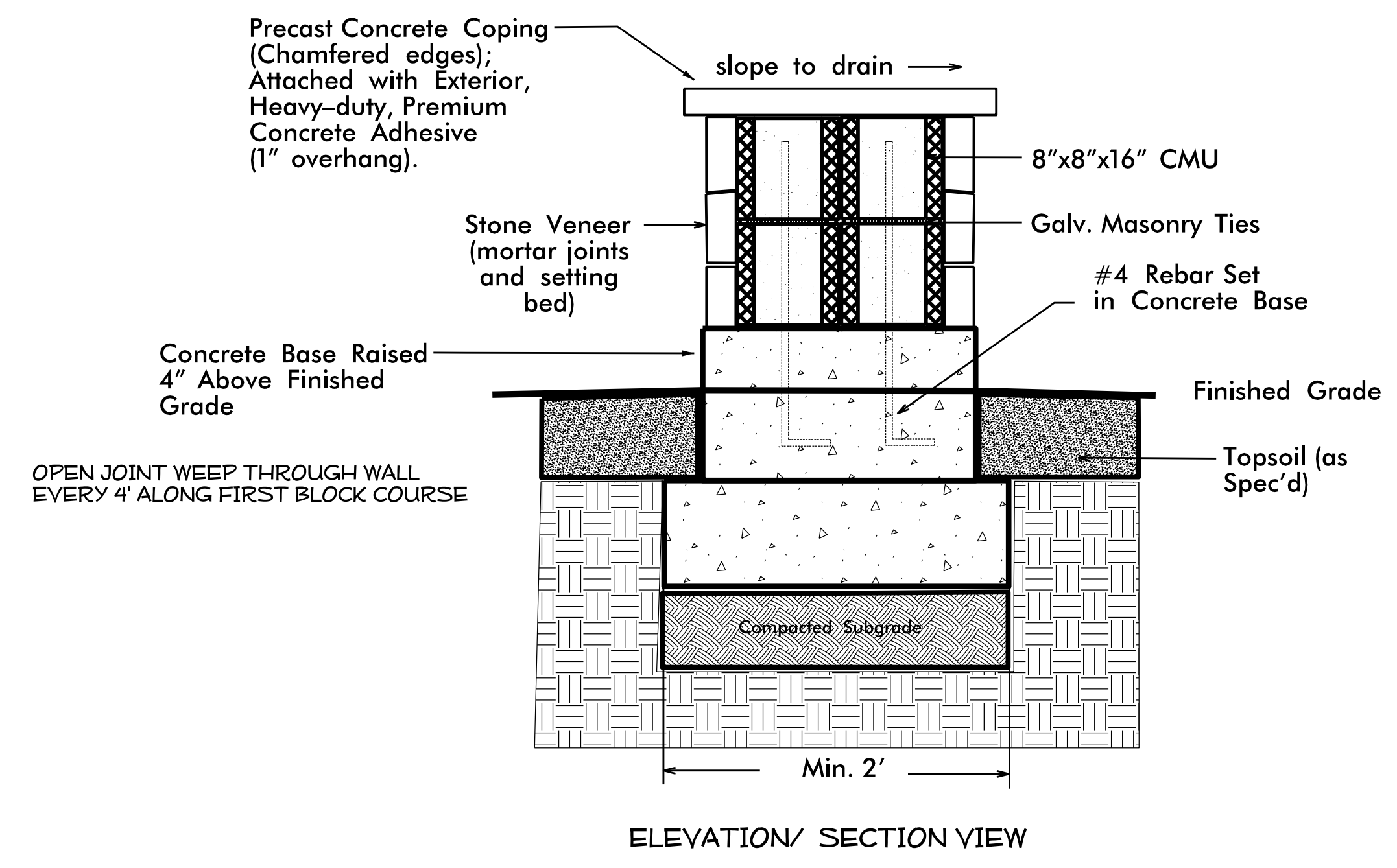
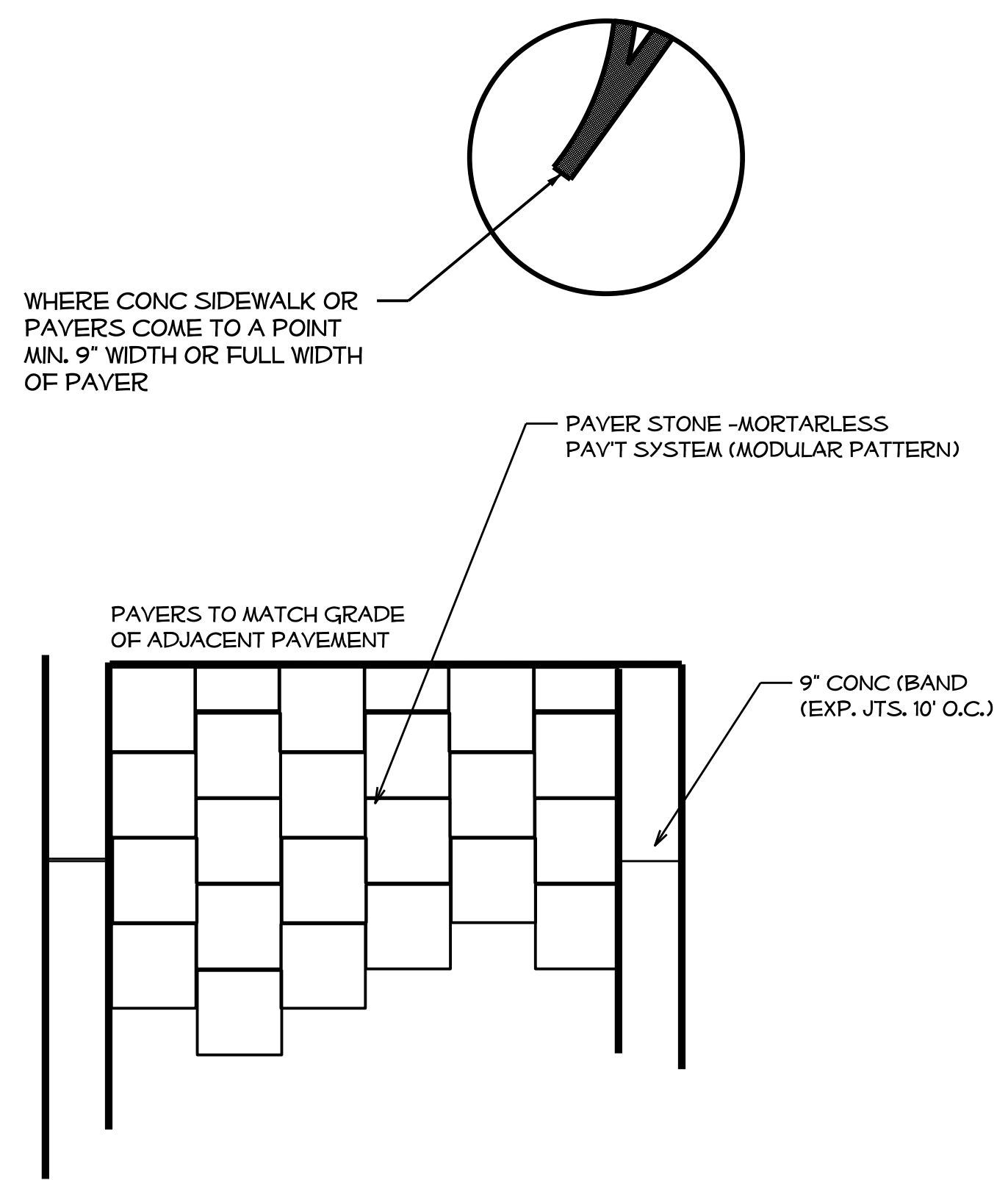
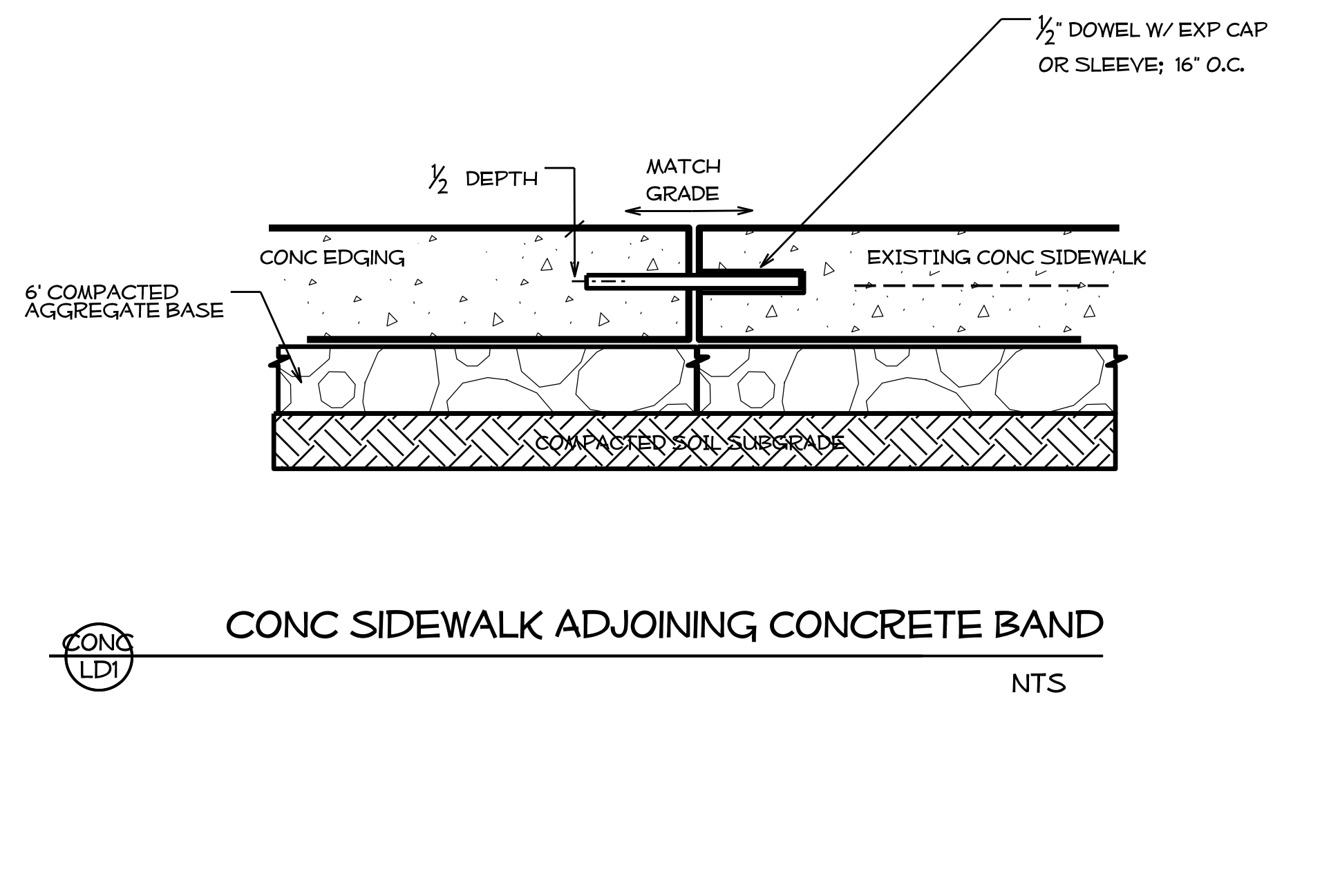
CHECKED BY & DATE :

FINAL DESIGN DATE :

**I-77 REST AREA**  
**LANDSCAPE LIGHTING**  
**LAYOUT & DETAILS**

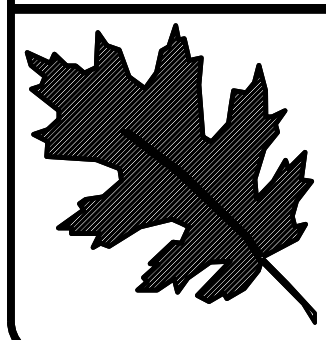
T.I.P. # **K-4908**  
 WBS # **39894.3.FS1**  
 FED I.D. # **IMS-77-1(177)39**  
 SHEET NO : **LS-02** TOTAL SHEET NO :





- GENERAL NOTES:
- 1) SIDEWALK AS SPECIFIED BY SITE/HARDSCAPE PLANS.
  - 2) CONCRETE PAVER AREA AS SHOWN WITH 9" CAST IN PLACE CONCRETE BORDER GREY PAVER BORDER. PAVERS TO BE A BLEND & COLOR AND SIZE AS SPECIFIED.
  - 3) STANDARD 4" THICK CONCRETE SIDEWALK; CONTROL JOINT EVERY 5' AND EXPANSION JOINT EVERY 10'.

\$\$\$\$\$TIMES\$\$\$  
 \$\$\$USER NAME\$\$\$



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I- 77 IREDELL Co  
 REST AREA CONSTRUCTION  
 CONTRACT #:

REV ENGINEER :

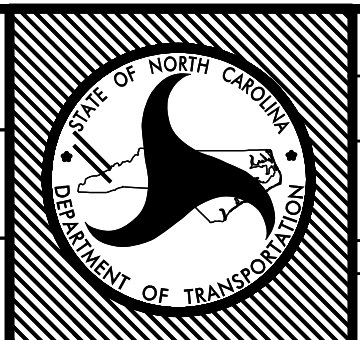
SHEET DESCRIPTION:

PREL. DESIGN DATE: JUNE/ 14

CHECKED BY & DATE:

FINAL DESIGN DATE:

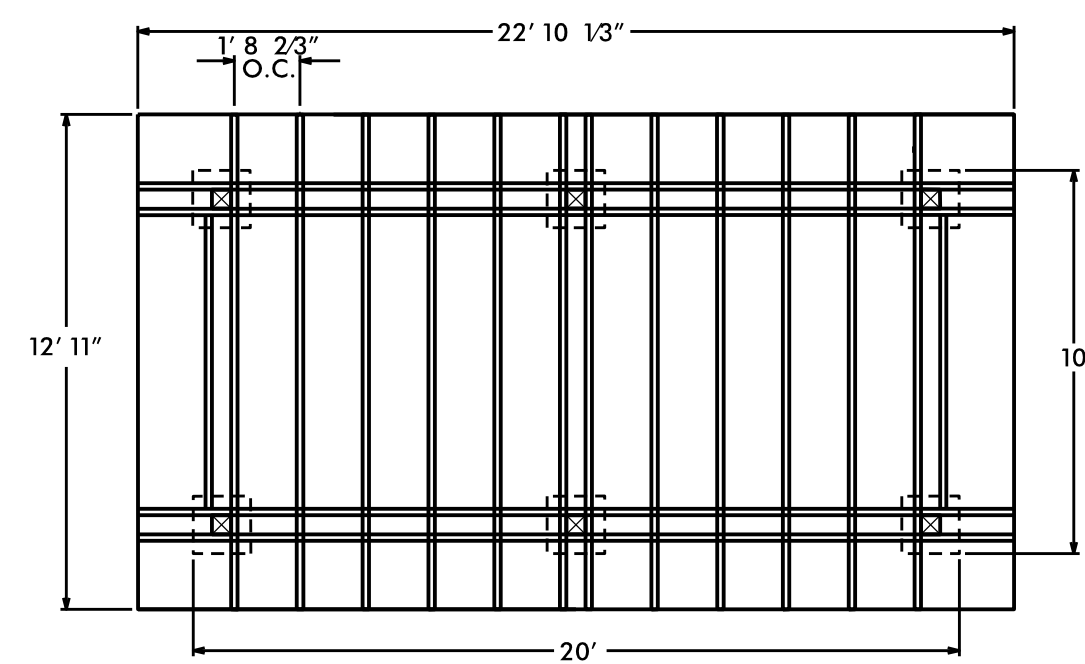
I-77 REST AREA  
 HARDSCAPE AND  
 STONE WALL DETAIL



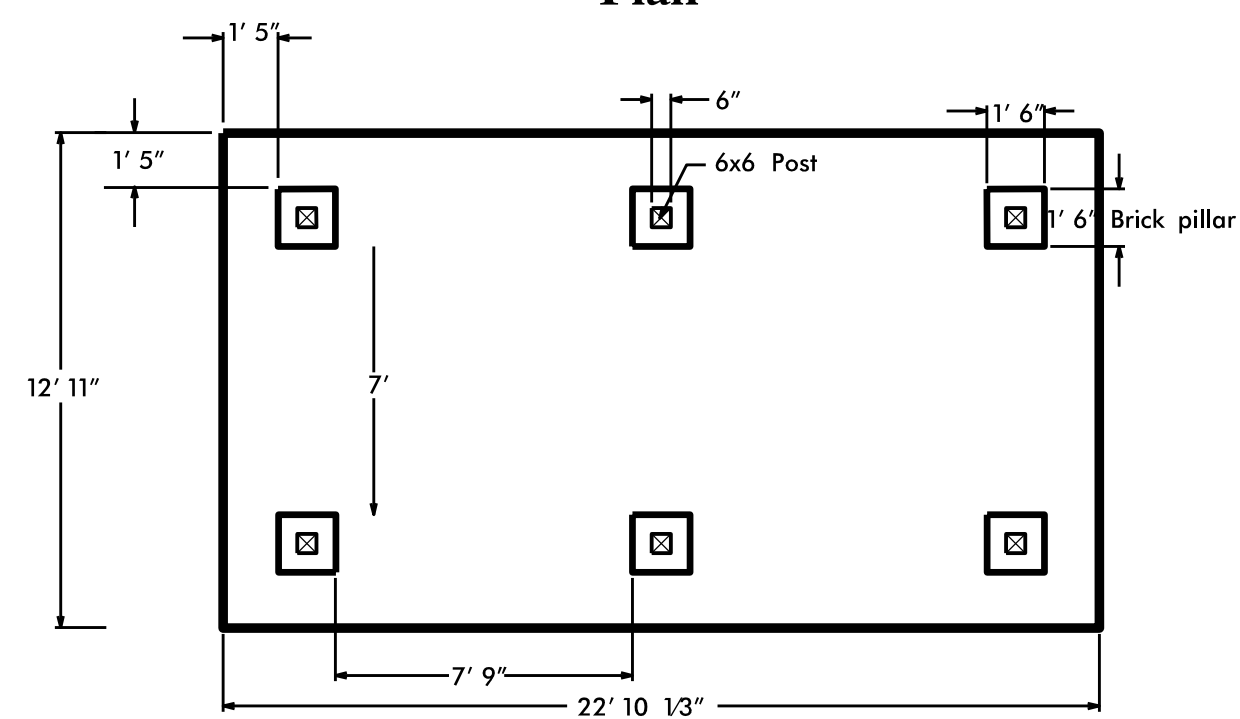
T.I.P. # K-4908  
 WBS # 39894.3.FS1  
 FED I.D. # IMS-77-1(177)39  
 SHEET NO: TOTAL SHEET NO:  
**LD 1**



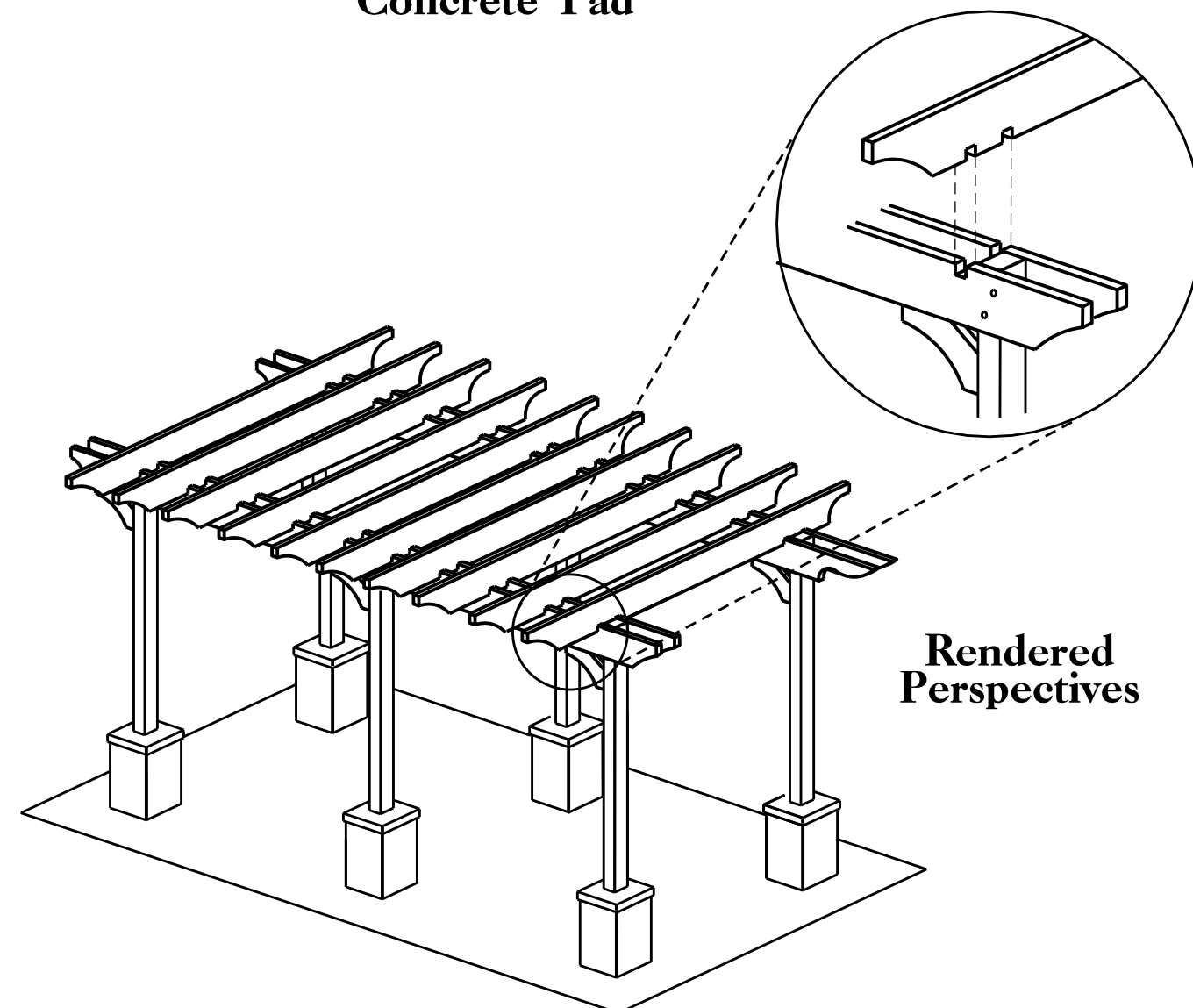
# Pergola



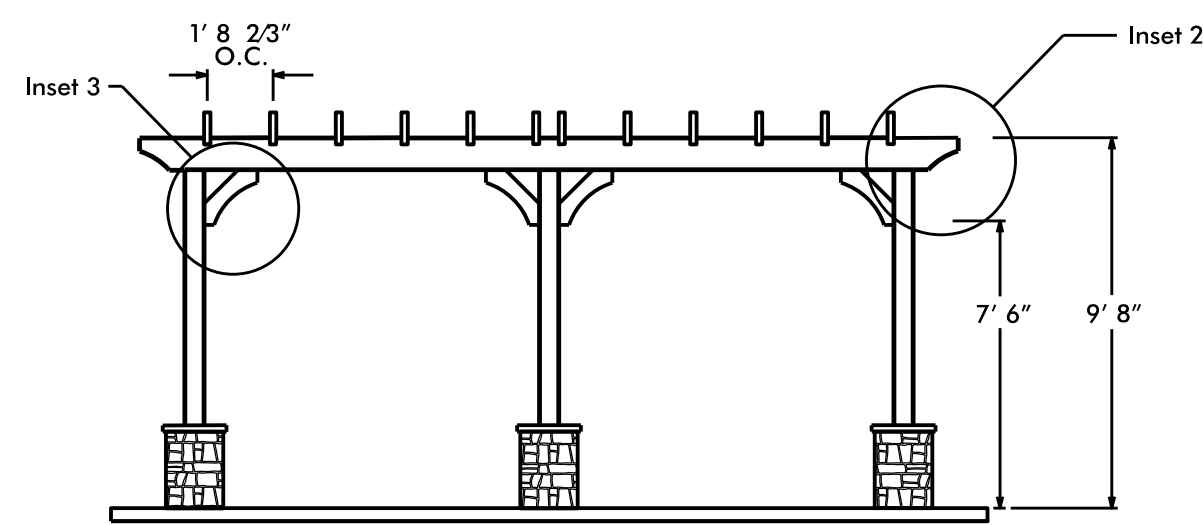
Plan



Concrete Pad

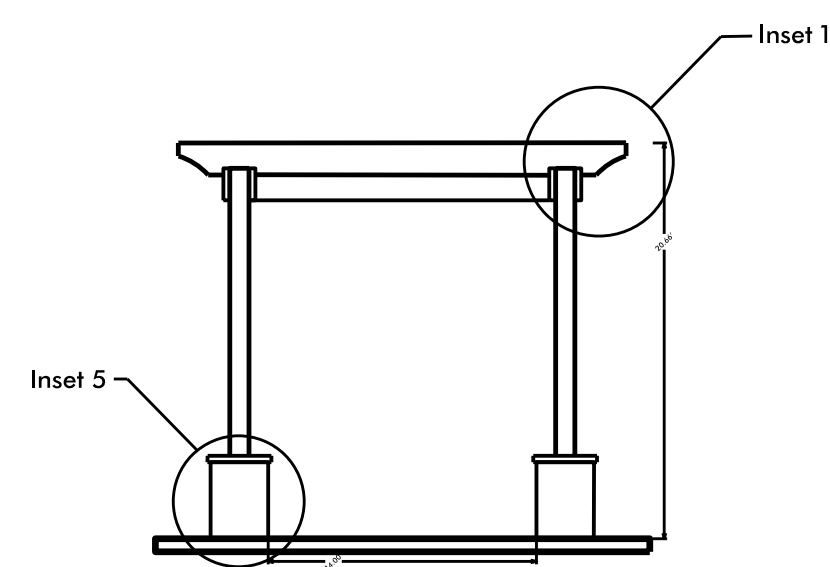


Rendered Perspectives

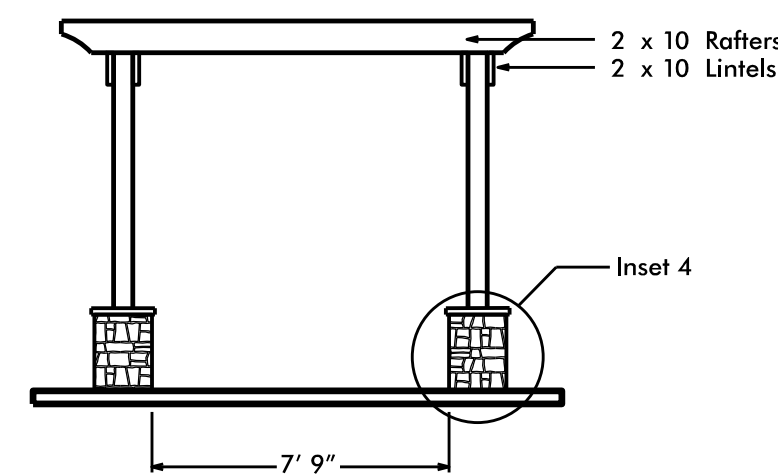


Front Elevation

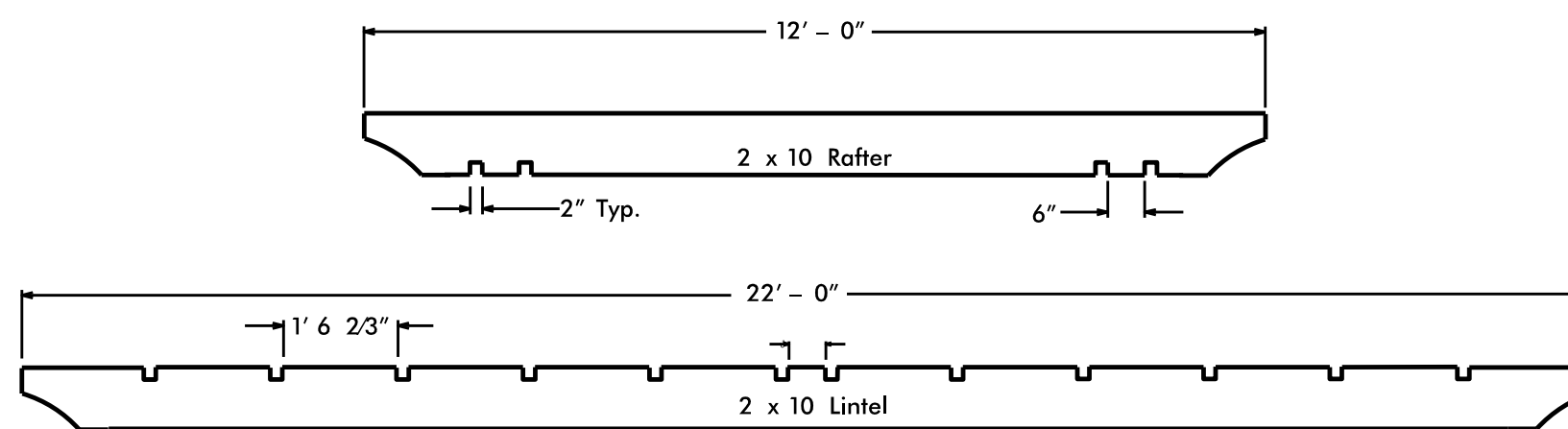
PERGOLA AND ARBOR:  
ROUTE 1" X 1 1/2" CHANNEL ON BACKSIDE OF POST  
(CHECK WITH ENGINEER FOR SPECIFIC POST), CENTERED  
AND PLUMB, TO ACCOMMODATE WIRING FOR LIGHTS.



Side Section



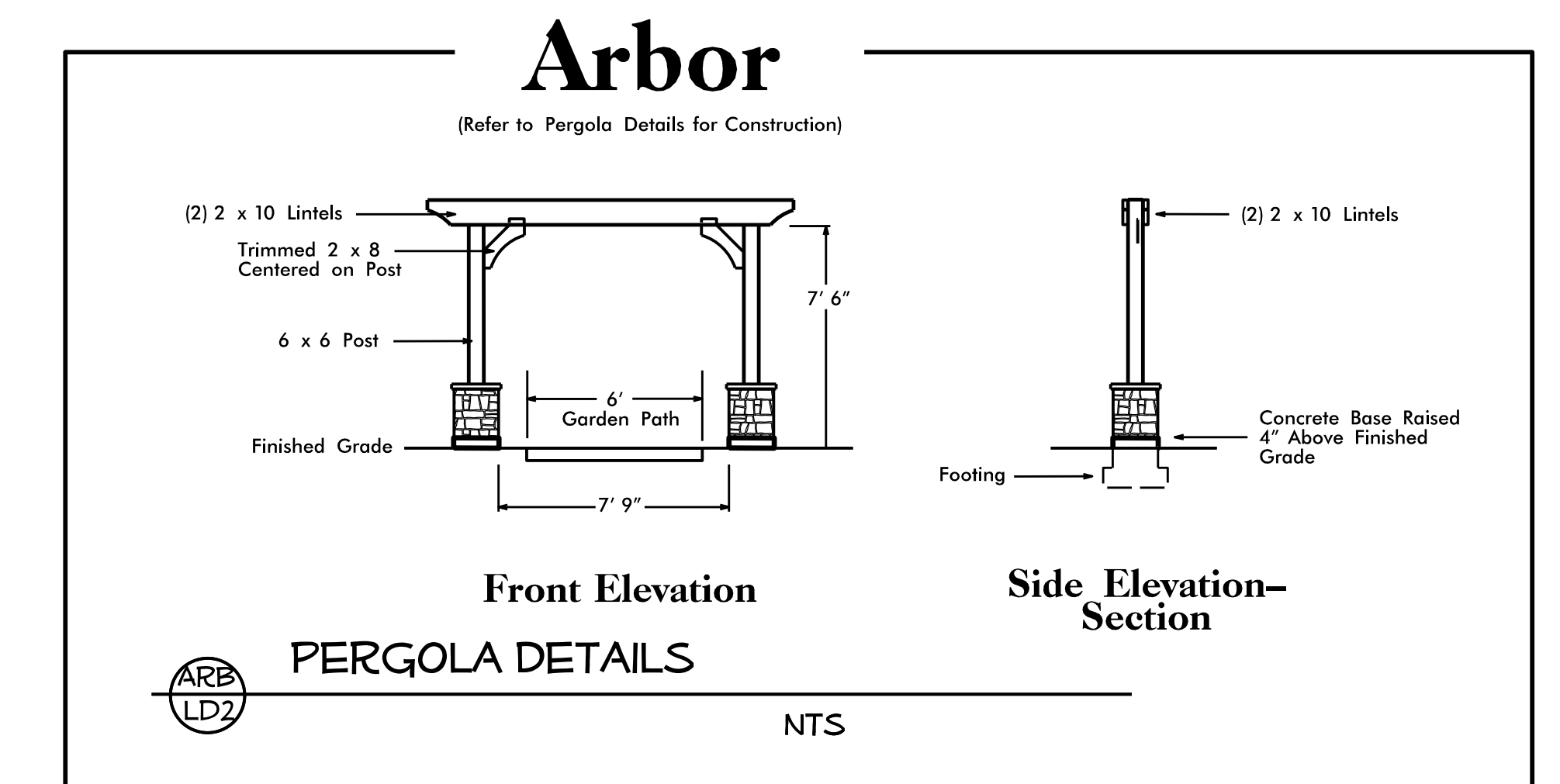
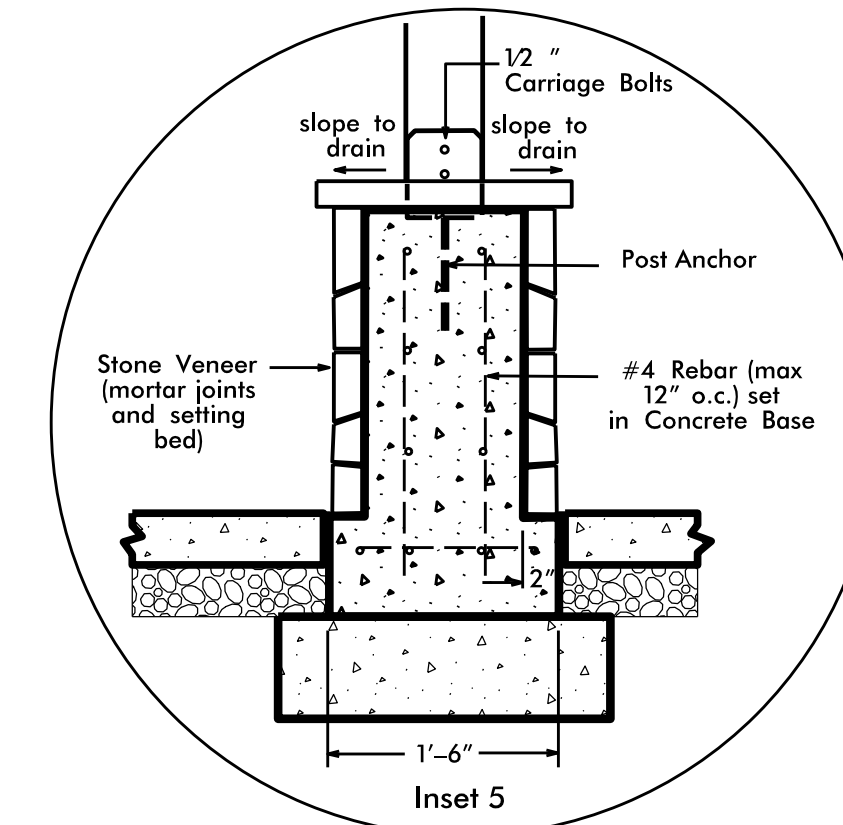
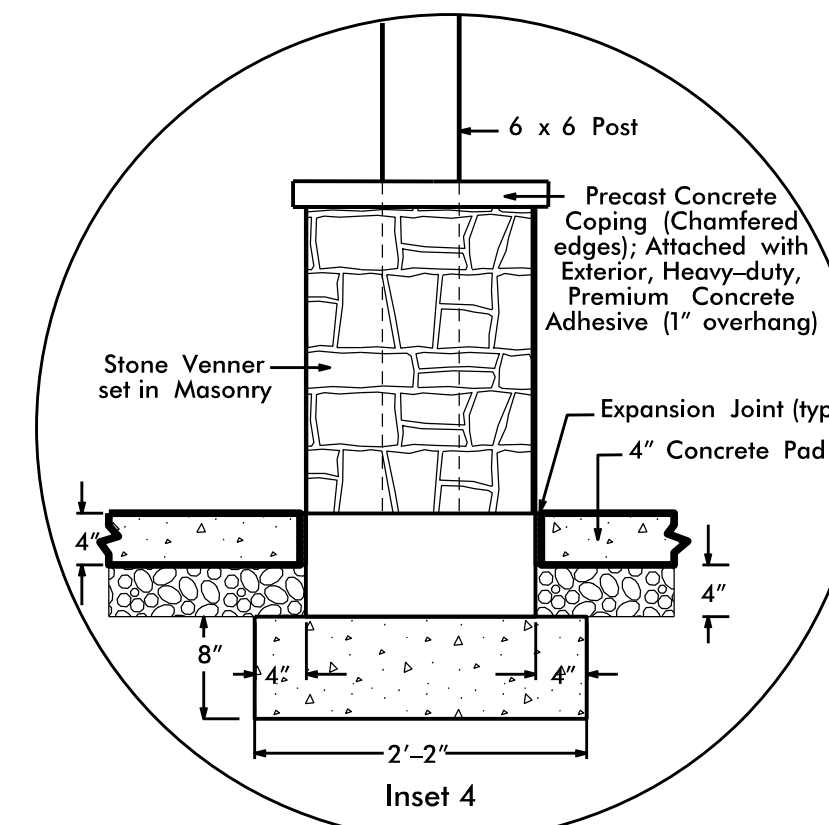
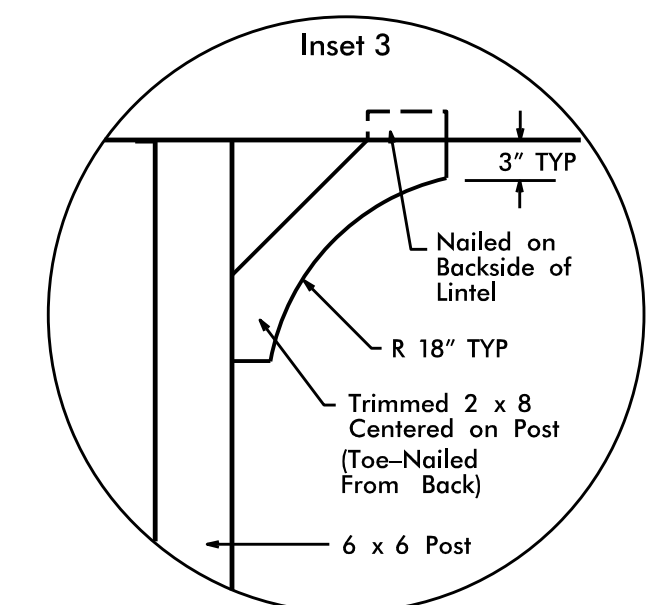
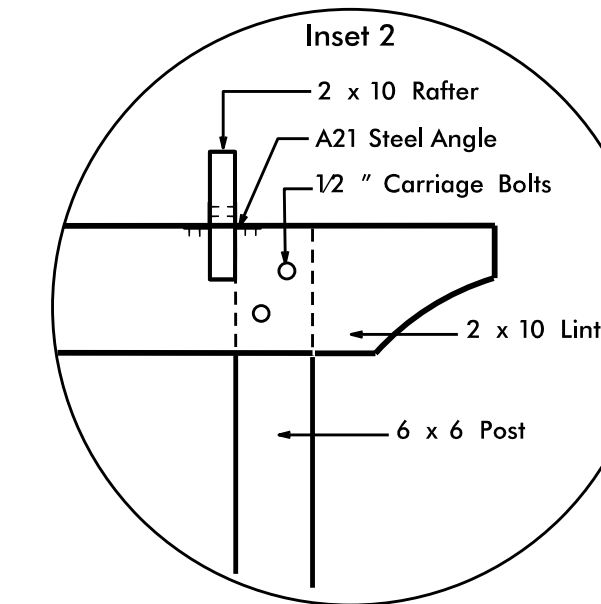
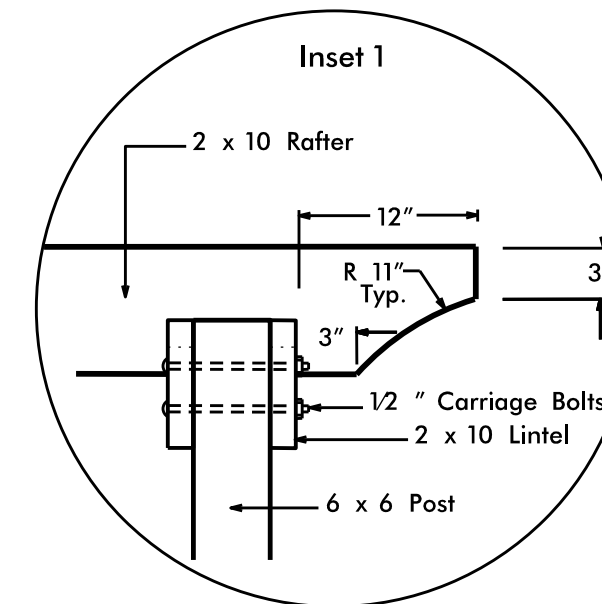
Side Elevation



Lintel & Rafter Details

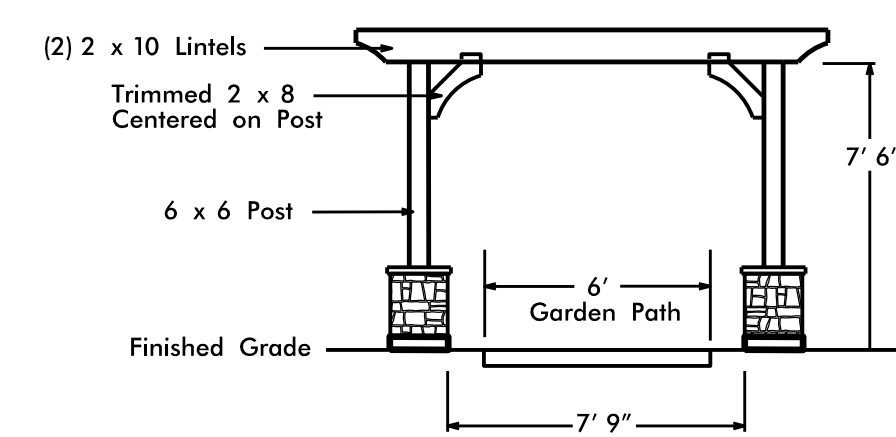
PERGOLA DETAILS

NTS

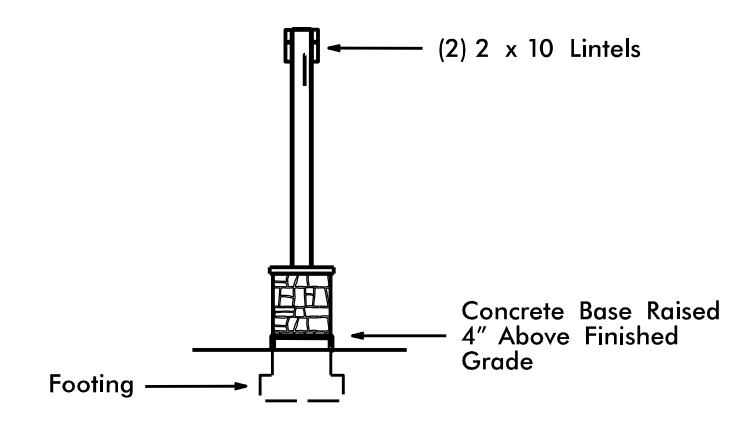


# Arbor

(Refer to Pergola Details for Construction)



Front Elevation

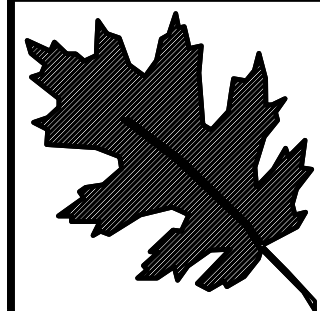


Side Elevation-Section

PERGOLA DETAILS

NTS

\*\*\*\*\*TIMES\*\*\*\*\*  
\*\*\*\*\*USER\*\*\*\*\*

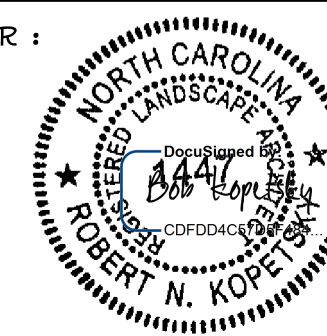


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I- 77 IREDELL Co  
REST AREA CONSTRUCTION

CONTRACT #:

REU ENGINEER :



SHEET DESCRIPTION:

PREL. DESIGN DATE: JUNE/ 14

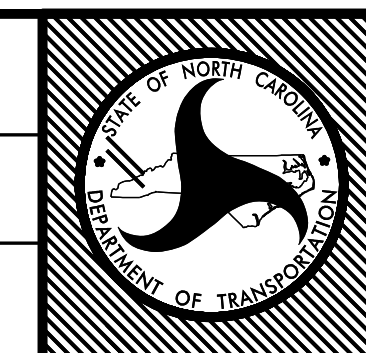
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FINAL DESIGN DATE:

I-77 REST AREA

PERGOLA & ARBOR

DETAILS

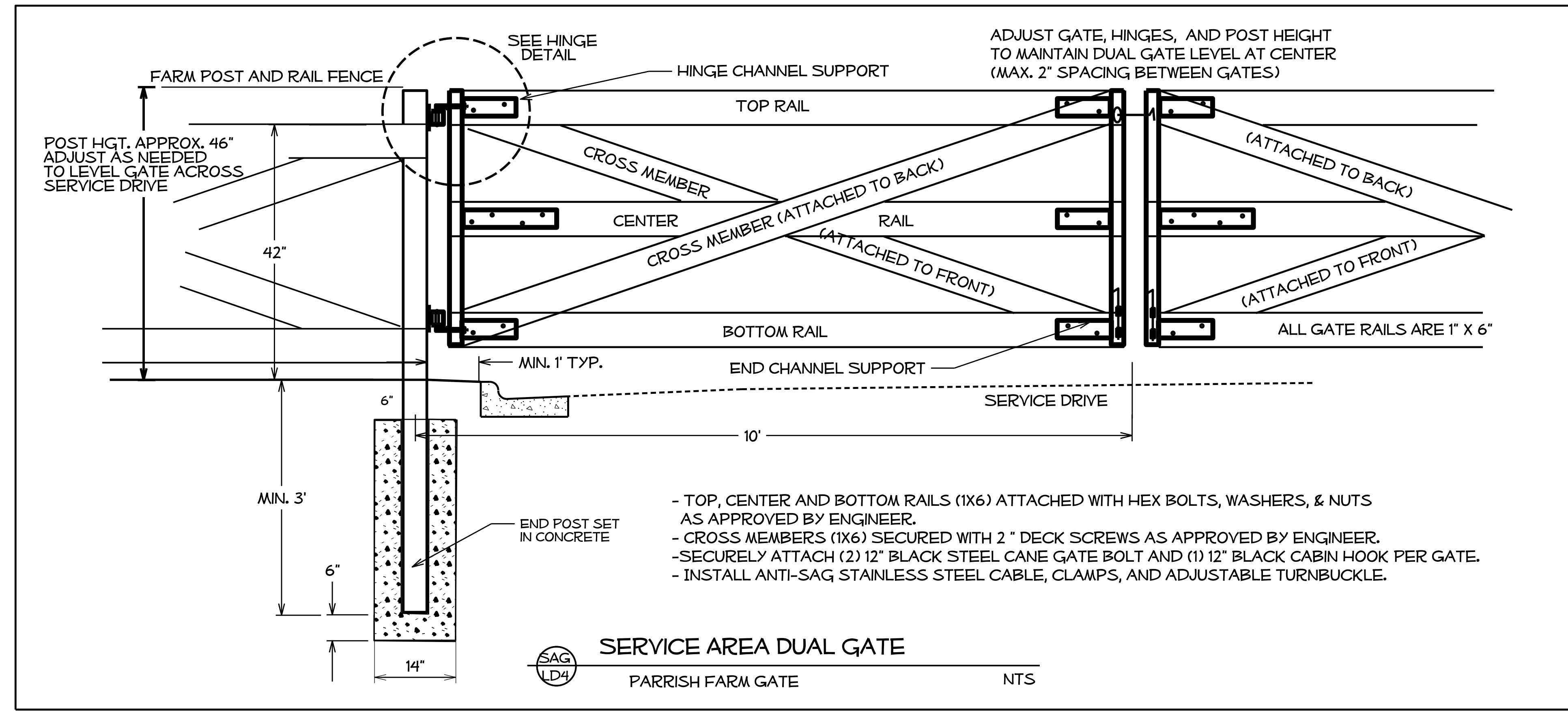
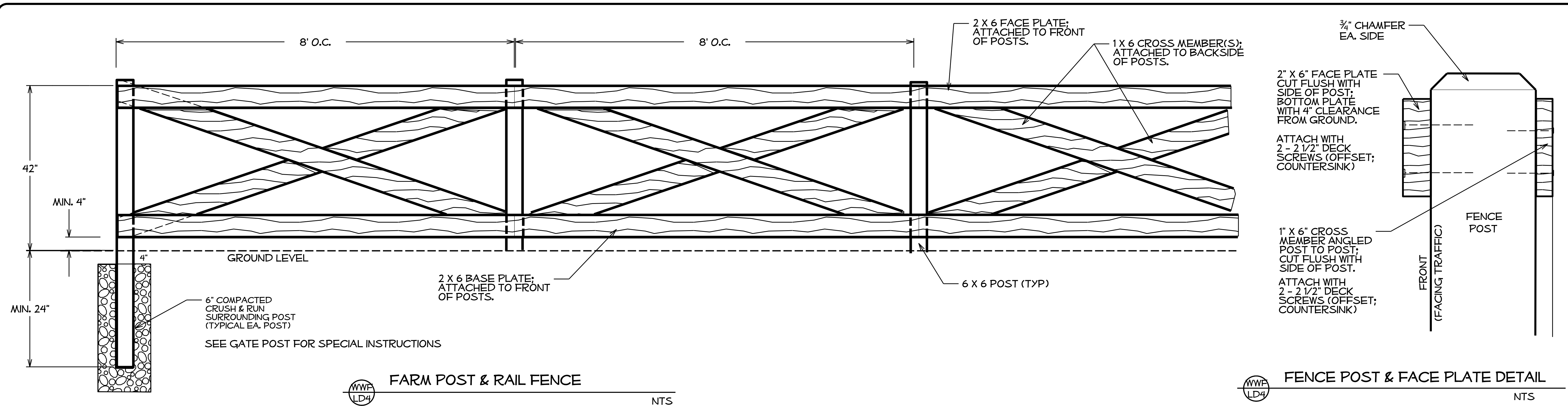


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WBS # 39894.3.FS1  
FED I.D. # IMS-77-1(177)39  
SHEET NO: TOTAL SHEET NO:  
**LD 2 X**

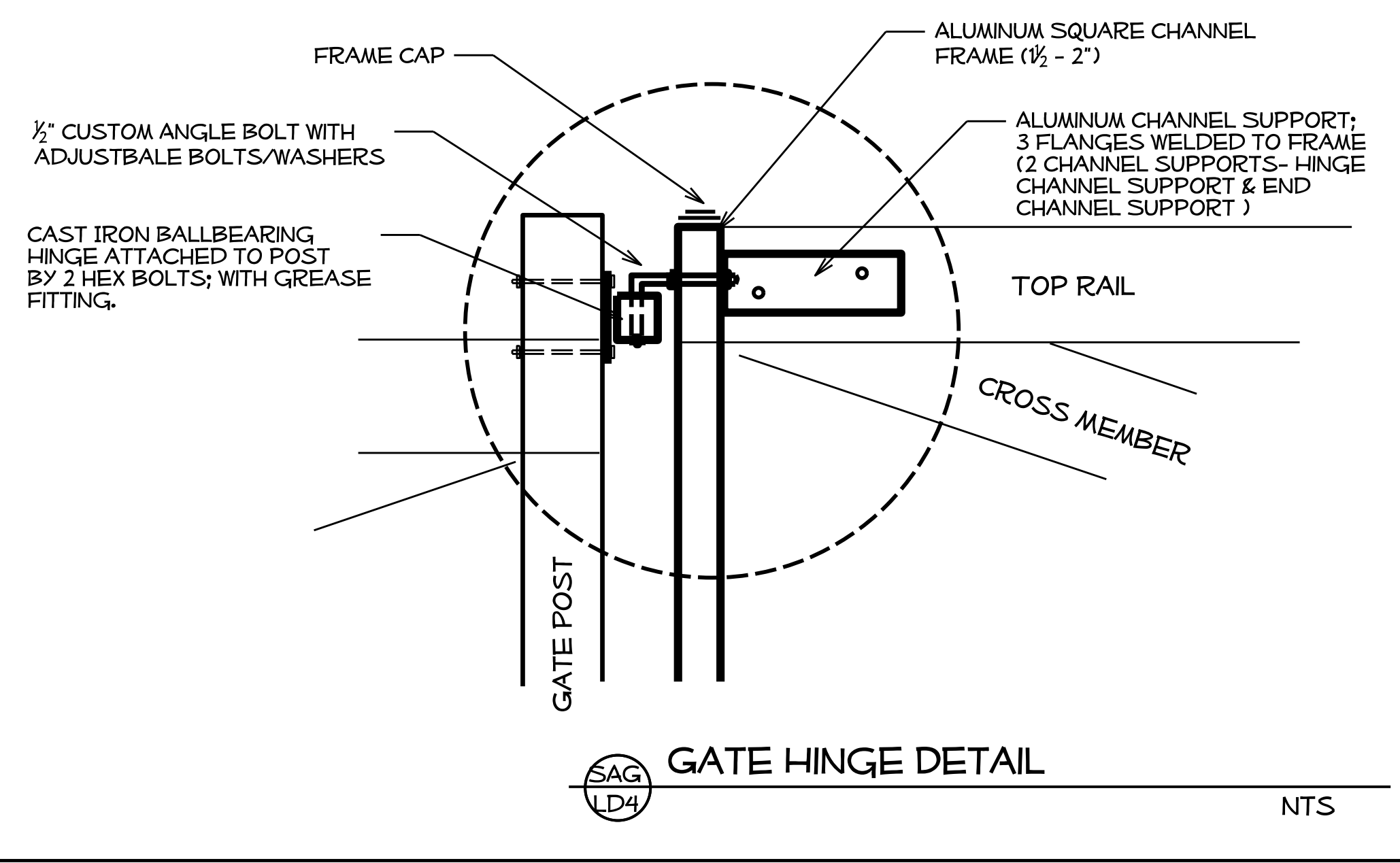








- CHANNEL SUPPORT AND HARDWARE COME IN A MANUFACTURER'S FARM GATE HANGER KIT; INSTALL PER MANUFACTURER GUIDELINES.  
- APPLY SELF ETCHING PRIMER AND TWO COATS OF BLACK KREYLON EXTERIOR PAINT TO ALL GATE HARDWARE (PRIOR TO INSTALLATION); TOUCH UP AS NEED FOR A SMOOTH CONSISTANT COAT.



\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$USER NAME\$\$\$\$\$

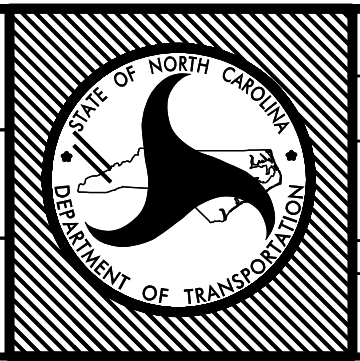
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**I- 77 IREDELL Co**  
**REST AREA CONSTRUCTION**  
CONTRACT #:

REV ENGINEER :  
NORTH CAROLINA  
REGISTERED LANDSCAPE ARCHITECT  
1447  
ROBERT N. KOPEL

PREL DESIGN DATE : JUNE / 14  
CHECKED BY & DATE :  
FINAL DESIGN DATE :

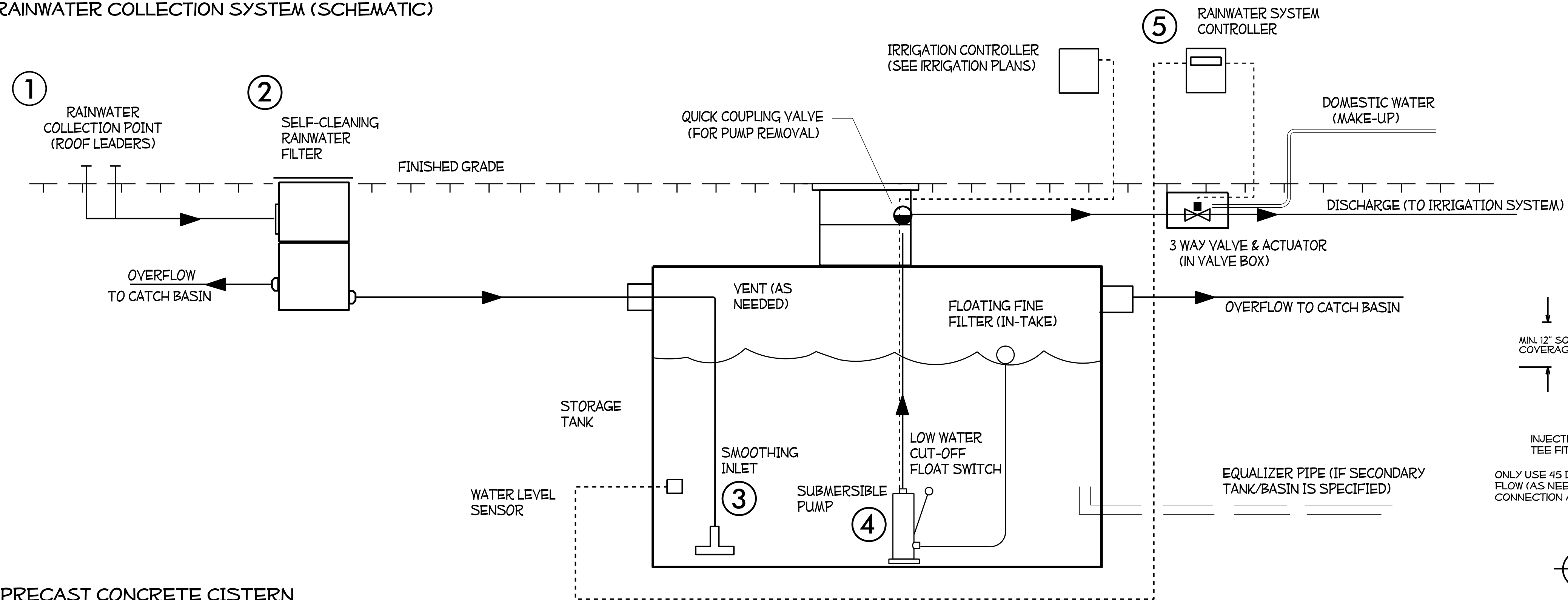
I-77 REST AREA  
FARM POST & RAIL FENCE  
DUAL GATE DETAILS



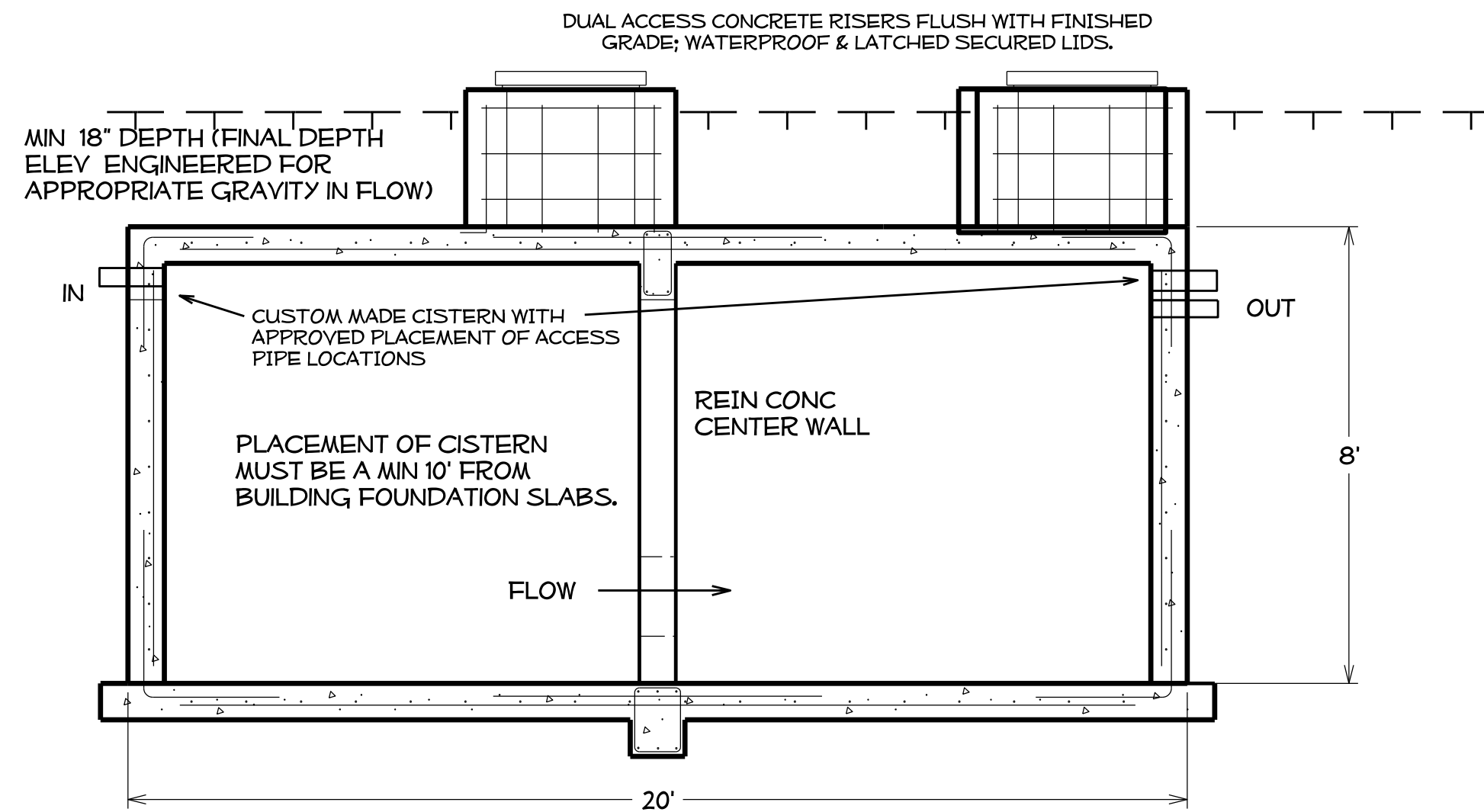
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WBS # 39894.3.FS1  
FED I.D. # IMS-77-1(177)39  
SHEET NO : TOTAL SHEET NO :  
**LD 4 X**



RAINWATER COLLECTION SYSTEM (SCHEMATIC)



6000 GAL PRECAST CONCRETE CISTERN



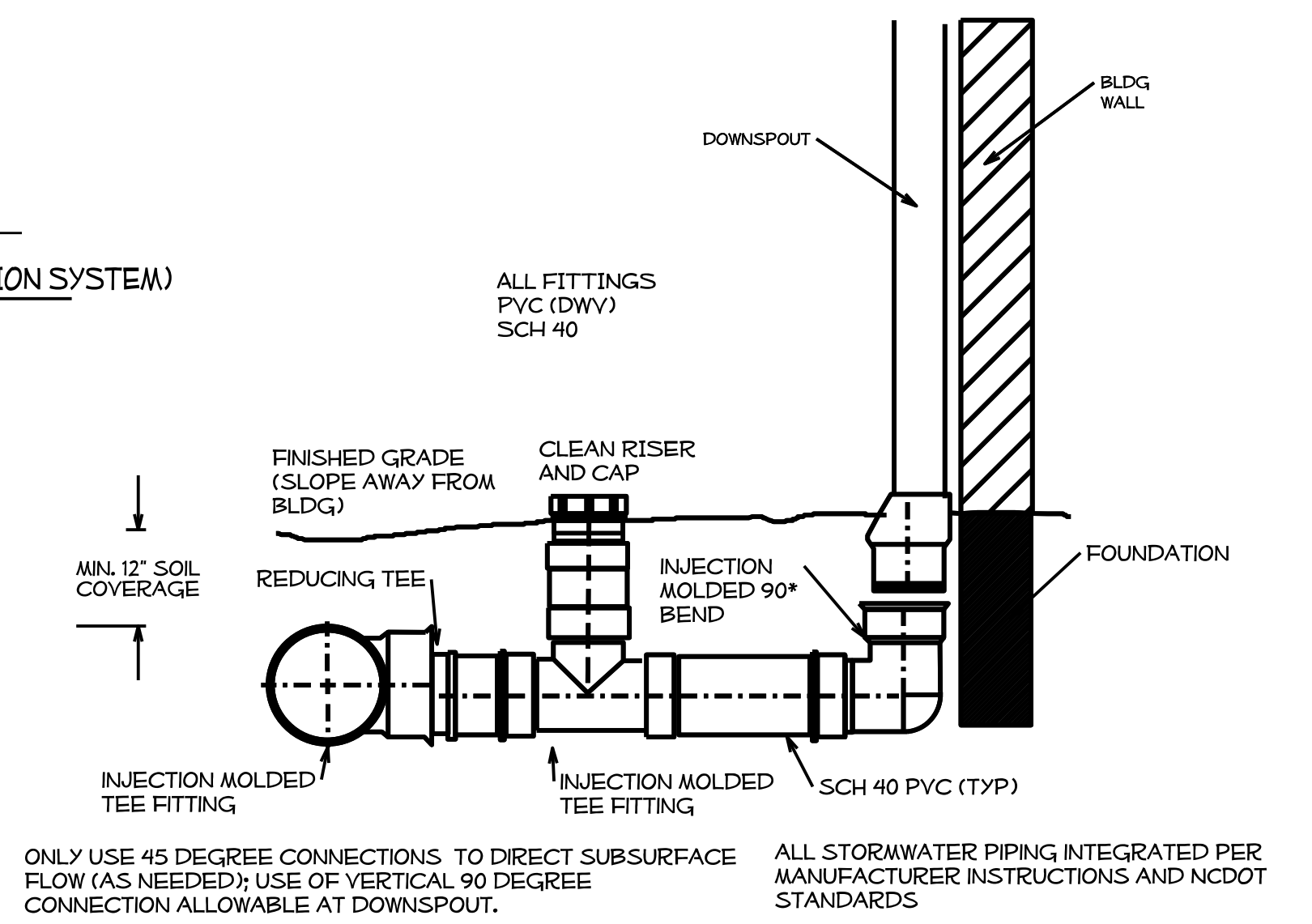
WIRING FOR IRRIGATION OR CISTERN MONITORING SYSTEMS MAY PASS THROUGH THE RISERS AS LONG AS IT DOES NOT INHIBIT ACCESS FOR MAINTENANCE OR PREVENT SECURING THE LID. ALL WIRING MUST BE COMPLETED PER CODE, ANCHORED APPROPRIATELY. ALL WIRE RUNS TO/FROM THE CISTERN MUST BE PLACED IN CONDUIT.

- ① DOWNSPOUT AND ROOF DRAIN COLLECTION DISCHARGE
- ② RAINWATER ENTERS FILTER AND IS DIVERTED TO THE STORAGE TANK
- ③ SMOOTHING INLET-FLOW CALMING DEVICE (STAINLESS STEEL)
- ④ PUMP WITH FLOATING INTAKE AND LOW WATER CUTOFF (SIZED APPROPRIATELY FOR DISCHARGE/IRRIGATION NEEDS)
- ⑤ RAINWATER SYSTEM CONTROLLER (FILTER CLEANING, WATER LEVEL INDICATOR, AND WATER MAKE-UP)

RAIN WATER COLLECTION SYSTEM



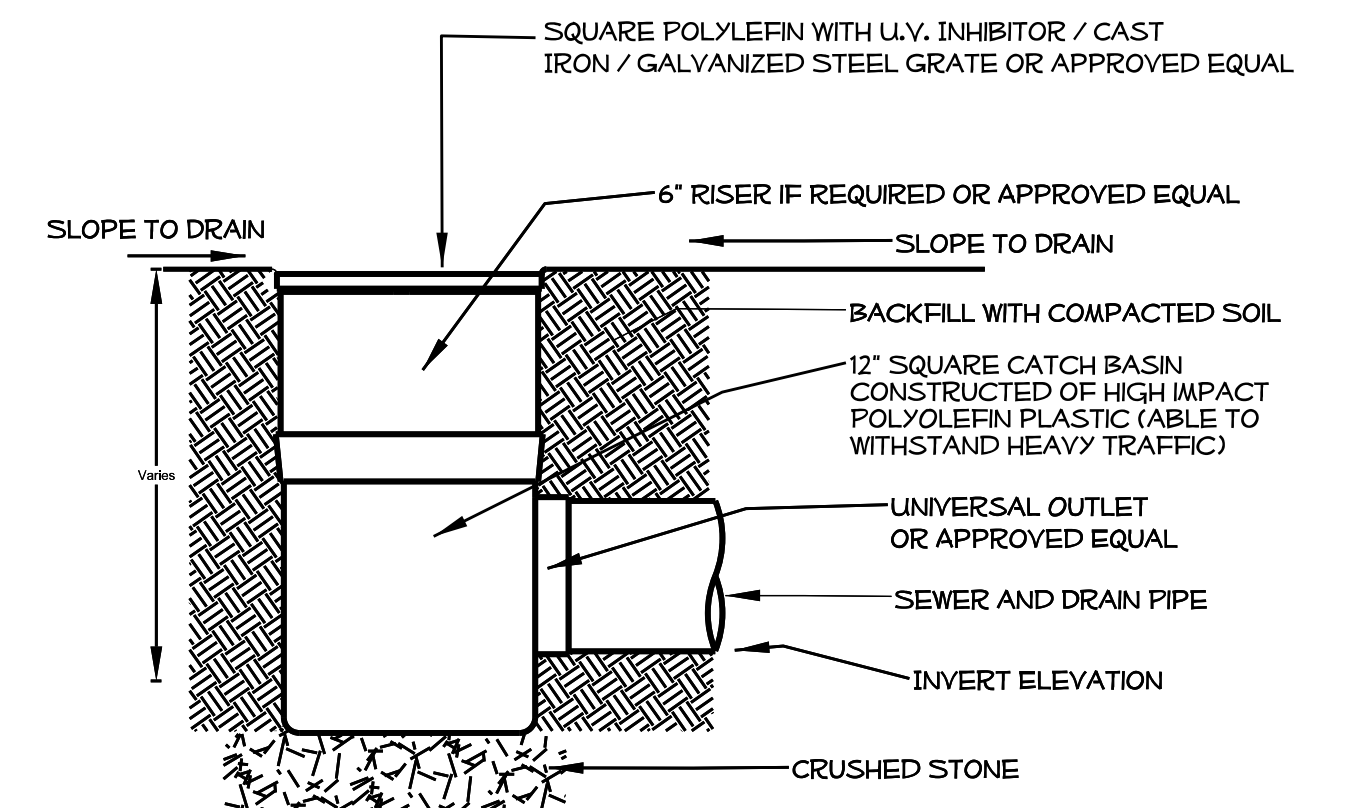
NTS



ROOF LEADER DRAINAGE SYSTEM



NTS



SQUARE GRATE WITH SQUARE CATCH BASIN



CATCH BASIN

COURTYARD AREA

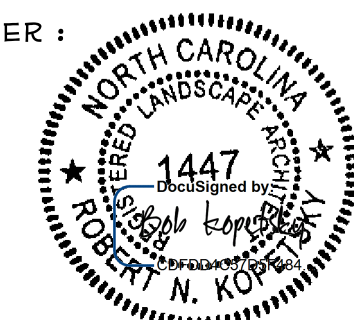
NTS

THE CONTRACTOR IS RESPONSIBLE FOR ENGINEER SEALED AND CERTIFIED DRAWING(S) ON THE PLACEMENT AND STRUCTURAL INTEGRITY, BEARING CAPACITY AND OPERATIONAL SYSTEMS WITHIN THE CISTERN.

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I- 77 IREDELL Co  
 REST AREA CONSTRUCTION  
 CONTRACT #:

REU ENGINEER :

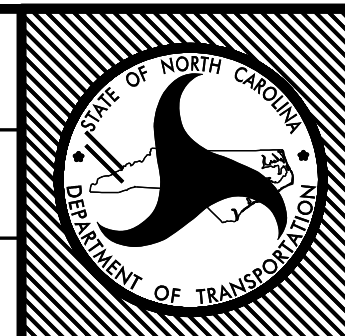


PREL DESIGN DATE : JUNE / 14

CHECKED BY & DATE :

FINAL DESIGN DATE :

I-77 REST AREA  
 RAINWATER COLLECTION  
 SYSTEM



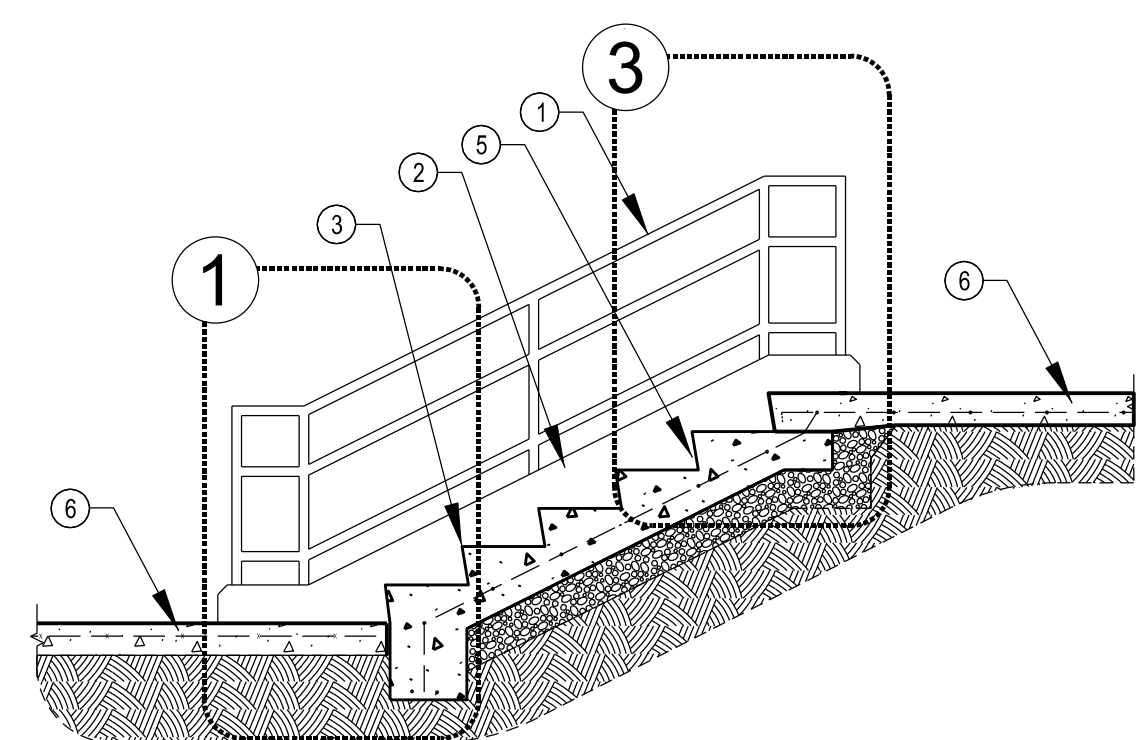
T.I.P. # K-4908  
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 SHEET NO : TOTAL SHEET NO :  
**LD 5 X**

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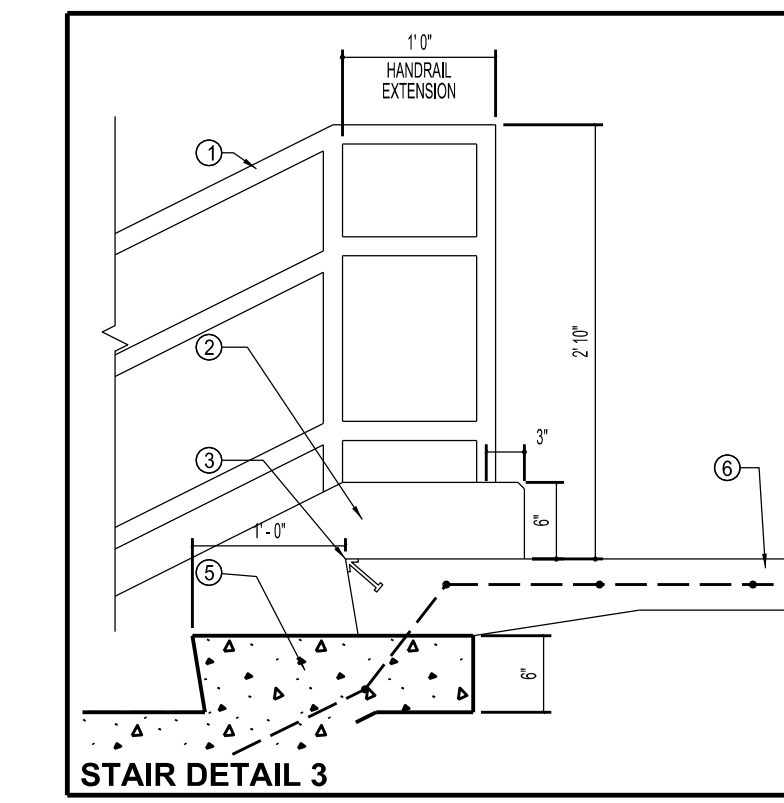
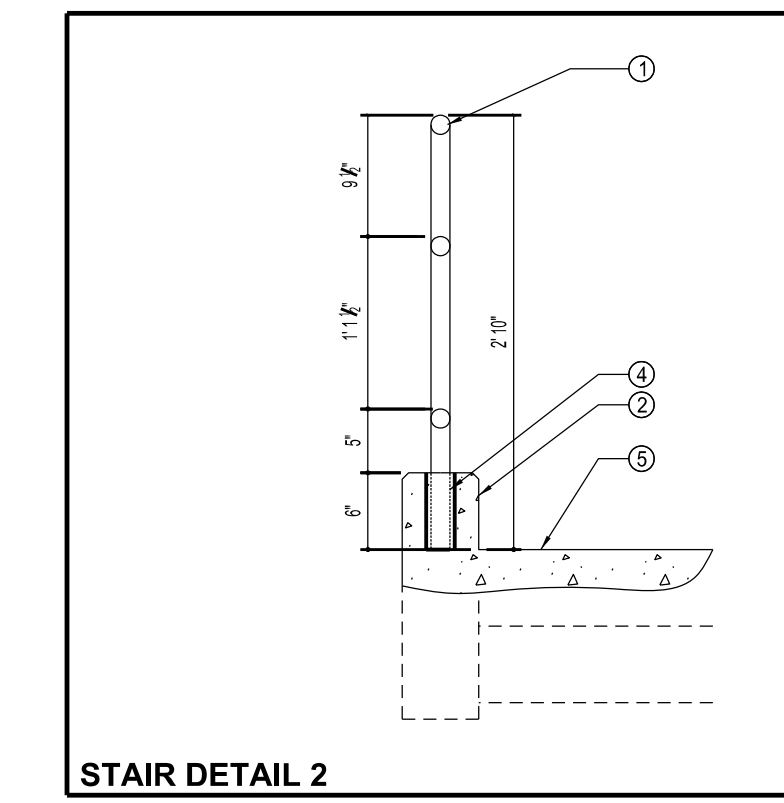
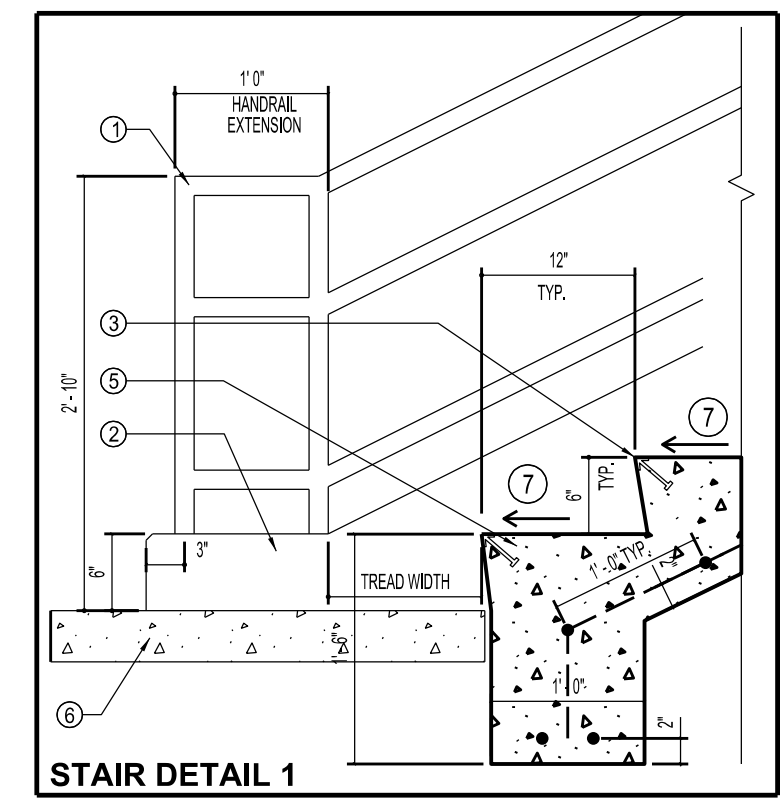


UPPER LEVEL ELE. VARIES BY LOCATION  
SEE PLANS

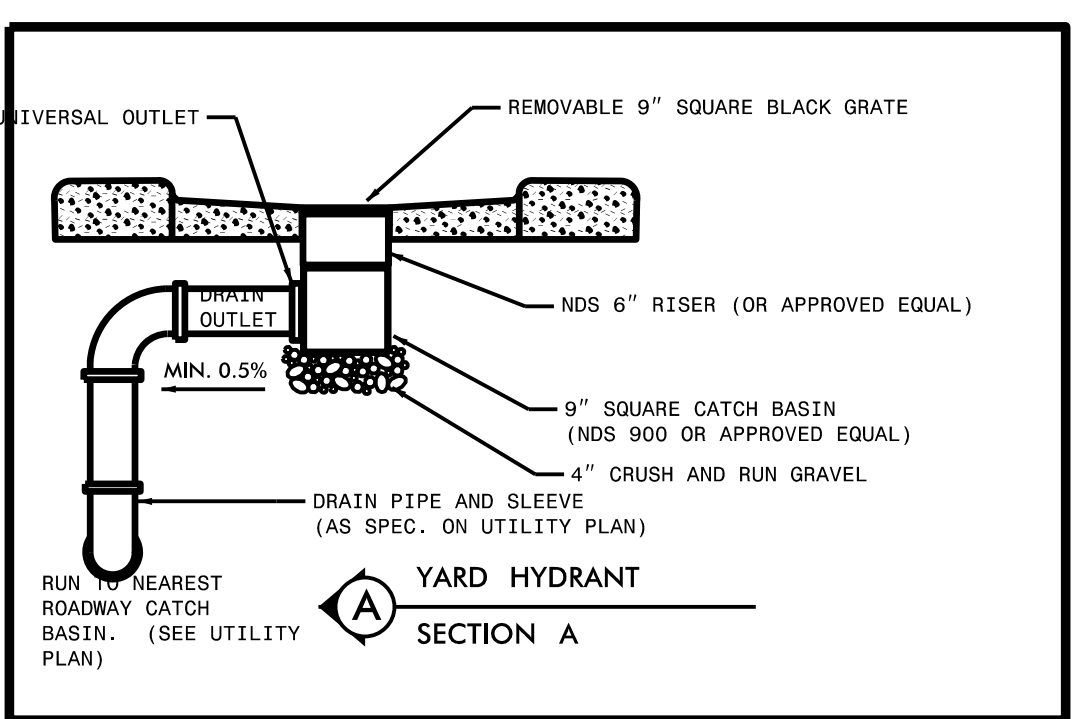
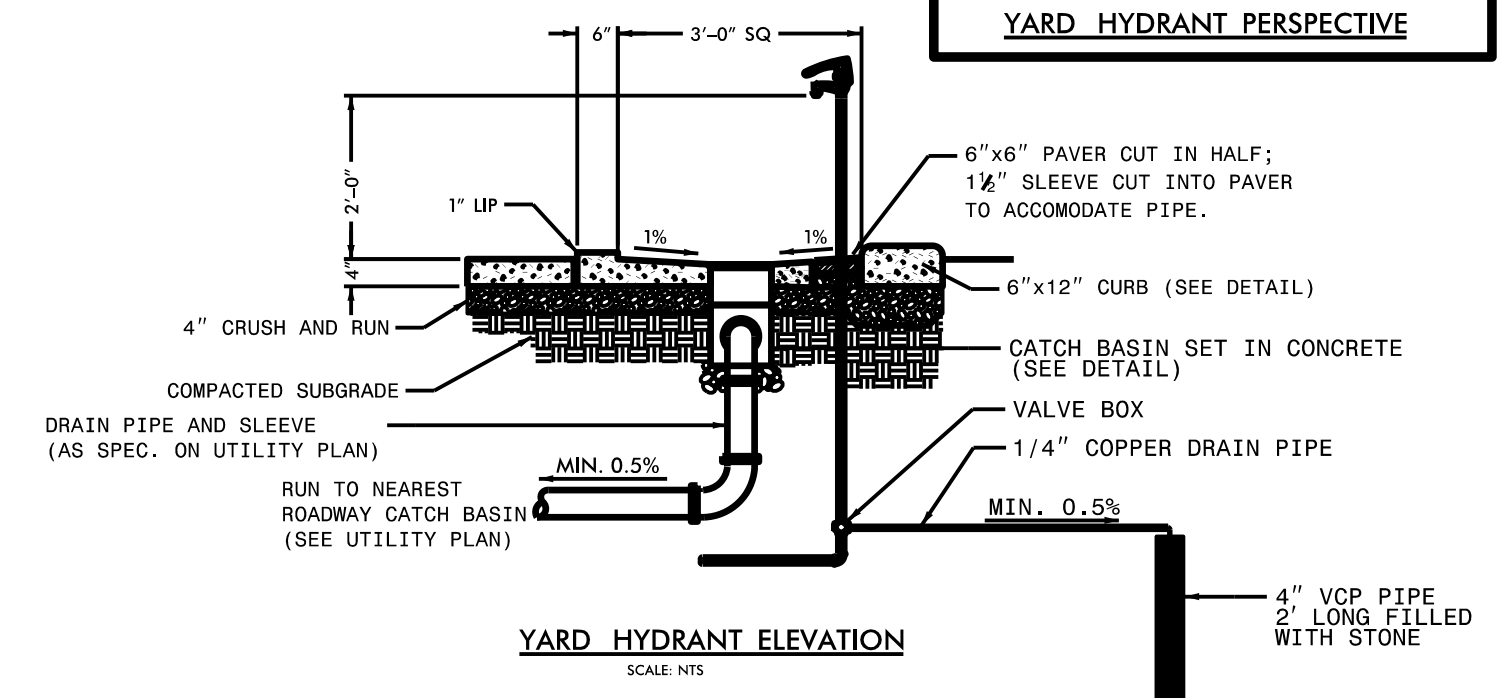
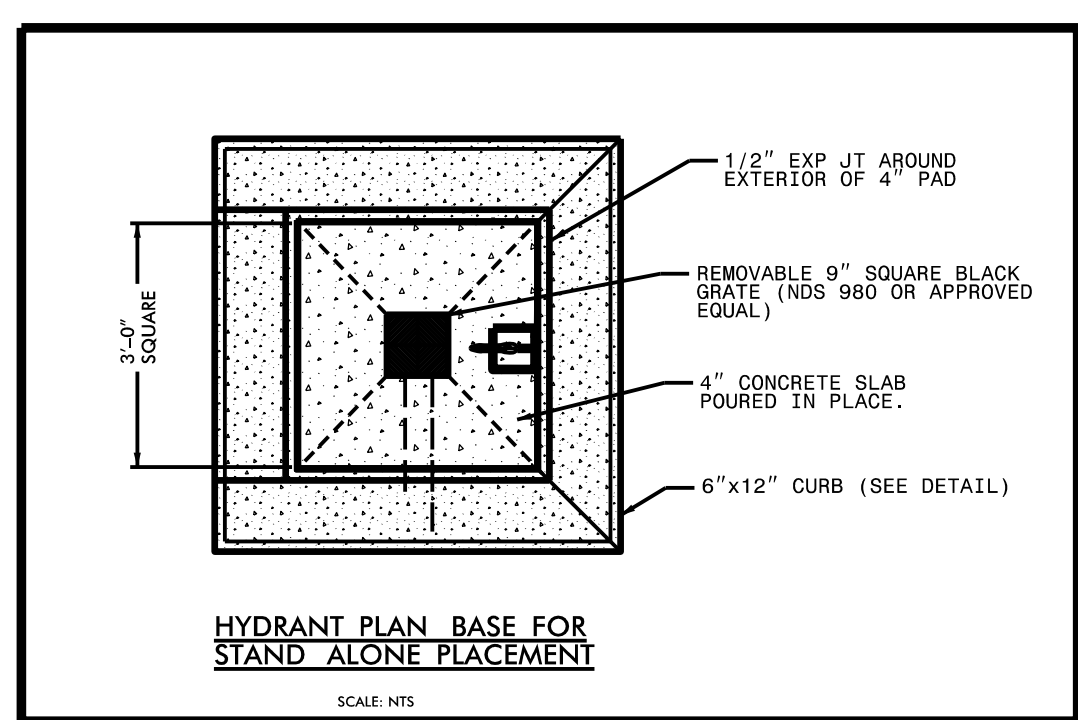
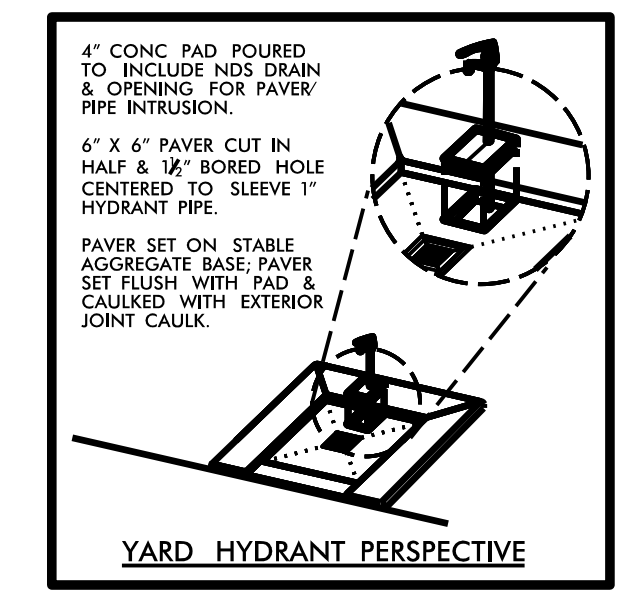
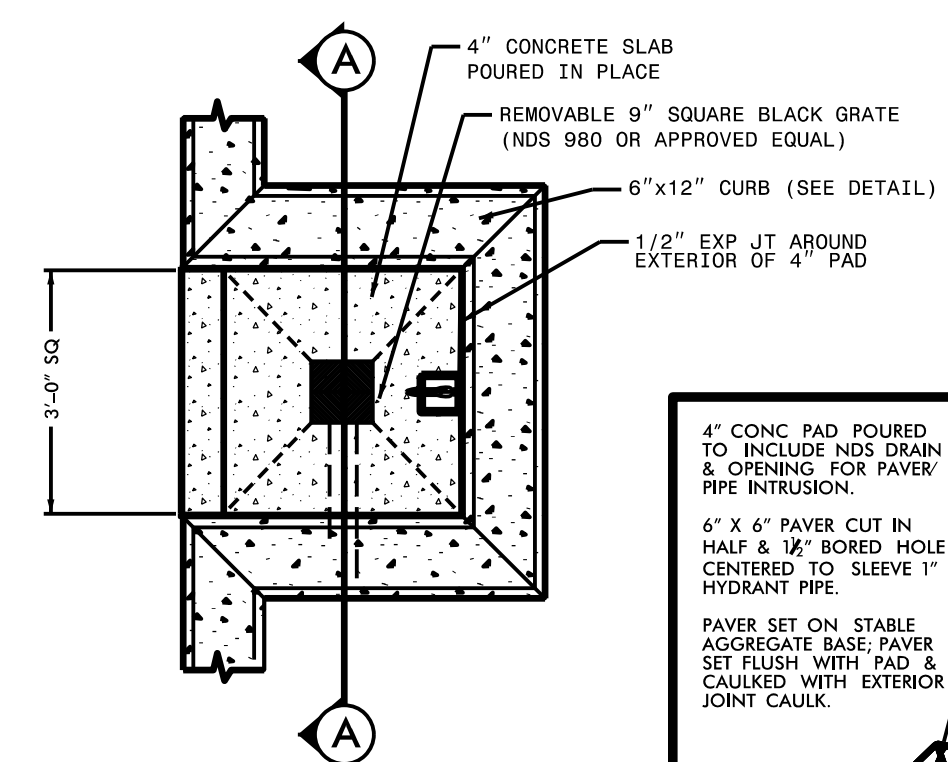
LOWER LEVEL ELE. VARIES BY LOCATION  
SEE PLANS



- 1 HANDRAIL- 1 1/2" Ø METAL PIPE, TYP.
  - 2 CONCRETE CURB STRINGER
  - 3 GALVANIZED METAL NOSING, TYP. - EMBED IN CONCRETE
  - 4 GUARDRAIL PIPE SLEEVE - 2 1/4" Ø METAL PIPE, TYP.
  - 5 6'-0" WIDE POURED IN PLACE CONCRETE STAIR WITH REINFORCING AS SHOWN. REINFORCING SHALL BE 1/2" Ø STEEL REBAR 12" O.C. IN BOTH DIRECTIONS. REINFORCING SHALL EXTEND INTO STRINGERS.
  - 6 4" CONCRETE SIDEWALK TRANSITIONED TO STAIRS.
  - 7 STEPS TO INCORPORATE 1/2" PER FT BATTER TO CREATE POSITIVE DRAINAGE ON STAIRS AND DETER STANDING WATER OR ICING CONDITIONS.
- REINFORCING, NOSING AND OTHER MATERIALS INCIDENTAL TO STEP CONSTRUCTION, EXCEPT HANDRAIL, SHALL BE INCLUDED IN THE PER CUBIC YARD PAYMENT AMOUNT.



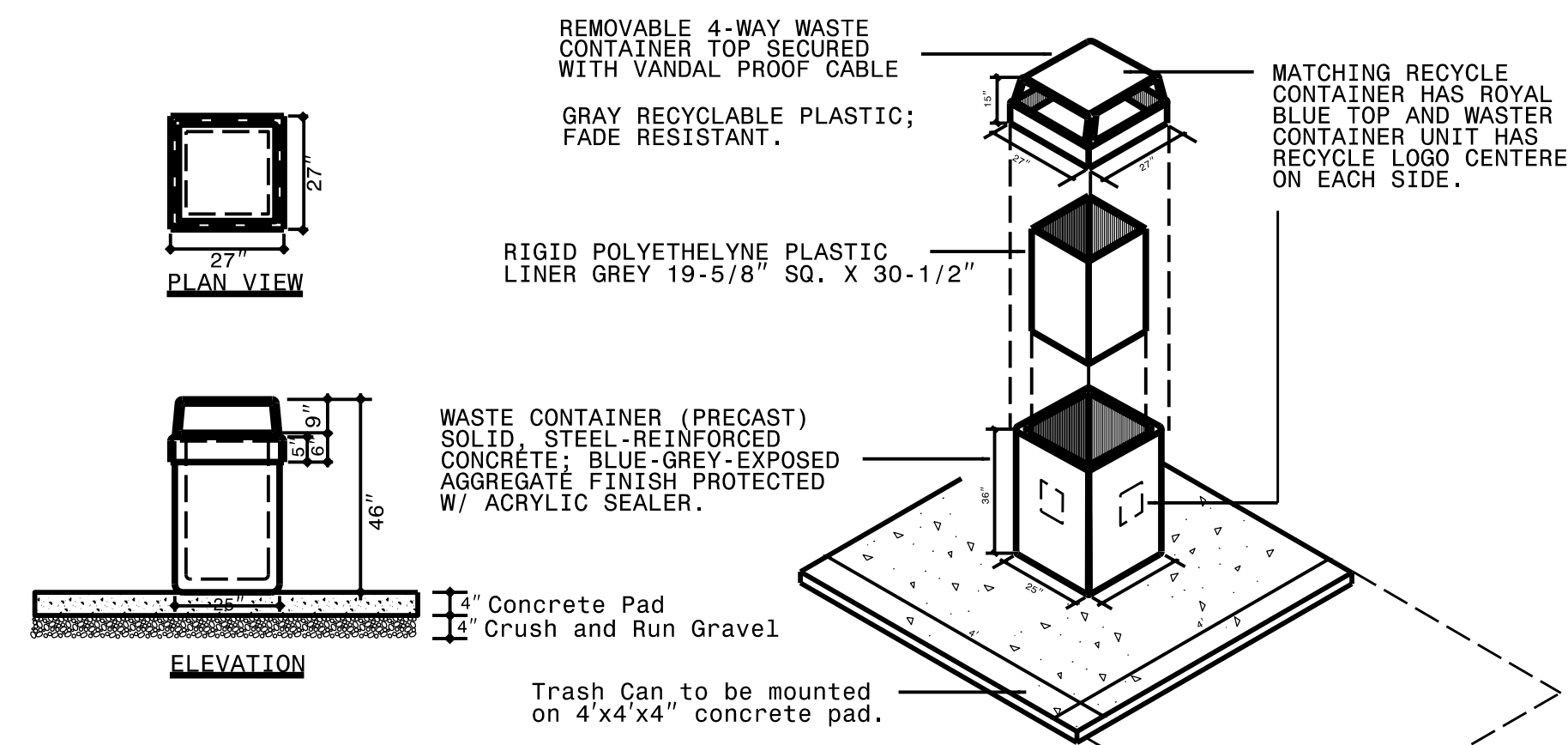
CONCRETE STEPS AND METAL HAND RAIL



YH YARD HYDRANT

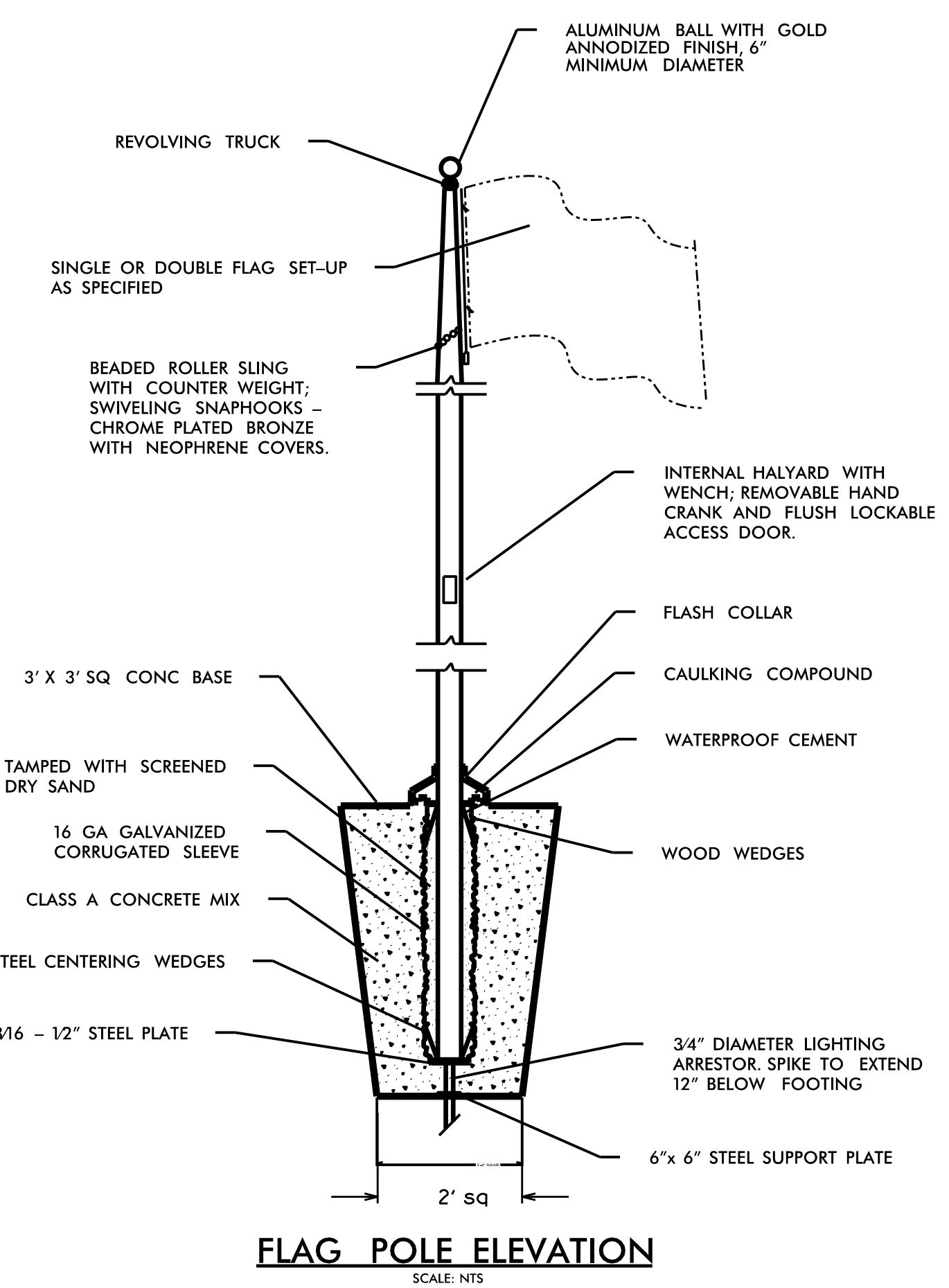
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PRE-CAST EXPOSED AGGREGATE - WASTE CONTAINER



EXPOSED AGGREGATE WASTE CONTAINER

NTS



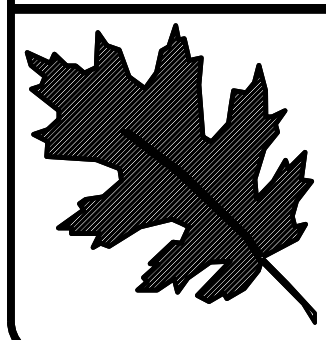
FLAG POLE ELEVATION

SCALE: NTS

FP LD6 FLAGPOLE

NTS

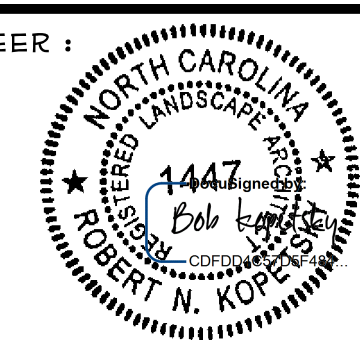
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\$\$\$\$\$USER NAME\$\$\$\$\$



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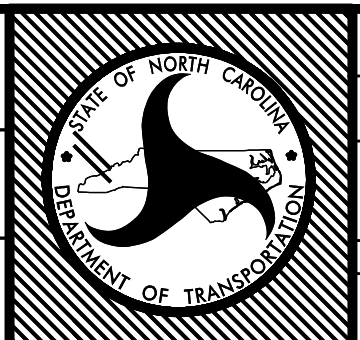
I- 77 IREDELL Co  
REST AREA CONSTRUCTION  
CONTRACT #:

REV ENGINEER :



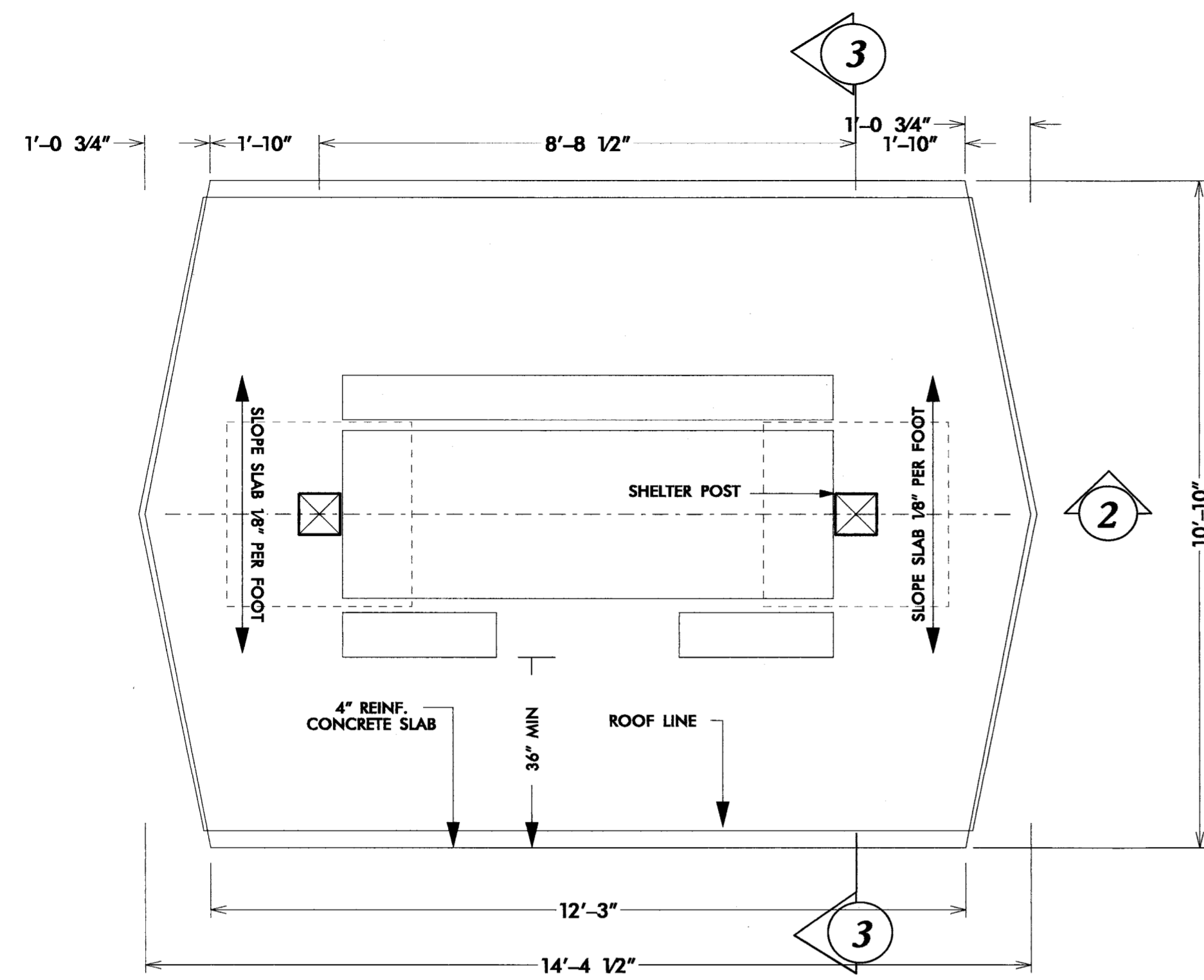
PREL DESIGN DATE :	JUNE / 14
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I-77 REST AREA  
STAIRS, FLAGPOLE, YARD  
HYDRANT & WASTE CONT

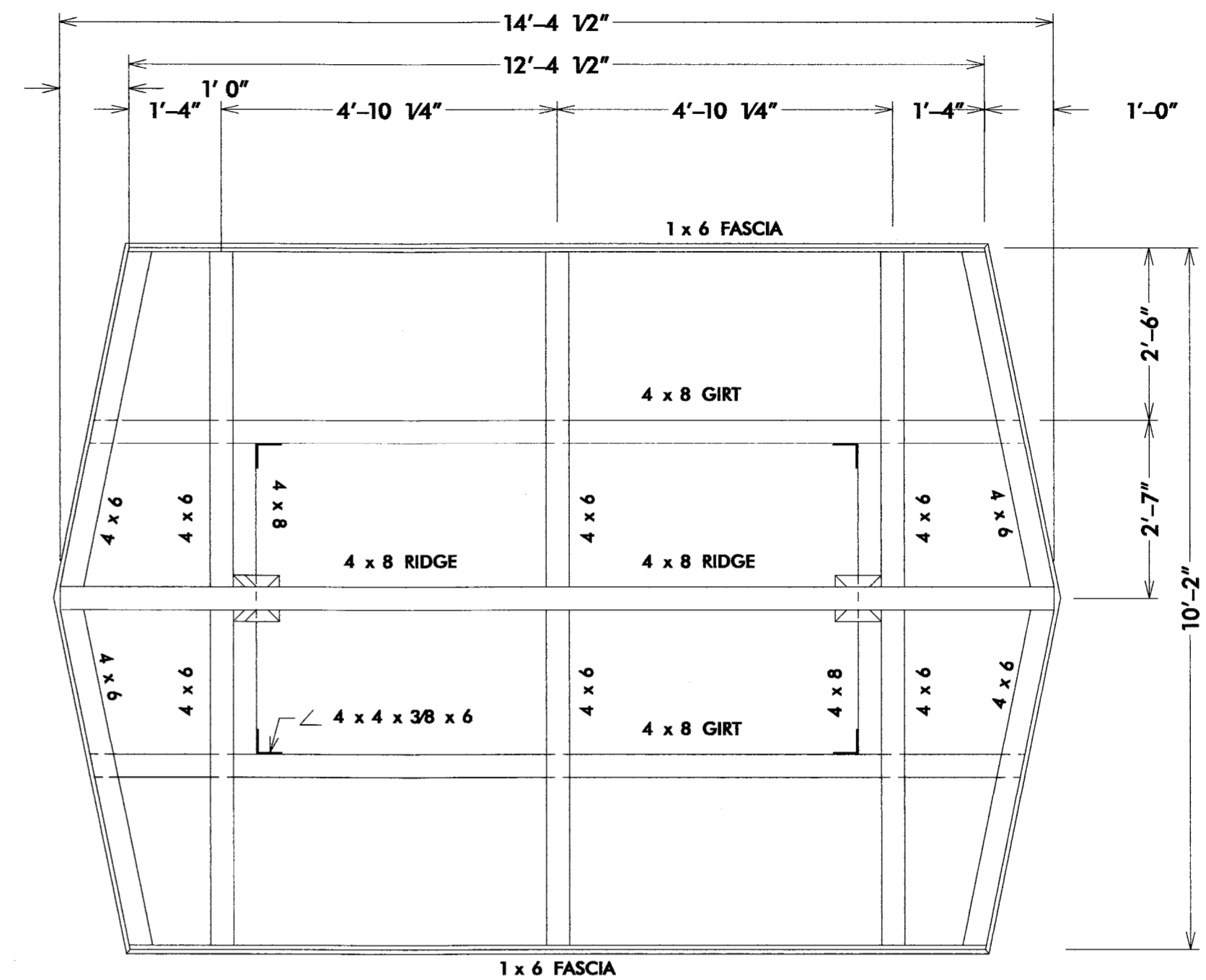


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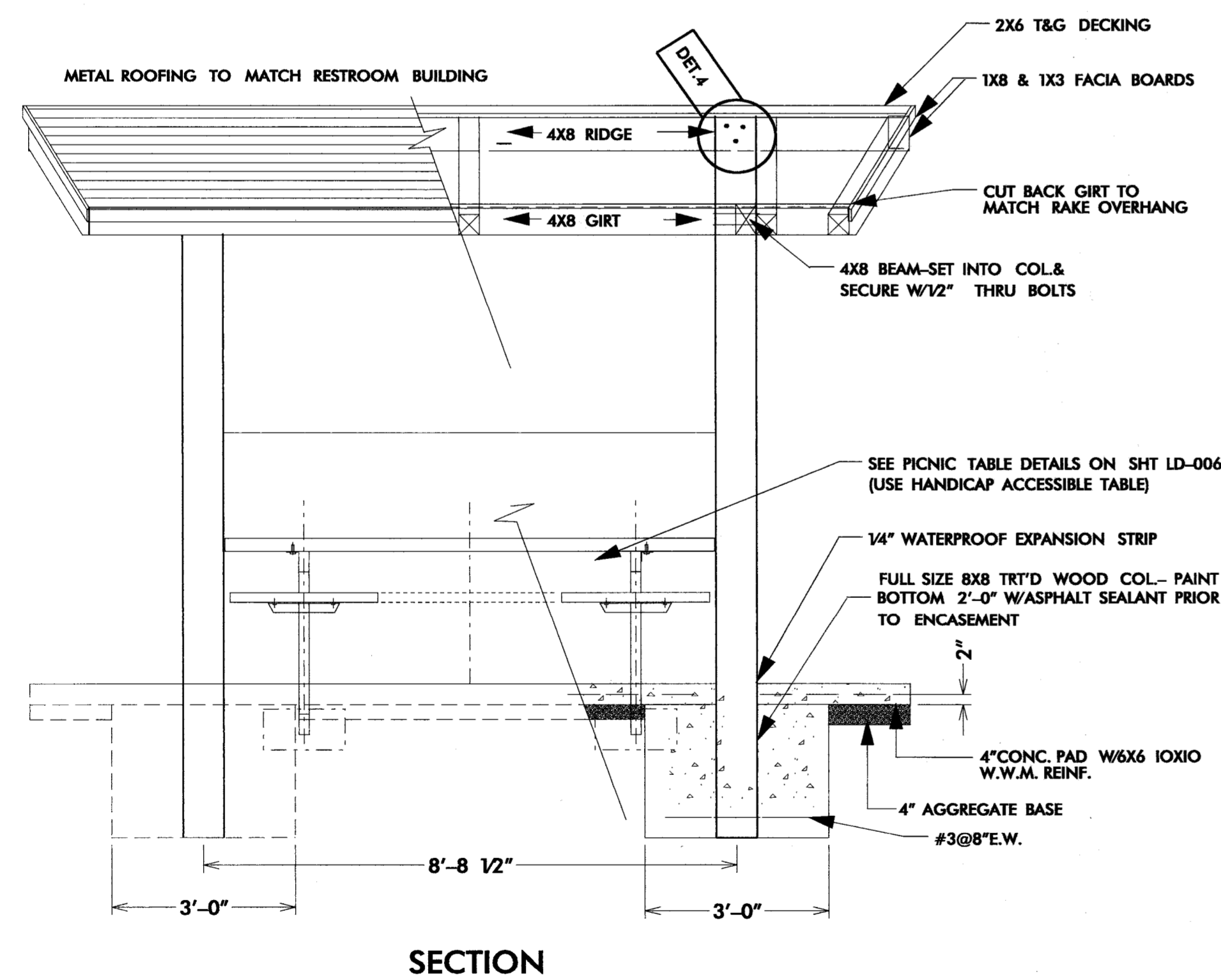




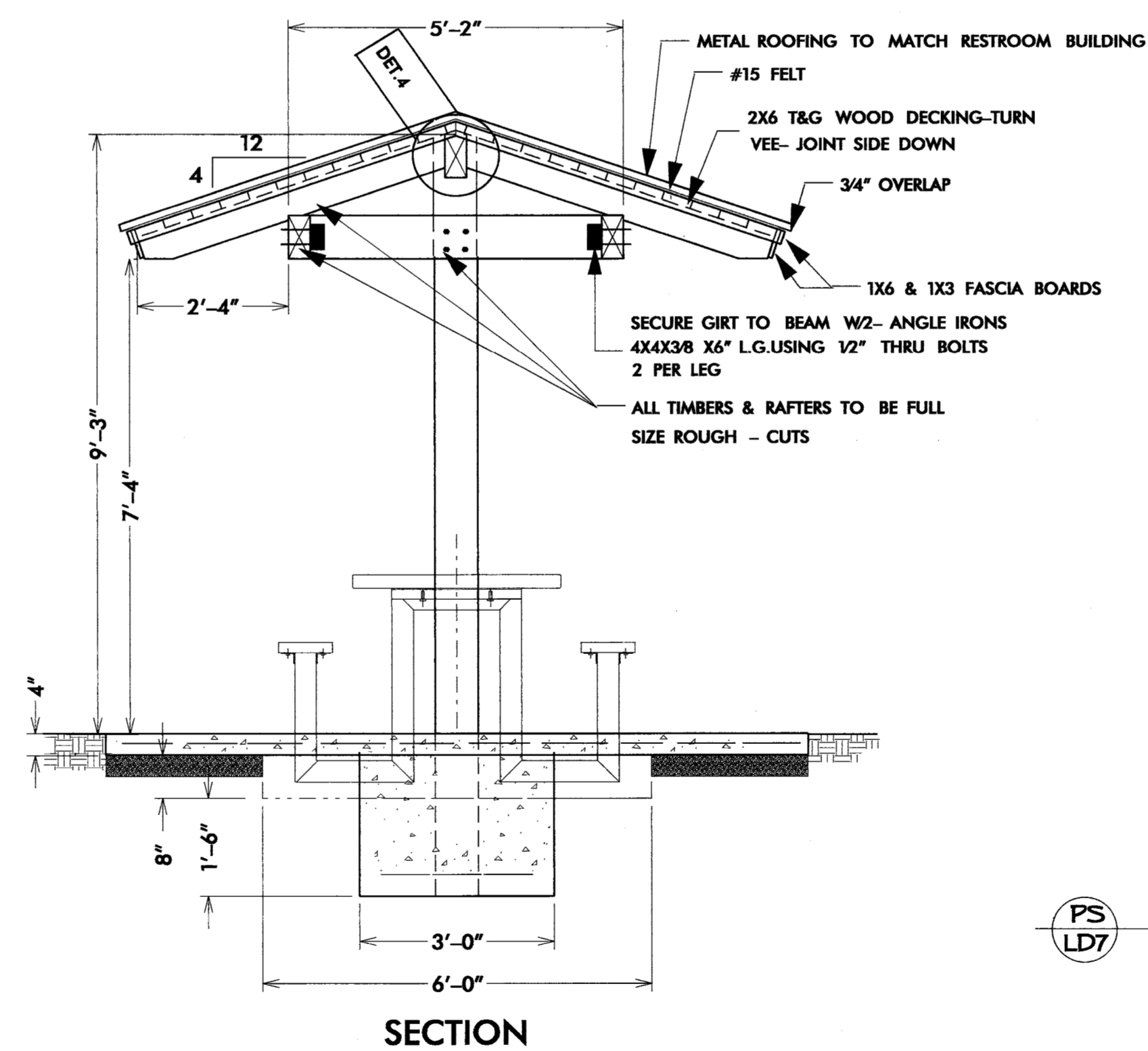
CONC PAD & ROOF PLAN



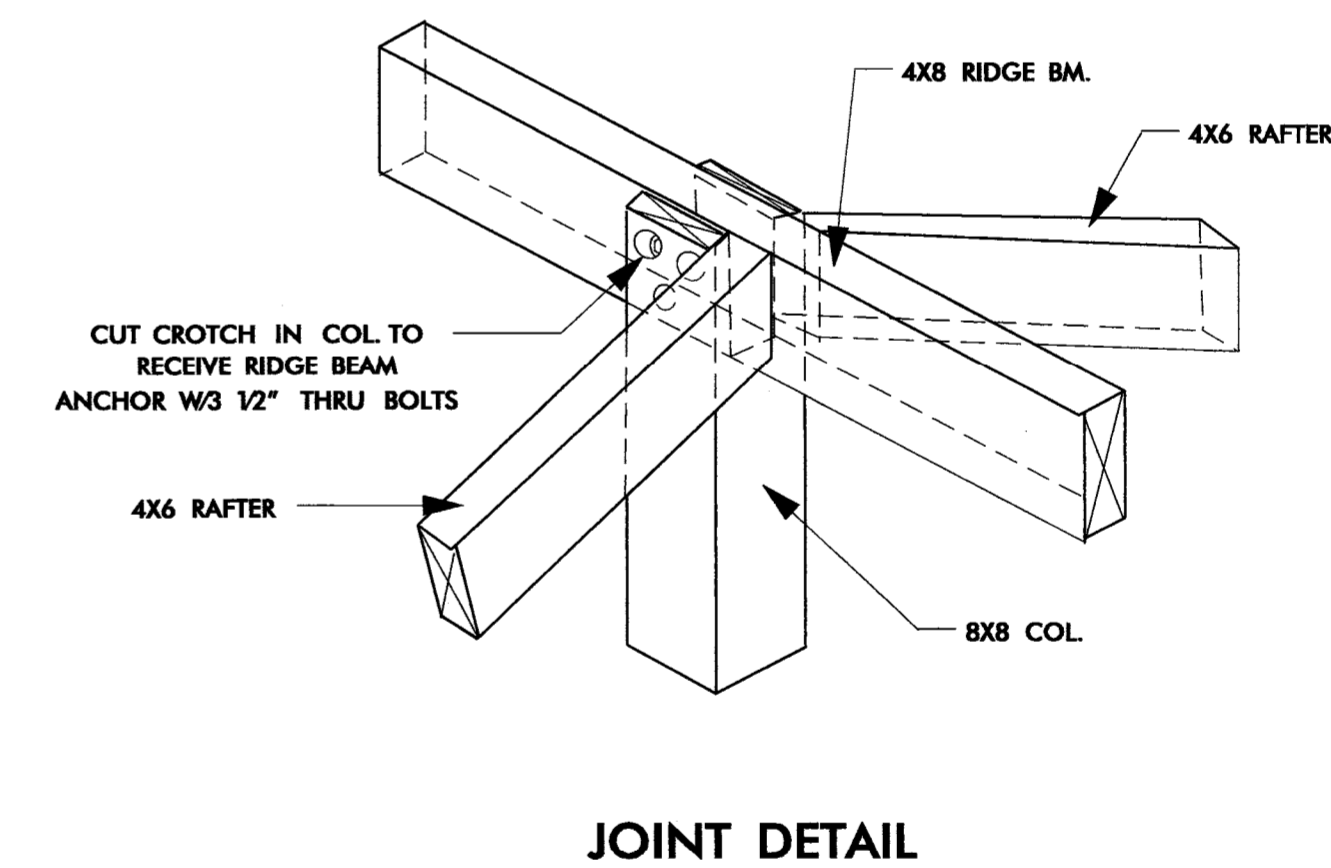
FRAMING PLAN



SECTION



SECTION



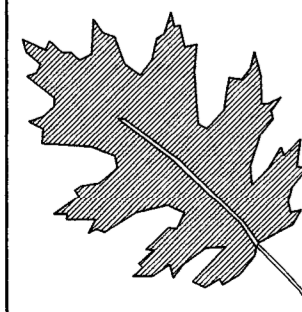
JOINT DETAIL



PICNIC SHELTER DETAILS

NTS

\$\$\$\$\$SYTIME\$\$\$\$\$  
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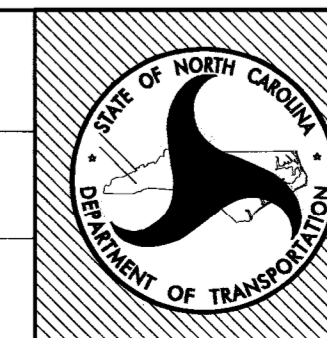
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 REST AREA CONSTRUCTION  
 CONTRACT #:

NCDOT ENGINEER  
 MICHAEL D. MOUNTCASTLE  
 2/3/2015

SHEET DESCRIPTION:	PREL DESIGN DATE: JUNE/14
	CHECKED BY & DATE:
	FINAL DESIGN DATE:

I-77 REST AREA  
 PICNIC SHELTER  
 DETAILS



T.I.P. # K-4908  
 WBS # 39894.3.FS1  
 FED I.D. # IMS-77-(177)39  
 SHEET NO: TOTAL SHEET NO:  
**LD 7**





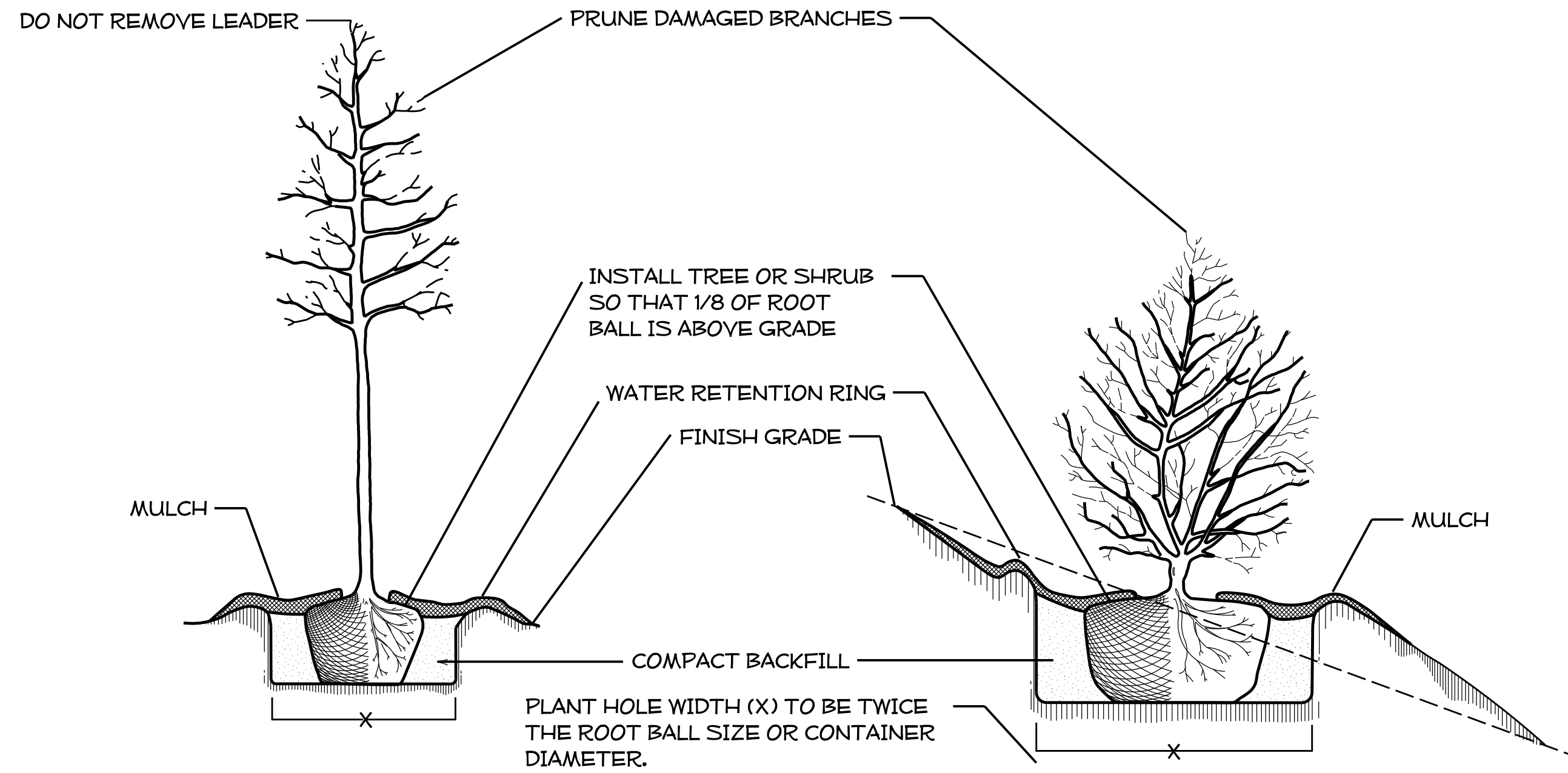






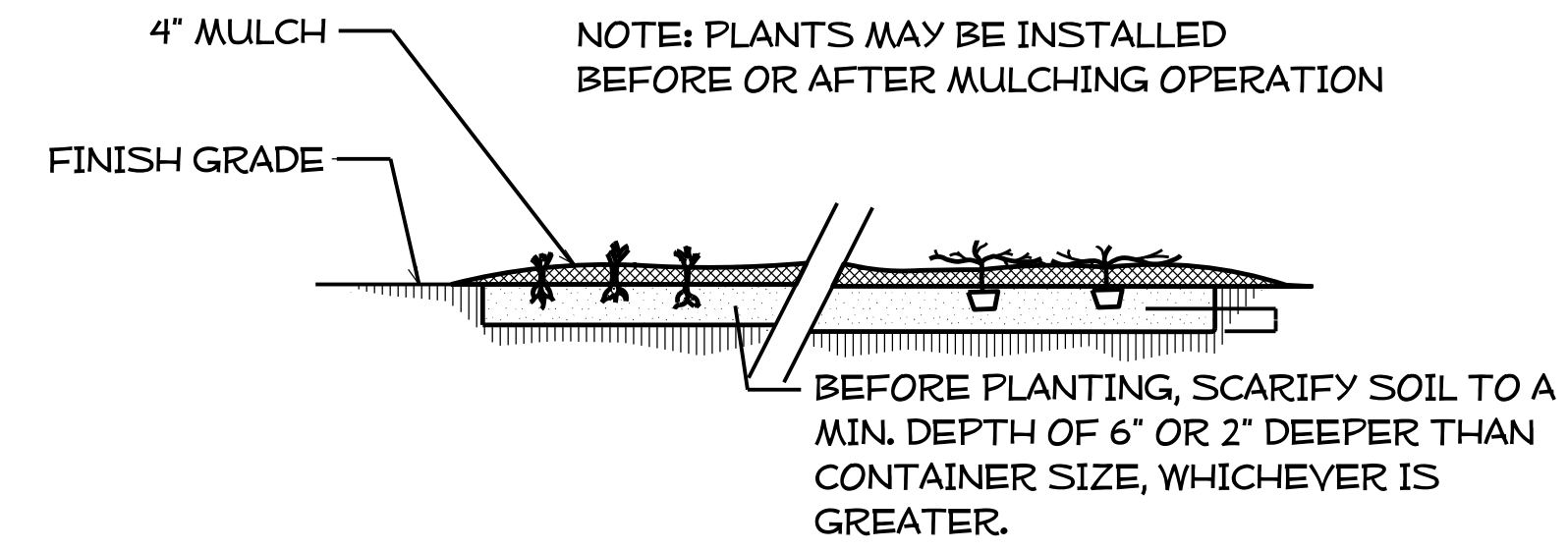




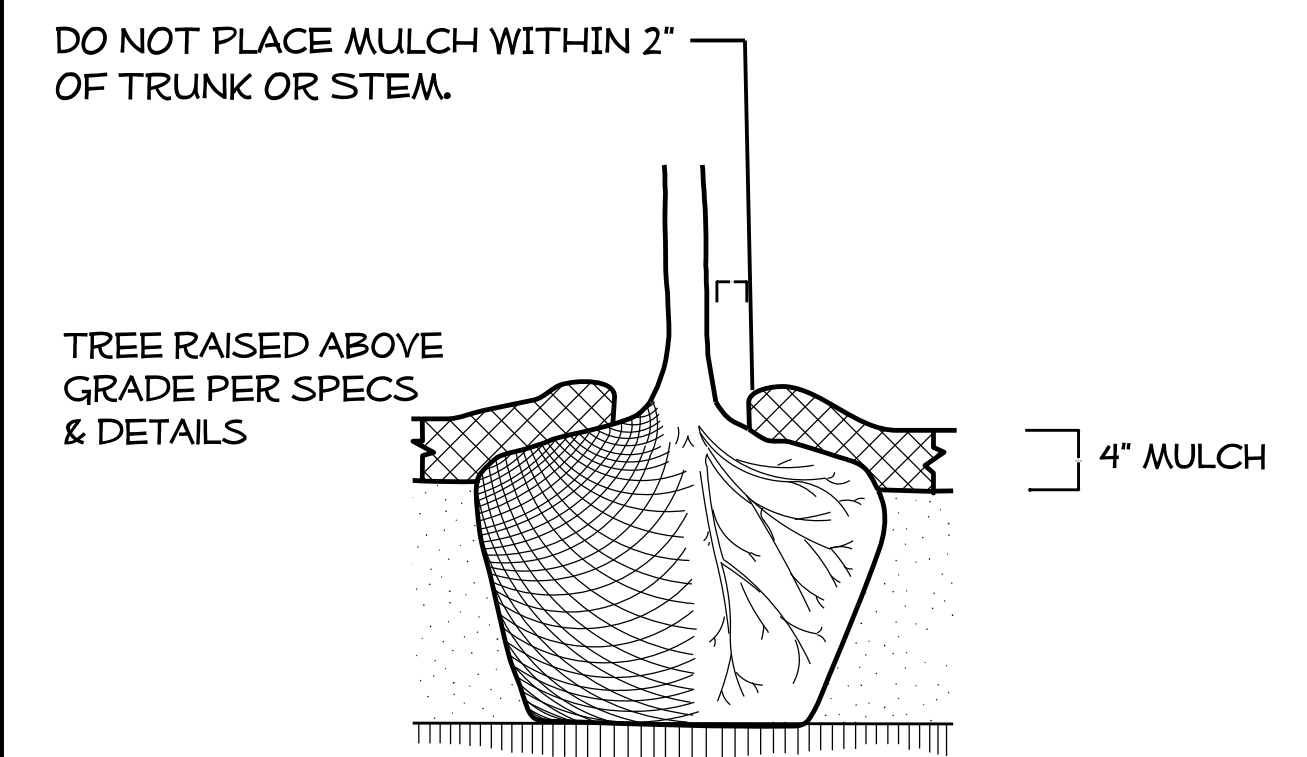


**TREE OR SHRUB PLANTING DETAIL**  
(LEVEL GROUND)

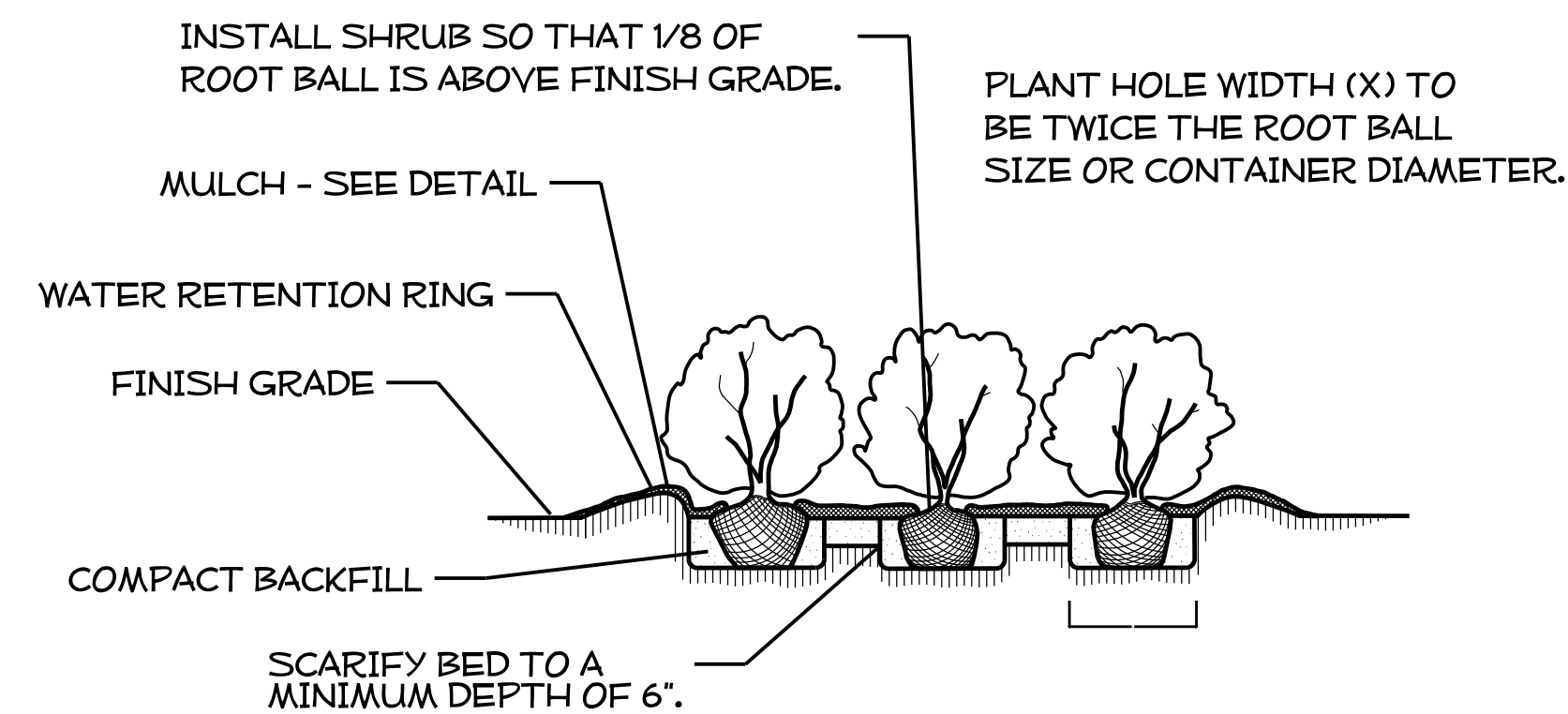
**TREE OR SHRUB PLANTING DETAIL**  
(SLOPING GROUND)



**GROUND COVER/ BEDDING PLANT DETAIL**



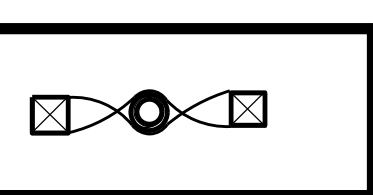
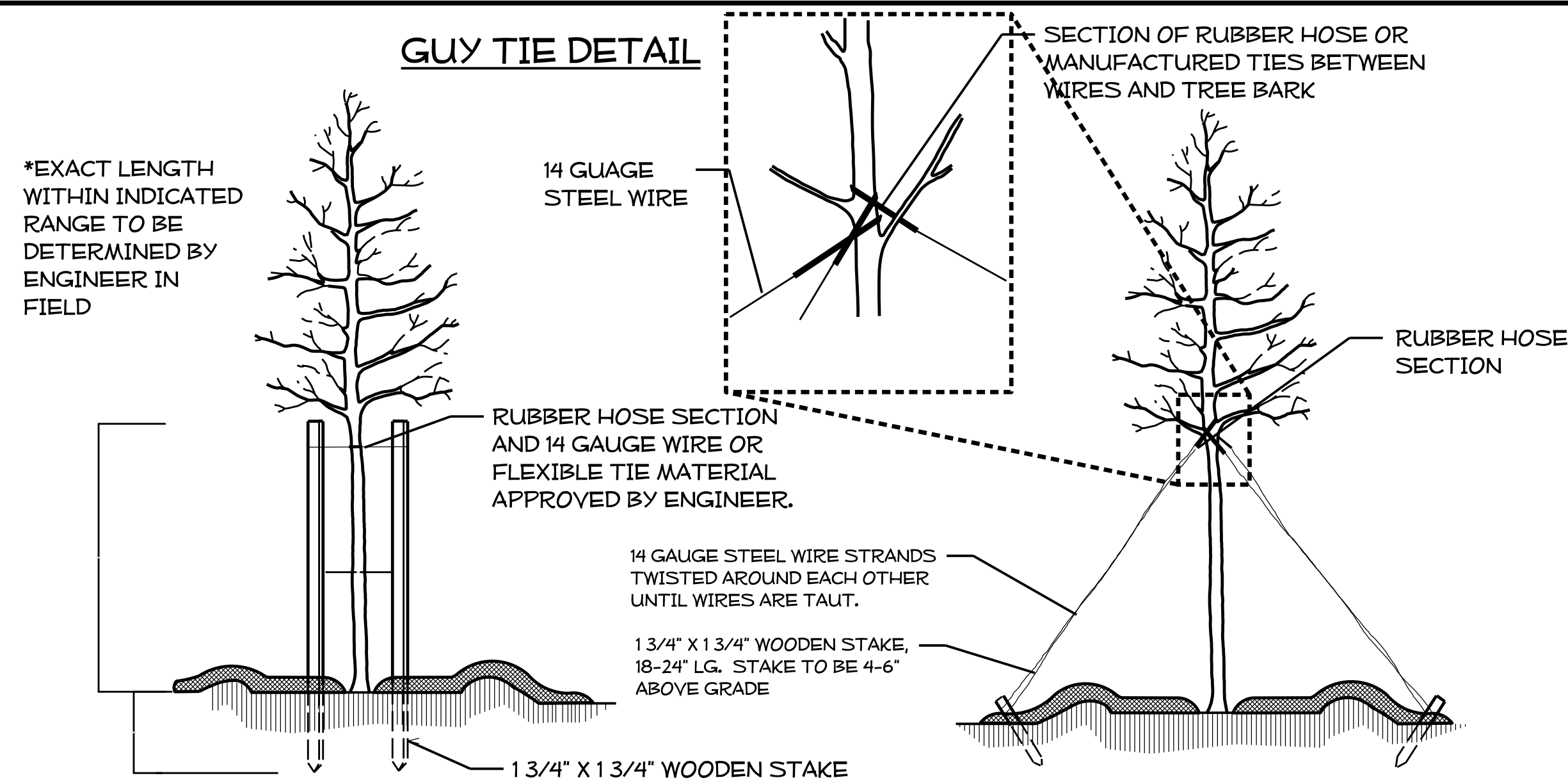
**MULCH DETAIL**



**SHRUB BED PLANTING DETAIL**

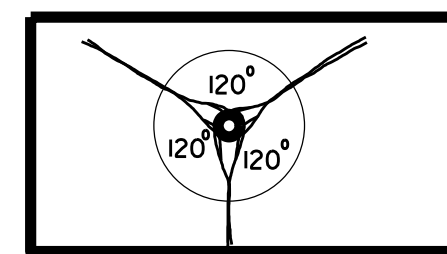
- NOTES:**
- SCHEDULE FOR PLANT HOLE SIZE: PLANT HOLE WIDTH (X) TO BE TWICE THE ROOT BALL SIZE OR CONTAINER DIAMETER.
  - SEE STANDARD SPECIFICATIONS FOR PLANT BED FUMIGATION AND HERBICIDAL TREATMENT.
  - APPLY FERTILIZER AT PLANTING TIME IN THE FORM OF A SLOW RELEASE PELLET OR TABLET. APPLY AT RATE RECOMMENDED BY MANUFACTURER. BOTH RATE AND FORMULATION MUST BE APPROVED BY FIELD ENGINEER PRIOR TO APPLICATION.
  - REMOVE WIRE BASKET AND FOLD BURLAP BACK FROM TOP OF ROOT BALL BEFORE BACKFILLING IS COMPLETE.
  - ALL PRUNING TO FOLLOW STANDARD ARBORICULTURAL PRACTICES AS SPECIFIED BY INTERNATIONAL SOCIETY OF ARBORICULTURE.
  - DO NOT ATTEMPT TO STRAIGHTEN A TREE THAT HAS BEEN PLANTED AT AN ANGLE WITH THE USE OF STAKING OR GUYING. DIG TREE AND REPLANT TO UPRIGHT POSITION.

**GUY TIE DETAIL**



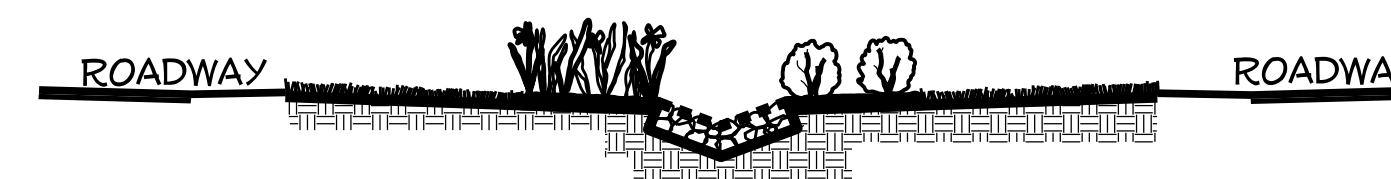
**STAKING DETAIL**  
(TREES 6'-10')

USE AS DIRECTED BY FIELD ENGINEER

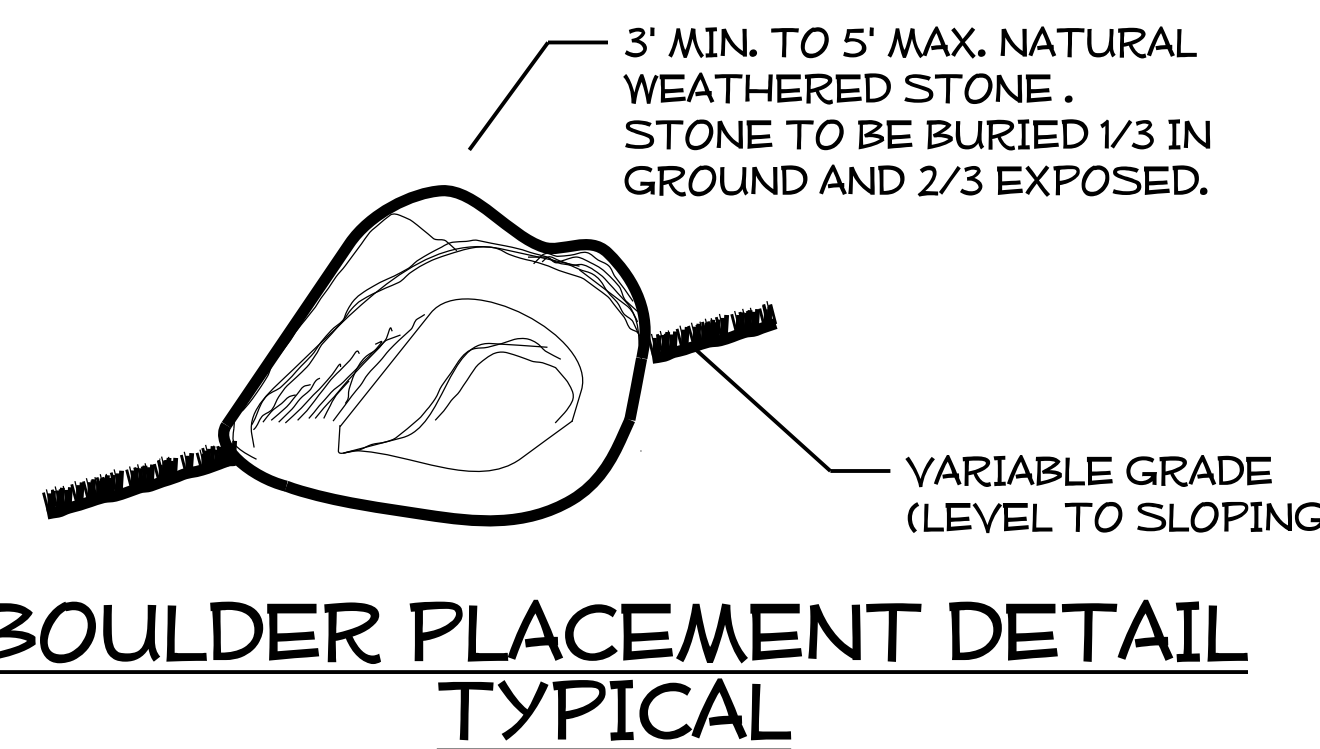


**GUYING DETAIL**  
(TREES 10' OR LARGER)

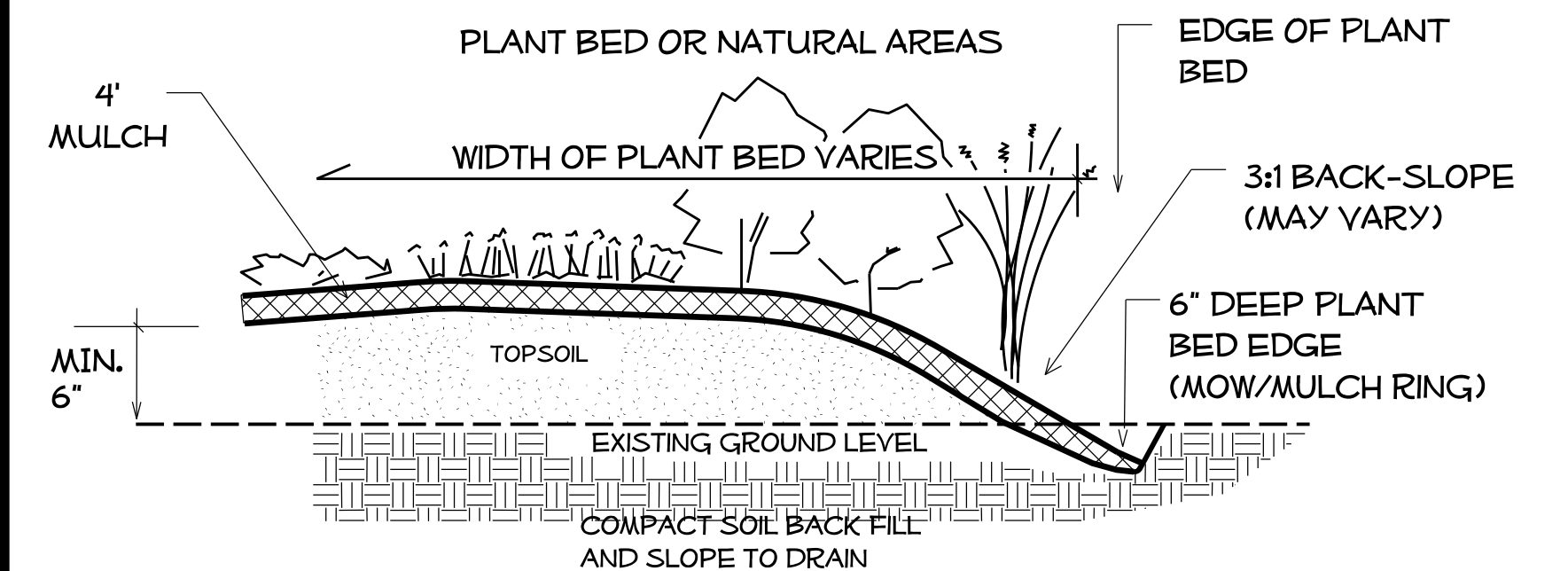
USE AS DIRECTED BY FIELD ENGINEER



**RIVERSTONE DITCH LINING DETAIL**

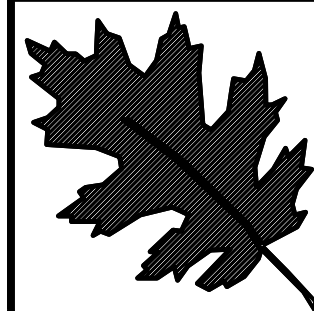


**BOULDER PLACEMENT DETAIL**  
TYPICAL



**PLANT BED EDGE DETAIL**

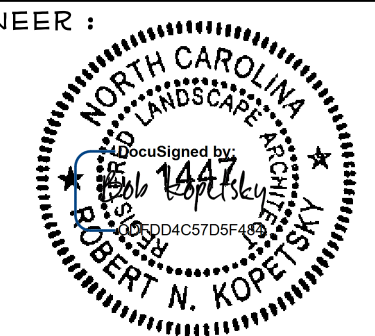
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\$\$\$\$\$USER NAME\$\$\$\$\$



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REST AREA CONSTRUCTION  
CONTRACT #:

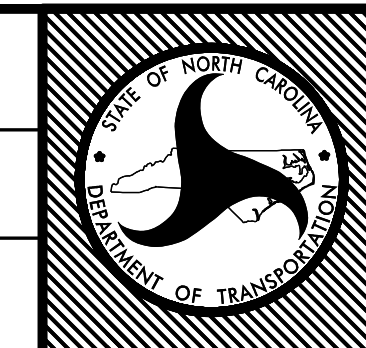
REV ENGINEER :



SHEET DESCRIPTION:

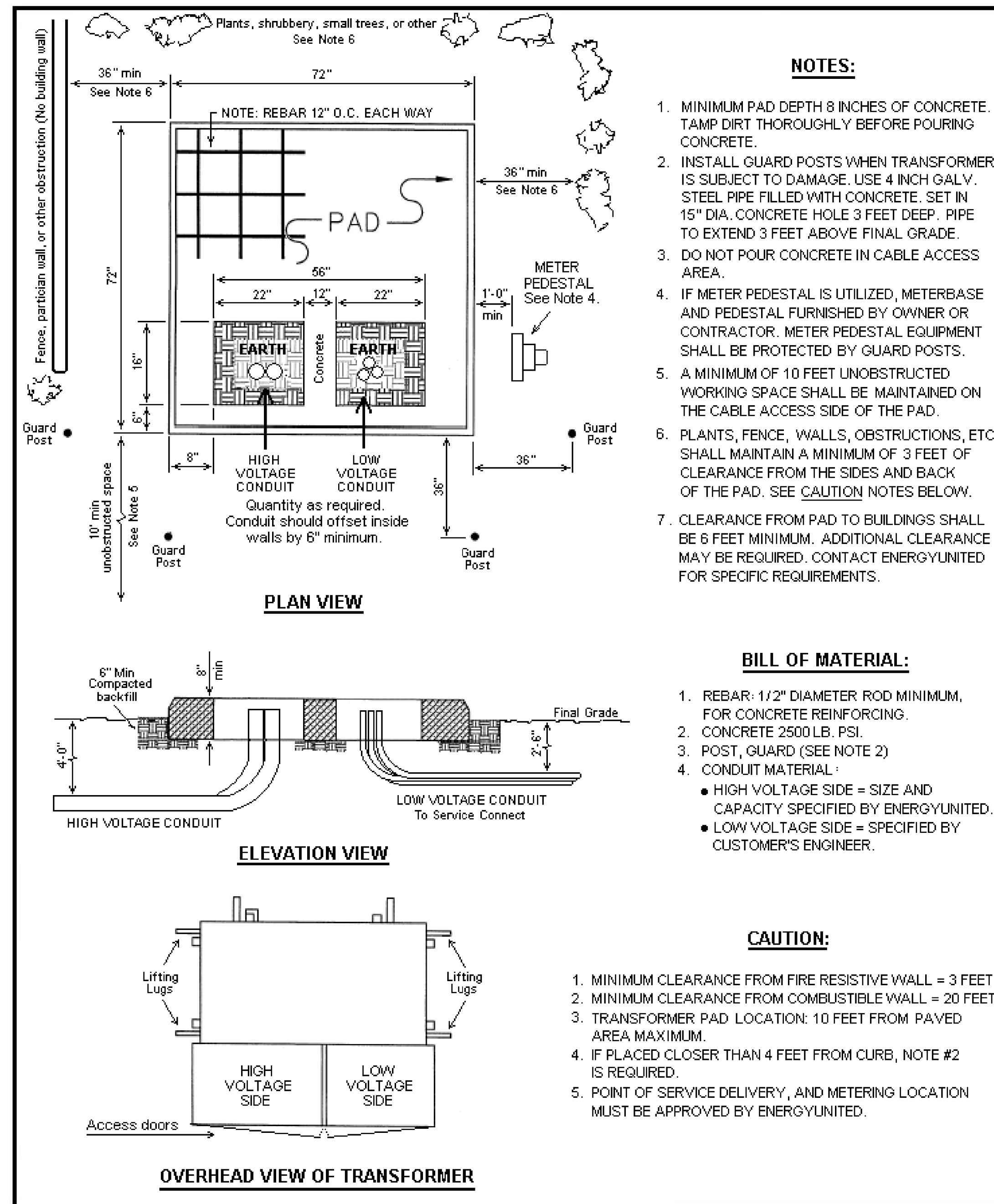
PREL DESIGN DATE: JUNE/14  
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FINAL DESIGN DATE:

I-77 REST AREA  
PLANTING DETAILS



T.I.P. # K-4908  
WBS # 39894.3.FS1  
FED I.D. # IMS-77-1(177)39  
SHEET NO: TOTAL SHEET NO:  
LD-11





**NOTES:**

1. MINIMUM PAD DEPTH 8 INCHES OF CONCRETE. TAMP DIRT THOROUGHLY BEFORE POURING CONCRETE.
2. INSTALL GUARD POSTS WHEN TRANSFORMER IS SUBJECT TO DAMAGE. USE 4 INCH GALV. STEEL PIPE FILLED WITH CONCRETE. SET IN 15" DIA. CONCRETE HOLE 3 FEET DEEP. PIPE TO EXTEND 3 FEET ABOVE FINAL GRADE.
3. DO NOT POUR CONCRETE IN CABLE ACCESS AREA.
4. IF METER PEDESTAL IS UTILIZED, METERBASE AND PEDESTAL FURNISHED BY OWNER OR CONTRACTOR. METER PEDESTAL EQUIPMENT SHALL BE PROTECTED BY GUARD POSTS.
5. A MINIMUM OF 10 FEET UNOBSTRUCTED WORKING SPACE SHALL BE MAINTAINED ON THE CABLE ACCESS SIDE OF THE PAD.
6. PLANTS, FENCE, WALLS, OBSTRUCTIONS, ETC. SHALL MAINTAIN A MINIMUM OF 3 FEET OF CLEARANCE FROM THE SIDES AND BACK OF THE PAD. SEE CAUTION NOTES BELOW.
7. CLEARANCE FROM PAD TO BUILDINGS SHALL BE 6 FEET MINIMUM. ADDITIONAL CLEARANCE MAY BE REQUIRED. CONTACT ENERGYUNITED FOR SPECIFIC REQUIREMENTS.

**BILL OF MATERIAL:**

1. REBAR: 1/2" DIAMETER ROD MINIMUM, FOR CONCRETE REINFORCING.
2. CONCRETE 2500 LB. PSI.
3. POST, GUARD (SEE NOTE 2)
4. CONDUIT MATERIAL:
  - HIGH VOLTAGE SIDE = SIZE AND CAPACITY SPECIFIED BY ENERGYUNITED.
  - LOW VOLTAGE SIDE = SPECIFIED BY CUSTOMER'S ENGINEER.

**CAUTION:**

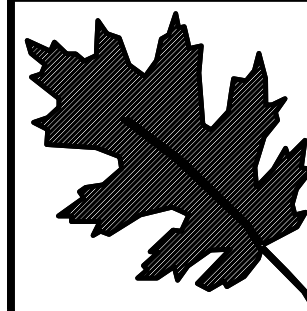
1. MINIMUM CLEARANCE FROM FIRE RESISTIVE WALL = 3 FEET.
2. MINIMUM CLEARANCE FROM COMBUSTIBLE WALL = 20 FEET.
3. TRANSFORMER PAD LOCATION: 10 FEET FROM PAVED AREA MAXIMUM.
4. IF PLACED CLOSER THAN 4 FEET FROM CURB, NOTE #2 IS REQUIRED.
5. POINT OF SERVICE DELIVERY, AND METERING LOCATION MUST BE APPROVED BY ENERGYUNITED.

REVISION	BY	EnergyUnited	
9/2009	JH	DATE	8/2007
		DWN BY	SB & JH
		SCALE	N.T.S.
		APPD BY	S. McC.

**PAD SPECIFICATIONS FOR  
45 - 500 KVA THREE-PHASE  
TRANSFORMER**

USE FOR THE CONSTRUCTION OF THE  
TRANSFORMER PAD (ONLY)

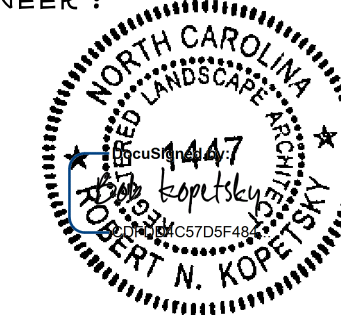
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\$\$\$\$\$USER\$\$\$\$\$  
\$\$\$\$\$SERIAL\$\$\$\$\$



NCDOT - ROADSIDE ENVIRONMENTAL UNIT  
LANDSCAPE DESIGN & DEVELOPMENT  
1557 MAIL SERVICE CENTER RALEIGH NC 27699-1557  
PH: 919-707-2920 FAX: 919-715-2554  
HTTP://WWW.NCDOT.ORG/DOH/OPERATIONS/DP.CHIEF.ENG/ROADSIDE/

I- 77 IREDELL Co  
REST AREA CONSTRUCTION  
CONTRACT #:

REV ENGINEER :



SHEET DESCRIPTION:	PREL. DESIGN DATE: JUNE/ 14	I-77 REST AREA	T.I.P. # K-4908
	CHECKED BY & DATE:	TRANSFORMER PAD	WBS # 39894.3.FS1
	FINAL DESIGN DATE:		FED I.D. # IMS-77-1(177)39
			SHEET NO: TOTAL SHEET NO:
			LD-12

