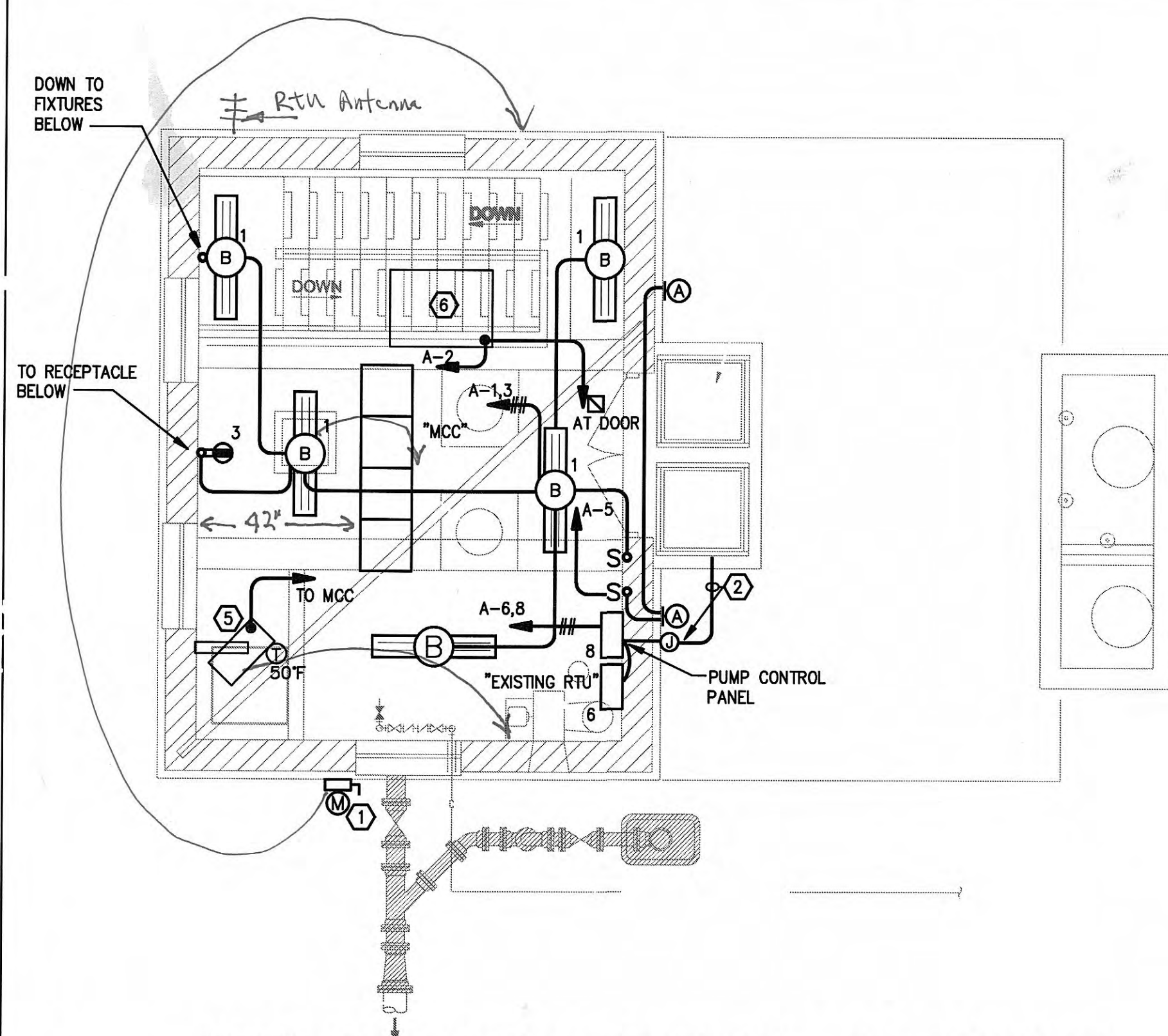


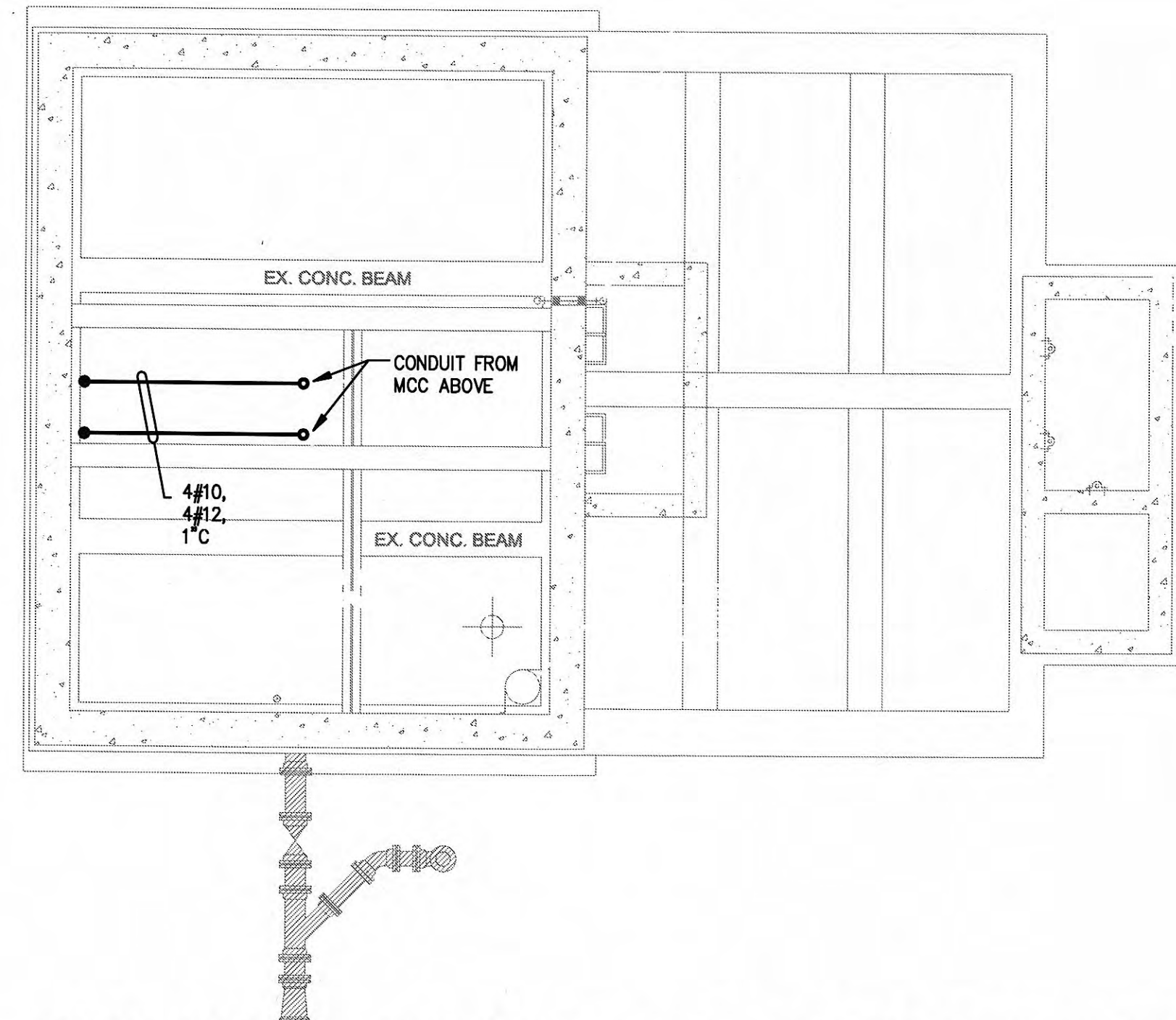


NEW WORK FLOOR PLAN - ENTRANCE

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

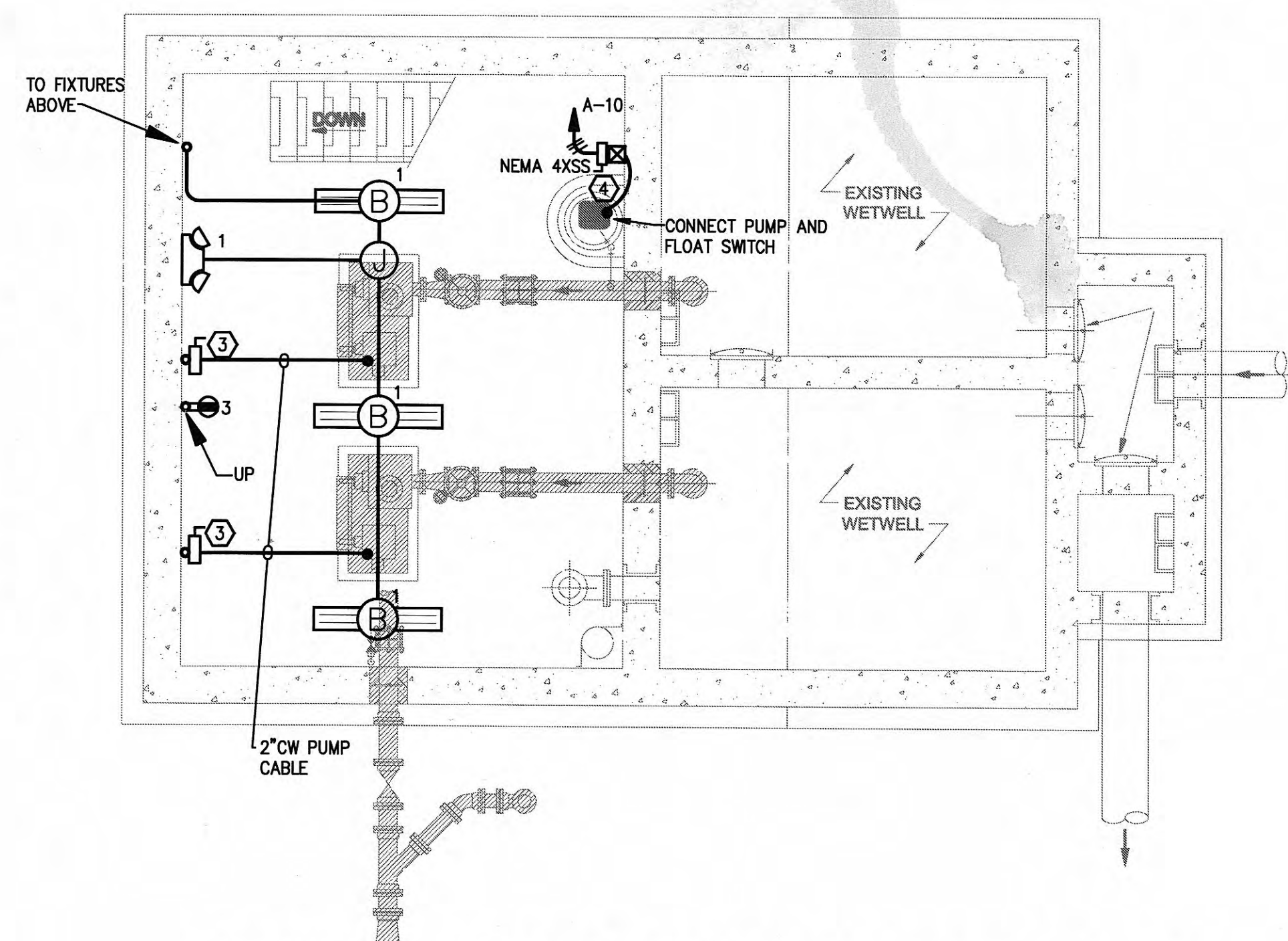
DRAWING NOTES:

- 1 LOCATION OF NEW ELECTRIC METER AND SERVICE DISCONNECT. SEE FEEDER DIAGRAM.
- 2 2" C, WITH FLOAT SWITCH AND PRESSURE TRANSDUCER. PROVIDE NEMA 4XSS JUNCTION BOX ON EXTERIOR OF BUILDING AND EXTEND UNDERGROUND TO WETWELL. PROVIDE BELL BUSHING ON CONDUIT PENETRATING WETWELL. SEAL OFF CONDUIT OUTSIDE OF WETWELL. INSTALL PER ARTICLE 500 OF NEC. PROVIDE STAINLESS STEEL SUPPORT BRACKET AND KELLUM STRAIN RELIEF CABLE GRIPS FOR CABLES.
- 3 PUMP DISCONNECT 30/3 NEMA 4XSS NON FUSED.
- 4 SUMP PUMP WITH NEMA 4XSS STARTER AND DISCONNECT 208V, 1PH. SEE CONTROL DIAGRAM E2.



NEW WORK FLOOR PLAN - INTERMEDIATE

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

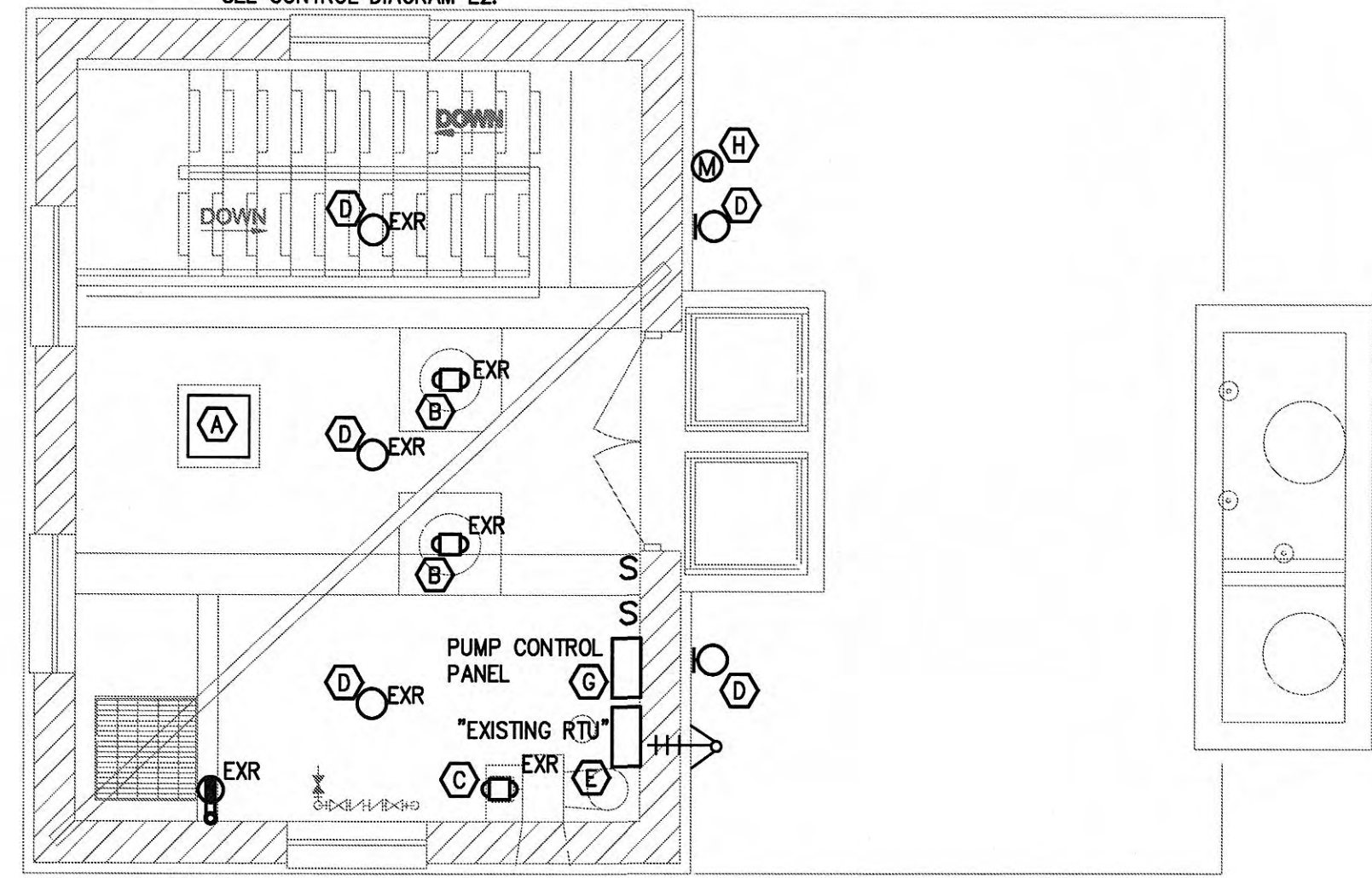


NEW WORK FLOOR PLAN - PUMP ROOM

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

GENERAL NOTES:

1. ALL SURFACE MOUNTED CONDUITS, FITTINGS, AND BOXES SHALL BE RIGID GALVANIZED STEEL.



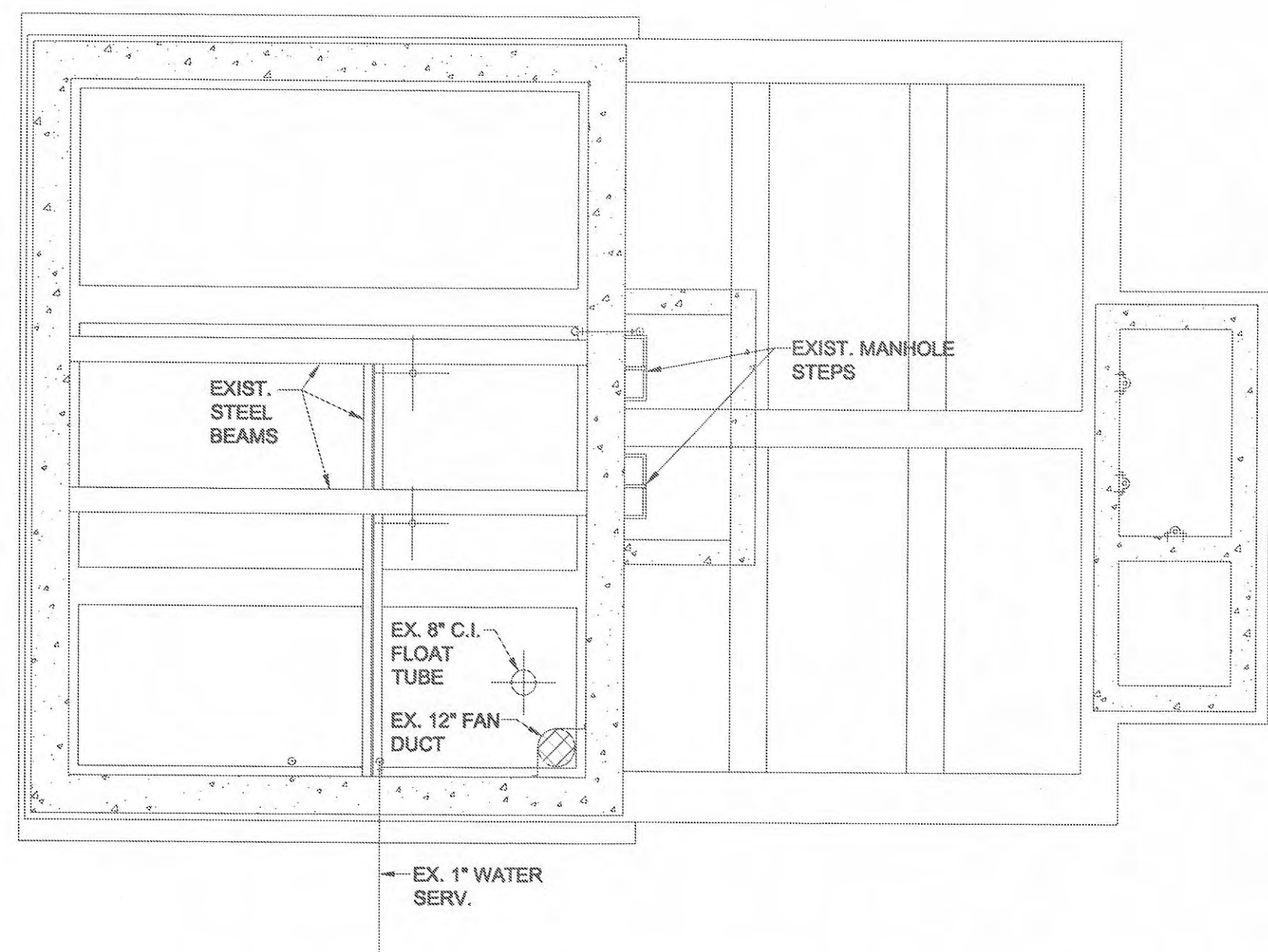
DEMOLITION FLOOR PLAN - ENTRANCE

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

DEMOLITION NOTES:

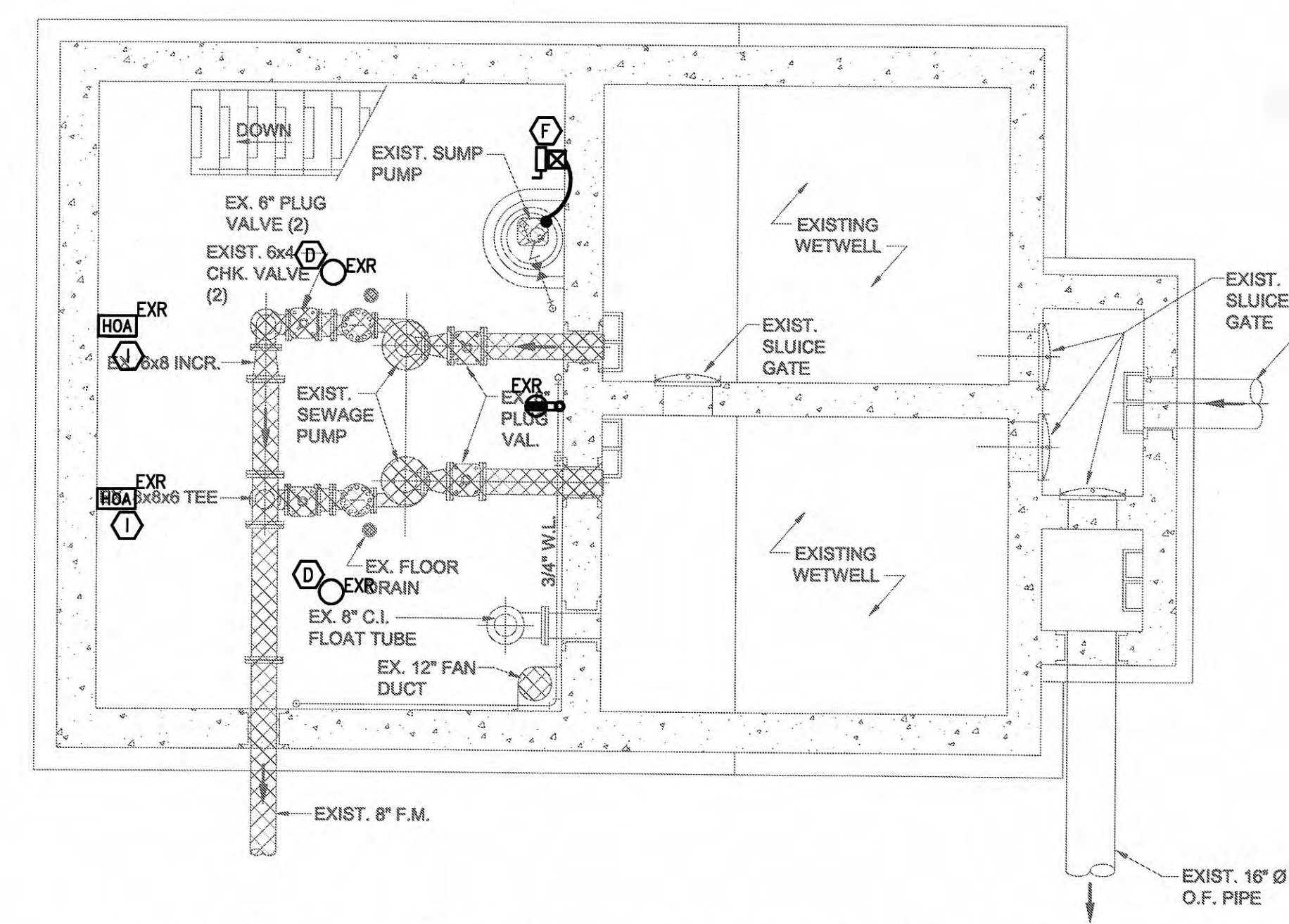
- A EXISTING MCC TO BE REMOVED AND REPLACED WITH NEW. REMOVE ALL ACCESSIBLE CONDUIT AND WIRING BACK TO SUPPLY SOURCE. ALL BRANCH WIRING FROM MCC TO BE REMOVED AND REPLACED WITH NEW.
- B EXISTING WASTEWATER PUMP MOTOR TO BE REMOVED AND REPLACED WITH NEW. REMOVE WIRING AND CONDUIT BACK TO SUPPLY SOURCE.
- C EXISTING EXHAUST FAN TO BE REMOVED AND REPLACED WITH NEW. REMOVE WIRING AND CONDUIT BACK TO SUPPLY SOURCE.
- D EXISTING LIGHTING TO BE REMOVED AND REPLACED WITH NEW. REMOVE WIRING AND ACCESSIBLE CONDUIT BACK TO SUPPLY SOURCE. PROVIDE NEW SWITCHES AS INDICATED.
- E EXISTING RTU TO REMAIN.
- F EXISTING SUMP PUMP TO BE REMOVED AND REPLACED WITH NEW. REMOVE STARTER, WIRING AND CONDUIT BACK TO SUPPLY SOURCE.

- G EXISTING PUMP CONTROL PANEL TO BE REPLACED.
- H EXISTING METER AND SECONDARY TO BE REPLACED WITH NEW. SEE FEEDER DIAGRAM AND SITE PLAN.
- I REMOTE HOA STATIONS TO BE REMOVED AND REPLACED WITH DISCONNECTS. REMOVED CONDUIT AND WIRING BACK TO SUPPLY SOURCE.



DEMOLITION FLOOR PLAN - INTERMEDIATE

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



DEMOLITION FLOOR PLAN - PUMP ROOM

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

WWR ENGINEERS INC.
 5417 Ball Camp Pike
 Knoxville, TN 37921
 Phone: (865) 588-2431
 Fax: (865) 588-2434
 West, Welch, Reed Engineers, Inc.
 WWR PROJECT# 109013
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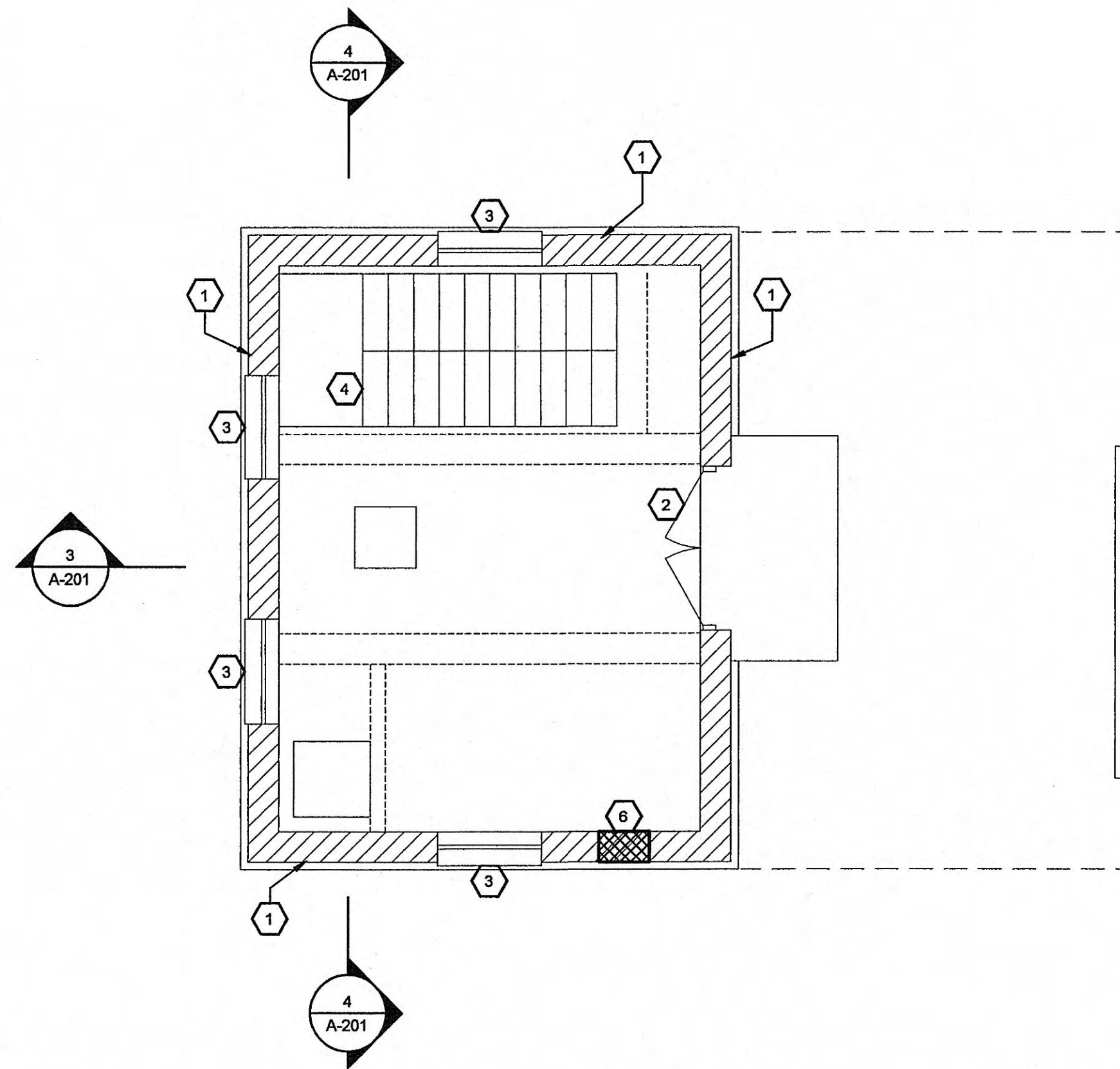
GW PROJECT NO. 3792-01
 CLIENT PROJECT NO. X00X
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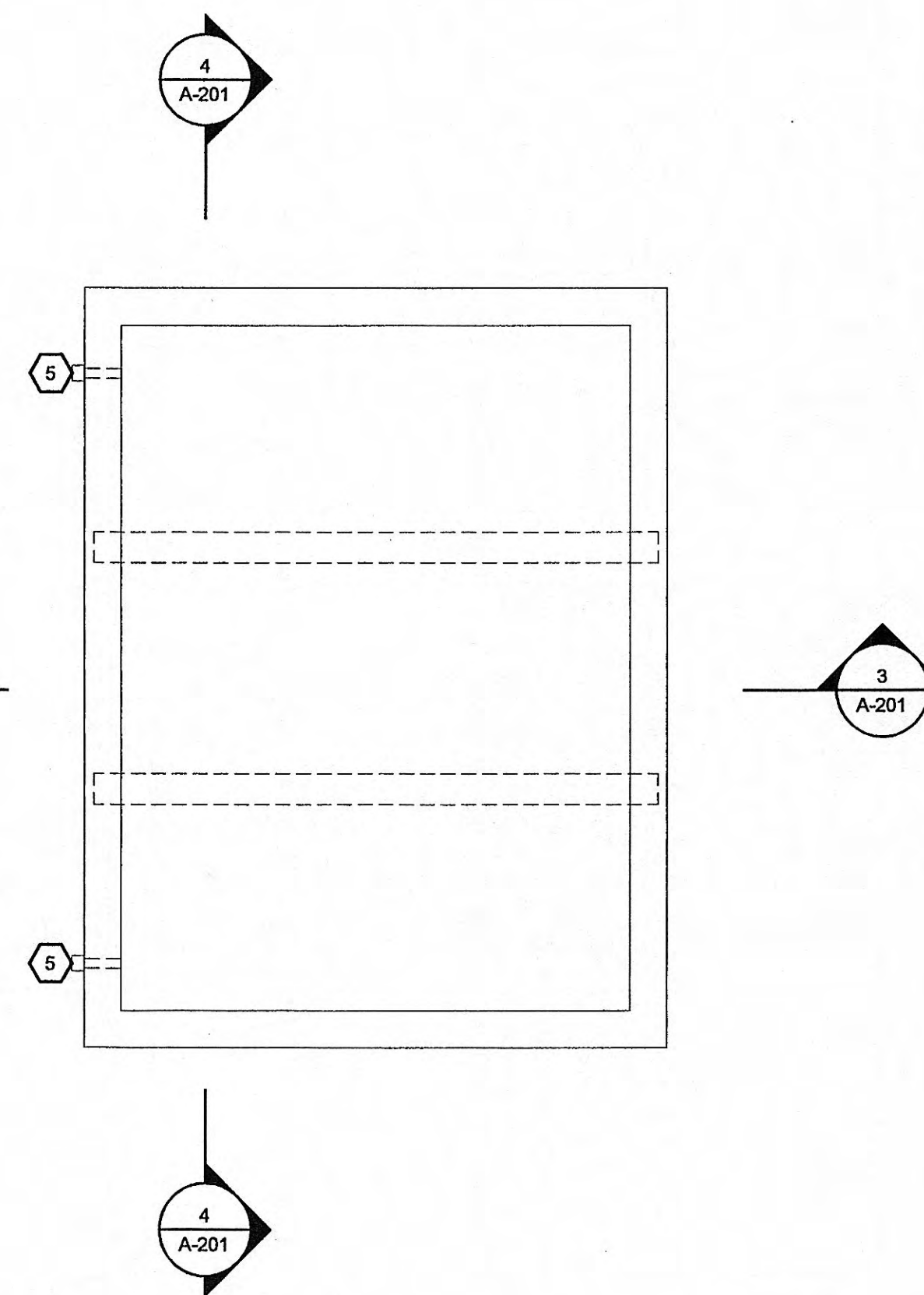
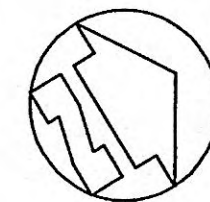
CHRISTMAS PUMP STATION NO. A-2
FLOOR PLAN - ELECTRICAL
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

REVISIONS	DATE	BY	CHKD	APP'D	SCALE
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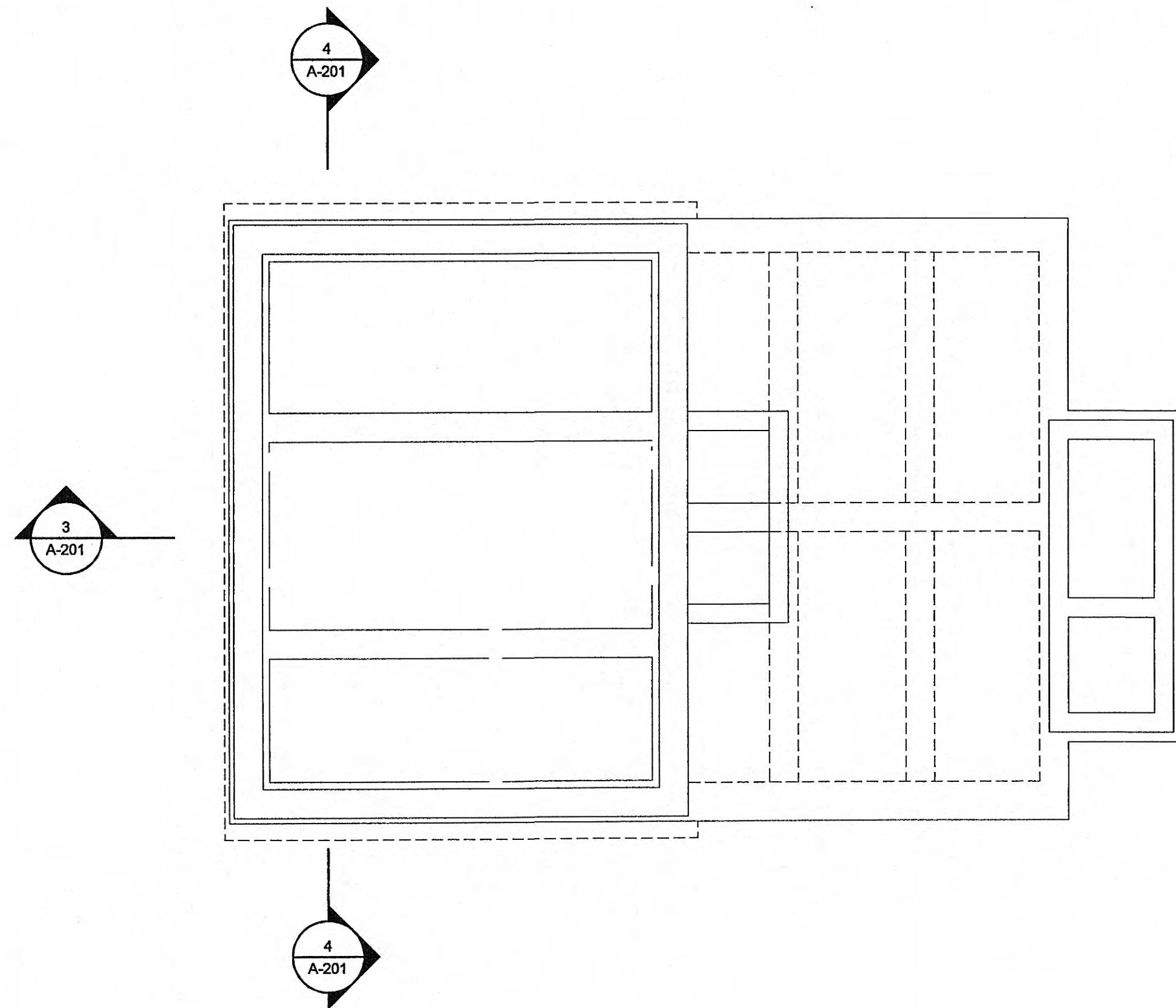
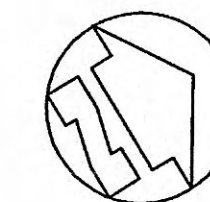
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 SHEET NO. E-4



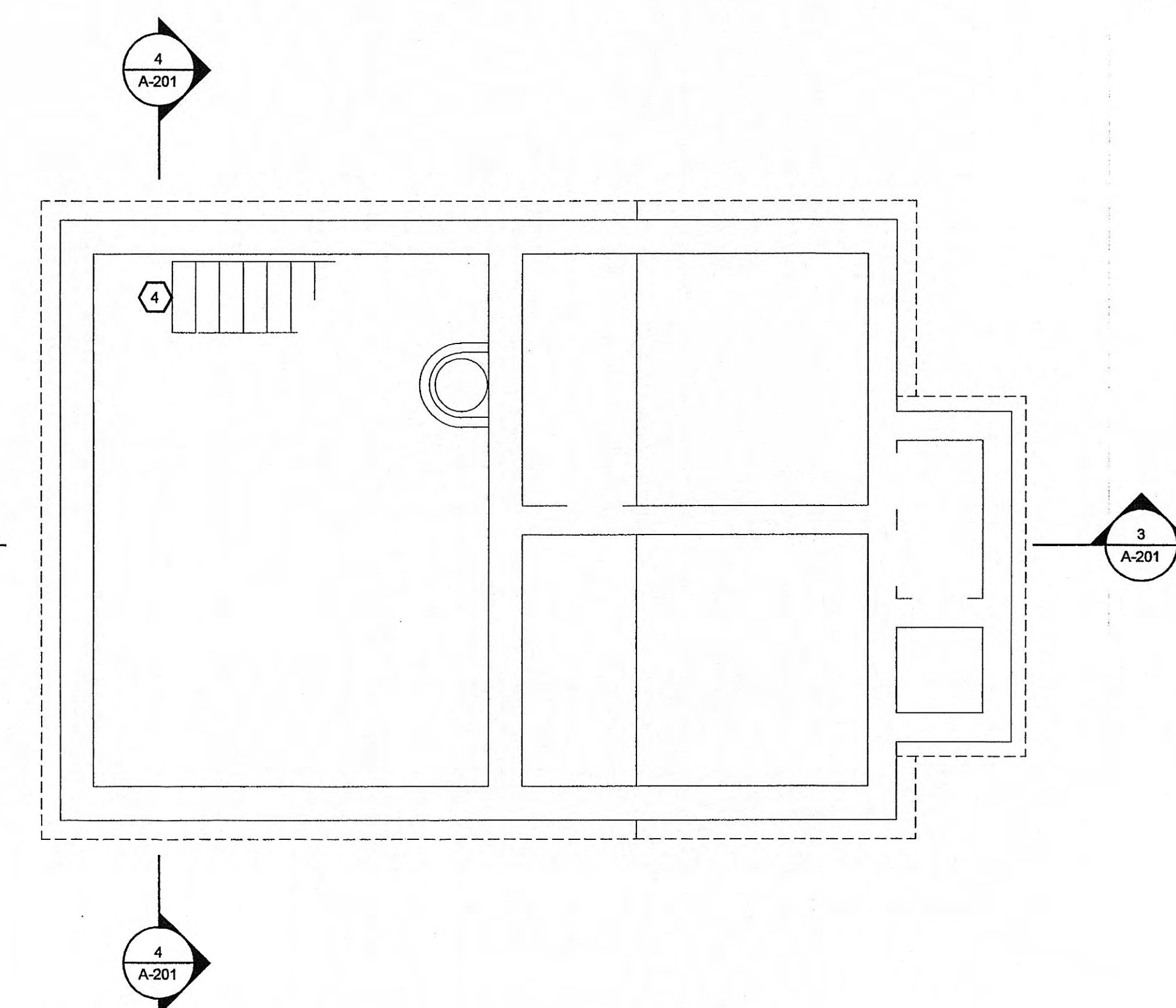
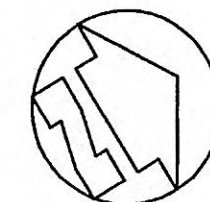
1 ENTRANCE FLOOR PLAN - DEMO
SCALE: 1/4"=1'-0"



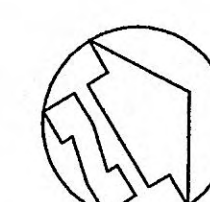
3 ROOF PLAN - DEMO
SCALE: 1/4"=1'-0"



2 INTERMEDIATE FLOOR PLAN - DEMO
SCALE: 1/4"=1'-0"



4 PUMP ROOM PLAN - DEMO
SCALE: 1/4"=1'-0"



GENERAL NOTES:

- SANDBLAST EXISTING INTERIOR WALLS, STAIRS, RAILINGS AND CEILINGS AT ALL LEVELS - PREP FOR PAINTING
- EXISTING EXTERIOR WALLS TO BE CLEANED AND SEALER APPLIED - SEE SPEC SECTIONS 04500 & 07190
- REMOVE EXISTING ROOFING MATERIAL DOWN TO EXISTING CONCRETE ROOF DECK - PATCH AND LEVEL AS REQUIRED FOR NEW ROOF STRUCTURE INSTALLATION

SYMBOL KEY:

0-000 DETAIL INDICATOR

KEYNOTES:

- EXISTING BRICK COMPOSITE WALL - REMOVE BRICK AT LOCATIONS DESIGNATED FOR NEW LOUVER OPENINGS - SEE MECHANICAL
- EXISTING DOOR, FRAME, AND THRESHOLD TO BE REMOVED - PATCH OPENING AS REQUIRED TO RECEIVE NEW DOOR, FRAME AND THRESHOLD
- EXISTING WINDOWS TO BE REMOVED - PATCH OPENING AS REQUIRED TO RECEIVE NEW WINDOWS
- EXISTING STAIR AND RAILING TO REMAIN
- EXISTING SCUPPERS TO BE REMOVED
- EXISTING LOUVER TO BE REMOVED



GRV PROJECT NO. 3795-01

CLIENT PROJECT NO. XXXX

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**CHRISTMAS PUMP STATION NO. A-2
DEMOLITION - PLAN VIEWS**
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DESIGNED: JEE
BY: JEE
CHECKED: BSL
APPROVED: BSL

NO.	DATE	DESCRIPTION

DATE: APRIL 10, 2009

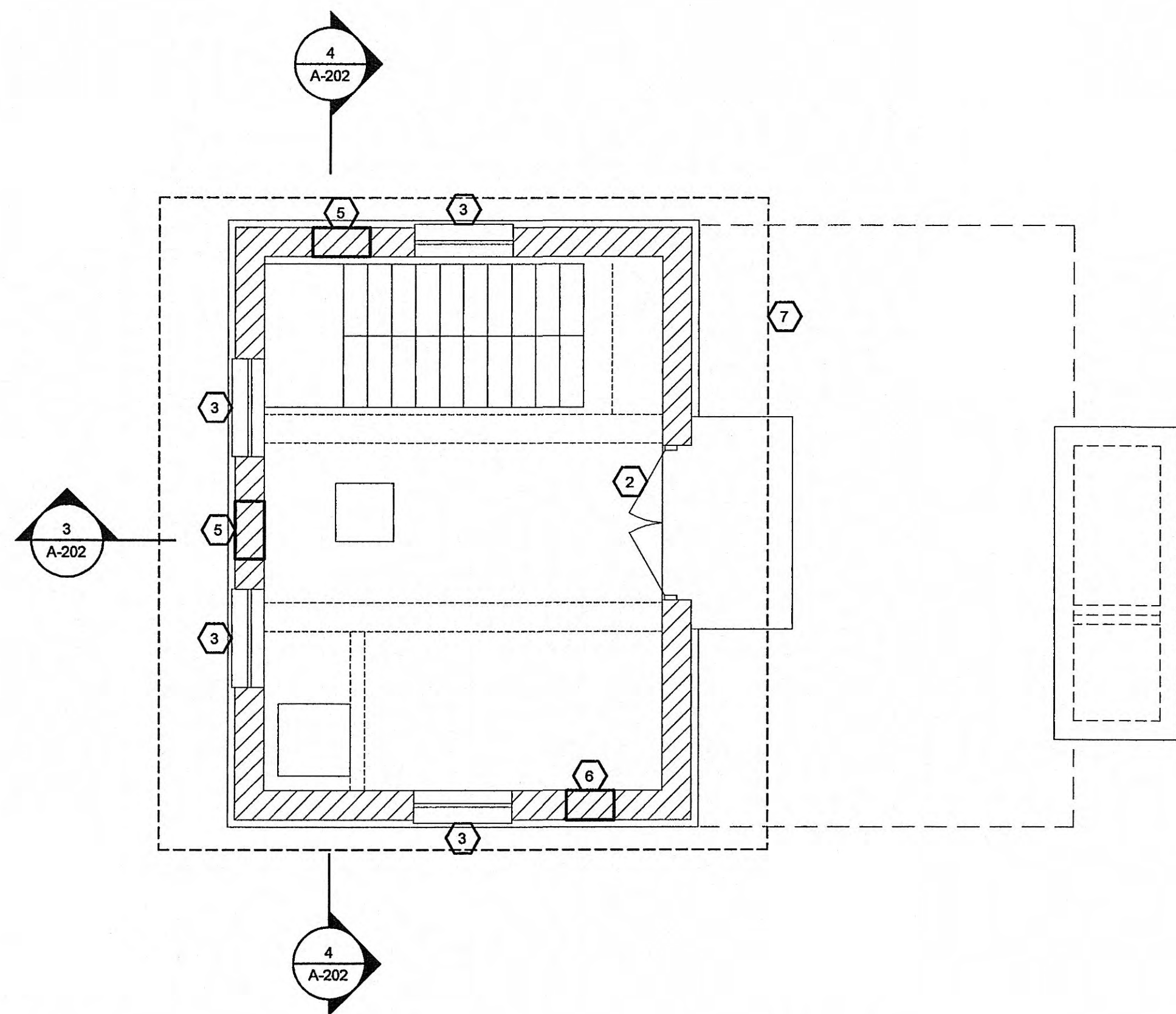
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SHEET NO.

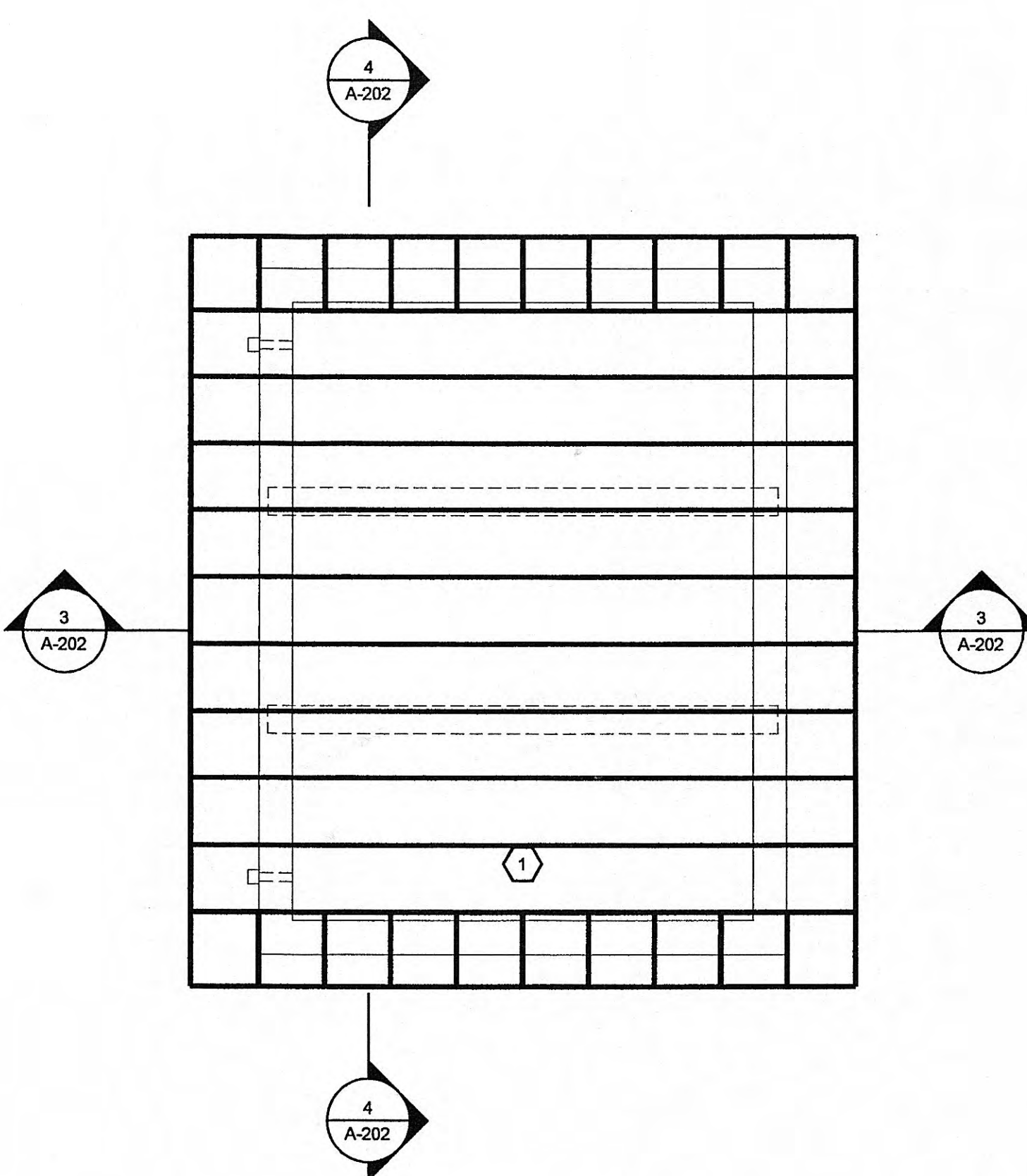
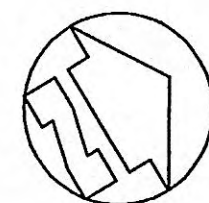
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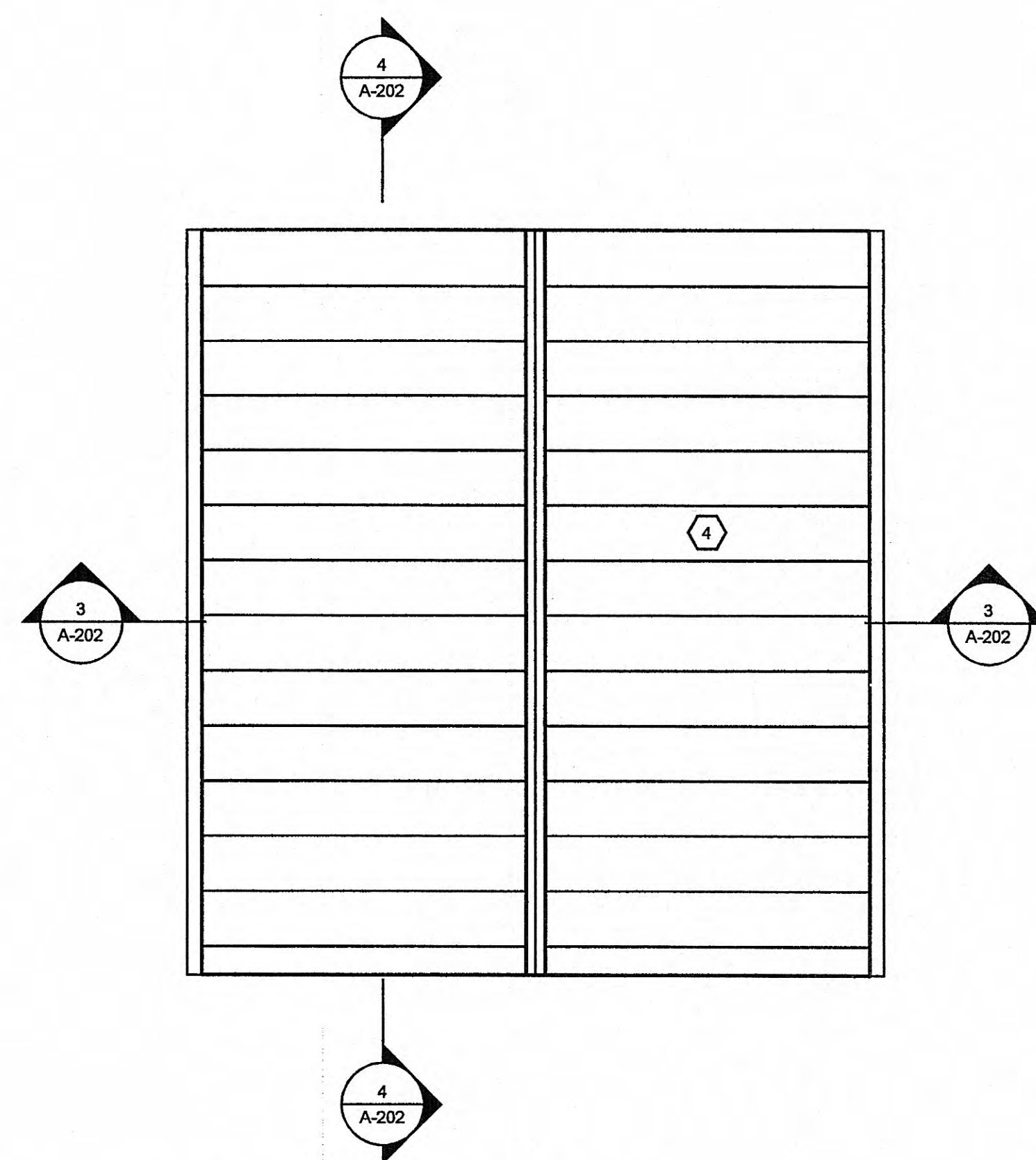
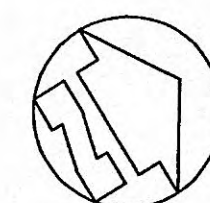
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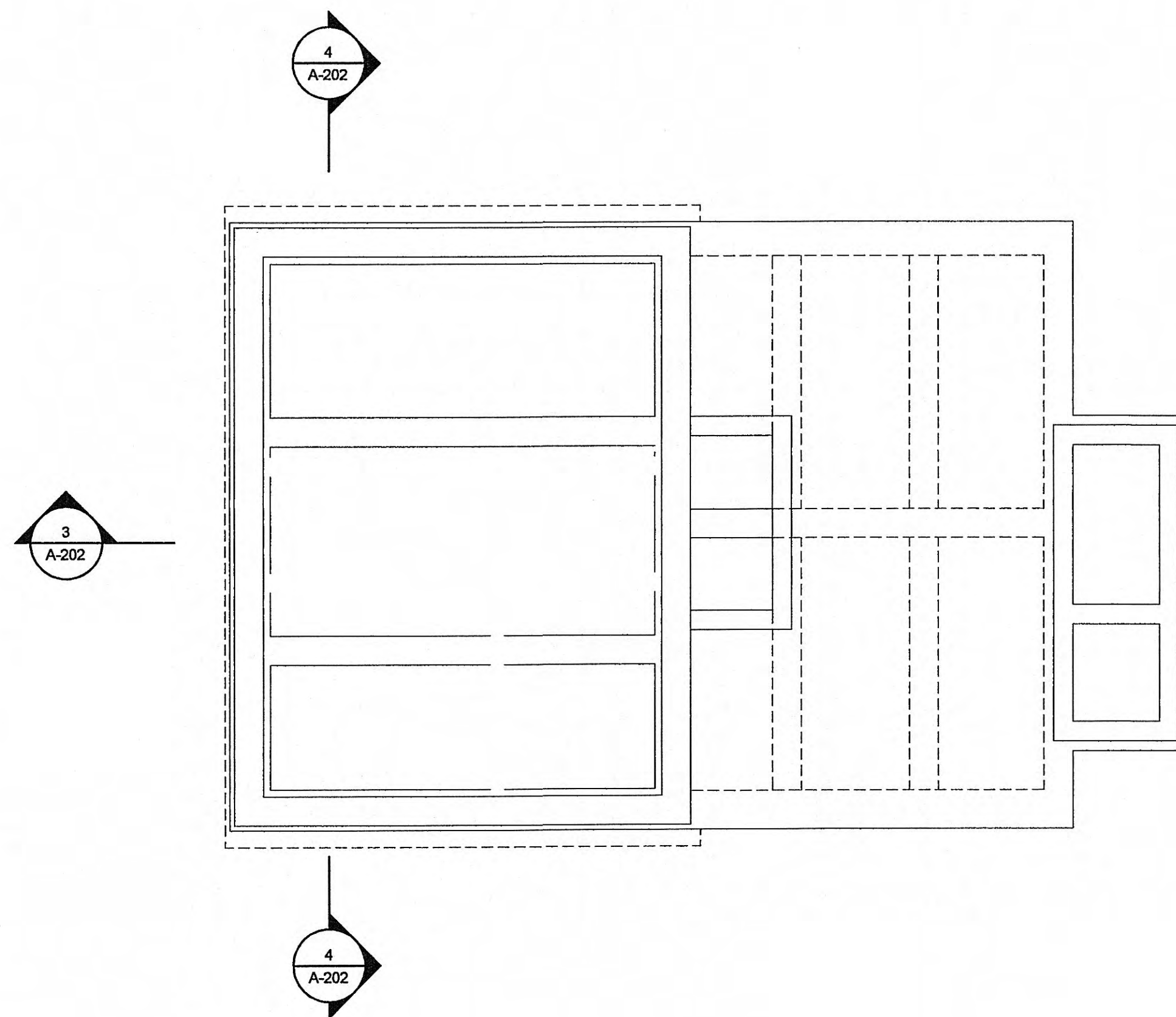
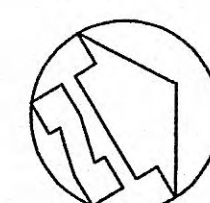
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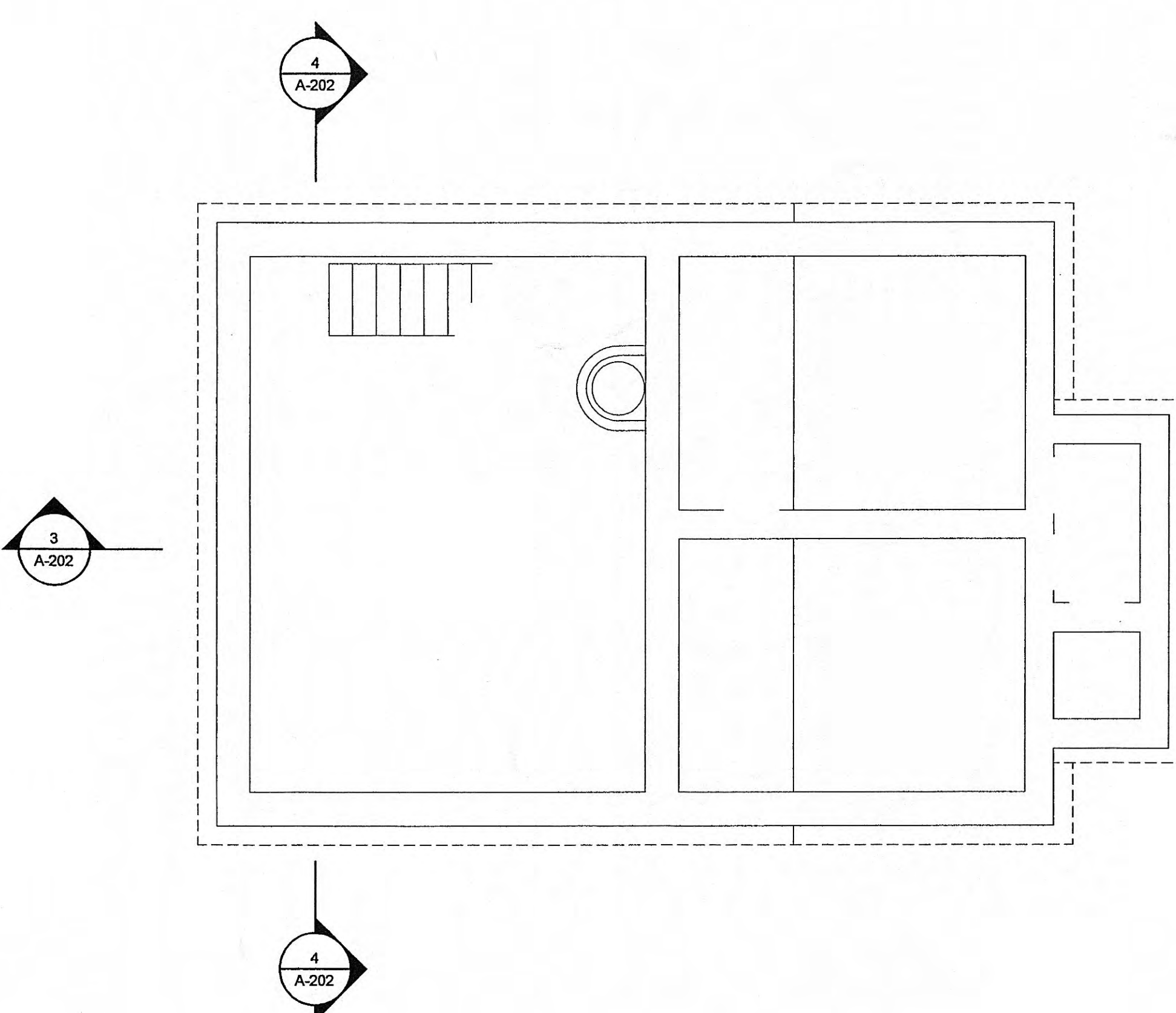
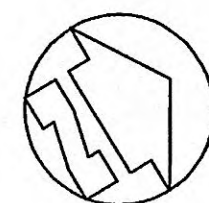
4 ROOF FRAMING PLAN - UPGRADE
SCALE: 1/4"=1'-0"



5 ROOF PLAN - UPGRADE
SCALE: 1/4"=1'-0"



2 INTERMEDIATE FLOOR PLAN - UPGRADE
SCALE: 1/4"=1'-0"



3 PUMP ROOM PLAN - UPGRADE
SCALE: 1/4"=1'-0"



GENERAL NOTES:

1. PAINT INTERIOR WALLS, CEILINGS, STAIRS, RAILINGS, DOORS AND FRAMES - SEE SPEC SECTIONS 09900 & 09910
2. REPOINT ALL CRACKS IN MORTAR JOINTS AND PATCH HOLES WHERE EQUIPMENT, SCUPPERS OR PIPING HAS BEEN REMOVED - APPLY FINISH SEALANT - SEE SPEC SECTIONS 04500 & 07190
3. PATCH HOLES WHERE EQUIPMENT, SCUPPERS, OR PIPING HAS BEEN REMOVED - SEE SPEC SECTION 01731

SYMBOL KEY:

0-000
DETAIL INDICATOR

KEYNOTES:

1. PROVIDE PRE-ENGINEERED WOOD TRUSS @ 24" O.C. TYPICAL - SEE SPEC SECTION 06176
2. PROVIDE NEW FIBERGLASS DOOR, TRANSOM AND FRAME - FIELD VERIFY MASONRY OPENING - SEE SHEET A-301 FOR DETAILS
3. PROVIDE NEW WINDOWS AND WINDOW GUARDS - SEE SHEET A-301 FOR DETAILS
4. PROVIDE STANDING SEAM METAL ROOF
5. PROVIDE WALL OPENING FOR MECHANICAL LOUVER - SEE MECHANICAL FOR LOUVER LOCATIONS - SEE SHEET A-301 FOR DETAILS
6. INFILL DEMO LOUVER OPENING WITH BRICK TO MATCH EXISTING WALL
7. NEW ROOF LINE ABOVE

CHRISTMAS PUMP STATION NO. A-2
UPGRADE - PLAN VIEWS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

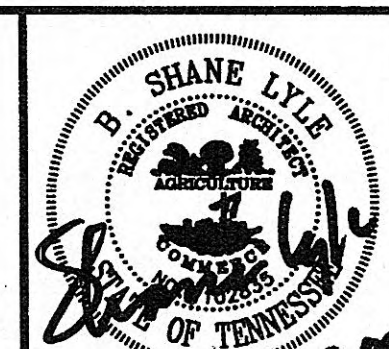
DESIGNED	JEE	DRAWN	JEE	REVIEWED	BSL	APPROVED	BSL
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REVISIONS	DESCRIPTION	DATE	BY	DATE	BY	DATE	BY
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DATE:
APRIL 10, 2009

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

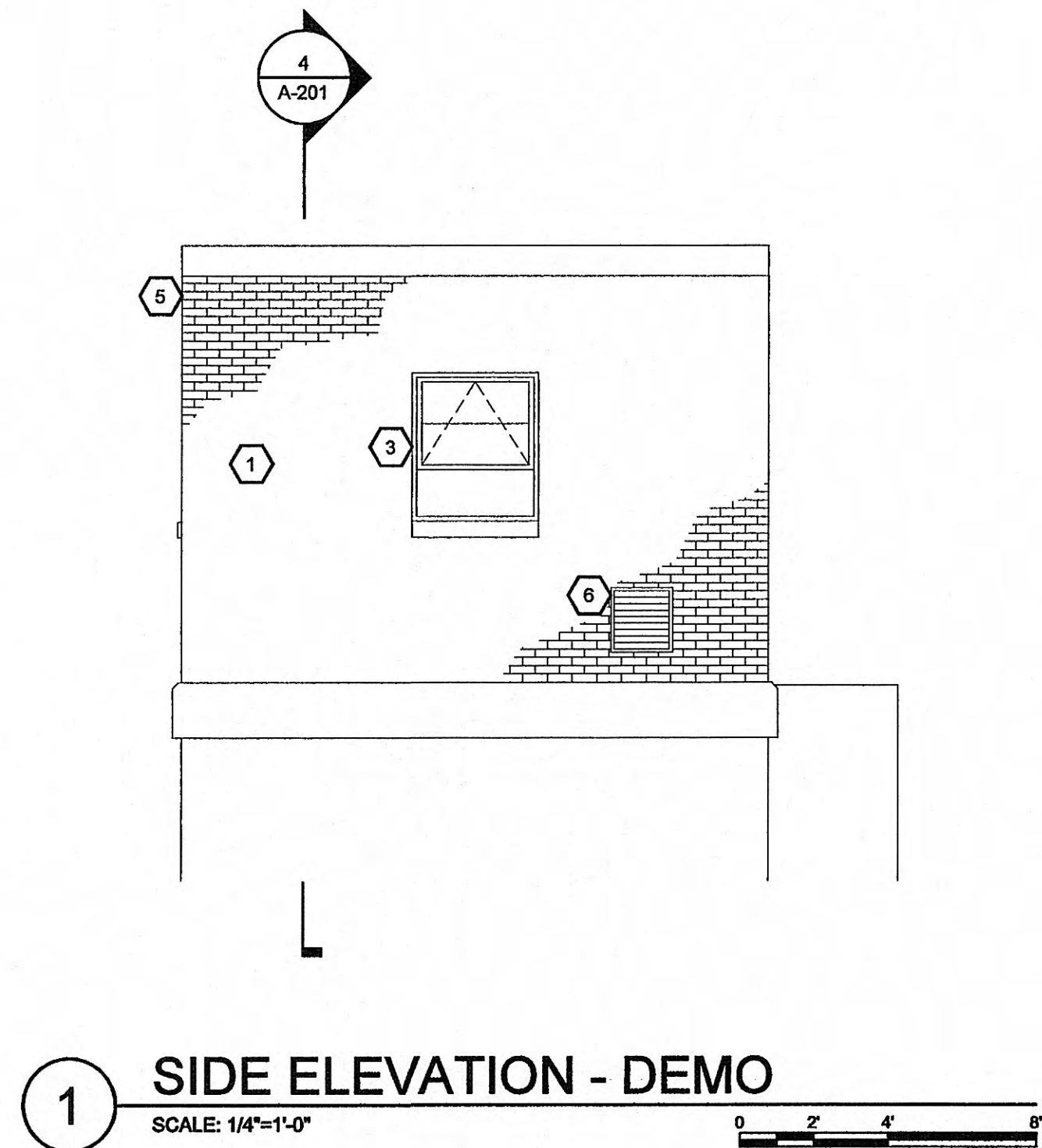
SHEET NO.

A-102

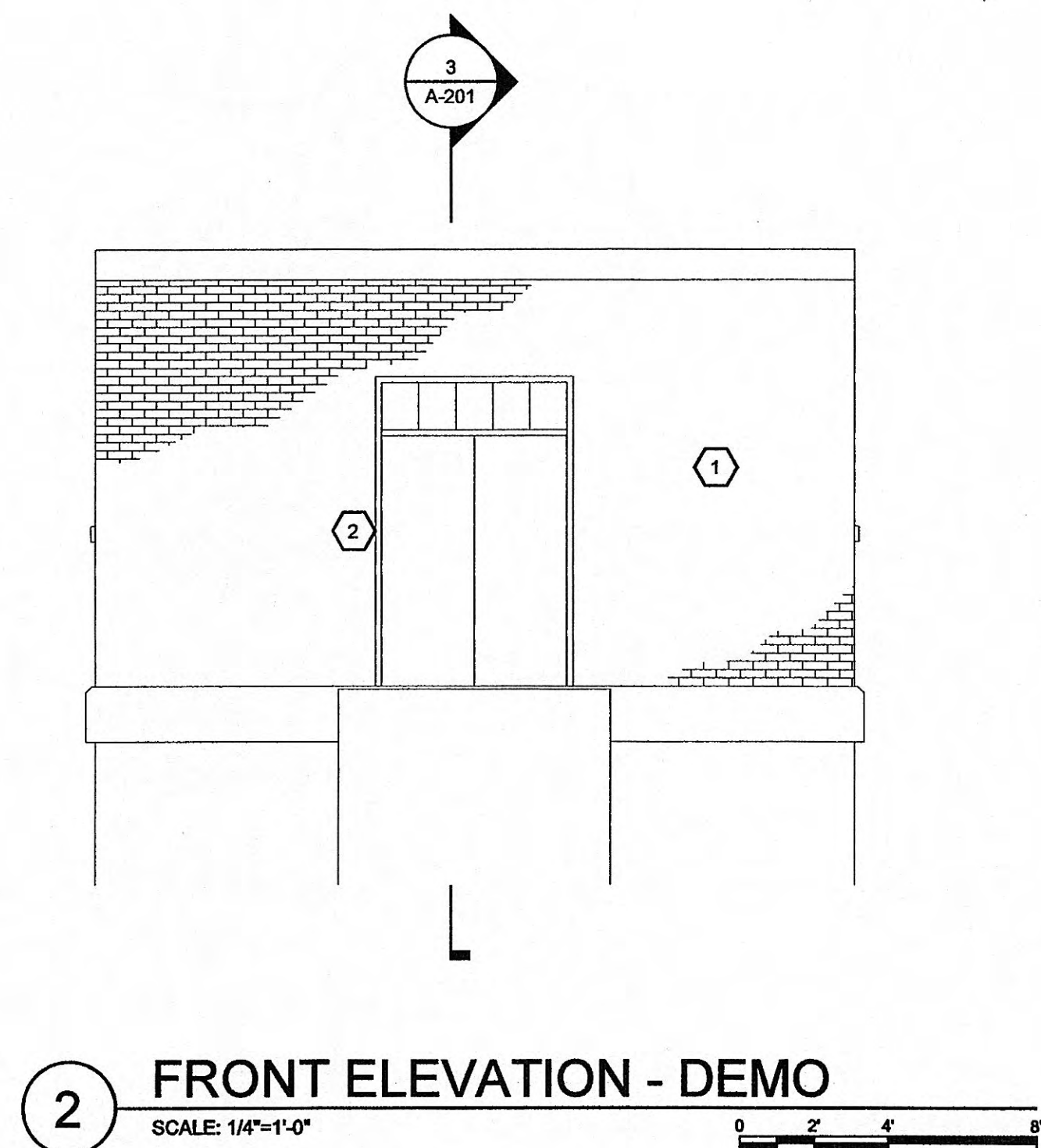


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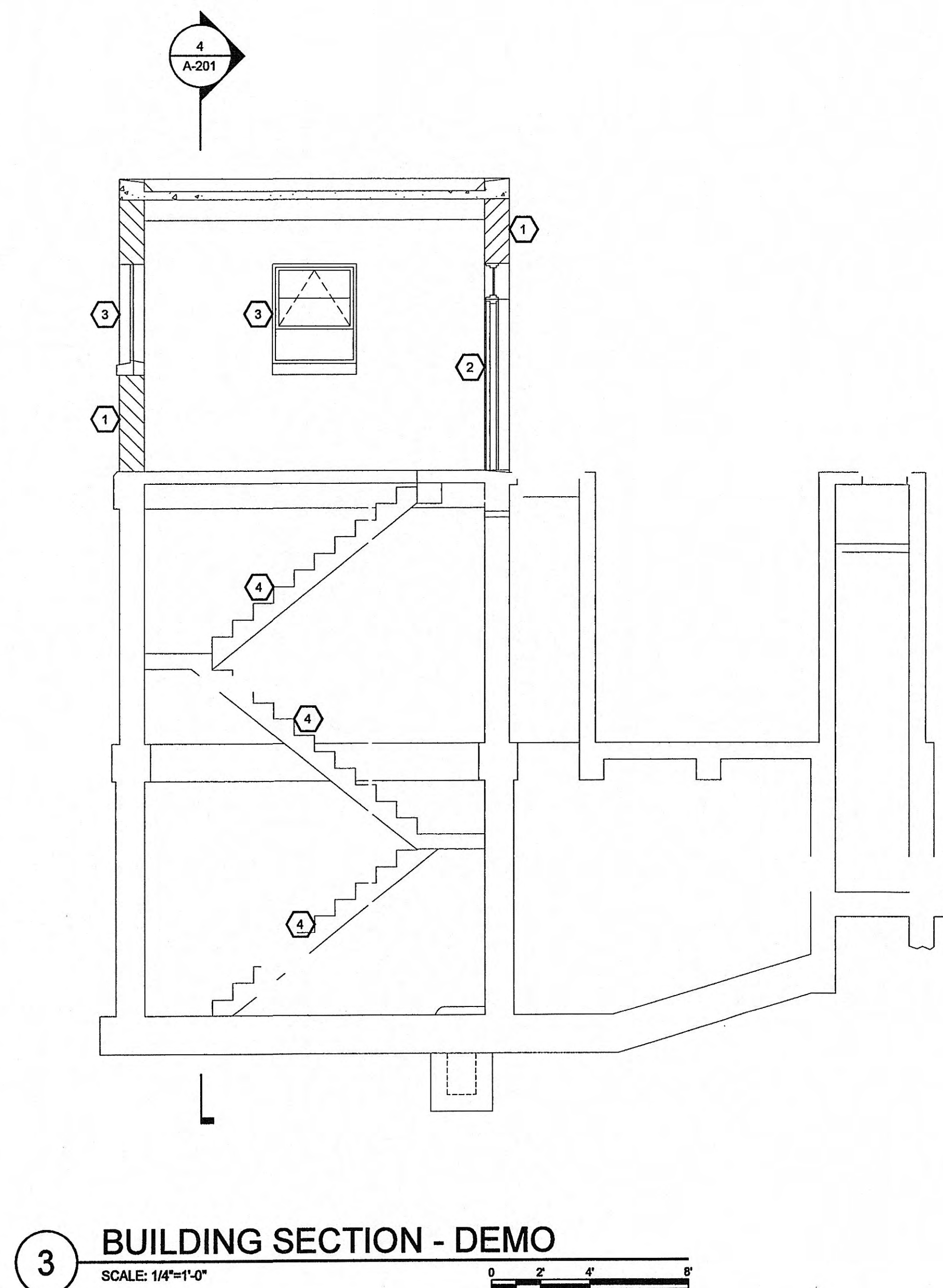
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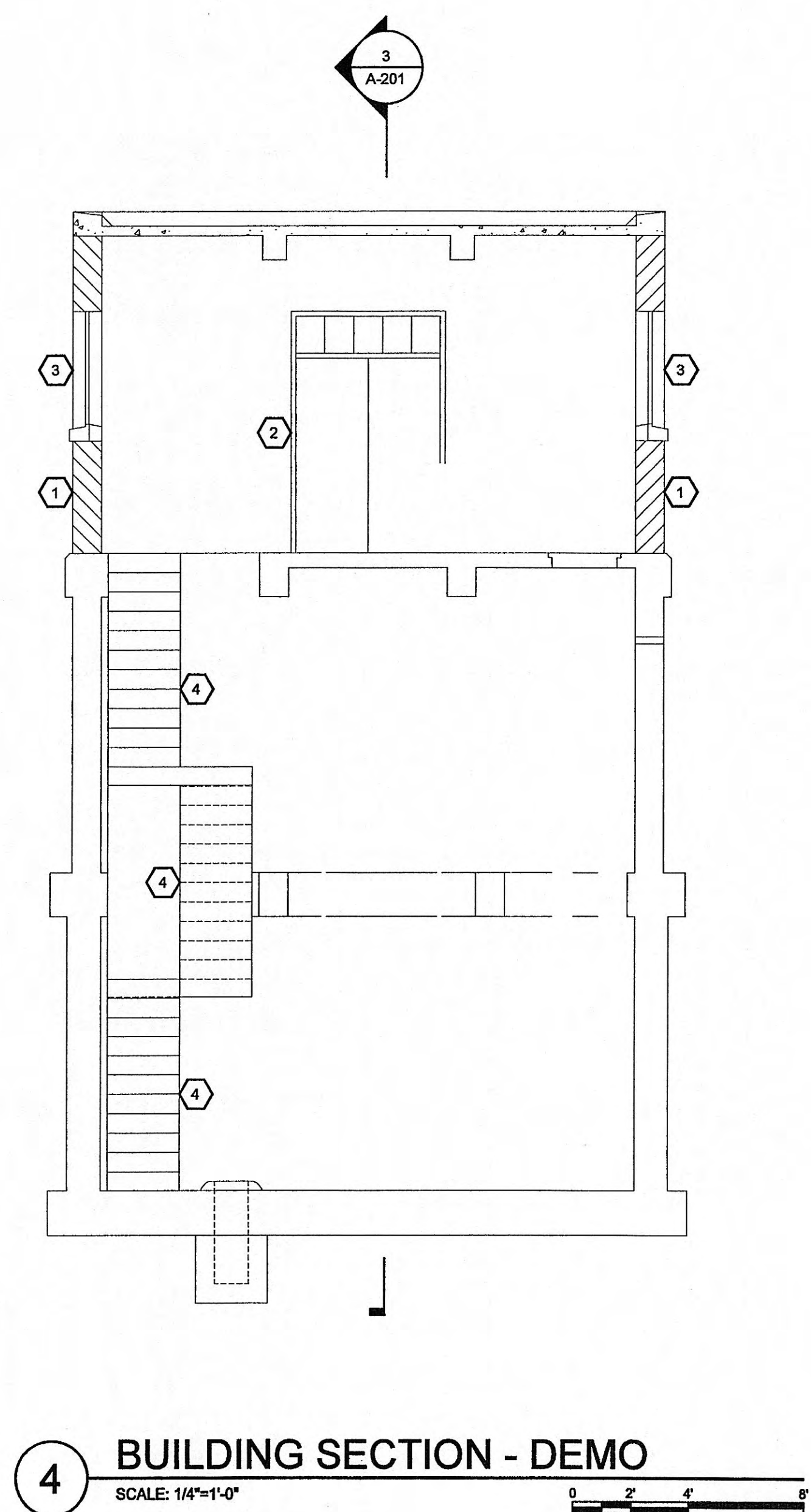
1 SIDE ELEVATION - DEMO
SCALE: 1/4"=1'-0"



2 FRONT ELEVATION - DEMO
SCALE: 1/4"=1'-0"



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



4 BUILDING SECTION - DEMO
SCALE: 1/4"=1'-0"

GENERAL NOTES:

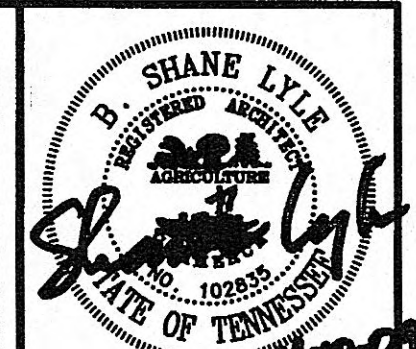
1. SANDBLAST EXISTING INTERIOR WALLS, STAIRS, RAILINGS AND CEILINGS AT ALL LEVELS - PREP FOR PAINTING
2. EXISTING EXTERIOR WALLS TO BE CLEANED AND SEALER APPLIED - SEE SPEC SECTIONS 04500 & 07190
3. REMOVE EXISTING ROOFING MATERIAL DOWN TO EXISTING CONCRETE ROOF DECK - PATCH AND LEVEL AS REQUIRED FOR NEW ROOF STRUCTURE INSTALLATION

SYMBOL KEY:

0-000 DETAIL INDICATOR

KEYNOTES:

1. EXISTING BRICK COMPOSITE WALL - REMOVE BRICK AT LOCATIONS DESIGNATED FOR NEW LOUVER OPENINGS - SEE MECHANICAL
2. EXISTING DOOR, FRAME, AND THRESHOLD TO BE REMOVED - PATCH OPENING AS REQUIRED TO RECEIVE NEW DOOR, FRAME AND THRESHOLD
3. EXISTING WINDOWS TO BE REMOVED - PATCH OPENING AS REQUIRED TO RECEIVE NEW WINDOWS
4. EXISTING STAIR AND RAILING TO REMAIN
5. EXISTING SCUPPERS TO BE REMOVED
6. EXISTING LOUVER TO BE REMOVED



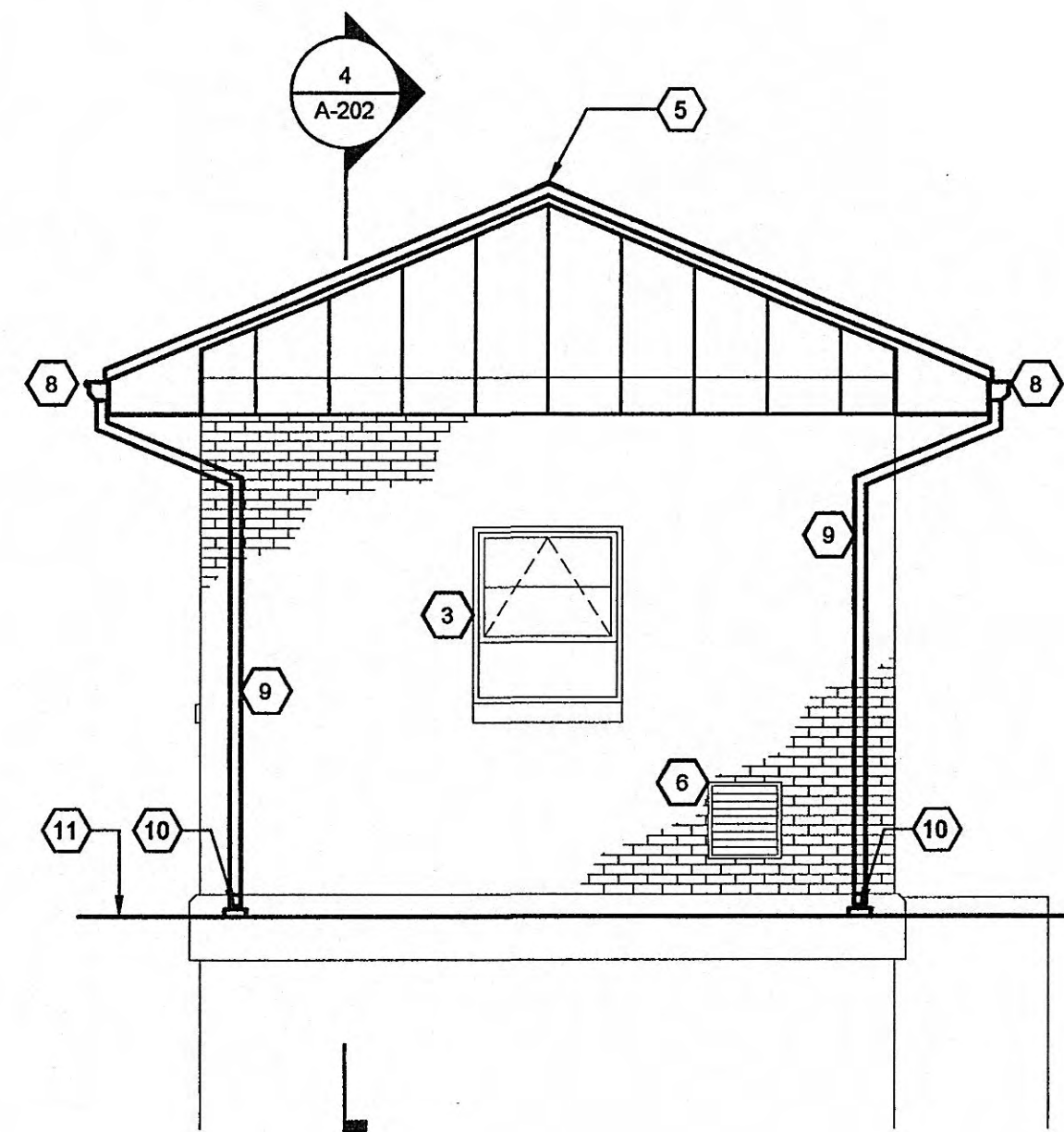
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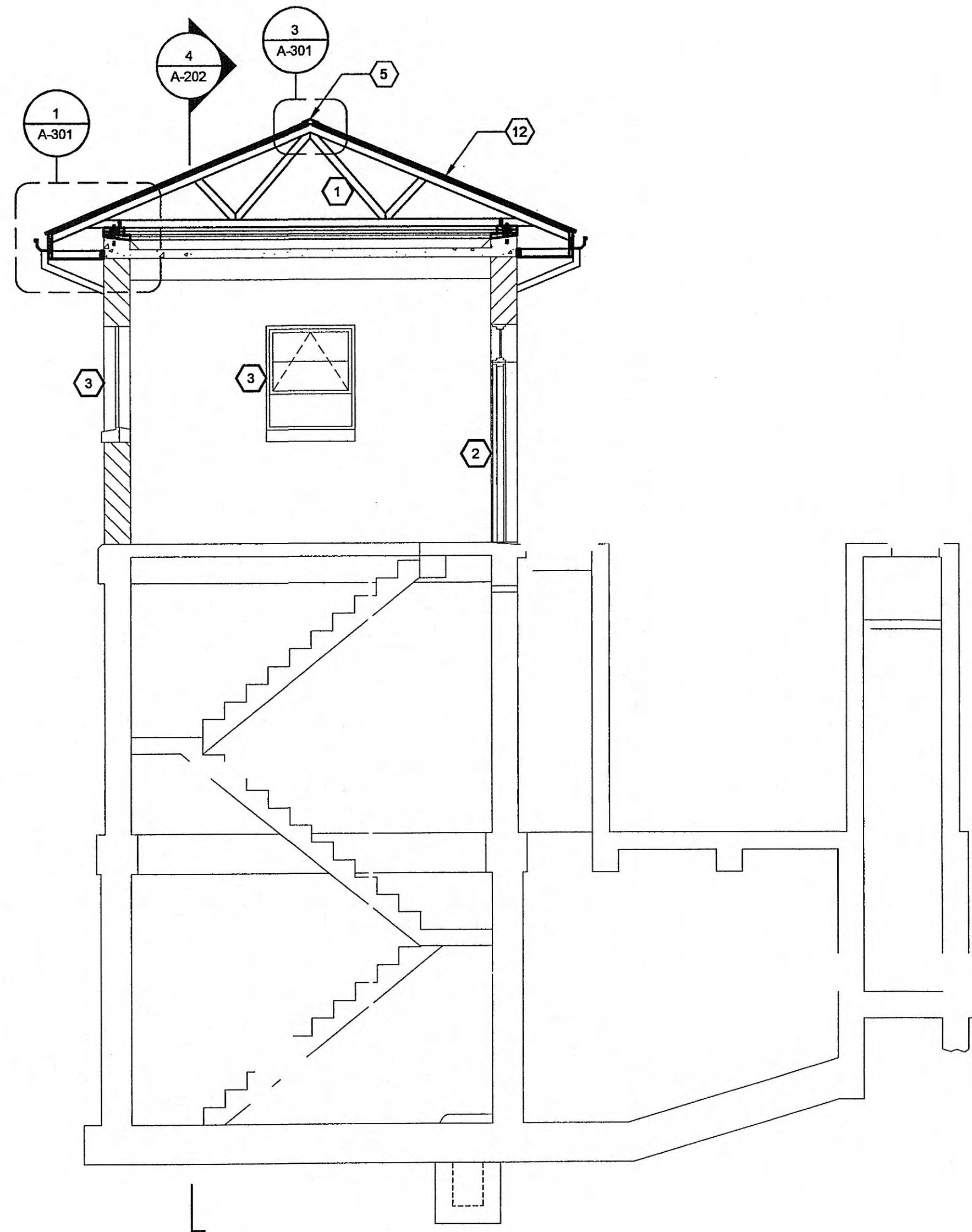
CHRISTMAS PUMP STATION NO. A-2
DEMO - SECTIONS & ELEVATIONS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

REVISIONS	DATE	BY	DESCRIPTION	DESIGNED: JEE	DRAWN: JEE	REVIEWED: BSL	APPROVED: BSL

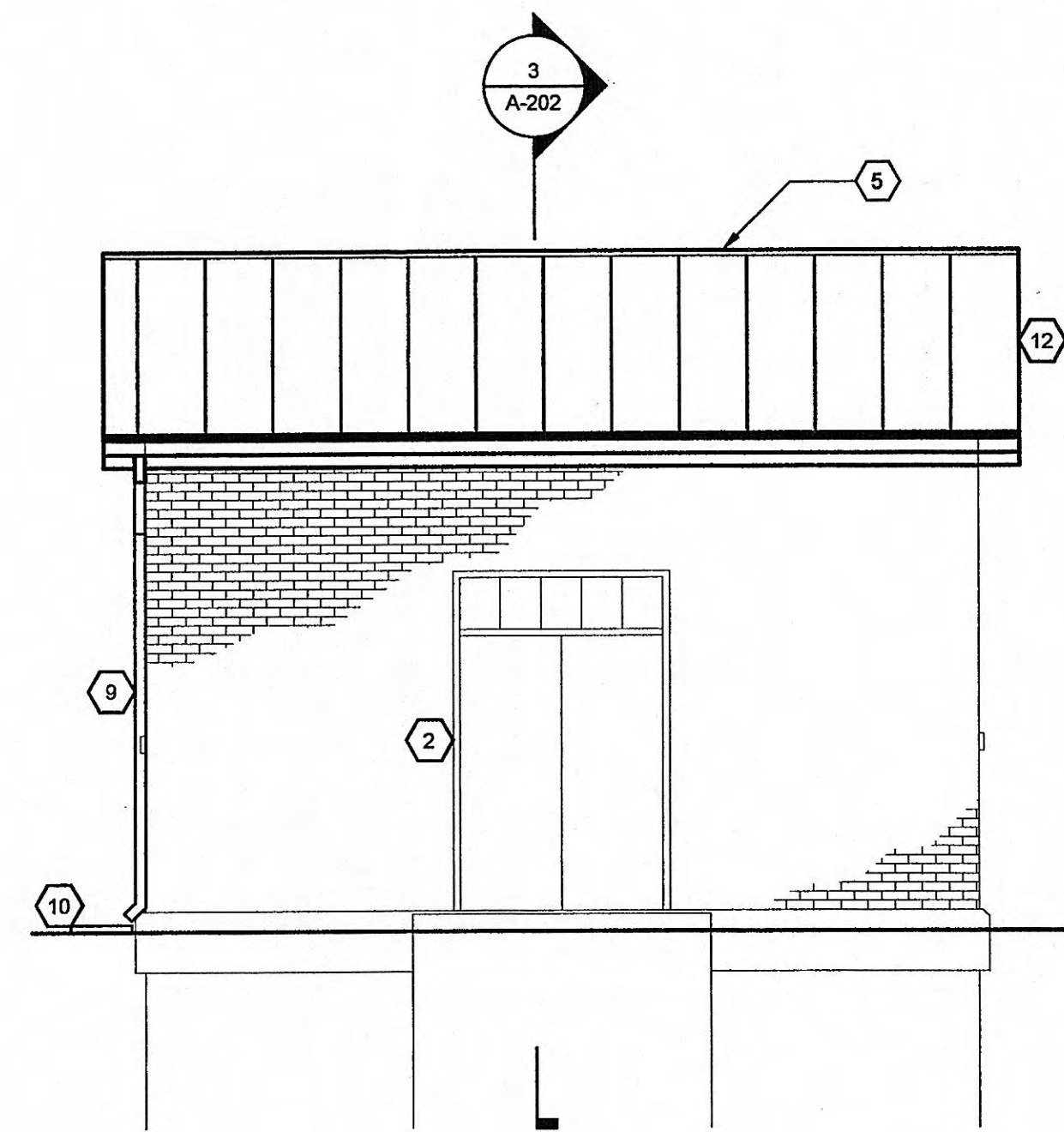
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SHEET NO. A-201



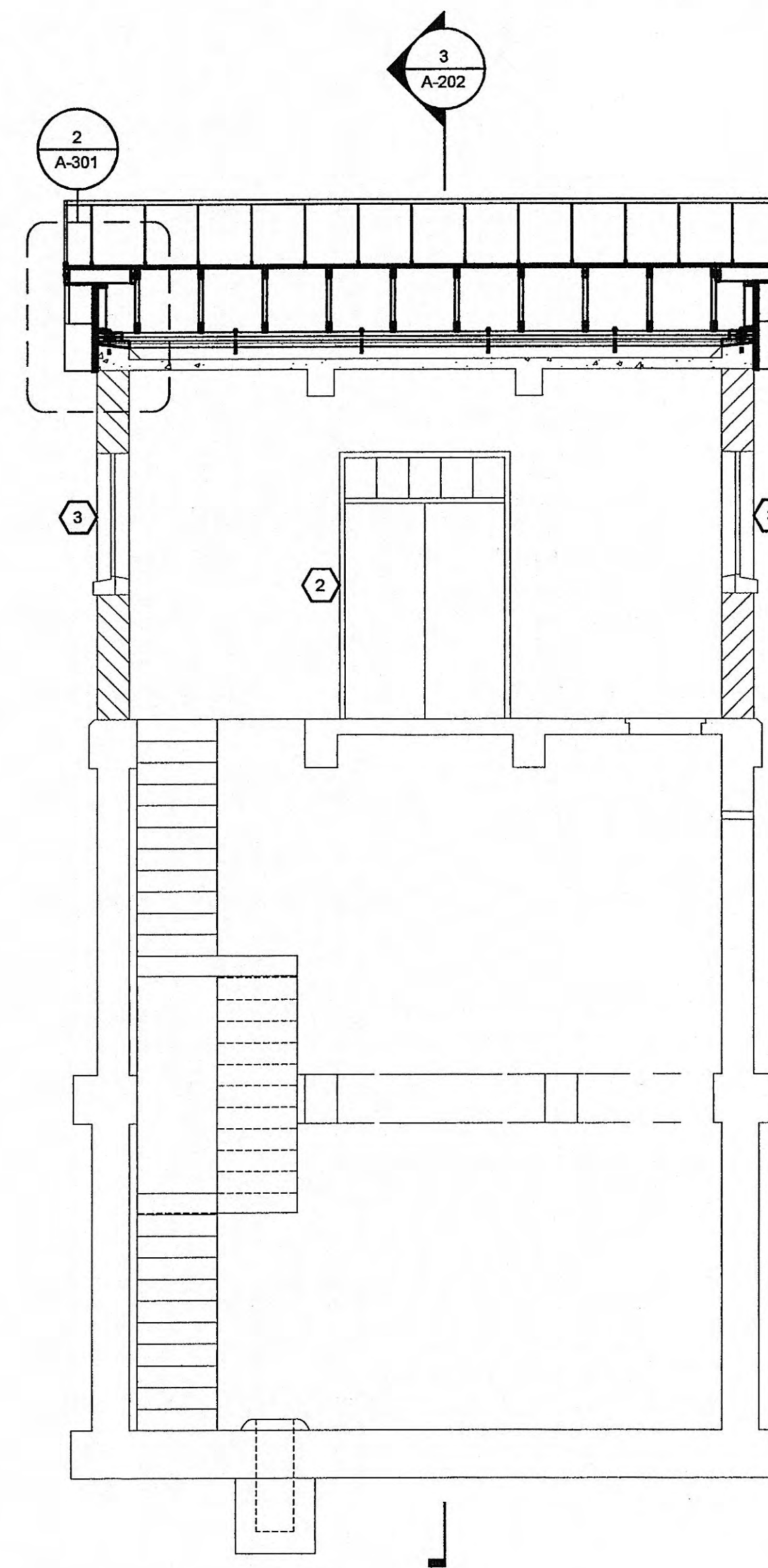
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SCALE: 1/4"=1'-0"



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



2 FRONT ELEVATION - UPGRADE
SCALE: 1/4"=1'-0"



4 BUILDING SECTION - UPGRADE
SCALE: 1/4"=1'-0"

GENERAL NOTES:

1. PAINT INTERIOR WALLS, CEILINGS, STAIRS, RAILINGS, DOORS AND FRAMES - SEE SPEC SECTIONS 09900 & 09910
2. REPOINT ALL CRACKS IN MORTAR JOINTS AND PATCH HOLES WHERE EQUIPMENT, SCUPPERS OR PIPING HAS BEEN REMOVED - APPLY FINISH SEALANT - SEE SPEC SECTIONS 04500 & 07190
3. PATCH HOLES WHERE EQUIPMENT, SCUPPERS, OR PIPING HAS BEEN REMOVED - SEE SPEC SECTION 01731

SYMBOL KEY:

0-000 DETAIL INDICATOR

KEYNOTES:

1. PROVIDE PRE-ENGINEERED WOOD TRUSS @ 24" O.C. TYPICAL - SEE SPEC SECTION 06176
2. PROVIDE NEW FIBERGLASS DOOR, TRANSOM AND FRAME - FIELD VERIFY MASONRY OPENING - SEE SHEET A-301 FOR DETAILS
3. PROVIDE NEW WINDOWS AND WINDOW GUARDS - SEE SHEET A-301 FOR DETAILS
4. PROVIDE STANDING SEAM METAL ROOF
5. PROVIDE NEW CONTINUOUS RIDGE VENT
6. INFILL DEMO LOUVER OPENING WITH BRICK TO MATCH EXISTING WALL
7. PROVIDE PRE-FINISHED METAL GABLE END PANELS
8. PROVIDE PRE-FINISHED METAL GUTTERS
9. PROVIDE PRE-FINISHED 3" X 3" METAL DOWNSPOUT
10. PROVIDE NEW SPLASHBLOCK
11. EXISTING GROUND LINE
12. PROVIDE PRE-FINISHED STANDING SEAM METAL ROOF



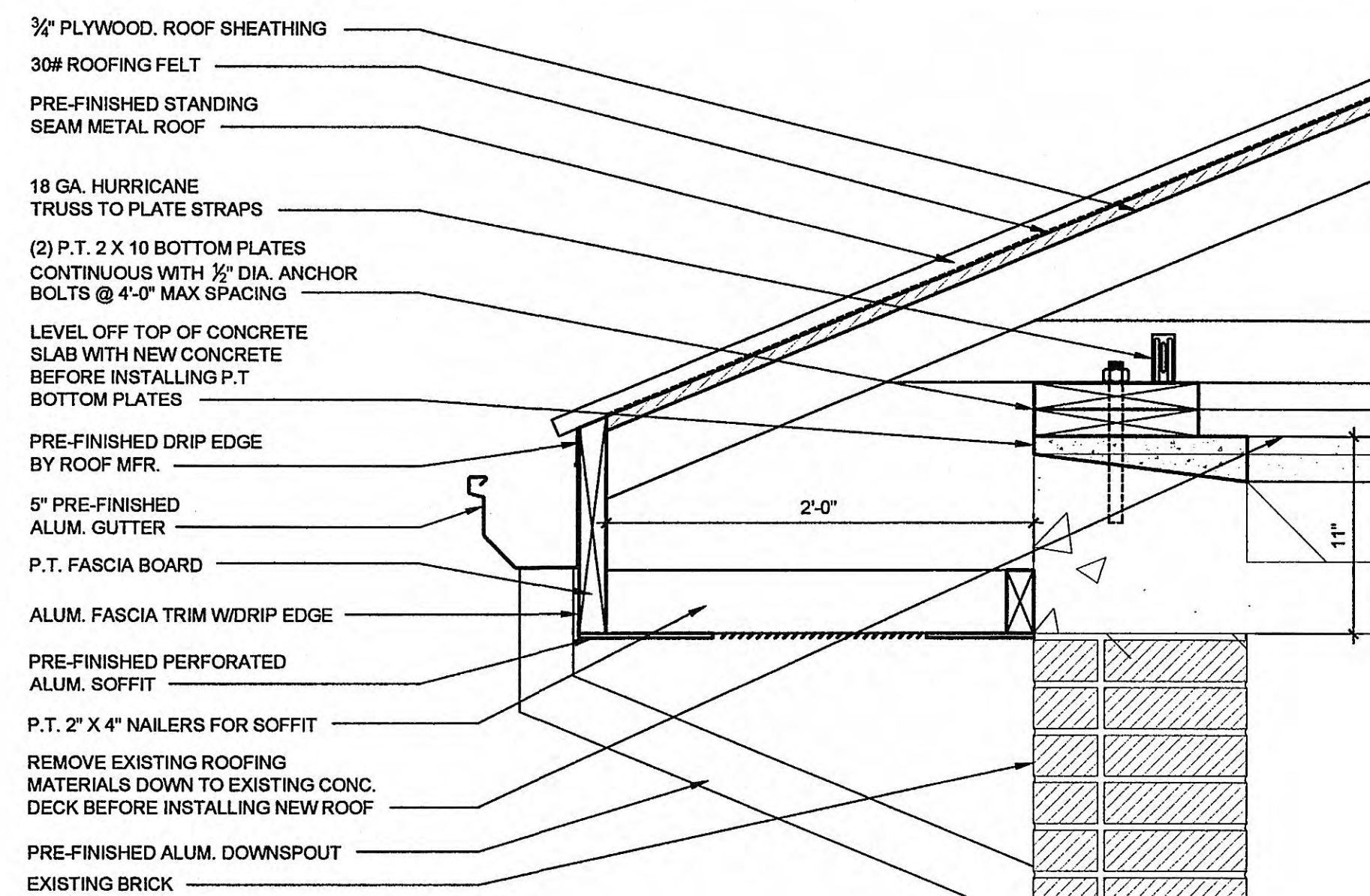
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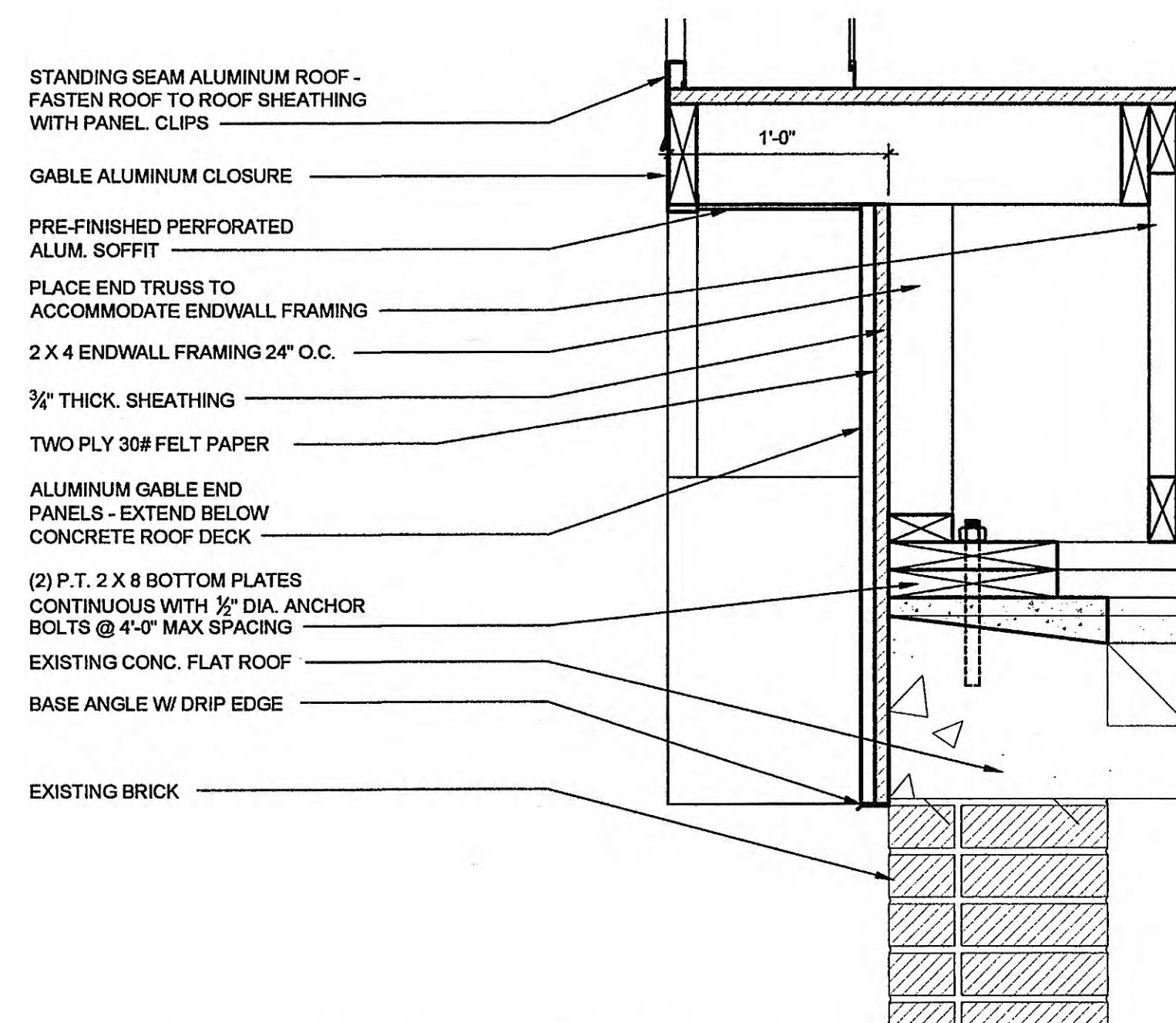
CHRISTMAS PUMP STATION NO. A-2
UPGRADE - SECTIONS & ELEVATIONS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

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DATE		DATE					
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REVISIONS							
DESCRIPTION							
DATE							
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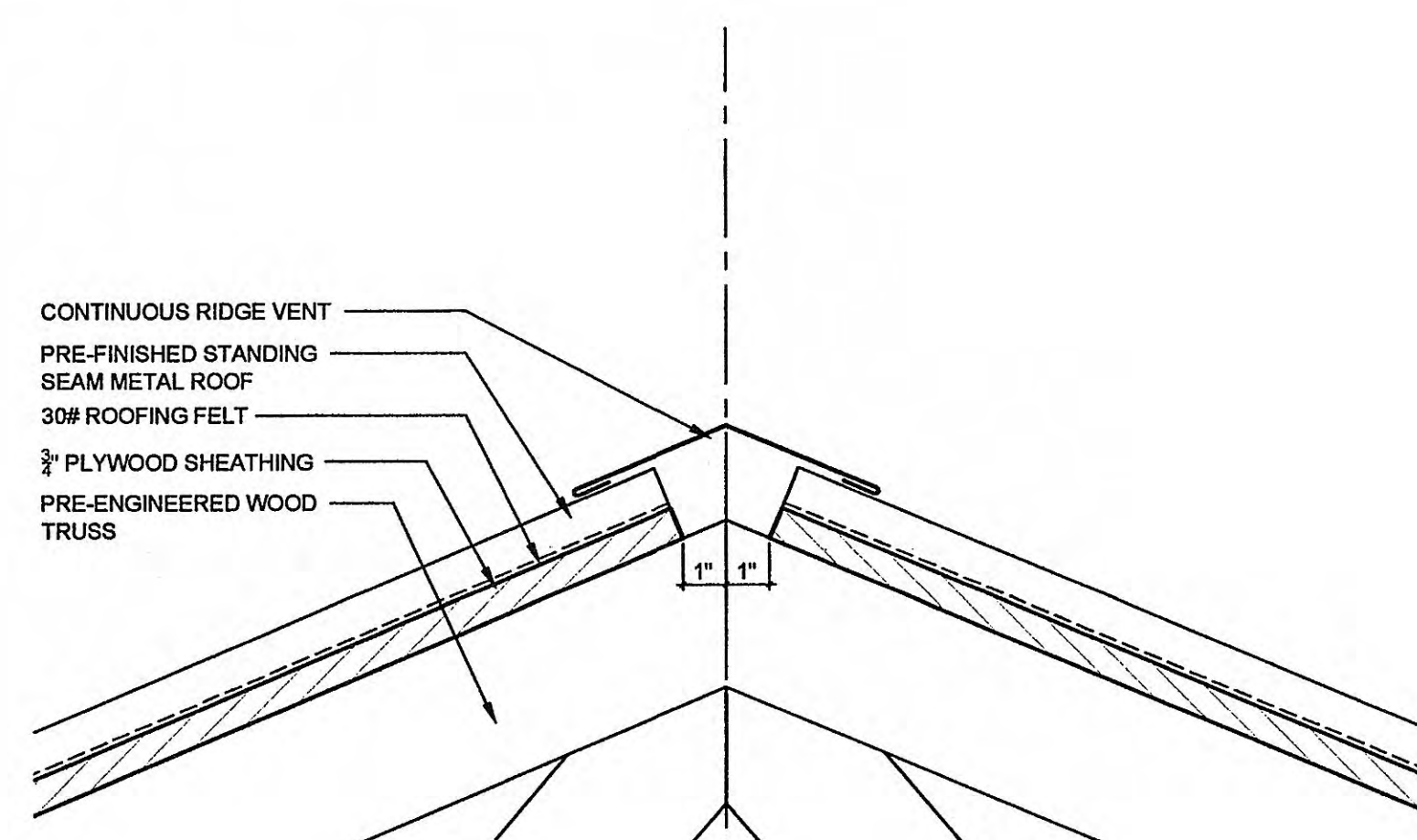
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APRIL 10, 2009
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1/4" = 1'-0"
SHEET NO.
A-202



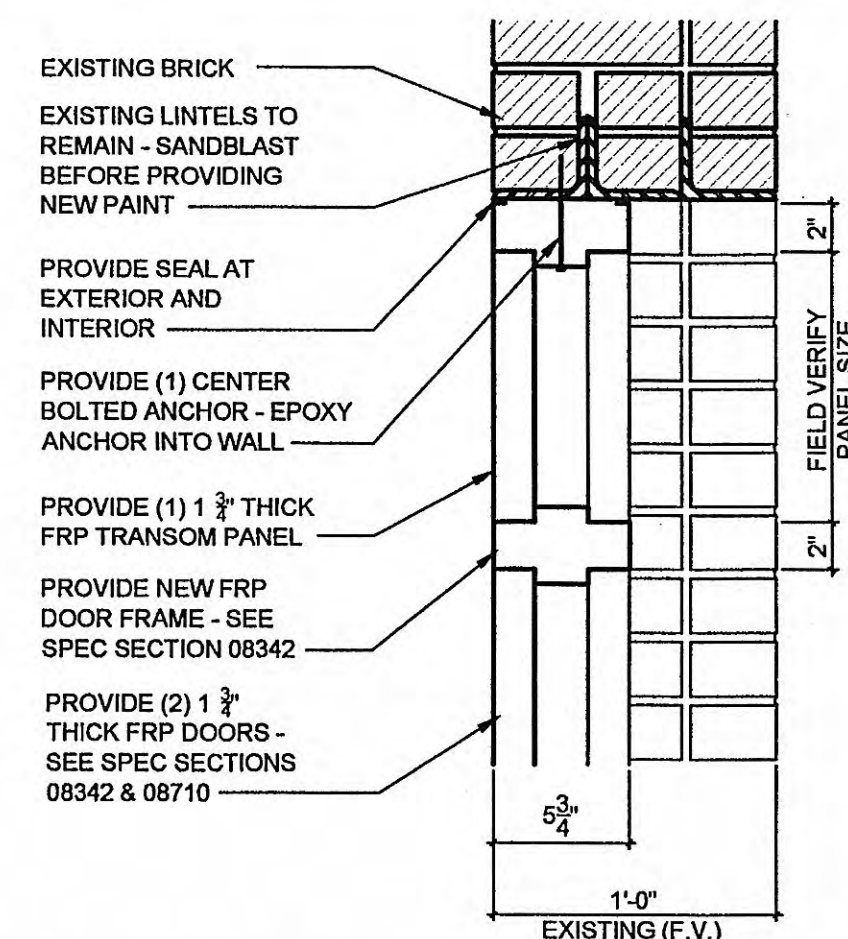
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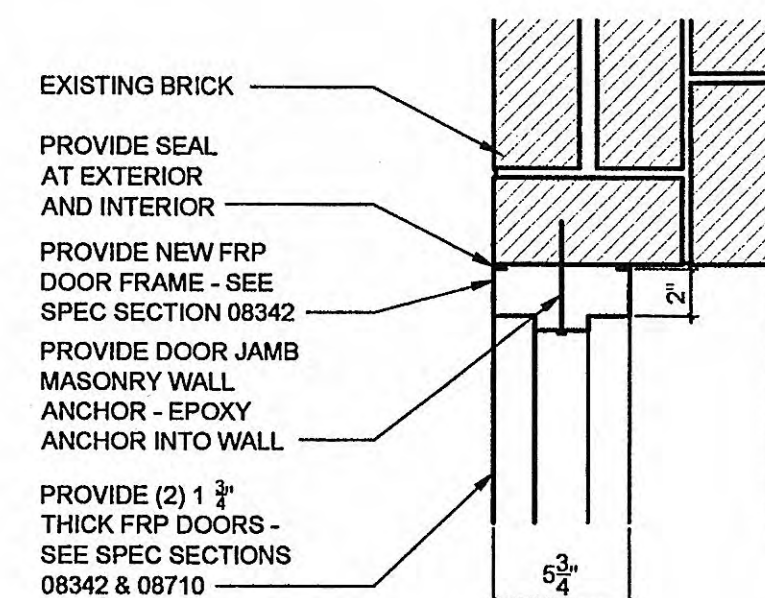
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SCALE: 1 1/2"=1'-0"



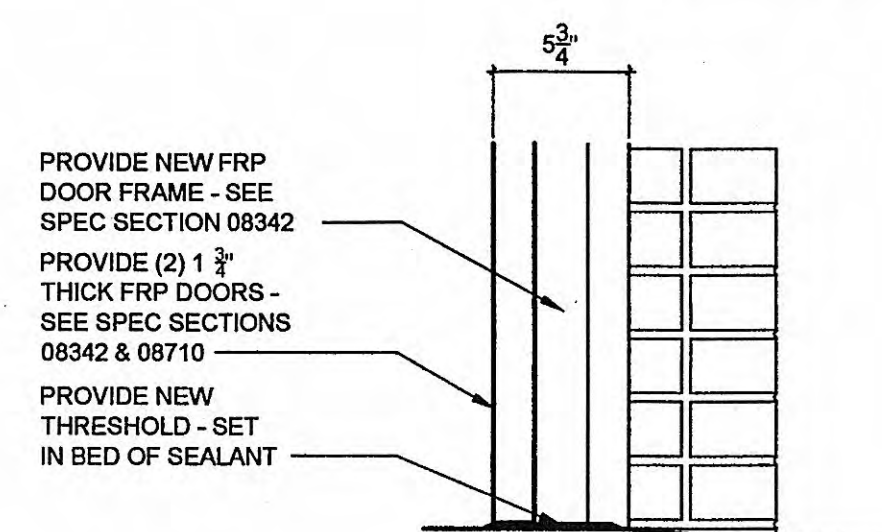
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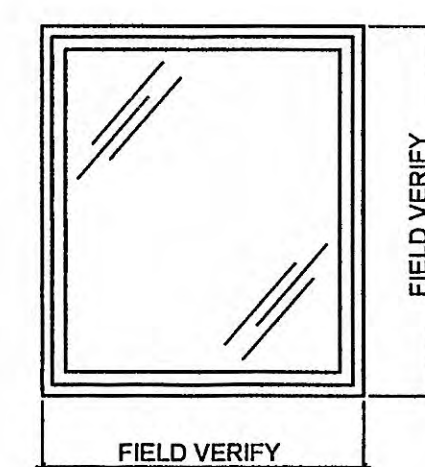
4 DOOR HEAD & TRANSOM DETAIL
SCALE: 1 1/2"=1'-0"



5 DOOR JAMB DETAIL
SCALE: 1 1/2"=1'-0"

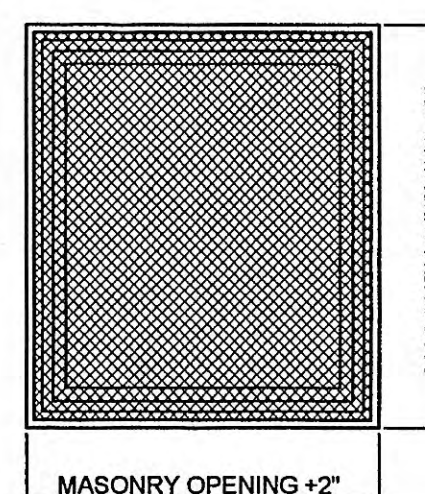


6 DOOR THRESHOLD DETAIL
SCALE: 1 1/2"=1'-0"

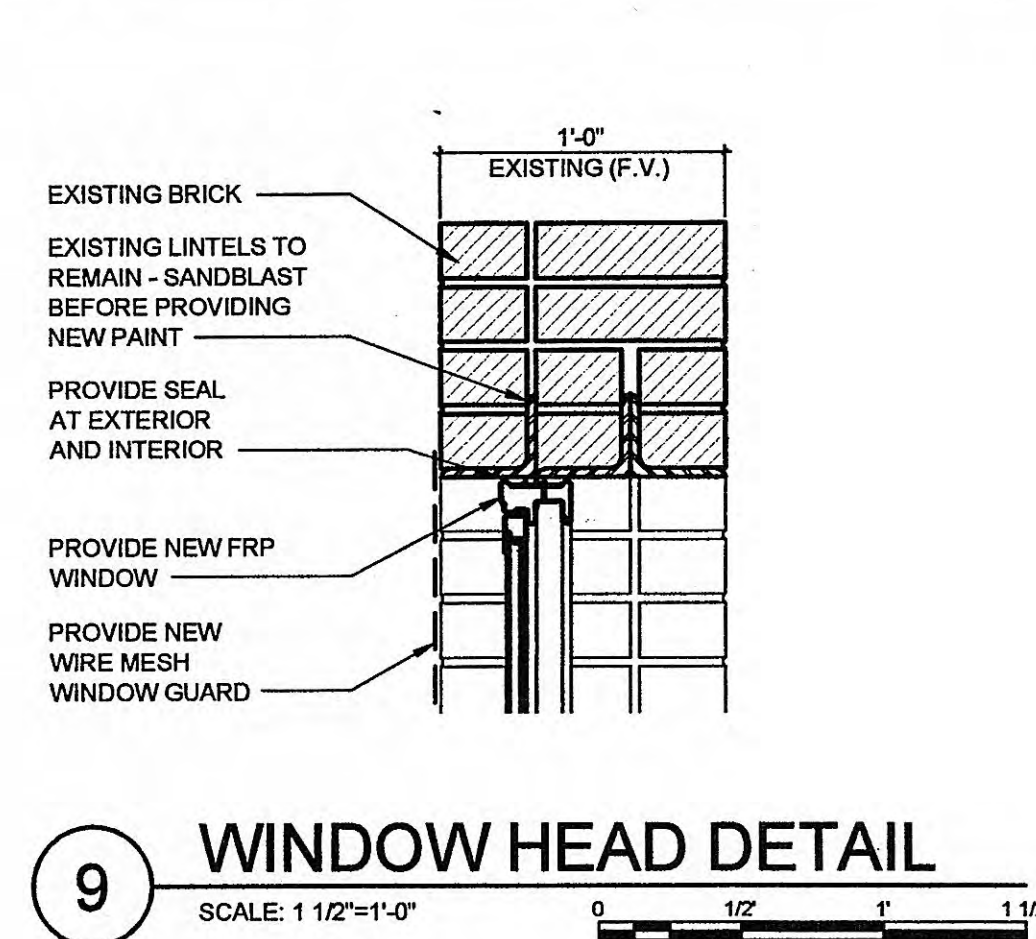


7 NEW WINDOW ELEVATION
SCALE: 1/2"=1'-0"

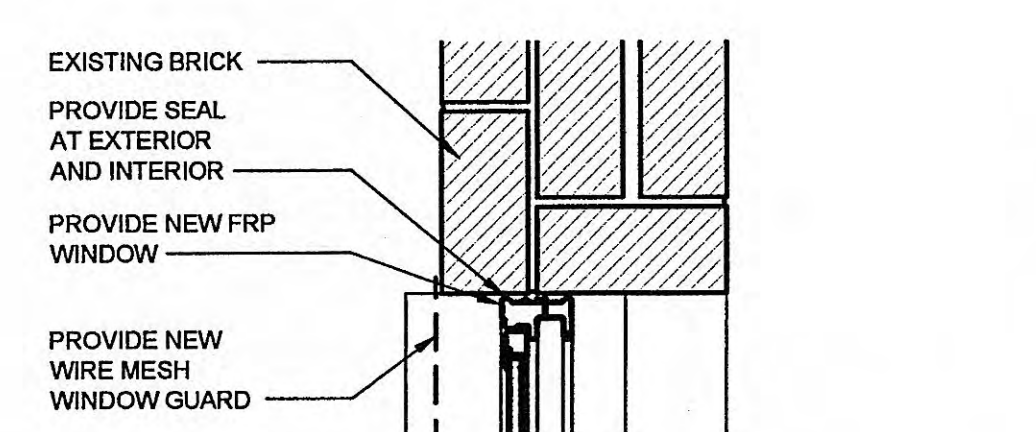
NOTES:
REMOVE EXISTING WINDOW GUARD - ATTACH NEW WINDOW GUARD AFTER PROVIDING ALL NECESSARY REHABILITATION TO EXISTING BRICK WALL - SEE SPECS SECTIONS 01731, 04500, 10605.



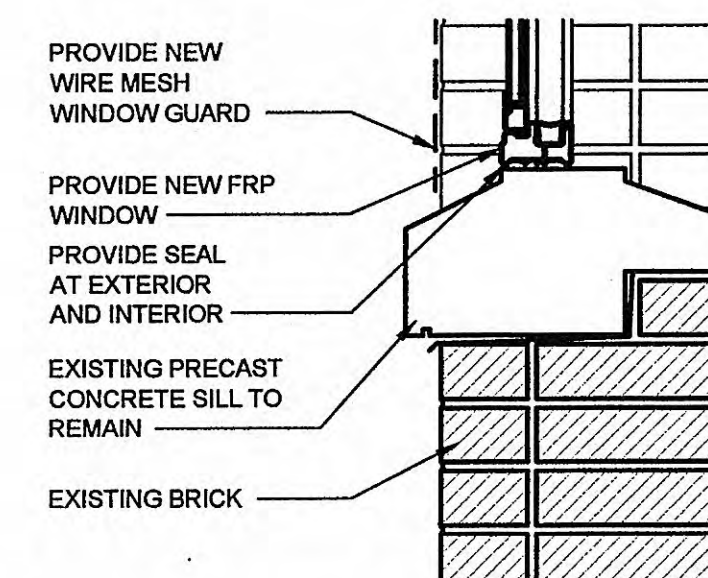
8 WINDOW GUARD DETAIL
SCALE: 1/2"=1'-0"



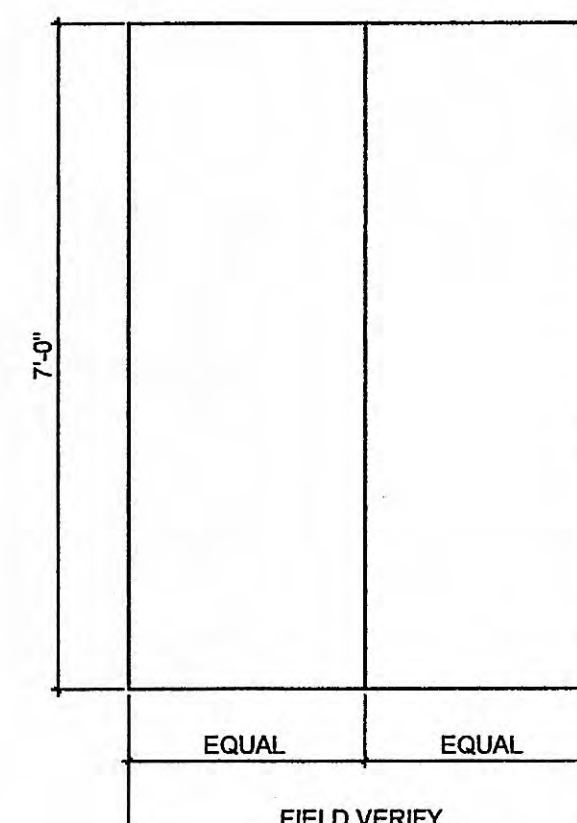
9 WINDOW HEAD DETAIL
SCALE: 1 1/2"=1'-0"



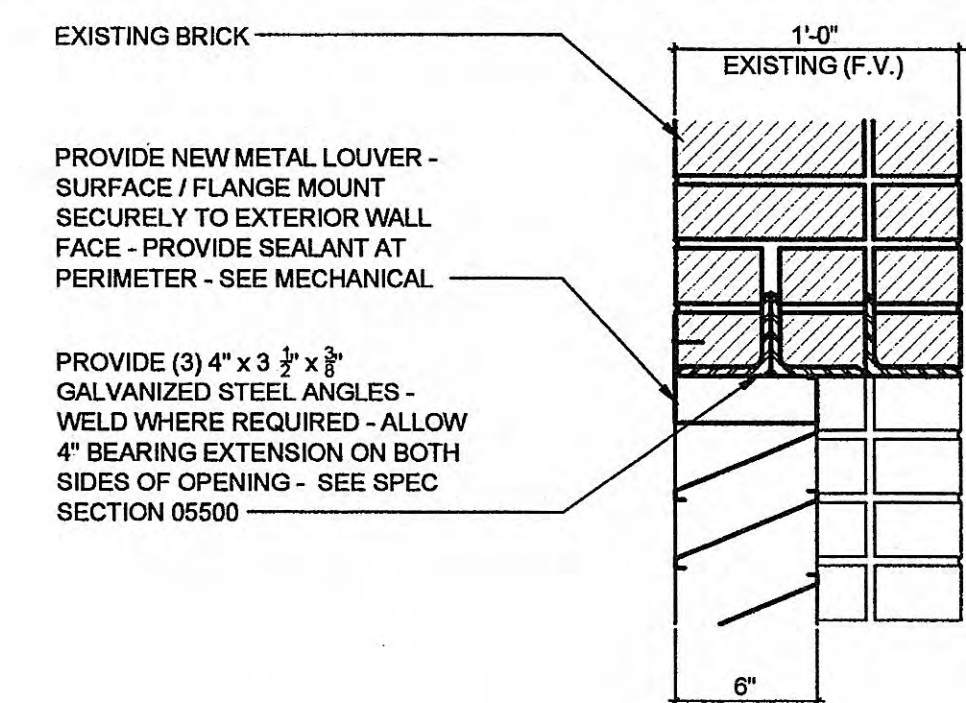
10 WINDOW JAMB DETAIL
SCALE: 1 1/2"=1'-0"



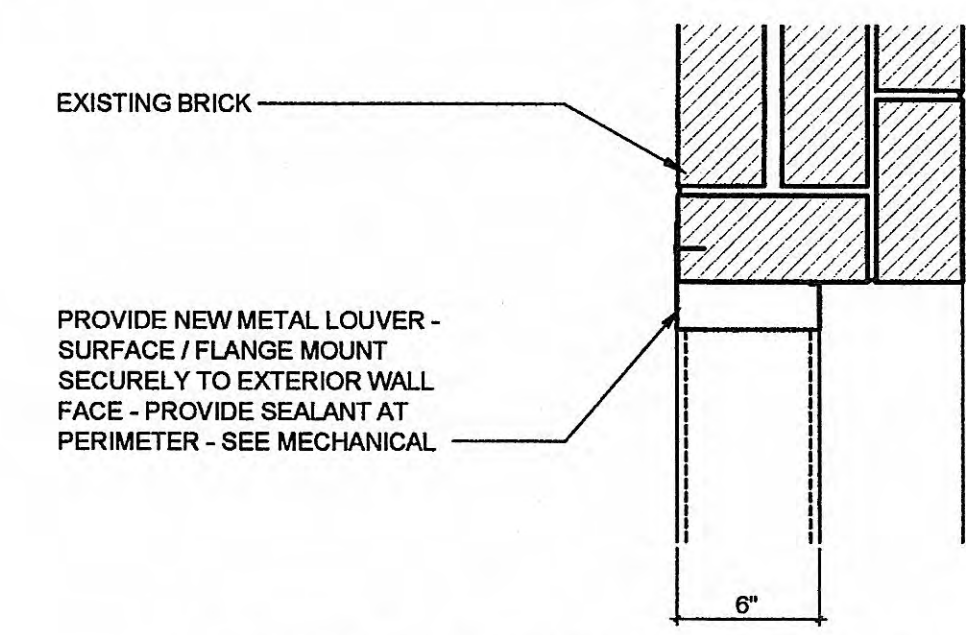
11 WINDOW SILL DETAIL
SCALE: 1 1/2"=1'-0"



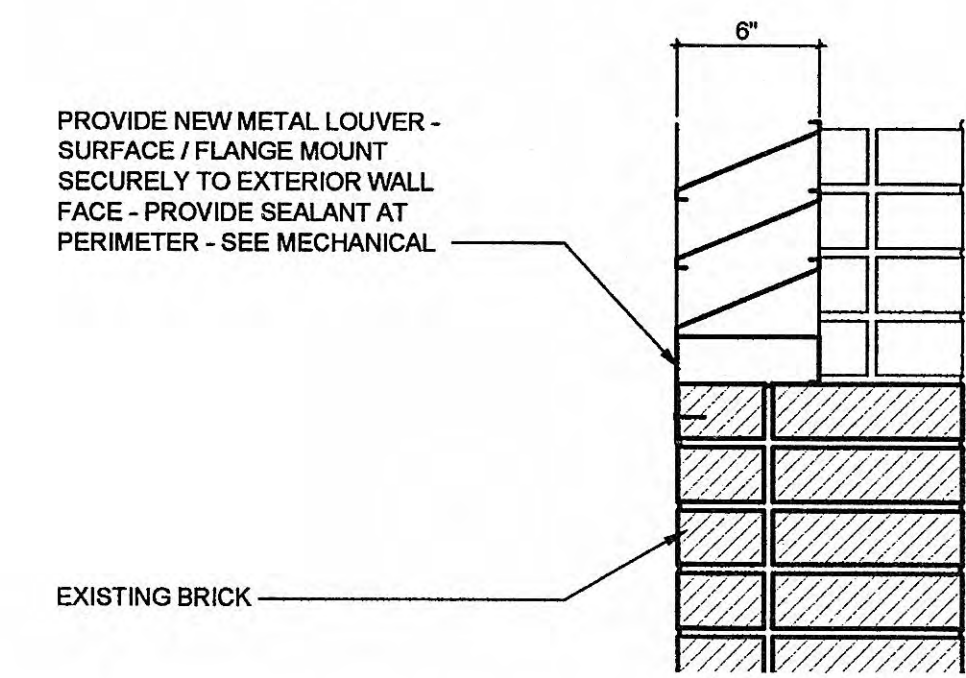
12 NEW DOOR ELEVATION
SCALE: 1/2"=1'-0"



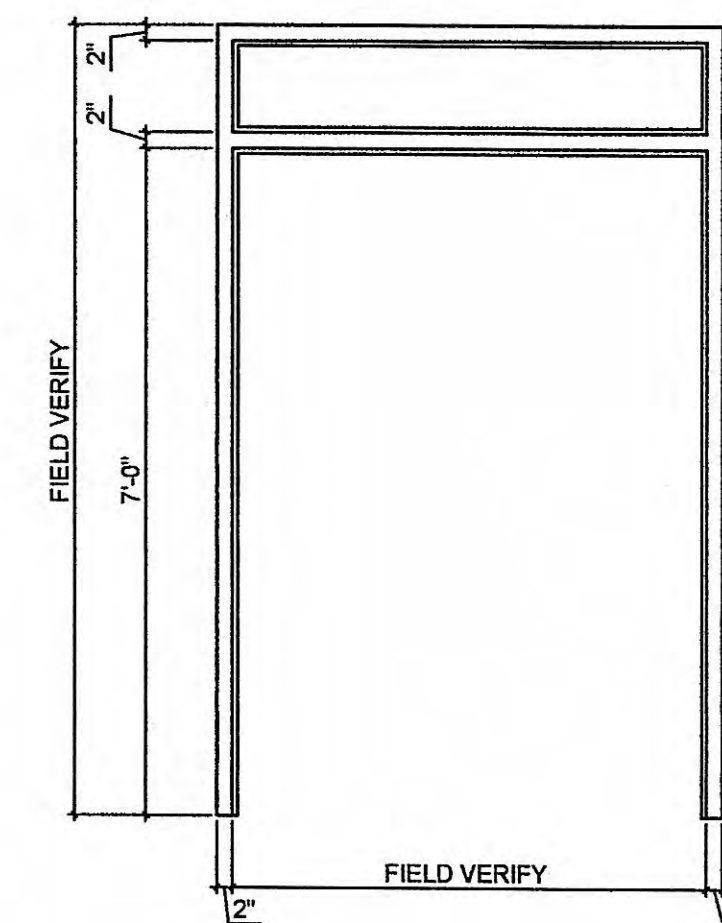
13 NEW LOUVER OPENING HEAD DETAIL
SCALE: 1 1/2"=1'-0"



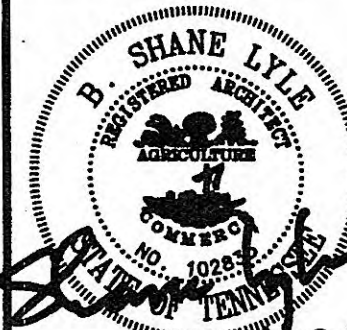
14 NEW LOUVER OPENING JAMB DETAIL
SCALE: 1 1/2"=1'-0"



15 NEW LOUVER OPENING SILL DETAIL
SCALE: 1 1/2"=1'-0"



16 NEW DOOR FRAME ELEVATION
SCALE: 1/2"=1'-0"



SHANE LYLE ARCHITECTS
4-10-09

GRW PROJECT NO. 3788-01

CLIENT PROJECT NO. XXXX

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CHRISTMAS PUMP STATION NO. A-2

DETAILS

PUMP STATION REHABILITATION

CITY OF HARRIMAN, TENNESSEE

DESIGNED: JEE

DRAWN: JEE

REVIEWED: BSL

APPROVED: BSL

REVISIONS		DATE	BY	DESCRIPTION
1				
2				

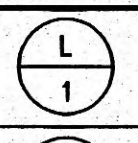
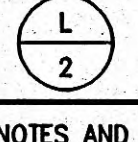
DATE: APRIL 10, 2009

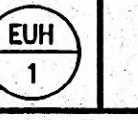
SCALE: AS NOTED

SHEET NO.

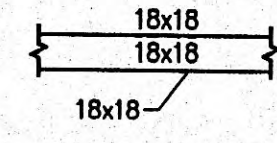
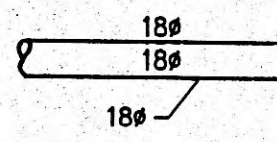
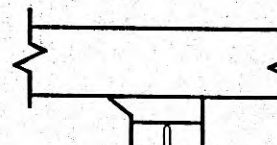
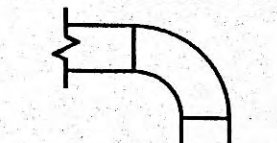
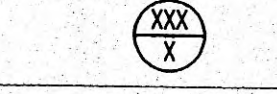
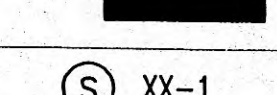
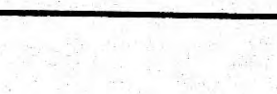
A-301

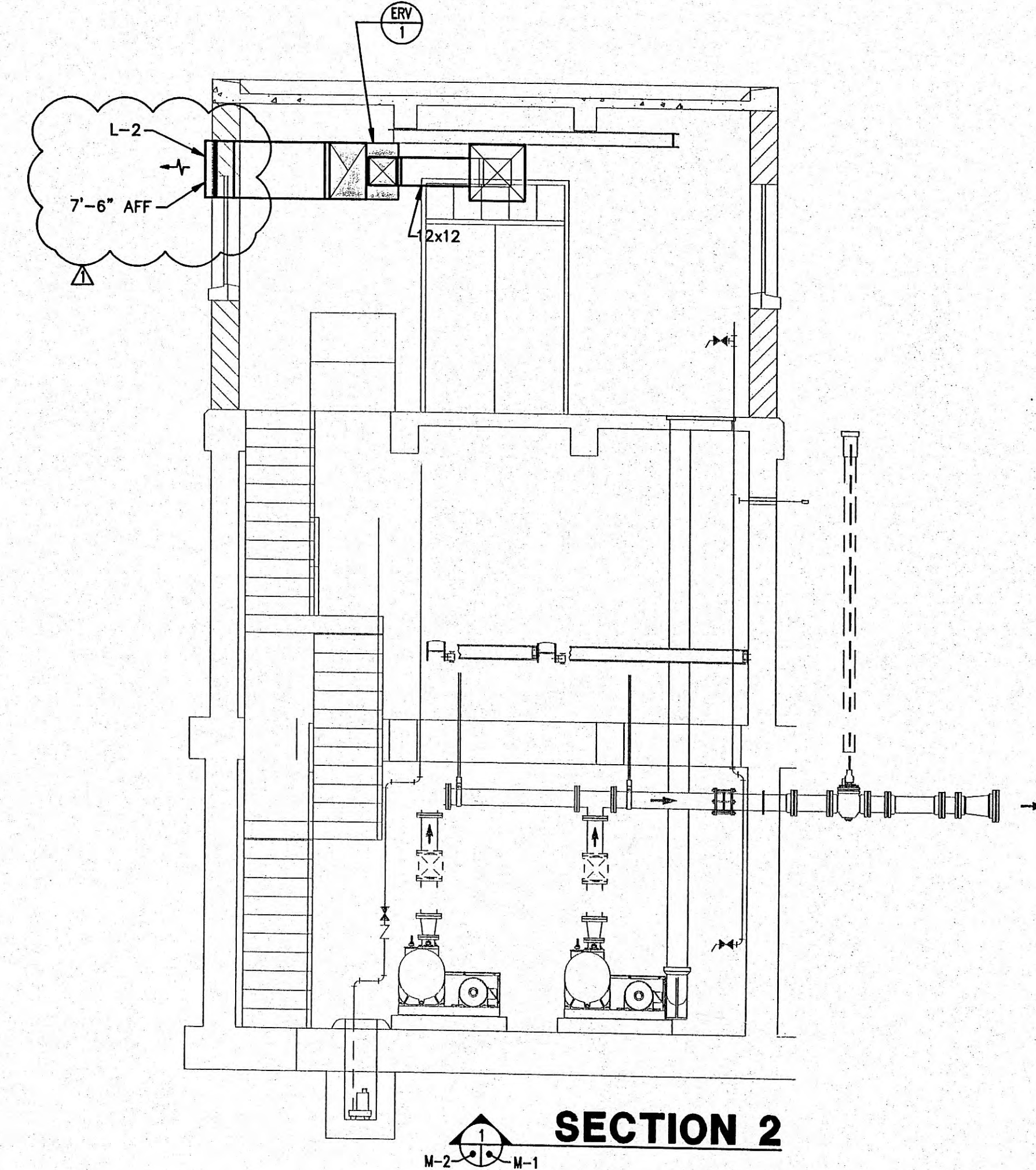
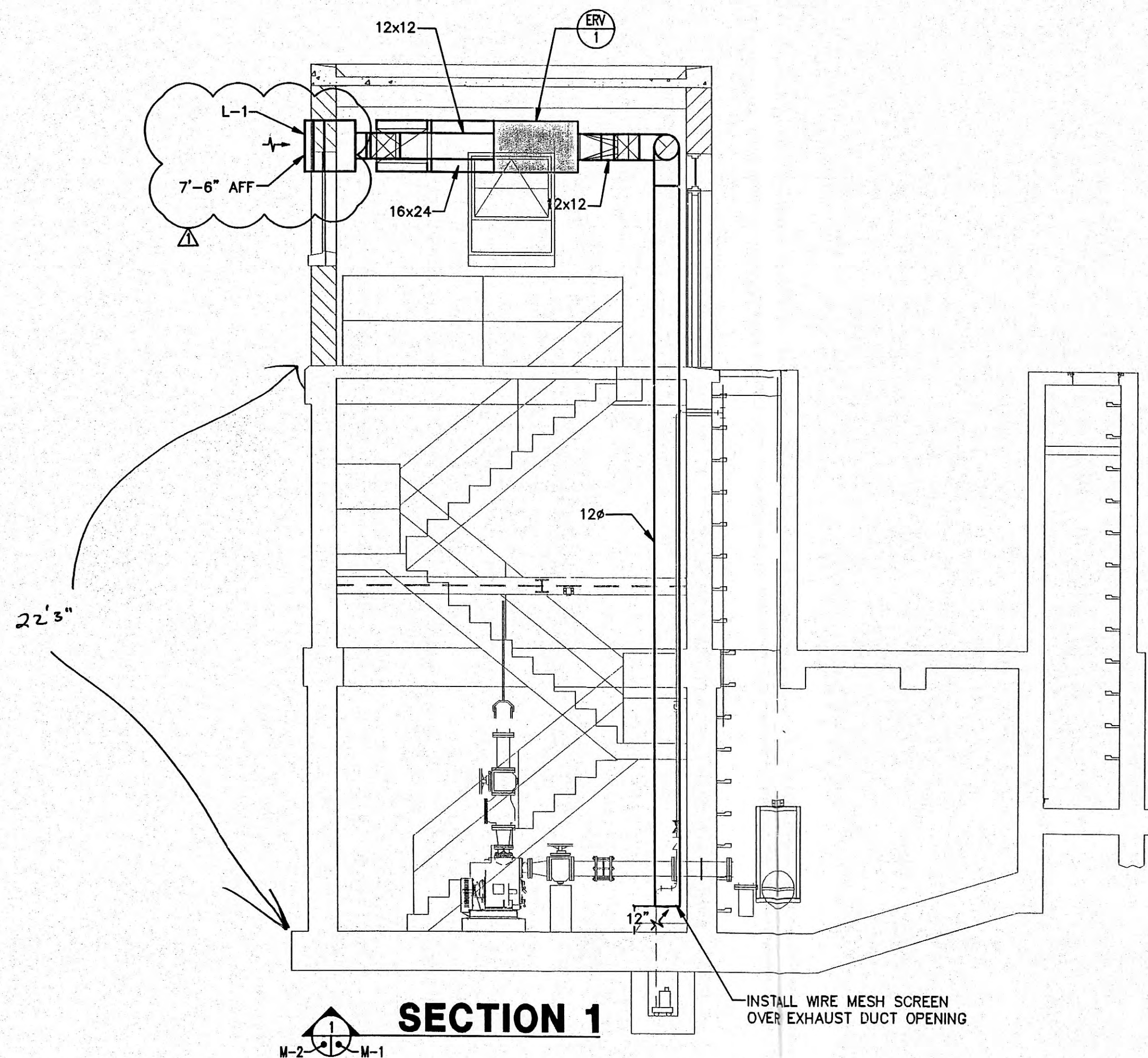
Actual

LOUVER SCHEDULE						
DRAWING SYMBOL	LOUVER SIZE (WIDTH X HEIGHT)	CFM	MINIMUM SQ/FT FREE AREA	MAXIMUM PRESSURE DROP (IN. WG)	MANUFACTURER AND MODEL NUMBER	NOTES
	24x24	850	1.92	0.05	RUSKIN ELF 375DXH	SEE BELOW
	24x24	850	1.92	0.05	RUSKIN ELF 375DXH	SEE BELOW
NOTES AND FEATURES: - LOUVERS SHALL BE BEAR AMCA SEAL AND SHALL BE TESTED IN ACCORDANCE WITH AMCA 5111. - KYNAR COATING - WATER PENETRATION THROUGH LOUVER SHALL NOT OCCUR BELOW 1000 FPM (FREE AREA) - ALUMINUM CONSTRUCTION						

ELECTRIC HEATER SCHEDULE							
DRAWING SYMBOL	TYPE	KW	CFM	VOLTAGE/PHASE	FAN R.P.M.	FAN WATTS	MANUFACTURER & MODEL NO.
	HOSE-DOWN	10	700	480/3	1550	21	TRANE - Inductra UHMA 1-254-WH-01004-
HEATERS - TRANSFORMER FOR 24V, THERMOSTAT - LOW VOLTAGE THERMOSTAT WITH HEAT-OFF-FAN SWITCH, MOUNTED ON UNIT. - THERMAL OVERLOAD PROTECTION. 16-GAUGE, 304 STAINLESS STEEL CASING. - DISCONNECT SWITCH. - CONTROLS SHALL BE IN A NEMA 4x ENCLOSURE ON UNIT. - MOUNT 7'-0" A.F.F. - STAINLESS STEEL WALL/CEILING MOUNTING BRACKET.							

ENERGY RECOVERY VENTILATION SCHEDULE													
DRAWING SYMBOL	SUPPLY SIDE				EXHAUST SIDE				VOLT/PHASE	MCA	MOCP	WEIGHT	MANUFACTURER MODEL NUMBER
	CFM	E.S.P.	HP	WHEEL EFFICIENCY	CFM	E.S.P.	HP	WHEEL EFFICIENCY					
	850	0.5	1/2	70.8%	850	0.5	1/2	70.8%	120/1	23.8	30.0	350	GREENHECK ERV-251H-20-A
NOTES AND FEATURES: * DUCT FLANGES. * REMOTE PANEL WITH HAND-OFF-AUTO SWITCH. * OUTSIDE AIR AND EXHAUST AIR FILTERS, 2" PLEATED, 30% EFFICIENCY. * TIMED EXHAUST FROST CONTROL. * OUTDOOR AIR TEMPERATURE: -SUMMER: 92.0/74.0 °F. -WINTER: 5.0 °F. * INDOOR AIR TEMPERATURE: -SUMMER: 85.0 °F. -WINTER: 50.0 °F.													

MECHANICAL LEGEND	
STANDARD ABBREVIATIONS AND NOTATIONS	
FFE FINISHED FLOOR ELEVATION FA FROM ABOVE DN DOWN CD CEILING DIFFUSER CR CEILING RETURN CE CEILING EXHAUST SR SUPPLY REGISTER RR RETURN REGISTER ER EXHAUST REGISTER	NIC NOT IN CONTRACT SU SUPPLY DUCTWORK RE RETURN DUCTWORK EX EXHAUST DUCTWORK OA OUTDOOR AIR DUCTWORK
SYMBOL	DESCRIPTION
	RECTANGULAR DUCT: MANUAL OPPOSED BLADE DAMPER WITH LOCKING QUADRANT, LEVER OPERATOR, OF STEEL CONSTRUCTION. LOUVERS & DAMPERS MODEL CD-400; KRUEGER MODEL OBD-DM TYPE 2 OPERATION FOR LESS THAN 10" WIDE.
	ROUND DUCT: ROUND BLADE CONTROL DAMPER OF STEEL CONSTRUCTION WITH MANUAL OPERATOR LOUVERS AND DAMPERS MODEL CD-600.
	SHEET METAL CONNECTORS, INC. HIGH EFFICIENCY TAKEOFF WITH DAMPER AND LOCKING QUADRANT FOR ROUND DUCT TAKEOFFS FROM RECTANGULAR DUCTWORK. INCREASE MAIN DUCT SIZE AT FITTING TO ACCOMMODATE ITS INSTALLATION IF REQUIRED TO MEET SMACNA AND MANUFACTURER'S INSTRUCTIONS. ALL BRANCH TAKEOFFS SHALL HAVE BALANCING DAMPERS FOR BALANCING PURPOSES. DIMENSION: D = RUNOUT DIAMETER (6"-14")
	RECTANGULAR ELBOW WITH SINGLE THICKNESS TURNING VANES OF STEEL CONSTRUCTION.
	EQUIPMENT TAG
	ELECTRICAL PANEL -- AVOID INSTALLING EQUIPMENT IN PANEL BOARD SPACE PER ARTICLE 110 OF THE NATIONAL ELECTRIC CODE.
	WALL SWITCH -- XXX-1





PROFESSIONAL ENGINEER
KLS
STATE OF TENNESSEE
No. 01952

GSW PROJECT NO. 3786-01
CLIENT PROJECT NO. XXXX
ALL WORK SHALL BE IN ACCORDANCE WITH THE PROJECT MANUAL AND THE SPECIFICATIONS TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC WORKS, EDITION 2003, WITH THE LATEST REVISIONS.
THESE DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE PROJECT MANUAL AND THE SPECIFICATIONS TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF PUBLIC WORKS, EDITION 2003, WITH THE LATEST REVISIONS.

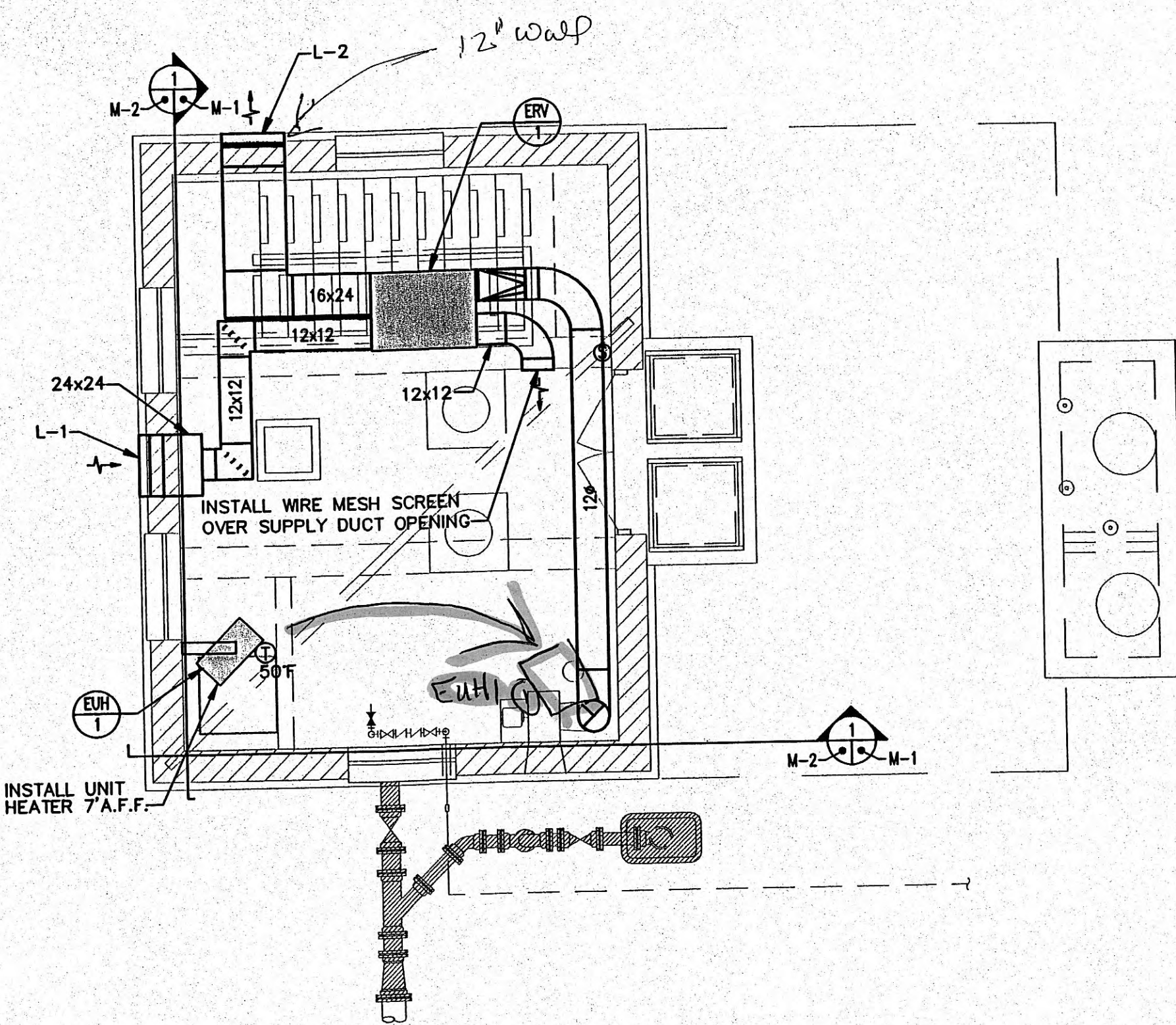


ENGINEERS - ARCHITECTS - PLANNERS
www.gibbs.com

CHRISTMAS PUMP STATION NO. A-2
LEGEND, SCHEDULES, AND DETAILS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

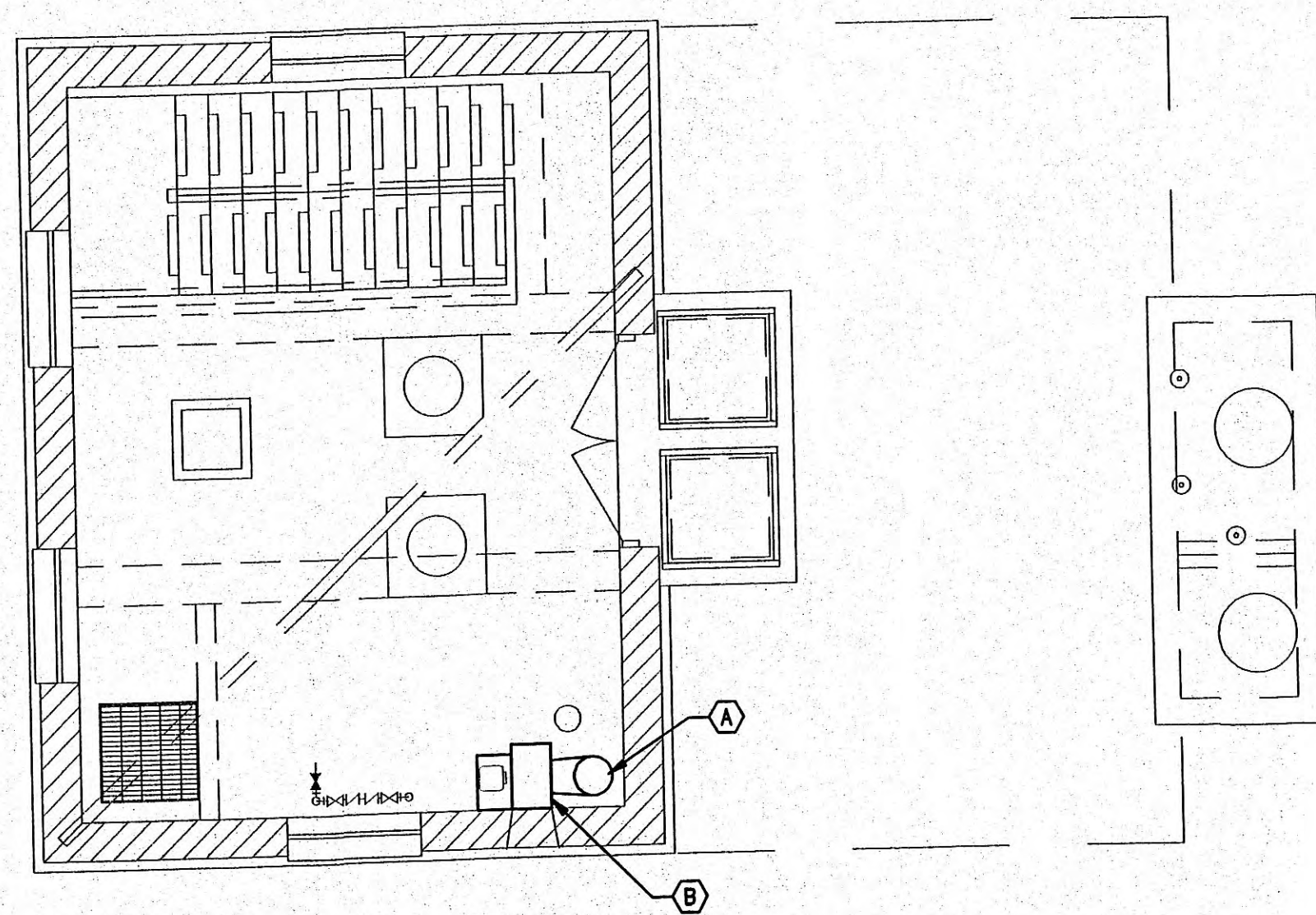
DESIGNED	KLS
DRAWN	RTB
CHECKED	KLS
APPROVED	KLS

DATE: March 23, 2009
SCALE: 1/4"=1'-0"
SHEET NO. M-1



NEW WORK FLOOR PLAN - ENTRANCE

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

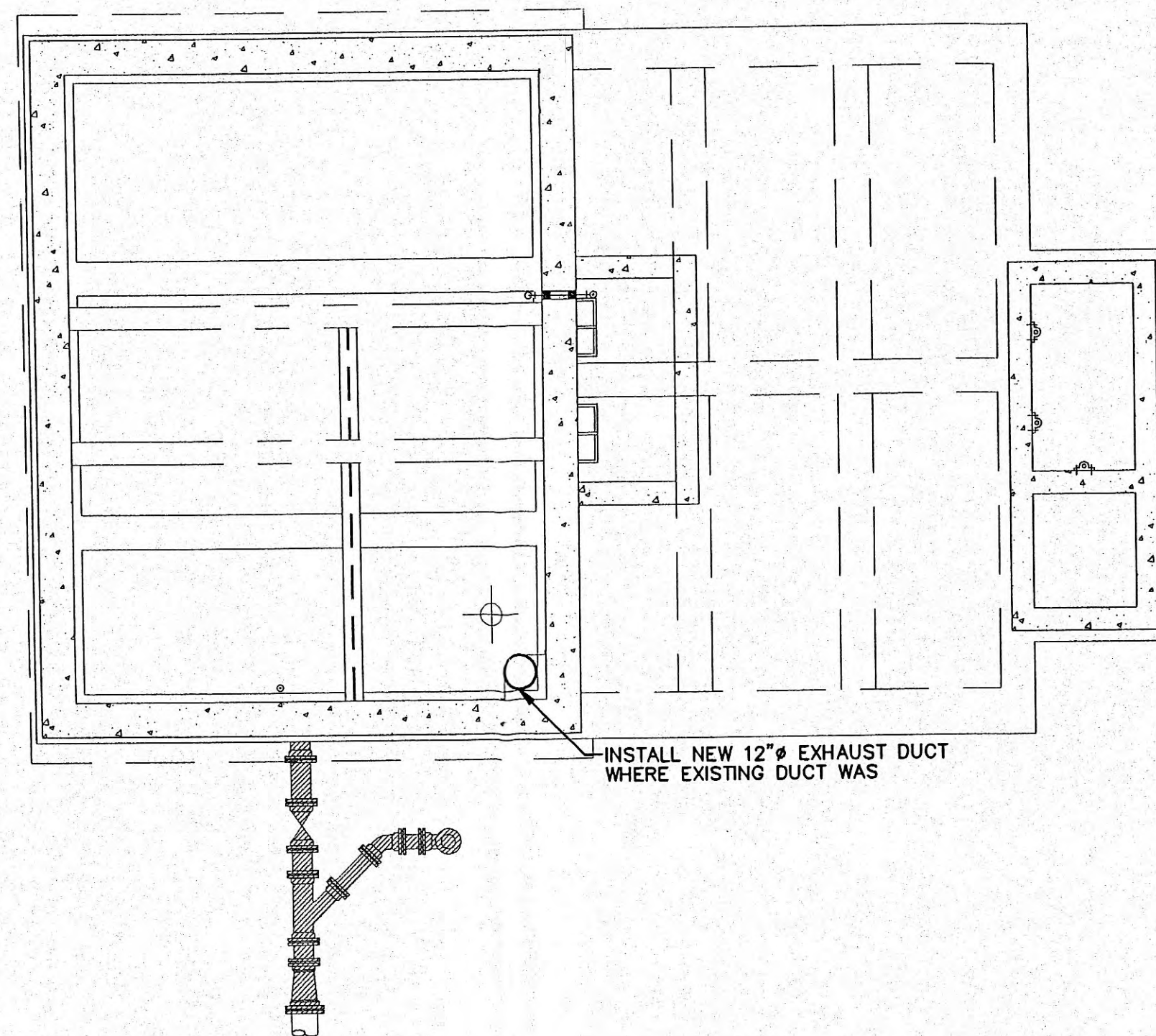


DEMOLITION FLOOR PLAN - ENTRANCE

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

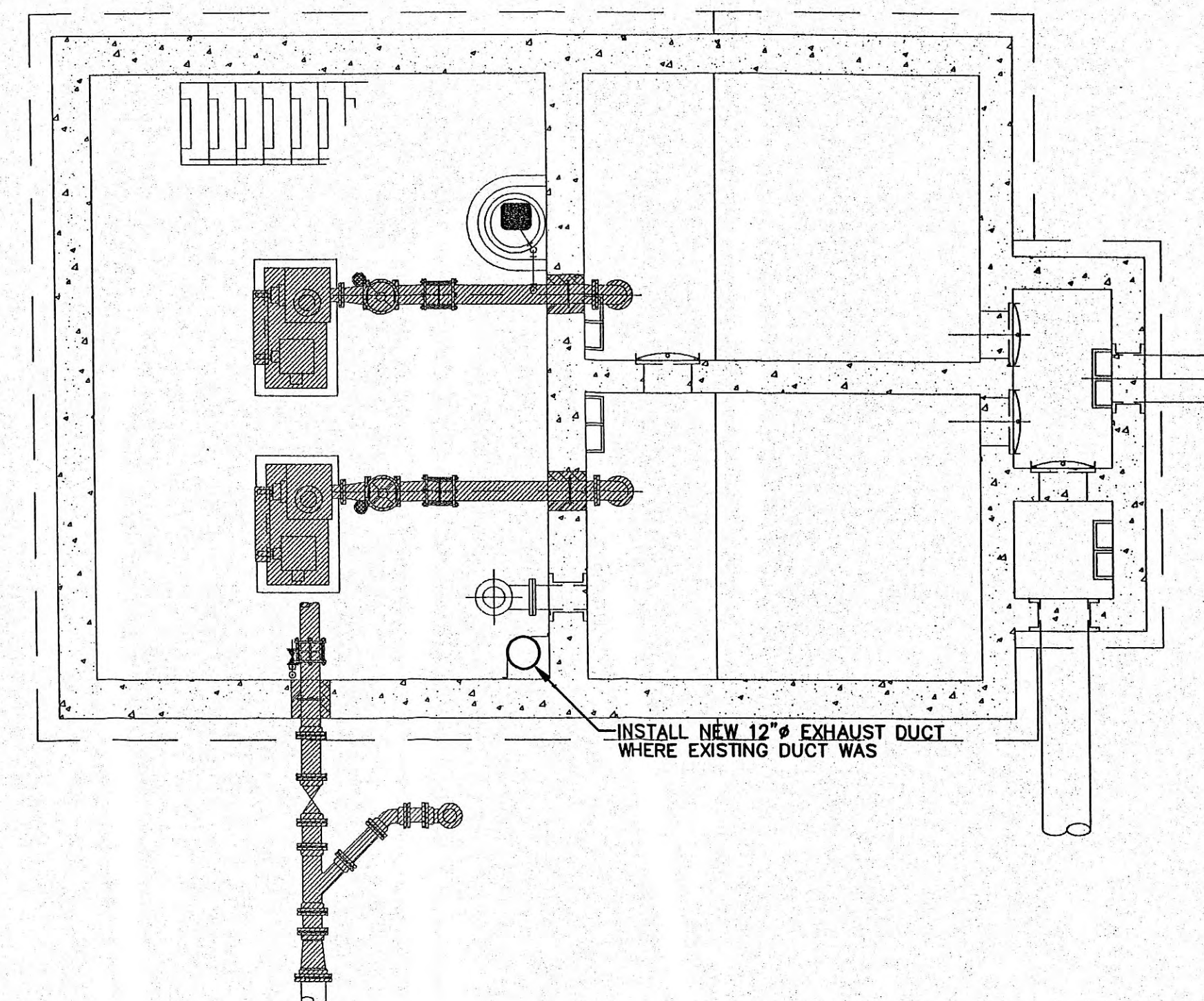
DEMOLITION NOTES:

- (A) REMOVE ENIRE LENGTH OF DUCT
- (B) REMOVE EXISTING EXHAUST FAN DUCT AND WALL LOUVER. SEE ARCHITECTURAL DRAWINGS FOR INFILL.



NEW WORK FLOOR PLAN - INTERMEDIATE

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



NEW WORK FLOOR PLAN - PUMP ROOM

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

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. ANY DISCEPANCIES BETWEEN EXISTING CONDITIONS AND CONTRACT DOCUMENTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ANY WORK RELATING TO THOSE CONDITONS IS PERFORMED.
2. CONTRACTOR SHALL MAINTAIN AS SET OF PROJECT RECORD DRAWINGS AT THE JOB SITE AND SHALL BE RESPONSIBLE FOR MAKING CLEAR, NEAT CHANGES TO THE DRAWINGS REFLECTING CHANGES TO THE WORK AND VARIANCES IN EXISTING CONDITIONS.
3. PROVIDE ALL MISCELLANEOUS STEEL, AS REQUIRED, TO SUPPORT ALL MECHANICAL DUCT AND PIPING SYSTEMS AND EQUIPMENT HANG ALL EQUIPMENT FROM STRUCTURE WITH MINIMUM OF TWO TRAPEXE ASSEMBLIES OR FOUR SUPPORTS DO NOT HANG ANTHING FROM STEEL COMPOSITION OR WOODEN DECKS NON-ROOF CONCRETE DECKS MAY BE USED ONLY WITH PERMISSION OF THE ENGINEER. DO NOT HANG ANYTHING FROM MECHANICAL OR ELECTRICAL ITEMS.
4. NO CONCRETE RIBS OR JOISTS SHALL BE CUT WITHOUT SPECIFIC PERMISSION FROM THE ENGINEER ALL ROOF OR FLOOR DECKS PENETRATIONS IN WAFFLE STRUCTURE SHALL BE IN THIN SLAB DEPRESSIONS IN THE STRUCTURE UNLESS NOTED OTHERWISE
5. NO STEEL STRUCTURAL MEMBERS SHALL BE CUT, BURNED, WELDED OR DRILLED WITHOUT SPECIFIC PERMISSION O FTHE ENGINEER
6. NO WOODEN STRUCTURE MEMBERS SHALL BE CUT OR DRILLED EXCEPT AS INDICATEDIN THE CONTRACT DOCUMENTS OR AS APPROVED BY THE ENGINEER.
7. DO NOT CHANGE PATH OF DUCT RUNS, ADD TURNS OR OFFSETS OR CHANGE DUCT DIMENSION OR PIPE SIZE WITHOUT FIRST CONSULTING THE ENGINEER. ALL DUCT SIZES SHOWN ON PLANS ARE CLEAR INDISE DIMENSIONS FOR SHOP OR FIELD-FABRICATED DUCT AND NOMINAL SIZES FOR FACTORY FABRICATED DUCT.
8. ALL EXISTING EQUIPMENT SHUTDOWNS OR INTERRUPTIONS OF UTILITY SERVICES REQUIRED FOR COMPLETION OF THE WORK SHALL BE SCHEDULED IN ADVANCE, AS REQUIRED BY THE OWNER
9. COORDINATE ALL DUCTWORK WITH BOTH NEW AND EXISTING MECHANICAL AND ELECTRICAL WORK INCLUDING HVAC. PLUMBING, ELECTRICAL, FIRE ALARM, AND COMMUNICATIONS
10. FANS SHALL BE PROVIDED AS INDICATED GREENHECK, CARNES, COOK OR APPROVED EQUAL. LOUVERS, HOODS, AND PENTHOUSES SHALL BE PROVIDED AS INDICATED BY GREENHECK, AIRSTREAM LOUVERS AND DAMPERS, CARNES, RUSKIN OR APPROVED EQUAL.
11. ANY AND ALL DAMAGE DUE TO DEMOLITION OR CONSTRUCTION IS TO REPAIRED OR REPLACED AS APPROPRIATE SUBJECT TO ENGINEERS APPROVAL AND AT NO ADDITIONAL COST OF THE OWNER.

WWR 5417 Ball Camp Pike
Knoxville, Tn 37921
ENGINEERS INC Phone: (865) 588-2431
West, Welch, Reed Engineers, Inc. Fax: (865) 588-2434
WWR PROJECT# 109013

THIS DRAWING IS GENERALLY DIAGRAMMATIC AND, EXCEPT WHERE SPECIFICALLY DIMENSIONED OR DETAILED, INDICATES THE GENERAL ARRANGEMENT OF THE WORK. THE CONTRACTOR SHALL INSTALL HIS WORK TO CONFORM AS NEARLY AS POSSIBLE TO THE LOCATIONS AND ARRANGEMENTS SHOWN, WITH ONLY SUCH MINOR ADJUSTMENTS AS NECESSARY TO COORDINATE THE WORK WITH ALL OTHER TRADES TO AVOID INTERFERENCES.



GRW PROJECT NO. 578-01
CLIENT PROJECT NO. 300K
ALL WORK SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE CITY OF HARRIMAN, TENNESSEE, AND THE CITY OF HARRIMAN, TENNESSEE, AND THE CITY OF HARRIMAN, TENNESSEE, AND THE CITY OF HARRIMAN, TENNESSEE.

G.R.W.
ENGINEERS - ARCHITECTS - PLANNERS
www.grw.com

CHRISTMAS PUMP STATION NO. A-2
FLOOR PLANS - HVAC
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

REVISIONS	DATE	BY	CHKD	APP'D	DATE
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DATE: March 9, 2009
SCALE: 1/4"=1'-0"
SHEET NO. M-2

DRAWING SYMBOL	LOUVER SIZE (WIDTH X HEIGHT)	CFM	MINIMUM SQ/FT FREE AREA	MAXIMUM PRESSURE DROP (IN. WG)	MANUFACTURER AND MODEL NUMBER	NOTES
	24x24	850	1.92	0.05	RUSKIN ELF 375DXH	SEE BELOW
	24x24	850	1.92	0.05	RUSKIN ELF 375DXH	SEE BELOW

NOTES AND FEATURES:

- * LOUVERS SHALL BE BEAR AMCA SEAL AND SHALL BE TESTED IN ACCORDANCE WITH AMCA 511.
- * KYNAR COATING
- * WATER PENETRATION THROUGH LOUVER SHALL NOT OCCUR BELOW 1000 FPM (FREE AREA)
- * ALUMINUM CONSTRUCTION

ELECTRIC HEATER SCHEDULE							
DRAWING SYMBOL	TYPE	KW	CFM	VOLTAGE/PHASE	FAN R.P.M.	FAN WATTS	MANUFACTURER & MODEL NO.
	HOSE-DOWN	10	700	480/3	1550	21	TRANE UHRA

HEATERS

- * TRANSFORMER FOR 24V. THERMOSTAT
- * LOW VOLTAGE THERMOSTAT WITH HEAT-OFF-FAN SWITCH, MOUNTED ON UNIT.
- * THERMAL OVERLOAD PROTECTION.
- * 16-GAUGE, 304 STAINLESS STEEL CASING.
- * DISCONNECT SWITCH.
- * CONTROLS SHALL BE IN A NEMA 4X ENCLOSURE ON UNIT.
- * MOUNT 7'-0" A.F.F.
- * STAINLESS STEEL WALL/CEILING MOUNTING BRACKET.

DRAWING SYMBOL	SUPPLY SIDE				EXHAUST SIDE				VOLT/PHASE	MCA	MOCP	WEIGHT	MANUFACTURER MODEL NUMBER
	CFM	E.S.P.	HP	WHEEL EFFICIENCY	CFM	E.S.P.	HP	WHEEL EFFICIENCY					
	850	0.5	1/2	70.8%	850	0.5	1/2	70.8%	120/1	23.8	30.0	350	GREENHECK ERV-251H-20-A

NOTES AND FEATURES:

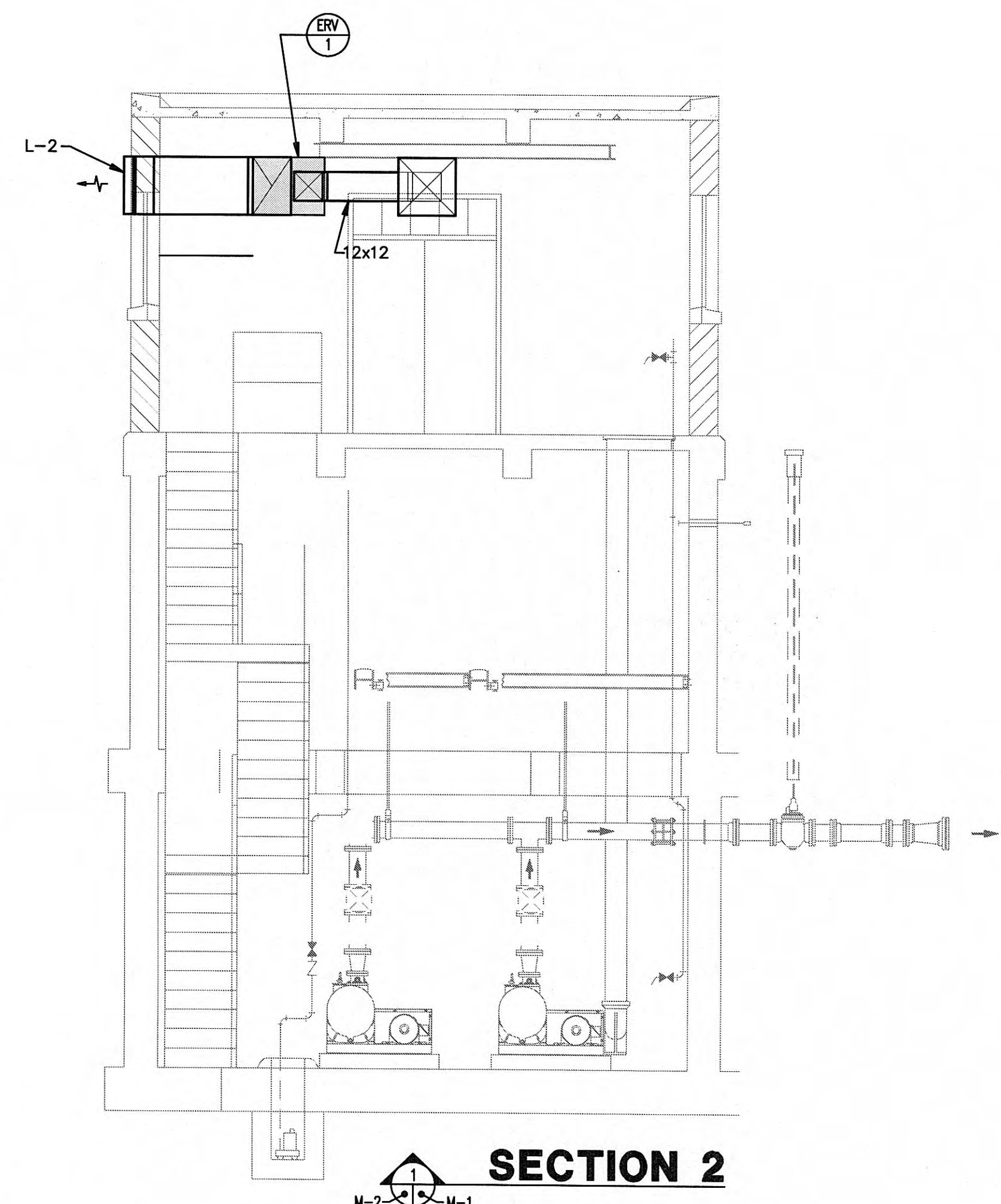
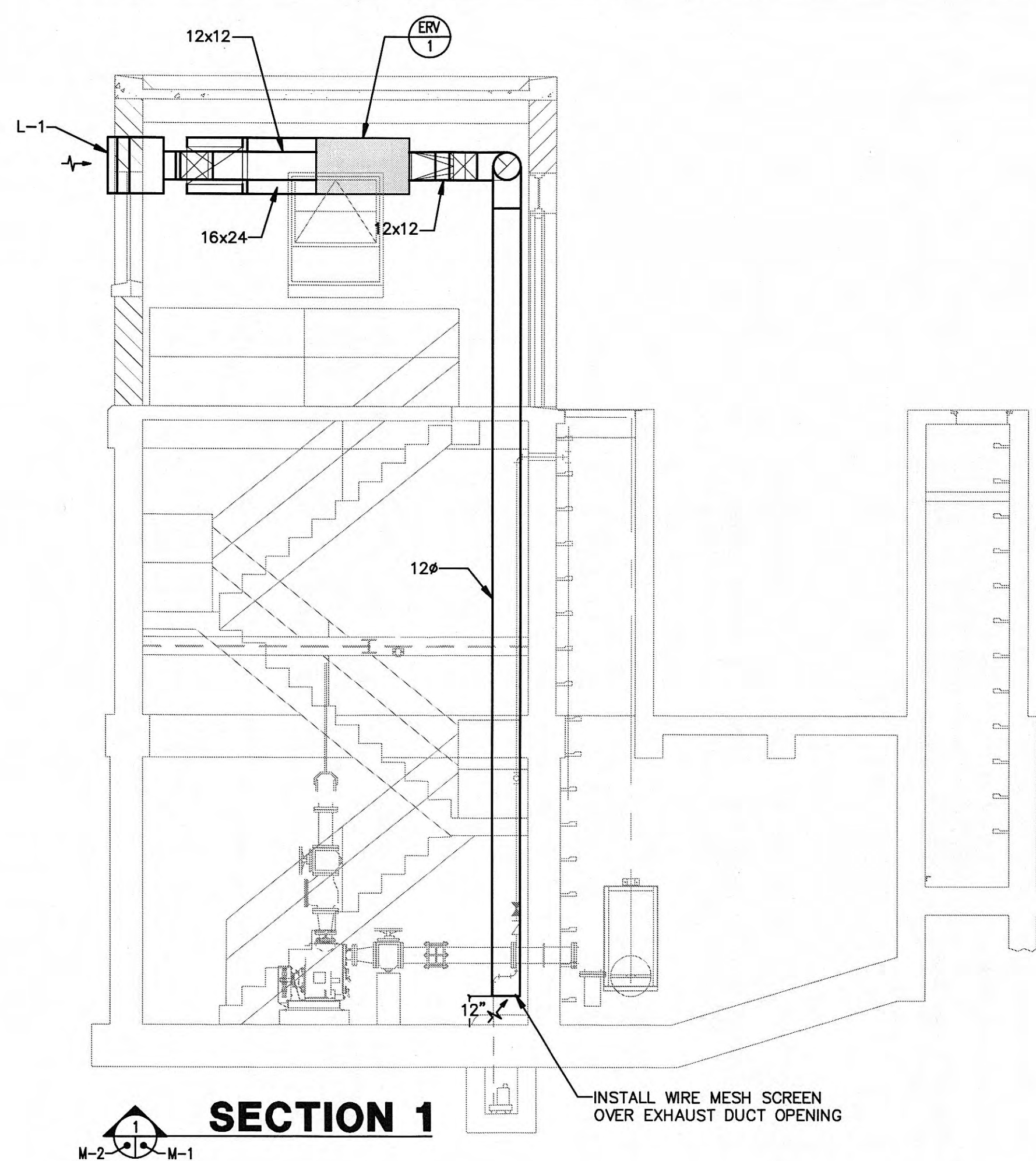
- * DUCT FLANGES.
- * REMOTE PANEL WITH HAND-OFF-AUTO SWITCH.
- * OUTSIDE AIR AND EXHAUST AIR FILTERS, 2" PLEATED, 30% EFFICIENCY.
- * TIMED EXHAUST FROST CONTROL.

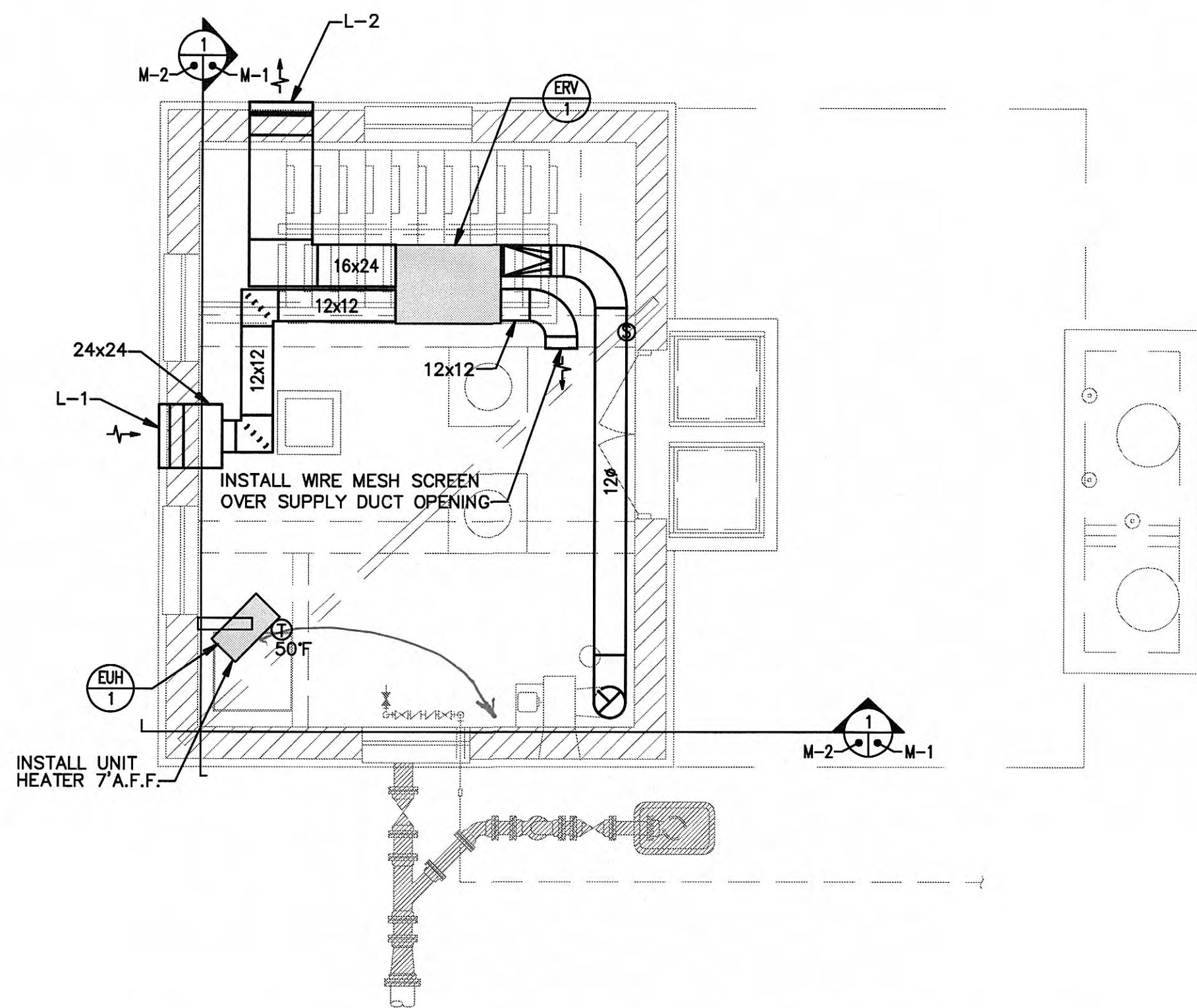
* OUTDOOR AIR TEMPERATURE:
 ~SUMMER: 92.0/74.0 °F.
 ~WINTER: 5.0 °F.

* INDOOR AIR TEMPERATURE:
 ~SUMMER: 85.0 °F.
 ~WINTER: 50.0 °F.

MECHANICAL LEGEND			
STANDARD ABBREVIATIONS AND NOTATIONS			
FFE	FINISHED FLOOR ELEVATION	NIC	NOT IN CONTRACT
FA	FROM ABOVE	SU	SUPPLY DUCTWORK
DN	DOWN	RE	RETURN DUCTWORK
CD	CEILING DIFFUSER	EX	EXHAUST DUCTWORK
CR	CEILING RETURN	OA	OUTDOOR AIR DUCTWORK
CE	CEILING EXHAUST		
SR	SUPPLY REGISTER		
RR	RETURN REGISTER		
ER	EXHAUST REGISTER		

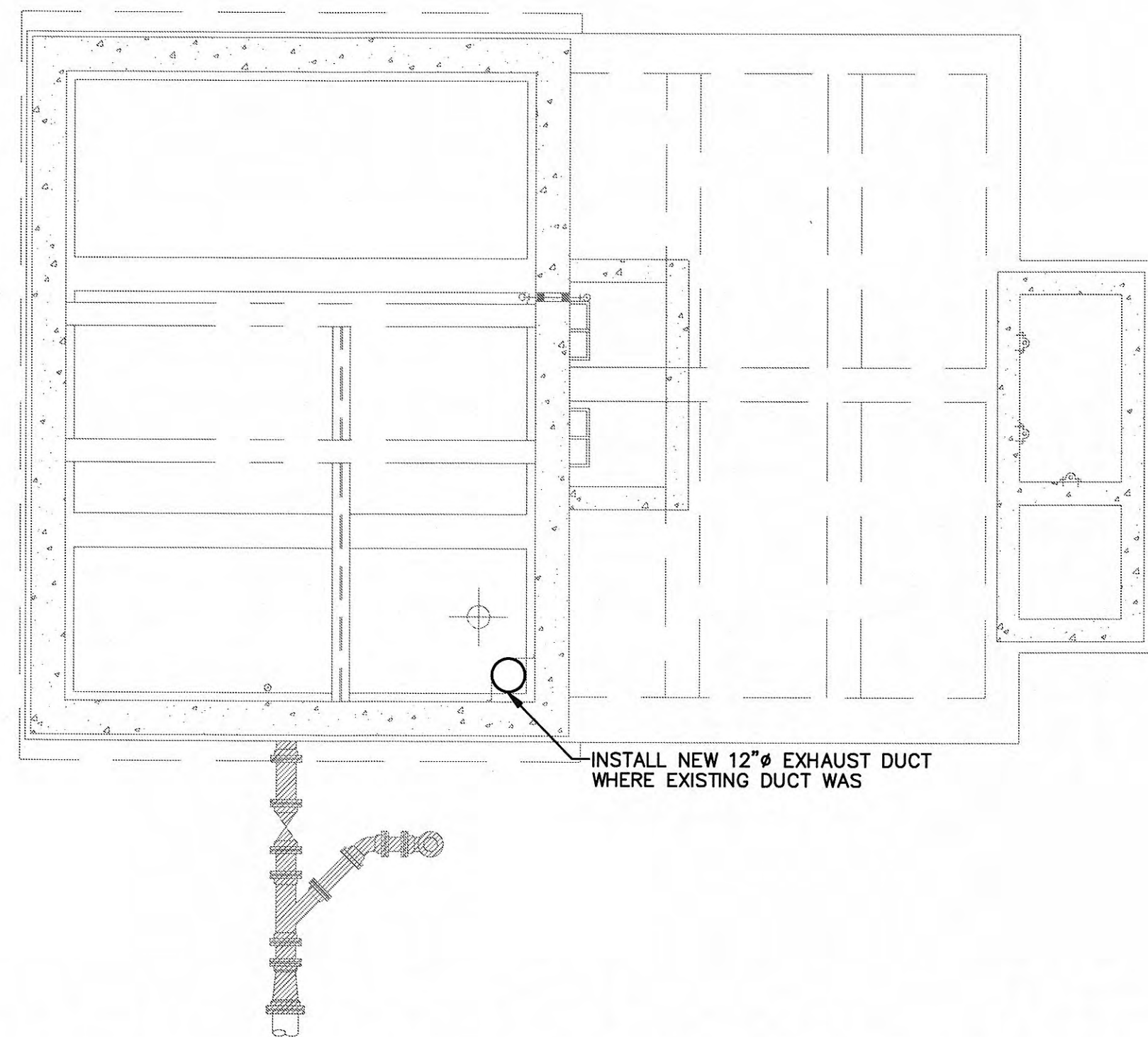
SYMBOL	DESCRIPTION
	RECTANGULAR DUCT: MANUAL OPPOSED BLADE DAMPER WITH LOCKING QUADRANT. LEVER OPERATOR, OF STEEL CONSTRUCTION. LOUVERS & DAMPERS MODEL CD-400; KRUEGER MODEL OBD-DM TYPE 2 OPERATION FOR LESS THAN 10" WIDE.
	ROUND DUCT: ROUND BLADE CONTROL DAMPER OF STEEL CONSTRUCTION WITH MANUAL OPERATOR LOUVERS AND DAMPERS MODEL CD-600.
	SHEET METAL CONNECTORS, INC. HIGH EFFICIENCY TAKEOFF WITH DAMPER AND LOCKING QUADRANT FOR ROUND DUCT TAKEOFFS FROM RECTANGULAR DUCTWORK. INCREASE MAIN DUCT SIZE AT FITTING TO ACCOMMODATE ITS INSTALLATION IF REQUIRED TO MEET SMACNA AND MANUFACTURER'S INSTRUCTIONS. ALL BRANCH TAKEOFFS SHALL HAVE BALANCING DAMPERS FOR BALANCING PURPOSES. DIMENSION: D = RUNOUT DIAMETER (6"-14")
	RECTANGULAR ELBOW WITH SINGLE THICKNESS TURNING VANES OF STEEL CONSTRUCTION.
	EQUIPMENT TAG
	ELECTRICAL PANEL - AVOID INSTALLING EQUIPMENT IN PANEL BOARD SPACE PER ARTICLE 110 OF THE NATIONAL ELECTRIC CODE.
	WALL SWITCH - XXX-1





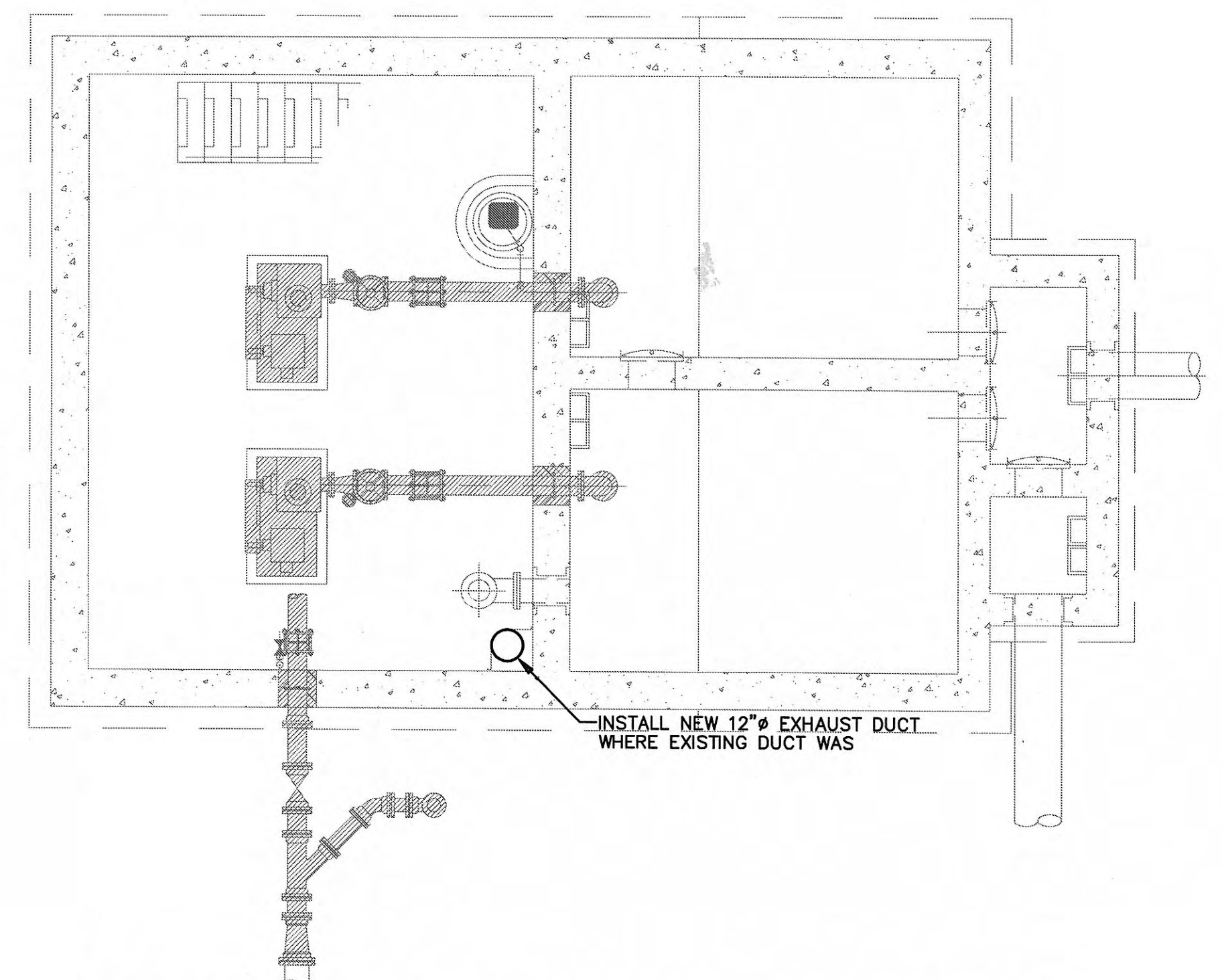
NEW WORK FLOOR PLAN - ENTRANCE

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



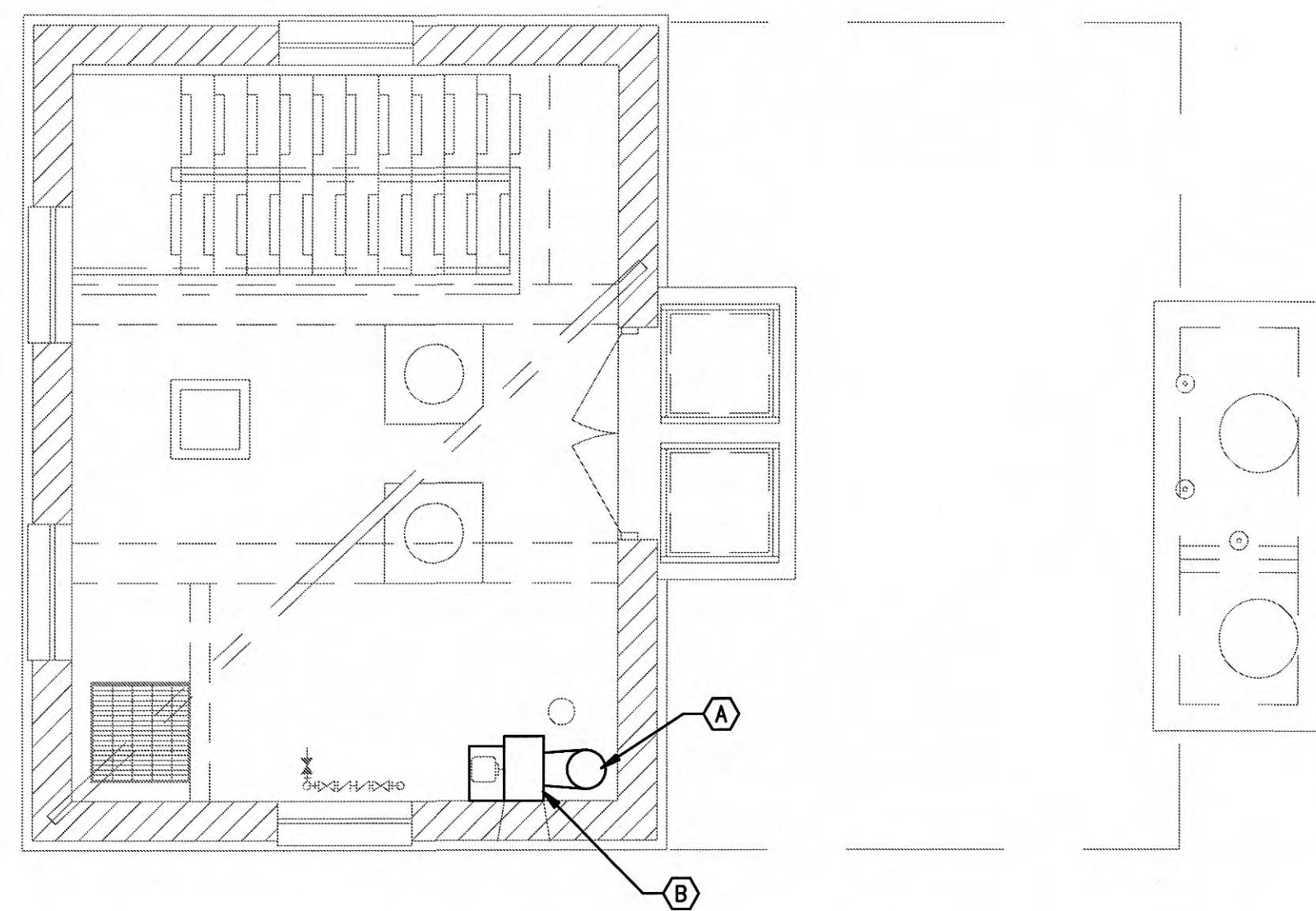
NEW WORK FLOOR PLAN - INTERMEDIATE

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



NEW WORK FLOOR PLAN - PUMP ROOM

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



DEMOLITION FLOOR PLAN - ENTRANCE

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

DEMOLITION NOTES:

- (A) REMOVE ENIRE LENGTH OF DUCT
- (B) REMOVE EXISTING EXHAUST FAN DUCT AND WALL LOUVER. SEE ARCHITECTURAL DRAWINGS FOR INFILL.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. ANY DISCEPANCIES BETWEEN EXISTING CONDITIONS AND CONTRACT DOCUMENTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ANY WORK RELATING TO THOSE CONDITONS IS PERFORMED.
2. CONTRACTOR SHALL MAINTAIN AS SET OF PROJECT RECORD DRAWINGS AT THE JOB SITE AND SHALL BE RESPONSIBLE FOR MAKING CLEAR, NEAT CHANGES TO THE DRAWINGS REFLECTING CHANGES TO THE WORK AND VARIANCES IN EXISTING CONDITIONS.
3. PROVIDE ALL MISCELLANEOUS STEEL, AS REQUIRED, TO SUPPORT ALL MECHANICAL DUCT AND PIPING SYSTEMS AND EQUIPMENT HANG ALL EQUIPMENT FROM STRUCTURE WITH MINIMUM OF TWO TRAPEXE ASSEMBLIES OR FOUR SUPPORTS DO NOT HANG ANTHING FROM STEEL COMPOSITION OR WOODEN DECKS NON-ROOF CONCRETE DECKS MY BE USED ONLY WITH PERMISSION OF THE ENGINEER. DO NOT HANG ANYTHING FROM MECHANICAL OR ELECTRICAL ITEMS.
4. NO CONCRETE RIBS OR JOISTS SHALL BE CUT WITHOUT SPECIFIC PERMISSION FROM THE ENGINEER ALL ROOF OR FLOOR DECKS PENETRATIONS IN WAFFLE STRUCTURE SHALL BE IN THIN SLAB DEPRESSIONS IN THE STRUCTURE UNLESS NOTED OTHERWISE
5. NO STEEL STRUCTURAL MEMBERS SHALL BE CUT, BURNED, WELDED OR DRILLED WITHOUT SPECIFIC PERMISSION O FTHE ENGINEER
6. NO WOODEN STRUCTURE MEMBERS SHALL BE CUT OR DRILLED EXCEPT AS INDICATEDIN THE CONTRACT DOCUMENTS OR AS APPROVED BY THE ENGINEER.
7. DO NOT CHANGE PATH OF DUCT RUNS, ADD TURNS OR OFFSETS OR CHANGE DUCT DIMENSION OR PIPE SIZE WITHOUT FIRST CONSULTING THE ENGINEER. ALL DUCT SIZES SHOWN ON PLANS ARE CLEAR INDISE DIMENSIONS FOR SHOP OR FIELD-FABRICATED DUCT AND NOMINAL SIZES FOR FACTORY FABRICATED DUCT.
8. ALL EXISTING EQUIPMENT SHUTDOWNS OR INTERRUPTIONS OF UTILITY SERVICES REQUIRED FOR COMPLETION OF THE WORK SHALL BE SCHEDULED IN ADVANCE, AS REQUIRED BY THE OWNER
9. COORDINATE ALL DUCTWORK WITH BOTH NEW AND EXISTING MECHANICAL AND ELECTRICAL WORK INCLUDING HVAC, PLUMBING, ELECTRICAL, FIRE ALARM, AND COMMUNICATIONS
10. FANS SHALL BE PROVIDED AS INDICATED GREENHECK, CARNES, COOK OR APPROVED EQUAL LOUVERS, HOODS, AND PENTHOUSES SHALL BE PROVIDED AS INDICATED BY GREENHECK, AIRSTREAM LOUVERS AND DAMPERS, CARNES, RUSKIN OR APPROVED EQUAL
11. ANY AND ALL DAMAGE DUE TO DEMOLITION OR CONSTRUCTION IS TO REPAIRED OR REPLACED AS APPROPRIATE SUBJECT TO ENGINEERS APPROVAL AND AT NO ADDITIONAL COST OF THE OWNER.

WWR ENGINEERS INC.
 5417 Ball Camp Pike
 Knoxville, Tn 37921
 Phone: (865) 588-2431
 Fax: (865) 588-2434
 West, Welch, Reed Engineers, Inc.
 WWR PROJECT# 109013

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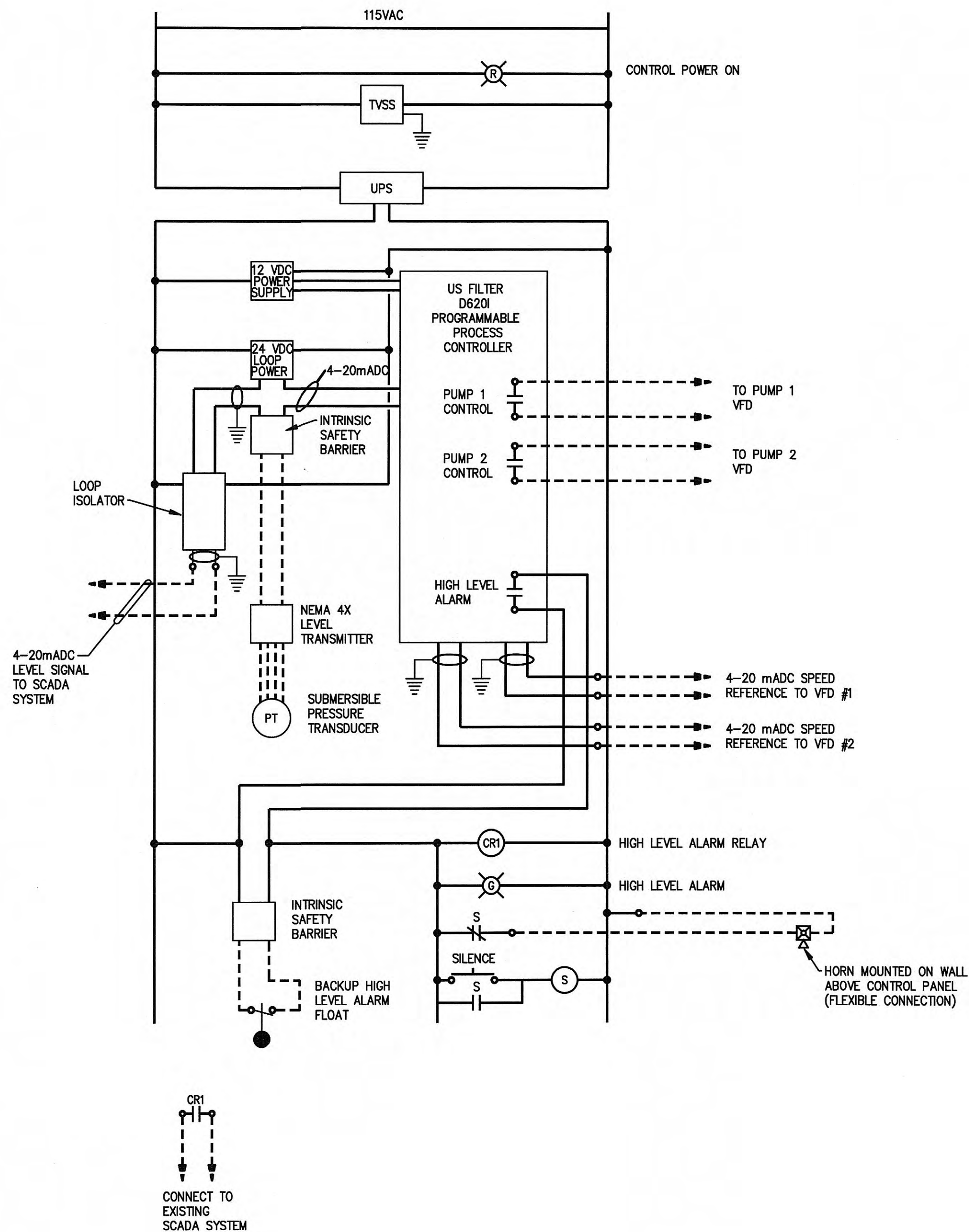
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 CLIENT PROJECT NO. XXXX
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CHRISTMAS PUMP STATION NO. A-2
FLOOR PLANS - HVAC
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

REVISIONS	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
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DATE: March 9, 2009
 SCALE: 1/4"=1'-0"
 SHEET NO. M-2



LEVEL CONTROL PANEL CONTROL DIAGRAM

SCALE: NONE

ELECTRICAL LEGEND

STANDARD ABBREVIATIONS AND NOTATIONS		
A AMPERE (AMPS)	HP HORSEPOWER	TSP TWISTED SHIELDED PAIR
AC INDICATES DEVICE SHALL BE MOUNTED ABOVE COUNTERTOP	IMC INTERMEDIATE METALLIC CONDUIT	UC UNDER COUNTER, INDICATES DEVICE SHALL BE LOCATED BELOW THE COUNTERTOP.
AFF ABOVE FINISHED FLOOR	KMIL 1000 CIRCULAR MILS. SAME AS "KCM".	UON UNLESS OTHERWISE NOTED
AFI ARC FAULT INTERRUPTER (AT CKT. BKR.)	KVA KILOVOLT-AMPS	V VOLTS
AIC AMPS INTERRUPTING CURRENT	KW KILOWATT	WG WATTS
BKR BREAKER	MCA MINIMUM CIRCUIT AMPS	WG INDICATES DEVICE SHALL BE PROVIDED WITH WIRE GUARD
C CONDUIT	MCC MOTOR CONTROL CENTER	WP WEATHERPROOF
CKT CIRCUIT	MCM 1000 CIRCULAR MILS. SAME AS "KMIL".	4X SS DEVICES SHALL BE STAINLESS STEEL AND RATED NEMA 4X
CU COPPER CONDUCTOR	N NEUTRAL	
DISC. DISCONNECT	NIC NOT IN CONTRACT	
DN DOWN	NL NIGHT LIGHT. LUMINAIRE SHALL BE UNSWITCHED EXCEPT FOR CIRCUIT BREAKER.	
EM CONNECTED TO EMERGENCY POWER	PC INDICATES DEVICE IS CONTROLLED BY PHOTOCELL OR TIMECLOCK	EX EXISTING DEVICE TO REMAIN
EMT ELECTRICAL METALLIC TUBING	PVC POLYVINYLCHLORIDE CONDUIT. CLASSIFIED AS RIGID NONMETALLIC CONDUIT PER NEC. SCHEDULE 40 UON.	EXM EXISTING DEVICE TO BE MOVED TO NEW LOCATION SHOWN
FLA FULL LOAD AMPS	QR INDICATES LUMINAIRE SHALL BE PROVIDED WITH QUARTZ RESTRIKE	EXR EXISTING DEVICE TO BE REMOVED. REMOVE CONDUCTORS AND CONDUIT BACK TO SUPPLY SOURCE.
G GROUND (ALSO "GND")	SCCR SHORT-CIRCUIT CURRENT RATING	
GFI GROUND-FAULT CIRCUIT-INTERRUPTER (ALSO "GCI")	TR TAMPER RESISTANT	
GRS GALVANIZED RIGID STEEL CONDUIT		

SYMBOL	DESCRIPTION
	GROUND FAULT CIRCUIT INTERRUPTING DUPLEX RECEPTACLE - 120-VOLT, 20-AMP WITH GFCI PROTECTION IN THE RECEPTACLE. MOUNTING HEIGHT AND NOTATIONS SAME AS FOR DUPLEX RECEPTACLE. wp INDICATES CAST WEATHERPROOF NUSE COVER HUBBELL OR EQUAL.
	ELECTRIC MOTOR - PROVIDE CONNECTION AS INDICATED. VERIFY EXACT CONNECTION REQUIREMENTS WITH SUBMITTAL INFORMATION PRIOR TO ROUGH-IN TO ENSURE PROPER SERVICE SIZE AND CONNECTION LOCATION. USE FLEXIBLE CONDUIT WITHIN 18" OF EQUIPMENT.
	FUSED DISCONNECT SWITCH - RATING TO MATCH THE REQUIREMENTS OF THE EQUIPMENT BEING SERVED. HEAVY DUTY NEMA 4XSS UNLESS NOTED OTHERWISE.
	MAGNETIC MOTOR STARTER - PROVIDE COMBINATION STARTER/DISCONNECT WHEN INSTALLED OUT OF SIGHT OF SUPPLYING PANELBOARD. NEMA 4XSS
	WALL SWITCH - RATED FOR 20-AMP OPERATION AT LINE VOLTAGE. SINGLE POLE UNLESS NOTED 3-WAY OR 4-WAY. MOUNT 48" ABOVE FINISHED FLOOR EXCEPT IN MASONRY WHERE THE HEIGHT SHALL BE ADJUSTED TO HAVE EDGE OCCUR AT NEAREST JOINT.
	JUNCTION BOX - SIZE AND USE AS REQUIRED. WHEN RECESSED COVERPLATE SHALL OVERLAP THE BOX EDGE BY 1/2".
	CONDUIT INSTALLED IN CEILING OR WALL CONSTRUCTION.
	CONDUIT INSTALLED UNDERGROUND OR BELOW THE FLOOR CONSTRUCTION.
	HOMERUN - EXTEND CONDUIT TO THE PANELBOARD OR DEVICE INDICATED. NUMBER OF CROSSHATCHED LINES INDICATES THE QUANTITY OF CURRENT CARRYING CONDUCTORS (NOT INCLUDING THE GROUND CONDUCTOR) WHERE MORE THAN TWO. CIRCUITS SHALL ALL HAVE SEPARATE NEUTRALS AND SHALL BE CONNECTED TO DIFFERENT PHASES WITHIN THE PANELBOARD REGARDLESS OF THE NUMBERING ON THE DRAWINGS. ALL CONDUIT RUNS SHALL BE PROVIDED WITH A GREEN CODE SIZE EQUIPMENT GROUNDING CONDUCTOR THAT SHALL BOND TO THE GROUNDING BUS BAR IN THE PANELBOARD.

CONTROL & MONITORING CONNECTION SCHEDULE

DESCRIPTION	FROM	TO	# OF LOCATIONS	CONDUCTOR SIZE & QUANTITY FOR EACH LOCATION
PUMP CONTROLS	MCC	RTU	(1)	17#12, 1 1/2" C
PUMP CONTROLS	MCC	RTU	(1)	3 PAIR #16 TSP, 1 1/2" C
LEVEL CONTROLS	PCP	RTU	(1)	2 PAIR #16 TSP, 1" C
LEVEL CONTROLS	PCP	RTU	(1)	6#12, 1" C
PUMP CONTROLS	PCP	MCC	(1)	12#12, 1 1/4" C
PUMP CONTROLS	PCP	MCC	(1)	3 PAIR #16 TSP, 1 1/2" C

CONNECTION SCHEDULE NOTES:

- "MCC" INDICATES MOTOR CONTROL CENTER.
- "RTU" INDICATES REMOTE TERMINAL UNIT.
- "PCP" INDICATES PUMP CONTROL PANEL.

"A"	RATING: 100 AMPS		VOLTAGE: 120/240		LOAD SUMMARY	
	MAIN BREAKER		MOUNTING: MCC		#A: 5.9 KW	
	PHASE: 1 WIRE: 3		ENCLOSURE		#B: 2.4 KW	
	SCCR: 10,000 AIC		SIZE (WxD): 20"x6"		TOTAL: 8.3 KW	
PANEL DESIGNATION		FEEDER: SEE RISER DIAGRAM				

LOAD DESCRIPTION		BKR	KW	A	B	KW	BKR	LOAD DESCRIPTION
LIGHTING - UPPER LEVEL		20/1	1.3	1	1	1.8	30/1	ERV-1
RECEPTACLES - UPPER AND LOWER LEVELS		20/1	0.8	3	3	4	20/1	SPARE
EXTERIOR LIGHTING		20/1	1.2	5	5	6	1.0	20/1 RTU
SPARE		20/1	7	7	7	8	1.0	20/1 PUMP CONTROL PANEL
SPARE		20/1	9	9	9	10	0.6	20/1 SUMP PUMP
SPARE		20/1	11	11	11	12	0.6	2
SPARE		20/1	13	13	13	14	2	SPARE
SPARE		20/1	15	15	15	16	2	SPARE
SPARE		20/1	17	17	17	18	20	SPARE
SPARE		20/1	19	19	19	20	2	2

LIGHTING FIXTURE SCHEDULE

DESIGNATION	LAMP TYPE	QUANTITY	WATTAGE EACH	MOUNTING			LAMP TYPES	GENERAL NOTES
				CEILING	WALL	GROUND		
A	FLR	1	150				FLR = FLUORESCENT INC = INCANDESCENT HPS = HIGH PRESSURE SODIUM MH = METAL HALIDE QTZ = QUARTZ	1) FIXTURES SHALL BE AS SPECIFIED OR APPROVED EQUAL. 2) CONTRACTOR SHALL VERIFY CEILING TYPE AND MOUNTING REQUIREMENTS PRIOR TO INSTALLATION.
B	FLR	2	32					
C	FLR	2	36					

CONTROL DIAGRAMS LEGEND

SYMBOL	DESCRIPTION
	INDICATES DEVICE IS LOCATED AT MOTOR, PUMP, EQUIPMENT OR IN THE FIELD.
	TERMINAL IN MAIN OR PLANT CONTROL PANELS.
	NORMALLY OPEN CONTACT IN A PLC CONTROL PANEL.
	NORMALLY CLOSED CONTACT IN A PLC CONTROL PANEL.
	NORMALLY OPEN MOMENTARY PUSHBUTTON SWITCH.
	NORMALLY CLOSED MOMENTARY PUSHBUTTON SWITCH.
	NORMALLY OPEN CONTACT CONTROLLED BY A STARTER OR RELAY COIL. "M" INDICATES THE COIL.
	NORMALLY CLOSED CONTACT CONTROLLED BY A STARTER OR RELAY COIL. "M" INDICATES THE COIL.
	COIL FOR A MOTOR STARTER OR CONTROL RELAY. "M" INDICATES MOTOR STARTER, "VFD" INDICATES VARIABLE FREQUENCY DRIVE AND "SS" INDICATES REDUCED VOLTAGE STARTER (SOFT START).
	PILOT LIGHT. "G" INDICATES GREEN, "R" INDICATES RED AND "A" INDICATES AMBER.
	ELAPSED TIME METER.
	HAND-OFF-AUTOMATIC SWITCH.

CONTROL DIAGRAMS GENERAL NOTES:

- ALL DEVICES ARE LOCATED IN MCC UNLESS OTHERWISE NOTED.



GRW PROJECT NO. 3789-01

CLIENT PROJECT NO. 0000

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CHRISTMAS PUMP STATION NO. A-2
LEGENDS, SCHEDULES, AND DETAILS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

REVISIONS	DESCRIPTION	DATE	BY	CHECKED	APPROVED	SCALE	SHEET NO.
1							

DATE: March 23, 2009

SCALE: NONE

SHEET NO.

E-1

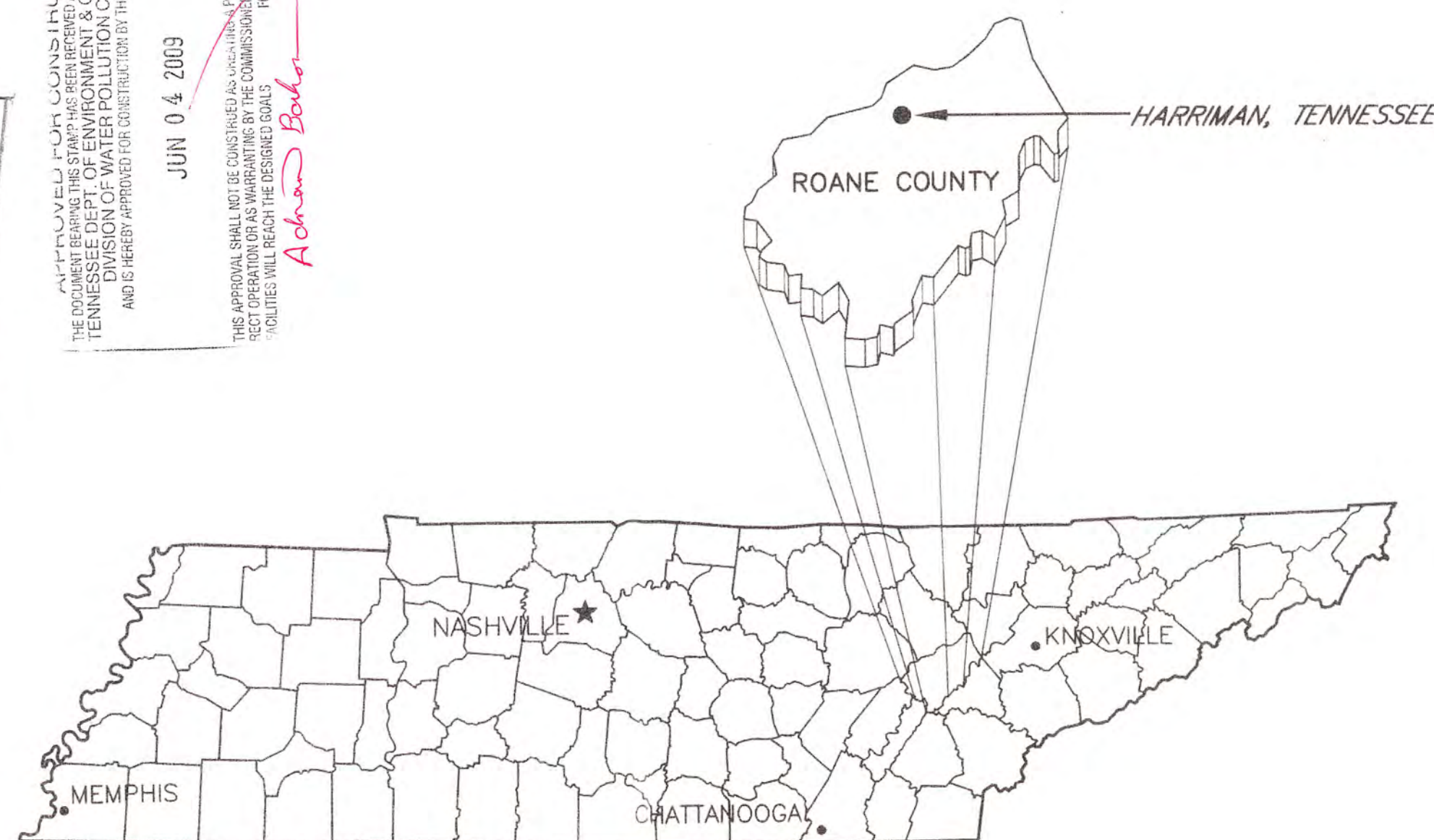
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5417 Ball Camp Pike
Knoxville, TN 37921
Phone: (865) 588-2431
Fax: (865) 588-2434
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SEWER REHABILITATION CHRISTMAS PUMP STATION (P.S. A-2) FOR HARRIMAN UTILITY BOARD

ROANE COUNTY HARRIMAN, TENNESSEE CONTRACT: S09-01

APPROVAL EXPIRES
JUN 04 2010
TIN LIFT, LLC, A Division of CONCEPTS
DIVISION OF WATER POLLUTION CONTROL

APPROVED FOR CONSTRUCTION
THE DOCUMENT BEING REVIEWED AND RECOMMENDED FOR APPROVAL BY THE
TENNESSEE DEPARTMENT OF REVENUE, DIVISION OF WATER POLLUTION CONTROL
AND IS HEREBY APPROVED FOR CONSTRUCTION BY THE COMMISSIONER
JUN 04 2009
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Adrian B. Baker



TENNESSEE VICINITY MAP
NOT TO SCALE

With updates
and changes 5/20/10 JB



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Engineers, Architects, Planners

801 CORPORATE DRIVE - LEXINGTON, KY. 40503
PH. (859)223-3999 FAX (859)223-8917
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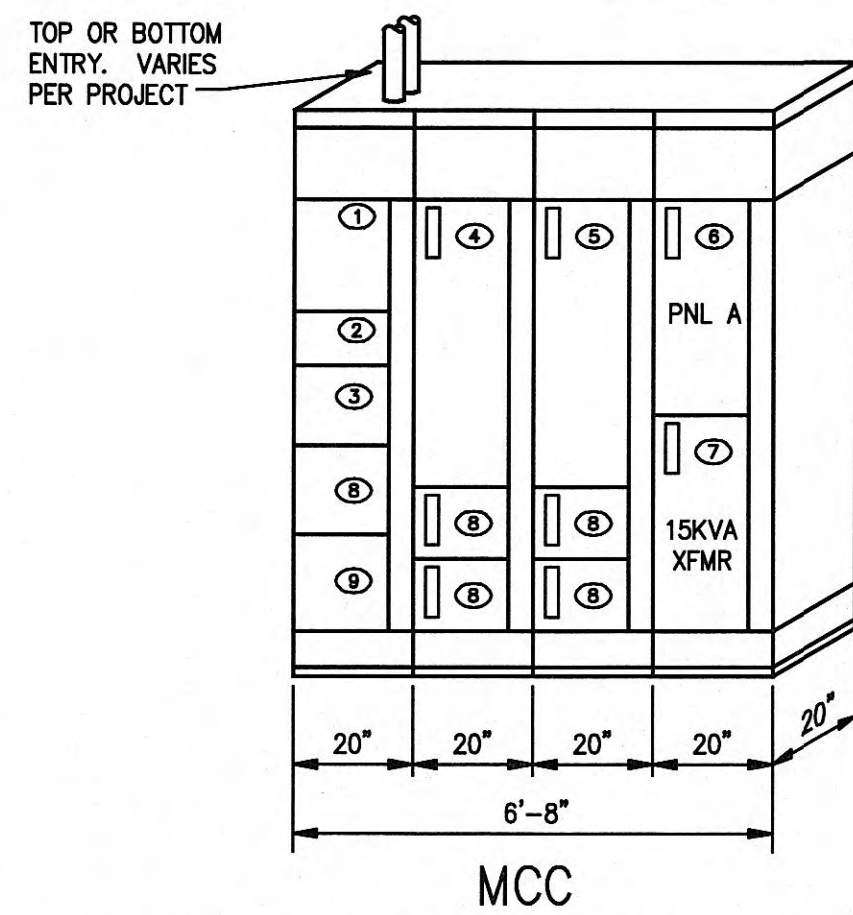


4/30/2009

APRIL 2009

DWG. No.	INDEX OF DRAWINGS
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G-101	LOCATION MAP, GENERAL NOTES
C-101	SITE PLAN
C-102	DEMOLITION-PLAN VIEWS
C-103	DEMOLITION-SECTIONS
C-104	UPGRADE-PLAN VIEWS
C-105	UPGRADE-SECTIONS
C-106	SANITARY SEWER REHABILITATION
A-101	DEMOLITION-PLAN VIEWS
A-102	UPGRADE-PLAN VIEWS
A-201	DEMOLITION-SECTIONS & ELEVATIONS
A-202	UPGRADE-SECTIONS & ELEVATIONS
A-301	DETAILS
M-1	LEGENDS, SCHEDULES AND DETAILS
M-2	FLOOR PLANS - HVAC
E-1	LEGENDS, SCHEDULES AND DETAILS
E-2	CONTROL DIAGRAMS
E-3	FLOOR PLAN - ELECTRICAL
E-4	SITE PLAN - ELECTRICAL

GRW PROJECT NO. 3796-01

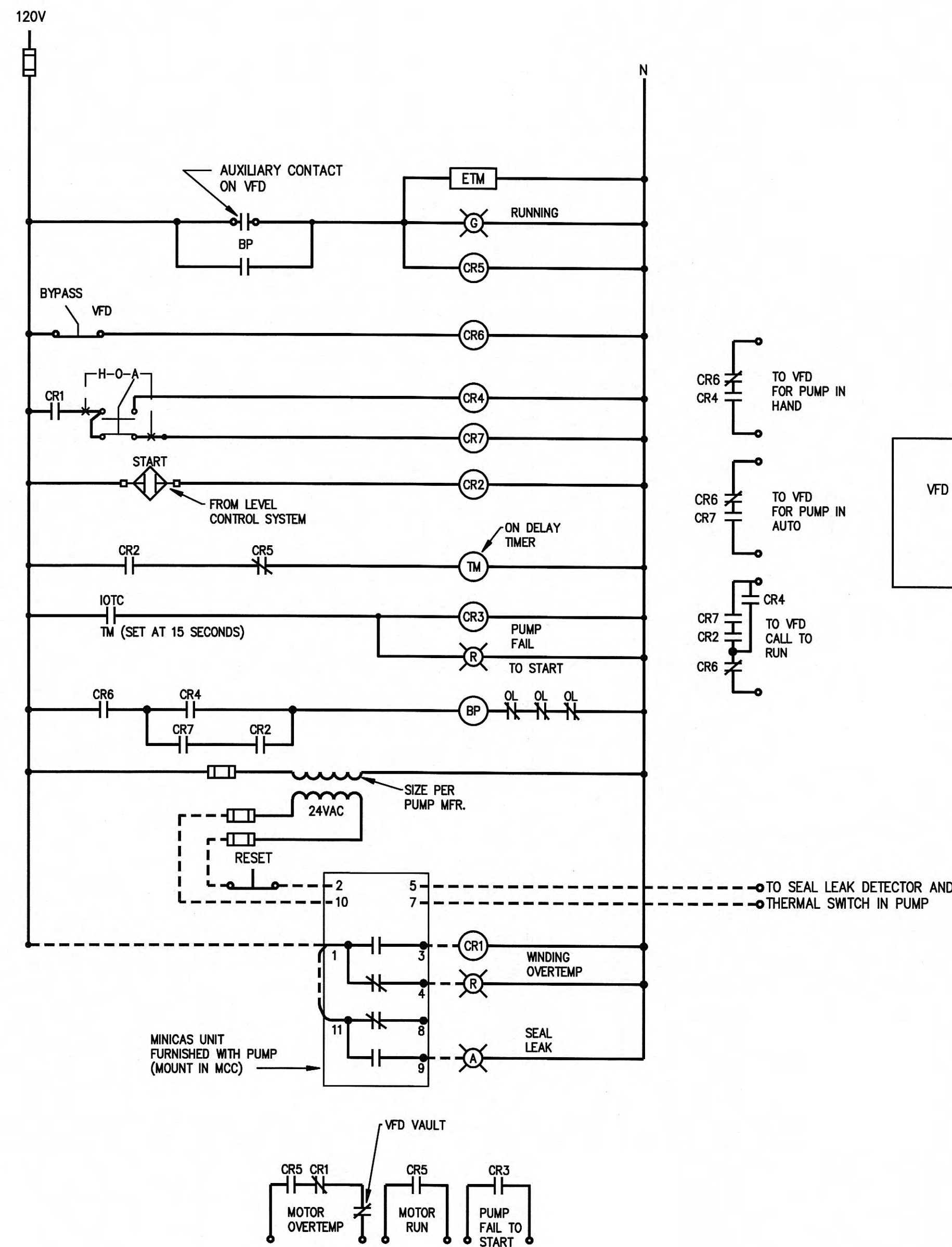


- 200-AMP BREAKER, 600-AMP BUS, 480-VOLTS, 3Ø, 4W NEMA 12 ENCLOSURE.
- MOTOR CONTROL CENTER NOTES:**
- 1) EACH MOTOR DISCONNECT SHALL BE CAPABLE OF BEING LOCKED IN THE OPEN POSITION.
 - 2) STARTERS SHALL BE FULL-VOLTAGE, NON-REVERSING WITH MOTOR CIRCUIT PROTECTOR, UNLESS NOTED OTHERWISE. SQUARE D MAGGARD SERIES OR EQUAL.
 - 3) MOTOR CONTROL CENTERS SHALL BE SQUARE D MODEL 6 OR EQUAL.
 - 4) ALL MOTOR CONTROL CENTERED RATED 42,000-AIC MINIMUM.
 - 5) ONLY THE STARTERS IN THE M.C.C. SHALL BE PROVIDED BY SECTION 16. OTHER STARTERS PROVIDED BY OTHER TRADES.

- MOTOR CONTROL CENTER "A" DETAIL NOTES:**
- ① 200A MAIN BREAKER SERVICE ENTRANCE RATED
 - ② METER
 - ③ TVSS 160KA
 - ④ PUMP #1 VFD WITH BYPASS, 15HP
 - ⑤ PUMP #2 VFD WITH BYPASS, 15HP
 - ⑥ PANEL "A"
 - ⑦ 15KVA TRANSFORMER
 - ⑧ EQUIPPED SPACE
 - ⑨ UNIT HEATER 20/3 BREAKER

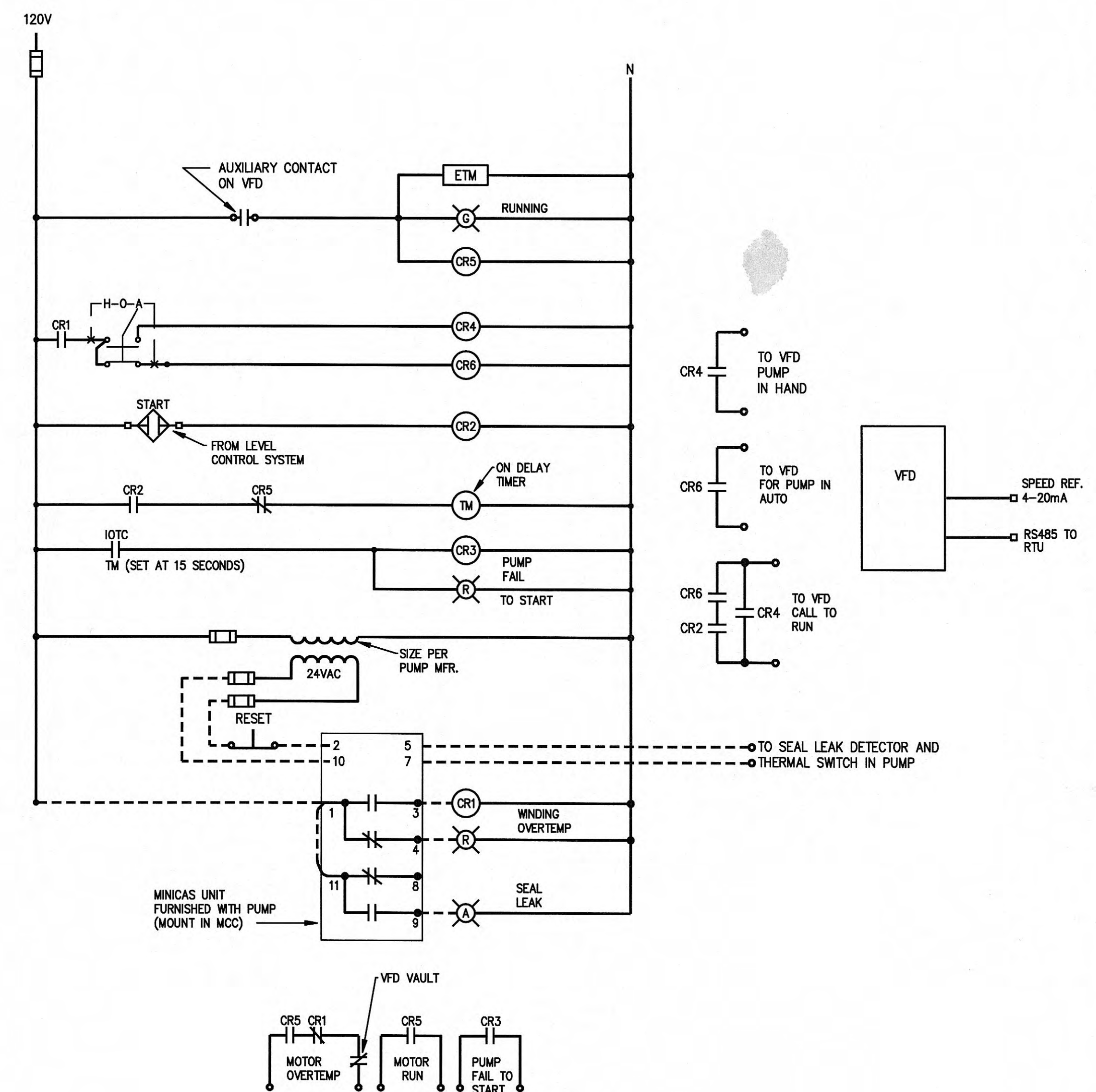
MOTOR CONTROL CENTER

SCALE: NONE



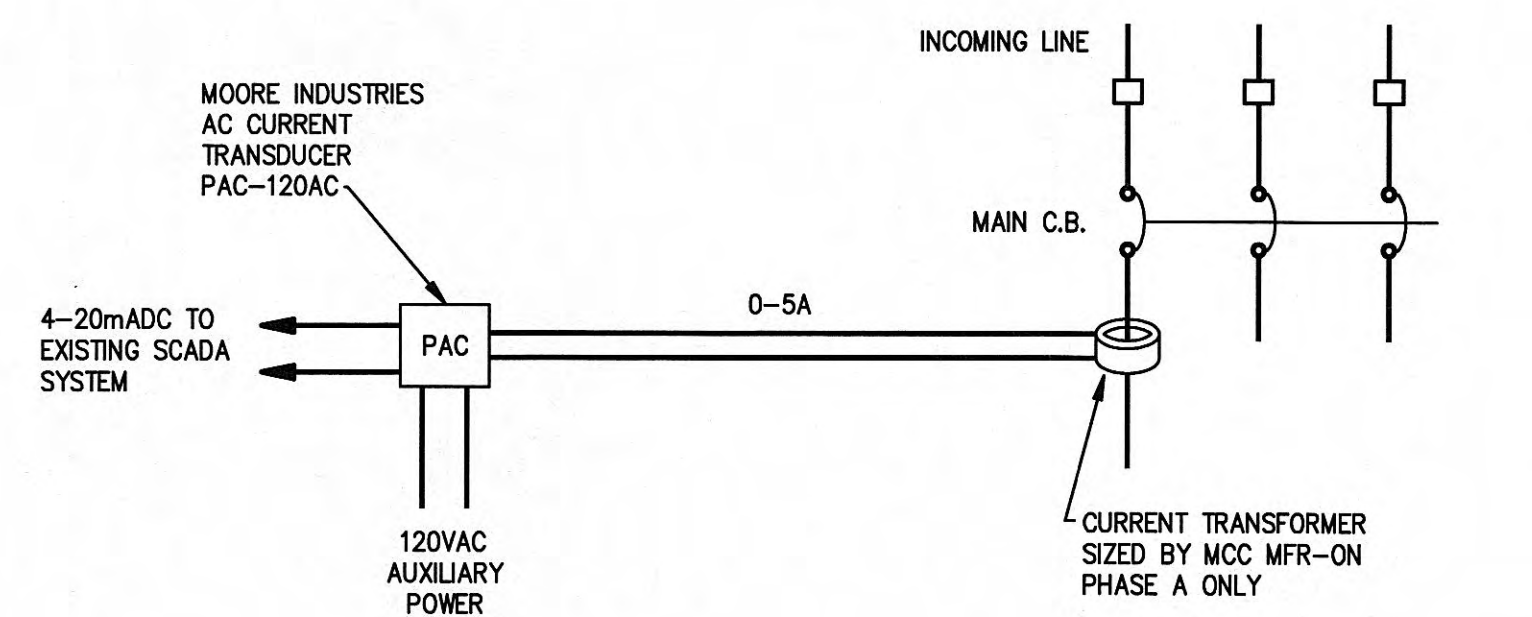
WASTEWATER PUMP #1 CONTROL DIAGRAM

SCALE: NONE



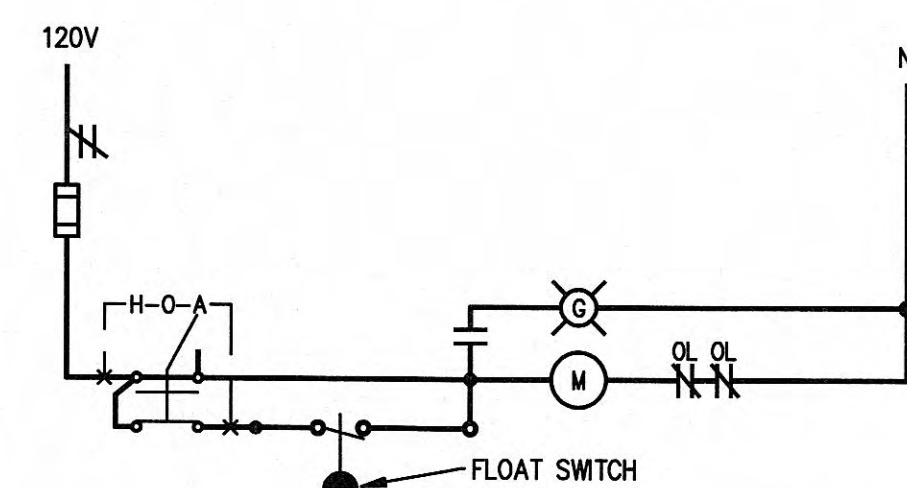
WASTEWATER PUMP #2 CONTROL DIAGRAM

SCALE: NONE



PHASE A CURRENT MONITORING IN MCC

SCALE: NONE

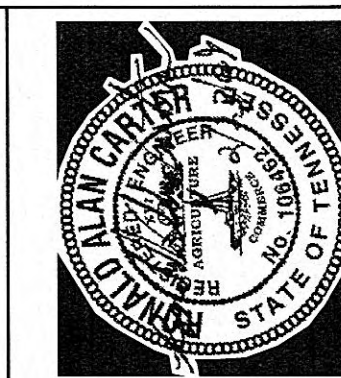


SUMP PUMP CONTROL DIAGRAM

SCALE: NONE

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5417 Ball Camp Pike
Knoxville, TN 37921
Phone: (865) 588-2431
Fax: (865) 588-2434
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GRW PROJECT NO. 3790-01
CLIENT PROJECT NO. 1000X

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CHRISTMAS PUMP STATION NO. A-2
CONTROL DIAGRAMS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

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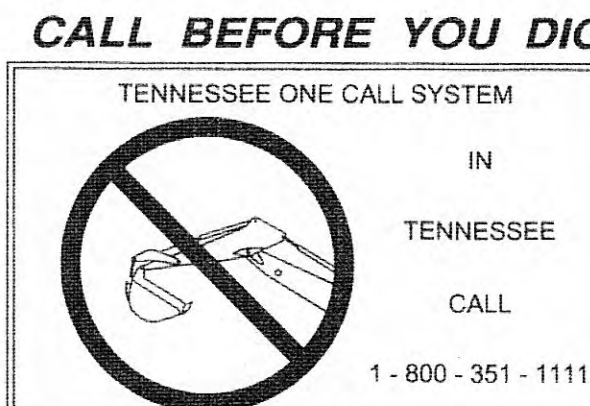
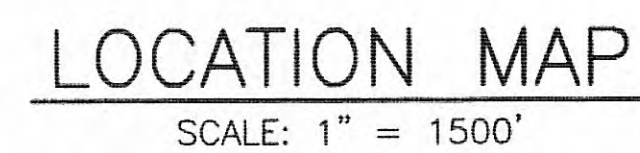
DATE: March 23, 2009
SCALE: NONE
SHEET NO. E-2



DATE:
March 23, 2009

SCALE:
1' = 20'

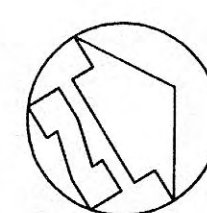
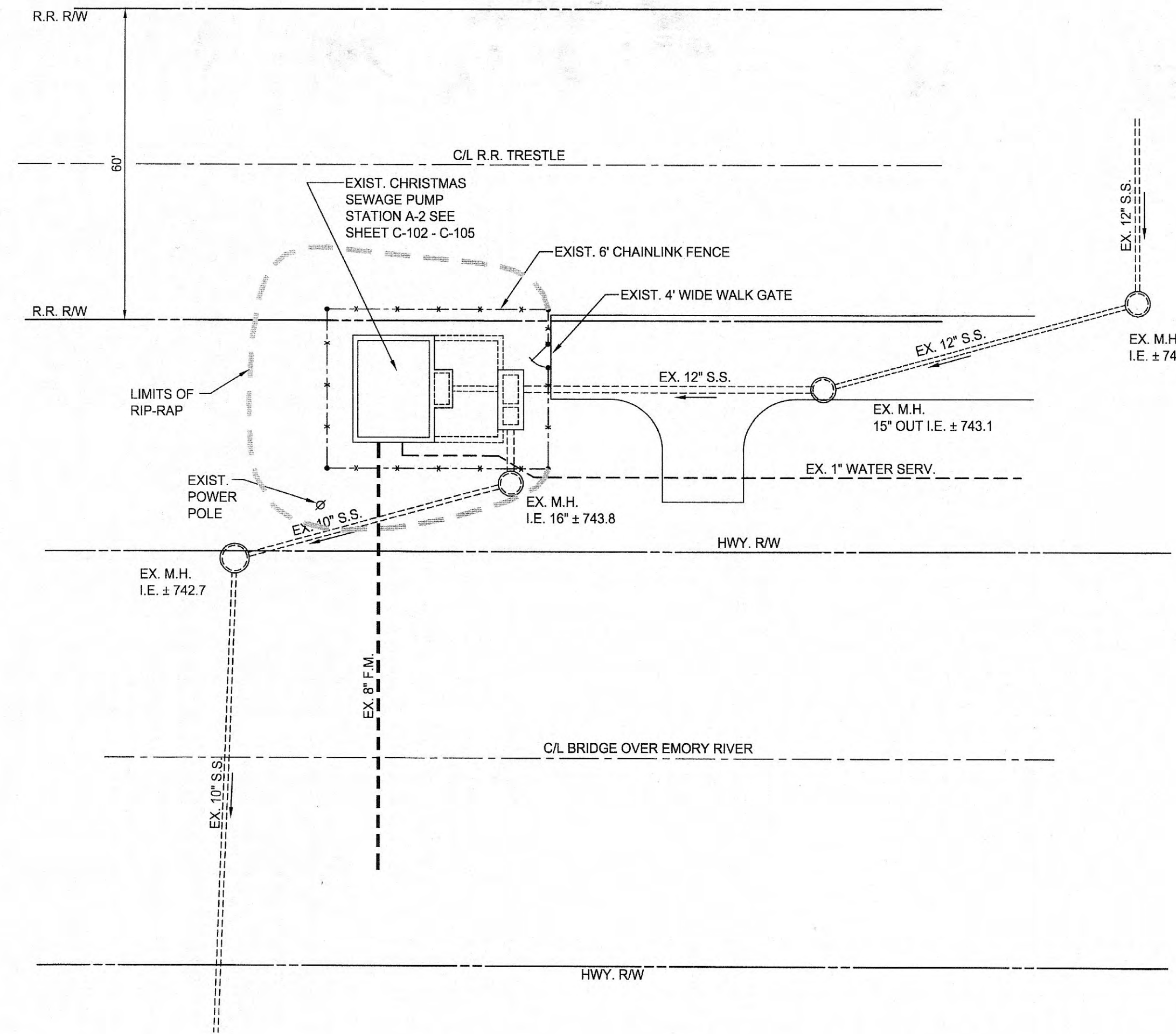
- 1) THE CONTRACTOR SHALL RESTORE ALL CULVERTS, FENCES, WALLS, SMALL ORNAMENTAL TREES, CULTIVATED SHRUBS, FLOWERS, SIGNS, LIGHTS AND POWER POLES, STREET MARKERS, MAIL BOXES, WATER AND GAS LINES, WATER AND GAS METERS AND BOXES INCLUDING SHUT-OFFS, AND LAWNS DISTURBED BY CONSTRUCTION OPERATIONS TO THEIR ORIGINAL CONDITIONS. THE COST OF THIS WORK SHALL BE MERGED IN THE UNIT BID AND CONTRACT PRICES FOR THE PROPOSED WORK.
- 2) WHERE IN EASEMENTS THE CONTRACTOR SHALL PROTECT AND RESTORE SAID PROPERTY TO CONDITION SIMILAR OR EQUAL TO THAT EXISTING AT THE COMMENCEMENT OF CONSTRUCTION, EXCEPT AS NOTED.
- 3) THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK IN EACH AREA. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES. BEFORE CONSTRUCTION.
- 4) CONTRACTOR SHALL NOT PLACE ANY VALVES OR OTHER ABOVE GRADE DEVICES IN ANY DITCH LINE ON STATE HIGHWAY RIGHT OF WAY.
- 5) SUFFICIENT PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION TO MINIMIZE THE RUN-OFF OF POLLUTING SUBSTANCES SUCH AS SILT, CLAY, FULES, OILS, BITUMENS, CALCIUM CHLORIDE, OR OTHER POLLUTING MATERIALS HARMFUL TO HUMANS, FISH OR OTHER LIFE, INTO THE SUPPLIES AND SURFACE WATERS OF THE STATE. POLLUTION SEDIMENT AND EROSION CONTROL MEASURES MUST BE IN ACCORDANCE WITH THE BMP'S OUTLINED BY THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION IN THE MARCH 2002 EROSION AND SEDIMENT CONTROL HANDBOOK AND MUST BE ADEQUATE TO ASSURE THAT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS ARE MET. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT THE LAWS AND REGULATIONS ARE MET AND IS RESPONSIBLE FOR ENSURING THAT CONSTRUCTION DOES NOT HARM THE WATERS OF TENNESSEE. THE PROTECTION OF THE SITE SHALL CONTINUE THROUGHOUT THE CONSTRUCTION PERIOD. SPECIAL PRECAUTIONS SHALL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT OPERATIONS WHICH PROMOTE EROSION. THE TEMPORARY POLLUTION CONTROL PROVISIONS SHALL BE COORDINATED WITH THE PERMANENT EROSION CONTROL MEASURES, TO ENSURE ECONOMICAL, EFFECTIVE AND CONTINUOUS EROSION CONTROL THROUGHOUT THE CONSTRUCTION AND POST-CONSTRUCTION PERIOD OF THE PROJECT. NATURAL COVER SHOULD BE MAINTAINED AS LONG AS POSSIBLE AND GRADED AREAS SHOULD BE STABILIZED AS SOON AS POSSIBLE. CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND IN IT IDENTIFYING LOCATIONS FOR BMP'S, AND TYPES OF BMP'S INSTALLED. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AND INSPECTION OF BMP'S. CONTRACTOR SHALL EXECUTE THE NOTICE OF INTENT, IN CONJUNCTION WITH THE OWNER PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 6) THE CONTRACTOR SHALL OBTAIN ALL PERMITS FROM THE STATE AND/OR COUNTY HIGHWAY DEPARTMENT TO CROSS ALL HIGHWAYS AND STREETS.
- 7) IF ANY EXISTING STORM SEWERS ARE SUBSTANTIALLY DAMAGED AS DETERMINED BY THE A/E AND OR OWNER, THE REPAIR SHALL BE MADE WITH R.C.P. PIPE FROM STRUCTURE-TO-STRUCTURE. PIPE SIZE SHALL BE EQUAL TO EXISTING.
- 8) CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTING ALL LIVE SERVICES TO THE NEW SEWER.



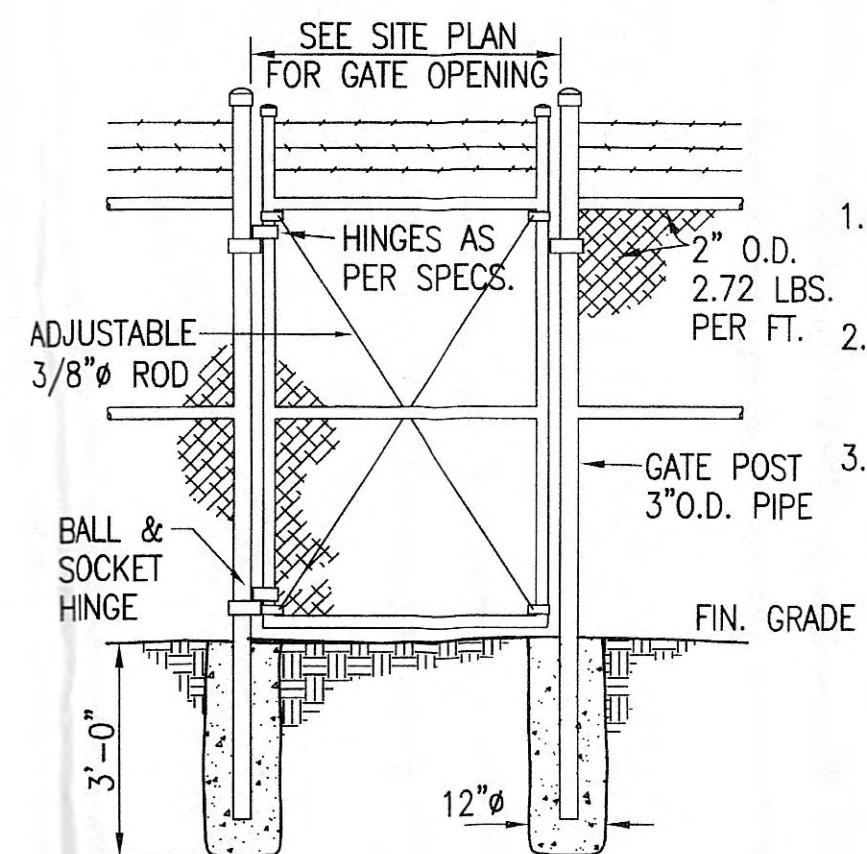
DATE:
APRIL, 2009
SCALE:
AS NOTED
SHEET NO.

G-10

1. INSTALL RIP-RAP TO STABILIZE EMBANKMENT IN AREA SHOWN.
2. REMOVE EXISTING CHAINLINK FENCE AND RETURN MATERIALS TO OWNER FOR REUSE. INSTALL NEW CHAINLINK FENCE AND WALK GATE. (SEE DETAIL ON THIS SHEET).
3. RESTORE GRAVEL LAYER WITHIN FENCED AREA OF P.S. TO APPROX. 4" THICKNESS.

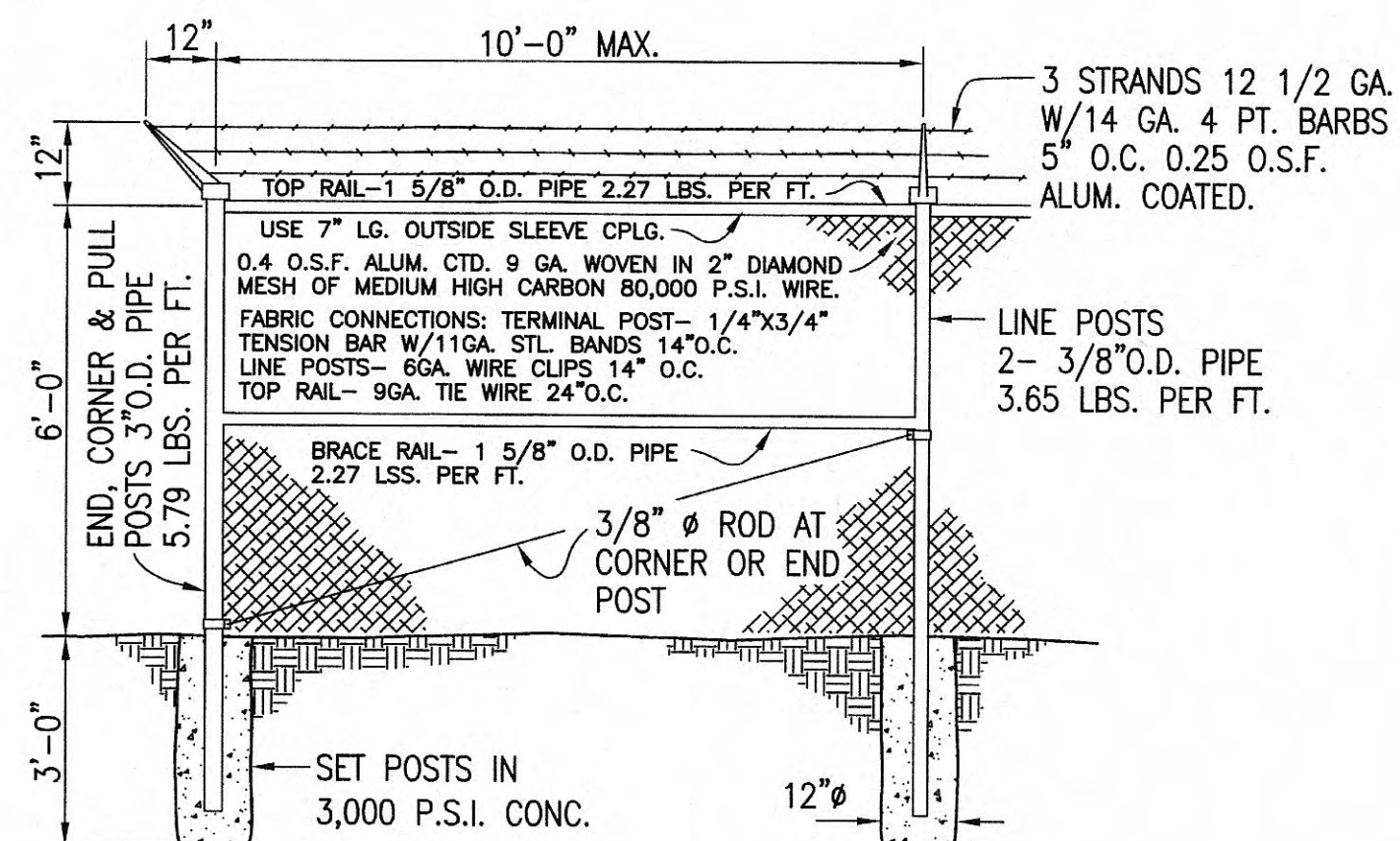


EXISTING CHRISTMAS PUMP STATION (P.S. A-2) - SITE PLAN
SCALE: 1" = 20' - 0"



PEDESTRIAN GATE DETAIL
NOT TO SCALE

1. TENSION BARS & HOOK BOLTS ON BOTH SIDES & AT END OF FABRIC
2. GATE LATCHING MECHANISM - AS PER SPECIFICATIONS
3. ALL POSTS & OTHER APPURTENANCES SHALL BE HOTDIP GALVANIZED W/MIN. 2.0 O.S.F. ZINC. ALL FITTINGS SHALL BE MALLABLE CAST IRON OR PRESSED STEEL.



FENCE DETAIL
NOT TO SCALE

ALL POSTS & OTHER APPURTENANCES SHALL BE HOT DIP GALVANIZED W/MIN. 2.0 O.S.F. ZINC. ALL FITTINGS SHALL BE MALLABLE CAST IRON OR PRESSED STEEL.



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**CHRISTMAS PUMP STATION (P.S. NO. A2)
SITE PLAN
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE**

DESIGNED	RG
BY	RG
DRAWN	SG
DATE	DATE
REVIEWED	RG
DATE	DATE
APPROVED	RG
DATE	DATE

REVISIONS	DESCRIPTION	DATE	BY
NO.			

DATE: APRIL, 2009

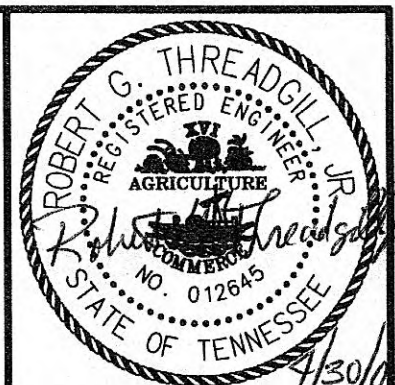
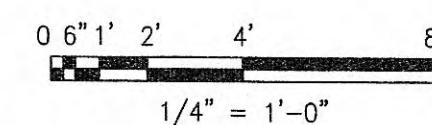
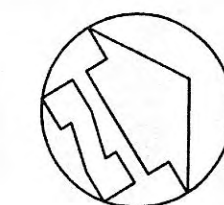
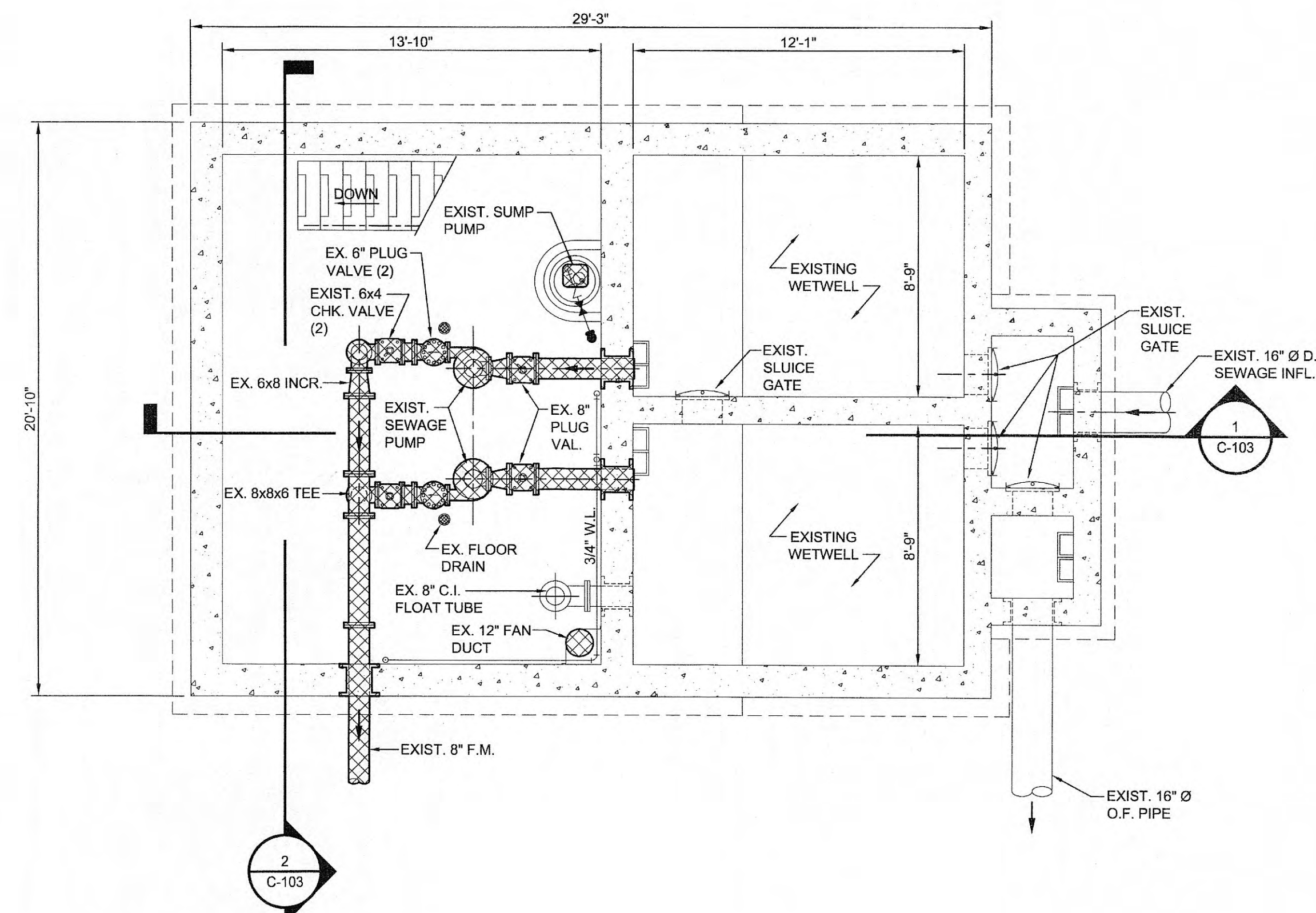
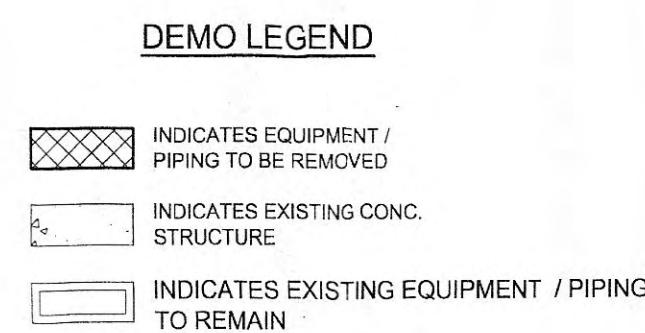
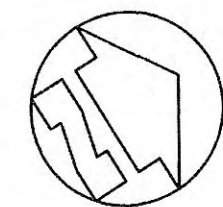
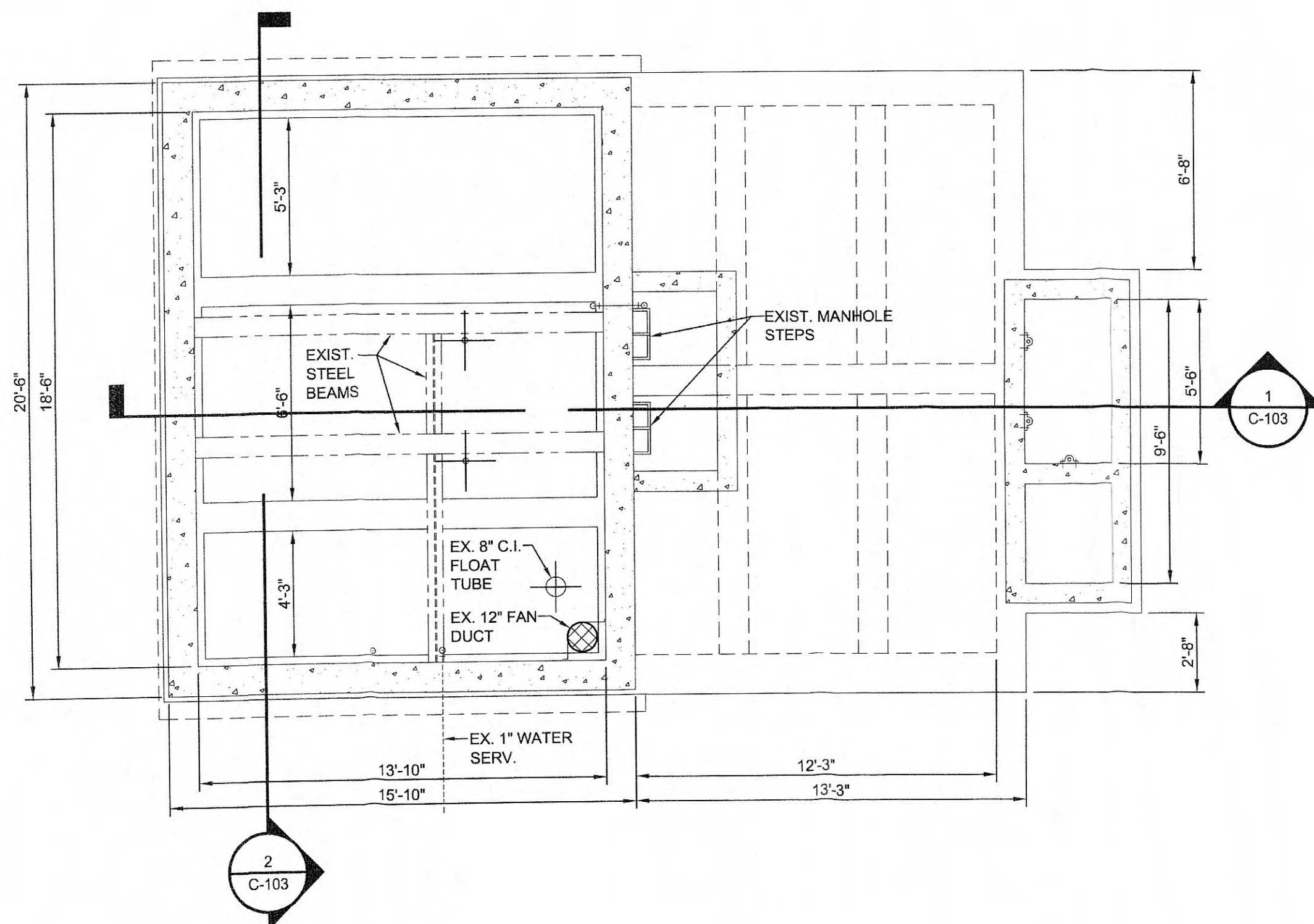
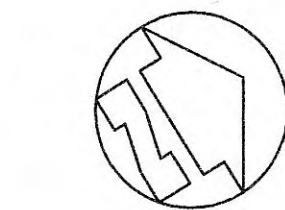
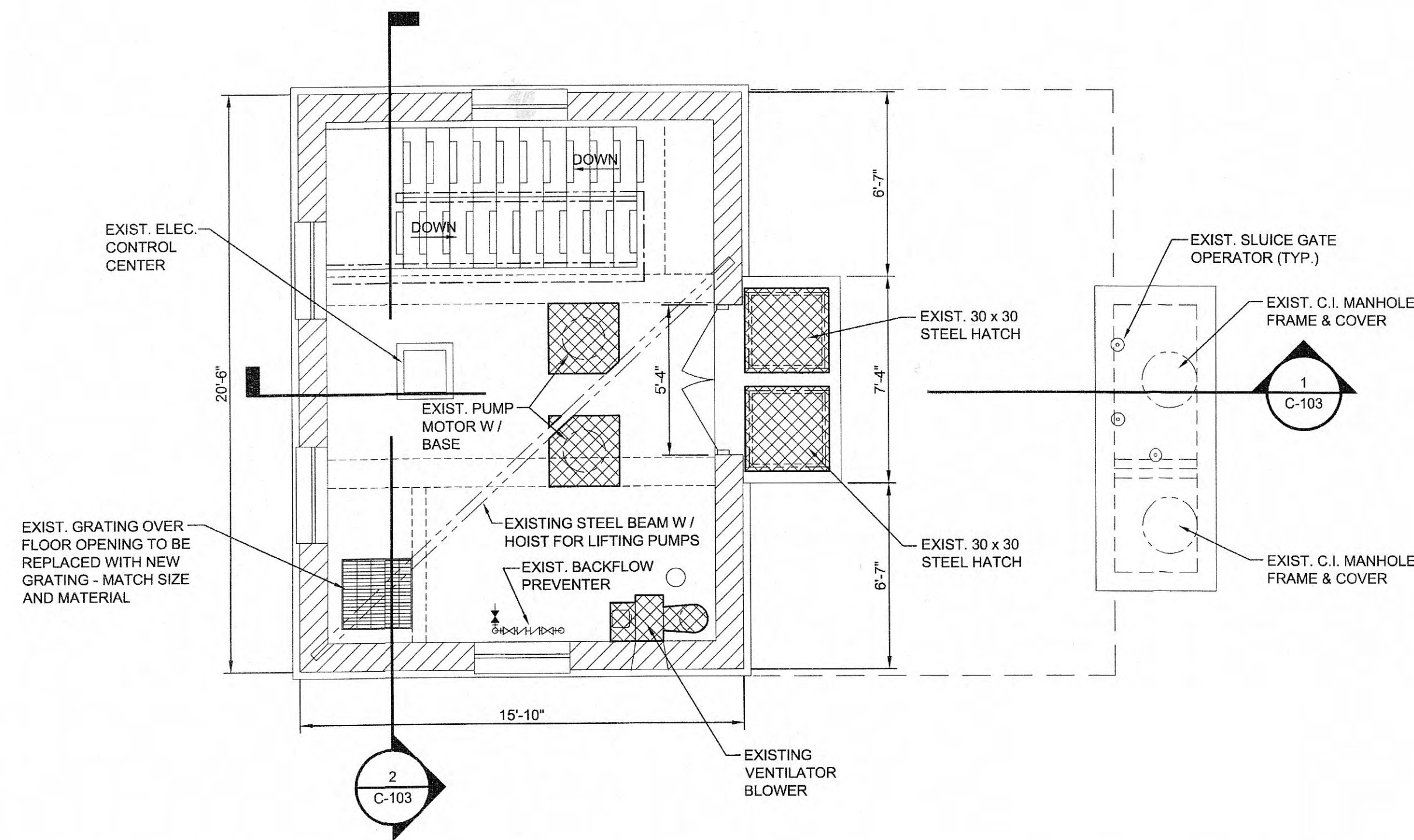
SCALE: AS NOTED

SHEET NO.

C-101

PRINTED: 4/30/2009 @ 10:41AM

FILE NAME: \\Harriman UB - 3795-01 (2008 DDDG)\\CADD\\CADD Christmas PS A-21 Working Drawings\\C-102 PS Demo.dwg



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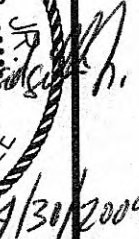
GRW
ENGINEERS - ARCHITECTS - PLANNERS
www.grwinc.com

CHRISTMAS PUMP STATION NO. A-2
DEMOLITION - PLAN VIEWS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DESIGNED:	RG	RG	RG	RG
DRAWN:	SG	SG	SG	SG
REVIEWED:	RG	RG	RG	RG
APPROVED:	RG	RG	RG	RG
DATE:				
NO.				
DESCRIPTION				
THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED				

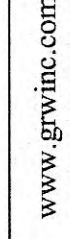
DATE: APRIL, 2009
SCALE: AS NOTED
SHEET NO.

C-102



CLIENT PROJECT NO. XXXX

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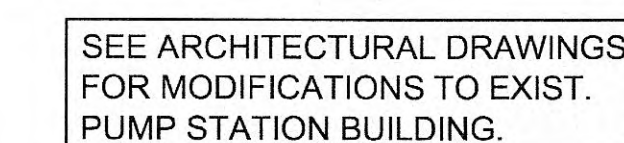


ENGINEERS - ARCHITECTS - PLANNERS

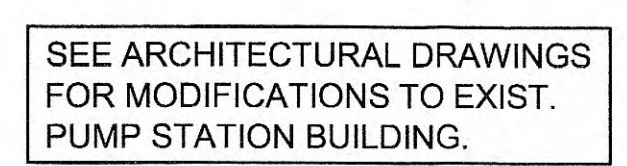
REVISIONS						DESIGNED:
NO.	DESCRIPTION	DATE	BY		RGT	
				DRAWN:		
					SG	
				PREPARED		
					RGT	
					APPROVED:	
					RGT	

SCALE CHECK: _____ THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

DATE:	APRIL, 2009
SCALE:	AS NOTED
SHEET NO.	C-103



EXISTING EAST SIDE ELEVATION
SCALE: 1/4" = 1'-0"

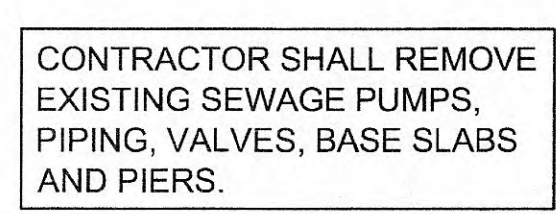


CONTRACTOR SHALL REMOVE EXISTING PUMP MOTORS AND STEEL BASE PLATES, PATCH, CLEAN AND SEAL FLOOR AFTER REMOVAL OF MOTORS AND PLATES.

1
C-103

SECTION - DEMO

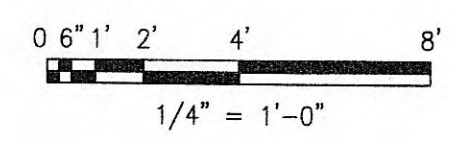
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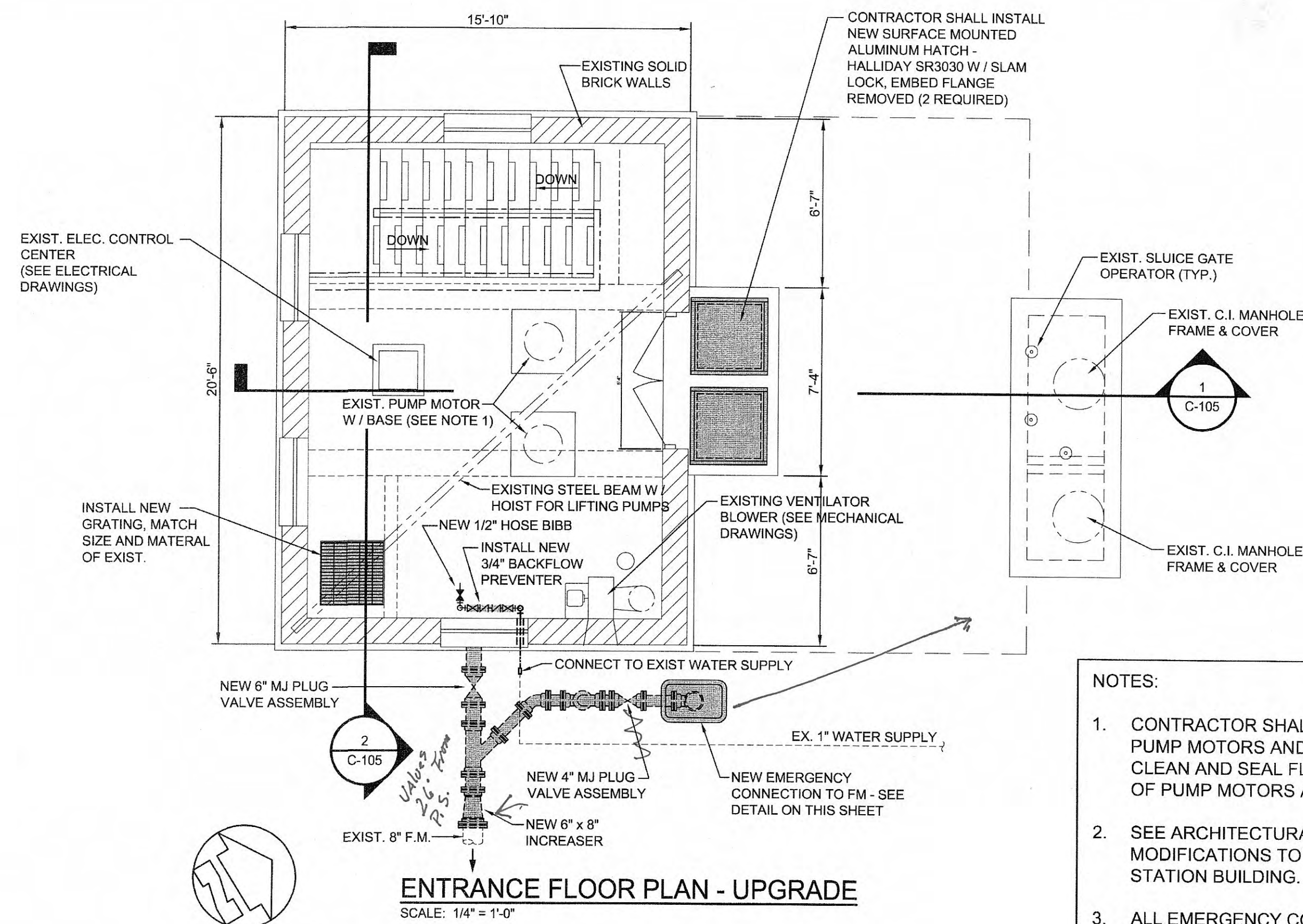


2 SECTION - DEMO
C-103 SCALE: 1/4" = 1'-0"

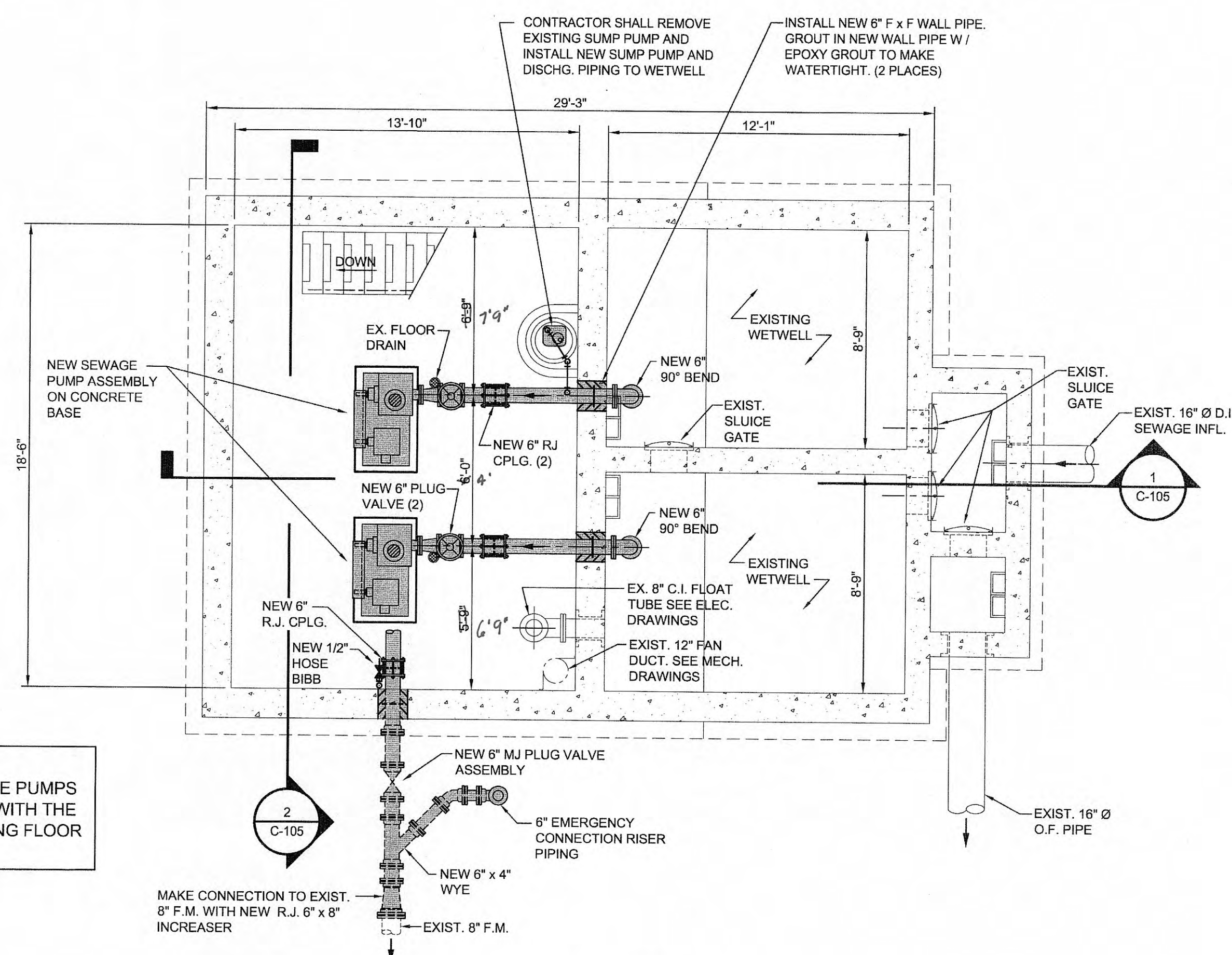
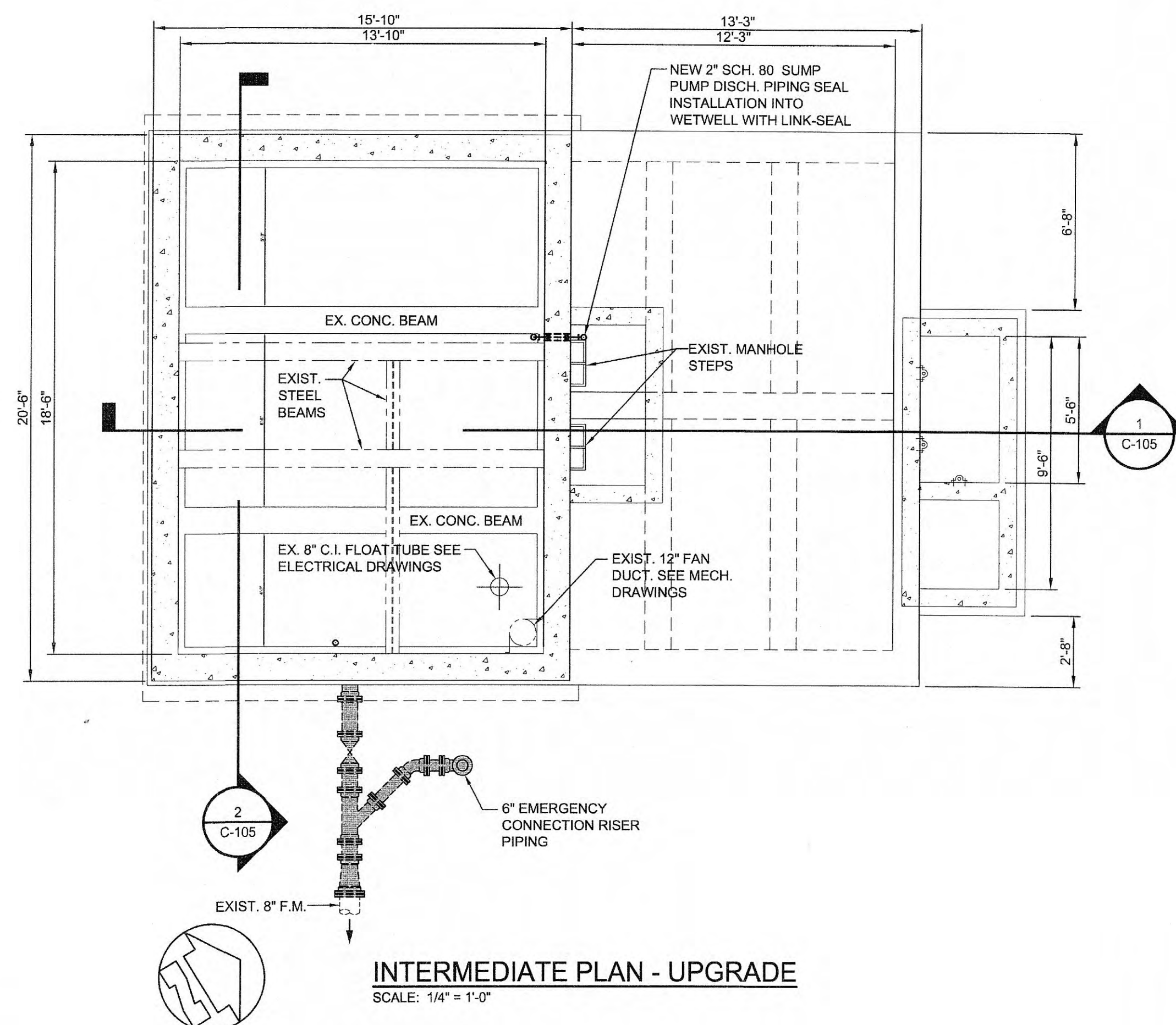
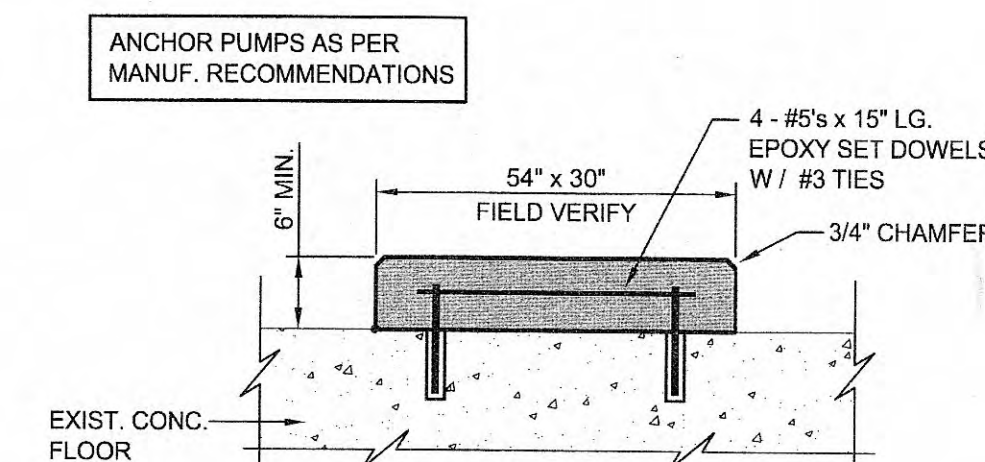
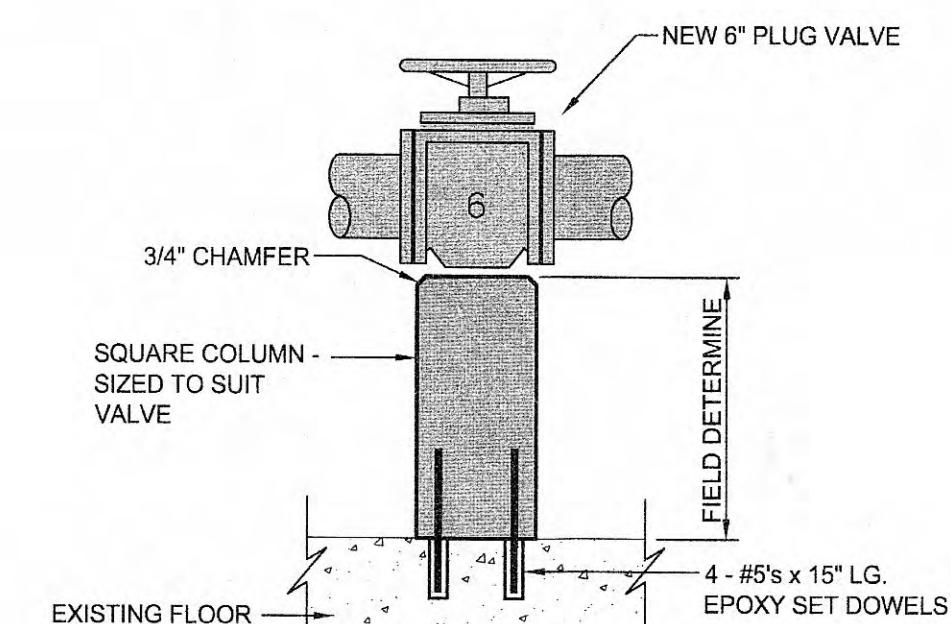
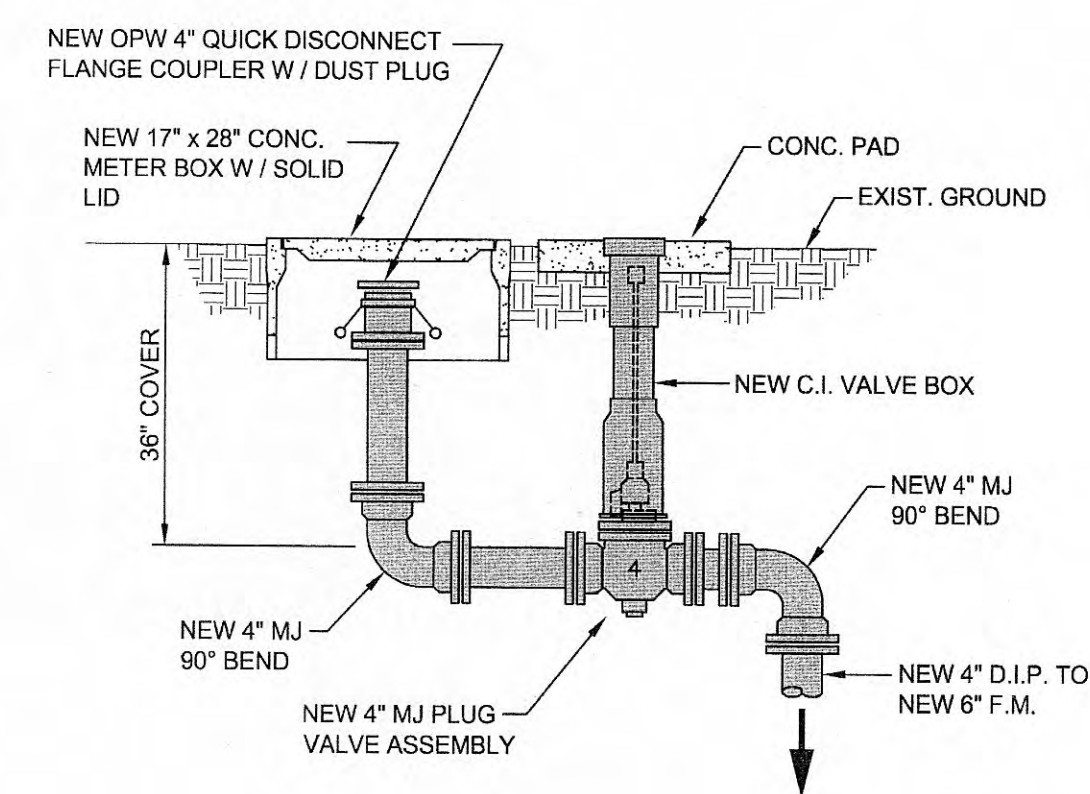
DEMO LEGEND

- | | |
|---|---|
|  | INDICATES EQUIPMENT / PIPING TO BE REMOVED |
|  | INDICATES EXISTING CONC. STRUCTURE |
|  | INDICATES EXISTING EQUIPMENT / PIPING TO REMAIN |





- NOTES:
1. CONTRACTOR SHALL REMOVE EXISTING PUMP MOTORS AND BASE PLATES - PATCH, CLEAN AND SEAL FLOORS AFTER REMOVAL OF PUMP MOTORS AND BASE PLATES.
 2. SEE ARCHITECTURAL DRAWINGS FOR MODIFICATIONS TO EXISTING PUMP STATION BUILDING.
 3. ALL EMERGENCY CONNECTION PIPING AND CONNECTION TO EXISTING TO EXISTING F.M. SHALL BE RESTRAINED JOINT.



NOTE:
FIELD LOCATE NEW SEWAGE PUMPS
SO AS TO NOT INTERFERE WITH THE
OPERATION OF THE EXISTING FLOOR
DRAINS.

UPGRADE LEGEND

- INDICATES NEW EQUIPMENT / PIPING
- INDICATES EXISTING CONC. STRUCTURE
- INDICATES EXISTING EQUIPMENT / PIPING TO REMAIN

GRW PROJECT NO. 3796-01

PROJECT PROJECT NO. VVVV

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ENGINEERS - ARCHITECTS - PLANNERS

1000

CHRISTMAS PUMP STATION NO. A-2
UPGRADE - PLAN VIEWS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DESIGNED:	RGT
DRAWN:	SG
VIEWED:	RGT
APPROVED:	RGT

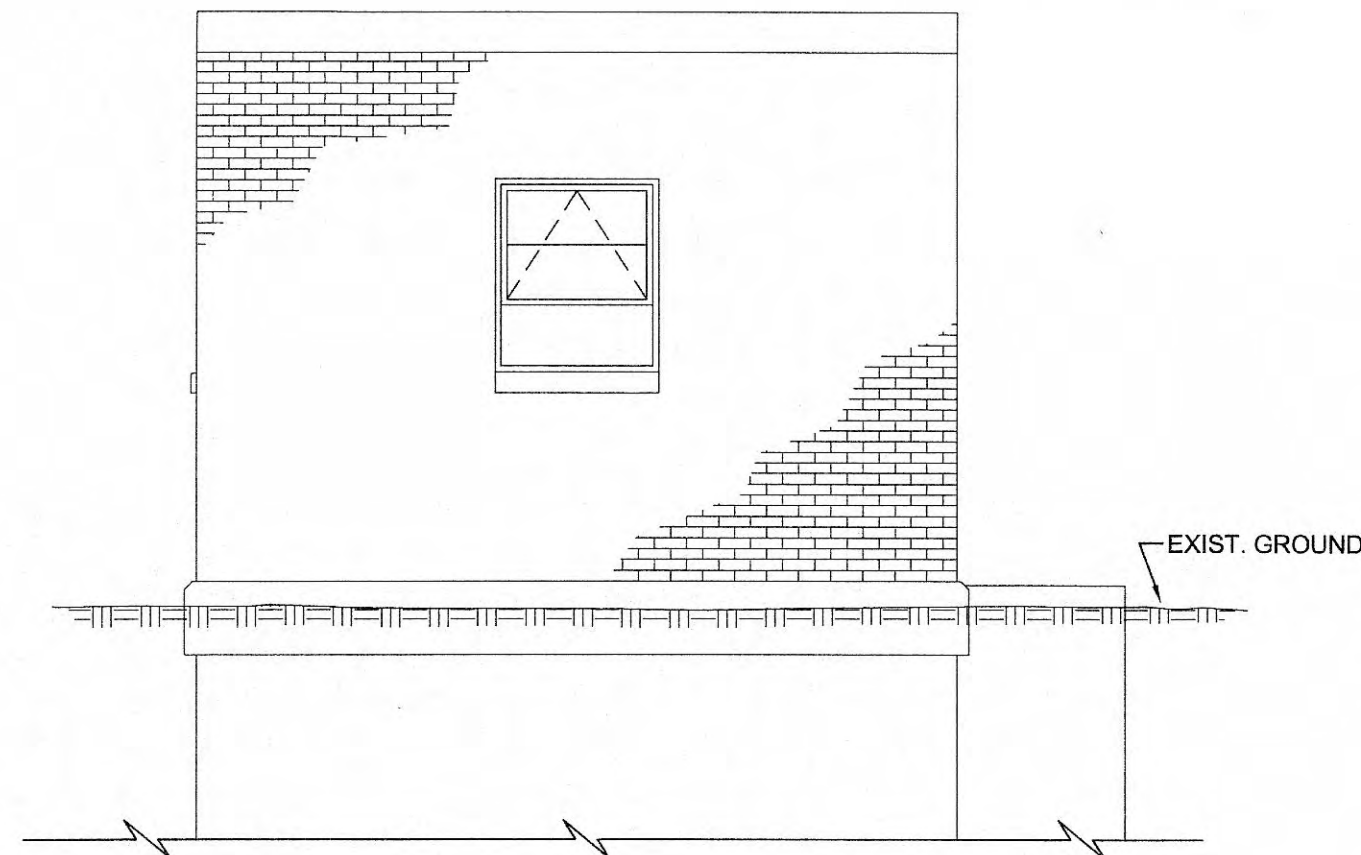
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DATE:
APRIL, 2009

SCALE:
AS NOTED

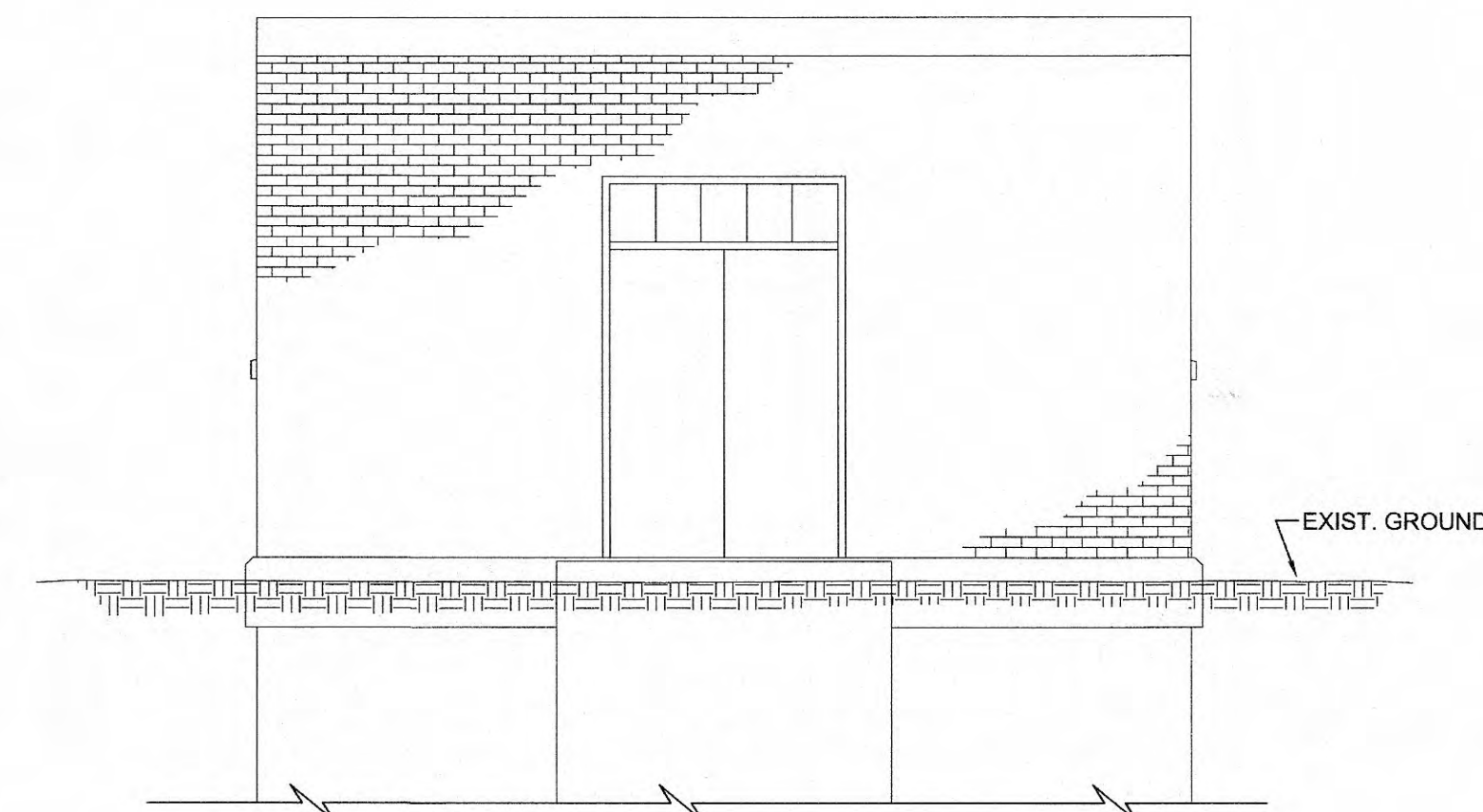
SHEET NO.

C-104

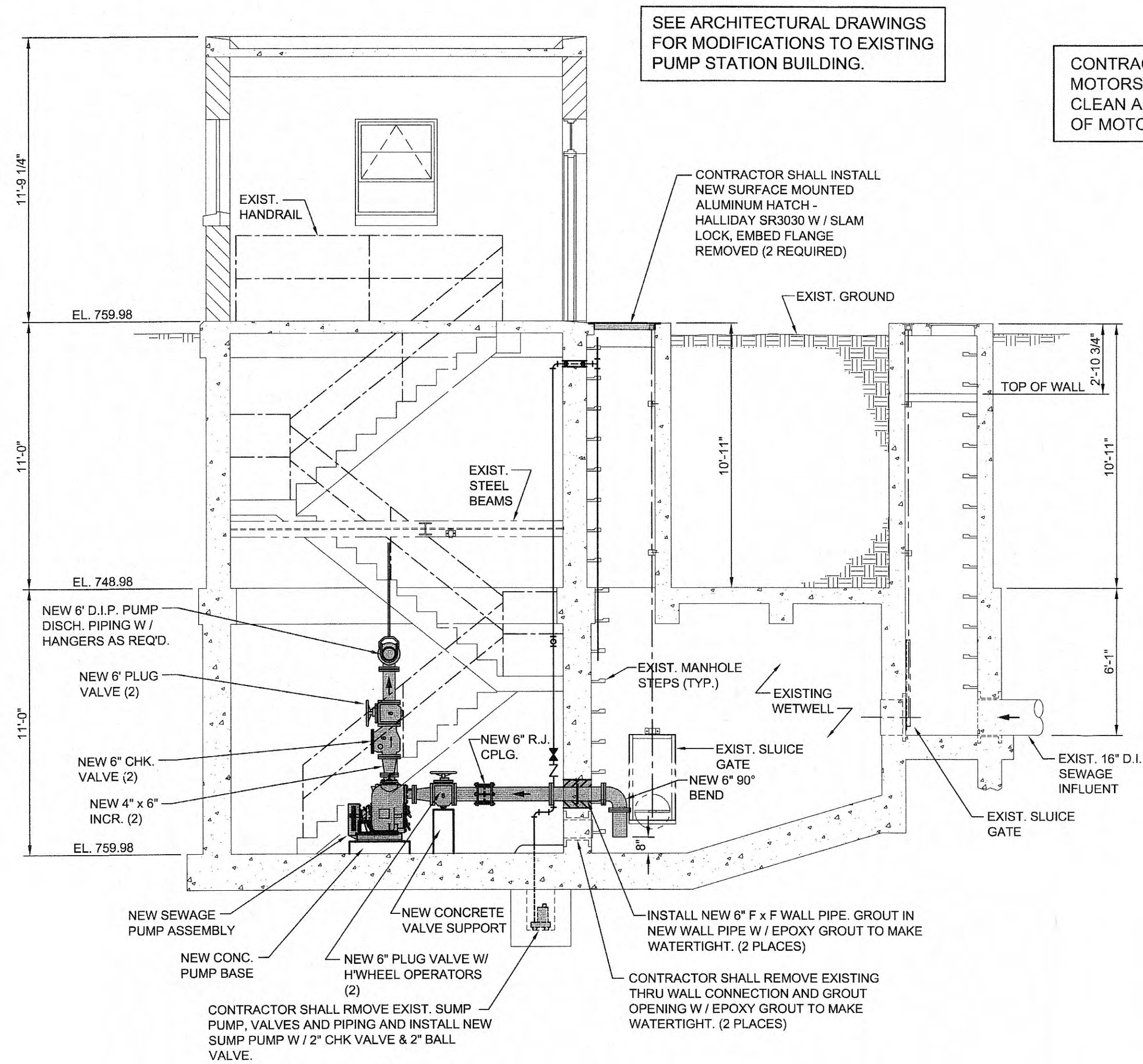


EXISTING EAST SIDE ELEVATION
SCALE: 1/4" = 1'-0"

SEE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR MODIFICATIONS TO EXISTING PUMP STATION BUILDING.



EXISTING FRONT ELEVATION
SCALE: 1/4" = 1'-0"



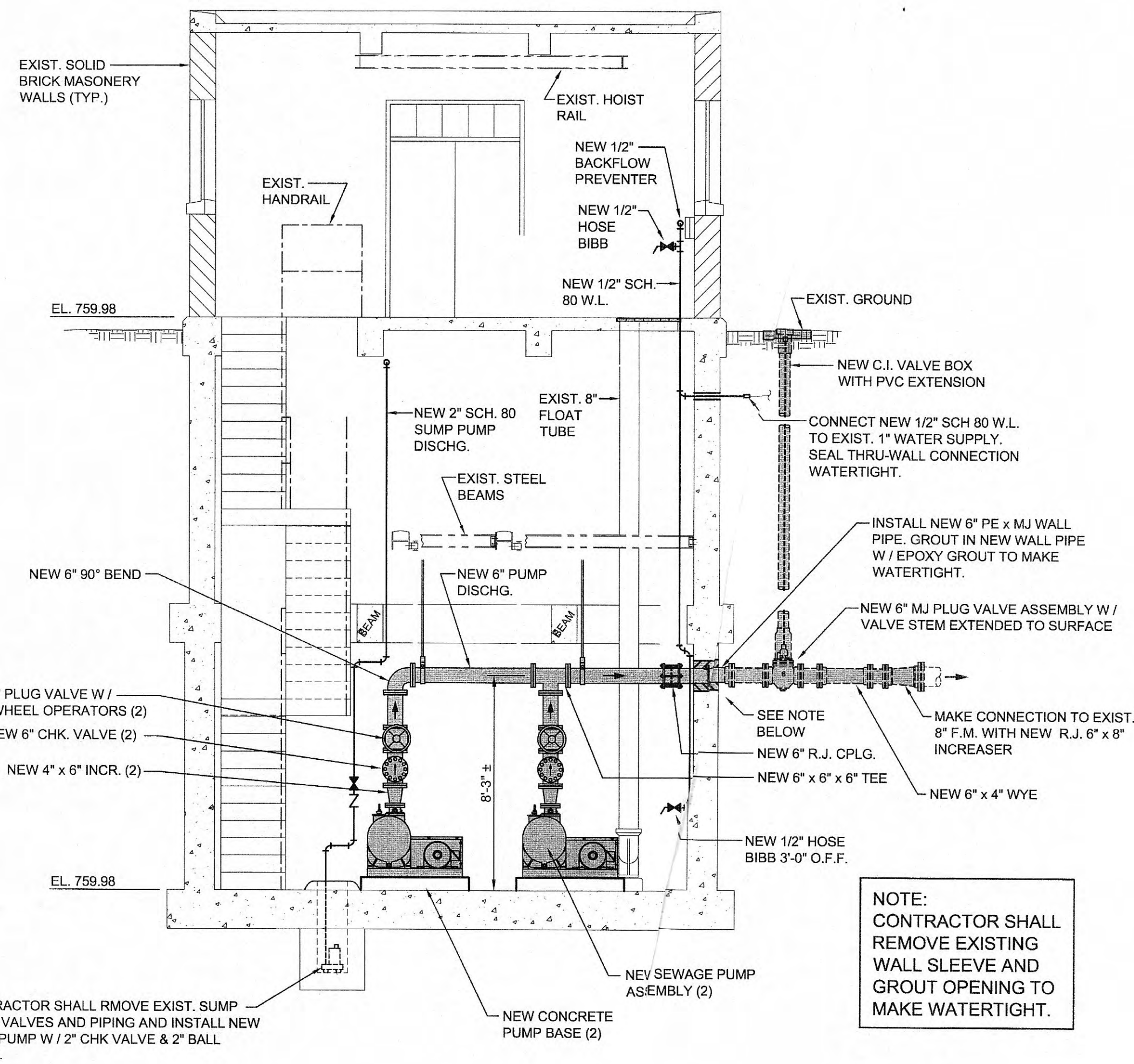
SECTION - UPGRADE
C-103 SCALE: 1/4" = 1'-0"

CONTRACTOR SHALL REMOVE EXIST. PUMP MOTORS AND STEEL BASE PLATES, PATCH, CLEAN AND SEAL FLOOR AFTER REMOVAL OF MOTORS AND PLATES.

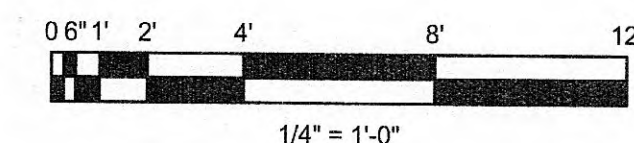
CONTRACTOR SHALL REMOVE EXISTING SEWAGE PUMPS, PIPING, VALVES, BASE SLABS AND PIERS.

UPGRADE LEGEND

- INDICATES NEW EQUIPMENT / PIPING
- INDICATES EXISTING CONC. STRUCTURE
- INDICATES EXISTING EQUIPMENT / PIPING TO REMAIN



SECTION - UPGRADE
C-103 SCALE: 1/4" = 1'-0"



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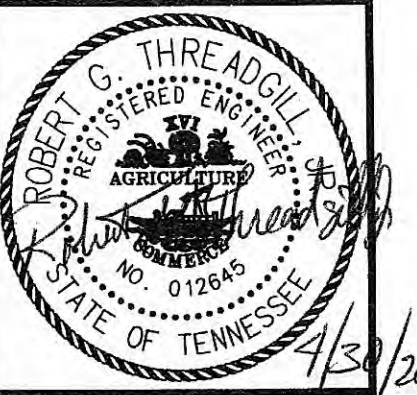
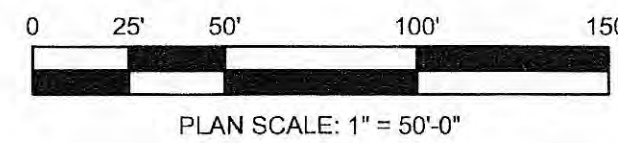
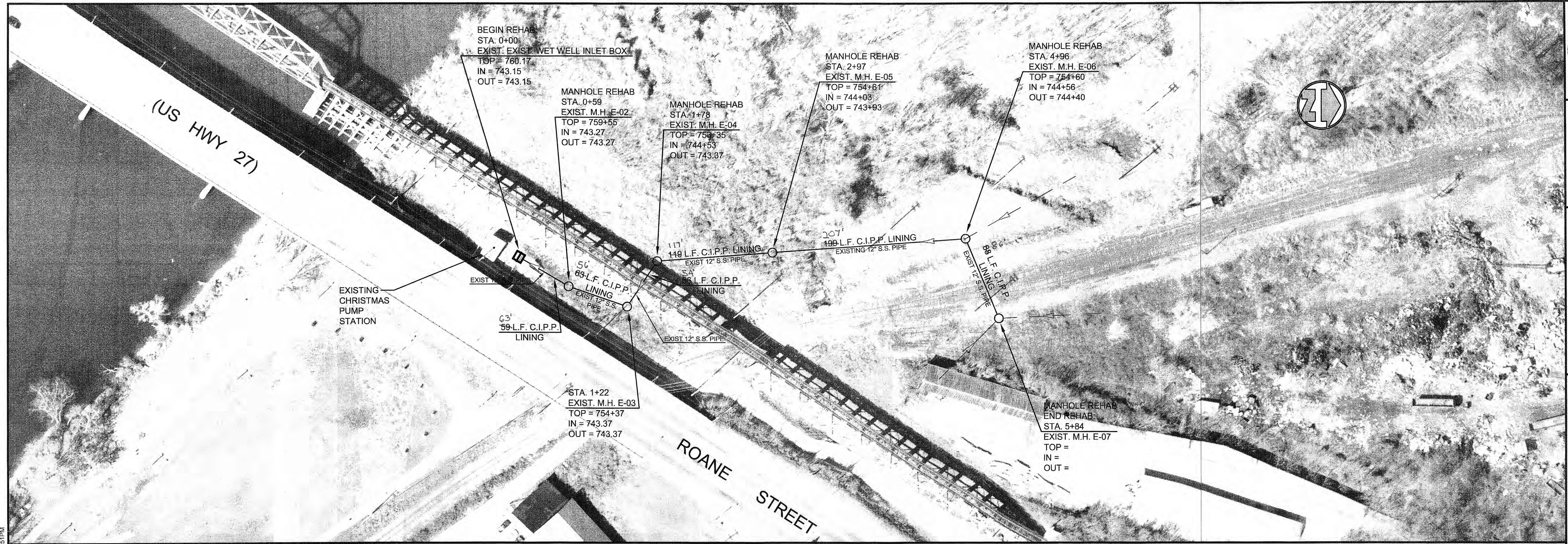
**CHRISTMAS PUMP STATION NO. A2
UPGRADE - SECTIONS
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE**

REVISIONS	DATE	BY	SG	RT	RT
NO.					
DESCRIPTION					

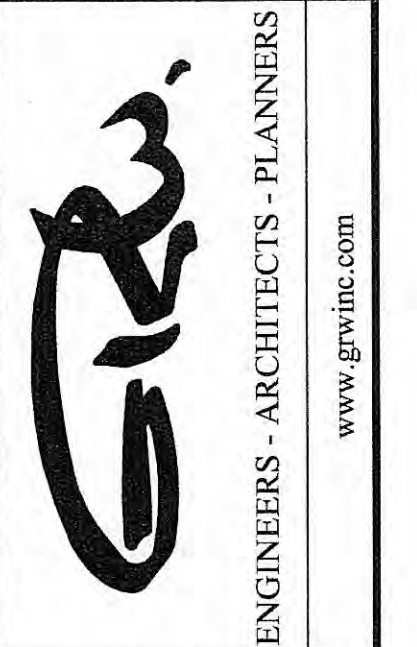
DATE: APRIL, 2009
SCALE: AS NOTED
SHEET NO.

PRINTED: 4/9/2009 @ 4:51 PM

FILE NAME: I:\Harriman UB - 3796-01 (2008 CDBG)\CADD\CADD Christmas PS A-21 Working Drawings\SRenabChristmas.dwg



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**CHRISTMAS PUMP STATION NO. A-2
SANITARY SEWER REHABILITATION**
PUMP STATION REHABILITATION
CITY OF HARRIMAN, TENNESSEE

DESIGNED		RG	
BY	DATE	BY	DATE
REVISIONS		REVIEWED	
NO	DESCRIPTION	NO	REVIEWED
DATE: MARCH, 2009		APPROVED: RGT	
SCALE: AS NOTED		THIS MARK SHOULD MEASURE EXACTLY WHEN PLOTTED	
SHEET NO.		C-106	