



**CONSTRUCTION**

- C.1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, APPLICABLE PERMITS, FUNDING AGENCY REQUIREMENTS AND THE TOWN REGULATIONS AND STANDARDS WHEN THERE IS A CONFLICT BETWEEN THE STANDARDS THE MORE STRINGENT SHALL APPLY UNLESS OTHERWISE DIRECTED BY ENGR
- C.2. THE TECHNICAL SPECIFICATIONS COVER NOT ONLY THE WORK SPECIFICALLY INCLUDED IN THE SCOPE OF THE WORK BEING BID, BUT ALSO CONTAINS SPECIFICATIONS FOR WORK THAT COULD BE ADDED AS THE WORK PROGRESS OR AS NEEDED TO COMPLETE THE WORK.
- C.3. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING AND UNDERSTANDING THE PLANS, SPECIFICATIONS, STANDARDS AND CODES. CONTRACTOR SHALL EXECUTE HIS WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. ADDITIONAL WORK OR MATERIALS REQUIRED TO BRING THE WORK IN CONFORMANCE WITH THESE REQUIREMENTS SHALL BE PROVIDED AT NO ADDITIONAL COST TO OWNER
- C.4. A QUALIFIED SUPERINTENDENT WHO IS ACCEPTABLE TO THE OWNER SHALL BE AT THE WORK SITE AND GIVE EFFICIENT SUPERVISION TO THE WORK UNTIL IT IS COMPLETED. THE SUPERINTENDENT SHALL HAVE FULL AUTHORITY TO ACT ON BEHALF OF THE CONTRACTOR, AND ALL DIRECTIONS GIVEN TO THE SUPERINTENDENT SHALL BE CONSIDERED GIVEN TO THE CONTRACTOR. AT MOST TIMES, THE SUPERINTENDENT SHALL NOT BE ENGAGED IN OPERATION OF EQUIPMENT OR OTHER CONSTRUCTION..
- C.5. ALIGNMENTS AND UTILITY MODIFICATIONS MAY BE ADJUSTED BY ENGINEER IN THE FIELD TO ACCOMMODATE CONFLICTS THAT ARISE OR FOR OTHER SITE CONDITIONS.
- C.6. CONTRACTOR SHALL PROTECT ALL WORK AREAS AND FACILITIES FROM FLOODING OR WATER DAMAGE REGARDLESS OF WATER SOURCE. ANY REQUIRED DEWATERING AND/OR RESTORATION REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR AT NO COST TO THE OWNER.
- C.7. CONTRACTOR SHALL LIMIT ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE AND/OR TOES OF SLOPES AS SHOWN ON THE PLANS. ANY DISTURBANCE BEYOND THAT LIMIT SHALL BE RESTORED TO ORIGINAL CONDITION AT CONTRACTOR'S EXPENSE. CONSTRUCTION ACTIVITIES IN ADDITION TO NORMAL WORK SHALL INCLUDE THE PARKING OF VEHICLES & EQUIPMENT, DISPOSAL OF WASTE, & ANY OTHER ACTION WHICH WOULD ALTER EXISTING CONDITIONS.
- C.8. ALL WORK SHALL BE COMPLETED FROM WITHIN EXECUTED EASEMENTS OR RIGHTS OF WAY. NOTIFY ENGINEER SHOULD CONFLICT ARISE. USE OF ADJOINING PROPERTY IS PROHIBITED UNLESS CONTRACTOR MAKES ARRANGEMENTS WITH ADJOINING LAND OWNER AND PROVIDES EXECUTED DOCUMENTATION OF THOSE ARRANGEMENT TO ENGINEER & ENGINEER DETERMINES THAT THE DOCUMENTATION IS ADEQUATE. AT CONCLUSION OF PROJECT, A WRITTEN ACCEPTANCE AND RELEASE FROM ADJOINING LAND OWNER IS REQUIRED. USE OF HAND TOOLS IS REQUIRED IN CLOSE PROXIMITY TO PROPERTIES
- C.9. THE CONCRETE SULFATE EXPOSURE IS CLASS 2 FOR THIS PROJECT. ALL EXTERIOR CONCRETE SHALL BE FIBER MESH REINFORCED.
- C.10 CONTROL ALL DUST W/ A DUST PALLATIVE APPROVED BY ENGINEER. INCLUDE THIS WORK IN THE COST OF THE ASSOCIATED WORK.
- C.11 WORK HOURS SHALL BE LIMITED TO BETWEEN 7:30 AND 5:00 ON TOWN WORK DAYS

GENERAL NOTES

CONSTRUCTION (CONT'D)

- C12. CONTRACTOR SHALL COORDINATE WITH ADJOINING PROPERTY OWNERS WHEN WORKING ADJACENT TO THEIR PROPERTY. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES.
- C13. HOT & COLD WEATHER CONCRETING SHALL BE PERFORMED CONSISTENT WITH CDOT STANDARDS. COST FOR THIS WORK SHALL BE INCLUDED IN THE COST OF THE WORK.
- C.14. CONTRACTOR SHALL BE RESPONSIBLE FOR STAGING & ACCESS POINTS.
- C15. ALL SPOILS AND TRASH REMOVAL SHALL BE INCLUDED IN THE COST OF THE WORK.
- C16. REFERENCES TO CDOT STANDARDS REFER TO 2017 COLORADO DEPARTMENT TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD CONSTRUCTION.
- C.17 WHERE FUTURE LINES ARE STUBBED, INSTALL END CAP & DELINEATE END BY BRINGING 2X4 WOOD POST MARKED AT EVEN 1' MARKS (0 AT BOTTOM) & EXTENDING FROM THE TOP OF THE CAP TO THE SURFACE. BACK 2X4 W/STEEL T FENCE POST. INCLUDE COST FOR THIS WORK IN THE COST OF THE PIPE OR CONDUIT.

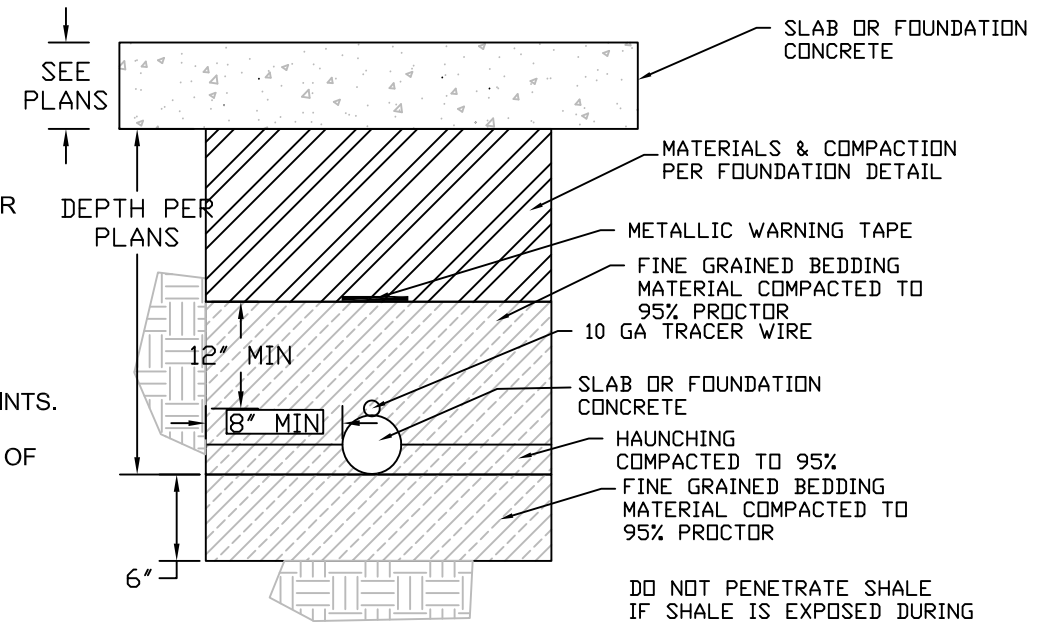
SURVEY AND HORIZONTAL AND VERTICAL CONTROL

SURVEY INFORMATION TO BE PROVIDED TO THE CONTRACTOR ARE OUTLINED IN SUB SECTION 10.11 OF THE AGREEMENT

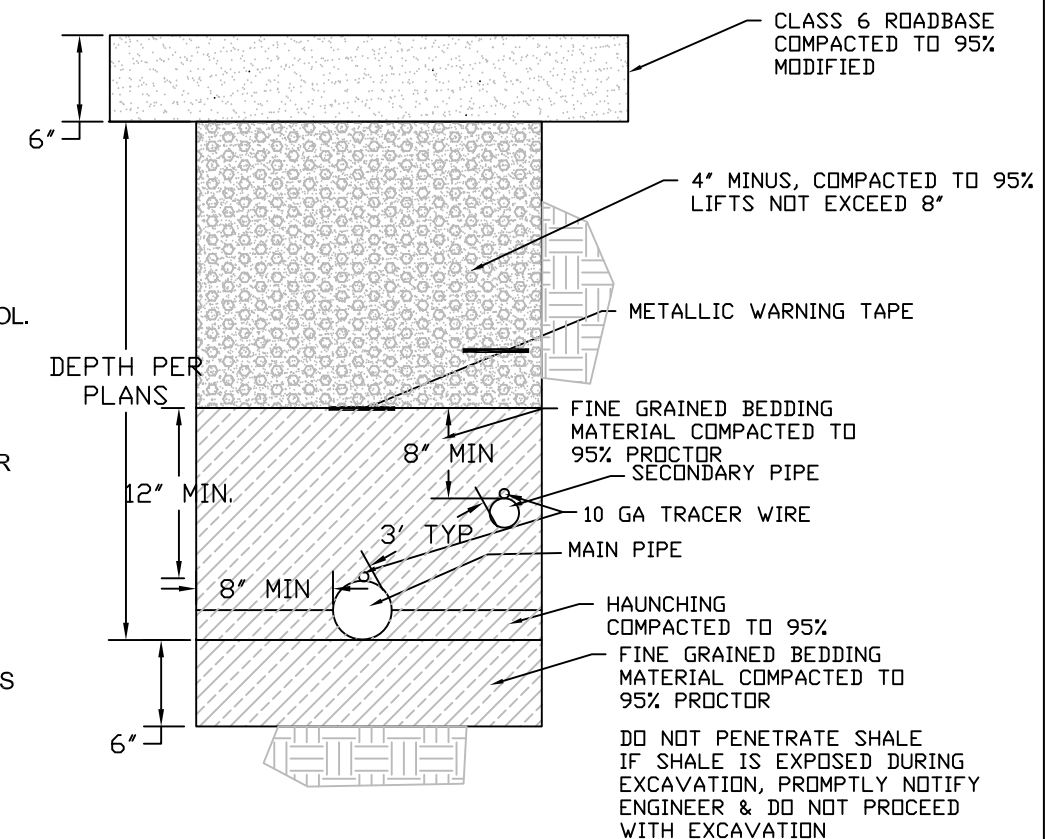
RIGHT OF WAY PRECAUTIONS - WHILE WORK CAN BE PERFORMED FROM WITHIN TOWN PROPERTY, IN PLACES THE LIMITS OF CONSTRUCTION ARE VERY CLOSE TO PRIVATE PROPERTY LINES. CONTRACTOR MUST ENSURE THAT THERE IS NO TRESPASS ON PRIVATE PROPERTY. PRIOR TO CONSTRUCTION, ROW LIMITS MUST BE SURVEYED & STAKED BY PROFESSIONAL LAND SURVEYOR. IN ORDER TO AVOID TRESPASS, CONTRACTOR MAYBE REQUIRED TO USE HAND TOOL.

UTILITIES

- U.1. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITIES AT LEAST 3 BUSINESS DAYS, NOT INCLUDING THE ACTUAL DAY OF NOTICE, PRIOR TO COMMENCING OPERATIONS IN PROXIMITY OF THE UTILITY. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO ( UNCC) TO HAVE LOCATIONS OF UNCC REGISTERED LINES MARKED BY MEMBER COMPANIES. ALL OTHER UNDERGROUND FACILITIES SHALL BE LOCATED BY CONTACTING THE RESPECTIVE OWNER. UTILITY SERVICE LATERALS SHALL ALSO BE LOCATED PRIOR TO BEGINNING EXCAVATION OR GRADING.
- U.2. UTILITIES SHOWN THE PLANS ARE APPROXIMATE BASED ON LOCATES PROVIDED BY THE UTILITIES DURING DESIGN. THERE MAY BE OTHER UTILITIES THAT ARE NOT SHOWN OR ARE SHOWN INCORRECTLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AS NECESSARY TO ENSURE THE UTILITIES WILL NOT BE IMPACTED BY CONSTRUCTION ACTIVITIES. THE COST FOR SUCH INVESTIGATION SHALL BE INCLUDED IN THE COST OF THE WORK TO WHICH IT IS APPURTENANT.



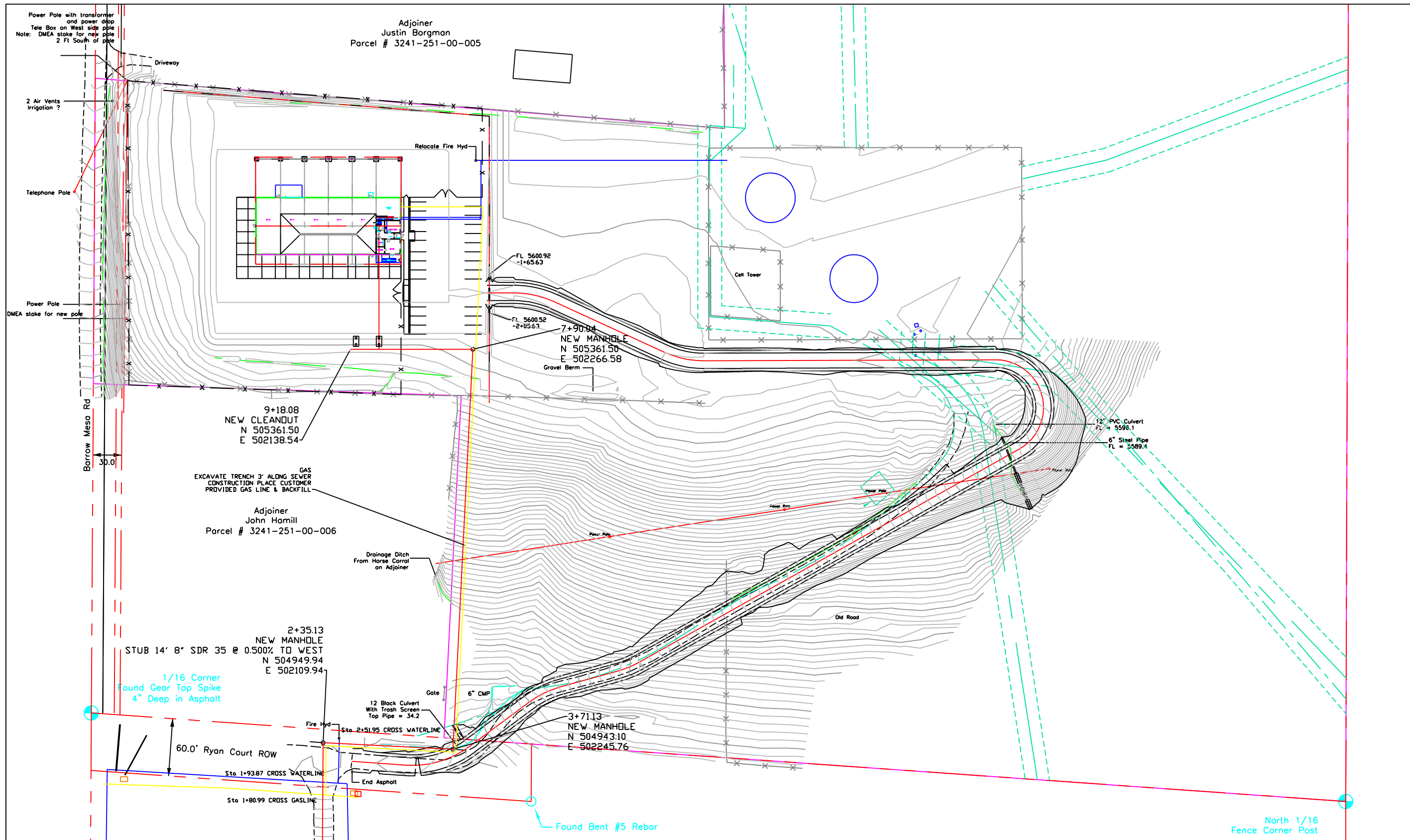
BELOW SLAB UTILITY TRENCH DETAIL



OUTSIDE BUILDING TRENCH DETAIL



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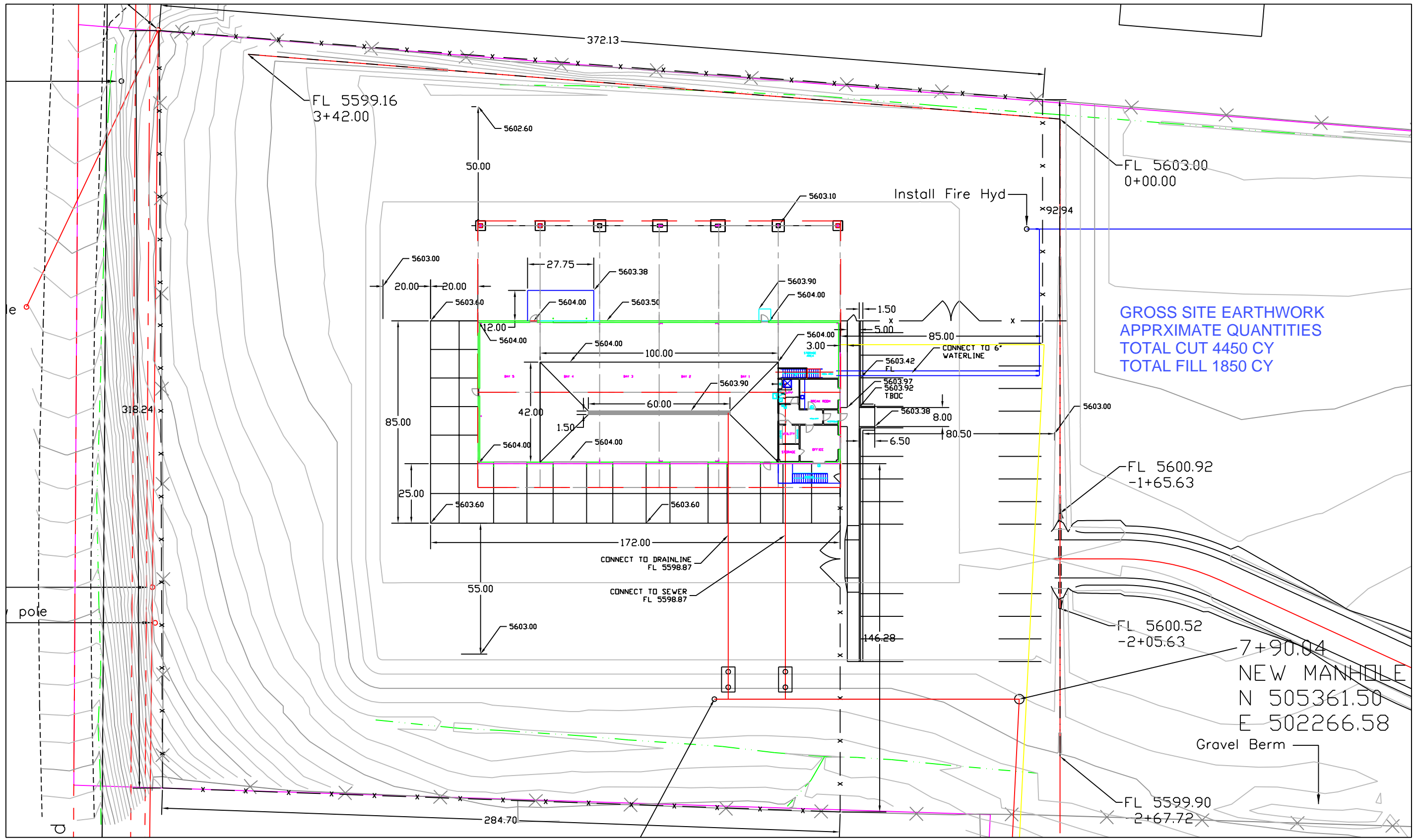
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PUBLIC WORKS FACILITY PROPERTY PLAN	
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GROSS SITE EARTHWORK  
APPRXIMATE QUANTITIES  
TOTAL CUT 4450 CY  
TOTAL FILL 1850 CY

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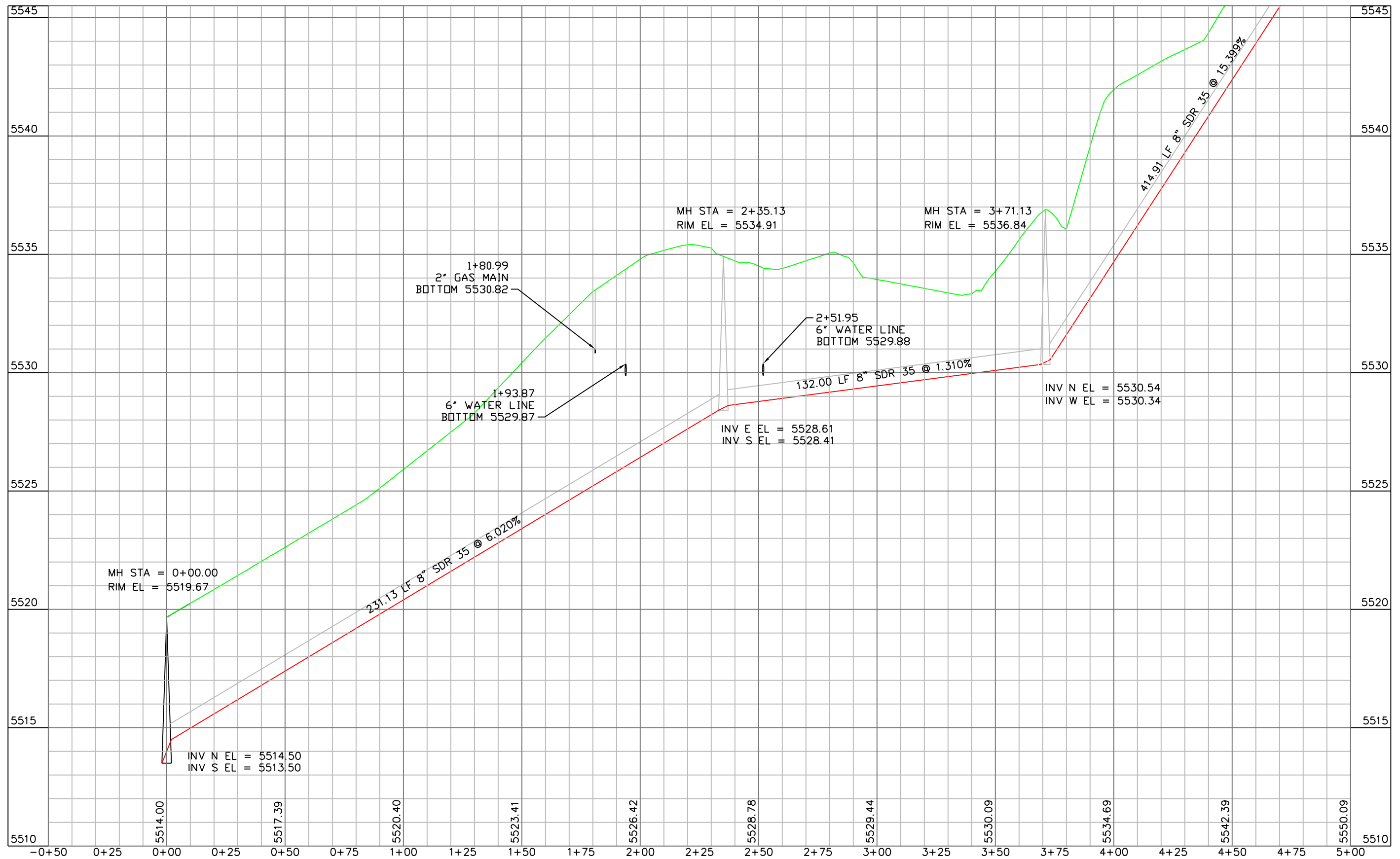
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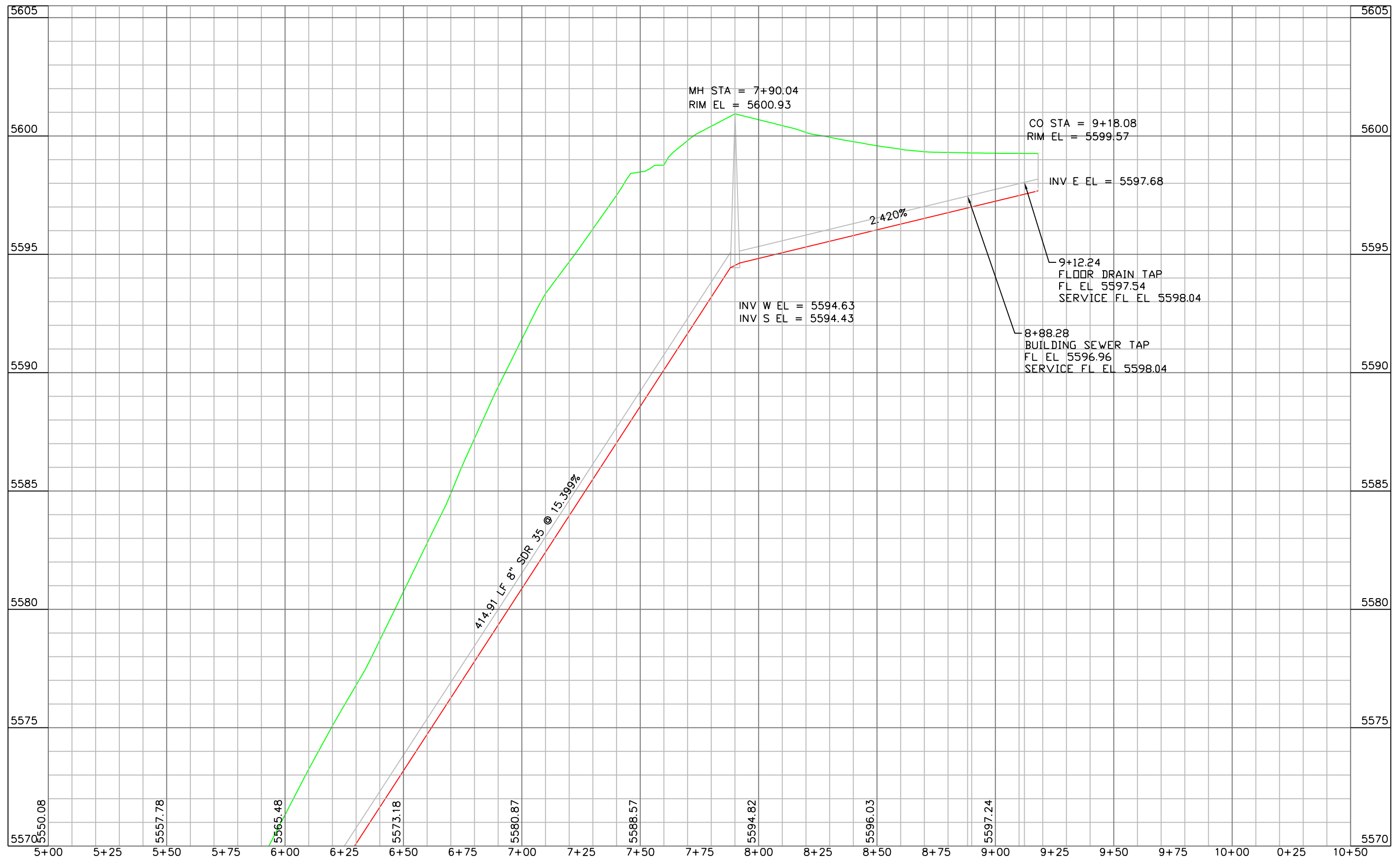
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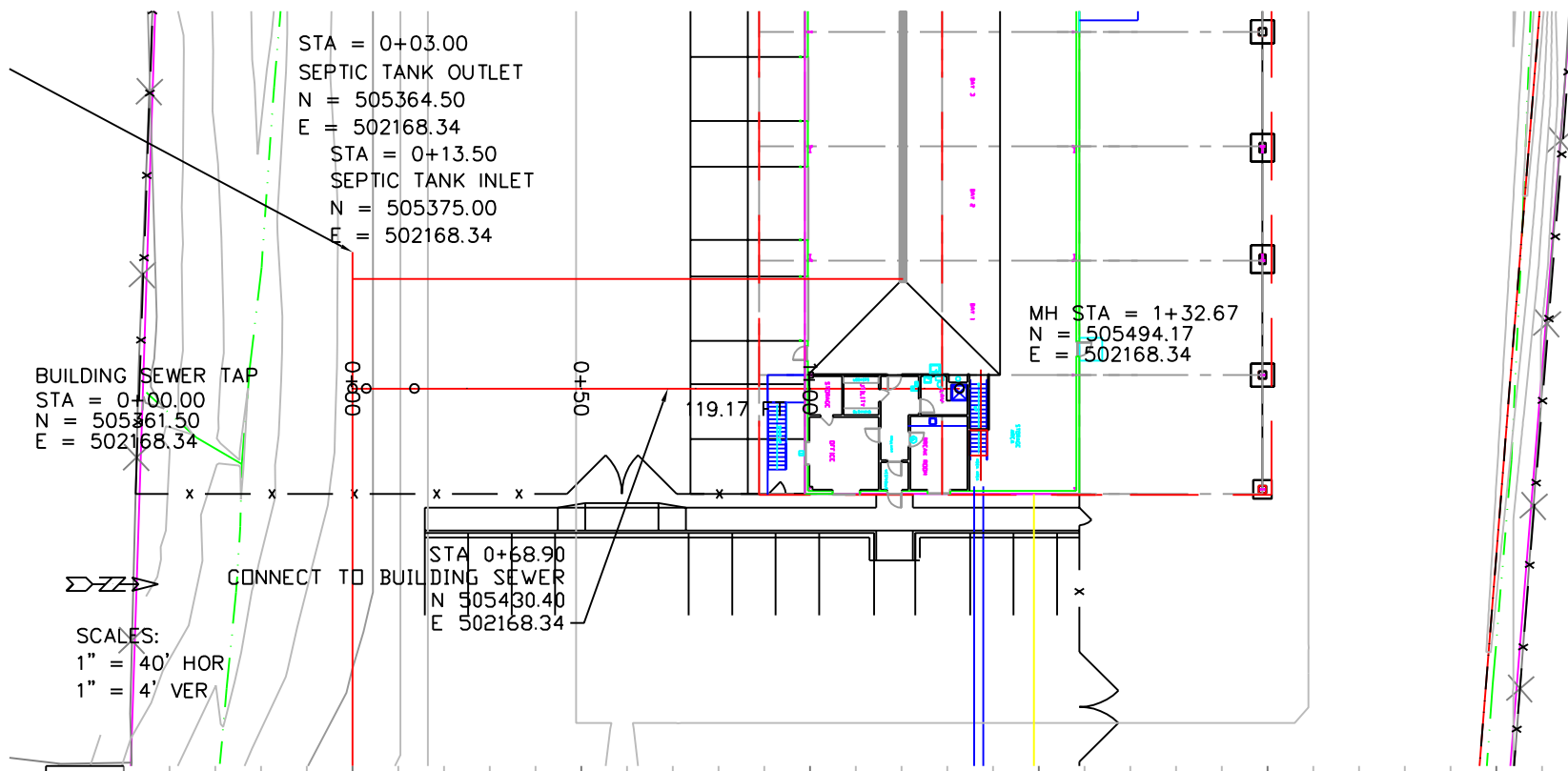
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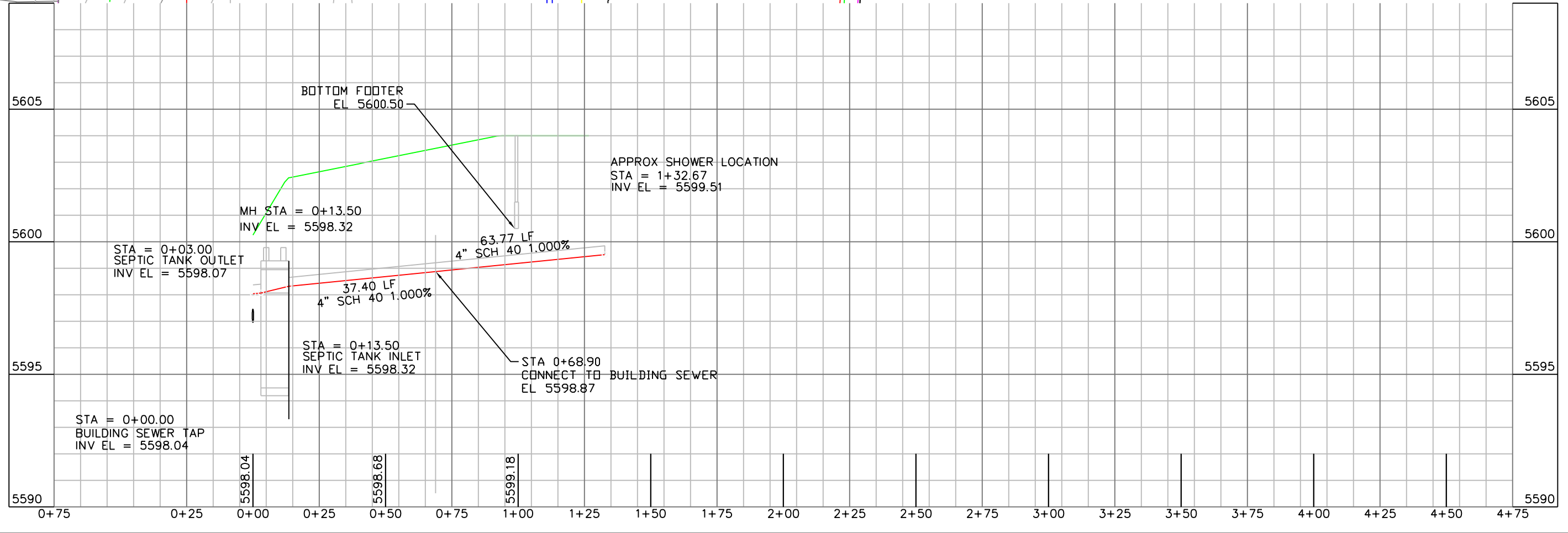
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SCALES:  
 1" = 40' HOR  
 1" = 4' VER



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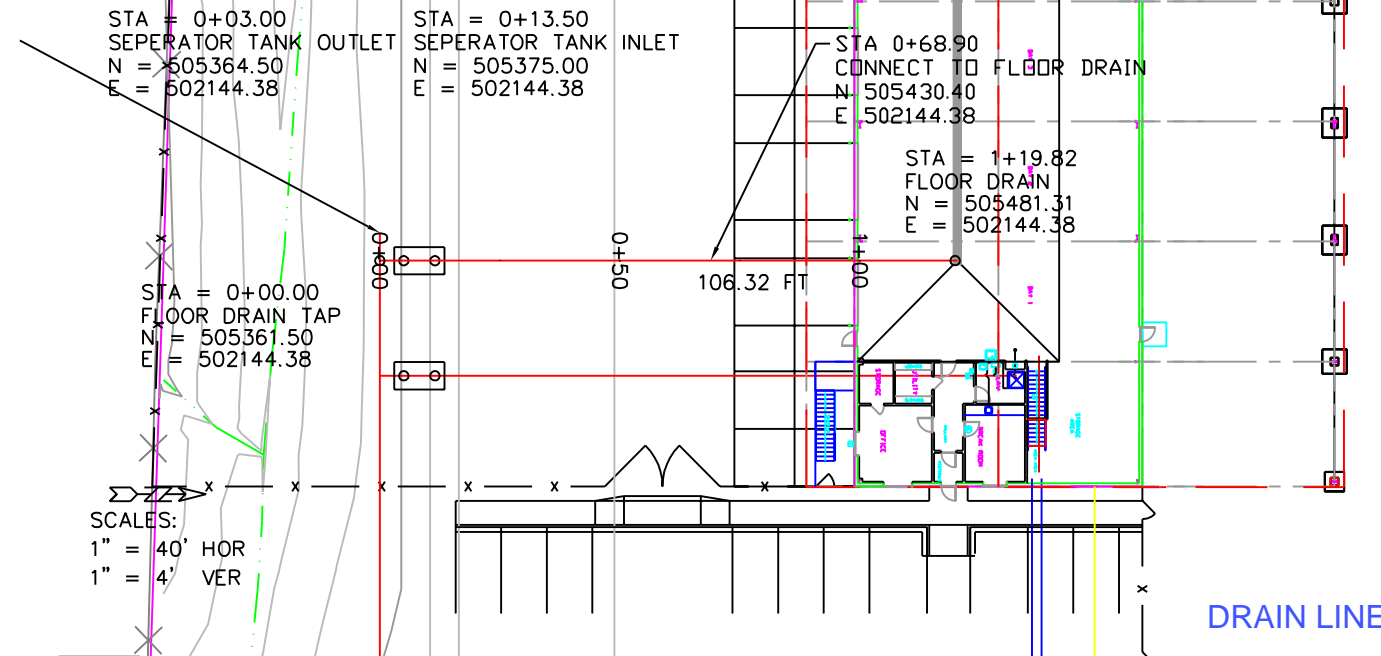
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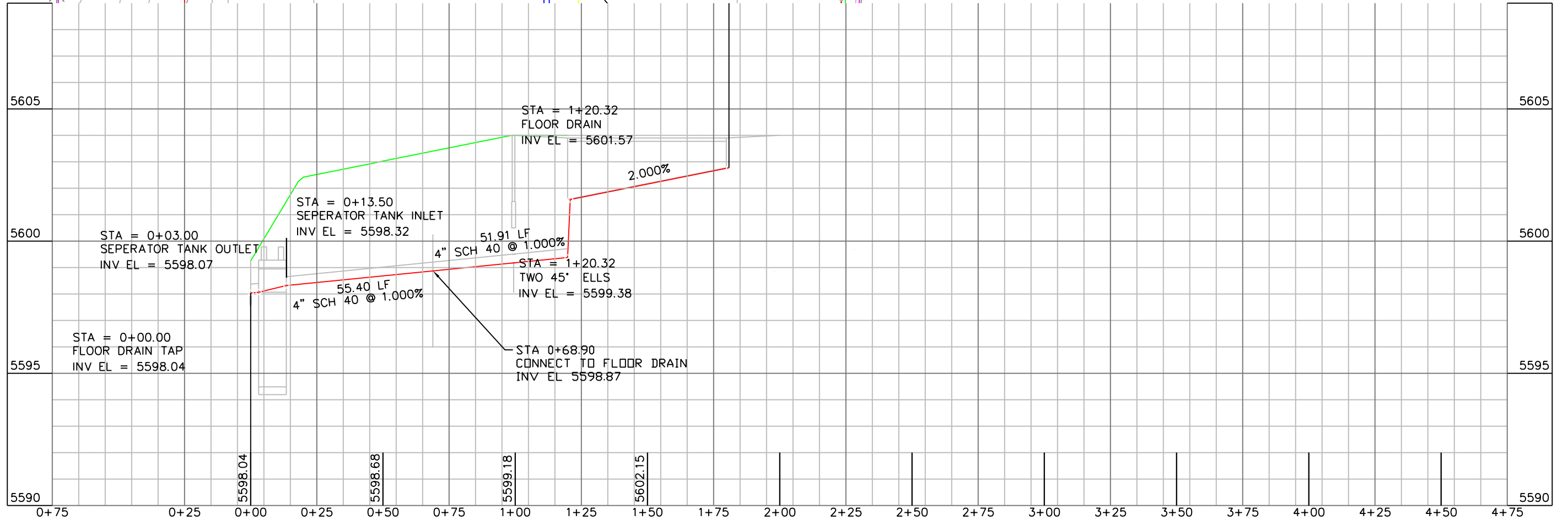
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18.08  
LIMIT



SCALES:  
1" = 40' HOR  
1" = 4' VER



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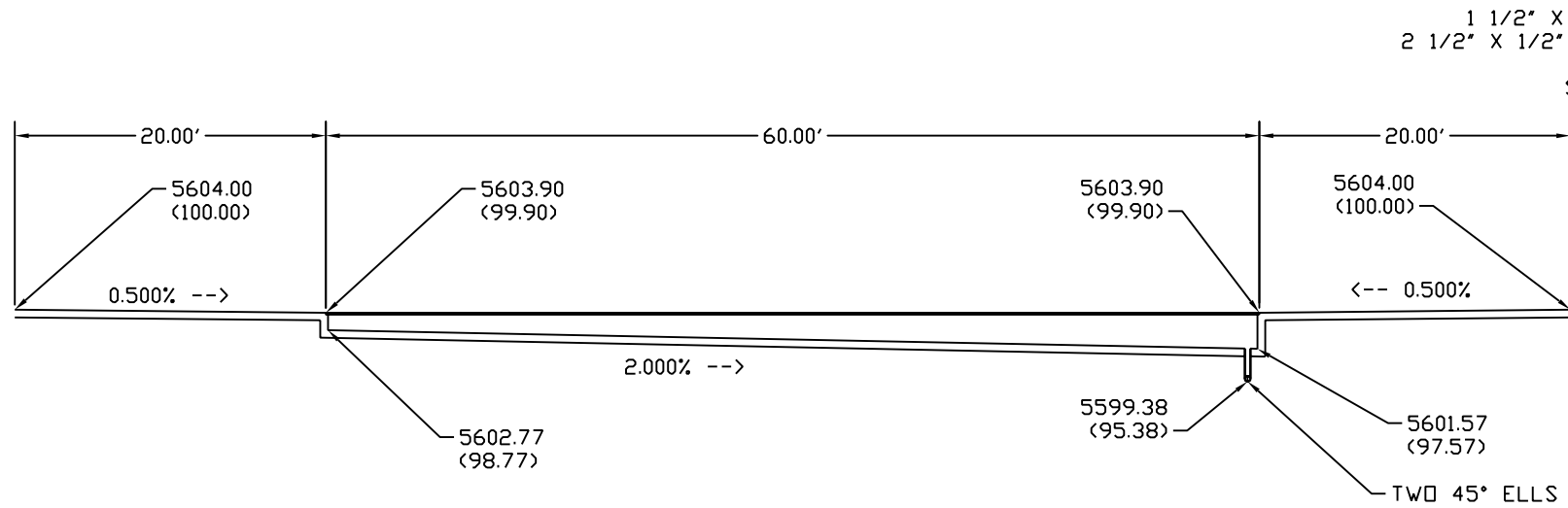
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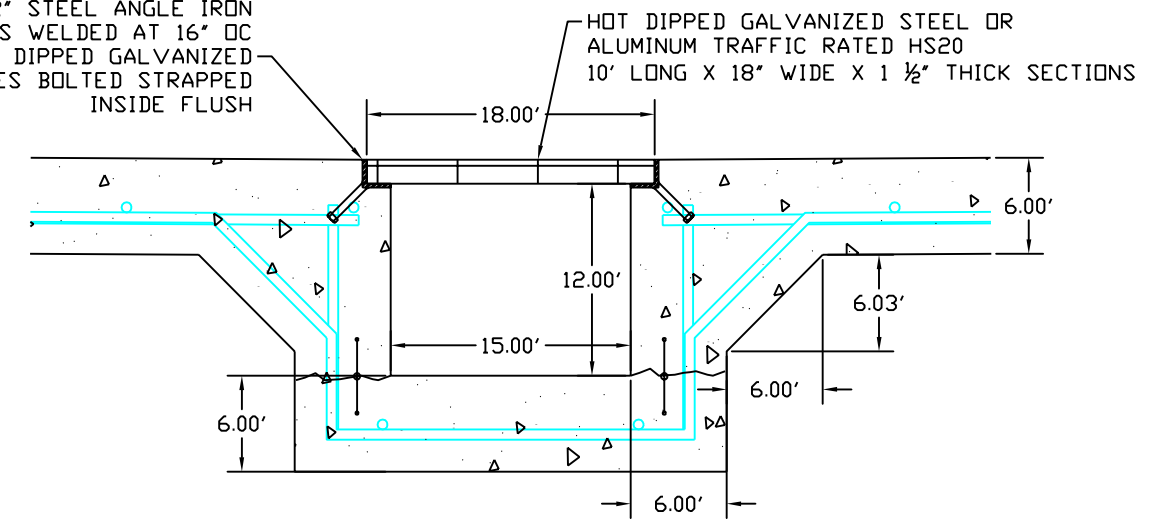
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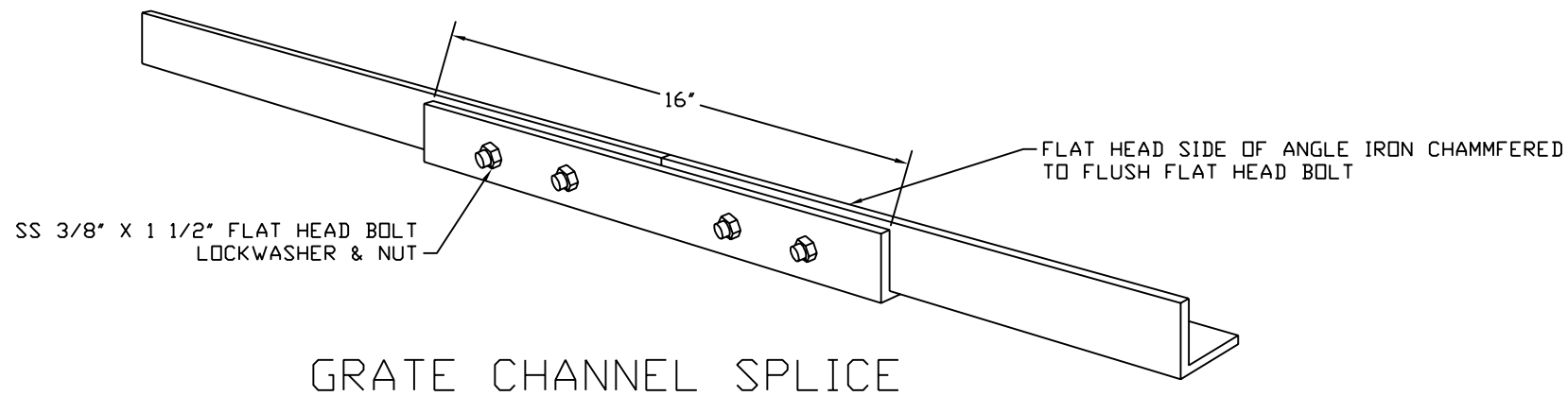




WEST END CROSS SECTION



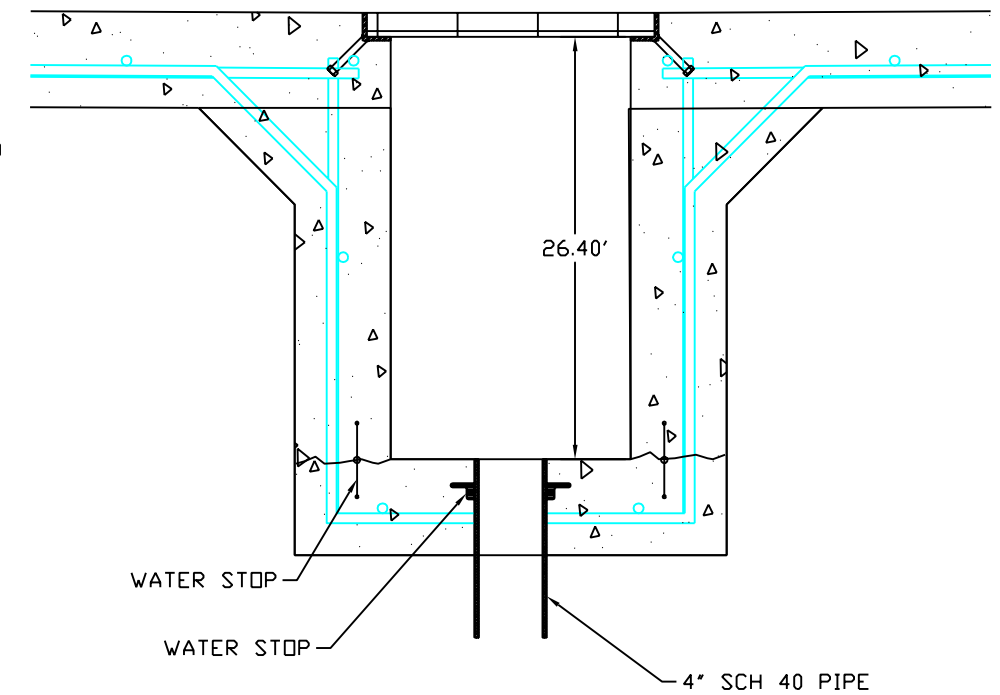
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GRATE CHANNEL SPLICE

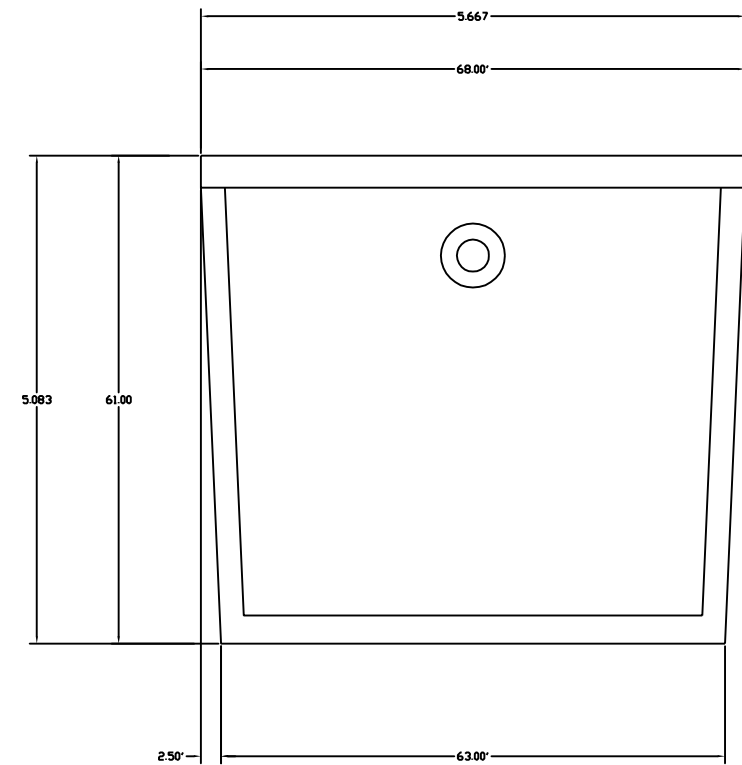
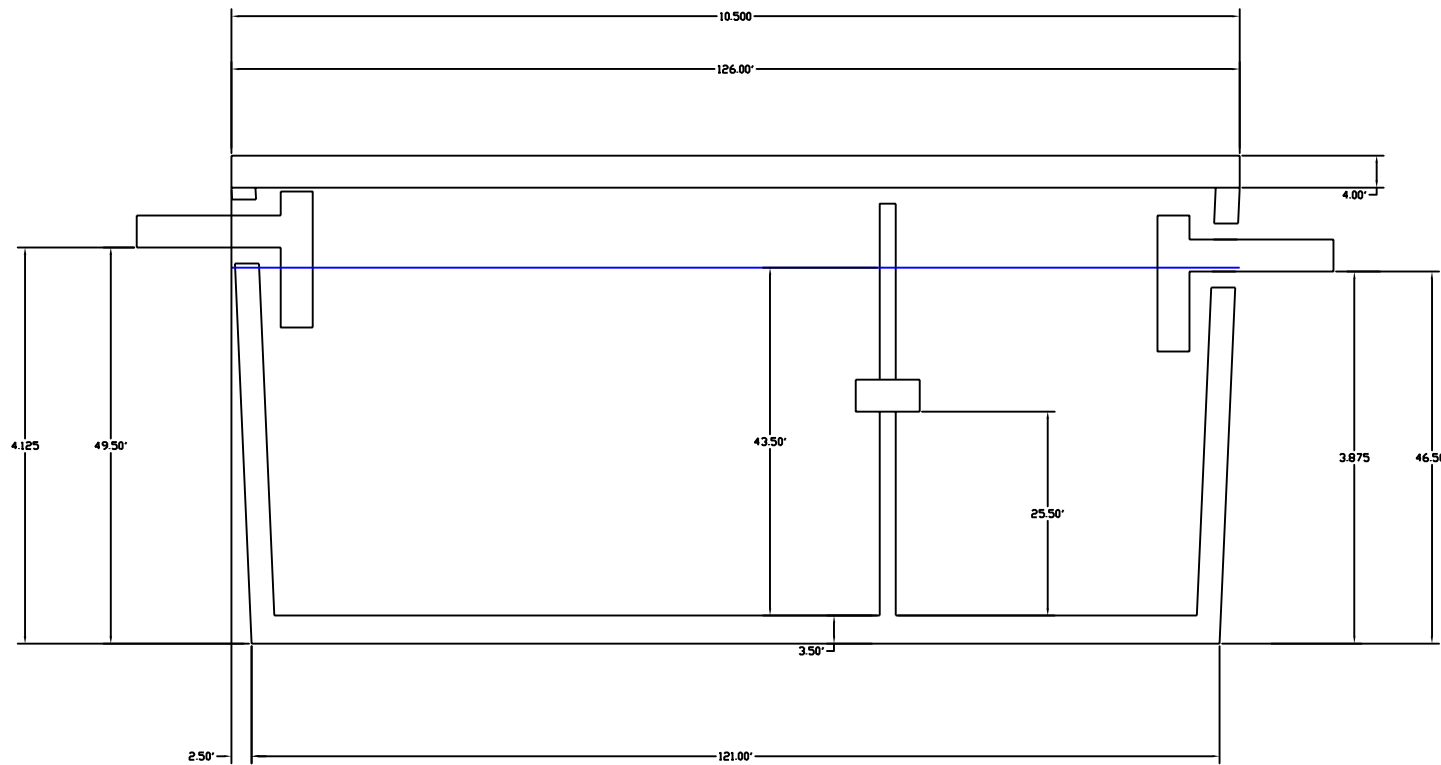
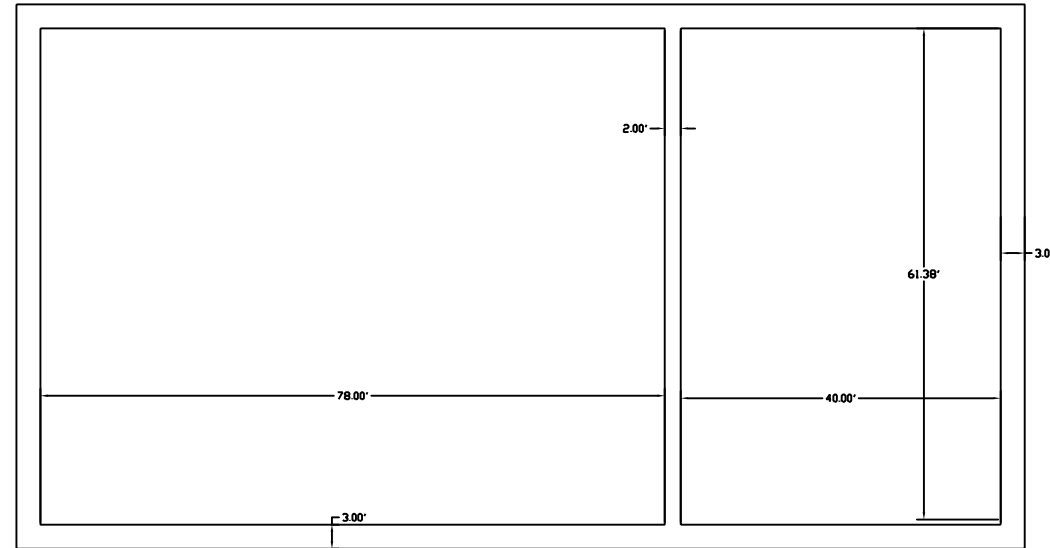
NOTE:

FLOOR DRAIN IS A WATER TIGHT STRUCTURE  
POUR SHOULD BE MONOLYTHIC OR IF IN PHASES,  
WATERSTOP AT ALL COLD JOINTS



EAST END CROSS SECTION

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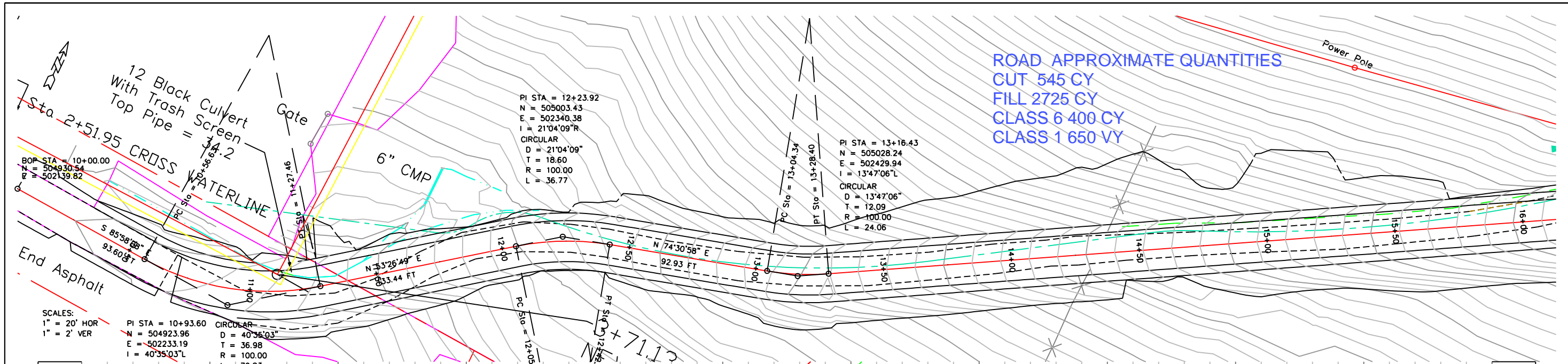
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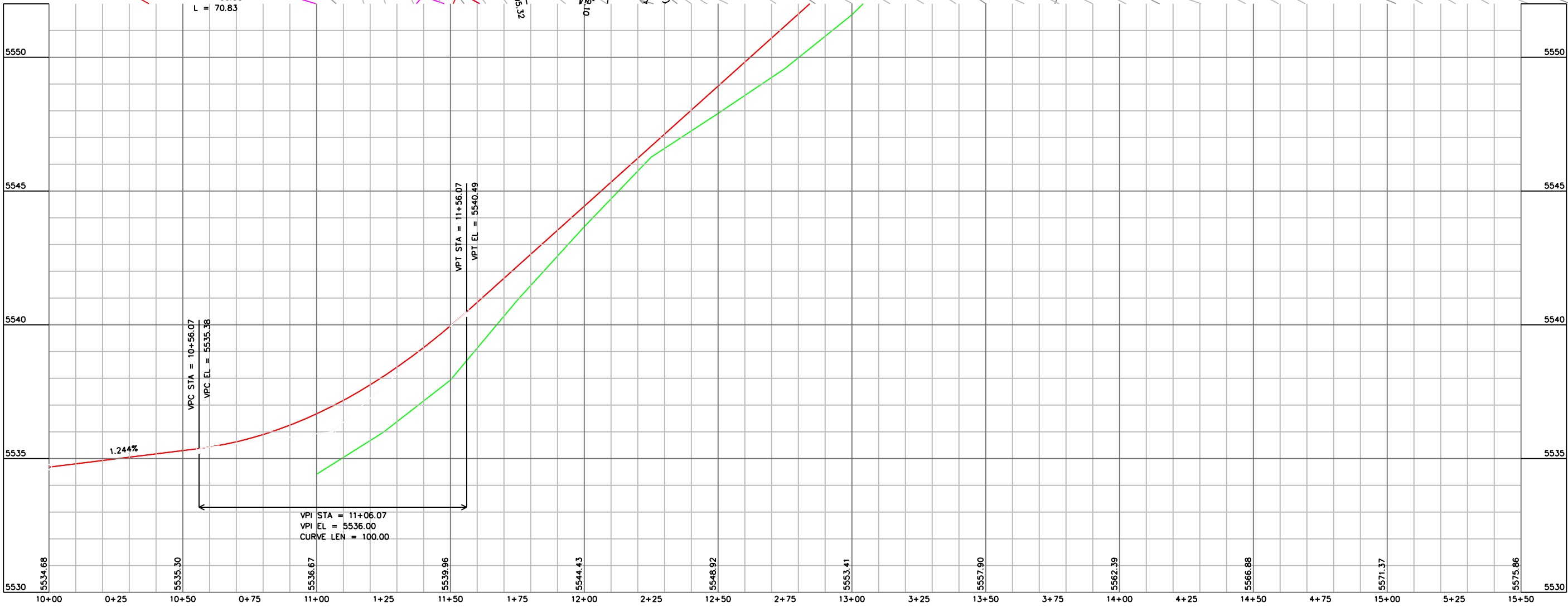
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SCALES:  
1" = 20' HOR  
1" = 2' VER



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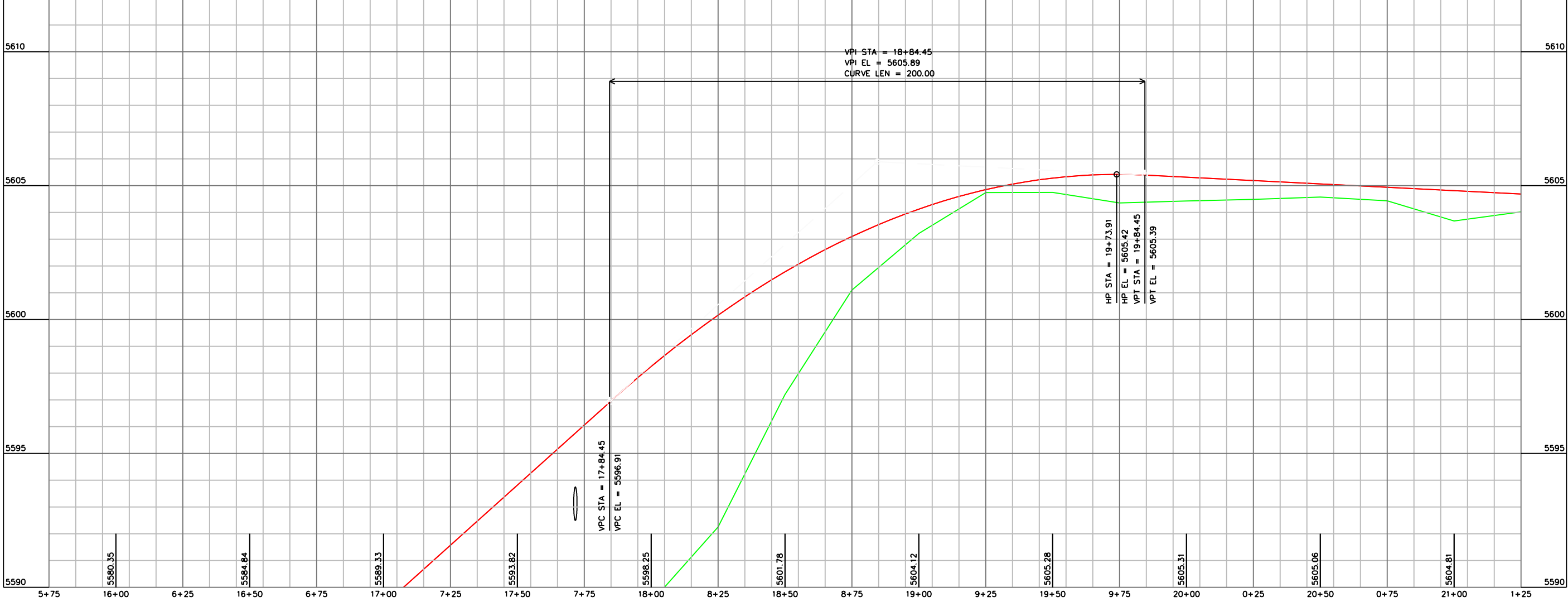
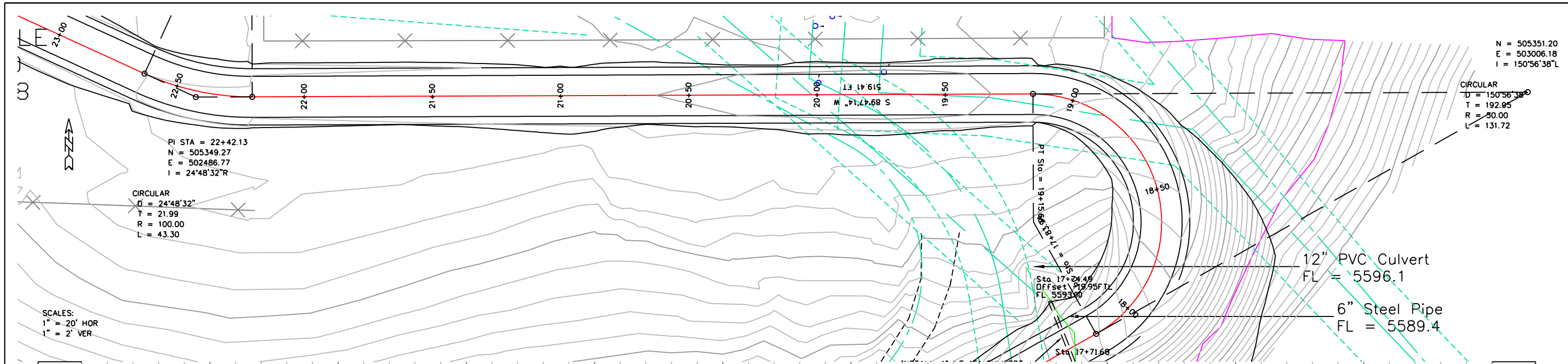
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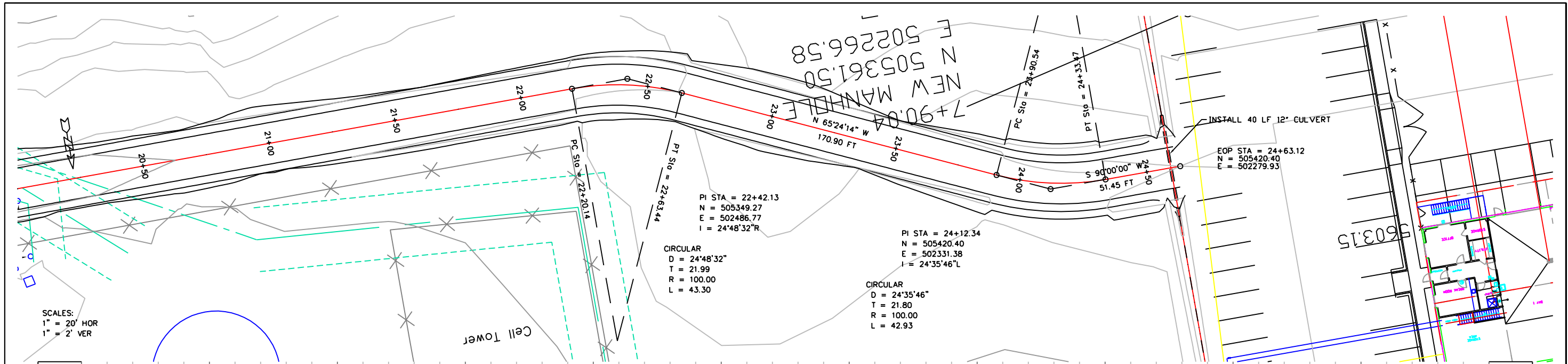
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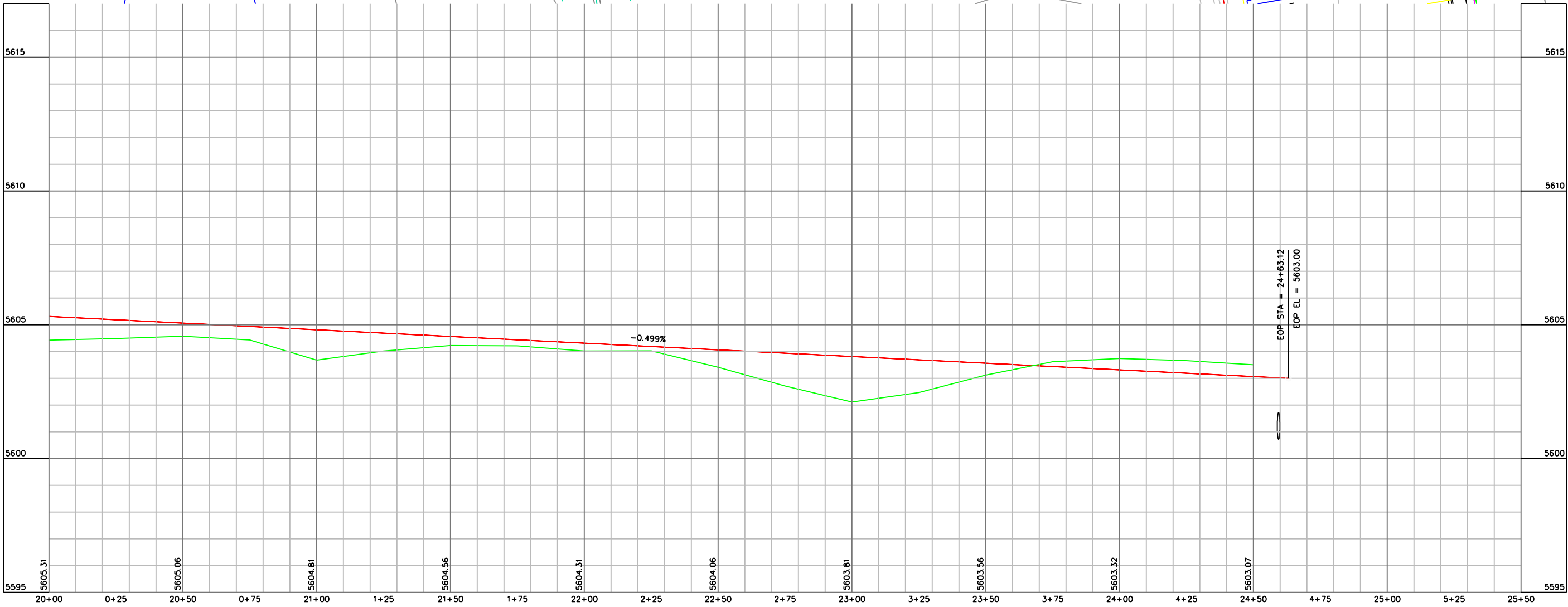
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SCALES:  
1" = 20' HOR  
1" = 2' VER



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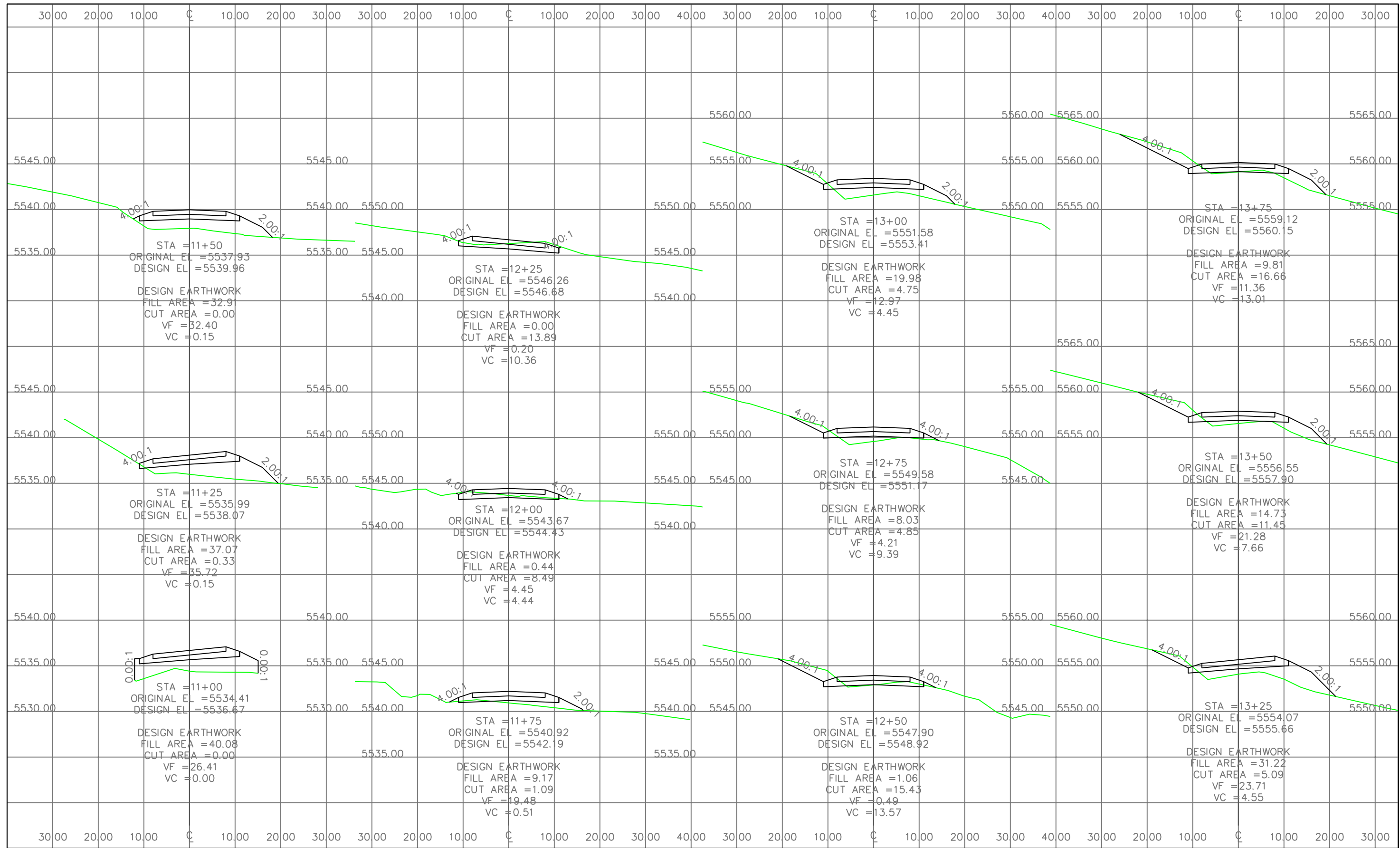
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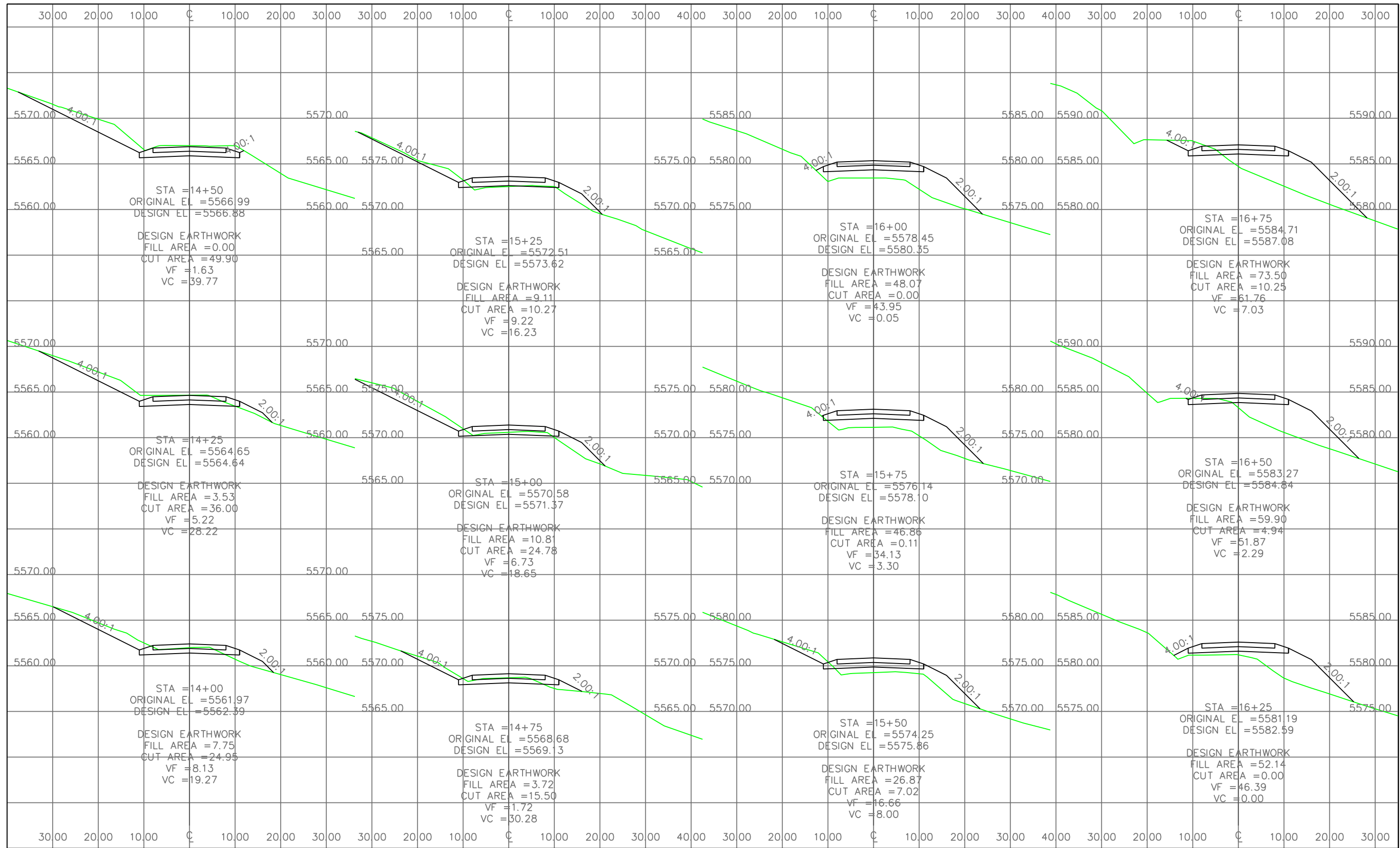
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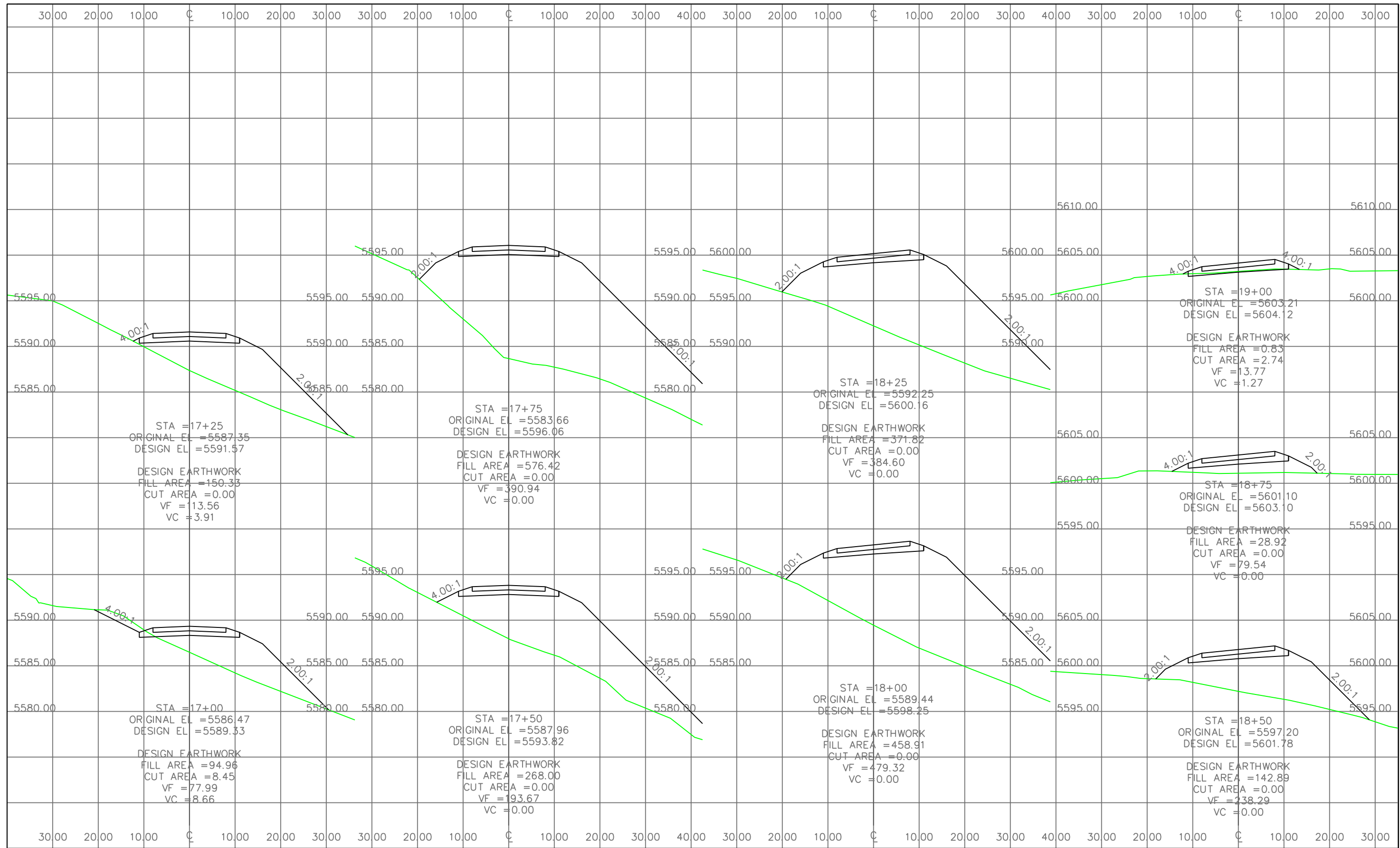
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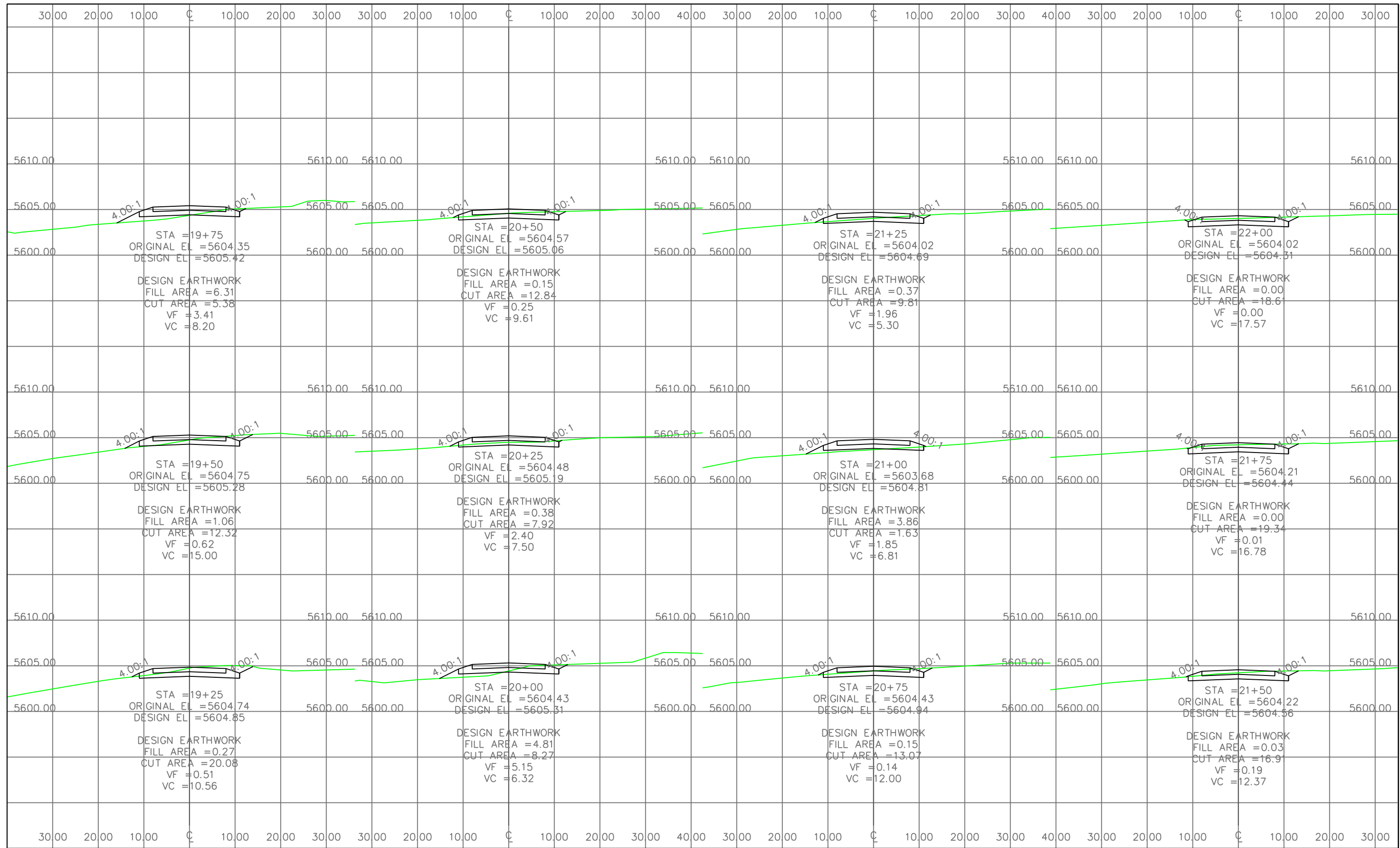
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PUBLIC WORKS FACILITY ACCESS ROAD CROSSECTIONS	
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Detailer:	RA
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Sheet Number C14





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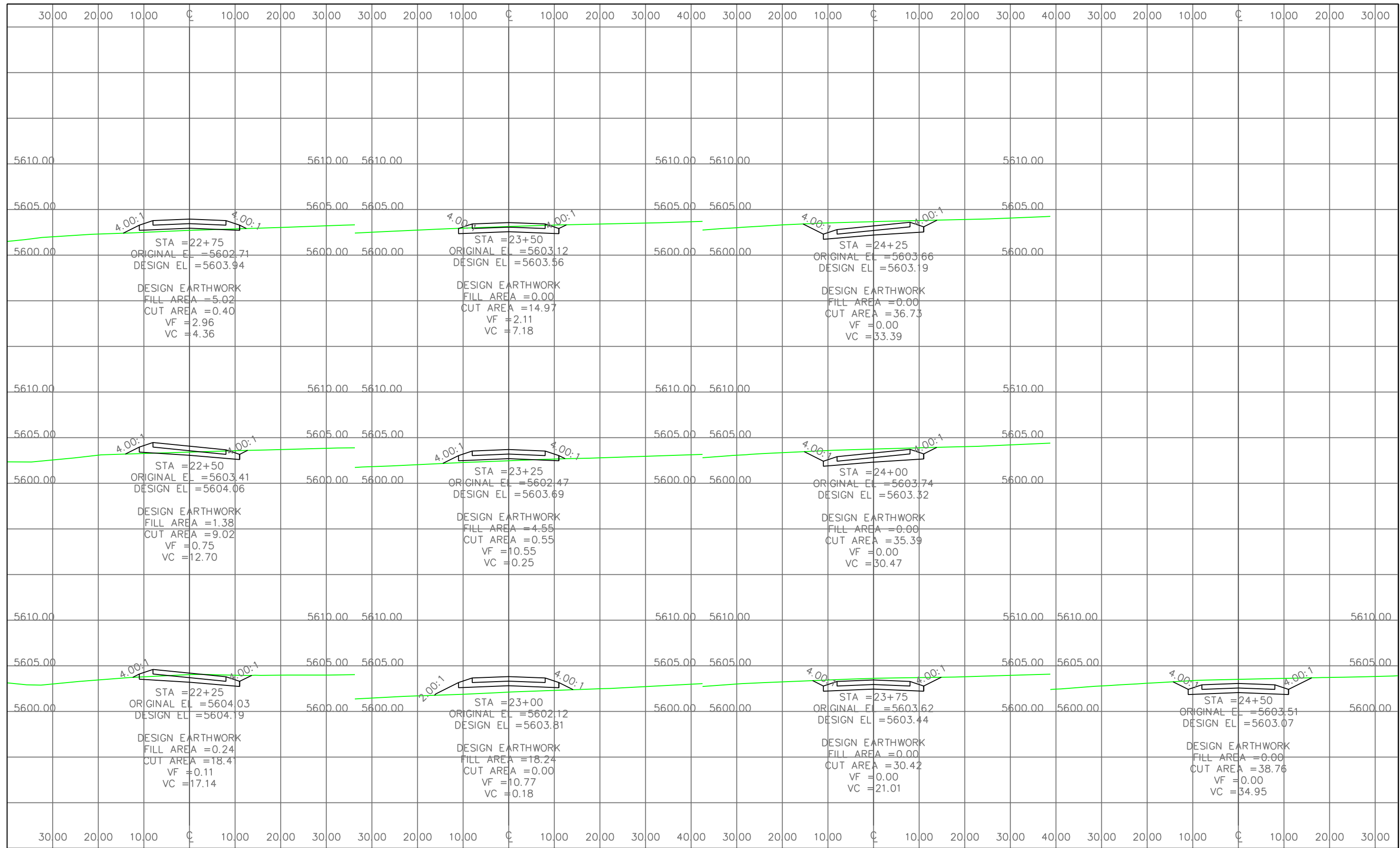
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**CONSOLIDATED CONSULTING SERVICES**  
 Town of Hotchkiss  
 P.O. BOX 1073  
 Ridgway, CO 81432  
 (970) 240-8510 RA

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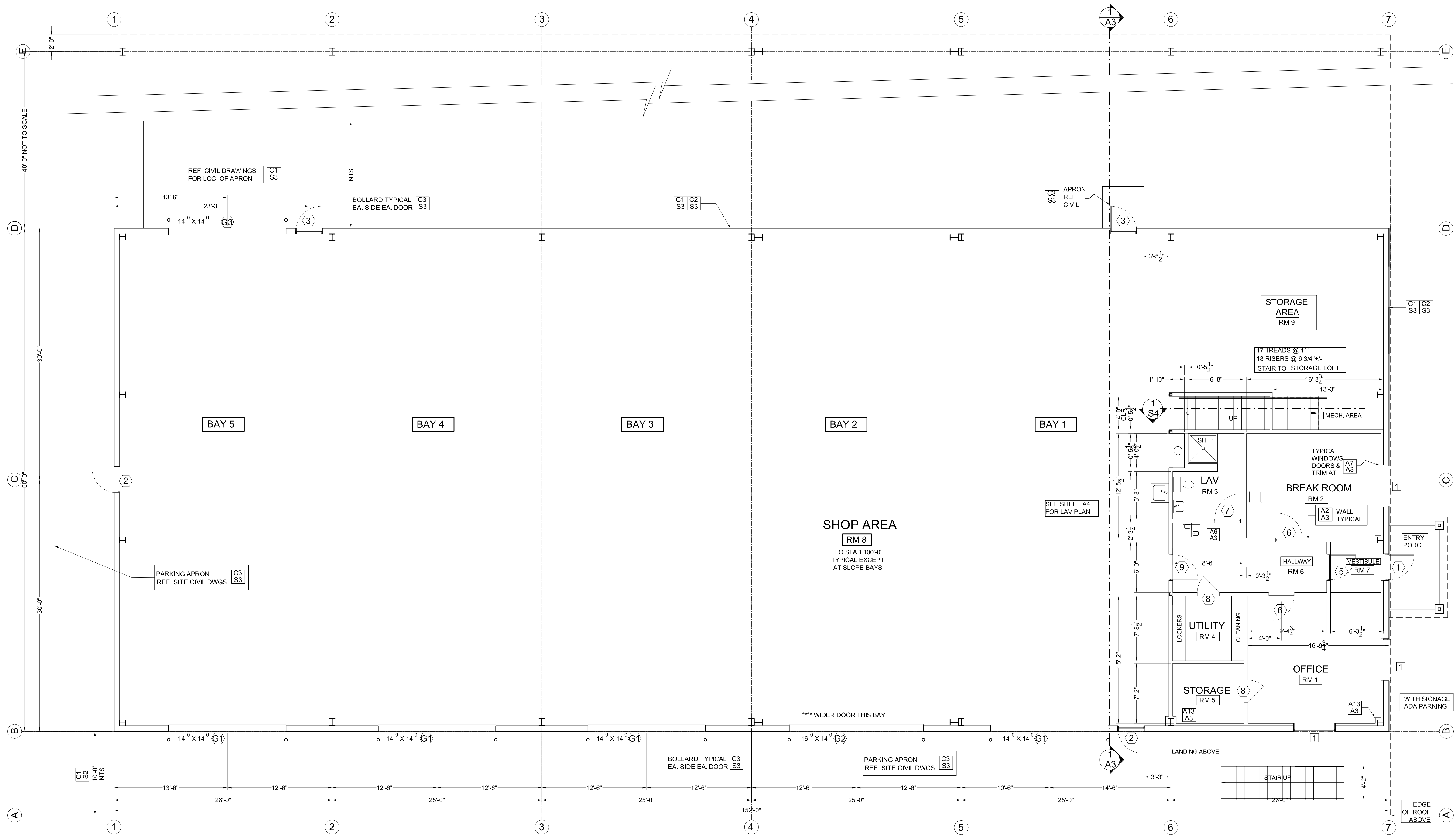
**CONSOLIDATED CONSULTING SERVICES**  
 Town of Hotchkiss  
 P.O. BOX 1073  
 Ridgway, CO 81432  
 (970) 240-8510 RA

P.O. BOX 369  
 Hotchkiss, CO 81419  
 (970) 872-3663

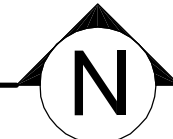
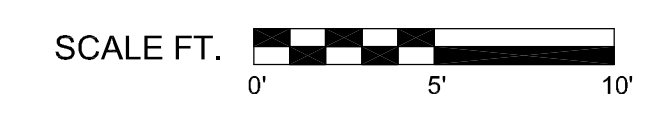
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**SHOP BUILDING - PLAN**



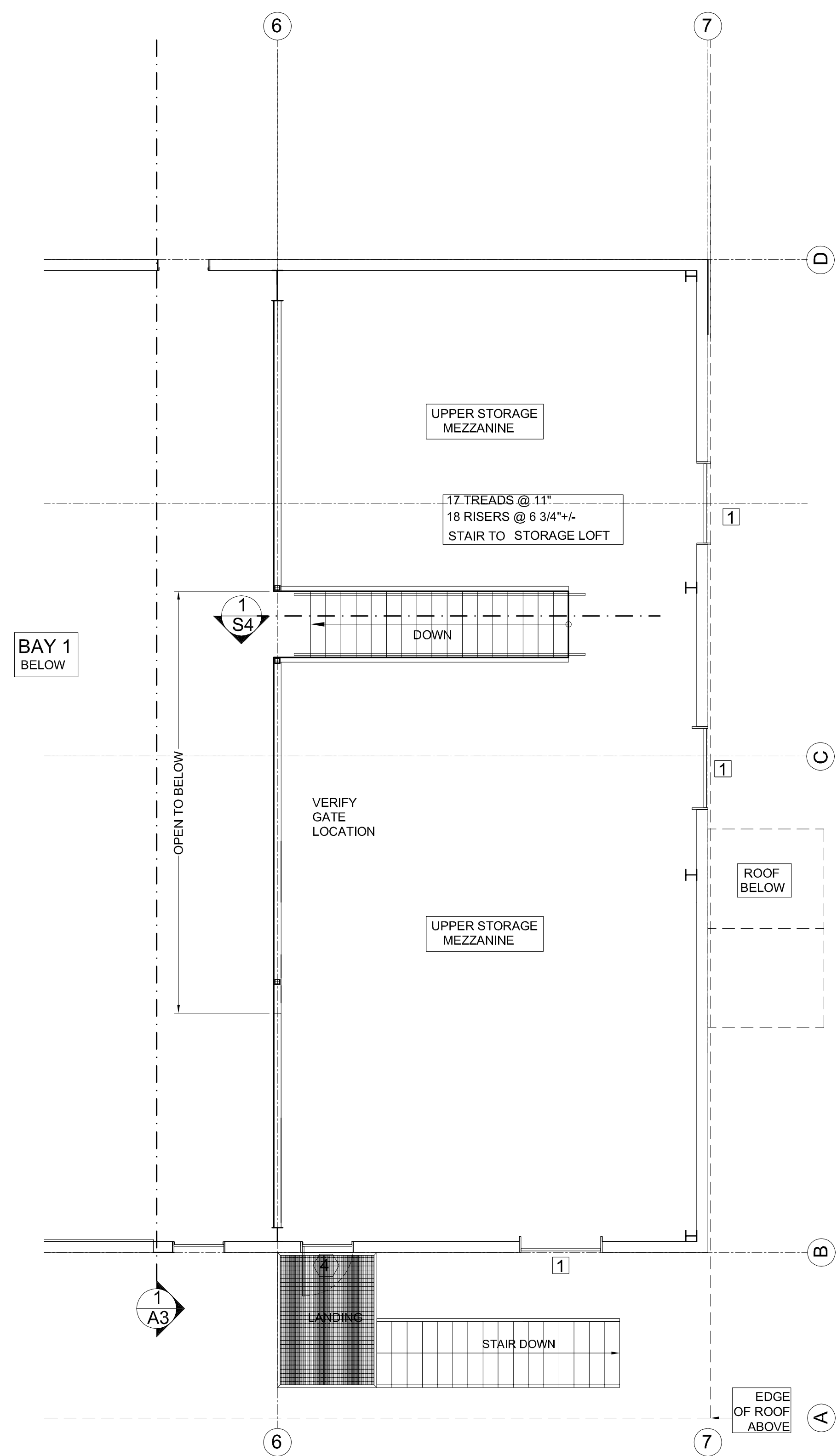
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DRAWING ISSUES	
02/28/19	50% CD
03/20/19	RFP

**PUBLIC WORKS FACILITY**  
TOWN OF HOTCHKISS, COLORADO

**DEAN NICHOLAS BOSWORTH, PE**  
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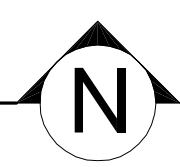
03/20/19  
FLOOR PLAN  
SLAB LEVEL  
**A1-1**



STAIR CONSTRUCTION  
 C12X10.6 STRINGERS  
 1 1/4" SERRATED BAR GRATING TREADS  
 LANDING C 12 X 10.6 PERIMETER CHANNEL  
 TS 4 X 4 COLUMNS

MEZZANINE PLAN - T.O. PLY 110'-0"

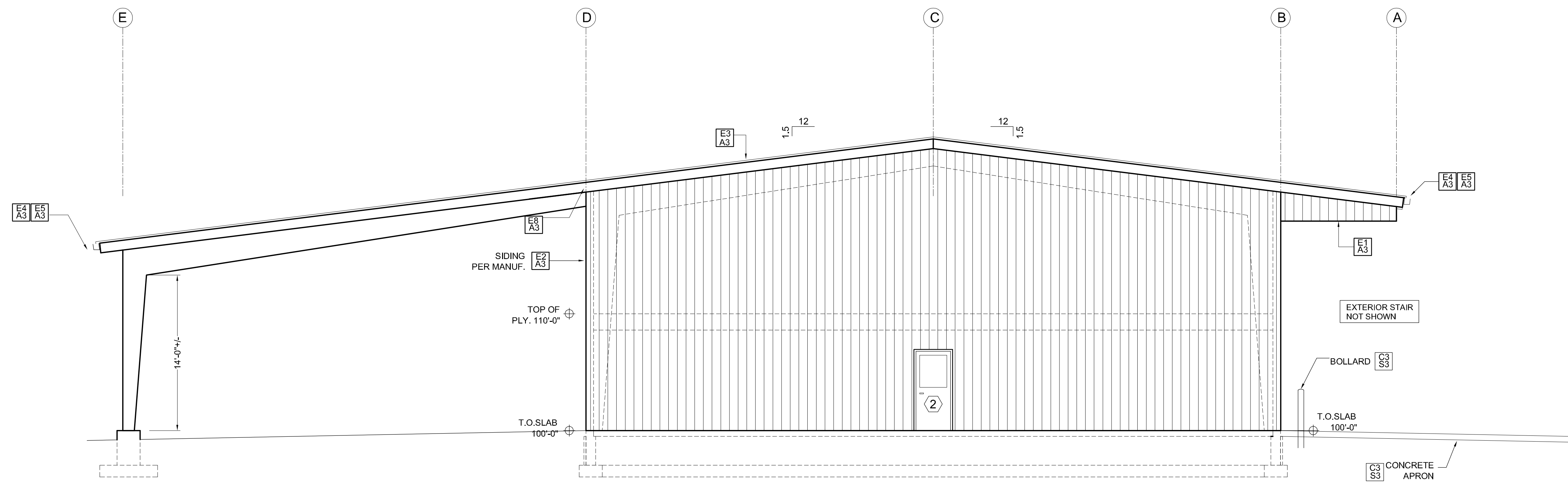
SCALE FT. 0' 5' 10'



NOT FOR CONSTRUCTION - 50% COMPLETION CD - RFP

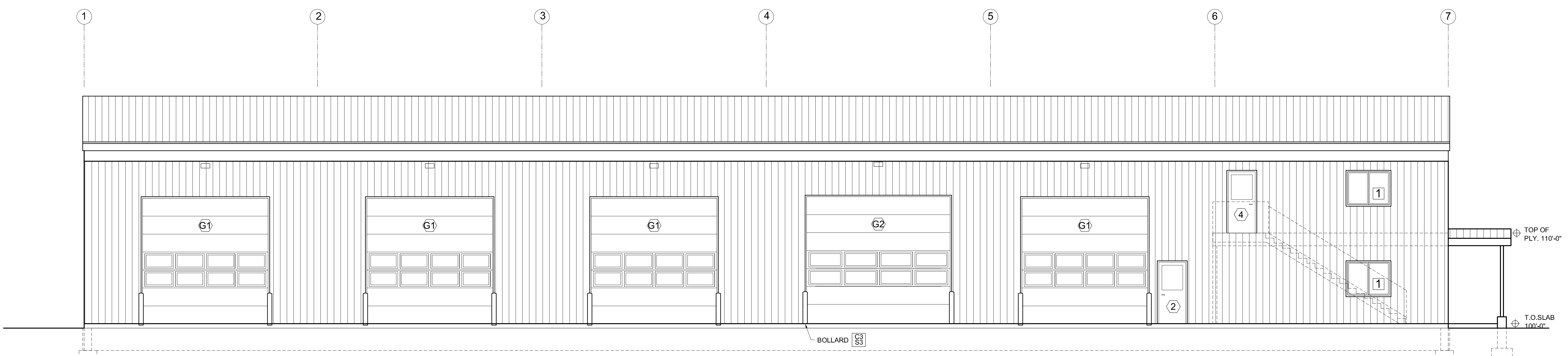
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			FLOOR PLAN
			MEZZ. LEVEL
			<b>A1-2</b>

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**SHOP BUILDING - WEST ELEVATION**

SCALE FT. 0' 5' 10'



REFERENCE WEST ELEVATION FOR TYPICAL NOTES

**SHOP BUILDING - SOUTH ELEVATION**

SCALE FT. 0' 5' 10'

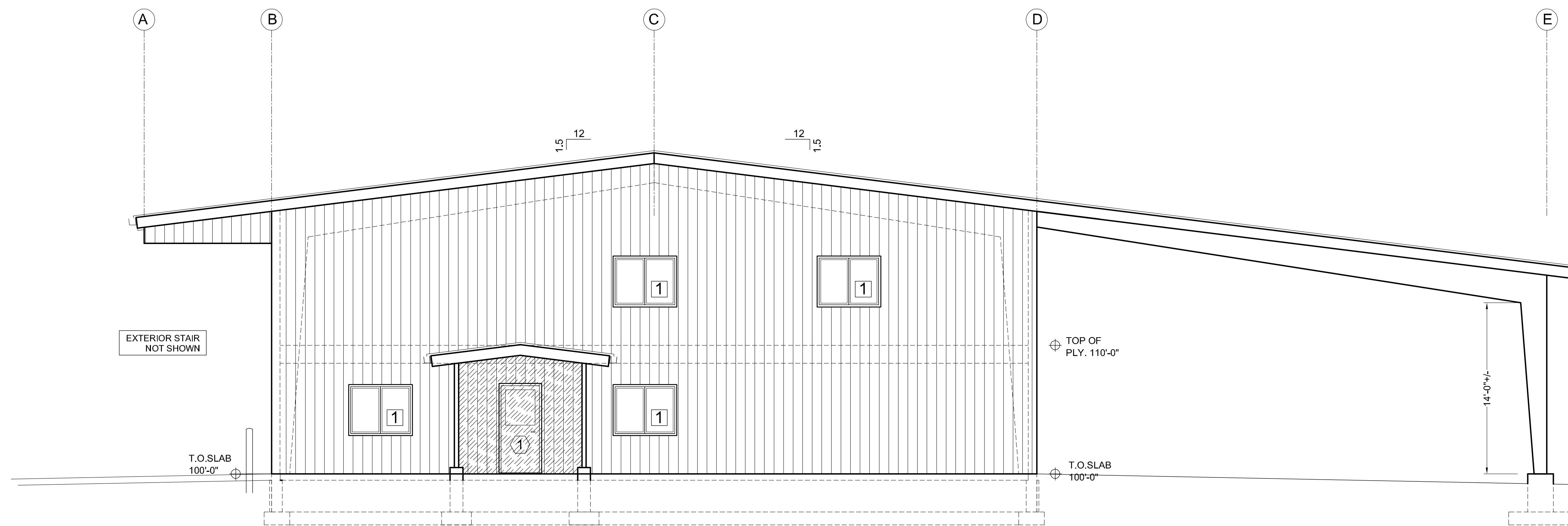
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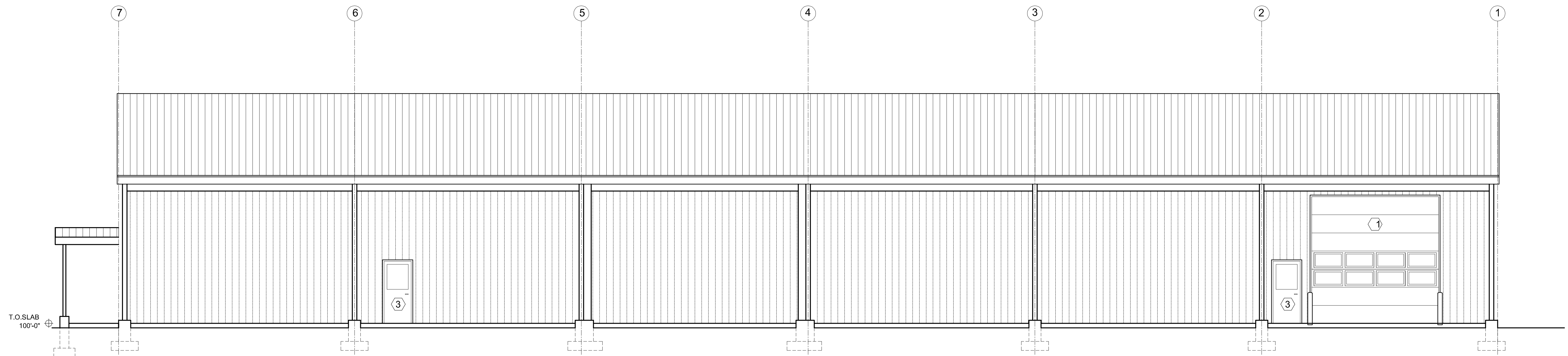
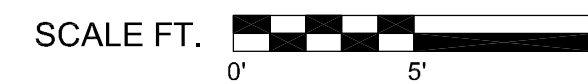
**DEAN NICHOLAS BOSWORTH, PE**  
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03/20/19  
BUILDING ELEVATIONS  
**A2-1**



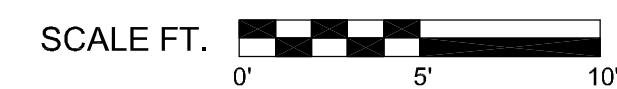
REFERENCE WEST ELEVATION FOR TYPICAL NOTES

### SHOP BUILDING - EAST ELEVATION



REFERENCE WEST ELEVATION FOR TYPICAL NOTES

### SHOP BUILDING - NORTH ELEVATION



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**DRAWING ISSUES**

02/28/19 50% CD  
03/20/19 RFP

**PUBLIC WORKS FACILITY**  
TOWN OF HOTCHKISS, COLORADO

**DEAN NICHOLAS BOSWORTH, PE**  
COLORADO STRUCTURAL ENGINEER

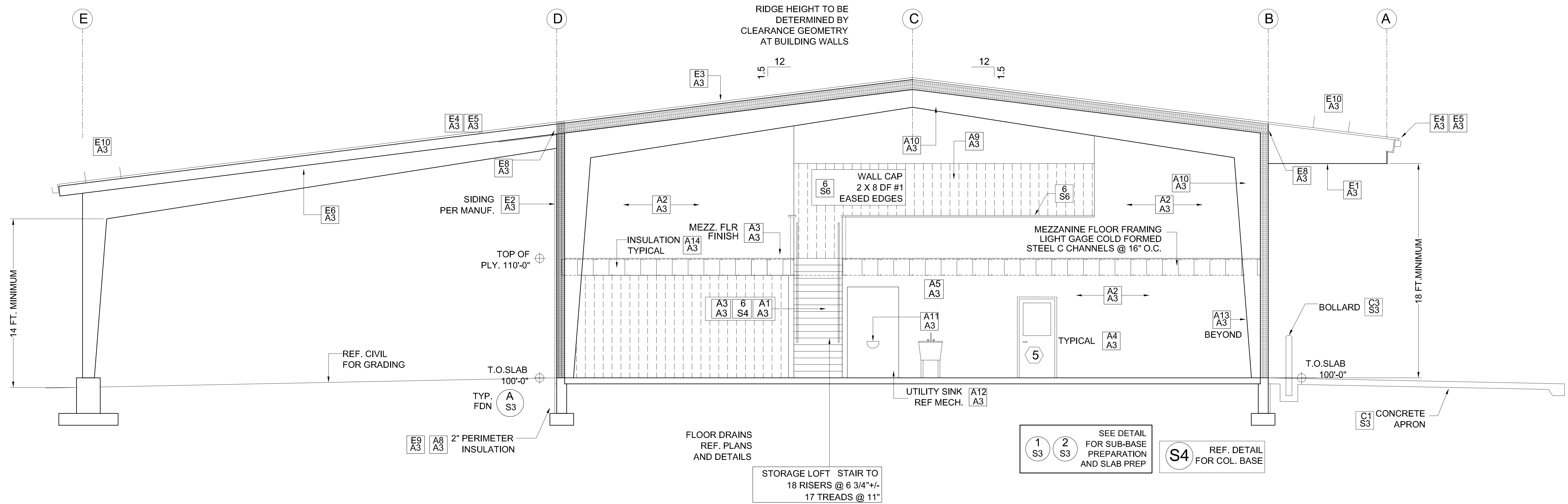
150 ROCKPOINT DRIVE UNIT B  
DURANGO, CO 81301

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dean.bosworth@gmail.com

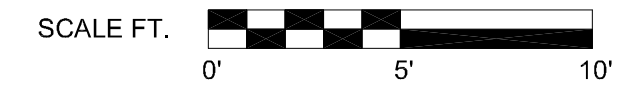
02/28/19

BUILDING  
ELEVATIONS

**A2-2**



# BUILDING TRANSVERSE SECTION



## DRAWING NOTES

- A1 A3** MEZZANINE STAIRS  
MEZZANINE STAIRS - MAX. RISE 6 3/4" MAXIMUM RUN 11" TREAD LENGTH 12" 1" TOE SPACE 3/8" MAX. VARIATION STAIR GEOMETRY SHALL BE ADJUSTED WITHIN THESE PARAMETERS WHEN FINAL ELEVATIONS OF FLOOR SHEATHING AND SLAB ARE KNOWN  
SEE S6 FOR STRUCTURAL REQTS
- A2 A3** MEZZANINE HANDRAIL  
THE GENERAL CODE REQUIREMENTS FOR THE HANDRAIL ARE INCLUDED BELOW. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A HANDRAIL THAT MEETS OR EXCEEDS THESE SPECIFICATIONS INCLUDING ALL BLOCKING AND BRACKETS REQUIRED.  
  
HANDRAIL TO BE LOCATED A MIN. OF 34" AND MAX. OF 38" (36" DETAILED) ABOVE THE NOSING. HANDRAIL HEIGHT ABOVE NOSINGS SHALL NOT VARY MORE THAN A TOTAL OF 3/8"  
  
HANDRAIL SHALL EXTEND (1) TREAD LENGTH AT BOTTOM  
HANDRAIL SHALL RETURN HORIZ. 12 INCHES AT THE TOP  
  
HANDRAILS ARE REQUIRED EACH SIDE OF THE STAIR  
  
HANDRAIL CONSTRUCTION  
1 1/4" MIN. 2" MAX. CIRCULAR GRIPABLE SURFACE  
1 1/2" CLEARANCE TO WALL FINISHES  
HANDRAIL SHALL PROVIDE CONTINUOUS GRIP SURFACE (UNBROKEN)  
SPLICES REQUIRED SHALL BE SEAMLESS  
  
MINIMUM LOADING  
HANDRAIL LOAD 20 PLF (S OCCUP. IBC 1607.7.11)
- A3 A3** TYPICAL INTERIOR WALLS TO BE FRAMED OF 2X4 OR 2X6 METAL STUDS (REF. SPEC) MAXIMUM STUD SPACING 16" O.C., 5/8" DRYWALL, MOISTURE-RESISTANCE DRYWALL SHALL BE USED AT LOCATIONS SUBJECT TO WATER. DRYWALL TO BE INSTALLED TO CODE, TAPED AND TEXTURED. TEXTURE TYPE SHALL BE A NON-SMOOTH FINISH TO BE DETERMINED BY OWNER. PRIME AND PAINT WITH SEMI GLOSS PAINT TO BE DETERMINED BY THE OWNER.  
DRYWALL ENTIRE LAVATOR TO BE MOISTURE-RESISTANT  
R11 INSULATION AT ALL INTERIOR WALLS - COMPATIBLE FOR INTERIOR USE  
INSTALL CEMENT BOARD BACKING BEHIND SHOWERS AND OTHER LOCATIONS WHERE REQUIRED BY MANUFACTURER OR THE IBC.
- A4 A3** MEZZANINE FLOOR FINISH BY OWNER  
STAIR FLOOR FINISH BY OWNER  
VINYL FLOORING UNICLIC MULTIFIT 12" X 24" X 6.5 MIL.  
TRIM OUT ALL DOORS AND MOP BOARDS PER FINISH SPECIFICATIONS
- A5 A3** RECESS FOR EYE WASH.
- A6 A3** COMBINATION ADA WATER FOUNTAIN AND STANDARD FOUNTAIN. INSTALL TO MANUFACTURER SPECIFICATIONS. REF. MECH.
- A7 A3** RETURN TRIM AT WINDOWS AND DOORS TO INTEGRATE WITH TRIM, FLASHING AND MOISTURE-PROOFING FOR EXTERIOR WINDOWS
- A8 A3** PERIMETER INSULATION  
2" RIGID FOAM REF. SPECIFICATIONS
- A9 A3** STEEL INTERIOR LINER PER METAL BUILDING MANUFACTURER PERIMETER OF MAIN FLOOR (EXCEPT) AT OFFICE SPACES WHERE FRAME WALLS EXIST. HEIGHT TO WIND GIRTS (MINIMUM 8 FT. HIGH) AND AT EXTERIOR OF MEZZANINE TO A HEIGHT OF 8 FT.
- A10 A3** STEEL FRAMING SHALL BE PRIMED AND PAINTED PER PROJECT SPECIFICATIONS
- A11 A3** EYEWASH PER OSHA. REF. MECH DWGS
- A12 A3** MOP SINK REF. MECH.
- A13 A3** FRAME AROUND STEEL COLUMNS IN OFFICE SPACES DRYWALL FINISH PER OTHER DETAILS
- A14 A3** INSULATION R30 MIN. FLOOR CAVITY REF. SPECIFICATIONS

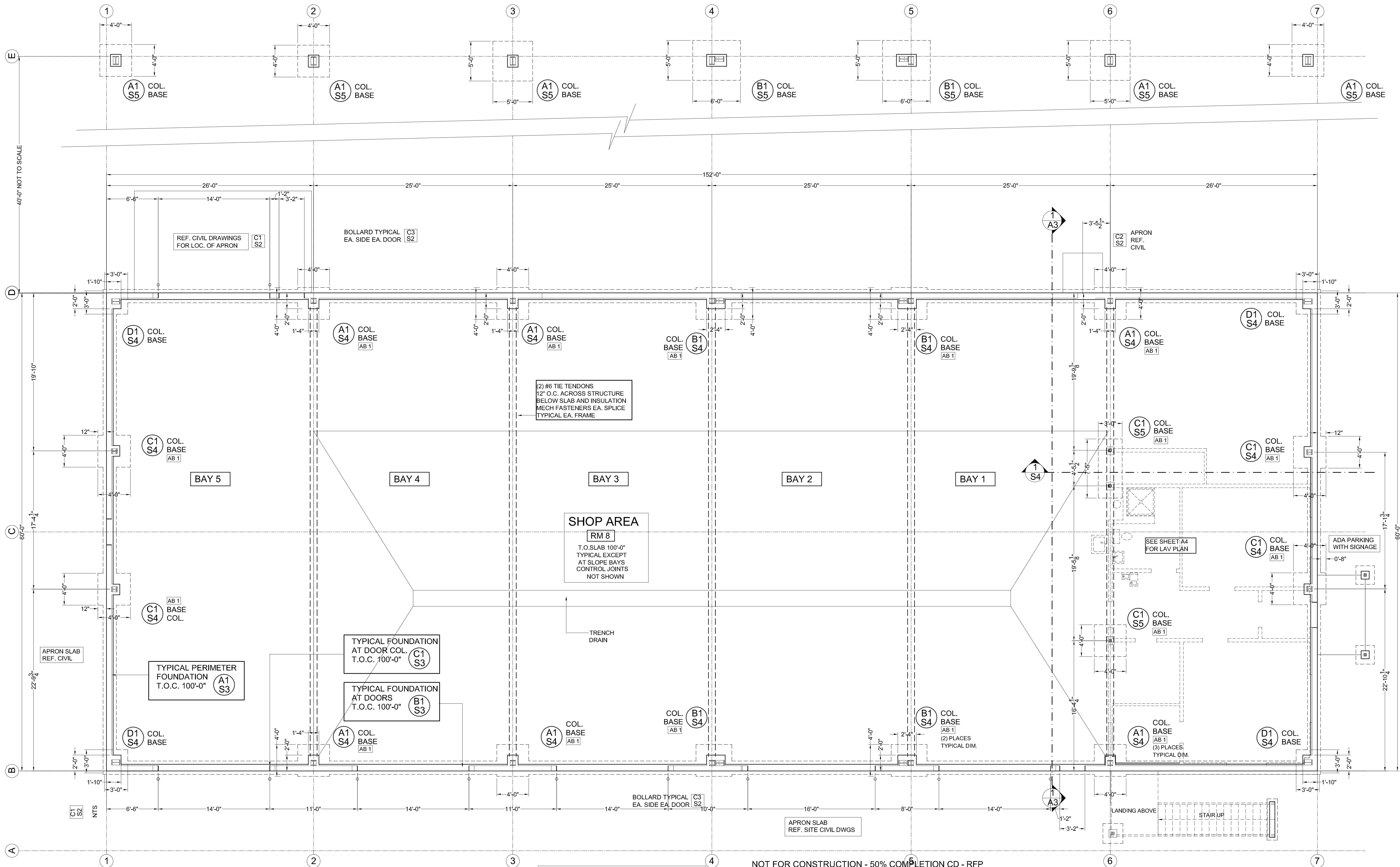
## EXTERIOR NOTES FOR METAL BUILDING PACKAGE

- REF. METAL BUILDING SPECIFICATION NOTES AND MANUF. SHOP DRAWINGS
- ALL EXTERIOR STEEL BUILDING COMPONENTS SHALL BE COMPATIBLE WITH SELECTED STRUCTURAL SYSTEMS, ROOFING SYSTEMS, WALL SYSTEMS AND MISC. TRIM. COLOR TO BE SELECTED BY OWNER AND SHALL MATCH.
- E1 A3** SOFFIT TO BE COVERED WITH STEEL SIDING TO MATCH WALL APPEARANCE.
- E2 A3** EXTERIOR SIDING  
REF. SPECIFICATIONS COLOR TBD FROM STANDARD COLORS
- E3 A3** ROOFING PER STEEL BUILDING MANUF.  
STANDING SEAM  
ROOFING TO BE SPECIFIED FOR SPANS PER BUILDING MANUF.
- E4 A3** FLASHING PER STEEL BUILDING MANUF.  
AS NEEDED FOR A WATER AND DAMP TIGHT INSTALLATION.
- E5 A3** CONTINUOUS RAINGUTTER SOUTH OVERHANG PER MANUF.  
CONTINUOUS RAINGUTTER NORTH OVERHANG PER MANUF.  
DOWNSPOUT EACH END. SLOPE AS REQUIRED.  
INTERMEDIATE DOWNSPOUTS SHALL NOT BE USED.
- E6 A3** ROOFING EXPOSED TO BELOW AT EQUIPMENT AWNING  
ALL STRUCTURAL ELEMENTS TO BE PAINTED
- E8 A3** FLASH AND SEAL AT BEAM PROJECTIONS AS REQUIRED.  
FLASHING TO MATCH SIDING COLOR, INSULATE AND CAULK
- E9 A3** FLASHING OVER INSULATION GALVANIZED 24 GAGE.  
PROFILE TO ACCOMMODATE BASE DETAIL OF BUILDING  
EXTEND MIN. 6 INCHES BELOW FINISHED GRADE  
ATTACH INSULATION TO STEMWALL PER INSUL.MANUF.SPEC.

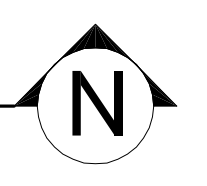
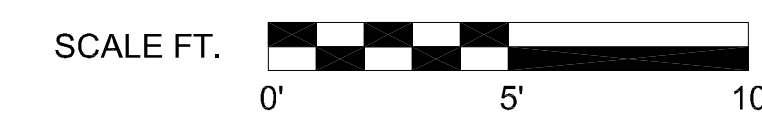
**E10 A3** SNOW CLIPS SHALL BE DESIGNED AND SPECIFIED BY THE METAL BUILDING MANUFACTURE AND SHALL BE CONSISTENT WITH THE STANDING SEAM ROOF. CLIPS SHALL BE INSTALLED AT NORTH AND SOUTH EAVE LINES TO PROTECT RAINGUTTERS.

NOT FOR CONSTRUCTION - 50% COMPLETION CD - RFP

<p><b>DRAWING ISSUES</b></p> <p>02/28/19 50% CD</p> <p>13/20/19 RFP</p>	<p><b>PUBLIC WORKS FACILITY</b></p> <p>TOWN OF OLATHE, COLORADO</p>	<p><b>DEAN NICHOLAS BOSWORTH, PE</b></p> <p>COLORADO STRUCTURAL ENGINEER</p> <p>150 ROCKPOINT DRIVE UNIT B DURANGO, CO 81301</p> <p>970 729 1431 dean.bosworth@gmail.com</p>	<p>03/20/19</p> <p>BUILDING X-SECTION</p> <p><b>A3</b></p>
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# SHOP FOUNDATION PLAN



TYPICAL FOUNDATION AT DOORS	S3 B1
TYPICAL PERIMETER FOUNDATION	S3 A1
TYPICAL SLAB DETAILS	S3 2
TYPICAL EXCAVATION STRUCTURAL FILL/BACKFILL	S3 1

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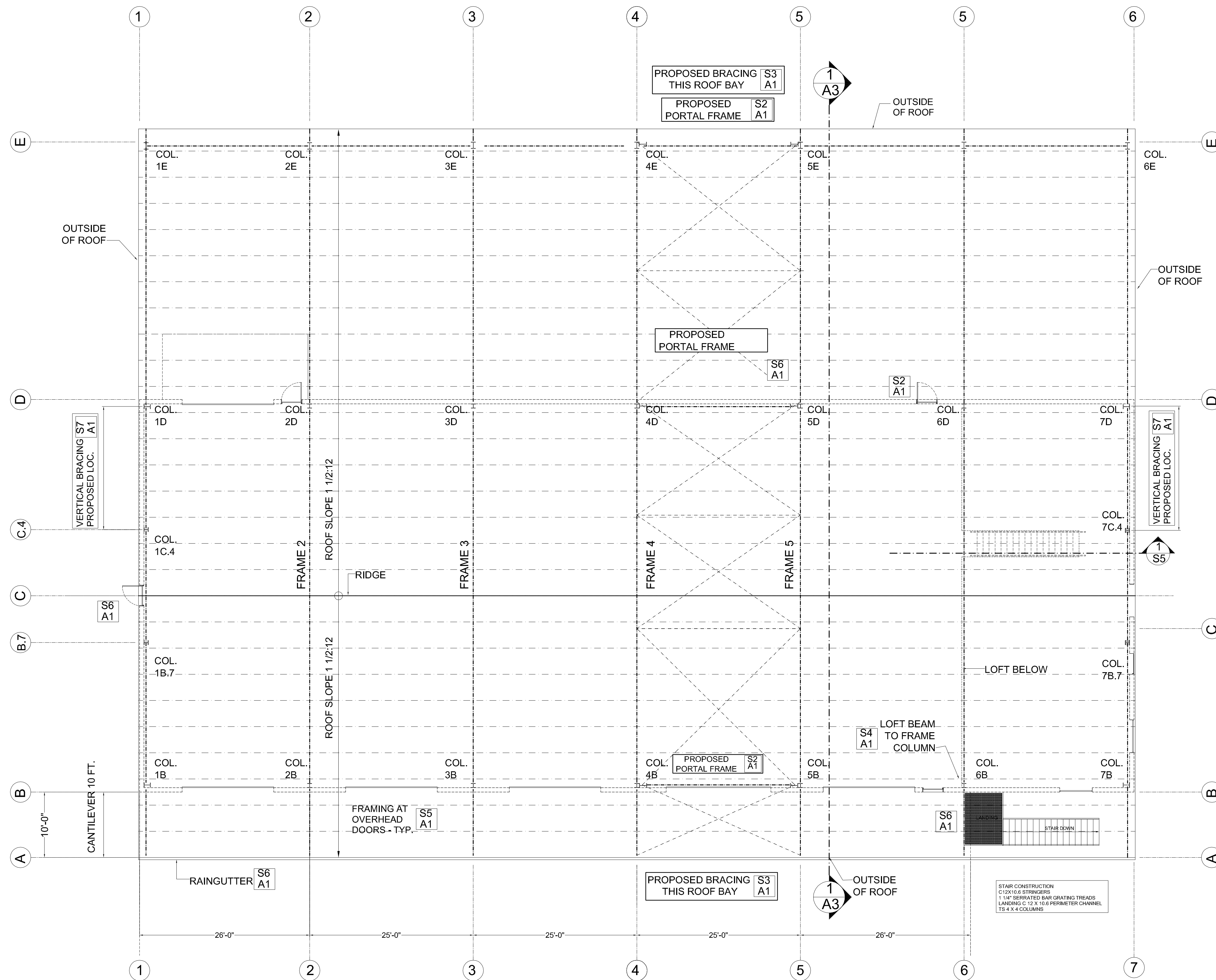
<b>DRAWING ISSUES</b>
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03/20/19 RFP

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TOWN OF HOTCHKISS, COLORADO

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03/20/19  
**FOUNDATION PLAN**  
**S1**





**STEEL BUILDING NOTES**

THIS PLAN IS A SCHEMATIC LAYOUT OF THE ROOF PLAN AND PROPOSED FRAME LOCATIONS, BRACING LOCATIONS AND COLUMN LOCATIONS. THE FINAL LOCATION, SIZES AND DESIGN OF THESE ELEMENTS IS SUBJECT TO THE DESIGN FURNISHED BY THE STEEL BUILDING MANUFACTURER/FABRICATOR.

THE CONTRACTOR IS RESPONSIBLE FOR THE SELECTION OF THE STEEL BUILDING MANUFACTURER/FABRICATOR. REFERENCE PROJECT SPECIFICATIONS.

THE CONTRACTOR SHALL PROVIDE NOTICE TO THE ENGINEER AS SOON AS PRACTICAL IF THE STRUCTURAL LAYOUT SHOWN IS NOT EFFICIENT OR APPLICABLE WITH THE DESIGN INTENT OF THE BUILDING MANUFACTURER. MINOR VARIATIONS IN THE FRAMING LAYOUT WILL RESULT IN MINOR CHANGES TO THE FOUNDATION AND FLOOR PLAN.

THE STEEL BUILDING MANUFACTURER SHALL FURNISH ALL NECESSARY DESIGN, DETAILING, AND MATERIALS FOR THE FOLLOWING ELEMENTS OF THE CONSTRUCTION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL ASPECTS OF THE CONSTRUCTION OF THE METAL BUILDING INCLUDING THE SELECTION OF THE BUILDING ELEMENTS REQUIRED TO COMPLETE THE BUILDING WITHIN THE PROJECT SPECIFICATIONS, INDUSTRY STANDARDS AND GOVERNING CODES. THE CONTRACTOR SHALL INSURE COMPATIBILITY OF ALL METAL BUILDING ELEMENTS ALL DESIGN AND DETAILING SHALL BE UNDER THE DIRECTION AND APPROVAL OF A COLORADO REGISTERED ENGINEER RETAINED BY THE METAL BUILDING MANUFACTURER. REFERENCE PROJECT SPECIFICATIONS FOR SUBMITTAL AND REVIEW PROCESS.

THE FOLLOWING ELEMENTS SHALL BE INCLUDED AS PART OF THE STEEL BUILDING SYSTEM.

- MOMENT STEEL FRAMES INCLUDING BEAMS AND COLUMNS
- ROOF PURLINS AND BEAMS AS REQUIRED
- WALL PURLINS AND WIND COLUMNS AS REQUIRED
- BRACING OR PORTAL FRAMES AS REQUIRED AT LOC. SHOWN
- STEEL STANDING SEAM ROOFING
- RIBBED METAL SIDING
- ALL BASE PLATES AND ANCHOR BOLTS
- VINYL FACED INSULATION AT EXTERIOR WALLS AND ROOF (EXCEPT AT AWNING & OVERHANG)
- EXTERIOR PASSAGE DOORS AND WINDOWS
- SUPERSTRUCTURE FLASHING, SOFFITS AND FASCIAS AS REQUIRED.
- RAINGUTTERS, DOWNSPOUTS AND SNOW CLIPS AT LOCATIONS SHOWN
- SKYLIGHTS AND REQUIRED FRAMING AND FLASHING

ALL STEEL SHALL BE PRIMED AND PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

**SUPERSTRUCTURE DESIGN LOADS**

THE STEEL BUILDING MANUFACTURER SHALL PROVIDE THE NECESSARY STRUCTURAL ELEMENTS EXTERIOR SKIN ELEMENTS AND FLASHING TO PROVIDE A WEATHER-PROOF STRUCTURE TO THE LOADINGS REQUIRED IN THE INTERNATIONAL BUILDING CODE 2015. THE STEEL BUILDING MANUF. SHALL PROVIDE ALL NECESSARY ENGINEERING BY A COLORADO REGISTERED ENGINEER.

THE BUILDING SHALL BE DESIGNED FOR THE FOLLOWING LOADS  
LOADCOMBINATIONS SHALL BE CONSISTENT WITH INDUSTRY PRACTICES AND THE IBC

THE BUILDING SHALL BE DESIGNED FOR THE FOLLOWING STRUCTURAL LOADS  
SNOW LOAD 40 PSF (ROOF)  
WIND LOAD 115 MPH 3 SEC. GUST  
SEISMIC ZONE TO BE DETERMINED  
MEZZANINE 125 PSF  
COLLATERAL LOADS (INTERIOR CEILING, MECH, ETC) 10 PSF  
LOAD COMBINATIONS SHALL BE CONSISTENT WITH INDUSTRY PRACTICES AND THE IBC

THE FOUNDATION WAS DESIGNED BY THE PROJECT STRUCTURAL ENGINEER USING THE FOLLOWING MAXIMUM REACTIONS. IF FINAL DESIGN REACTIONS, PROVIDED BY THE DESIGN ENGINEER FOR THE STEEL BUILDING EXCEED THESE AMOUNTS THE STRUCTURAL ENGINEER SHALL BE CONTACTED IMMEDIATELY TO PROVIDE A MODIFIED FOUNDATION DESIGN AS NEEDED.

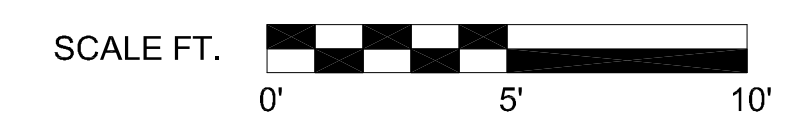
**ASSUMED MAXIMUM ESTIMATED STRUCTURAL LOADINGS UNFACTORED LOADINGS**

COLUMN	HORIZ. (KIP)	VERTICAL (KIP)	UPLIFT (KIP)	
2B 3B 4B 5B 6B	X	X	X	HORIZ. THRUST LOAD CONTROLS
2D 3D 4D 5D 6D	X	X	X	HORIZ. THRUST LOAD CONTROLS
1B 7B 1D 7D	X	X	X	
1B.7 7B.7 1C.4 7C.4	X	X	X	
1E 7E 2E 3E 6E 4E 5E	X	X	X	

**STEEL BUILDING NOTES**

- S1** SOLAR LIGHT TUBES SHALL BE INSTALLED AT THE LOC. SHOWN ON THE PLANS. FRAMING SHALL BE DESIGNED TO SUPPORT EDGE OF ROOFING, WEATHER-PROOFING AND LIGHT TUBES. MINOR VARIATIONS IN LOCATION ARE PERMITTED TO FACILITATE STRUCTURAL ELEMENTS LIGHT TUBES SHALL BE VELUX MODEL #TGF 022 0000E0 22" DIAMETER, WITH ACCESSORIES REQ'D FOR INSTALLATION
- S2** PORTAL FRAME TO BE USED IN THIS BASE IN PLACE OF X-BRACING.
- S3** PROPOSED LOCATION OF ROOF PLANE BRACING. FINAL LOCATION, DETAILS AND MEMBERS SHALL BE DETERMINED BY THE METAL BUILDING FABRICATOR ENGINEER.
- S4** SUPPORT MEZZANINE BEAM ON FRAME COLUMN. DESIGN FRAME COLUMN TO SUPPORT ADDITIONAL LOADS. SEE SHEET S4 FOR LOFT FRAMING
- S5** TYPICAL OVERHEAD DOOR. METAL BUILDING MANUF. TO PROVIDE NECESSARY HEADERS, STEEL TRIM TO MATCH SIDING, REQUIRED FLASHING. COORD. DIM. WITH DOOR MANF.
- S6** ALL EXTERIOR PASSAGE DOORS SHALL BE FURNISHED BY METAL BUILDING MANUFACTURER. DOORS SHALL MEET THE REQUIRED MINIMUM SPECIFICATIONS IN THE SPECIFICATIONS METAL BUILDING MANUFACTURER TO PROVIDE NECESSARY HEADERS, STEEL TRIM TO MATCH SIDING AND REQUIRED FLASHING AS REQUIRED FOR A WEATHERTIGHT INSTALL
- S7** PROPOSED LOCATION FOR VERTICAL STEEL X-BRACING IN THIS BAY. FINAL LOCATION, DETAILS AND MEMBERS SHALL BE DETERMINED BY THE METAL BUILDING MANUFACTURER'S DESIGN ENGINEER.

**SHOP BUILDING - PLAN - BUILDING OVERVIEW-SCHEMATIC STRUCTURAL**



DOOR AND WINDOW SCHEDULE SHEET A2-1  
FLOOR PLAN SHEET A1-2  
BUILDING ELEVATIONS SHEET A2  
BUILDING SECTION SHEET A3

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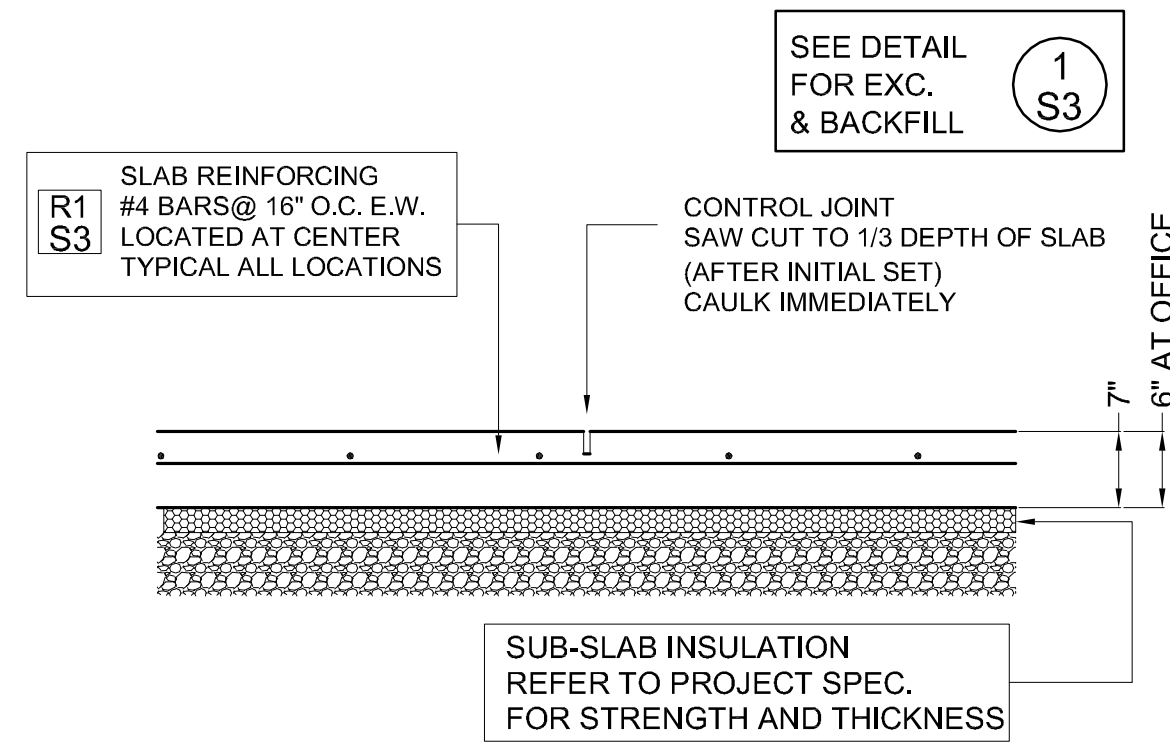
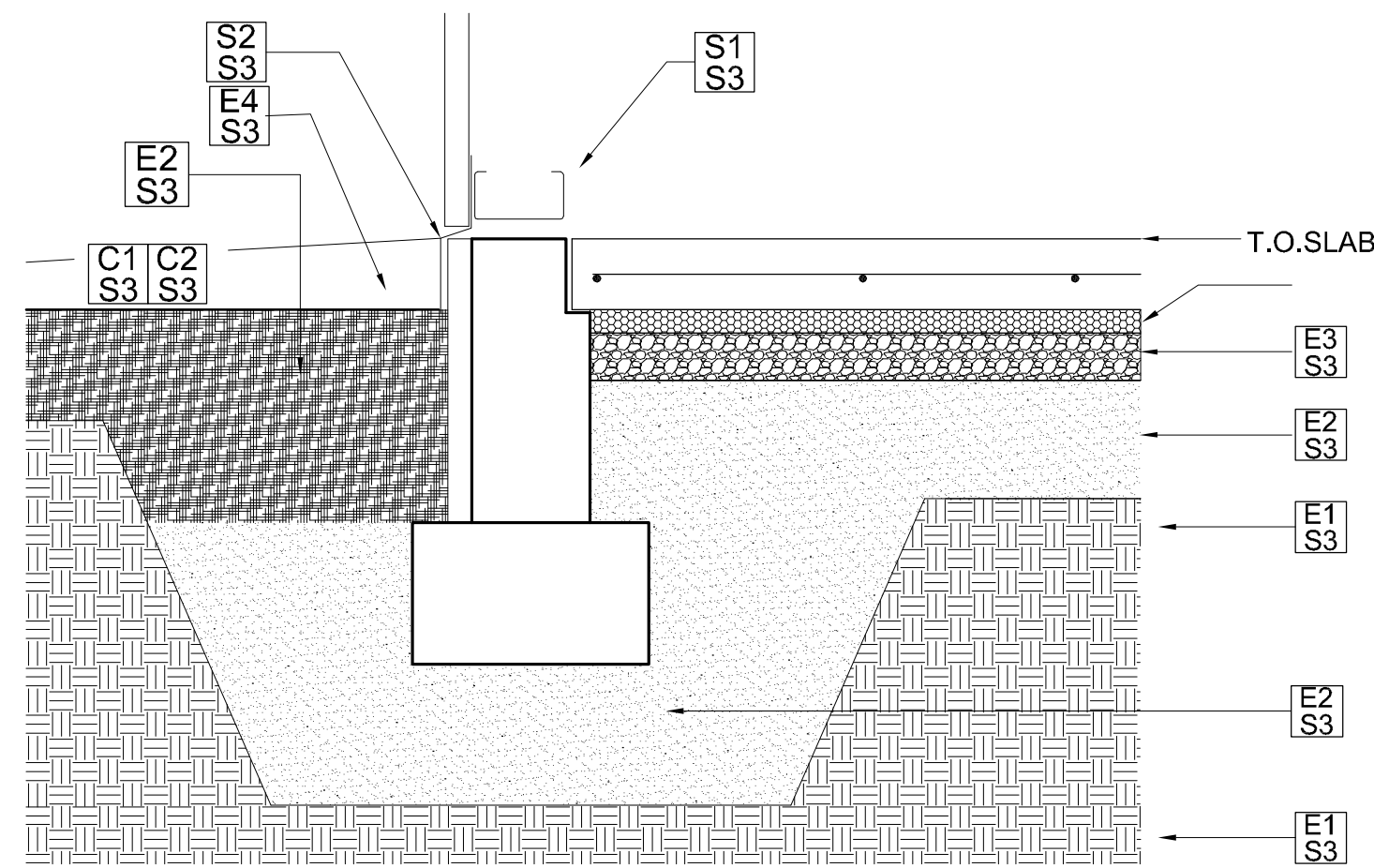
DRAWING ISSUES
02/28/19 50% CD
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**PUBLIC WORKS FACILITY**  
TOWN OF HOTCHKISS, COLORADO

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COLORADO STRUCTURAL ENGINEER  
150 ROCKPOINT DRIVE UNIT B  
DURANGO, CO 81301

03/20/19  
FRAMING  
PLAN  
**S2**

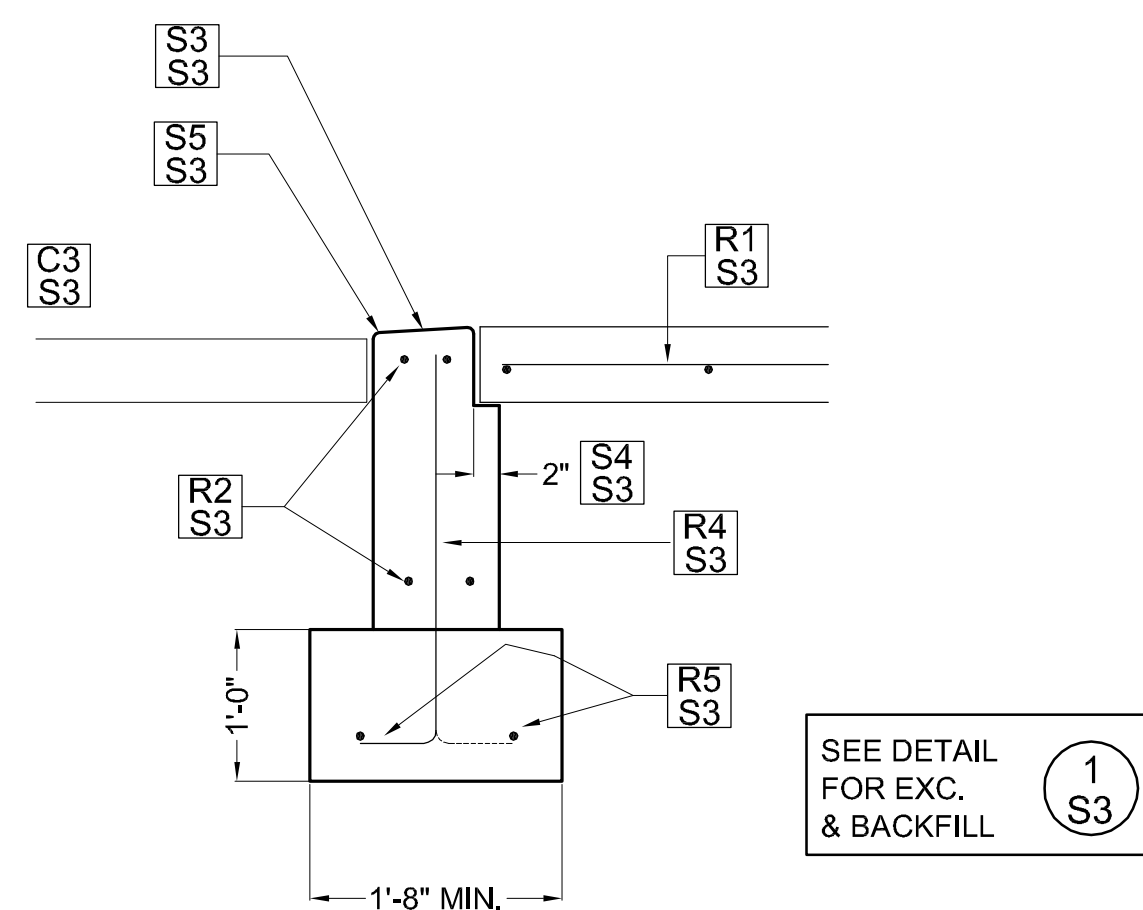
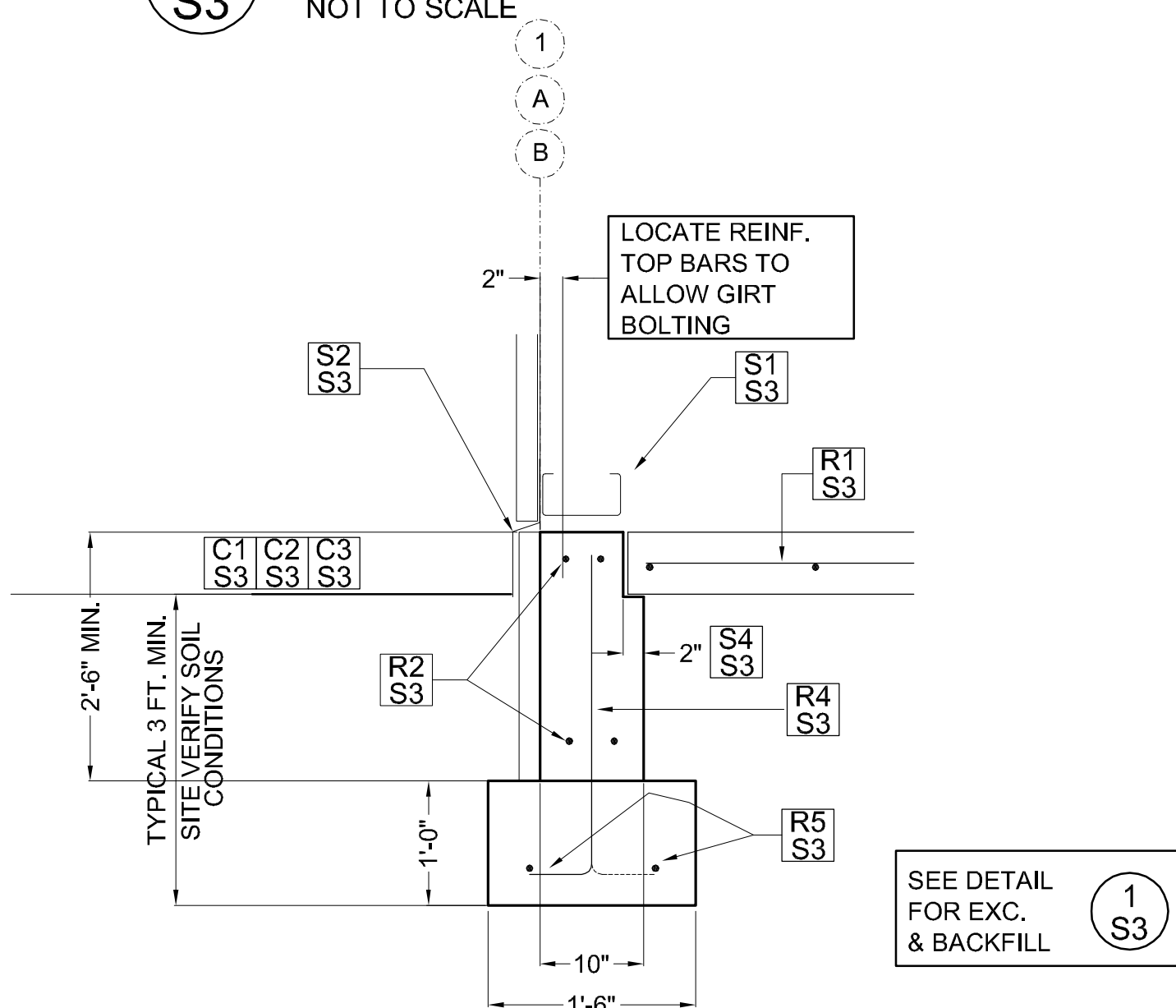
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dean.bosworth@gmail.com



- S1 REFER TO METAL BUILDING DETAILS FOR ATTACHMENT BOLTING REQUIREMENTS OF GIRTS TO FOUNDATION AS REQUIRED
- S2 REFER TO FINAL SUBMITTED AND REVIEWED SHOP DRAWINGS
- S3 FLASHING OVER PERIMETER INSULATION REFER TO ARCHITECTURAL DRAWINGS FLASHING GEOMETRY AND MATERIAL SHALL BE SELECTED APPROPRIATE FOR THE CONDITIONS AT THOSE LOCATIONS IN THE BUILDING AND MAY VARY
- S4 SLOPE TOP OF FOUNDATION AT DOOR FOR DRAINAGE. MIN. OF 1/4"
- S5 2" CONTINUOUS LEDGE. T.O. LEDGE 6" BELOW T.O. SLAB ALL LOCATIONS (VARIES W/ T.O. SLAB)
- S6 1/2" TOOLED EDGE AT EXPOSED SLAB EDGES
- S7 TYPICAL STEMWALL REINFORCING CONT. THRU COLUMN PEDESTALS
- S8 SUB-SLAB INSULATION PER ARCHITECTURAL PLANS

**1**  
S3 EXCAVATION/BACKFILL DETAILS  
NOT TO SCALE

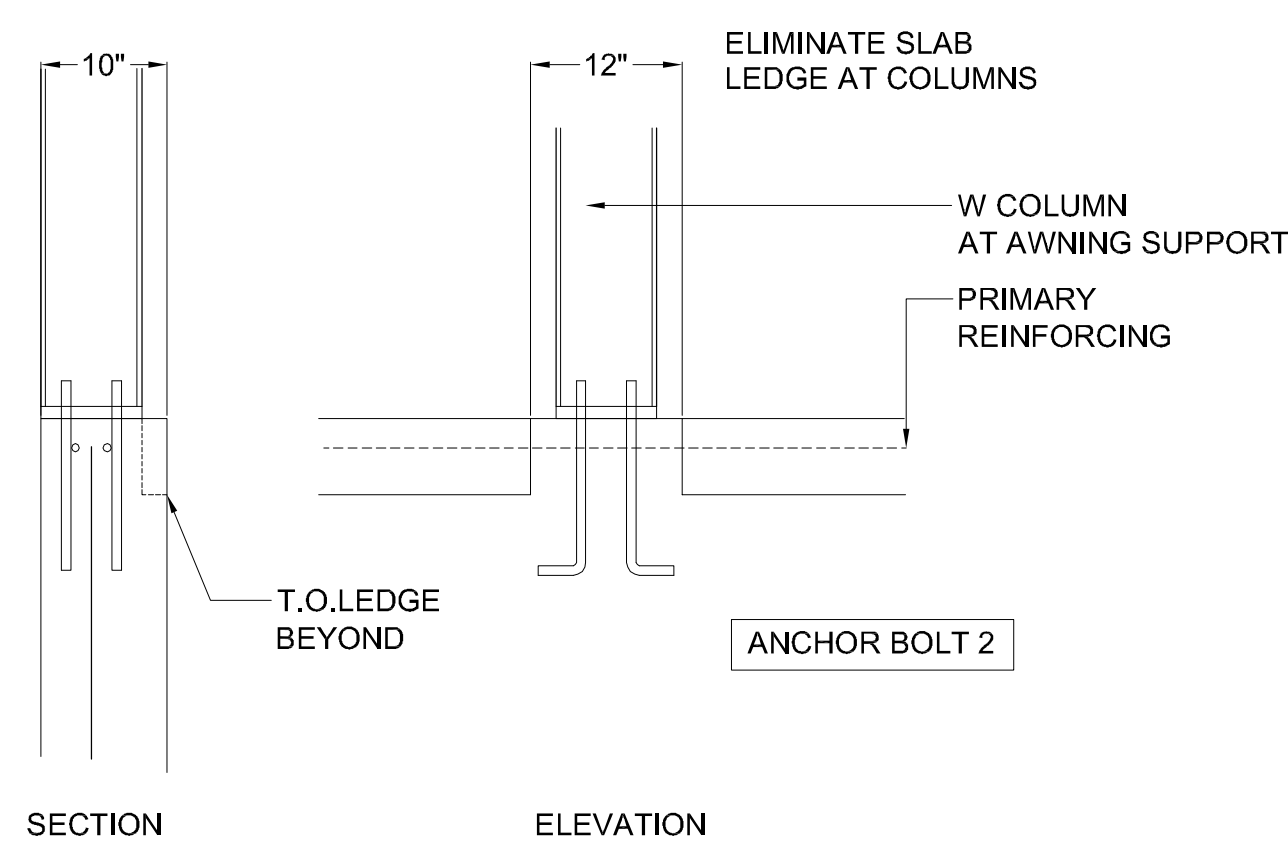
**2**  
S3 TYPICAL SLAB DETAIL  
NOT TO SCALE



- E1 PREPARATION FOR STRUCTURAL FILL REF. PROJECT GEOTECHNICAL INVESTIGATION REMOVE LOOSE MATERIAL AND ORGANICS SCARIFY AND PROOF COMPACT
- E2 STRUCTURAL FILL CDOT CLASS 6 (OR APPROVED EQUAL) 95% MODIFIED PROCTOR COMPACTION 12" MINIMUM BELOW ALL SLABS (ALL FILL TO UNDIST. SOILS TO BE STRUCTURAL FILL) 8" MINIMUM BELOW ALL FOOTINGS 8" MINIMUM FILL PLACEMENT BEYOND FOOTING EDGES
- E3 4" MIN. 3/4" WASHED OR SCREEN ROCK BELOW ALL CONCRETE FOR LEVELING COURSE AND CAPILLARY BREAK FROM GROUND WATER. PLATE VIBRATE IN PLACE
- E4 PERIMETER BACKFILL REF. CIVIL DWGS SEE CIVIL DRAWINGS FOR SLAB AND LANDSCAPE LOC. REF. PROJECT SPECIFICATIONS
- C1 SLOPE FINISHED GRADE FROM STRUCTURE REFERENCE SITE PLAN FOR GRADING AND LOCATIONS OF EXTERIOR FLATWORK
- C2 MAINTAIN MIN. 6" T.O. SLAB TO GRADE AT LOCATIONS WITHOUT FLATWORK
- C3 PARKING/ACCESS/SIDEWALK SLABS REF. CIVIL ENGINEERING DRAWINGS

**A1**  
S3 TYPICAL PERIMETER FOUNDATION  
NOT TO SCALE

**B1**  
S3 FOUNDATION AT OVERHEAD DOORS  
NOT TO SCALE



REINFORCING SCHEDULE		TYPICAL REINFORCING PLACEMENT	BOLT SCHEDULE	
R1 S3	TYPICAL SLAB REINFORCING #4 BARS @ 16" O.C. E.W. AT SLAB CENTER	<p>COLUMN TIES</p> <p>REF. METAL BUILDING SHOP DRAWINGS FOR BOLT LOCATIONS, BOLT SIZE, EMBEDMENT &amp; PROJECTION. VERIFY COMPATIBILITY OF DETAIL PRIOR TO CONCRETE PLACEMENT</p>	<b>AB 1</b> 3/4" X 18 ANCHOR BOLT - 3" PROJECTION ASTM A36 ASTM A563 NUT AND USS FLAT WASHER 3" HORIZ. LEG	
R2 S3	(2) #5 HORIZ. BARS CONTINUOUS PROVIDE CORNER BARS TOP AND BOTTOM			<b>AB 2</b> 3/4" X 15 ANCHOR BOLT - 3" PROJECTION ASTM A36 ASTM A563 NUT AND USS FLAT WASHER 3" HORIZ. LEG
R3 S3	#5 HORIZ. BARS CONTINUOUS PROVIDE CORNER BARS			
R4 S3	#4 VERTICAL BARS @ 16" O.C. VERTICAL LEG & 6" HOOK AS SHOWN 3" CLR FROM BOTTOM OF SLAB		<b>AB 3</b> 1/2" X 12 ANCHOR BOLT - 2 1/2" PROJECTION ASTM A36 ASTM A563 NUT AND USS FLAT WASHER 2" HORIZ. LEG	
R5 S3	#4 HORIZ. BARS CONTINUOUS PROVIDE CORNER BARS			
R6 S3	#4 TIES @ 8" O.C. VERT. SPACING GEOMETRY AS REQ'D TO ENCASE VERTICAL BARS AND ANCHOR BOLTS AS SHOWN			
R7 S3	BOTTOM REINF AT FOOTING PADS #5 BARS @ 8" O.C. E.W. 3" CLR FROM GRADE			
R8 S3	TOP REINF AT FOOTING PADS #5 BARS @ 12" O.C. E.W. 3" CLR FROM GRADE			
R9 S3	#4 VERT. BARS ENCASE IN TIES 8" LEG TO BOTTOM MAT			
R10 S3	#4 TIES (3) @ 6" O.C. ENCASE ANC. BOLTS FOR COLUMN			
R11 S3	ISOLATED PAD BOTTOM REINF. #5 BARS @ 8" O.C. E.W. 3" FROM GRADE			
R12 S3	ISOLATED PAD TOP REINF. #5 BARS @ 8" O.C. E.W. 2" FROM TOP OF CONCRETE			
R13 S3	#5 VERTICAL COLUMN BENT BARS (6) LOCATIONS AS SHOWN 12" HOOK TO BOTTOM MAT			
R14 S3	#4 TIE 2" FROM TOP OF CONC. ENCASE ANCHOR BOLTS			
R15 S3	REINFORCING AT STAIRS #4 BARS @ 12" O.C. E.W. AT CENTER OF SECTION			
R16 S3	(2) #6 BARS 12" O.C. TIE TENDONS MECH. FASTENERS EA. SPLICE CONT COLUMN TO COLUMN AT MAIN FRAMES ENCASE IN CONCRETE MIN. 3" COVER			
R17 S3	(2) #5 BENT BARS TOP & BOT. BLDG PEDESTAL TO AWNING PEDESTAL			
R18 S3	#4 BENT BARS - SLAB TO STEMWALL @ 16" O.C. 24" LEGS			
R19 S3				

**C1**  
S3 FOUNDATION AT MISC COLUMNS  
NOT TO SCALE

NOT FOR CONSTRUCTION - 50% CD - RFP

DRAWING ISSUES
02/28/19 50% CD
03/20/19 RFP

**PUBLIC WORKS FACILITY**  
TOWN OF HOTCHKISS, CO

**DEAN NICHOLAS BOSWORTH, PE**  
COLORADO STRUCTURAL ENGINEER

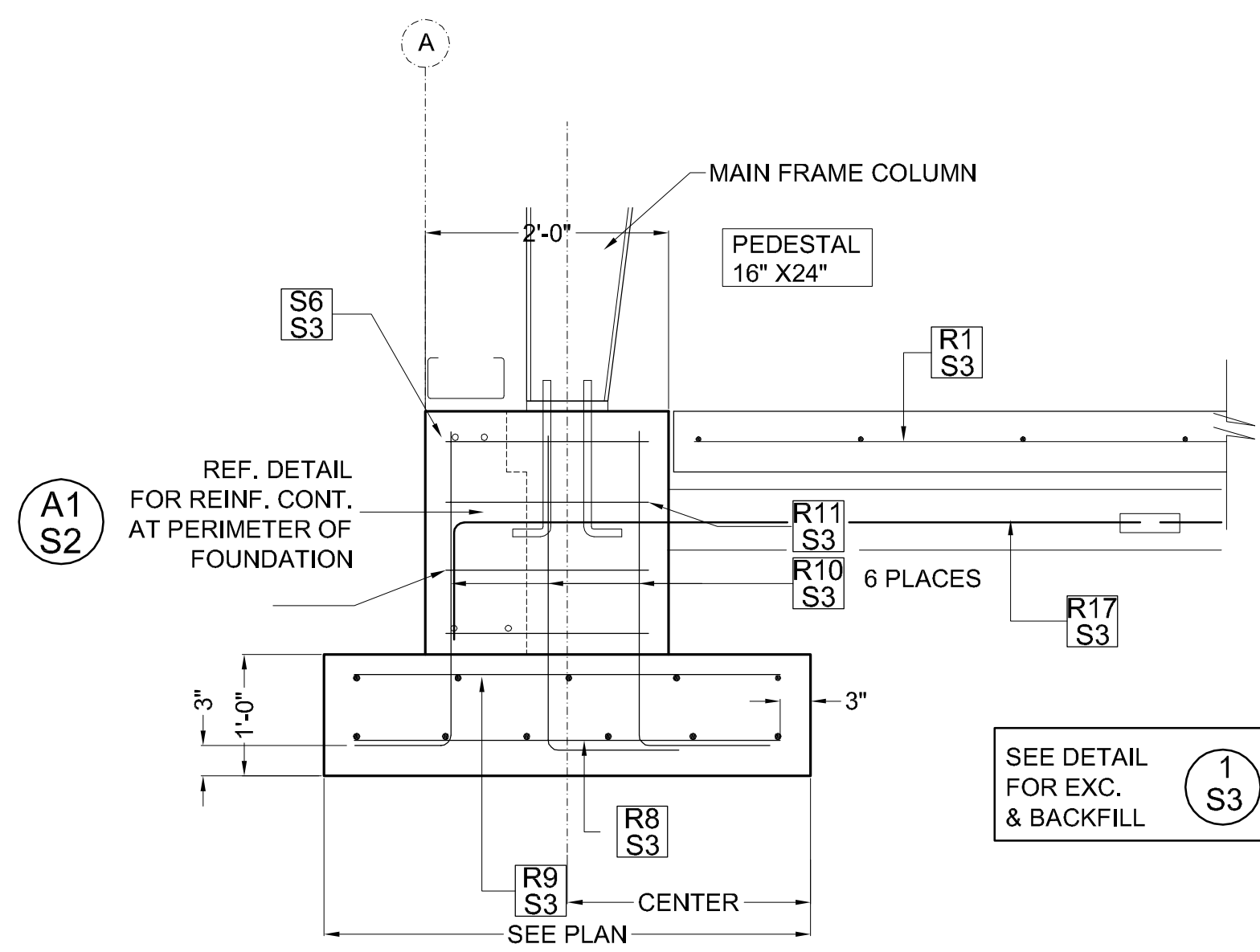
150 ROCKPOINT DRIVE UNIT B  
DURANGO, CO 81301

970 729 1431  
dean.bosworth@gmail.com

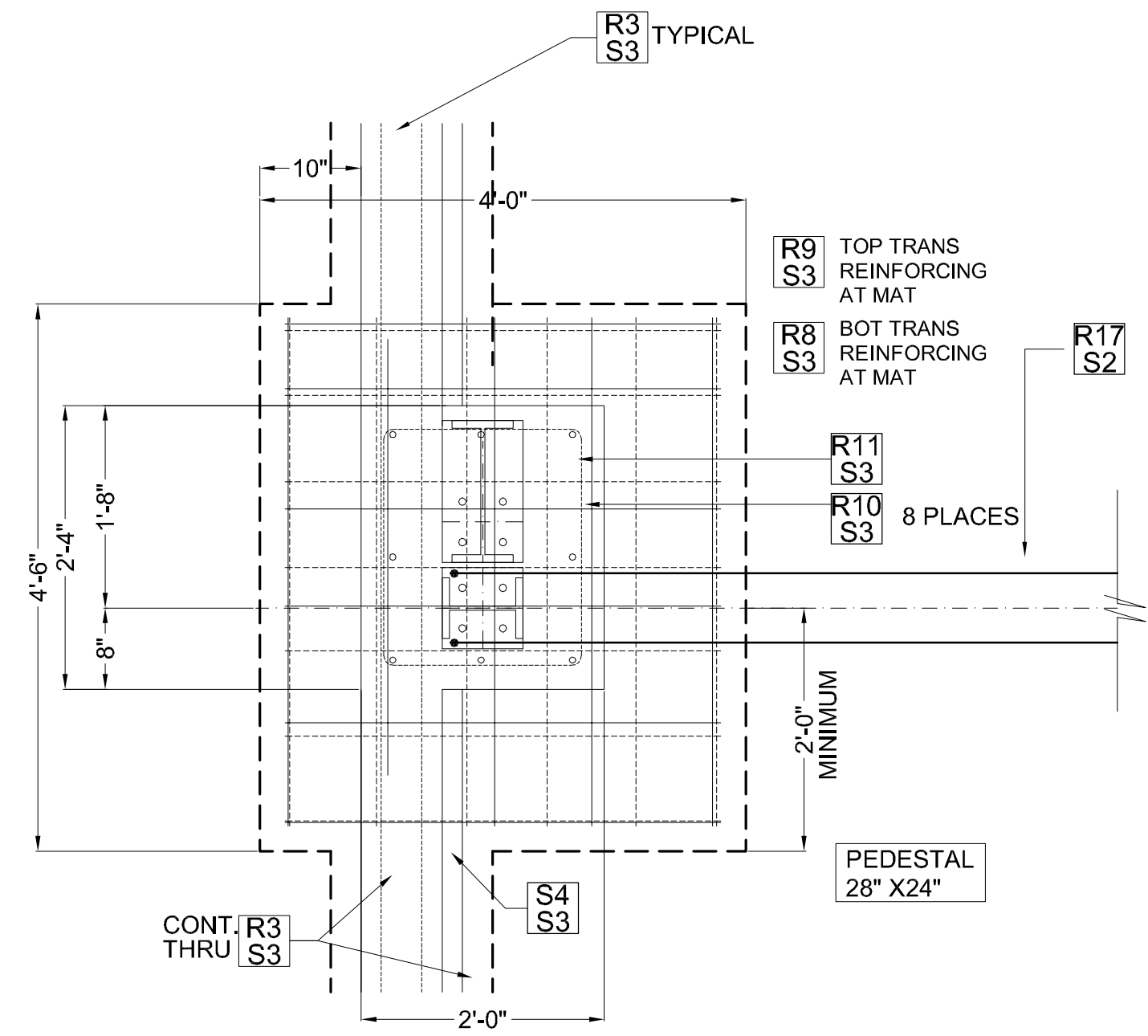
03/20/19

FOUNDATION  
DETAILS

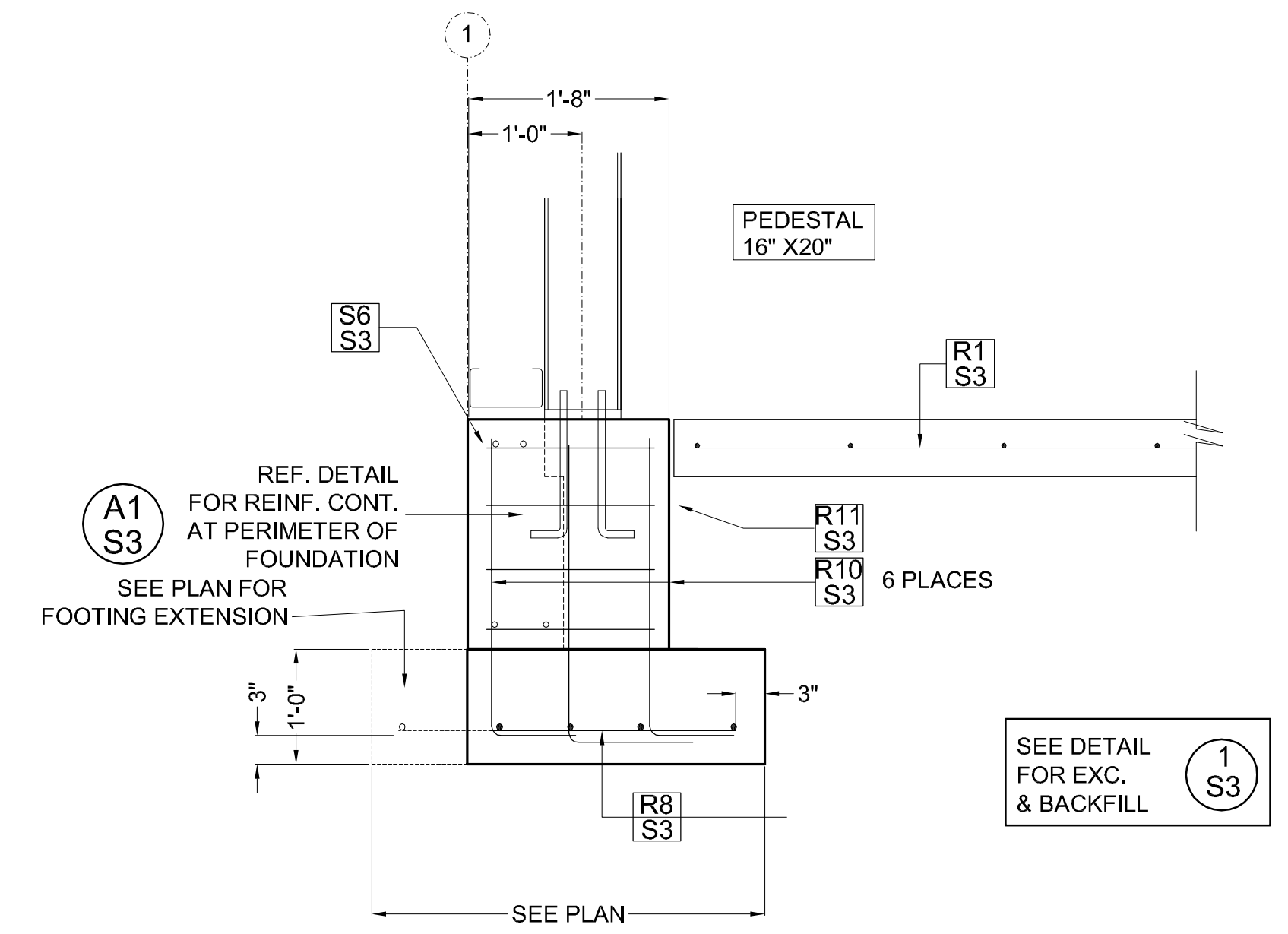
**S3**



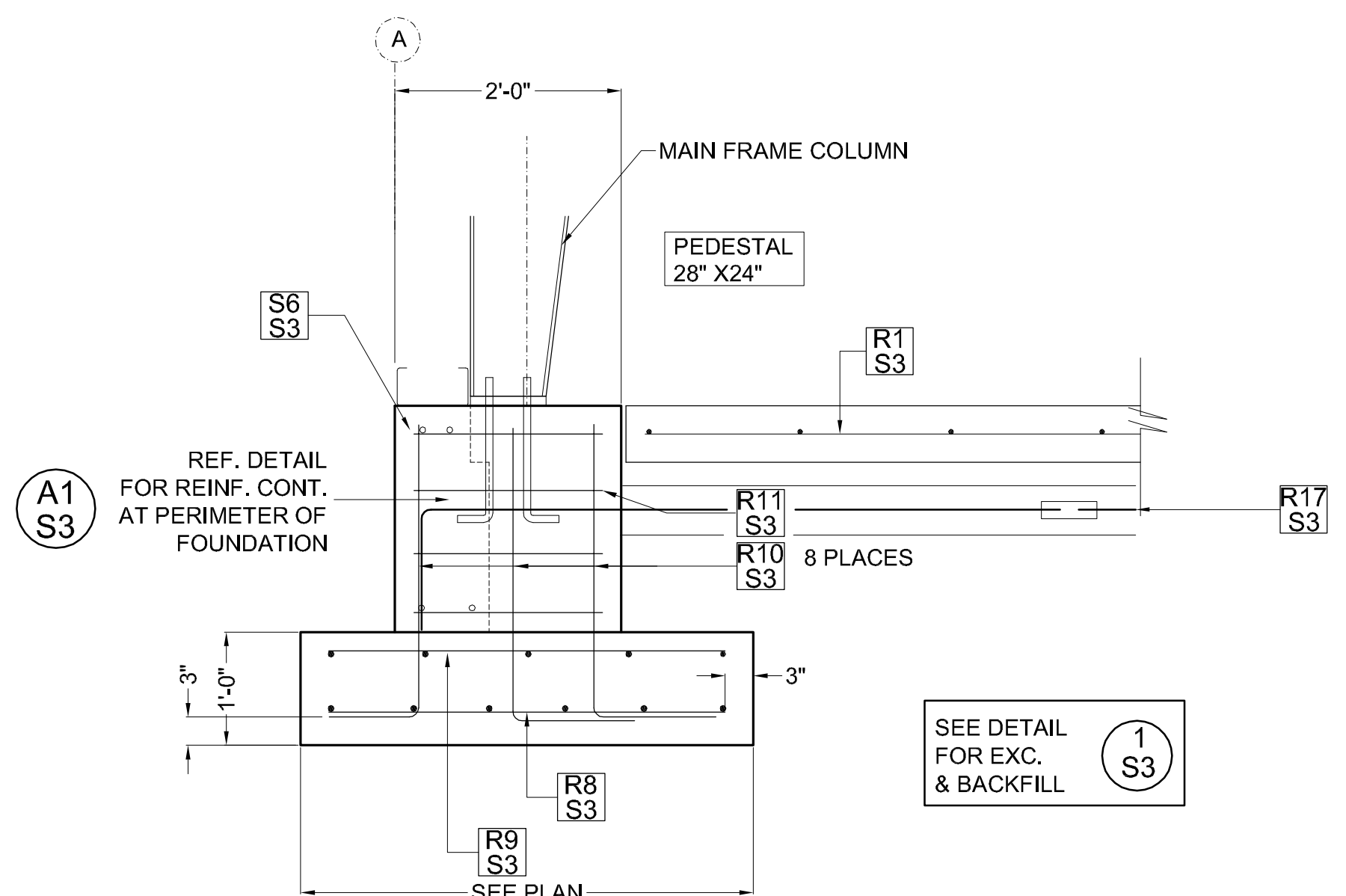
**A1 S2** TYPICAL FOUNDATION AT MAIN FRAME  
NOT TO SCALE



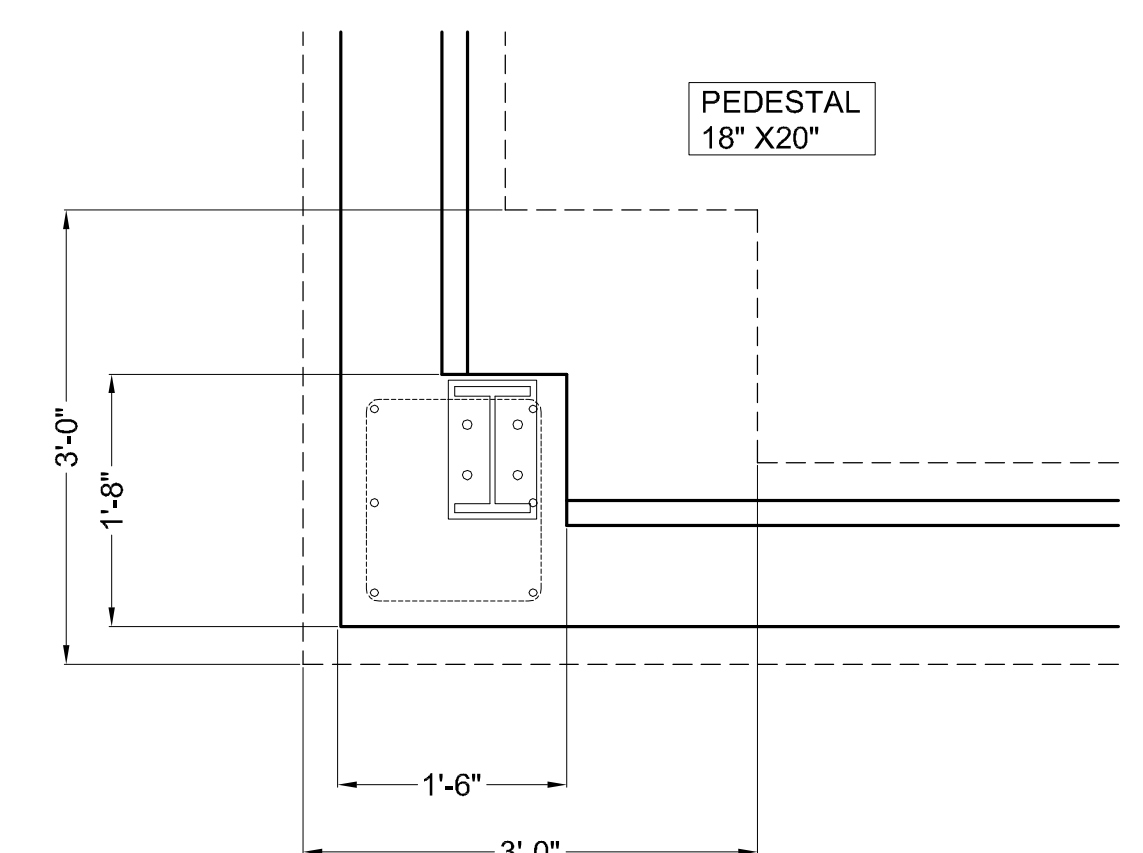
**A1 S3** FOUNDATION PLAN AT PORTALS



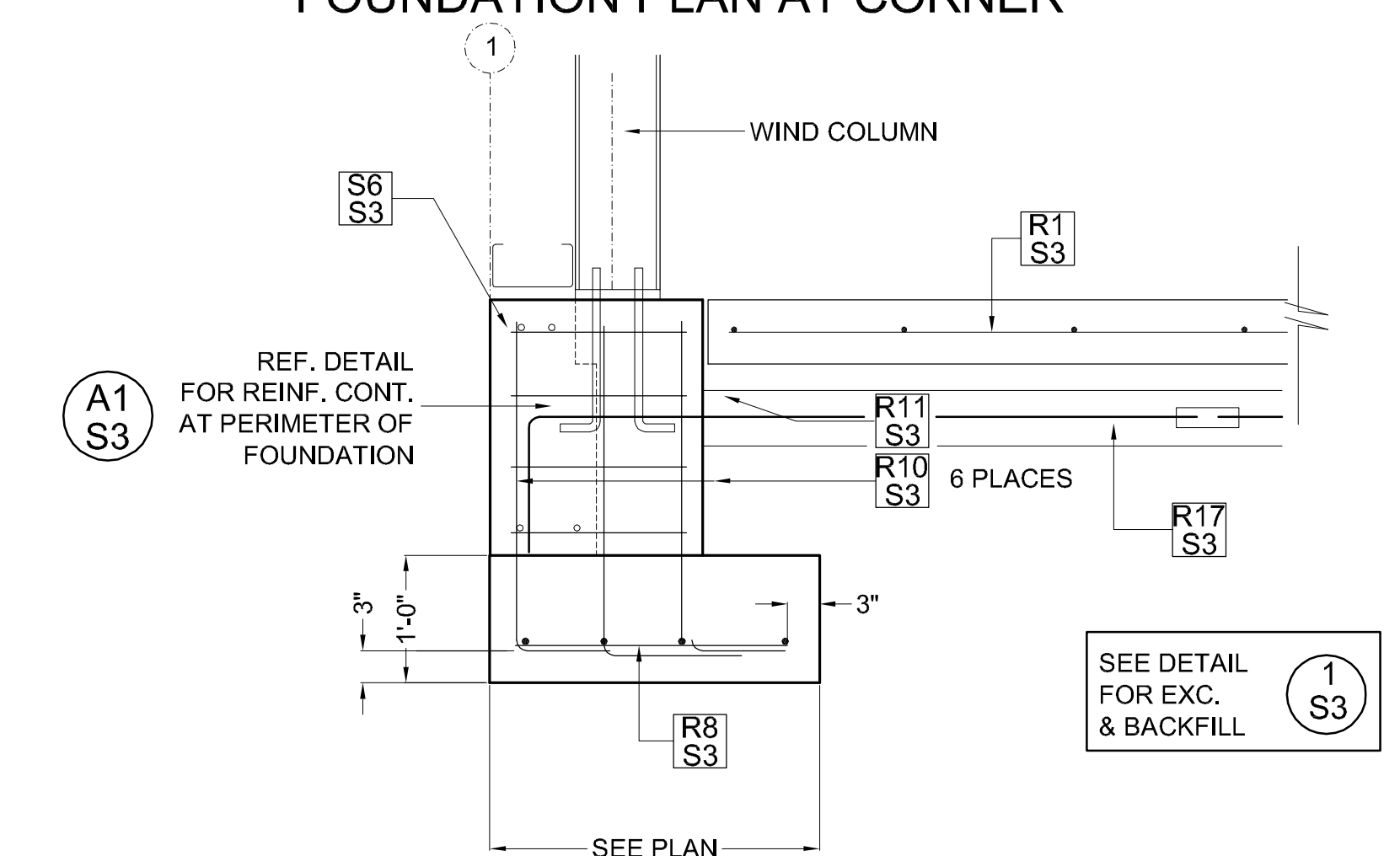
**A1 S3** FOUNDATION MID-BUILDING END WALLS - WIND COLUMNS  
NOT TO SCALE



**A1 S3** FOUNDATION AT SHOP BUILDING PORTAL FRAMES  
NOT TO SCALE



**C1 S4** FOUNDATION PLAN AT CORNER

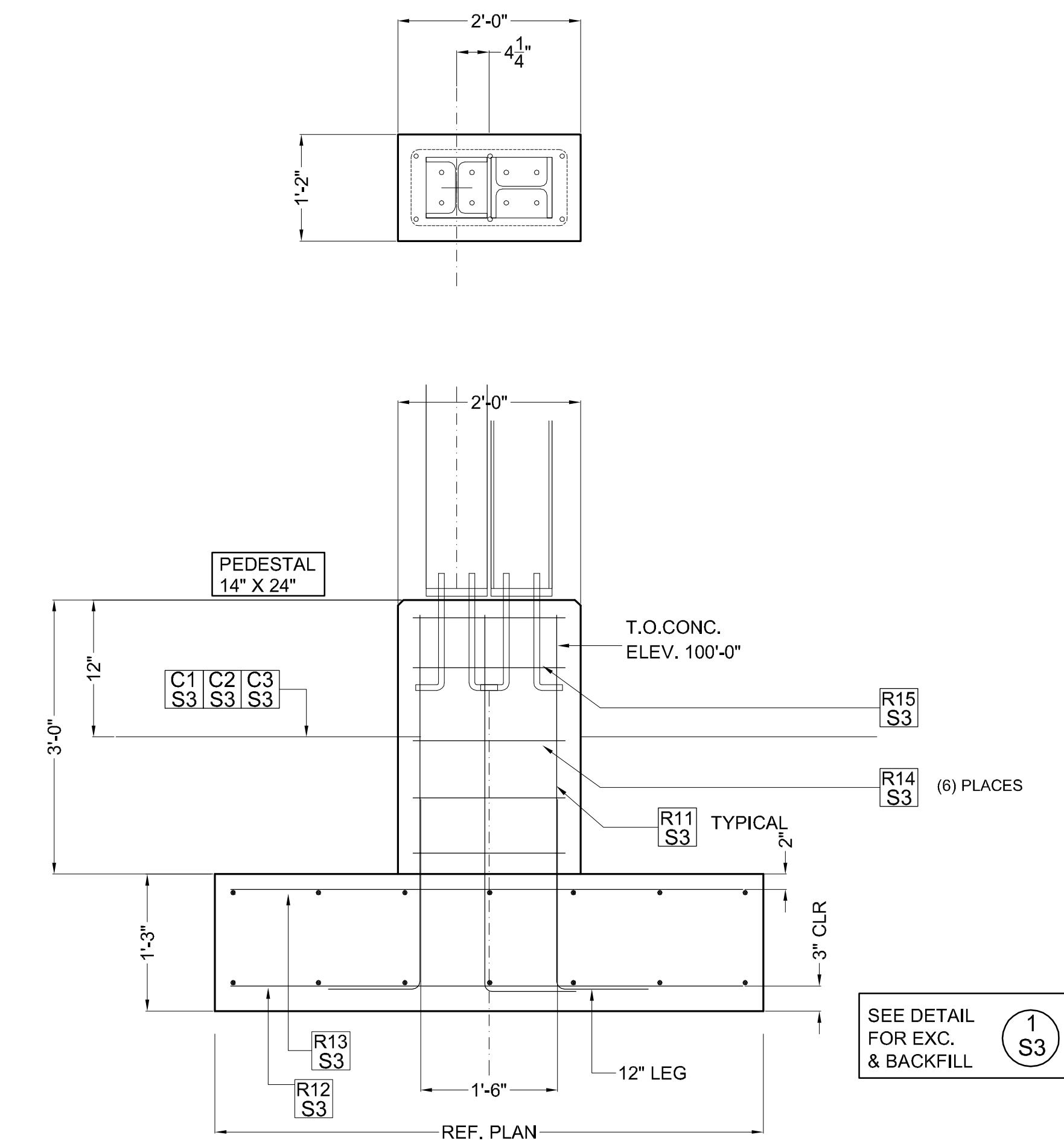
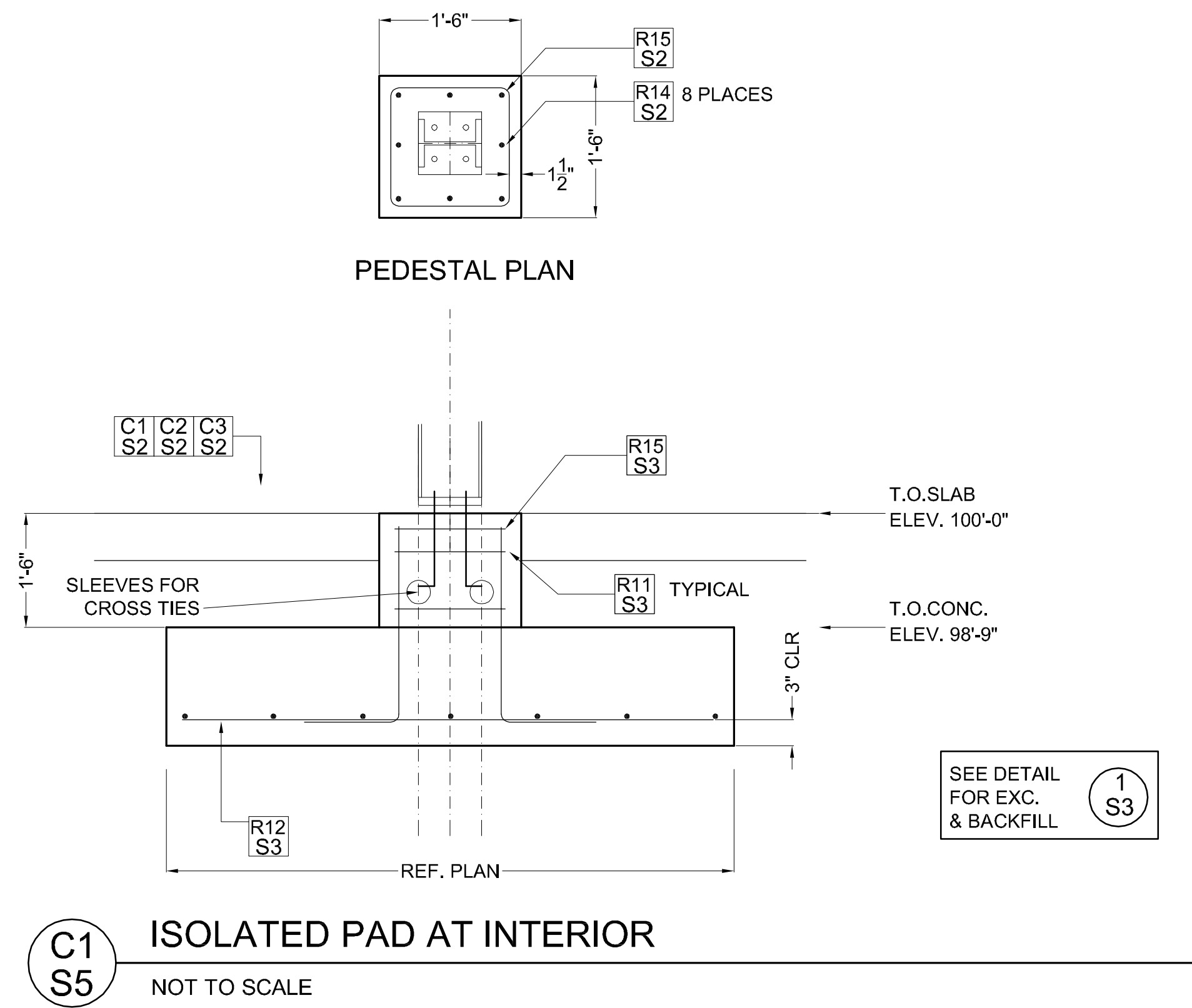
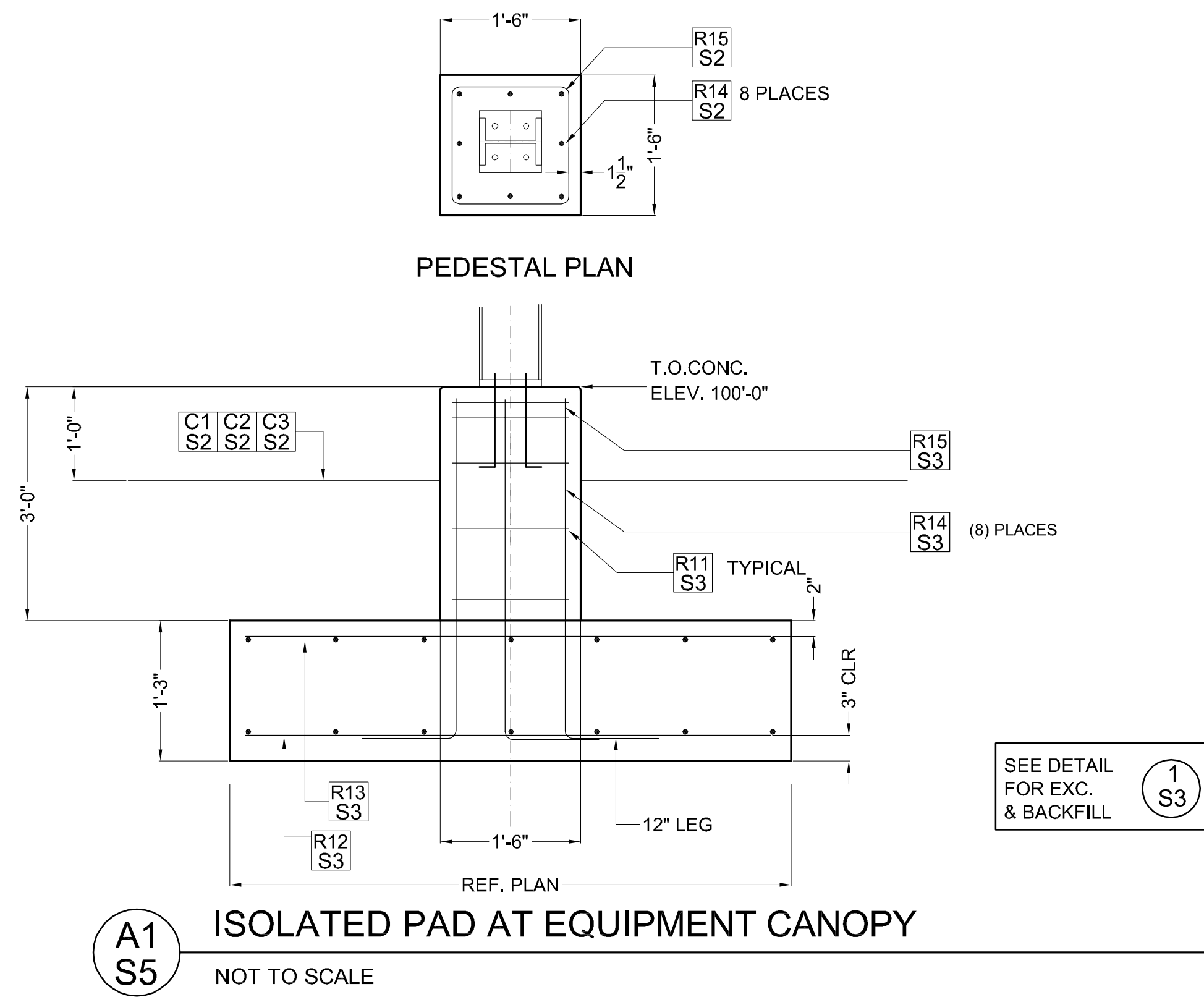


**A1 S3** FOUNDATION AT CORNERS - SHOP BUILDING  
NOT TO SCALE

REF. METAL BUILDING SHOP DRAWINGS FOR BOLT LOCATIONS, BOLT SIZE, EMBEDMENT & PROJECTION. VERIFY COMPATIBILITY OF DETAIL PRIOR TO CONCRETE PLACEMENT

NOT FOR CONSTRUCTION - 50% CD - RFP

DRAWING ISSUES	PUBLIC WORKS FACILITY TOWN OF HOTCHKISS, CO	DEAN NICHOLAS BOSWORTH, PE COLORADO STRUCTURAL ENGINEER 150 ROCKPOINT DRIVE UNIT B DURANGO, CO 81301	970 729 1431 dean.bosworth@gmail.com	03/20/19
02/28/19 50% CD				FOUNDATION DETAILS
03/20/19 RFP				<b>S4</b>



REF. METAL BUILDING SHOP DRAWINGS FOR BOLT LOCATIONS, BOLT SIZE, EMBEDMENT & PROJECTION. VERIFY COMPATIBILITY OF DETAIL PRIOR TO CONCRETE PLACEMENT

NOT FOR CONSTRUCTION - 50% CD - RFP

DRAWING ISSUES
02/28/19 50% CD
03/20/19 RFP

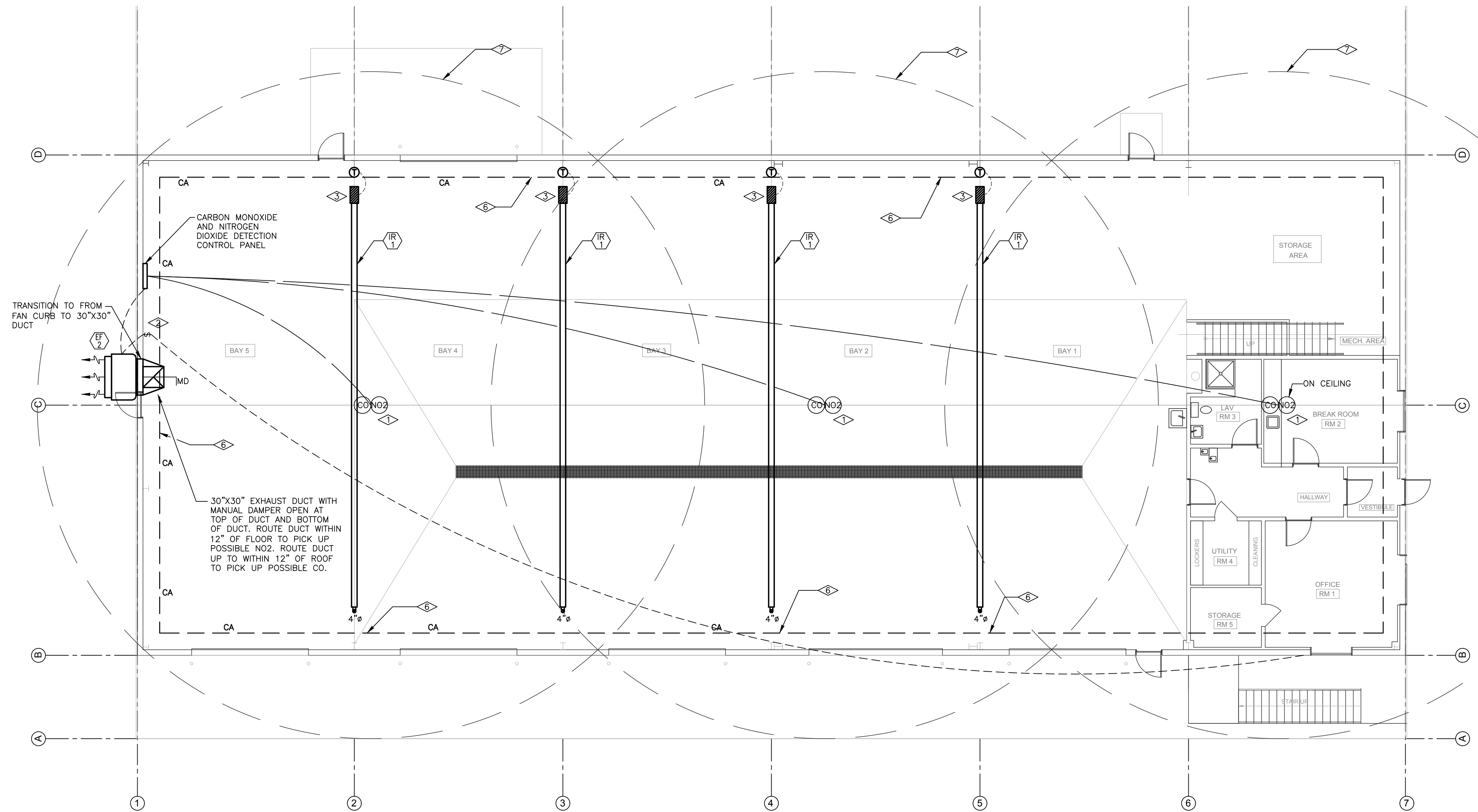
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TOWN OF HOTCHKISS, CO

DEAN NICHOLAS BOSWORTH, PE  
COLORADO STRUCTURAL ENGINEER

150 ROCKPOINT DRIVE UNIT B  
DURANGO, CO 81301

970 729 1431  
dean.bosworth@gmail.com

02/28/19  
FOUNDATION  
DETAILS  
**S5**




**MECHANICAL - SHOP FLOOR PLAN**  
 SCALE: 1/8"=1'-0"  
 NORTH

**MECHANICAL GENERAL NOTES:**

1. DRAWING IS DIAGRAMMATIC IN NATURE. LOCATIONS AND SIZES MAY VARY DURING FIELD COORDINATION & INSTALLATION OF MECHANICAL, PLUMBING, & ELECTRICAL. DRAWINGS DO NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING ANY WORK. VERIFY ALL SPACE REQUIREMENTS COORDINATING WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER.
2. ALL REFRIGERANT LINES ARE TO BE LIMITED TO 75' EQUIVALENT LINE LENGTH. ALL REFRIGERANT LINES SHALL BE INSULATED PER IECC REQUIREMENTS. ALL REFRIGERANT LINES SHALL BE SIZED PER MANUFACTURER'S RECOMMENDATION.
3. INDOOR HEAT PUMPS SHALL BE PROVIDED WITH AUXILIARY CONDENSATE PUMP, 240V/1PH/60HZ "SPEN-PUMP". CONDENSATE SHALL BE ROUTED THROUGH 3/4" TYPE L COPPER TO NEAREST PLUMBING FIXTURE GROUP. DISCHARGE INDIRECTLY THROUGH AIR GAP SIZED PER IPC.

**FLAG NOTES:**

1. MACURCO CM-6, TX-6-ND CARBON MONOXIDE & NITROGEN DIOXIDE SENSORS. SENSORS TO BE INTERLOCKED WITH EF-2 AND LR-1. EXHAUST FANS SHALL TURN ON AT DETECTION OF 10PPM FOR CO & 50 PPB FOR NO2. ALARMS SHALL BE TRIGGERED AT DETECTION OF 25 PPM FOR CO & 100 PPB FOR NO2. LOUVERS TO OPEN UPON ACTIVATION OF EXHAUST FAN. LOUVERS ARE TO FAIL OPEN. INSTALL CO & NO2 DETECTORS PER MANUFACTURER'S INSTRUCTIONS, EACH SENSOR COVERS A CIRCULAR AREA OF APPROXIMATELY 5,000 SQ. FT. RADIUS OF 39'. INSTALL PER MANUFACTURER'S REQUIREMENTS.
2. EF-2 TO BE INTERLOCKED WITH VARIABLE SPEED WALL MOUNTED SWITCH.
3. INFRARED HEATER, MAINTAIN MANUFACTURER'S REQUIRED CLEARANCES FROM ALL COMBUSTIBLES. INSTALL INFRARED HEATER PER MANUFACTURER'S RECOMMENDATIONS.
4. ROUTE COMPRESSED AIR TO MEZZANINE
5. COMPRESSED AIR FROM LOOP BELOW. PROVIDED WITH QUICK CONNECT FITTING.
6. COMPRESSED AIR DROP.
7. CIRCLE TO SHOW THE EFFECTIVE RANGE OF CO AND NO2 SENSORS.

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 Mechanical & Electrical Engineers  
 386 Indian Road  
 Grand Junction, CO 81501  
 Phone: 970-241-8709

**TOWN OF HOTCHKISS  
 PUBLIC WORKS FACILITY**  
 TBD BARROW MESA RD  
 HOTCHKISS, COLORADO

DATE:	ISSUED FOR:
03/21/19	REVISED 50% DD

DATE:	03/21/19
JOB NO:	18-159
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	M1-1

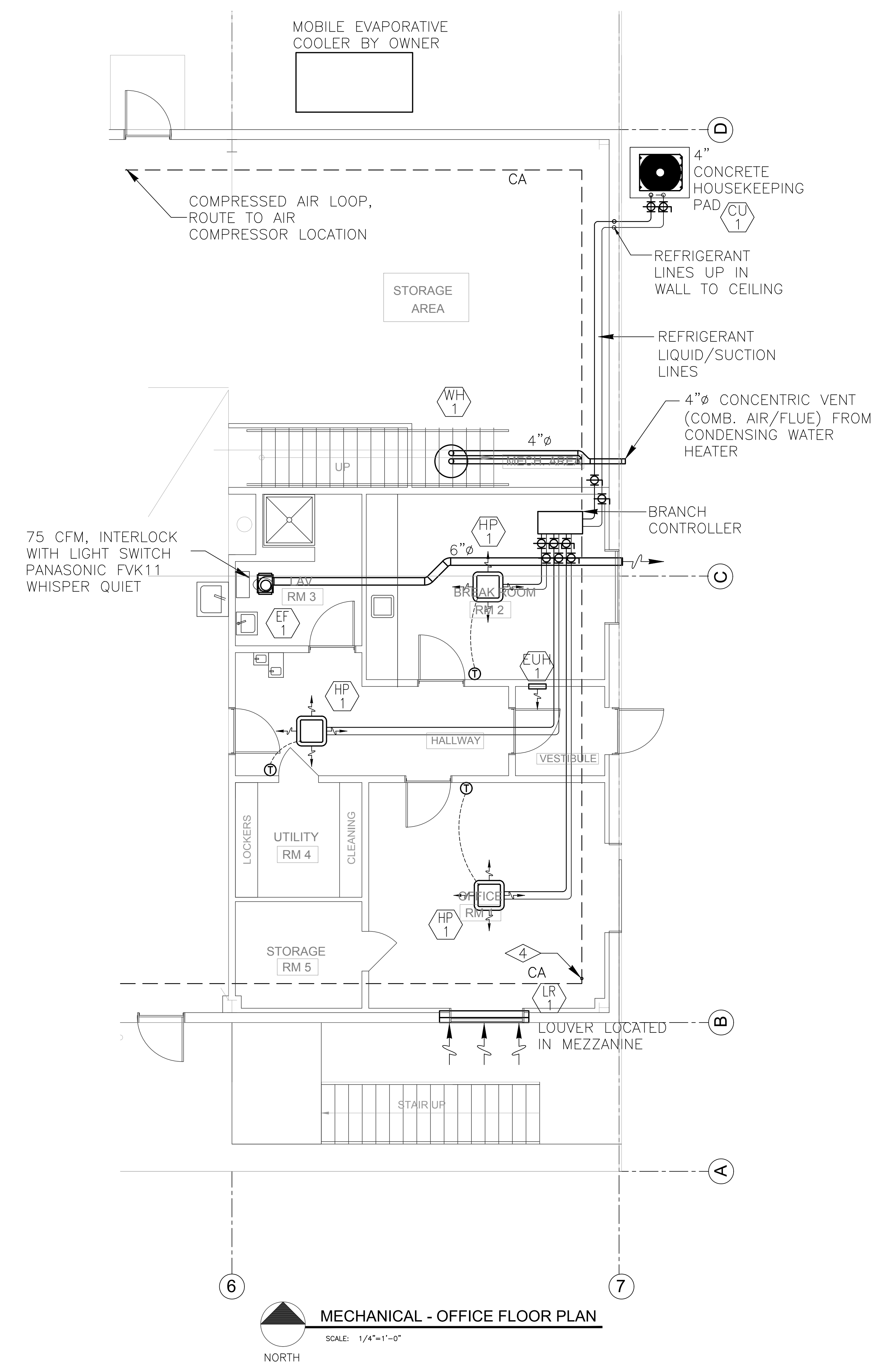
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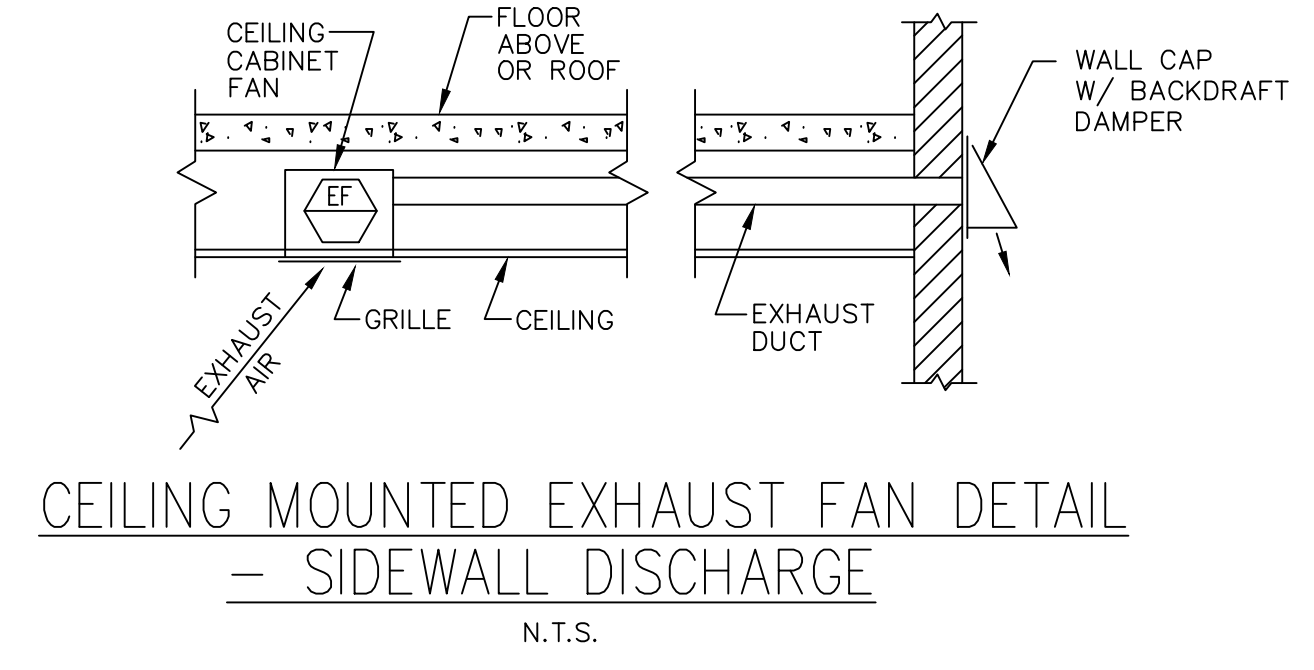
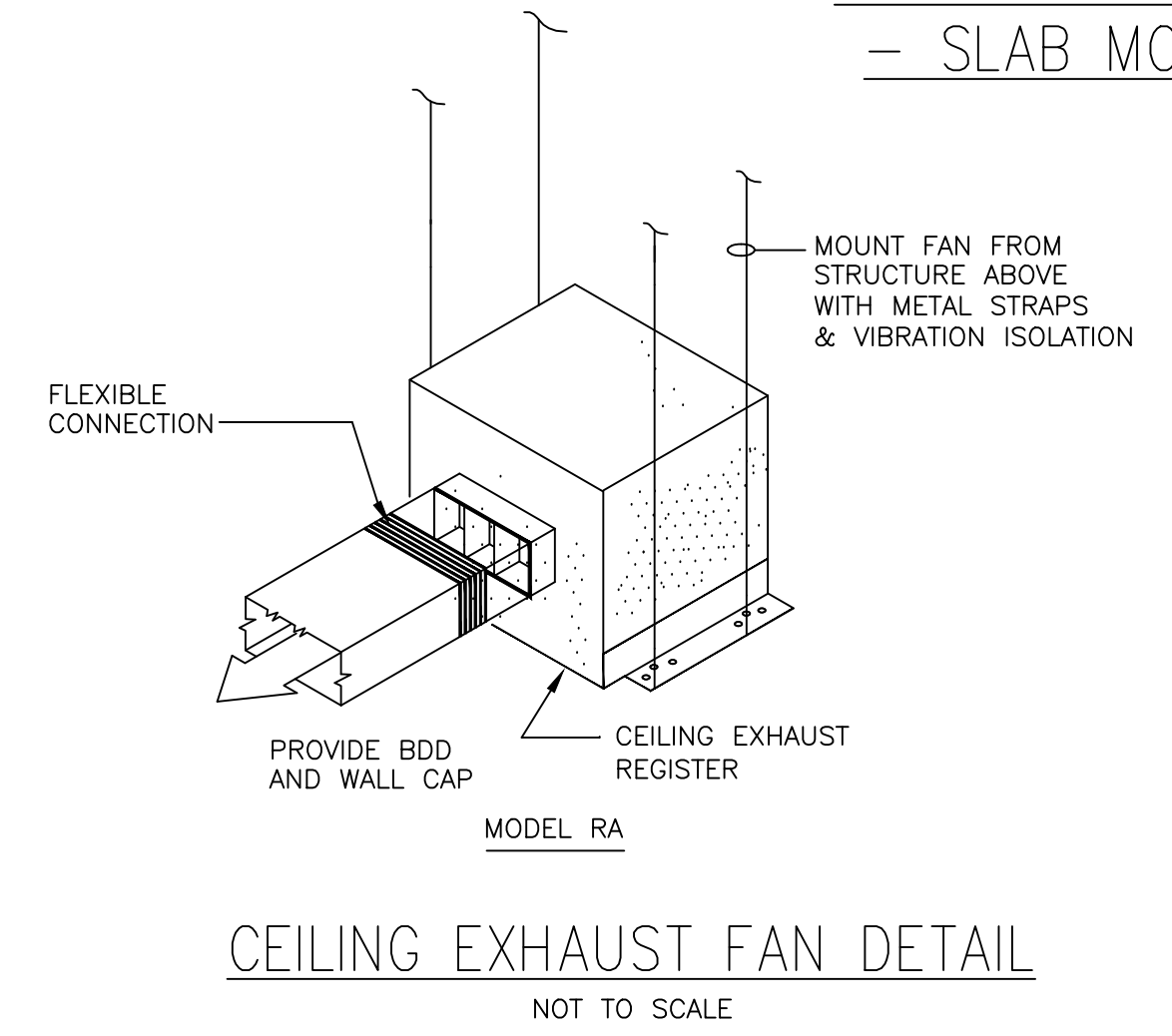
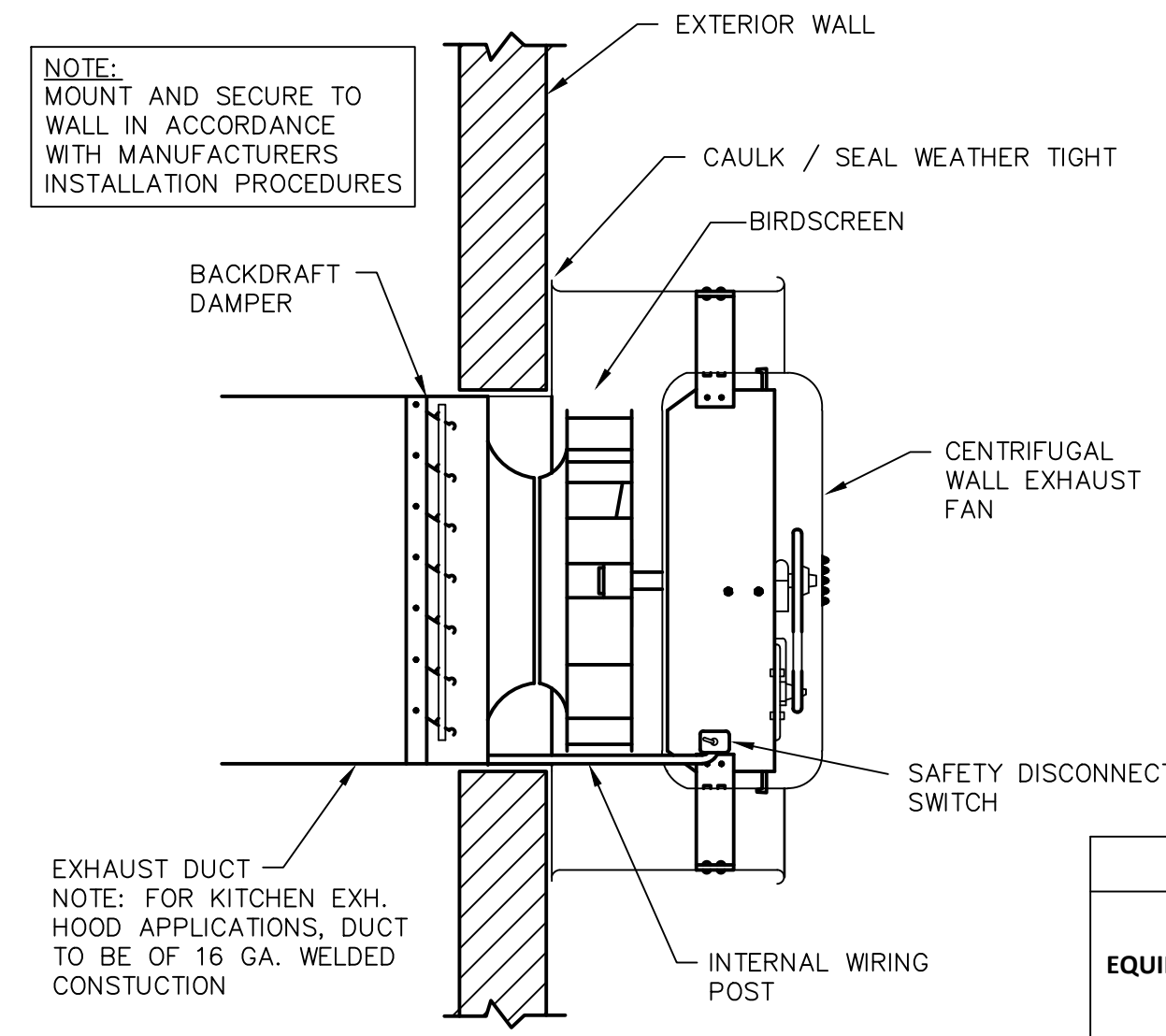
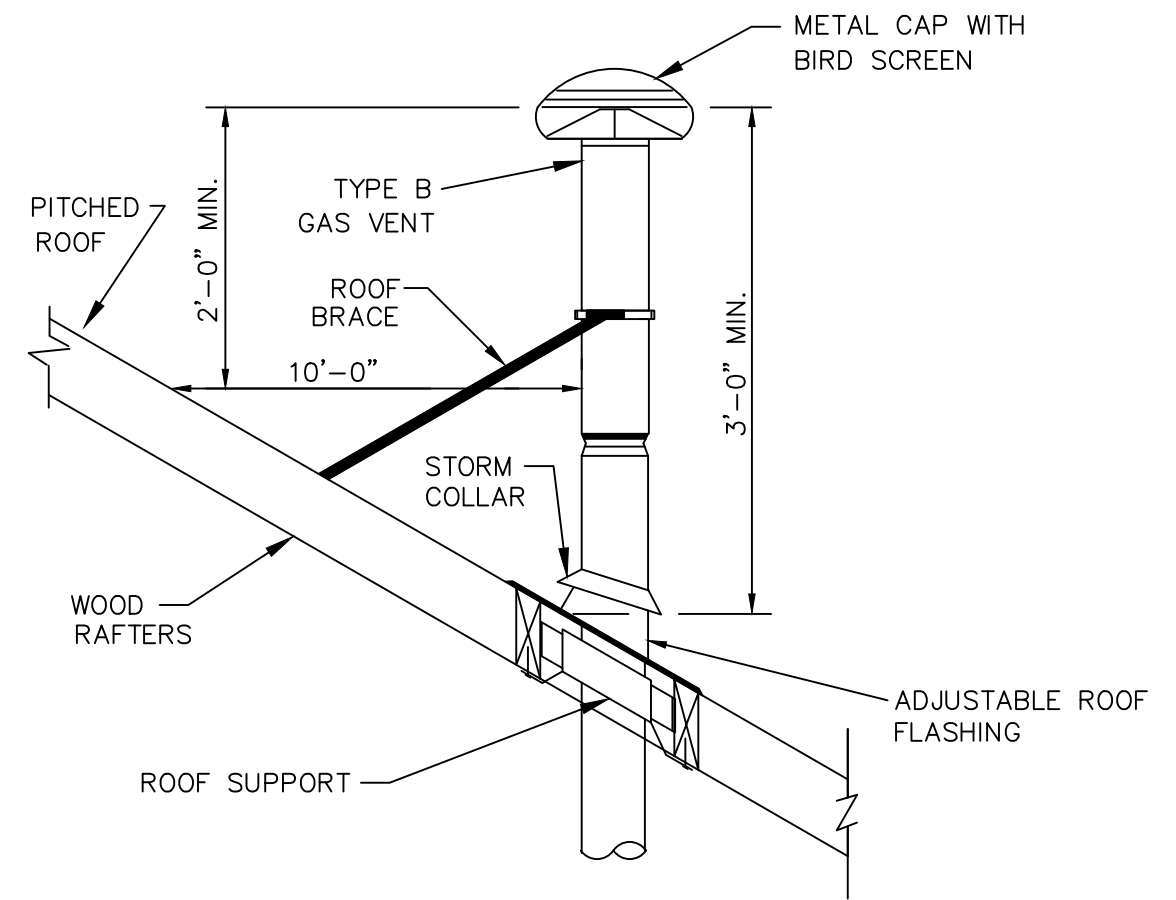
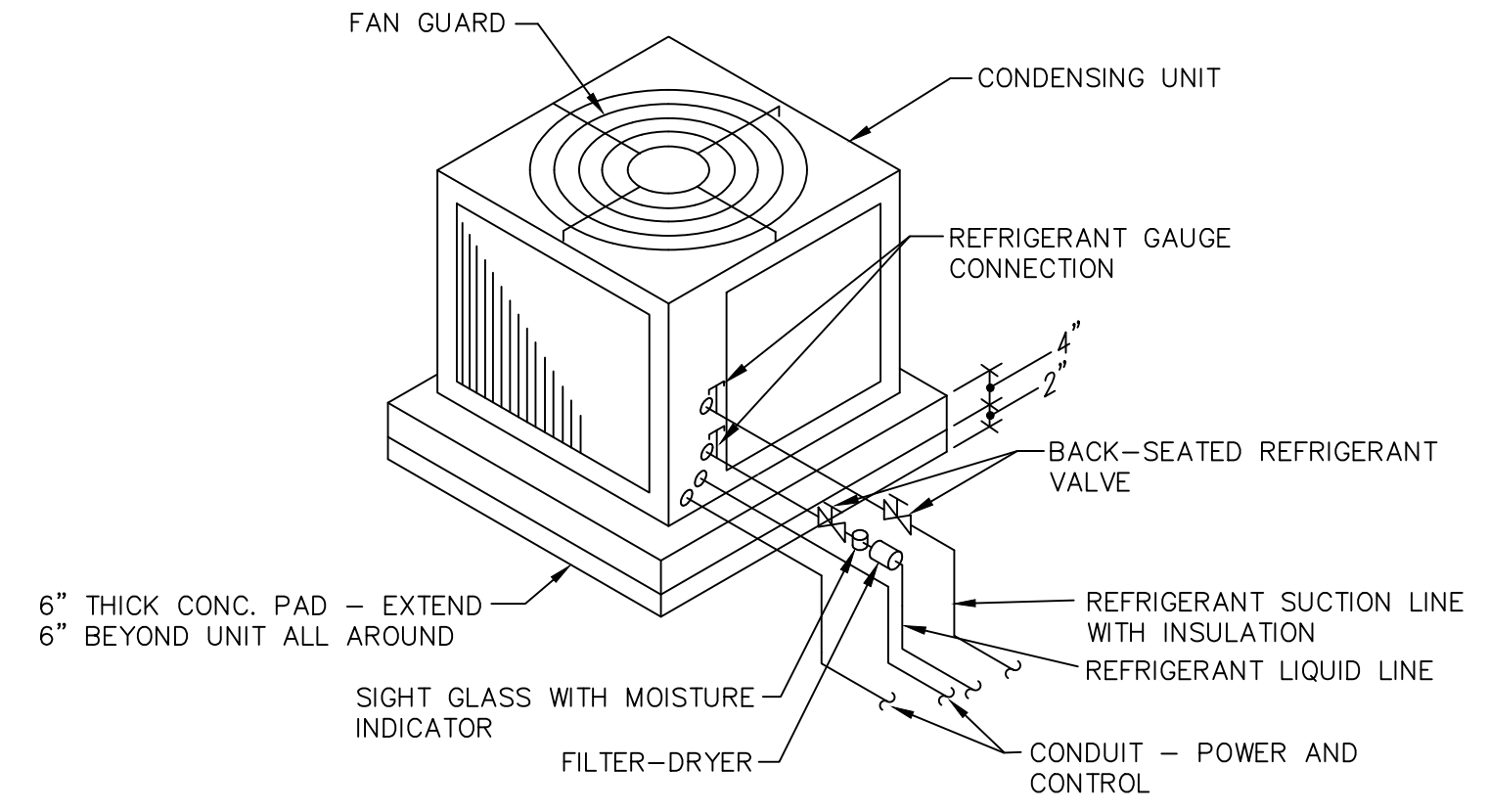
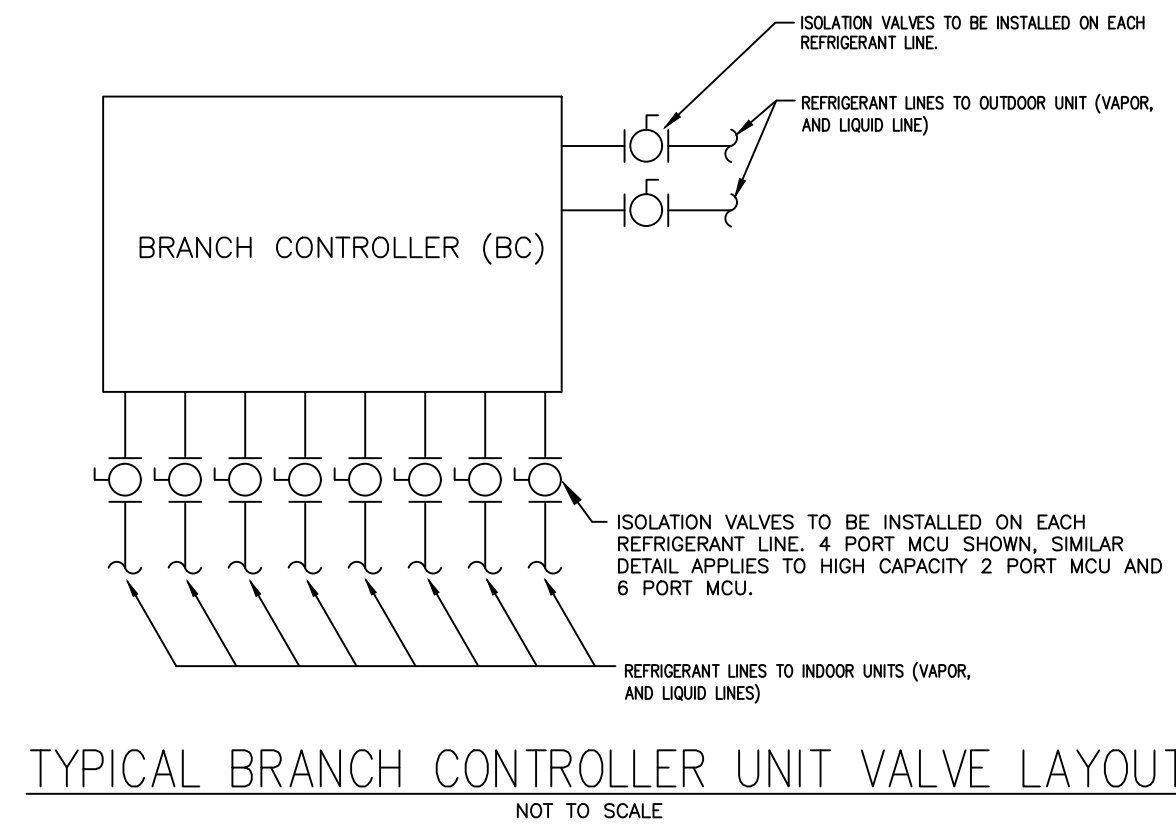
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RADIANT HEATER SCHEDULE												
EQUIPMENT NO.	SERVICE	HEATING			IGNITION TYPE	TUBE LENGTH(FT)	TUBE DIAMETER	MIN. EFFICIENCY	ELECTRICAL		MANUFACTURER & MODEL	OPTIONS/ACCESORIES
		FUEL TYPE	INPUT CAPACITY (MBH)	OUTPUT CAPACITY (MBH)					V./PH./H Z.	AMPS		
IR-1	BAY	NATURAL GAS	205	164	DIRECT SPARK	50	4"	78%	120/1/60	1.0	SUPERIOR RADIANT PRODUCTS, UXR-205	NOTE-1

NOTES:  
1. PROVIDE WITH TERMINATION VENT KIT, POWER DISCONNECT, GAS SHUT-OFF VALVE, REFLECTORS, WALL MOUNTED INFRARED SENSOR/THERMOSTAT, HEAT TREATED ALUMINIZED STEEL HEAT EXCHANGER AND BURNER CONTROLS.

AIR CONDITIONING EQUIPMENT SCHEDULE												
EQUIPMENT NO.	SERVICE	NOMINAL COOLING CAPACITY (BTU/HR.)	NOMINAL HEATING CAPACITY (BTU/HR.)	CFM	EER (EFFICIENCY)	REFRIGERANT PIPING		ELECTRICAL		MANUFACTURER & MODEL	OPTIONS/ACCESSORIES	
						LIQUID	SUCTION	MCA (AMPS)	V./PH./HZ.			
HP-1	OFFICE	12,000	13,000	335	12	1/4	3/8	0.3	208-230/1/60	mitsubishi - SLZ-KF12NA	NOTE-1	

NOTES:  
1. PROVIDE WITH WALL MOUNTED 7-DAY PROGRAMMABLE THERMOSTAT, POWER DISCONNECT, CONDENSATE PUMP, OUTSIDE AIR SENSOR, GRILLE, DRAIN PAN LEVEL SENSOR, VIBRATION ISOLATION MOUNTING KIT.

AIR COOLED CONDENSING UNIT SCHEDULE												
EQUIPMENT NO.	SERVICE	NOMINAL COOLING CAPACITY (BTUH)	NOMINAL HEATING CAPACITY (BTUH)	SEER	REFRIG. PIPING		ELECTRIC		MANUFACTURER & MODEL	OPTIONS/ACCESORIES		
					LIQUID	VAPOR	V/PH/HZ	MOCAP (A)				
CU-1	OFFICE	48,000	54,000	19	3/8	5/8"	208-230/1/60	50	42	MITSUBISHI - MXZ-8C48NAHZ	NOTE-1	

NOTES:  
1. PROVIDE LINE SET AS RECOMMENDED BY MANUFACTURER, POWER DISCONNECT, CONCRETE HOUSEKEEPING PAD, HYPER-HEAT OPERATION, 18" TALL ANGLE IRON STAND, VIBRATION ISOLATION, 5 PORT BRANCH BOX. SEER = 18.9, EER = 12.0, HSPF = 11.

EXHAUST FAN SCHEDULE												
EQUIPMENT NO.	SERVICE	LOCATION	CFM	EXTERNAL STATIC PRESS (IN. W.G.)	MOTOR				MANUFACTURER & MODEL	OPTIONS/ACCESSORIES		
					WATTS	HP	RPM	VOLT/PH/HZ				
EF-1	RESTROOM	CEILING	75	0.25	10.00	814	115/1/60	PANASONIC FV-05-11VK1	NOTE - 1			
EF-2	RESTROOM	SIDEWALL	9272	0.375	.	3/4	305	115/1/60	GREENHECK - CUBE-420	NOTE - 2		

NOTES:  
1. PROVIDE WITH POWER DISCONNECT, VIBRATION ISOLATION, GRAVITY BACKDRAFT DAMPER, INTERLOCK OPERATION WITH LIGHTSWITCH, EXHAUST TERMINATION WITH UL LISTED CAP.  
2. PROVIDE WITH POWER DISCONNECT, HINGED CURB, BIRD SCREEN, ALUMINUM CONSTRUCTION, PERMATECTOR COATED, MECHANICAL BACKDRAFT DAMPER, MOTOR STARTER, VARIABLE SPEED BELT DRIVEN MOTOR, INTERLOCK OPERATION WITH WALL MOUNTED CO & NO2 MACURACO DETECTION CONTROL PANEL (FAN SHALL RAMP UP TO FULL SPEED AFTER RECEIVING SIGNAL FROM CONTROL PANEL), INTERLOCK OPERATION WITH WALL MOUNTED VARIABLE SPEED SWITCH.

LOUVER SCHEDULE									
EQUIPMENT NO.	SERVICE	WIDTH (IN)	HEIGHT (IN)	THICKNESS OF LOUVER	MATERIAL	INSECT/BIRD SCREEN	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES	
LR-1	OUTSIDE/EXHAUST	72"	72"	4"	STEEL	1/2" BIRD	GREENHECK FDS-402	NOTE - 1, 2	

NOTES:  
1. DRAINABLE LOUVER, PROVIDE BIRDSCREEN AND KYNAR FINISH WITH COLOR TO BE SELECTED BY THE ARCHITECT.  
2. PROVIDE LOW LEAKAGE MOTORIZED DAMPER IN SLEEVE BEHIND LOUVER. INTERLOCK DAMPER OPERATION WITH EF-2. LOUVER SHALL OPEN WHEN EF-2 IS ENERGIZED.

CENTRIFUGAL WALL EXHAUST FAN DETAIL  
N.T.S.

CEILING EXHAUST FAN DETAIL  
NOT TO SCALE

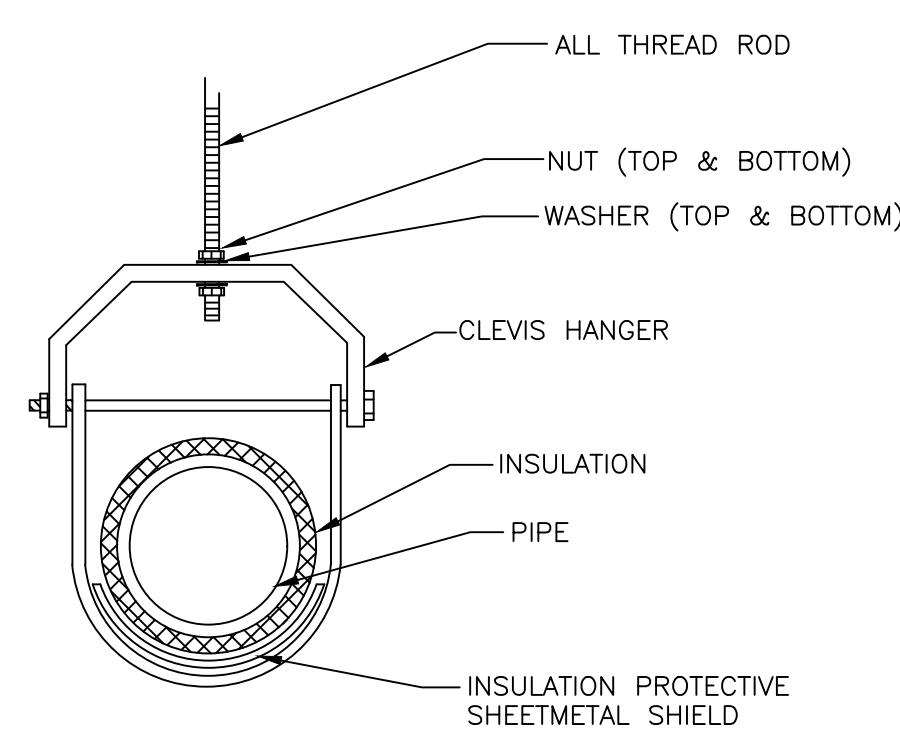
CEILING MOUNTED EXHAUST FAN DETAIL - SIDEWALL DISCHARGE  
N.T.S.

AIR-COOLED CONDENSING UNIT - SLAB MOUNTED AT GRADE  
N.T.S.

GAS VENT THROUGH PITCHED ROOF DETAIL  
NOT TO SCALE

TYPICAL BRANCH CONTROLLER UNIT VALVE LAYOUT  
NOT TO SCALE

TYPICAL CLEVIS HANGER DETAIL  
NOT TO SCALE



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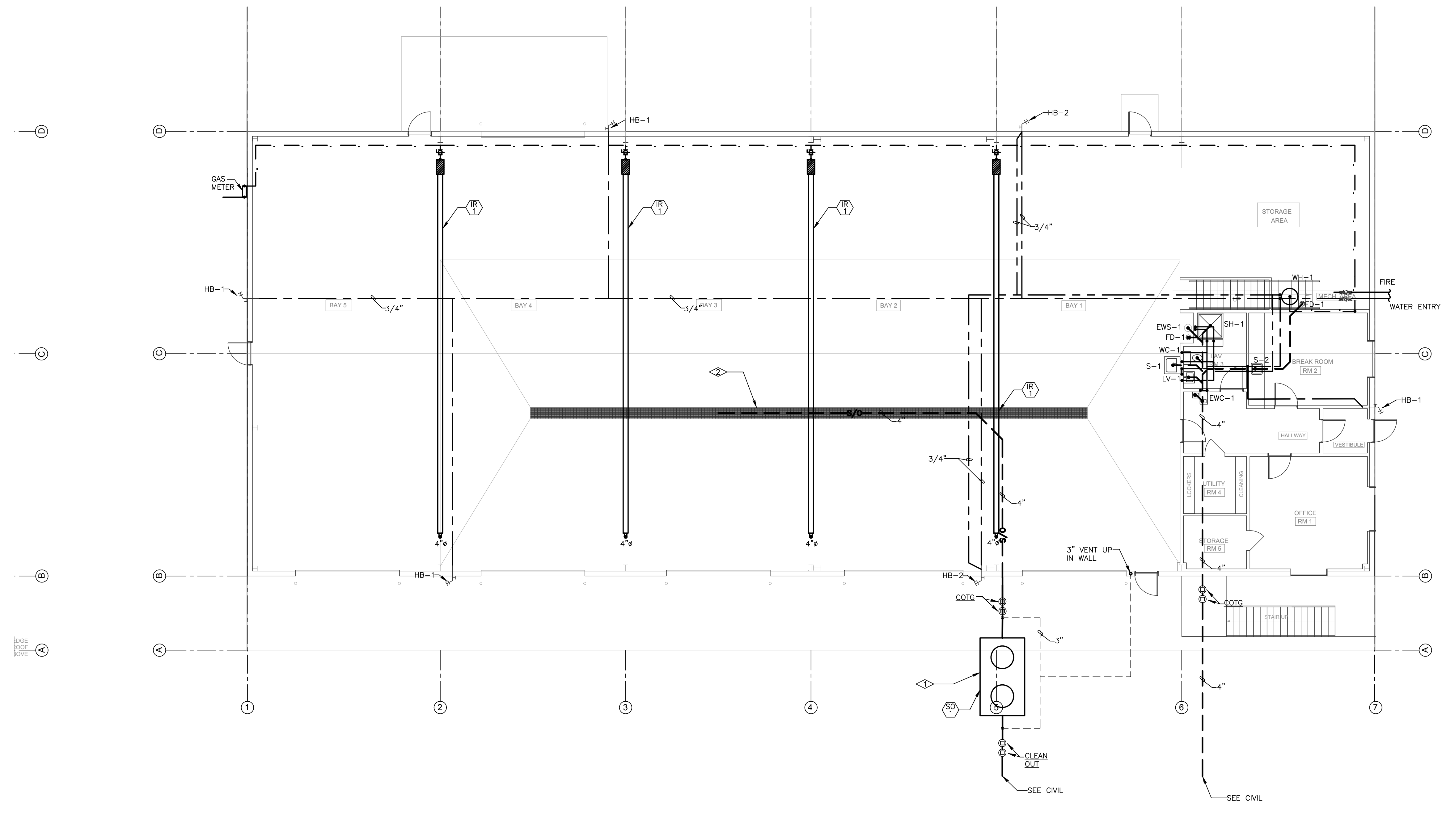
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SCALE:	AS SHOWN
SHEET NUMBER:	P1-1

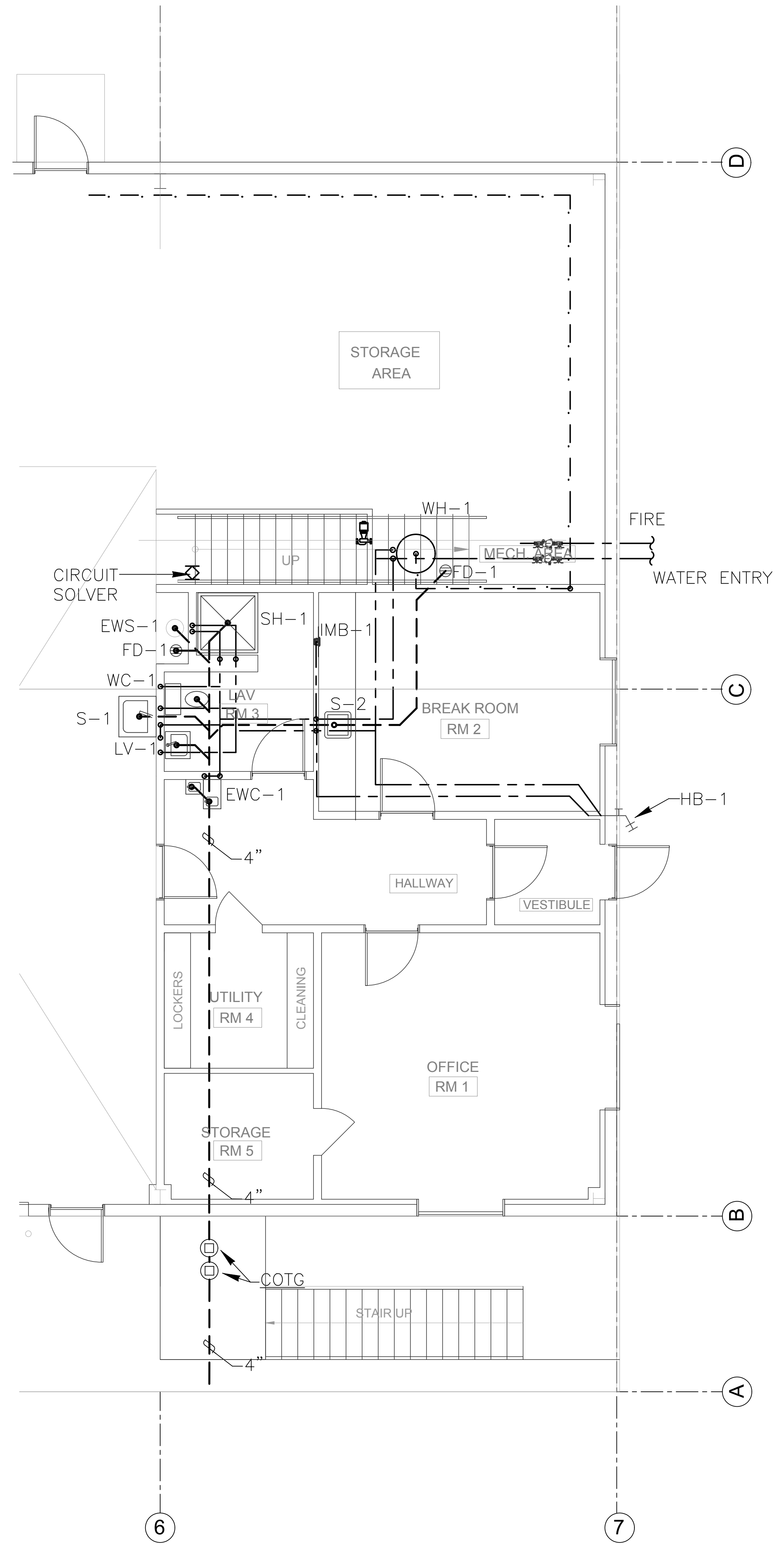
March 25, 2019 - 3:18:16pm



- FLAG NOTES:**
1. SAND OIL INTERCEPTOR LOCATION TO BE COORDINATED WITH SITE PLAN.
  2. TRENCH DRAIN TO BE PROVIDED BY GENERAL CONTRACTOR. GRATE TO BE TRAFFIC RATED AND SLOPED PER IPC.
  - 3.

**PLUMBING - SHOP FLOOR PLAN**  
 SCALE: 1/8"=1'-0"  
 NORTH





**PLUMBING - OFFICE FLOOR PLAN**  
 SCALE: 1/4"=1'-0"  
 NORTH

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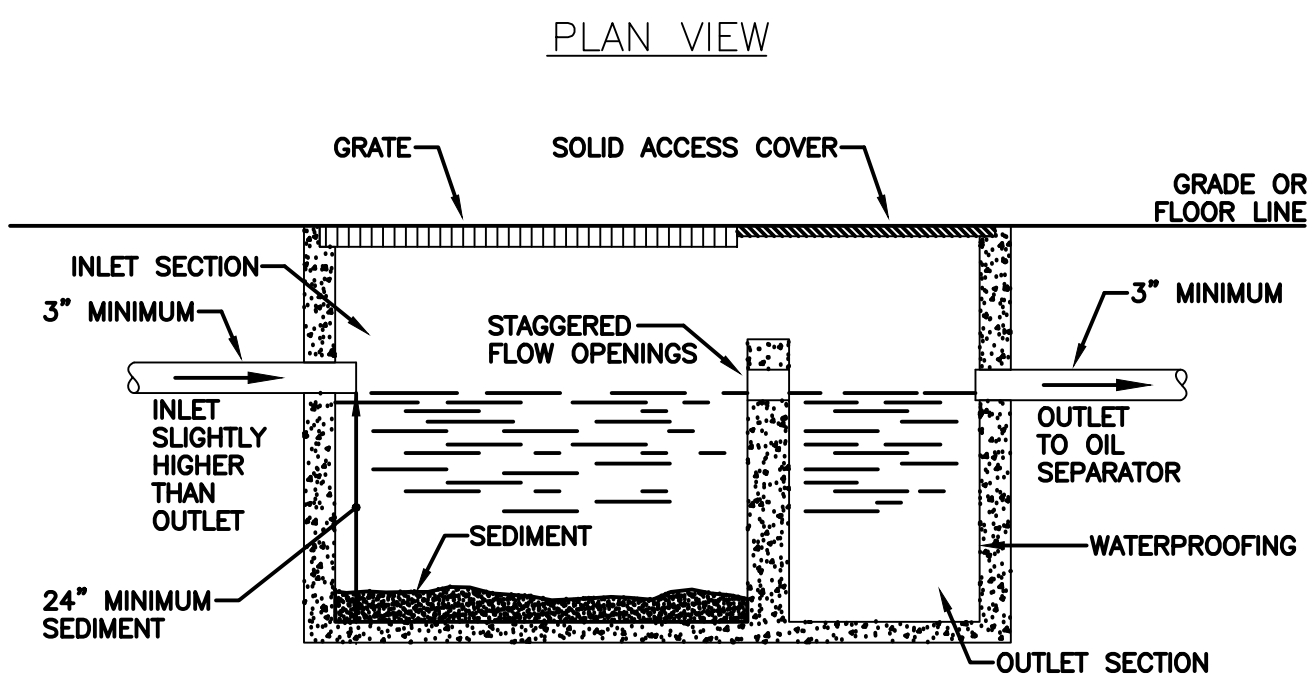
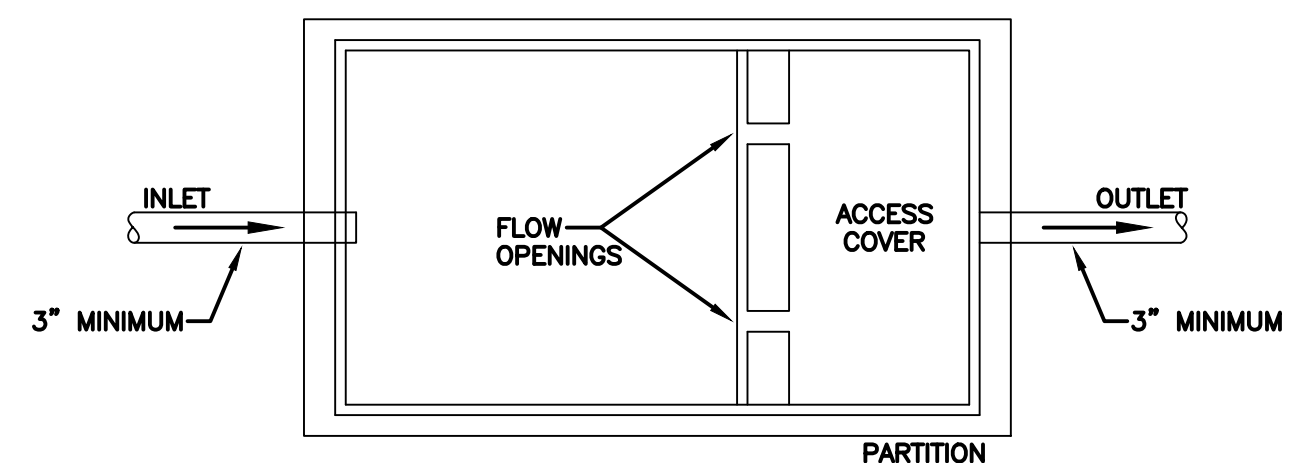
DATE:	03/21/19
JOB NO:	18-159
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	<b>P1-2</b>

**PLUMBING FIXTURE SCHEDULE**

DESCRIPTION	MANUFACTURER	MODEL	TRIM	PIPING CONNECTIONS				OPTIONS-ACCESSORIES
				S/W	VENT	C.W.	HW	
COOLER	ELKAY	LZWS-LRPB M28K		1-1/2"	1-1/2"	1/2"	1/2"	HIGH-LOW, 304 SS SATIN FINISH, WITH BOTTLE FILLER.
SHOWER	GUARDIAN	GBF1909SS H		-	-	3/4"	3/4"	FLOOR MOUNTED, PROVIDE WITH MIXING VALVE, FLOOR DRAIN, HAND PADLE OPERATION. WATER DELIVERED SHOWER SHALL BE TEPID MINIMUM 60°F TO 100°F.
SHOWER BIB	ZURN	Z300	BRONZE	4"	2"	-	-	PROVIDE NICKEL BRONZE STRAINER, MECHANICAL TRAP SEAL SIMILAR TO J.R. SMITH QUAD CLOSE.
SHOWER BIB	WOODFORD	B67		-	-	3/4"	1/2"	PROVIDE LOCKING BOX WITH ANTI-SIPHON AND VACUUM BREAKER, FREEZE PROOF.
SHOWER BIB	WOODFORD	V22		-	-	3/4"	1/2"	PROVIDE LOCKING BOX WITH ANTI-SIPHON AND VACUUM BREAKER, FREEZE PROOF.
BATHROOM SINK	AMERICAN STANDARD-REGALYN	4867.008		1 1/2"	1 1/2"	1/2"	1/2"	GRID DRAIN, P TRAP, LOCAL MIXING VALVE, WALL HANGER KIT.
SINK ADA WALL HUNG SINK	JUST	JH-ADA-362 0-S-CP		1-1/2"	1-1/2"	1/2"	1/2"	SINK STRAINER, P-TRAP, LOCAL MIXING VALVE, ADDITIONAL ACCESSORIES COORDINATE WITH OWNER.
SINK COUNTER MOUNTED	JUST	SLN-1815-A -GR		1-1/2"	1-1/2"	1/2"	1/2"	SINK STRAINER, P-TRAP, LOCAL MIXING VALVE, ADDITIONAL ACCESSORIES COORDINATE WITH OWNER.
TOILET CLOSURE	CHICAGO FAUCETS	SH-PB1-00-013		1-1/2"	1-1/2"	1/2"	1/2"	TERRAZO BASIN, PRESSURE BALANCED MIXING VALVE POLYPROPYLENE WALLS, CURTAIN ROD, SINGLE LEVER VALVE, GRID FLOOR DRAIN, GRAB BARS, SEAT.
TOILET SEPTOR				4"	2"	-	-	4000 PSI CONCRETE, K-25 TRAFFIC RATED.
TOILET ADA WATER CLOSET	AMERICAN STANDARD-CHAMPION	2034.314	1.6 GPF FLUSH TANK WATER CLOSET	4"	2"	3/4"	-	VACUUM BREAKER, COORDINATE COLOR WITH OWNER, PROVIDE ELONGATED SEAT.

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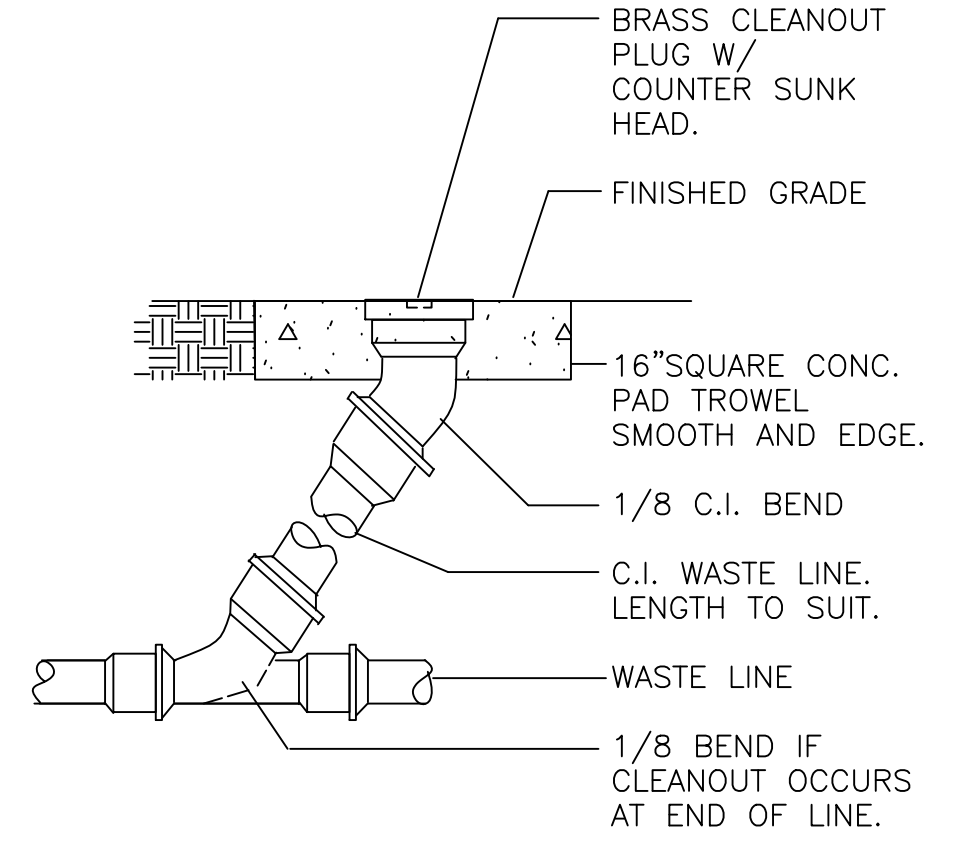
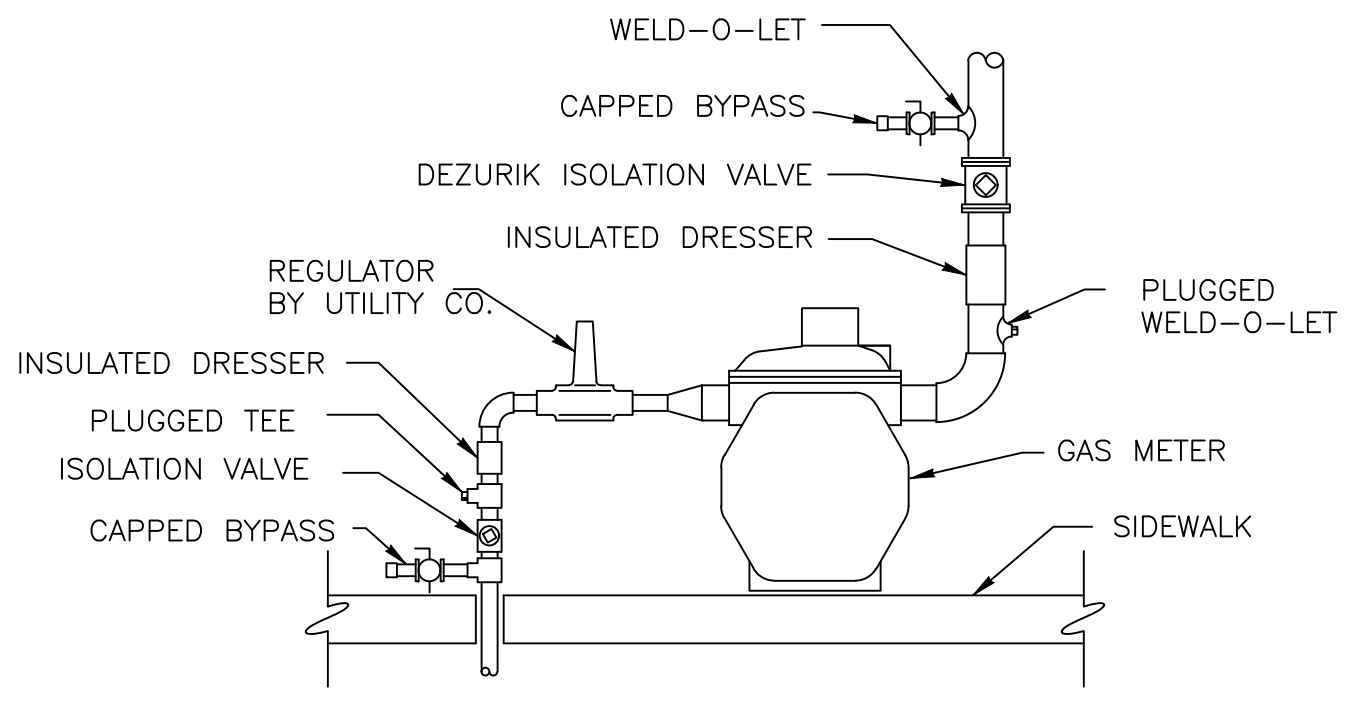
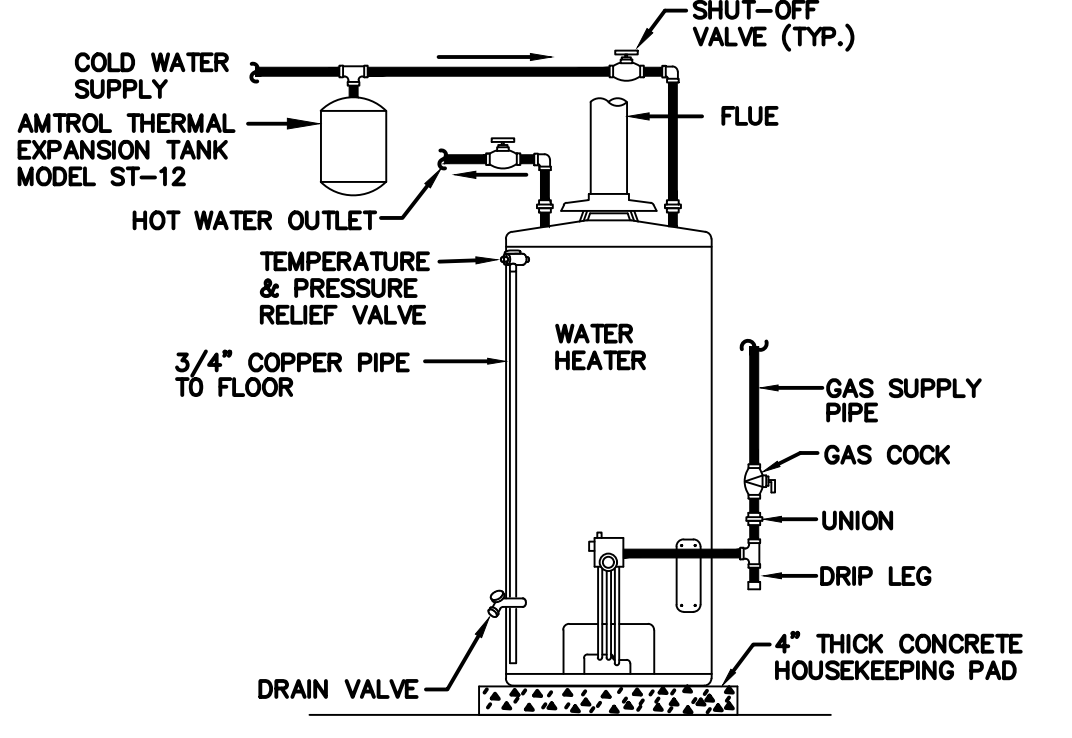
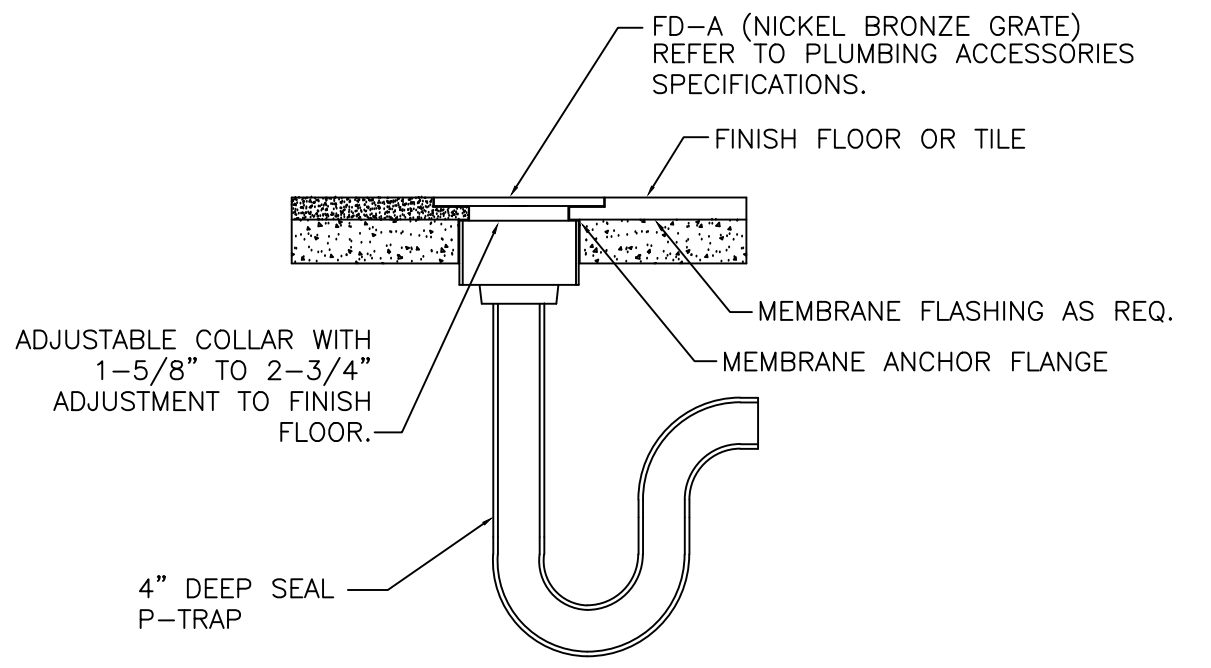
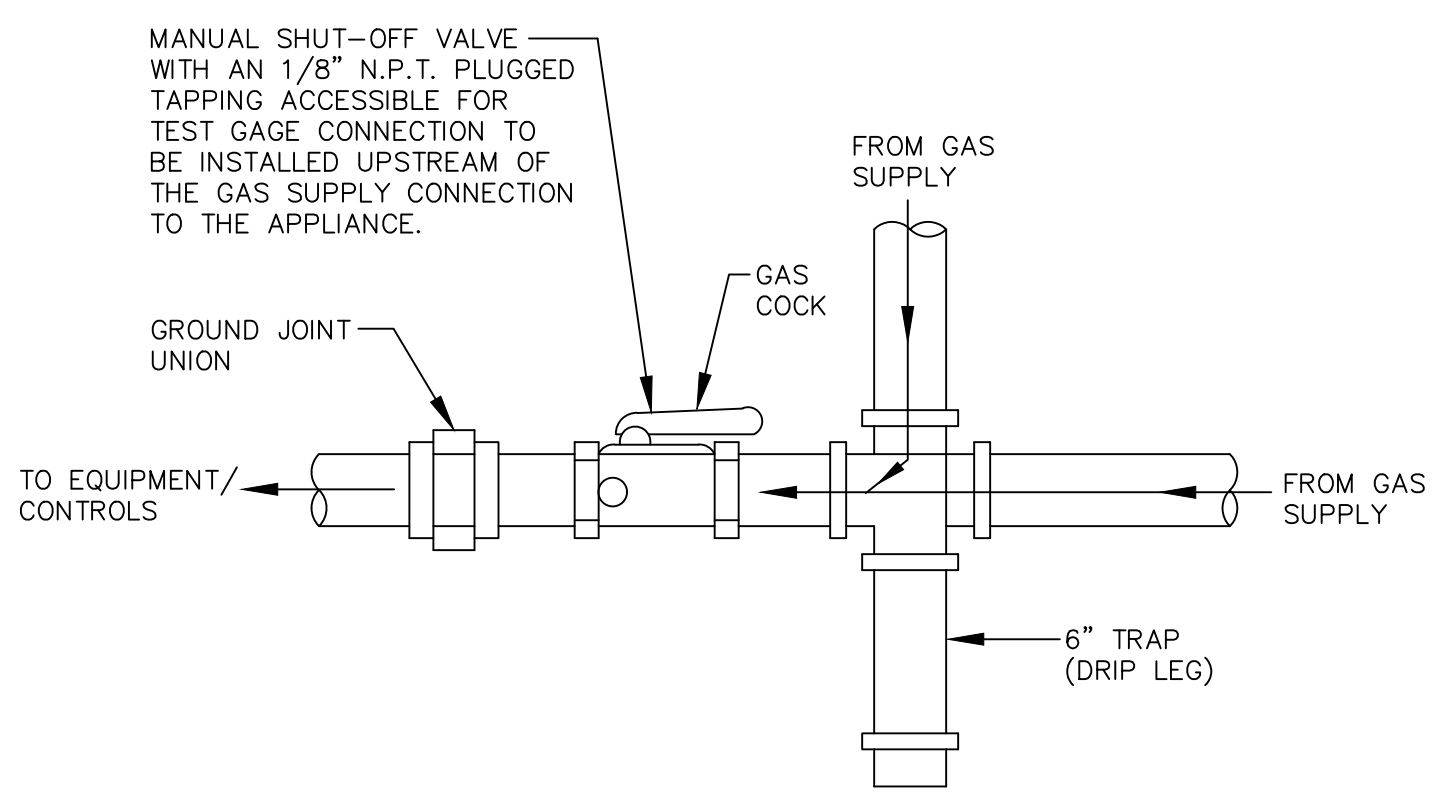
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SAND INTERCEPTOR FOR USE WITH OIL INTERCEPTOR DETAIL  
NOT TO SCALE

GAS FIRED WATER HEATER SCHEDULE							
EQUIPMENT NO	CAPACITY (GAL)	RECOVERY @100 DEG F. RISE	BTU PER HR.	GAS CONN.	WATER CONN.	MANUFACTURER & MODEL	OPTIONS/ACCESSORIES
WH-1	80	145	150	1/2"	3/4"	BRADFORD WHITE- PDV-80S-150-3N	NOTE-1

NOTES:  
1. ASME RELIEF VALVE, POWER VENTED, HOUSEKEEPING PAD, PIPE DISCHARGE FROM WATER HEATER 3/4" TYPE L COPPER FULL SIZE TO NEAREST FLOOR DRAIN. 80% EFFICIENT AT STANDARD CONDITIONS.



**TOWN OF HOTCHKISS PUBLIC WORKS FACILITY**  
TBD BARROW MESA RD  
HOTCHKISS, COLORADO

DATE:	ISSUED FOR:
03/21/19	REVISED 50% DD

DATE:	03/21/19
JOB NO:	18-159
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	P2-1

**ABBREVIATIONS**

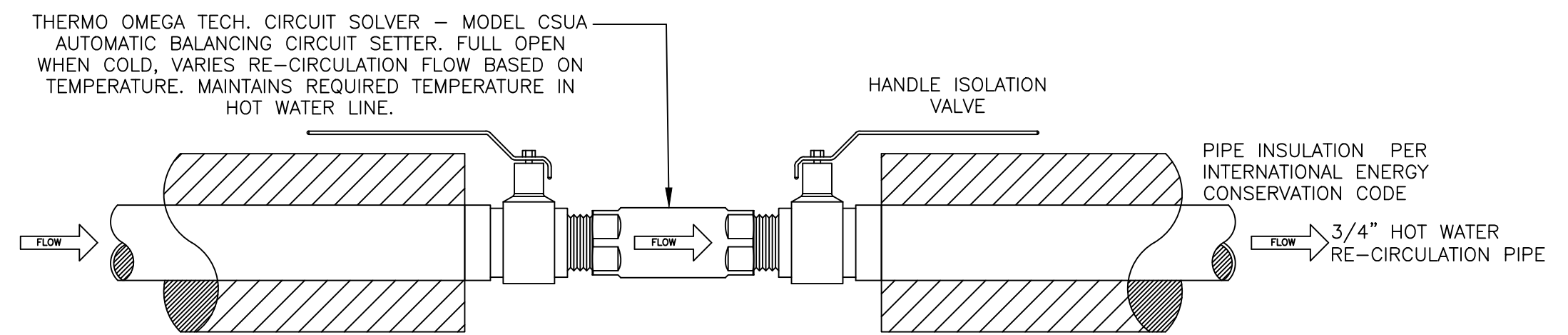
AUTOMATIC AIR VENT	DN	DOWN	FTR	FINNED TUBE RADIATION	NC	NORMALLY CLOSED	RM	ROOM
ABOVE	DWG	DRAWING	FV	FACE VELOCITY	NEG	NEGATIVE	ROD	ROOF OVERFLOW DRAIN
AREA DRAIN (SEE SYMBOLS)	DX	DIRECT EXPANSION	FXC	FLEXIBLE CONNECTION	NIC	NOT IN CONTRACT	RPM	REVOLUTIONS PER MINUTE
ABOVE FINISHED FLOOR	EA	EACH	GA	GAUZE	No	NUMBER	SA	SUPPLY AIR
ALUMINUM	EAT	ENTERING AIR TEMPERATURE	GAL	GALLON	NO	NORMALLY OPEN	SAD	SUPPLY AIR DIFFUSER
ACCESS PANEL	EC	ELECTRICAL CONTRACTOR	GALV	GALVANIZED	NOM	NOMINAL	SCH	SCHEDULE
AUTOMATIC TEMPERATURE CONTROL	ECC	ECCENTRIC	GC	GENERAL CONTRACTOR	NTS	NOT TO SCALE	SCHEM	SCHEMATIC
AVERAGE	EFF	EFFICIENCY	GPM	GALLONS PER MINUTE	OA	OUTSIDE AIR	SH	SENSIBLE HEAT
AVERAGE WATER TEMPERATURE	EJ	EXPANSION JOINT	GR	GRILLE	OB	OFF BOTTOM	SP	STATIC PRESSURE
BACK DRAFT DAMPER	EL	ELEVATION	GRS/LB	GRAINS PER POUND	OD	OUTSIDE DIMENSION	SPEC	SPECIFICATION
BACK FLOW PREVENTOR	ELEC	ELECTRIC	HT	HEIGHT	OC	ON CENTER	SQ	SQUARE
BUILDING	ELEV	ELEVATOR	H <sub>2</sub> O	WATER	OCC	OCCUPIED	SS	STAINLESS STEEL
BELOW	ENT	ENTERING	HB	HOSE BIBB	OGH	OUTSIDE GROUND HYDRANT	STD	STANDARD
BASEMENT	EQ	EQUAL	HD	HEAD (SEE SCHEDULES)	OPG	OPENING	STL	STEEL
BRITISH THERMAL UNIT	EQUIP	EQUIPMENT	HP	HORSEPOWER	OT	OFF TOP	STM	STEAM
CAPACITY	EQUIV	EQUIVALENT	HR	HOUR	OZ	OUNCE	STR	STRUCTURAL
CIRCUIT BALANCING VALVE	ER	EXHAUST REGISTER	HTR	HEATER	PART	PARTIAL	SUCT	SUCTION
CUBIC FEET PER HOUR	ES	END SWITCH	HZ	HERTZ	PDR	PLENUM DRAIN	SYS	SYSTEM
CUBIC FEET PER MINUTE	EWT	ENTERING WATER TEMPERATURE	ID	INTERNAL DIAMETER	PD	PRESSURE DROP (SEE SCHEDULE)	TAD	TRANSFER AIR DUCT
CONCRETE HOUSEKEEPING PAD	EX	EXHAUST	IN	INCHES	PERF	PERFORATED	TDH	TOTAL DYNAMIC HEAD
CAST IRON	EXPAN	EXPANSION	INCL	INCLUDING	PH	PHASE	TEMP	TEMPERATURE
CENTER LINE	EXT	EXTERNAL	INT	INTERNAL	PNEU	PNEUMATIC	THT	TOTAL HEAT
CEILING	*F	DEGREES FAHRENHEIT	INV	INVERT	POS	POSITIVE	TP	TOTAL PRESSURE
CONCRETE MASONRY UNIT	FA	FROM ABOVE	KW	KILOWATT	PRESS	PRESSURE	TT	TEMPERATURE TRANSMITTER
CLEAN OUT	FB	FROM BELOW	L	LENGTH	PS	PRESSURE SWITCH	TYP	TYPICAL
COLUMN	FC	FAIL CLOSED	LAT	LEAVING AIR TEMPERATURE	PSI	POUNDS PER SQUARE INCH	UC	UNDERCUT
COMPRESSOR	FCV	FLOW CONTROL VALVE	LB	POUND	PT	PRESSURE TRANSMITTER	UNOCC	UNOCCUPIED
CONCENTRIC	FD	FLOOR DRAIN	LD	LINEAR DIFFUSER	PV	PLUG VALVE	V	VOLTS
CONCRETE	F/D	FIRE DAMPER	LIN	LINEAR	PVC	POLYVINYL CHLORIDE	VA	VALVE
CONDENSATE	FIN	FINISHED	LIQ	LIQUID	QUAN	QUANTITY	VB	VACUUM BREAKER
CONNECTION	FL	FLANGE	LRA	LOCK ROTOR AMPS	R	REGISTER	VEL	VELOCITY
CONTINUATION	FLA	FULL LOAD AMPS	LVG	LEAVING	RA	RETURN AIR	VI	VIBRATION ISOLATOR
CONTRACTOR	FLEX	FLEXIBLE	LVR	LOUVER	RD	ROOF DRAIN	VOLT	VOLTAGE
DIRECT ACTING	FLR	FLOOR	LWT	LEAVING WATER TEMPERATURE	RE	ROUNDED ENTRANCE/EXIT	VTR	VENT THRU ROOF
DAMPER	FO	FAIL OPEN	MC	MECHANICAL CONTRACTOR	REL	RELIEF	W	WIDTH
DRY BULB	FP	FIRE PROTECTION	MBH	THOUSANDS OF BTU PER HOUR REQD	REQD	REQUIRED	W/O	WITHOUT
DEPARTMENT	FPM	FEET PER MINUTE	MED	MEDIUM	RET	RETURN	WB	WET BULB
DIAMETER	FPS	FEET PER SECOND	MFR	MANUFACTURER	RH	RELATIVE HUMIDITY	WC	WATER COLUMN
DIAGRAM	FRICT	FRICTION	MH	MANHOLE	RICW	RUN IN CASEWORK	WG	WATER GAUGE
DIFFERENTIAL	FS	FLOW SWITCH	MIN	MINIMUM	RIE	RUN IN ENCLOSURE		
DISCHARGE	F/S/D	FIRE/SMOKE DAMPER WITH ACCESS DOOR	MISC	MISCELLANEOUS	RIW	RISE IN WALL		
DIVISION	FT	FEET	MTD	MOUNTED	RLA	RATED LOAD AMPS		
DOWN IN WALL								
DOOR LOUVER								

**ABBREVIATIONS (CONTINUED)**

AIR CONDITIONING UNIT	ESP	EXTERNAL STATIC PRESSURE	NC	NORMALLY CLOSED
ACCESS DOOR	ET	EXPANSION TANK	NO	NORMALLY OPEN
ABOVE FINISHED FLOOR	EWT	ENTERING WATER TEMPERATURE	NIC	NOT IN CONTRACT
AIR HANDLER (SPLIT REFRIG)	EWC	ELECTRIC WATER COOLER	NK	NECK
AIR HANDLING UNIT	FA	FREE AREA	OA	OUTSIDE AIR
ACOUSTICAL LINING	FX	FLEXIBLE CONNECTION	OAI	OUTSIDE AIR INTAKE
ACCESS PANEL	FC	FAN COIL UNIT	OAT	OUTSIDE AIR TEMPERATURE
ELECTRIC BASEBOARD RADIATION	FD	FIRE DAMPER	OC	ON CENTER
BOILER	FLR	FLOOR	OD	OUTSIDE DIAMETER
BACK DRAFT DAMPER	FOB	FLAT ON BOTTOM	OBD	OPPOSED BLADE DAMPER
BELOW FINISHED CEILING	FOT	FLAT ON TOP	PBD	PARALLEL BLADE DAMPER
BOTTOM OF BEAM	FOP	FUEL OIL PUMP	PRV	PRESSURE REDUCING VALVE
BOTTOM OF DUCT	FP	FIRE PUMP	PTAC	PACKAGED TERMINAL AIR CONDITIONER
BOTTOM OF PIPE	FPM	FEET PER MINUTE	RA	RETURN AIR
CHILLER	FTR	FINNED TUBE RADIATION	RAG	RETURN AIR GRILLE
CEILING DIFFUSER	GC	GENERAL CONTRACTOR	RAR	RETURN AIR REGISTER
CUBIC FEET PER MINUTE	GPH	GALLONS PER HOUR	RCP	REFLECTED CEILING PLAN
CHILLED WATER PUMP	GPM	GALLONS PER MINUTE	RHC	REHEAT COIL
CHILLED WATER RETURN	HD	HAND DAMPER	RF	RETURN FAN
CHILLED WATER SUPPLY	HP	HEAT PUMP	SA	SUPPLY AIR
CLEAN OUT	HV	HEATING AND VENTILATING UNIT	SAR	SUPPLY AIR REGISTER
CONDENSATE PUMP	HWC	HOT WATER CONVERTER	SCG	SMOKE CONTROL GRILLE
CONDENSER WATER RETURN	HWP	HOT WATER PUMP	SD	SMOKE DAMPER
CONDENSER WATER SUPPLY	HWR	HEATING HOT WATER RETURN	SEF	SMOKE EXHAUST FAN
COOLING TOWER	HWS	HEATING HOT WATER SUPPLY	SF	SUPPLY FAN
CONDENSING UNIT	HX	HEAT EXCHANGER	SP	STATIC PRESSURE
CABINET UNIT HEATER	HZ	HERTZ	TG	TRANSFER GRILLE
CONSTANT VOLUME BOX	ID	INSIDE DIAMETER	TYP	TYPICAL
CONDENSER WATER PUMP	LAT	LEAVING AIR TEMPERATURE	UH	UNIT HEATER
DRY BULB	LWT	LEAVING WATER TEMPERATURE	UON	UNLESS OTHERWISE NOTED
DUCT SILENCER	LD	LINEAR DIFFUSER	VAV	VARIABLE AIR VOLUME UNIT
DOMESTIC WATER PUMP	LF	LINEAR FEET	VD	VOLUME DAMPER
ENTERING AIR TEMPERATURE	MC	MECHANICAL CONTRACTOR	VTR	VENT THRU ROOF
ELECTRICAL CONTRACTOR	MTD	MOUNTED	WB	WET BULB
EXHAUST FAN	MOD	MOTOR OPERATED DAMPER	WMS	WIRE MESH SCREEN
EXPANSION JOINT	MUA	MAKE-UP AIR UNIT		
EXHAUST REGISTER				

**PLUMBING SYMBOLS**

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
---	SOIL OR WASTE PIPE (BELOW GROUND)	⬆	VACUUM BREAKER
---	SOIL OR WASTE PIPE (ABOVE GROUND)	⬆ RD	ROOF DRAIN
----	VENT PIPE (V)	⊖	PRESSURE GAUGE
----	COLD WATER PIPE (CW)	⊖	TEMPERATURE GAUGE
----	HOT WATER PIPE (HW)	M	WATER METER
----	HOT WATER RETURN (HWR)	⊖	PRESSURE REDUCING VALVE
----	TEMPERED HOT WATER LINE (THW)	⊖	GAS COCK
G	NATURAL GAS PIPE	VTR	VENT THROUGH ROOF
SD	STORM DRAIN PIPE	LAV	LAVATORY
FD	FLOOR DRAIN	WC	WATER CLOSET
CO	CLEAN-OUT(FLOOR)	URN	URINAL
CO	CLEAN-OUT(WALL)	DF	DRINKING FOUNTAIN
WH	HOT WATER HEATER	SH	SHOWER
⊖	GATE VALVE	A.D.	ACCESS DOOR
⊖	CHECK VALVE	SS	SAFETY SHOWER
⊖	TEMP./PRESS. RELIEF VALVE		
⊖	FIXTURE ISOLATION VALVE		



**CIRCUIT SOLVER - AUTOMATIC CIRCUIT SETTER DETAIL**  
NOT TO SCALE

**PLUMBING LEGEND**

(E)(NAME) --- EXISTING PIPING TO REMAIN	---	(NAME) --- EXISTING PIPING TO BE REMOVED	---	G --- NATURAL GAS
----	----	----	----	PG --- PROPANE GAS
----	----	----	----	DIS --- DISTILLED WATER SUPPLY
----	----	----	----	DIR --- DISTILLED WATER RETURN
----	----	----	----	DES --- DEIONIZED WATER SUPPLY
----	----	----	----	DER --- DEIONIZED WATER RETURN
----	----	----	----	WFS --- WATER FOR INJECTION SUPPLY
----	----	----	----	WFR --- WATER FOR INJECTION RETURN
D --- EQUIPMENT DRAIN	---	USPS --- USP PURIFIED WATER SUPPLY	---	PHWR --- PROCESS HOT WATER RECIRC.
LW --- LAB WASTE	---	LV --- LAB VENT	---	PW --- PUMPED WASTE
F --- FIRE MAIN	---	PS --- PURE STEAM	---	PV --- PROCESS VENT
PSC --- PURE STEAM CONDENSATE	---	CA --- COMPRESSED AIR	---	HE --- HELIUM
SP --- SPRINKLER PIPE	---	ST --- STORM WATER	---	N2 --- NITROGEN
OD --- OVERFLOW STORM WATER	---	HPS --- HIGH PRESSURE STEAM	---	O2 --- OXYGEN
HPS --- HIGH PRESSURE STEAM	---	HPC --- HIGH PRESSURE CONDENSATE	---	H2 --- HYDROGEN
LPS --- LOW PRESSURE STEAM	---	LPC --- LOW PRESSURE CONDENSATE	---	N2O --- NITROUS OXIDE
TWS --- TOWER WATER SUPPLY	---	TWR --- TOWER WATER RETURN	---	MA --- MEDICAL AIR
				VAC --- VACUUM
				DC --- DECONTAMINATION PIPING

**PIPING ELEMENTS/VALVING**

⊖	PRESSURE REDUCING VALVE (PRV)	⊖	PIPE RISING UP
⊖	GLOBE VALVE	⊖	PIPE DROPPING DOWN
⊖	BUTTERFLY VALVE	⊖	UNION - SCREWED OR FLANGED
⊖	VALVE IN RISE OR DROP	FS	FLOW SWITCH
⊖	BALL VALVE	TT	TEMPERATURE TRANSMITTER
⊖	SWING CHECK VALVE	PT/PS	PRESSURE TRANSMITTER OR PRESSURE SWITCH
⊖	LIFT CHECK VALVE	TH/TI	THERMOMETER/TEMPERATURE INDICATOR
⊖	GLOBE VALVE, ANGLE	PI/GA	GAUGE WITH GAUGE COCK/PRESSURE INDICATOR
⊖	THREE WAY CONTROL VALVE	⊖	BACKFLOW PREVENTOR (REDUCED ZONE)
⊖	TWO WAY CONTROL VALVE	⊖	BACKFLOW PREVENTOR (DOUBLE CHECK VALVE ASSEMBLY)
⊖	SOLENOID VALVE	⊖	WATER HAMMER ARRESTER
⊖	TEMPERATURE AND PRESSURE RELIEF VALVE	⊖	CIRCUIT SETTING BALANCING VALVE
⊖	RELIEF/SAFETY VALVE	⊖	HOSE BIBB
⊖	GAS COCK	RD	ROOF DRAIN
⊖	GAS PRESSURE REGULATOR	OS	OPEN SITE DRAIN
⊖	STRAINER	FD	FLOOR DRAIN
⊖	STRAINER WITH BLOW OFF VALVE	ADR	AREA DRAIN
⊖	FLEXIBLE-CONNECTION	CO	CLEANOUT
⊖	SPRINKLER HEAD	CO	WALL CLEAN OUT

**PLUMBING - LEGEND**

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Phone: 970-241-8709

**TOWN OF HOTCHKISS  
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TBD BARROW MESA RD  
HOTCHKISS, COLORADO

DATE:	ISSUED FOR:
03/21/19	REVISED 50% DD

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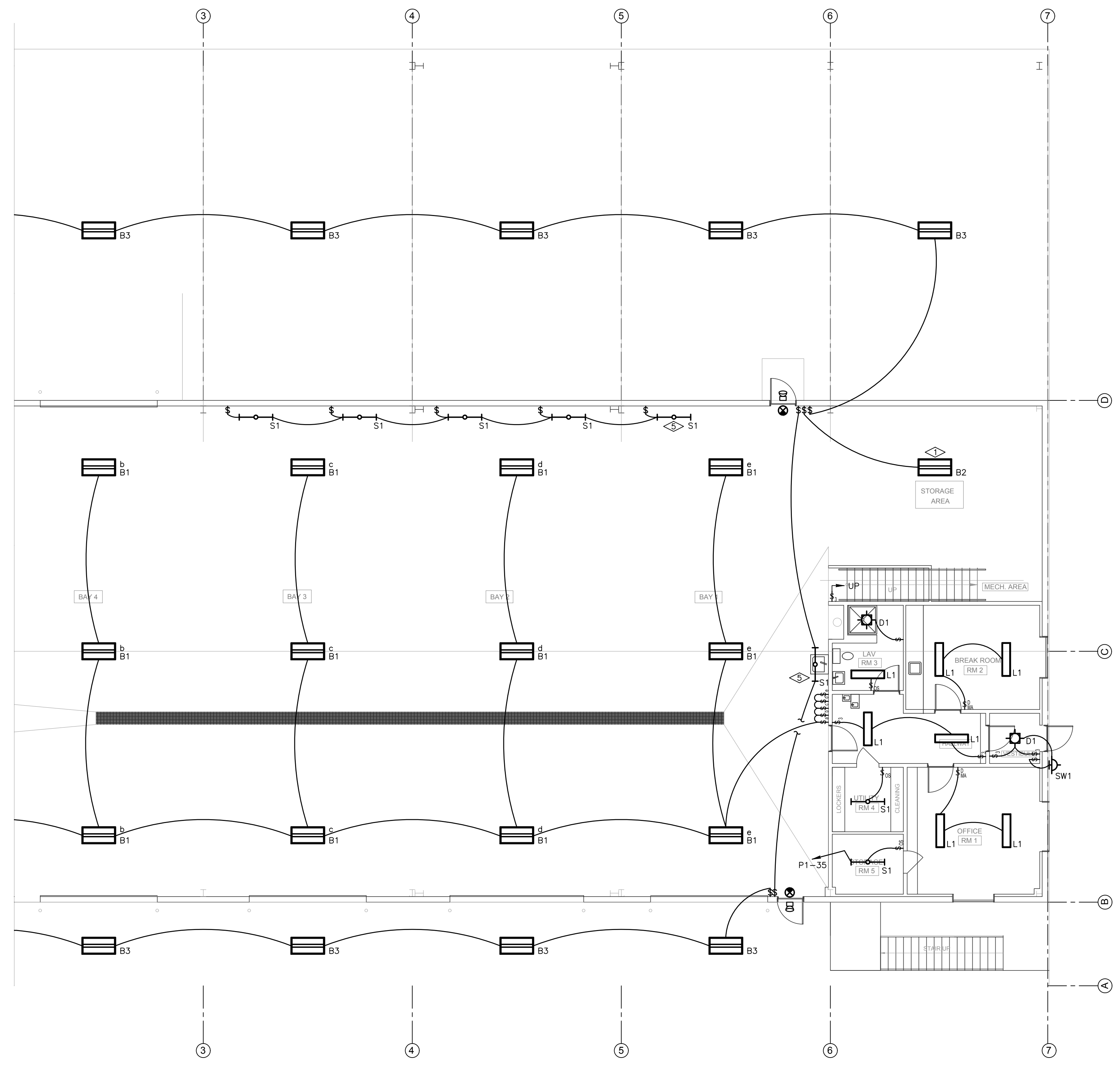
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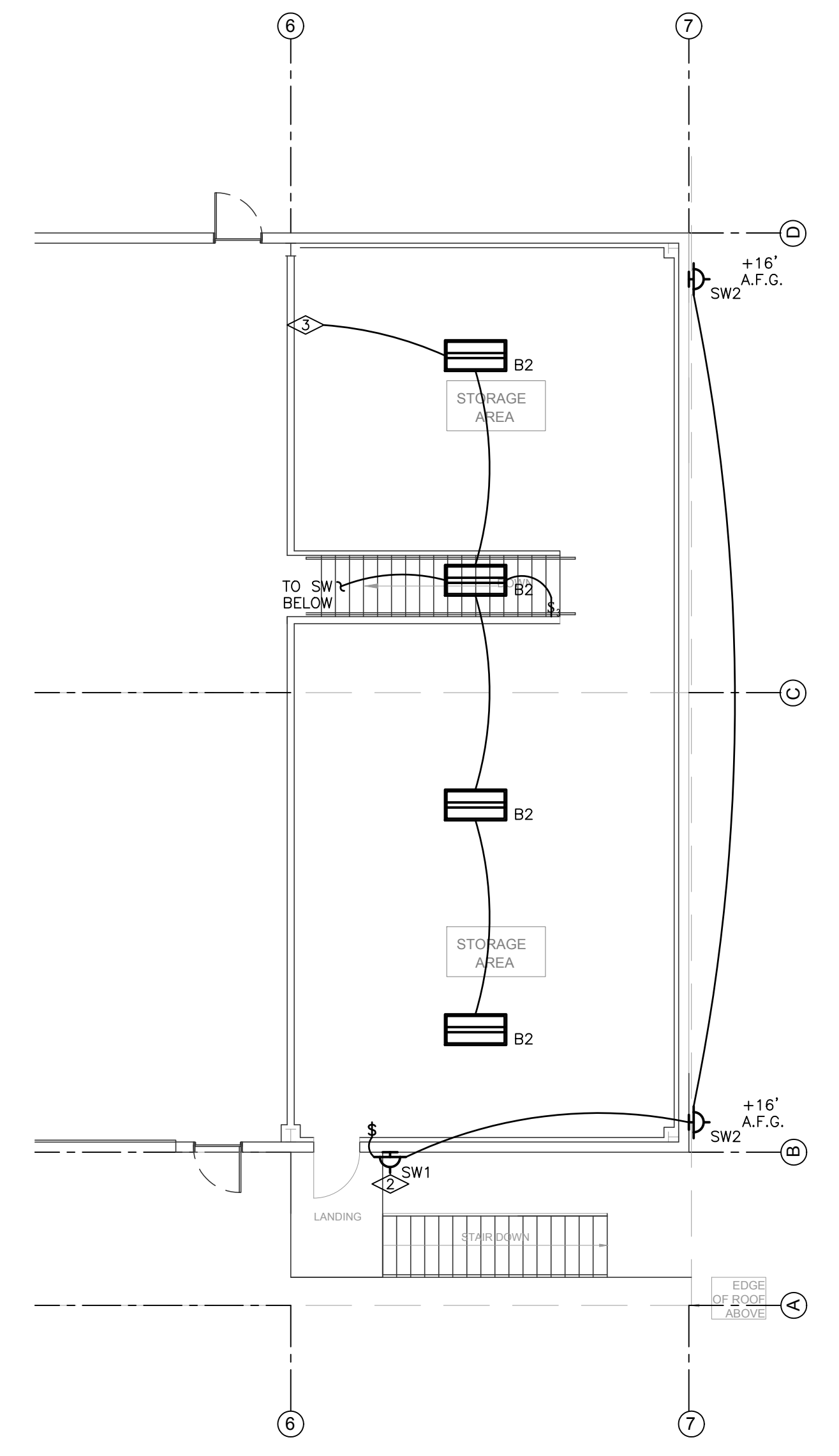
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**LIGHTING - SHOP FLOOR PLAN**  
 SCALE: 1/8"=1'-0"  
 NORTH

- FLAG NOTES:**
- ◊ FIXTURE LOCATED ON THE UNDERSIDE OF THE MEZZANINE LEVEL.
  - ◊ SW1 FIXTURE LOCATED 7' ABOVE SECOND FLOOR LANDING. CIRCUITED WITH THE OFFICE AREA LIGHTING P1-35.
  - ◊ CONTINUED FROM BAY LIGHTING CIRCUIT P1-33
  - ◊ CONTINUE TO FRONT DOOR LIGHT TO BE CIRCUITED WITH OFFICE AREA LIGHTING P1-35
  - ◊ PROVIDE SUPPORT BRACKETS TO SUSPEND TYPE S1 FIXTURES 8 FT A.F.F. LOCATED OVER WORKBENCHES, COORDINATE WITH OWNER FOR EXACT LOCATIONS; CIRCUIT WITH OFFICE AREA LIGHTING: P1-35.



**LIGHTING - MEZZANINE FLOOR PLAN**  
 SCALE: 1/8"=1'-0"  
 NORTH

## GENERAL LIGHTING NOTES

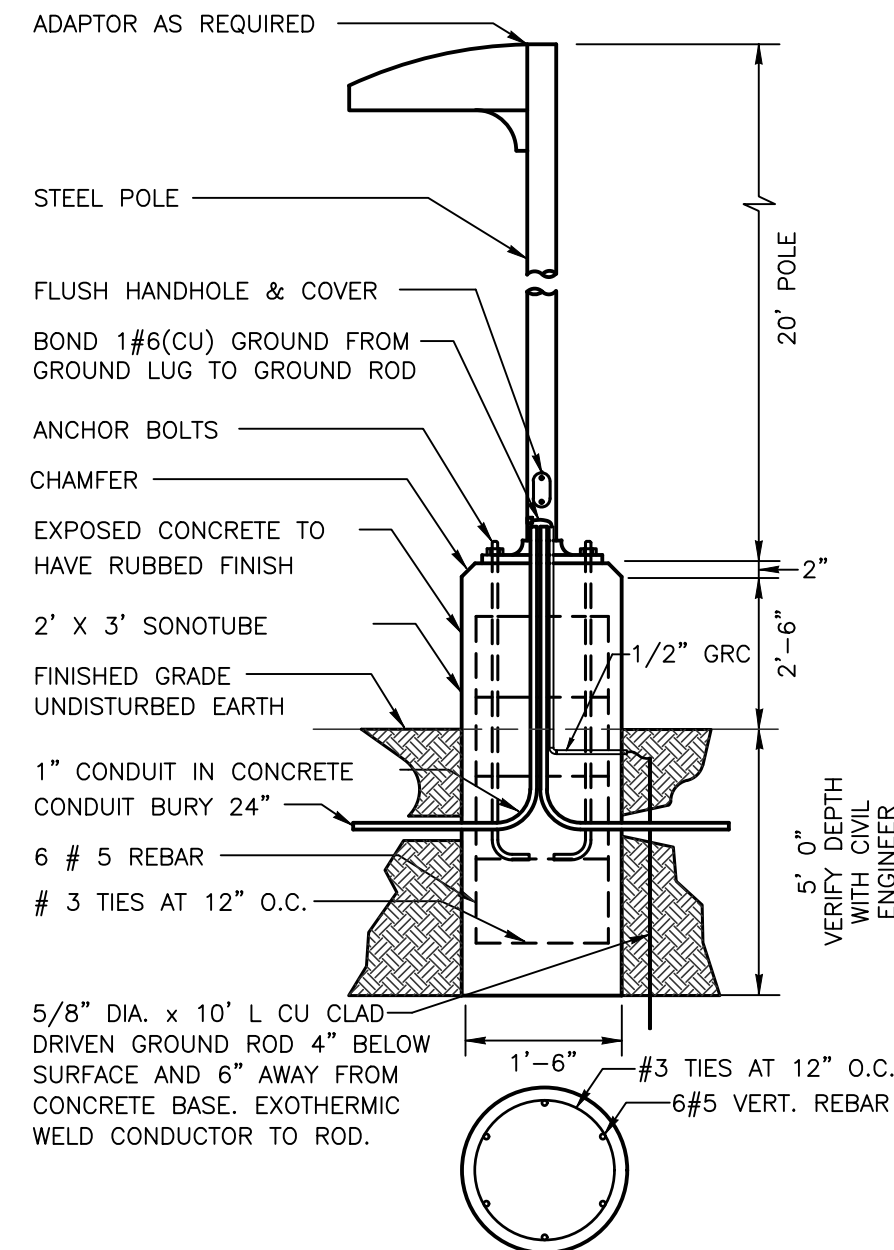
ES:  
 ING FIXTURES SHALL BE SUPPORTED FROM THE  
 CTURE ABOVE AND SHALL NOT BE SUPPORTED  
 THE T-BAR CEILING GRID.  
 ELECTRICAL CONTRACTOR IS TO CONFIRM THE  
 FIXTURES ORDERED WILL BE COMPATIBLE WITH  
 CEILING TYPES AS SHOWN ON THE  
 ITECTURAL REFLECTED CEILING PLANS. NOTIFY  
 ENGINEER OF ANY DISCREPANCIES PRIOR TO  
 RING THE FIXTURES.  
 IDINATE THE LOCATION OF LIGHTING EQUIPMENT  
 DING BUT NOT LIMITED TO THE LUMINAIRES,  
 HES AND CONTROL COMPONENTS WITH THE  
 ITECTURAL, STRUCTURAL AND MECHANICAL  
 INGS AND ALL OTHER TRADES AS REQUIRED.  
 Y LUMINAIRE MOUNTING REQUIREMENTS AND  
 ALL HEIGHT OF ALL PENDANT MOUNTED FIXTURES  
 \ TO ORDERING.  
 IGH T FIXTURES NEED TO BE COMPATIBLE WITH  
 SWITCHES AND CONTROLS BEING PROVIDED.  
 LIGHTING PACKAGE SHALL BE APPROVED BY BOTH  
 IECTS AND ENGINEERS AS APPROVED EQUAL  
 RE BID. NO LIGHT FIXTURE SHALL BE ORDERED  
 THE LIGHT FIXTURE SUBMITTAL PACKAGE HAS  
 APPROVED IN WRITING BY THE ARCHITECT,  
 RAL CONTRACTOR AND ELECTRICAL ENGINEER.  
 IDINATE LUMINAIRE MOUNTING REQUIREMENTS  
 \ TO PLACING ORDER.

Y AND EXIT LIGHTS:  
 IDE EMERGENCY AND EXIT SIGNS AS PER ALL  
 L CODES.  
 SIGNS CONNECTED TO A REMOTE EMERGENCY  
 REQUIRES EXTRA BATTERY CAPACITY TO OPERATE  
 REMOTELY LOCATED EMERGENCY HEAD FOR  
 SS AWAY FROM THE BUILDING.  
 R TO THE PLANS FOR THE NUMBER OF FACES  
 IREQD AT EACH EXIT. FIELD ADJUST THE LOCATION  
 HE EXIT SIGNS FOR THE BEST VISIBILITY  
 IBLE.  
 LIGHTING FIXTURES DENOTED WITH "EM" SHALL BE  
 IDED WITH AN ENGINEER APPROVED EMERGENCY  
 DRIVER OR BALLAST TO OPERATION THE FIXTURE  
 EMERGENCY MODE TO MEET ALL CURRENT  
 L CODES AND WILL BE CIRCUITED TO THE  
 ITCHED SIDE OF THE LIGHTING CIRCUIT.  
 IGH T FIXTURES DESIGNATED WITH "EM" OR  
 IFIED WITH AN EM FUNCTION SHALL BE PROVIDE  
 ONE OF THE FOLLOWING:  
 EGAL TEST SWITCH;  
 EMOTE INFRARED HAND HELD DEVICE;  
 TERGAL ELECTRONIC DEVICE THAT AUTOMATICALLY  
 ERFORMS CODE REQUIRED TESTS.  
 STAIRWELLS AND PATHS OF EGRESS TO THE  
 NOR DOORS, AND THE EXTERIOR PATH OF  
 SS AWAY FROM THE BUILDING SHALL RECEIVE  
 GENY LIGHTING PER CODE.

CONTROLS:  
 IGH T IN: RESTROOMS, STORAGE CLOSETS,  
 DORS CLOSETS AND STAIRWELLS ARE TO BE  
 HED WITH A MOTION SENSOR ON/OFF SWITCH  
 A TIME DELAY. SET THE TIME DELAY LENGTH AS  
 TED BY THE OWNER.  
 XCEPTION: IN AREAS WHERE THE SWITCH IS  
 CATED OUTSIDE THE AREA THE LIGHT IS  
 CATED IN.  
 WITH MORE THAN ONE FIXTURE WILL BE  
 WITH A MANUAL ON/AUTO OFF DIMMING SWITCH.  
 C FOR LIGHTS IN LARGE COMMON AREA ARE AS  
 N PLAN.

NOTES:  
 COORDINATION DURING CONSTRUCTION IS  
 ATIVE. CONTRACTORS BIDDING THIS WORK MUST  
 REASONABLE ALLOWANCES FOR UNFORESEEN  
 INGENCIES.

IRING IS SHOWN DIAGRAMMATICALLY ON DRAWING.  
 VERIFY ALL CONDITIONS PRIOR TO ROUGH-IN.  
 IRE IS TO BE #12 UNLESS NOTED OTHERWISE.  
 BRANCH CIRCUITS WITH HOME RUNS OVER 50  
 WILL BE SIZED ONE SIZE LARGER.  
 ECTRICAL WORK TO COMPLY WITH LATEST  
 N OF NEC AND ALL APPLICABLE LOCAL CODES.



### ENTRY GATE LIGHT - POLE DETAIL

NOT TO SCALE

- NOTES:  
 1. DIMENSION FOR ANCHOR BOLT SPACING BY POLE MANUFACTURER.  
 2. CONTRACTOR SHALL INSTALL A FUSE AND WEATHERPROOF FUSEHOLDER AT EACH POLE BASE.  
 3. BASE HOLE SHALL BE DRILLED INTO NATURAL, UNDISTURBED SOIL OR PROPERLY COMPACTED FILL.

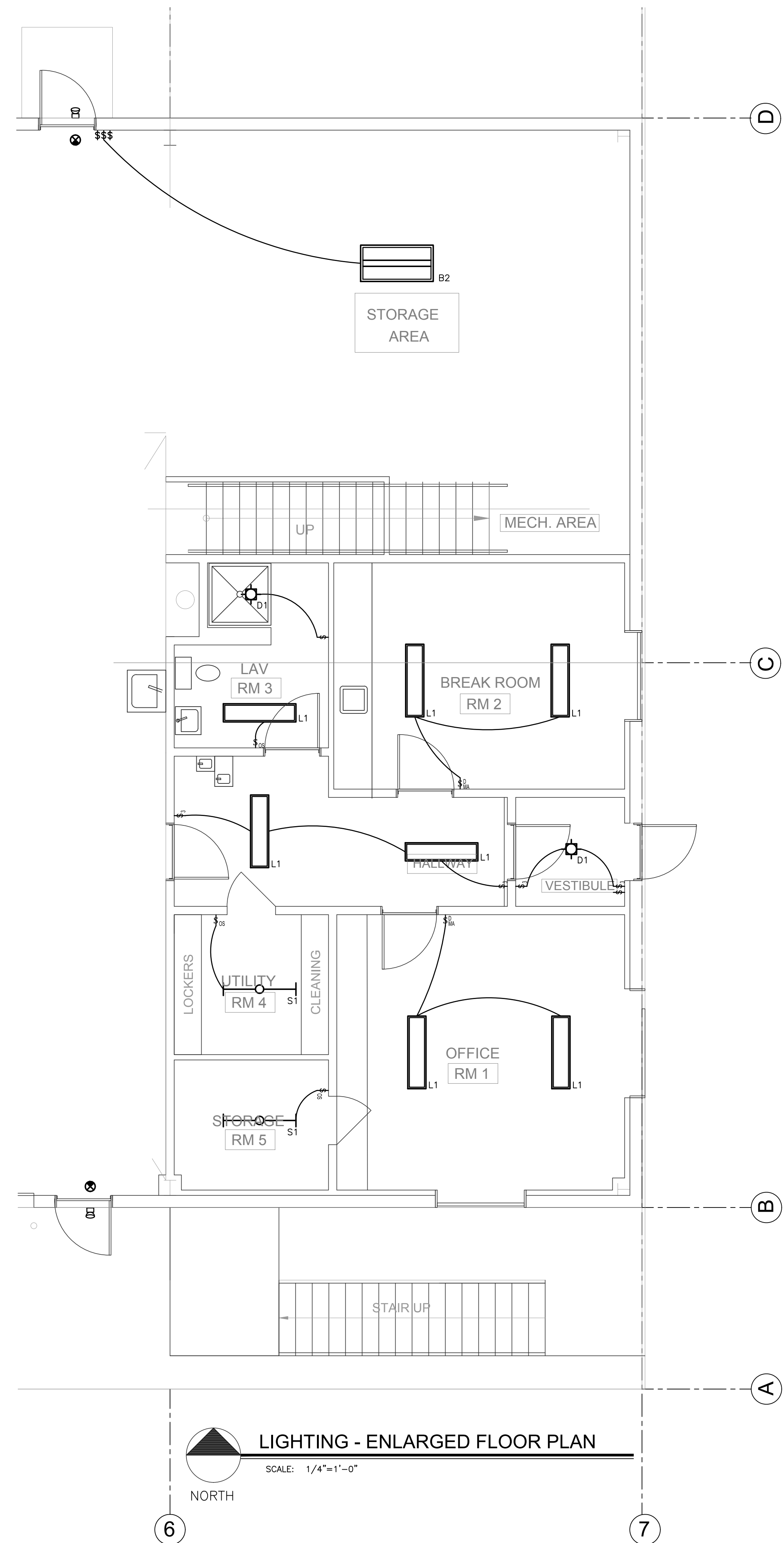
### INTERIOR LUMINAIRE SCHEDULE

MANUFACTURER CATALOG NO.	MANUFACTURER CATALOG NO.	VOLTAGE MOUNTING # OF LAMPS	BALLAST LAMP TYPE LAMP CAT. #	DESCRIPTION
LIGHTING 3LM SEF ACL GND 10 40K 80CRI	APPROVED EQUIVALENT	120-277V SUSPENDED CEILING 1	LED DRIVER 97W, 80CRI 14059LM, 4000K	24"Lx16"Wx5"H SUSPENDED HIGH BAY LED LIGHTING, LM-80 80,000 HOUR LIFESPAN, DAMP LISTED 5 YEAR WARRANTY, -40°C STARTING TEMPERATURE
LIGHTING 3M SEF ACL WD 10 40K 80CRI	APPROVED EQUIVALENT	120-277V SUSPENDED CEILING 1	LED DRIVER 97W, 80CRI 14059LM, 4000K	24"Lx16"Wx5"H SUSPENDED HIGH BAY LED LUMINAIRE LM-80 80,000 HOUR LIFESPAN, DAMP LISTED 5 YEAR WARRANTY
LIGHTING 3LM SEF ACL GND 10 40K 80CRI LAOZU	APPROVED EQUIVALENT	120-277V SUSPENDED CEILING 1	LED DRIVER 97W, 80CRI 14059LM, 4000K	24"Lx16"Wx5"H SUSPENDED HIGH BAY LED LIGHTING, LM-80 80,000 HOUR LIFE, DAMP LISTED, 5 YEAR WARRANTY INTEGRAL OCCUPANCY SENSOR, -40°C STARTING TEMPERATURE
LIGHTING 10 L04 ARLESS 10	APPROVED EQUIVALENT	120-277V RECESSED CEILING 1	LED DRIVER 13W, 80CRI 1000LM, 4000K	4" DIA. 5" H DOWNLIGHT LUMINAIRE WET LISTED, 5 YEAR WARRANTY
LIGHTING ADP E21 LP840	APPROVED EQUIVALENT	120-277V SURFACE CEILING 1	LED DIMMING DRIVER 45W, 80CRI 2697LM, 4000K	12"Lx48"Wx5"H SURFACE ARCHITECTURAL LINEAR LIGHT LONG LIFE LED, DAMP LISTED 5 YEAR WARRANTY
LIGHTING 5000LM FST K 80CRI	APPROVED EQUIVALENT	120-277V STRIP LIGHT 1	LED DIMMING DRIVER 41W, 80CRI 5541LM, 4000K	48"Lx24"Wx2"H RECESSED GRID LUMINAIRE LONG LIFE LED, PENDANT MOUNT KIT INTEGRATED LIGHTCLOUD CONTROLLER
LIGHTING	APPROVED EQUIVALENT	120/277 SURFACE WALL/CEILING 2	NONE REQUIRED LED WITH UNIT	11"Wx3.5"Dx7.5"H IMPACT RESISTANT THERMO-PLASTIC, BATTERY
LIGHTING HO M6	APPROVED EQUIVALENT	120/277 WALL/CEILING N/A	NONE REQUIRED LED WITH UNIT	14"Wx8"H COMBO EXIT EGRESS LIGHT NICAD BATTERY, UNIVERSAL MOUNTING, 5 YEAR WARRANTY FIELD CONFIGURABLE INDICATION, REMOTE HEAD CAPABLE
LIGHTING I P M12	APPROVED EQUIVALENT	120/277 WALL/CEILING N/A	NONE REQUIRED LED WITH UNIT	6.5"Wx10.5"Hx4"D EXTERIOR EGRESS LIGHTING WET LOCATION RATED,
LIGHTING IW 40K PE	APPROVED EQUIVALENT	120-277V WALL MOUNT 1	LED DRIVER 20W, 80CRI 2697LM, 4000K	48"Lx24"Wx2"H EXTERIOR WALL PACK LONG LIFE LED, -20°C STARTING TEMPERATURE IP 65 RATED, FULL CUTOFF, 5 YEAR WARRANTY
LIGHTING ALO 40K T3M	APPROVED EQUIVALENT	120-277V WALL MOUNT 1	LED DRIVER 78W, 70CRI 9214LM, 4000K	16"Hx16"Wx8"D EXTERIOR WALL PACK LONG LIFE LED, -20°C STARTING TEMPERATURE IP 65 RATED, 5 YEAR WARRANTY
LIGHTING P2 40K T3S	APPROVED EQUIVALENT	120-277V POLE MOUNT 1	LED DRIVER 78W, 70CRI 9214LM, 4000K	26"Lx13"Wx3"H POLE MOUNTED FIXTURE LONG LIFE LED, -20°C STARTING TEMPERATURE IP 66 RATED, 5 YEAR WARRANTY

\* SENSORS ARE DIAGRAMMATICALLY DISPLAYED ON THE PLANS, FIELD ADJUST UNITS TO MEET THE MANUFACTURER'S RECOMMENDED REQUIREMENTS.

IGHT SYMBOL USED IN THIS SCHEDULE IS A GENERIC SYMBOL TO INDICATE AN EXIT LIGHT FIXTURE. REFER TO THE PLANS FOR THE NUMBER OF FACES REQUIRED AT EACH EXIT. FIELD ADJUST THE LOCATION OF THE EXIT LIGHTS FOR THE BEST VISIBILITY POSSIBLE. ALL EXIT LIGHTS SHALL COMPLY WITH ALL LOCAL BUILDING CODES.

IXTURES UNDER THE AWNING ARE TO BE CONTROLLED WITH A PHOTOCELL, PROVIDE A SNAP SWITCH IN SERIES TO CONTROL NORTH SOUTH AWNING INDEPENDENTLY OF EACH OTHER. MEANS FOR AUTOMATIC OFF CONTROL FOR THE FIXTURES IN THE SHOP AREA; SET TIME DELAY PER OWNER.



LIGHTING - ENLARGED FLOOR PLAN  
 SCALE: 1/4"=1'-0"  
 NORTH

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**TOWN OF HOTCHKISS  
 PUBLIC WORKS FACILITY**  
 TBD BARROW MESA RD  
 HOTCHKISS, COLORADO

DATE:	ISSUED FOR:
03/21/19	REVISED 50% DD

DATE:	03/21/19
JOB NO.:	18-159
DRAWN BY:	BCE
CHECKED BY:	BCE
SCALE:	AS SHOWN
SHEET NUMBER:	E1-2

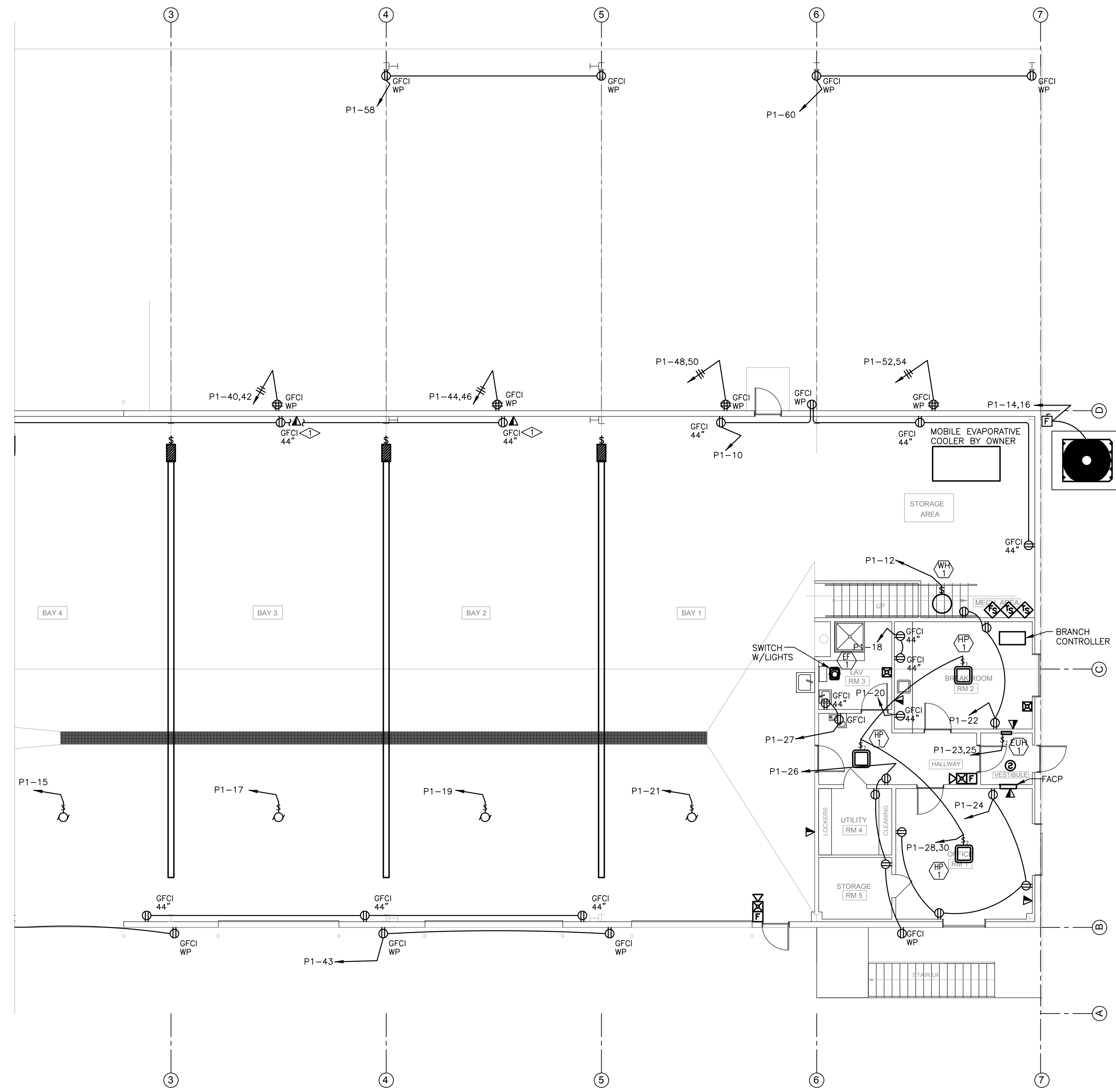
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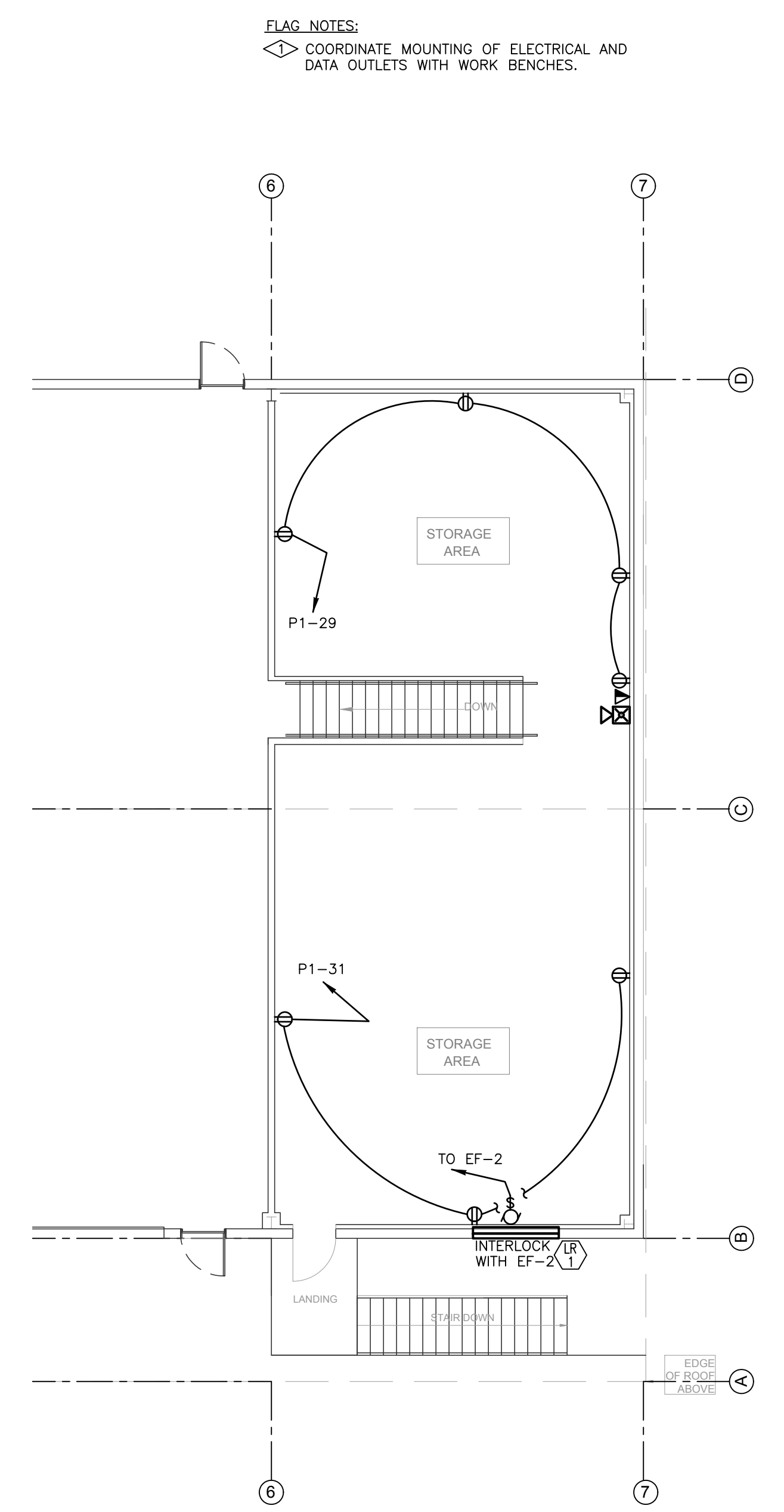
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DATE: 03/21/19  
 ISSUED FOR: REVISED 50% DD

DATE: 03/21/19  
 JOB NO: 18-159  
 DRAWN BY: BCE  
 CHECKED BY: BCE  
 SCALE: AS SHOWN  
 SHEET NUMBER: E2-1



**ELECTRICAL - SHOP FLOOR PLAN**  
 SCALE: 1/8"=1'-0"  
 NORTH



**ELECTRICAL - MEZZANINE FLOOR PLAN**  
 SCALE: 1/8"=1'-0"  
 NORTH

FLAG NOTES:  
 ◊ COORDINATE MOUNTING OF ELECTRICAL AND DATA OUTLETS WITH WORK BENCHES.

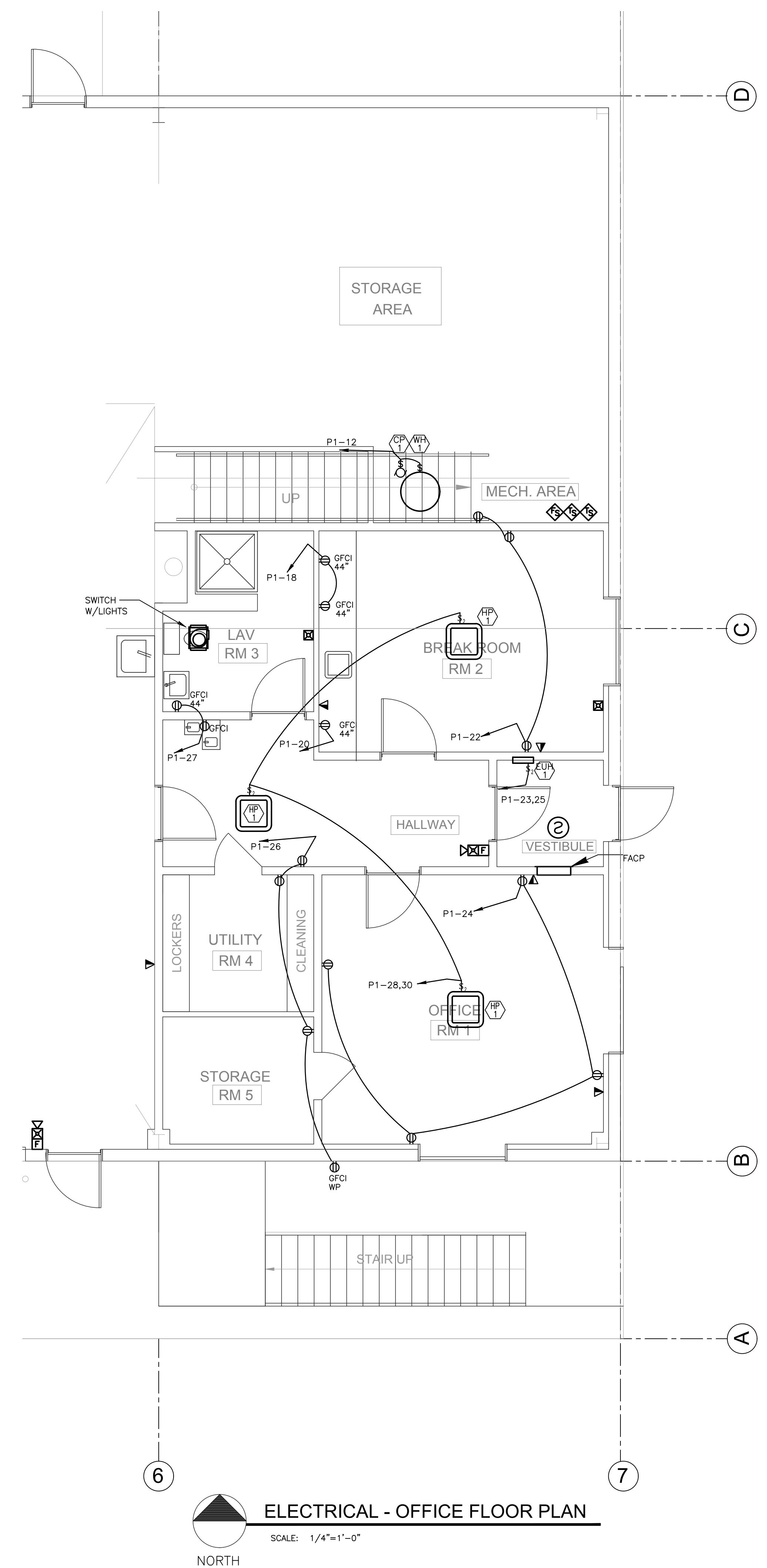
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**ELECTRICAL - OFFICE FLOOR PLAN**  
 SCALE: 1/4"=1'-0"  
 NORTH

## MECHANICAL EQUIPMENT SCHEDULE

FUNCTION (NOTES)	LOAD	VOLTS	Ø	FULL LOAD AMPS	BRANCH CONDUIT SIZE	CIRCUIT NO.	WIRE SIZE	GRND WIRE SIZE	BRKR SIZE	START	DISC FUSE
ION MOTOR STARTER											
IG UNIT		240	1	42 A	3/4"	2	8	10	50A	NR	60 SO
AN		120	1	1.0A	1/2"	2	12	12	20A	NR	⚡
EQUIPMENT	3/4HP	120	1	13.8A	1/2"	2	12	12	20A	NR	⚡
EATER		240	1	0.3A	1/2"	2	12	12	20A	NR	⚡
LOUVER		120	1	1.0A	1/2"	2	12	12	20A	NR	⚡

CKT#	Ø	LOAD	AMPS	LOAD TYPE	LOAD DESCRIPTION
1	A	2	20A	RECEPTACLE	SHOP OUTLETS
720		720	1P		
3	B	4	50A	MOTOR	AIR COMPRESSOR
1656		4000	2P		
5	A	6	---	MOTOR	---
4800		4000	---		
7	B	8	20A	RECEPTACLE	SHOP OUTLETS
4800		720	1P		
9	A	10	20A	RECEPTACLE	SHOP OUTLETS
400		720	1P		
11	B	12	20A	MECH YEAR ROUND	WATER HEATER & CIRC PUMP
1500		200	1P		
13	A	14	45A	MECH YEAR ROUND	UNIT CU-1
1500		5040	2P		
15	B	16	---	MECH YEAR ROUND	---
1500		5040	---		
17	A	18	20A	RECEPTACLE	BREAK ROOM COUNTER OUTLET
1500		360	1P		
19	B	20	20A	RECEPTACLE	BREAK ROOM COUNTER OUTLET
1500		180	1P		
21	A	22	20A	RECEPTACLE	BREAK ROOM OUTLETS
1500		360	1P		
23	B	24	20A	RECEPTACLE	OFFICE OUTLETS
1000		720	1P		
25	A	26	20A	RECEPTACLE	CONVIENCE OUTLETS
1000		720	1P		
27	B	28	20A	MECH YEAR ROUND	HP UNITS
360		250	2P		
29	A	30	---	MECH YEAR ROUND	---
540		250	---		
31	B	32	20A	RECEPTACLE	BLOCK HEATER 1
540		1000	1P		PROVIDE BREAKER TIE WITH P1-34
33	A	34	20A	RECEPTACLE	BLOCK HEATER 1
1400		1000	1P		PROVIDE BREAKER TIE WITH P1-32
35	B	36	20A	RECEPTACLE	BLOCK HEATER 2
1000		1000	1P		PROVIDE BREAKER TIE WITH P1-38
37	A	38	20A	RECEPTACLE	BLOCK HEATER 2
1200		1000	1P		PROVIDE BREAKER TIE WITH P1-36
39	B	40	20A	RECEPTACLE	BLOCK HEATER 3
600		1000	1P		PROVIDE BREAKER TIE WITH P1-42
41	A	42	20A	RECEPTACLE	BLOCK HEATER 3
360		1000	1P		PROVIDE BREAKER TIE WITH P1-40
43	B	44	20A	RECEPTACLE	BLOCK HEATER 4
360		1000	1P		PROVIDE BREAKER TIE WITH P1-46
45	A	46	20A	RECEPTACLE	BLOCK HEATER 4
200		1000	1P		PROVIDE BREAKER TIE WITH P1-44
47	B	48	20A	RECEPTACLE	BLOCK HEATER 5
200		1000	1P		PROVIDE BREAKER TIE WITH P1-50
49	A	50	20A	RECEPTACLE	BLOCK HEATER 5
200		1000	1P		PROVIDE BREAKER TIE WITH P1-48
51	B	52	20A	RECEPTACLE	BLOCK HEATER 6
200		1000	1P		PROVIDE BREAKER TIE WITH P1-54
53	A	54	20A	RECEPTACLE	BLOCK HEATER 6
200		1000	1P		PROVIDE BREAKER TIE WITH P1-52
55	B	56	20A	RECEPTACLES	AWNING POLE OUTLET
200		360	1P		---
57	A	58	20A	RECEPTACLES	AWNING POLE OUTLET
0		360	1P		---
59	B	60	20A	RECEPTACLES	AWNING POLE OUTLET
0		360	1P		---
61	A	62	20A	SPARE	UNALLOCATED FUTURE
0		200	1P		---
63	B	64	20A	SPARE	UNALLOCATED FUTURE
0		200	1P		---
65	A	66	---	SPACE	---
0		0	---		
67	B	68	---	SPACE	---
0		0	---		
69	A	70	---	SPACE	---
0		0	---		

PHASE	CONNECTED LOAD (VA)	CONNECTED LOAD (AMPS)	BALANCE (PERCENT)
A	34250.00	285.42	A-B: 97.7
B	33446.00	278.72	B-A: 97.7
C	---	---	---
TOTAL/AVERAGE	67696.00	282.07	97.7

NOTES:  
1. THE LARGEST CONNECTED MOTOR LOAD IS INCLUDED IN MECHANICAL, PROCESS, OR MOTOR LOADS.

ABBREVIATIONS AND NOTATIONS	
A.C.	ABOVE COUNTER - VERIFY HEIGHT
A.F.C.	ABOVE FINISHED CEILING
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
AIC	AMPS INTERRUPTING CAPACITY
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO/VIDEO
AWG	AMERICAN WIRE GAGE
CB	CIRCUIT BREAKER
CCT	CIRCUIT
CT	CURRENT TRANSFORMER
CU	COPPER
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EM	EMERGENCY
FLA	FULL LOAD AMPS
G	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GFI	GROUND FAULT INTERRUPTER
HP	HORSEPOWER
IG	ISOLATED GROUND
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
N	NEUTRAL
NL	NIGHT LIGHT
OC	OVERCURRENT PROTECTION
OL	OVERLOAD
SC	SHORT CIRCUIT
TR	TAMPER RESISTANT
TTB	TELECOMMUNICATIONS TERMINAL BACKBOARD
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
WPIU	WEATHERPROOF IN-USE
XFMR	TRANSFORMER
Ⓜ	MECHANICAL EQUIPMENT SCHEDULE NOTATION
Ⓝ	FLAG NOTE
Ⓢ	DELTA REVISION NOTE
Ⓧ	ELECTRICAL FEEDER SIZE

SCHEMATIC WIRING SYMBOLS	
	TRANSFORMER
	ELECTRICAL POWER PANEL
	MAIN LUG ONLY/MAIN CIRCUIT BREAKER
	GROUND
	CURRENT TRANSFORMER
	CIRCUIT BREAKER, MOLDED-CASE
	FUSED DISCONNECT SWITCH
	METER

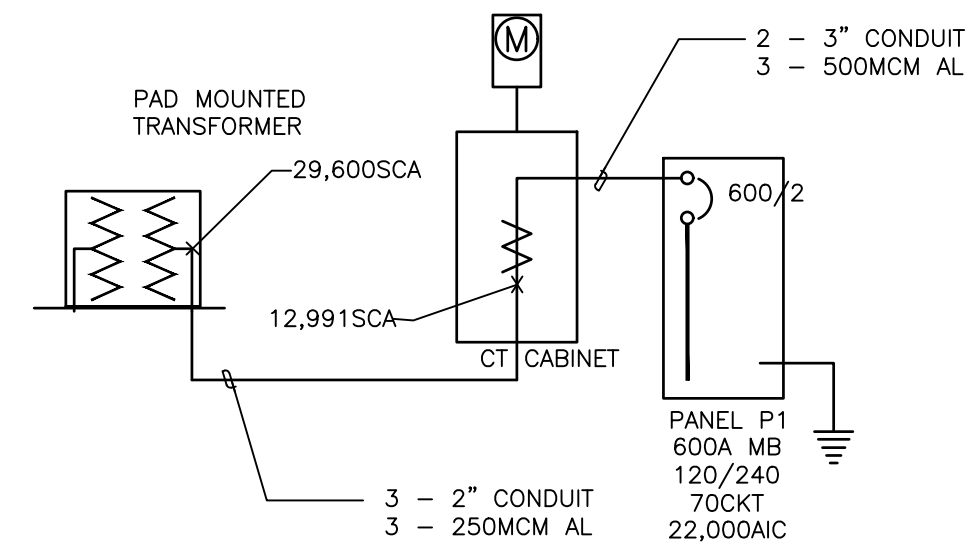
ELECTRICAL SYMBOLS	
	DUPLEX RECEPTACLE
	FOUR PLEX RECEPTACLE
	SINGLE RECEPTACLE
	SPLIT-WIRED RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE
	FLOOR RECEPTACLE
	JUNCTION BOX
	WALL MOUNTED J-BOX
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	BRANCH CIRCUIT PANELBOARD
	CIRCUITRY HOMERUN: POWER PANEL 1 - CIRCUIT #3
	CONDUIT OR WIRE CONCEALED IN WALL/CLG
	CONDUIT OR WIRE UNDERFLOOR/UNDERGROUND

FIRE ALARM	
	FIRE ALARM CONTROL PANEL
	MANUAL PULL STATION
	WALL MOUNTED HORN
	WALL MOUNTED SPEAKER
	ELECTROMAGNETIC DOOR HOLD OPEN
	SPRINKLER FLOW SWITCH
	SPRINKLER TAMPER SWITCH
	SMOKE DETECTOR
	SMOKE/CARBON MONOXIDE DETECTOR
	SMOKE DETECTOR WITH PIEZO BUZZER

SYSTEMS LEGEND	
	TIB, MDF OR IDF
	TELECOMMUNICATION OUTLET
	TELEPHONE OUTLET
	DATA OUTLET
	TELEVISION OUTLET



### ONE-LINE DIAGRAM

NOT TO SCALE  
PROVIDE GROUNDING AND LABELING PER NEC REQUIREMENTS  
PROVIDE A #6 COPPER CONDUCTOR TO A 10' BY 5/8" DRIVEN ROD.

#### KAIC CALCULATIONS:

100KVA 120/240V 1Ø TRANSFORMER INFORMATION  
29,600 KAIC

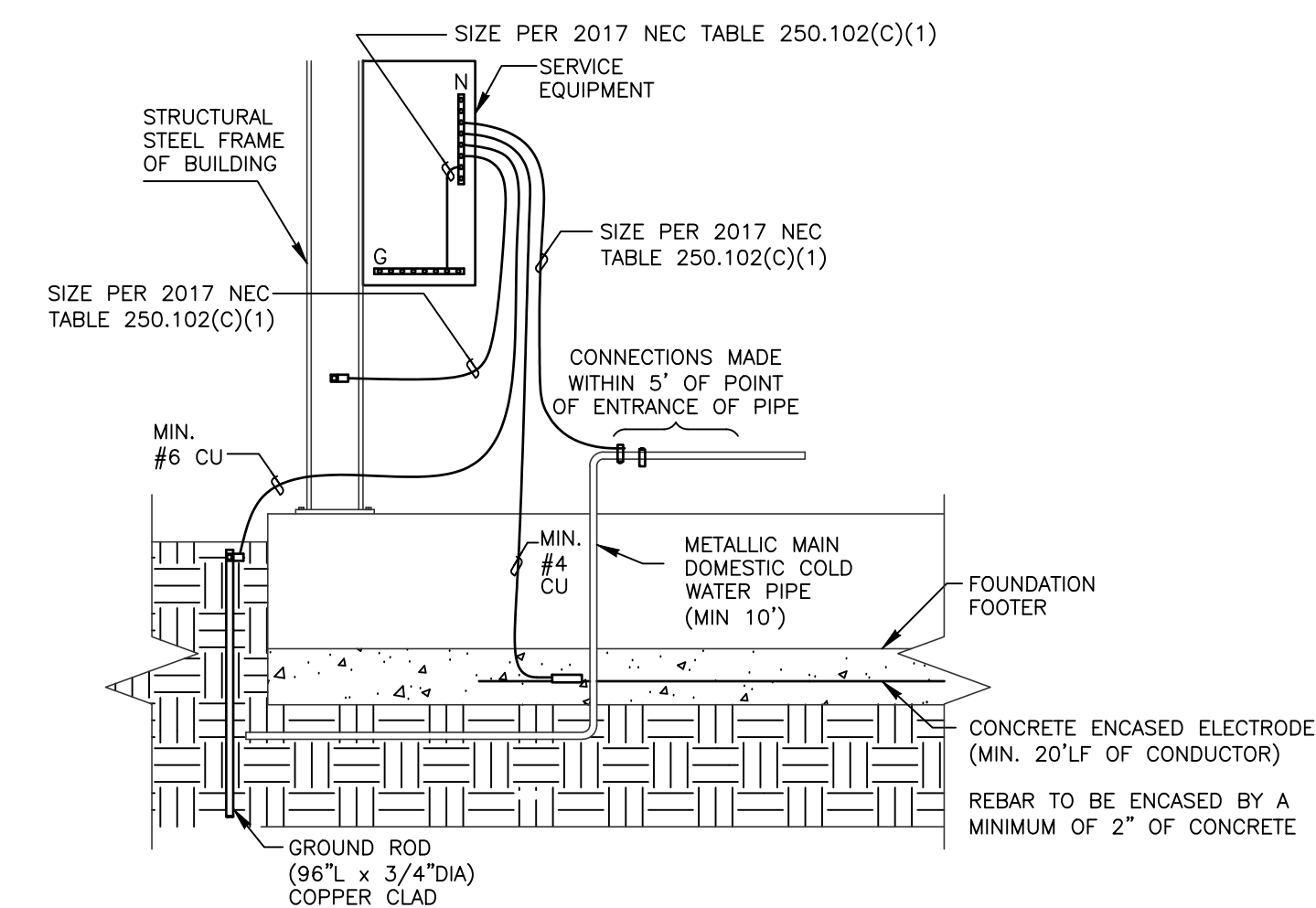
UTILIZING POINT TO POINT METHODS:

$$f \text{ FACTOR} = \frac{2 \times L \times I}{N \times C \times E(L-L)}$$

L = WIRE LENGTH = 200' ESTIMATED  
I = FAULT CURRENT = 29,600 AMPS  
N = NUMBER OF CONDUCTORS PER PHASE = 3  
C = CONSTANT INVERSE IMPEDANCE PER FOOT  
250kcmil : 12862  
E(L-L) = VOLTAGE (LINE TO LINE) = 240 VOLTS  
f =  $\frac{400 \times 29600}{3 \times 12862 \times 240} = 3.635$

$$M = \frac{1}{1 + f} = \frac{1}{1 + 1.219} = .439$$

FAULT CURRENT  
(F) = I(SC) x M = 29600A x .439 = 12991



### GROUNDING ELECTRODE SYSTEM DETAIL

SCALE: NOT TO SCALE  
NOTES:  
1. SEE ONE LINE DIAGRAM FOR GROUNDING CONDUCTOR SIZES REQUIRED.  
2. PROVIDE A MINIMUM OF TWO SEPARATE GROUND SOURCES, U.O.N. ON ONE LINE DIAGRAM.  
3. CADWELD ALL ENCASED GROUND CONNECTIONS

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UNPAINTED EQUIPMENT AND MATERIALS, EXCEPT CONDUIT IN CONCEALED SPACES, SHALL BE CLEANED AND PRIMED TO BE PAINTED BY THE PAINTING CONTRACTOR IN ACCORDANCE WITH THE PAINTING SECTION OF THESE SPECIFICATIONS.

THE COLORS OF ALL EXPOSED ELECTRICAL MATERIAL AND APPARATUS SHALL BE AS SELECTED BY THE OWNER.

HASES, SLEEVES, CUTTING, PATCHING

PROVIDE FOR NECESSARY CHASES, HOLES, SLEEVES, BOXES, INSERTS AND HANGERS BY ARRANGEMENT WITH THE ARCHITECT AND PROVIDE APPROVED MATERIALS. PROVIDE "FLAMESEAL" OR OF THE APPROVED FIRESTOPPING MATERIAL AT ALL PENETRATIONS THROUGH RATED WALLS, FLOORS AND CEILINGS.

PROVIDE FOR ALL CUTTING AND PATCHING OF HOLES, OPENINGS, AND NOTCHES. OBTAIN WRITTEN APPROVAL OF THE ARCHITECT. ASSUME THE ENTIRE COST OF REMOVING AND REPLACING THE MATERIAL AND CORRECTING THE INSTALLATION, INCLUDING CUTTING AND PATCHING THAT MAY BE NECESSARY.

WORK SHALL NOT BE CLOSED IN NOR COVERED BEFORE INSPECTION AND APPROVAL BY THE ARCHITECT. PROVIDE FOR UNCOVERING AND MAKING REPAIRS, AT NO EXTRA COST, WHEN UNINSPECTED WORK HAS BEEN CLOSED IN. NOTIFY THE ARCHITECT WHEN WORK IS READY FOR INSPECTION.

NOTIFY PROPER AUTHORITIES WHEN WORK IS READY FOR ANY INSPECTIONS REQUIRED BY APPLICABLE CODES, RULES AND REGULATIONS, ALLOWING SUFFICIENT TIME FOR INSPECTIONS TO BE MADE WITHOUT HINDERING PROGRESS OF THE WORK, AND FURNISH THE OWNER, WITHOUT ADDITIONAL COSTS, PROPER CERTIFICATES OF ACCEPTANCE FROM SUCH AUTHORITIES.

UPON COMPLETION OF ALL WORK AND ADJUSTMENT OF ALL EQUIPMENT, FINAL INSPECTION SHALL BE MADE UNDER DIRECTION OF THE ARCHITECT. TEST AND OPERATE ALL DEVICES, EQUIPMENT AND SYSTEMS TO DEMONSTRATE THAT THE ELECTRICAL SYSTEM IS COMPLETE AND FUNCTIONAL IN THE MANNER REQUIRED.

LEAN UP

DURING THE COURSE OF THE WORK REMOVE ANY MATERIALS NOT INSTALLED IN THE WORK WHICH CONFLICT WITH THE WORK OF OTHERS IF SO DIRECTED BY THE ARCHITECT.

AT COMPLETION OF WORK CLEAN UP AND REMOVE FROM THE PREMISES ALL DEBRIS AND MATERIALS NOT INSTALLED IN THE WORK SO THE PREMISES WILL BE LEFT CLEAN. WASH AND WIPE CLEAN ALL LIGHTING FIXTURES AND LAMPS WHICH MAY HAVE BECOME SOILED DURING INSTALLATION.

RECORD DRAWINGS: AT COMPLETION OF THE WORK FURNISH TO THE ARCHITECT TWO COMPLETE SETS OF ELECTRICAL PRINTS MARKED TO SHOW THE WORK "AS-BUILT". MAINTENANCE AND OPERATING PROCEDURES: UPON COMPLETION OF ALL WORK AND ADJUSTMENT OF ALL EQUIPMENT, INSTRUCT THE OWNER ON THE CORRECT OPERATION AND MAINTENANCE PROCEDURE FOR THE ELECTRICAL SYSTEM IN TOTAL. FURNISH 3 SETS OF TYPED MAINTENANCE MANUALS FOR EACH TYPE OF EQUIPMENT, INCLUDING TABLES OF FUSES AND OR WHAT EQUIPMENT, TABLE OF LAMPS AND BALLASTS AND FOR WHAT FIXTURES. INCLUDE A LIST OF CONTACTS WITH PHONE NUMBERS FOR ALL SYSTEMS FOR OWNERS' USE, IN THE EVENT THE ELECTRICAL SYSTEM REQUIRES SERVICE WORK WITHIN THE WARRANTY PERIOD. GUARANTEE: GUARANTEE THAT ALL WORK COVERED BY THIS DIVISION SHALL BE NEW AND REE OF DEFECTIVE WORK, MATERIALS, AND COMPONENTS FOR A PERIOD OF ONE YEAR AFTER WRITTEN ACCEPTANCE. REPAIR, REVISE AND REPLACE DEFECTS AS DIRECTED, WITH NO ADDITIONAL COST TO THE OWNER. (INCANDESCENT LAMPS, FUSES AND ANY EXISTING EQUIPMENT ARE EXCEPT)

END OF SECTION 1610

SECTION 1611  
INDUITS

VC CONDUIT SHALL BE USED FOR ALL UNDERGROUND FEEDERS AND BRANCH CIRCUITS UNLESS OTHERWISE DIRECTED ON PLANS OR AS APPROVED BY NEC. ALL CONDUIT SHALL BE UL APPROVED.

CONDUIT SIZES SHALL BE AS INDICATED ON THE DRAWINGS, OR MINIMUM IN ACCORDANCE WITH THE NEC. INCLUDE PROVISIONS FOR GREEN EQUIPMENT GROUNDING CONDUCTOR USING 3/4 INCH MINIMUM CONDUIT. THE USE OF 1/2 INCH CONDUIT ELSEWHERE MAY BE APPROVED IF CONDITIONS WARRANT.

SPECIAL CONDUIT FITTINGS SHALL BE APPROPRIATE FOR EACH APPLICATION AND SHALL BE MANUFACTURED BY T & B OR APPROVED EQUAL.

CONDUIT SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC AND SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.

THE ENTIRE CONDUIT SYSTEM SHALL BE INSTALLED TO PROVIDE A CONTINUOUS BOND THROUGHOUT THE SYSTEM.

ELECTRICAL METALLIC TUBING (EMT) MAY BE USED FOR BRANCH CIRCUITS AND RACEWAYS OTHER THAN FOR SERVICE ENTRANCES. FEEDERS SHALL NOT BE HANDWRITTEN. THE NEC OR LOCAL ORDINANCES, EMT SHALL BE UL APPROVED, GALVANIZED INSIDE AND OUTSIDE.

COMPLYING WITH ANSI C-80.3 FOR ZINC COATED EMT WITH FITTINGS OF THE SAME TYPE MATERIAL AND FINISH. OF THE PRESSURE CONNECTED TYPE FOR EXTERIOR INSTALLATION AND OF THE SET SCREW TYPE FOR INTERIOR INSTALLATION.

ALL CONDUIT JOINTS SHALL BE CUT SQUARE, REAMED SMOOTH, AND DRAWN UP TIGHT. BENDS OR OFFSETS SHALL BE MADE WITH AN APPROVED BENDER OR HICKEY, OR HUB-TYPE CONDUIT FITTINGS. NUMBER OF BENDS PER RUN SHALL CONFORM TO THE NEC LIMITATIONS.

TRANSITIONS BETWEEN NONMETALLIC CONDUITS AND CONDUITS OF OTHER MATERIALS SHALL BE MADE WITH THE MANUFACTURER'S STANDARD ADAPTERS DESIGNED FOR SUCH PURPOSE.

EXPOSED CONDUITS SHALL BE SECURELY FASTENED IN PLACE ON MAXIMUM 10 FOOT INTERVALS, AND HANGERS, SUPPORTS OR FASTENERS SHALL BE PROVIDED AT EACH ELBOW AND AT THE END OF EACH STRAIGHT RUN TERMINATING AT A BOX OR CABINET.

END OF SECTION 1611

SECTION 1612  
WIRING CABLES

WIRE AND CABLE SHALL MEET ALL STANDARDS AND SPECIFICATIONS APPLICABLE, AND SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE NEC. INSULATED WIRE AND CABLE SHALL HAVE SIZE, TYPE OF INSULATION, VOLTAGE AND MANUFACTURER'S NAME PERMANENTLY MARKED ON OUTER COVERING AT REGULAR INTERVALS NOT EXCEEDING FOUR FEET. WIRE AND CABLE SHALL BE DELIVERED IN COMPLETE COILS OR REELS WITH IDENTIFYING TAGS, STATING SIZE, TYPE OF INSULATION, ETC.

WIRE AND CABLE SHALL BE SUITABLY PROTECTED FROM WEATHER AND OTHER DAMAGE DURING STORAGE AND HANDLING, AND SHALL BE IN FIRST CLASS CONDITION AFTER INSTALLATION.

WIRE AND CABLE SHALL BE FACTORY COLOR CODED WITH A SEPARATE COLOR FOR EACH PHASE AND NEUTRAL USED CONSISTENTLY THROUGHOUT THE SYSTEM. COLOR CODING SHALL BE AS REQUIRED BY THE NEC.

ALL CONDUCTORS SHALL BE RATED 600 VOLTS, UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS, OR FOR ELECTRONIC OR COMMUNICATION USE.

WIRE AND CABLE FOR VARIOUS APPLICATIONS SHALL BE AS FOLLOWS UNLESS OTHERWISE DESIGNATED:

- WIRE #10 AND SMALLER SHALL BE SOLID; WIRE #8 AND LARGER SHALL BE STRANDED.
- #12 THRU #6 DRY LOCATIONS, TYPE THHN, 90 DEGREES C.
- #12 THRU #6 IN SLABS, UNDERGROUND, OR WET LOCATIONS: TYPE THWN OR TYPE XHHW, 75 DEGREES C.
- #4 AND LARGER: TYPE XHHW OR TYPE THWN 75 DEGREES C.

WIRE AND CABLE SHALL BE AS MANUFACTURED BY GENERAL ELECTRIC, ANACONDA WIRE & CABLE, ROME CABLE, TRIANGLE CONDUIT & CABLE, OR APPROVED EQUAL. SUBSTITUTION OF WIRE AND CABLE MANUFACTURER SHALL BE ONLY WITH THE APPROVAL OF THE ARCHITECT/ENGINEER.

OR ANY SPECIFIC USE NOT COVERED HERE ABOVE, COMPLY WITH THE NEC IN CONDUCTOR USE.

ALL CIRCUITS SHALL BE 2#12 CU + G CU UNLESS OTHERWISE NOTED ON DRAWINGS OR IN SCHEDULES.

ALL 15 AND 20 AMP CIRCUITS WITH LENGTHS OVER 150 FT. SHALL HAVE THEIR CONDUCTOR SIZE INCREASED TO #10 FOR VOLTAGE DROP.

COMMUNICATION CABLING, OUTLETS AND GEAR TO MEET CAT 6A REQUIREMENTS.

END OF SECTION 1612

SECTION 1612  
WIRING CONNECTIONS

JOINTS ON BRANCH CIRCUITS SHALL OCCUR ONLY WHERE SUCH CIRCUIT DIVIDE AS INDICATED ON PLANS AND SHALL CONSIST OF ONE THROUGH CIRCUIT TO WHICH SHALL BE SPLICED THE BRANCH FROM THE CIRCUIT. IN NO CASE SHALL JOINTS IN BRANCH CIRCUITS BE LEFT FOR THE FIXTURE HANGER TO MAKE. NO SPLICES SHALL BE MADE IN CONDUCTOR EXCEPT AT OUTLET BOXES, JUNCTION BOXES, OR SPlice BOXES.

ALL JOINTS OR SPLICES FOR #10 AWG OR SMALLER SHALL BE MADE WITH UL APPROVED WIRE NUTS OR COMPRESSION TYPE CONNECTORS.

ALL JOINTS OR SPLICES FOR #8 AWG OR LARGER SHALL BE MADE WITH A MECHANICAL COMPRESSION CONNECTOR. AFTER THE CONDUCTORS HAVE BEEN MADE MECHANICALLY AND ELECTRICALLY SECURE, THE ENTIRE JOINT OR SPlice SHALL BE COVERED WITH SCOTCH #33 TAPE OR APPROVED EQUAL TO MAKE THE INSULATION OF THE JOINT OR SPlice EQUAL TO THE INSULATION OF THE CONDUCTORS. THE CONNECTOR SHALL BE UL APPROVED.

END OF SECTION 1612

SECTION 1612  
WIRING CABLES

INSTALL CONDUCTORS IN ALL RACEWAYS AS REQUIRED, UNLESS OTHERWISE NOTED, IN A NEAT AND WORKMANLIKE MANNER. ALL EMPTY CONDUITS SHALL HAVE A #14 GALVANIZED PULL WIRE OR NYLON PULLCORD LEFT IN PLACE FOR FUTURE USE.

CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH THE NEC. MAINS, FEEDERS, AND SUBFEEDERS SHALL BE TAGGED IN ALL PULL, JUNCTION, AND OUTLET BOXES AND IN THE

END OF SECTION 1612

SECTION 1613  
OUTLET BOXES

ALL OUTLET BOXES FOR CONCEALED WIRING SHALL BE SHEET METAL.

A. GALVANIZED OR CADMIUM PLATED, AT LEAST 1 INCHES DEEP, SINGLE OR GANGED, OF SIZE TO ACCOMMODATE DEVICES AND NUMBER OF CONDUCTORS NOTED. BOXES SHALL BE EQUIPPED WITH PLASTER GIRD OR COVER AS NECESSARY. ALL OUTLET BOXES SHALL BE MANUFACTURED BY STEEL CITY OR APPROVED EQUAL.

B. BOXES FOR EXPOSED WIRING SHALL BE MALLEABLE IRON, CADMIUM FINISH, OR CAST ALUMINUM ALLOY, AS MANUFACTURED BY STEEL CITY AND SHALL NOT BE LESS THAN 4 INCHES SQUARE BY 1 INCHES DEEP UNLESS OTHERWISE NOTED.

C. FIXTURE OUTLET BOXES SHALL BE MINIMUM 4 INCH OCTAGONAL AND, WHERE REQUIRED AS OUTLET AND JUNCTION BOXES, THEY SHALL BE 4 1/16 INCHES BY 2 1/8 INCHES DEEP.

END OF SECTION 1613

SECTION 16190  
SUPPORTING DEVICES

A. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL METALLIC SUPPORTS AS REQUIRED FOR THE PROPER INSTALLATION OF RACEWAY SYSTEMS AND ALL OTHER EQUIPMENT INSTALLED UNDER THIS DIVISION OF THE CONTRACT CONFORMING TO THE LATEST EDITION OF THE NEC.

B. SUPPORTS SHALL BE SUPPORTED ON APPROVED TYPES OF WALL BRACKETS, CEILING TRAPEZES, STRAP HANGERS OR PIPE SUPPORTS, SECURED BY MEANS OF TOLL BOLTS IN HOLLOW MASONRY WALLS OR NUTS, EXPANSION BOLTS WILL BE USED IN CONCRETE OR BLOCK.

C. MACHINE SCREWS ON METAL SURFACES, AND WOOD SCREWS ON WOOD CONSTRUCTION.

D. CONDUIT SHALL BE SECURELY FASTENED TO ALL SHEET METAL OUTLETS, JUNCTION AND PULL BOXES WITH TWO GALVANIZED LOCKNUTS AND BUSHING, CARE BEING TAKEN TO SEE THAT THE FULL NUMBER OF THREADS PROJECT THROUGH TO PERMIT THE BUSHING TO BE DRAWN TIGHT AGAINST THE END OF THE CONDUIT, AFTER WHICH THE LOCKNUTS SHALL BE MADE TIGHT SUFFICIENT TO DRAW THEM INTO FIRM ELECTRICAL CONTACT WITH THE OUTLET BOX.

E. INSTALL A PLASTIC BUSHING ON END OF PIPE THREADS PROTRUDING INTO JUNCTION BOXES AND OTHER ENCLOSURES TO PROTECT CABLING.

D. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUPPORTS REQUIRED FOR THE ELECTRICAL EQUIPMENT AND CONDUIT.

END OF SECTION 16190

SECTION 16195  
ELECTRICAL IDENTIFICATION

A. THE ELECTRICAL CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF ALL DEVIATIONS IN WORK AS ACTUALLY INSTALLED FROM WORK INDICATED ON THE DRAWINGS. UPON COMPLETION OF THE PROJECT, TWO (2) COMPLETE SETS OF MARKED-UP PRINTS SHALL BE DELIVERED TO THE ARCHITECT.

B. IDENTIFICATION OF EQUIPMENT

- PROVIDE AND INSTALL LAMINATED BLACK AND WHITE LAMACOID NAMEPLATES FOR ALL SERVICE SWITCHES, DISTRIBUTION SWITCHES, DISTRIBUTION SWITCHBOARDS, BRANCH CIRCUIT PANELBOARDS, SAFETY SWITCHES, CABINETS, STARTERS, AND OTHER EQUIPMENT WITH THEIR CORRECT DESIGNATION. LABEL EQUIPMENT IN AREAS ACCESSIBLE TO THE PUBLIC ON INSIDE OF ENCLOSURE ONLY. NAMEPLATES SHALL BE FIRMLY SECURED TO FRONT DOOR OR DOOR WITH TWO PROPERLY SIZED POINTS OF CONTACT.
- MOUNT A TYPEWRITTEN DIRECTORY BEHIND PLASTIC ON THE INSIDE OF EACH BRANCH CIRCUIT PANEL DOOR, GIVING THE NUMBER, DESCRIPTION AND LOCATION OF THE CIRCUIT CONTROLLED BY EACH CIRCUIT BREAKER. REVISE EXISTING DIRECTORIES TO REFLECT CIRCUIT MODIFICATIONS UNDER THIS CONTRACT.
- ALL FUSED SAFETY SWITCHES AND FUSED SWITCH UNITS IN SWITCHBOARDS SHALL INDIVIDUALLY BEAR A FUSE LABEL SHOWING PROPER SIZE AND TYPE OF FUSE TO BE USED.
- INSTALL WIRING DIAGRAMS ON THE INSIDE COVER OF ALL STARTERS, SWITCHES AND OTHER SUCH EQUIPMENT. SUCH DIAGRAMS SHALL BE HANDWRITTEN.
- ALL JUNCTION BOXES WITH BLANK COVERS SHALL HAVE CIRCUITS CONTAINED THEREIN IDENTIFIED BY MEANS OF PERMANENT BLACK "MAGIC MARKER" ON THE COVER.

END OF SECTION 16195

SECTION 16199  
ELECTRONIC EQUIPMENT

A. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND CONNECTION OF A PROPER POWER SUPPLY TO ALL ELECTRONIC EQUIPMENT FURNISHED BY OTHERS. HE SHALL VERIFY ALL VOLTAGE, FREQUENCY, ETC., REQUIREMENTS PRIOR TO ENERGIZING THE CIRCUIT. THOSE INSTALLING THE EQUIPMENT WILL BE RESPONSIBLE FOR THE PROPER OPERATION OF THE EQUIPMENT PROVIDED THE PROPER POWER SUPPLY CIRCUIT IS INSTALLED BY THE ELECTRICAL CONTRACTOR.

B. RELATED TELEPHONE LINES TO EQUIPMENT CONTROL PANELS WITH MODEM ACCESS. COORDINATE WITH MECHANICAL CONTRACTOR.

END OF SECTION 16199

SECTION 16400  
SERVICE AND DISTRIBUTION

SECTION 16401  
GENERAL

A. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL RELATED DISTRIBUTION EQUIPMENT AS INDICATED ON THE FLOOR PLAN, DIAGRAMS, SCHEDULES, AND NOTES. ALL EQUIPMENT SHALL BE NEW AND UL LISTED.

B. RELATED DOCUMENTS: DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATIONS SECTION, APPLY TO WORK OF THIS SECTION.

END OF SECTION 16401

SECTION 16440  
DISCONNECT SWITCHES

A. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL SAFETY SWITCHES AS INDICATED ON THE DRAWINGS OR AS REQUIRED. ALL SAFETY SWITCHES SHALL BE UL LISTED.

- THE SWITCHES SHALL BE FUSED SAFETY SWITCHES (FSS) OR NON-FUSED SAFETY SWITCHES (NFSS) AS SHOWN ON THE DRAWINGS OR REQUIRED AND SHALL BE MANUFACTURED BY SIEMENS, SQUARE D, OR APPROVED EQUAL.
- SWITCHES SHALL HAVE A QUICK-MAKE AND QUICK-BREAK OPERATING HANDLE AND MECHANISM WHICH SHALL BE AN INTEGRAL PART OF THE BOX. PADLOCKING PROVISIONS SHALL BE PROVIDED FOR PADLOCKING IN THE OFF POSITION WITH AT LEAST THREE PADLOCKS. SWITCHES SHALL BE HORSEPOWER RATED FOR 250 VOLTS AC OR DC OR 600 VOLTS AC AS REQUIRED. LUGS SHALL BE UL LISTED FOR COPPER AND ALUMINUM CABLE.
- SWITCHES SHALL BE FURNISHED IN NEMA 1 GENERAL PURPOSE ENCLOSURES WITH KNOCKOUTS UNLESS OTHERWISE NOTED OR REQUIRED. SWITCHES LOCATED ON THE EXTERIOR OF THE BUILDING OR IN "WET" LOCATIONS SHALL HAVE NEMA 3R ENCLOSURES (WP).
- THE SAFETY SWITCHES SHALL BE SECURELY MOUNTED IN ACCORDANCE WITH THE NEC. THE CONTRACTOR SHALL PROVIDE ALL MOUNTING MATERIALS AND INSTALL FUSES IN THE FSS. THE FUSES SHALL BE DUAL ELEMENT ON MOTOR CIRCUITS.

END OF SECTION 16440

SECTION 16450  
GROUNDING

A. THE CONDUIT SYSTEMS AND NEUTRAL CONDUCTOR FOR THE WIRING SYSTEM, AND THE TELEPHONE SYSTEM SHALL BE SECURELY GROUNDING. THE GROUNDS SHALL BE NEC GROUNDS IN EACH CASE.

B. A GROUND SHALL BE ESTABLISHED AND TESTS CARRIED OUT TO INDICATE THAT SATISFACTORY GROUND HAS BEEN ESTABLISHED IN ACCORDANCE WITH THE NEC.

C. WRITTEN RESULTS OF THIS TEST SHALL BE FORWARDED TO THE ENGINEER BEFORE CONNECTION TO THE SERVICE.

END OF SECTION 16450

SECTION 16470  
PANELBOARDS

A. FURNISH AND INSTALL DISTRIBUTION AND POWER PANELBOARDS AS INDICATED IN THE PANELBOARD SCHEDULE AND WHERE SHOWN ON THE DRAWINGS. PANELBOARDS SHALL BE DEAD-FRONT SAFETY TYPE, EQUIPPED WITH QUICK-MAKE, QUICK-BREAK FUSIBLE BRANCH SWITCHES AND APPROVED FOR SERVICE ENTRANCE. THE ACCEPTABLE MANUFACTURERS OF THE PANELBOARD ARE SIEMENS, SQUARE D, AND GE, PROVIDED THEY ARE FULLY EQUAL TO THE TYPE LISTED ON THE DRAWINGS. THE PANELBOARD SHALL BE UL LISTED AND BEAR THE UL LABEL.

B. ALL FUSIBLE BRANCH SWITCHES SHALL BE QUICK-MAKE, QUICK BREAK, WITH VISIBLE BLADES AND DUAL HORSEPOWER RATINGS SWITCH HANDLES SHALL PHYSICALLY INDICATE ON AND OFF POSITIONS. SUCH HANDLES SHALL ALSO BE ABLE TO ACCEPT THREE PADLOCKS HAVING HEAVY-DUTY INDUSTRIAL TYPE SHACKLES. COVERS SHALL BE INTERLOCKED WITH THE SWITCH HANDLES TO PREVENT OPENING IN THE ON POSITION. A MEANS SHALL BE PROVIDED TO ALLOW

AUTHORIZED PERSONNEL TO RELEASE THE INTERLOCK FOR INSPECTION PURPOSES WHEN A SWITCH IS ON. A CARDHOLDER, PROVIDING CIRCUIT IDENTIFICATION, SHALL BE MOUNTED ON EACH BRANCH SWITCH. SWITCHES SHALL BE PROVIDED WITH FUSES OR AS NOTED ON THE DRAWINGS.

C. PANELBOARD BUS STRUCTURE AND MAIN LUGS OR MAIN SWITCH SHALL HAVE CURRENT RATINGS AS SHOWN ON THE PANELBOARD SCHEDULE. THE BUS STRUCTURE SHALL ACCOMMODATE PLUG-ON OR BOLTED BRANCH SWITCHES AND MOTOR STARTERS AS INDICATED ON THE PANELBOARD SCHEDULE WITHOUT MODIFICATION TO THE BUS ASSEMBLY. PROVIDE SOLID NEUTRAL ASSEMBLY (S/N).

D. SWITCHES AND PANELBOARD BUS STRUCTURE SHALL SAFELY AND WITHOUT FAILURE WITHSTAND SHORT CIRCUITS ON THE SYSTEMS CAPABLE OF DELIVERING UP TO 100,000 AMPERES. ALL FULLY CONCEALED, SELF-ALIGNING TRIM CLAMPS. FRONTS SHALL BE FULL-FINISHED STEEL WITH RUST INHIBITING PRIMER AND BAKED ENAMEL FINISH.

F. TERMINALS FOR FEEDER CONDUCTORS TO THE PANELBOARD MAINS AND NEUTRAL SHALL BE SUITABLE FOR THE TYPE OF CONDUCTOR SPECIFIED. TERMINALS FOR BRANCH CIRCUIT WIRING, DOOR AND HAVE FULLY CONCEALED, SELF-ALIGNING TRIM CLAMPS. FRONTS SHALL BE FULL-FINISHED STEEL WITH RUST INHIBITING PRIMER AND BAKED ENAMEL FINISH.

G. BEFORE INSTALLING PANELBOARDS CHECK ALL OF THE ARCHITECTURAL DRAWINGS FOR POSSIBLE CONFLICT OF SPACE AND ADJUST THE LOCATION OF THE PANELBOARD TO PREVENT SUCH CONFLICT WITH OTHER ITEMS.

H. THE PANELBOARDS SHALL BE MOUNTED IN ACCORDANCE WITH THE NEC. THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL MATERIAL FOR MOUNTING THE PANELBOARDS.

END OF SECTION 16470

SECTION 16471  
BRANCH CIRCUIT PANELBOARD

A. POWER AND LIGHTING PANELS SHALL BE OF THE DEAD-FRONT, SAFETY TYPE, WITH THERMAL MAGNETIC, QUICK-MAKE, QUICK-BREAK, TRIP FREE, BOLTED-TYPE MOLDED CASE CIRCUIT BREAKERS. VOLTAGE RATINGS, NUMBER OF POLES, FRAME SIZE, TRIP RATINGS, MAIN BREAKER OR LUGS, NEUTRAL BUS, AND GROUND BUS ARE ALL AS SHOWN ON THE DRAWINGS. BUS BARS SHALL BE RECTANGULAR, SOLID COPPER, SECURELY MOUNTED AND BRACED. ALL CONNECTIONS TO BUS BARS SHALL BE SECURELY BOLTED. CABINET BOXES SHALL BE CONSTRUCTED OF CODE GRADE GALVANIZED STEEL, SIZED TO PROVIDE MINIMUM 4 INCH WIDE WIRING CUTOUTS ON SIDES, TOP AND BOTTOM. FRONTS SHALL BE CONSTRUCTED OF CODE GRADE STEEL, ADJUSTABLE INDICATING TRIM CLAMPS AND WITH DOOR PROVIDED WITH CONCEALED HINGES AND CYLINDER TYPE LOCK AND CATCH. TWO KEYS PER PANEL SHALL BE PROVIDED, AND ALL LOCKS FASTENED TO ALL SHEET METAL OUTLETS, JUNCTION AND PULL BOXES WITH TWO GALVANIZED LOCKNUTS AND BUSHING, CARE BEING TAKEN TO SEE THAT THE FULL NUMBER OF THREADS PROJECT THROUGH TO PERMIT THE BUSHING TO BE DRAWN TIGHT AGAINST THE END OF THE CONDUIT, AFTER WHICH THE LOCKNUTS SHALL BE MADE TIGHT SUFFICIENT TO DRAW THEM INTO FIRM ELECTRICAL CONTACT WITH THE OUTLET BOX.

D. ALL PANEL DIRECTORIES SHALL BE TYPED AND TERMINOLOGY APPROVED BY THE OWNER.

END OF SECTION 16471

SECTION 16475  
OVERCURRENT PROTECTIVE DEVICES

A. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL WHERE INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE NEC MOLDED CASE CIRCUIT BREAKERS IN A NEMA TYPE 1 ENCLOSURE. BREAKERS SHALL BE MANUALLY OPERATED, TRIP-FREE AND DESIGNED SO THAT ALL POLES OPEN SIMULTANEOUSLY. TRIPPING MECHANISM SHALL BE THERMALLY, MAGNETICALLY OPERATED, SHALL OPEN INSTANTANEOUSLY ON SHORT CIRCUITS AND HAVE TIME DELAY ON OVERLOADS, AND HAVE EFFECTIVE SCALING AGAINST TAMPERING. BREAKERS SHALL BE AS CALLED FOR ON THE DRAWINGS OR IN THE PANELBOARD SCHEDULE AND AS MANUFACTURED BY SIEMENS, SQUARE D, OR APPROVED EQUAL.

B. FUSES, UNLESS INDICATED OTHERWISE, SHALL BE DUAL ELEMENT, TIME LAG, CARTRIDGE TYPE AS MANUFACTURED BY BUSSMAN. FUSES FOR MOTOR CIRCUITS SHALL BE SIZED IN ACCORDANCE WITH THE NEC. LABELS INDICATING THE SIZE AND TYPE OF REPLACEMENT FUSES SHALL BE GLUED TO INSIDE OF DOOR ON ALL FUSIBLE SWITCHES AND PANELBOARDS.

C. ALL FUSES SHALL BE OF THE CURRENT AND VOLTAGE RATINGS AS REQUIRED OR INDICATED.

D. SPARES: SPARE FUSES AMOUNTING TO 10% (MINIMUM THREE) OF EACH TYPE AND RATING SHALL BE SUPPLIED BY THE ELECTRICAL CONTRACTOR. THESE SHALL BE TURNED OVER TO THE OWNER UPON PROJECT COMPLETION.

END OF SECTION 16475

SECTION 16900  
CONTROLS AND INSTRUMENTATION

SECTION 16901  
GENERAL

A. ALL EQUIPMENT AND MATERIALS USED IN RELATION TO CONTROL WORK FOR THE PROJECT SHALL BE NEW AND SHALL BEAR THE MANUFACTURER'S NAME AND TRADE NAME. THE EQUIPMENT AND MATERIAL SHALL BE ESSENTIALLY THE STANDARD PRODUCT OF A MANUFACTURER REGULARLY ENGAGED IN THE PRODUCTION OF THE REQUIRED TYPE OF EQUIPMENT AND SHALL BE THE MANUFACTURER'S LATEST APPROVED DESIGN.

B. THE ELECTRICAL CONTRACTOR SHALL RECEIVE AND PROPERLY STORE THE EQUIPMENT AND MATERIAL PERTAINING TO THE ELECTRICAL WORK. THE EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT, WATER, CHEMICAL OR MECHANICAL INJURY AND DAMAGE. THE EQUIPMENT SHALL BE DELIVERED TO THE PROJECT IMMEDIATELY BY THE DELIVERY, STORAGE, PROTECTION AND INSTALLATION OF ALL EQUIPMENT AND MATERIALS.

C. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL ITEMS NECESSARY FOR THE COMPLETE INSTALLATION OF THE EQUIPMENT AS RECOMMENDED OR AS REQUIRED BY THE MANUFACTURER OF THE EQUIPMENT OR AS REQUIRED BY CODE WITHOUT ADDITIONAL COST TO THE OWNER, REGARDLESS OF WHETHER THE ITEMS ARE SHOWN ON THE PLANS OR COVERED IN THE SPECIFICATIONS.

D. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO CLEAN THE ELECTRICAL EQUIPMENT, MAKE NECESSARY ADJUSTMENTS AND PLACE THE EQUIPMENT IN OPERATION BEFORE TURNING EQUIPMENT OVER TO OWNER. ANY PAINT THAT WAS SCRATCHED DURING CONSTRUCTION SHALL BE "TOUCHED-UP" WITH FACTORY COLOR PAINT TO THE SATISFACTION OF THE ARCHITECT. ANY ITEMS THAT WERE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED.

E. GENERAL

- UNLESS OTHERWISE INDICATED ALL HEATING, VENTILATING, AIR CONDITIONING, PLUMBING, AND OTHER MECHANICAL EQUIPMENT, MOTORS, AND CONTROLS SHALL BE FURNISHED, SET IN PLACE AND WIRED AS FOLLOWS:

RESPONSIBLE DIVISION

ITEM	FURNISHED	SET	POWER-WIRED	CONTROL-WIRED
EQUIPMENT	15	15	16	--
COMBINATION MAGNETIC MOTOR STARTERS, MAGNETIC MOTOR STARTERS AND CONTACTORS	15	16	16	15
FUSED AND UNFUSED DISCONNECT SWITCHES, THERMAL OVERLOAD SWITCHES AND HEATERS, MANUAL MOTOR STARTERS	16(1)	16(1)	16	--
MANUAL-OPERATING AND MULTI-SPEED SWITCHES	15	16	16	16
CONTROLS, RELAYS, TRANSFORMERS	15	15	16	15
THERMOSTATS (LOW VOLTAGE) AND TIME SWITCHES	15	15	16	15
THERMOSTATS (LINE VOLTAGE)	15	15	16	16
TEMPERATURE CONTROL PANELS	15	15	16	15
MOTOR AND SOLENOID VALVES, DAMPER MOTORS, PE & EP SWITCHES	15	15(2)	--	15(2)
PUSH-BUTTON STATIONS AND PILOT LIGHTS	15	15(2)	--	15(2)
HEATING, COOLING, VENTILATION AND AIR CONDITIONING CONTROLS	15	15	16	15
EXHAUST FAN SWITCHES	15	16	16	15(2)

SUBSCRIPT FOOTNOTES:

- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL SUBCONTRACTOR WORK.
- UNDER DIVISION 15 IF FURNISHED FACTORY-WIRED AS PART OF EQUIPMENT OR IF FURNISHED WITH COMBINATION STARTERS.
- IF ITEM IS FOR LINE VOLTAGE, SET IN PLACE AND CONNECT UNDER DIVISION 16. WHERE FACTORY MOUNTED ON EQUIPMENT OR ATTACHED TO PIPING OR DUCTS AND USING LINE VOLTAGE FURNISH AND SET UNDER DIVISION 15, CONNECT UNDER DIVISION 16.

2. VERIFY LOCATION AND NAMEPLATE DATA OF ALL MECHANICAL EQUIPMENT WITH THE MECHANICAL CONTRACTOR PRIOR TO INSTALLING ELECTRICAL FACILITIES. BE RESPONSIBLE FOR COORDINATION OF REVISIONS AND MODIFICATIONS NECESSARY TO PROPERLY SUPPLY ELECTRICAL FACILITIES TO HEATING, VENTILATING, AIR CONDITIONING, PUMPS, MOTORS, CONTROLS, AND OTHER MECHANICAL EQUIPMENT INSTALLED IN PLACE OF EQUIPMENT SPECIFIED. REQUIRED ELECTRICAL FACILITIES CHANGES SHALL BE CONSIDERED TO BE A PART OF THE MECHANICAL CONTRACT.

3. PROVIDE EACH MOTOR WITH A HORSEPOWER RATED DISCONNECT SWITCH AND MOTOR RUNNING OVERCURRENT PROTECTION PER N.E.C. 430-37. TO FACILITATE EASE AND SAFETY OF OPERATION AND MAINTENANCE OF MECHANICAL EQUIPMENT, LOCATE THE DISCONNECT SWITCH IMMEDIATELY ADJACENT TO THE MOTOR, UNLESS OTHERWISE INDICATED. SIZE THERMAL OVERLOAD HEATER UNITS FOR APPROXIMATELY 115% OF FULL LOAD MOTOR CURRENT. SIZE FUSES IN ACCORDANCE WITH THE ACTUAL MOTOR NAMEPLATE RATINGS AND AS RECOMMENDED BY THE BUSSMAN MFG. CO. CHECK AND COORDINATE ALL STARTERS, FUSES, AND OTHER MOTOR RUNNING PROTECTIVE DEVICES WITH THE EQUIPMENT THEY CONTROL, AND PROVIDE AND INSTALL THE CORRECT SIZE PROTECTIVE ELEMENTS AS REQUIRED.

4. DO NOT CONNECT MOTORS WHICH ARE OF A VOLTAGE RATING DIFFERENT THAN SUPPLY VOLTAGE. REPORT SAME TO THE ARCHITECT IN WRITING AND OBTAIN WRITTEN INSTRUCTIONS FOR RESOLUTION.

5. USE FLEXIBLE CONDUIT FOR ALL CONNECTIONS TO DEVICES DIRECTLY ATTACHED TO DUCTS, PIPING AND MECHANICAL EQUIPMENT.

END OF SECTION 16901

SECTION 16950  
TESTING

A. AS SOON AS ELECTRIC POWER IS AVAILABLE AND CONNECTED TO SERVE THE EQUIPMENT IN THE BUILDING, AND EVERYTHING IS READY FOR FINAL TESTING AND PLACING IN SERVICE, A COMPLETE OPERATIONAL TEST SHALL BE MADE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY INSTRUMENTS AND EQUIPMENT AND MAKE ALL TESTS, ADJUSTMENTS, AND TRIAL OPERATIONS REQUIRED TO PLACE THE SYSTEM IN BALANCED AND SATISFACTORY OPERATING CONDITION; FURNISH ALL NECESSARY ASSISTANCE AND INSTRUCTIONS TO PROPERLY INSTRUCT THE OWNER'S AUTHORIZED PERSONNEL IN THE OPERATION AND CARE OF THE SYSTEM.

B. PRIOR TO TESTING THE SYSTEM, THE FEEDERS AND BRANCH CIRCUITS SHALL BE CONTINUOUS FROM MAIN FEEDERS TO MAIN PANELS, TO SUBPANELS, TO OUTLETS, WITH ALL BREAKERS AND FUSES IN PLACE. THE SYSTEM SHALL BE TESTED FREE FROM SHORTS AND GROUNDS, SUCH TESTS SHALL BE MADE IN THE PRESENCE OF THE ENGINEER'S REPRESENTATIVE.

C. NO CIRCUITS SHALL BE ENERGIZED WITHOUT THE OWNER'S APPROVAL.

D. THE RIGHT IS RESERVED TO INSPECT AND TEST ANY PORTION OF THE EQUIPMENT AND/OR MATERIALS DURING THE PROGRESS OF ITS ERECTION. THE CONTRACTOR SHALL FURTHER TEST ALL WIRING AND CONNECTIONS FOR CONTINUITY AND GROUNDS BEFORE CONNECTING ANY FIXTURES OR EQUIPMENT.

E. THE CONTRACTOR SHALL TEST THE ENTIRE SYSTEM IN THE PRESENCE OF THE ARCHITECT OR HIS ENGINEER WHEN THE SYSTEM IS FINALLY COMPLETED TO INSURE THAT ALL PORTIONS ARE FREE FROM SHORT CIRCUITS OR GROUND FAULTS.

END OF SECTION 16950

SECTION 16980  
DEMONSTRATION OF ELECTRICAL EQUIPMENT

A. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE ARCHITECT WITH CERTIFICATION OF THE INSPECTION AND APPROVAL OF AN ACTIVE MEMBER OF THE INTERNATIONAL ASSOCIATION OF ELECTRICAL INSPECTORS OF ALL WORK COMPLETED AND INCLUDED IN THE SECTION. IF NECESSARY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE INSPECTOR WHEN WORK REACHES INSPECTION STAGE.

B. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE LOCAL AUTHORITY HAVING JURISDICTION IN ORDER THAT LOCAL INSPECTION MAY BE CARRIED OUT AT THE PROPER STAGE.


C. THE ELECTRICAL CONTRACTOR SHALL PAY FOR ALL PERMITS, INSPECTION FEES, AND INSTALLATION FEES AS REQUIRED TO COMPLETE THE WORK UNDER THIS SECTION OF THE CONTRACT.

D. THIS CONTRACTOR SHALL GUARANTEE THE MATERIALS AND WORKMANSHIP FOR A PERIOD OF TWELVE (12) MONTHS FROM THE TIME THE INSTALLATION IS ACCEPTED BY THE OWNER. IF, DURING THIS TIME, ANY DEFECTS SHOULD SHOW UP DUE TO ANY DEFECTIVE MATERIALS, WORKMANSHIP, NEGLIGENCE OR WANT OF PROPER CARE ON THE PART OF THIS CONTRACTOR, HE SHALL FURNISH ANY NEW MATERIALS AS NECESSARY, REPAIR SAID DEFECTS, AND PUT THE SYSTEM IN ORDER AT HIS OWN EXPENSE ON RECEIPT OF NOTICE OF SUCH DEFECTS FROM THE ARCHITECT. THIS SPECIFICATION IS NOT INTENDED TO IMPLY THAT THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR NEGLIGENCE OF THE OWNER.

END OF SECTION 16980

END OF DIVISION

DO NOT REPRODUCE THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER. THE DRAWINGS AND SPECIFICATIONS ARE INSTRUMENTS OF THE SERVICE AND SHALL REMAIN THE PROPERTY OF THE DESIGNER. THESE DRAWINGS AND SPECIFICATIONS ARE NOT TO BE USED BY ANYONE ON ANY OTHER PROJECTS FOR ADDITIONS TO THIS PROJECT OR OTHERS EXCEPT BY THE EXPRESSED WRITTEN PERMISSION OF THE DESIGNER.

  
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**TOWN OF HOTCHKISS  
PUBLIC WORKS FACILITY**

TBD BARROW MESA RD  
HOTCHKISS, COLORADO

DATE: 03/21/19  
ISSUED FOR: REVISED 50% DD

DATE: 03/21/19  
JOB NO: 18-159  
DRAWN BY: BCE  
CHECKED BY: BCE  
SCALE: AS SHOWN  
SHEET NUMBER:  
**E2-4**