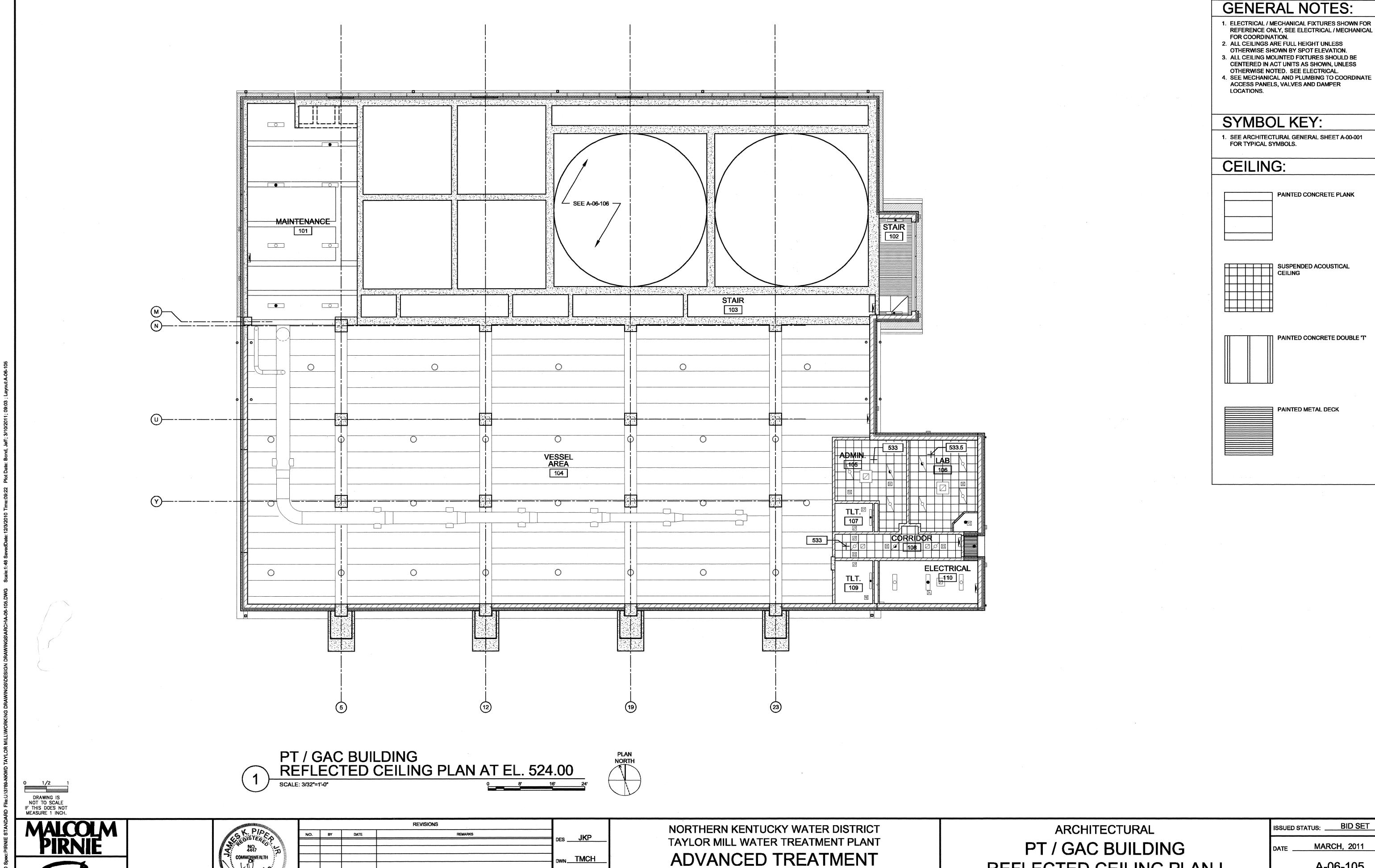


CAD REF. NO. _____A-06-104

SCALE: 3/32" = 1'-0"



CKD SL/JKP

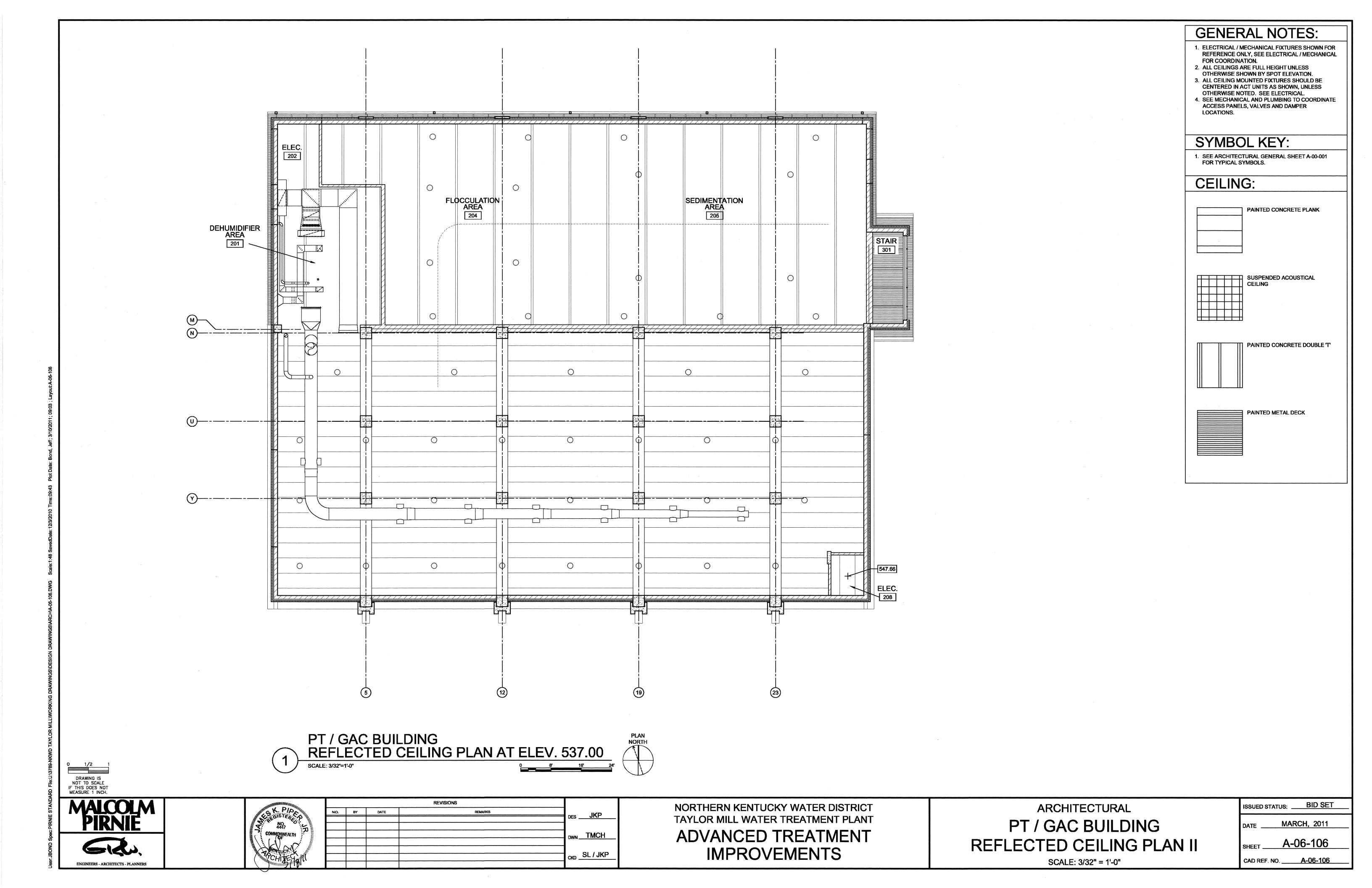
IMPROVEMENTS

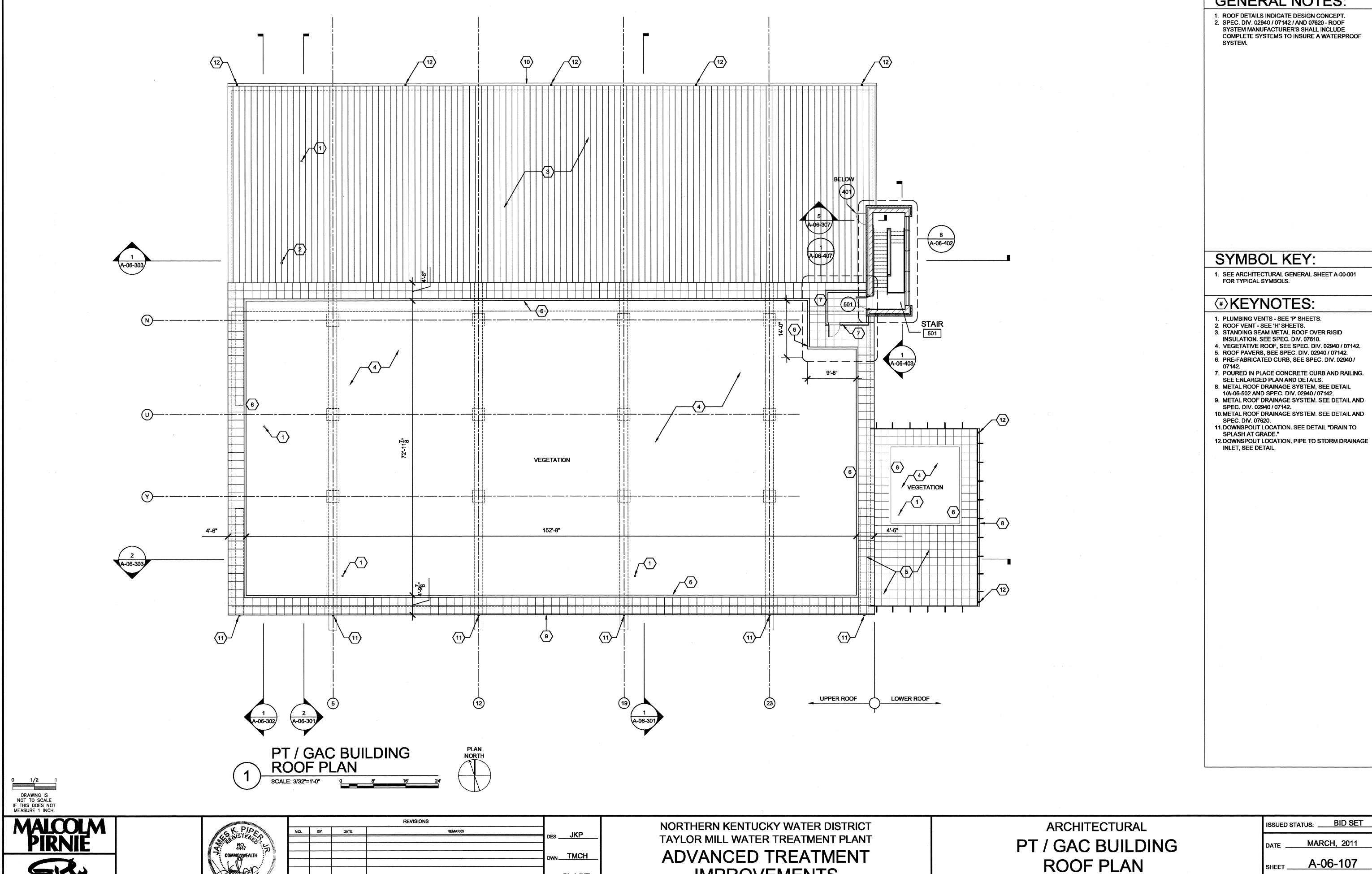
REFLECTED CEILING PLAN I

SCALE: 3/32" = 1'-0"

A-06-105

CAD REF. NO. <u>A-06-105</u>





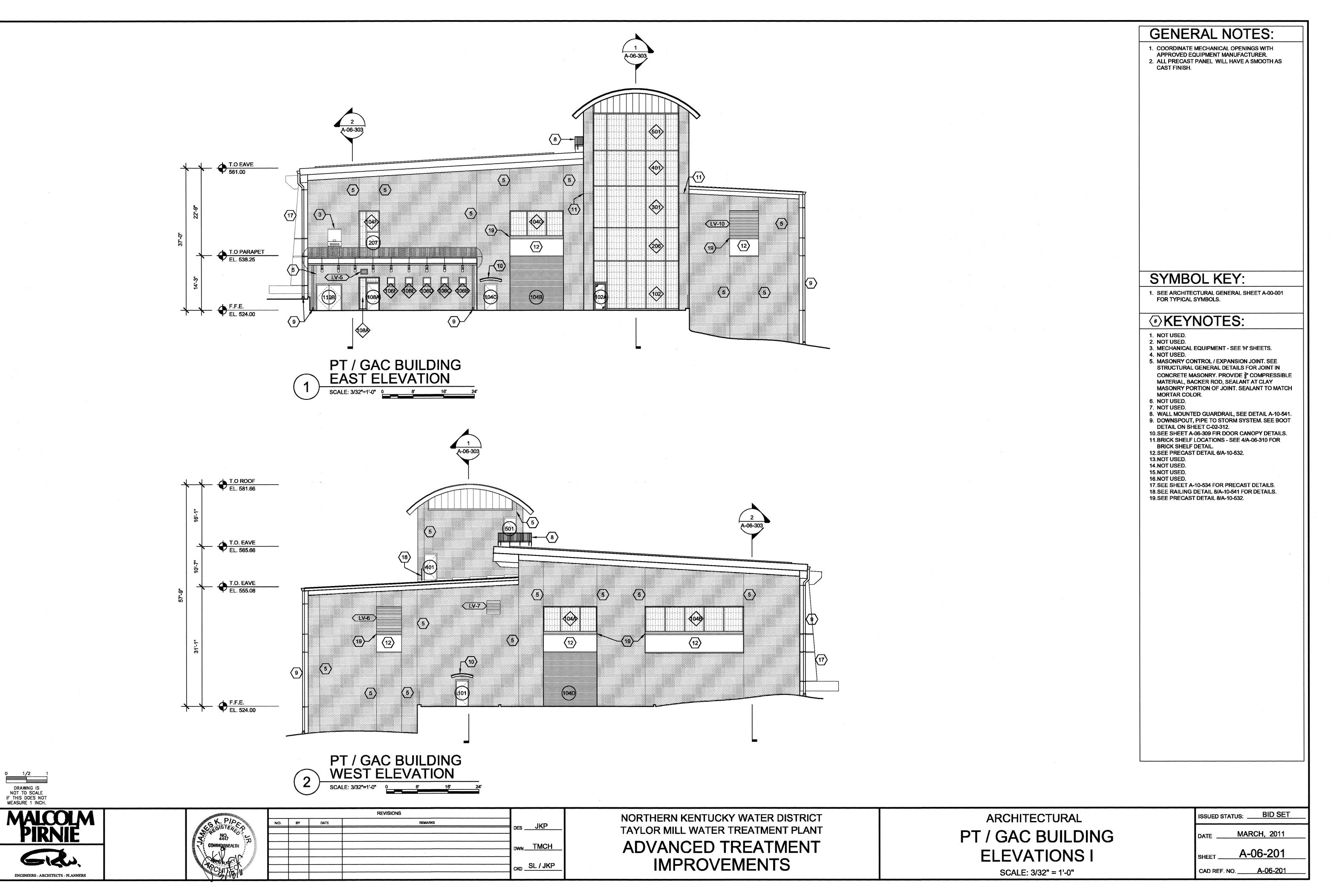
IMPROVEMENTS

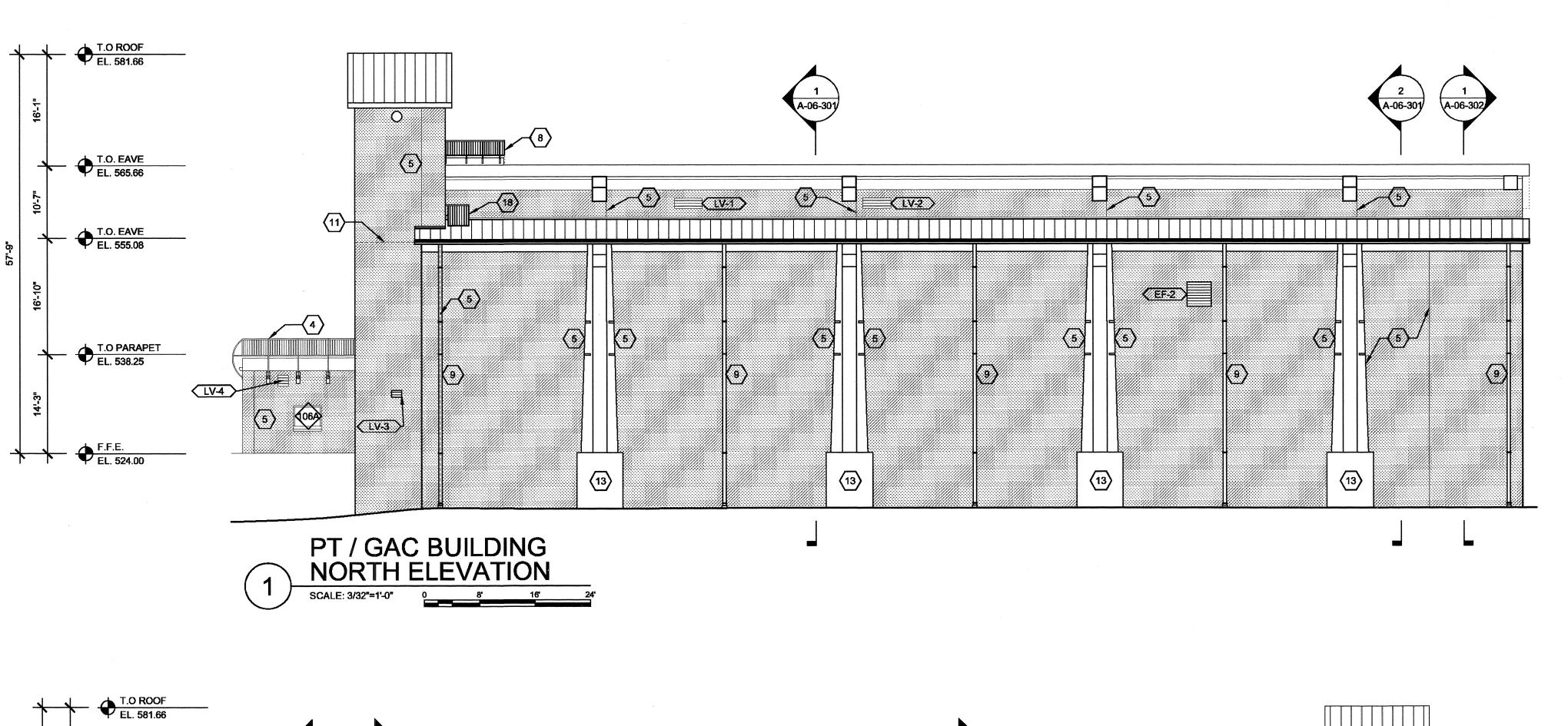
SL/JKP

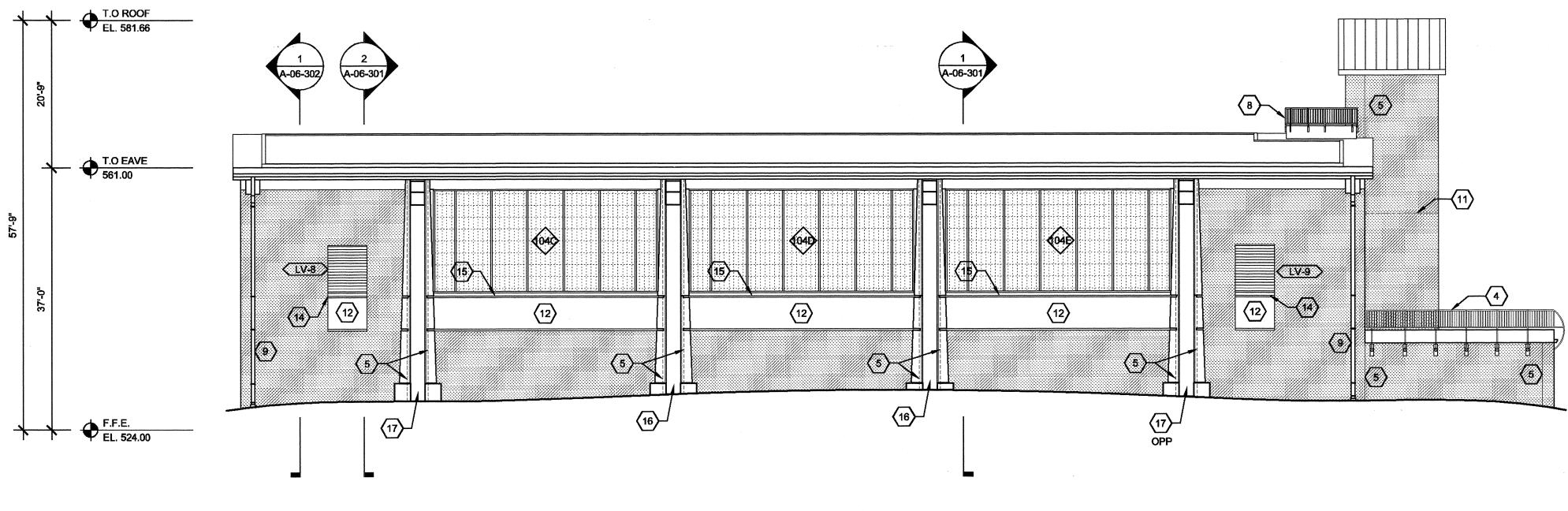
GENERAL NOTES:

CAD REF. NO. <u>A-06-107</u>

SCALE: 3/32" = 1'-0"

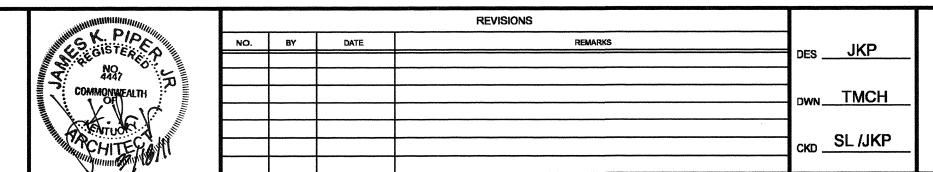






PT / GAC BUILDING SOUTH ELEVATION

DRAWING IS
NOT TO SCALE
IF THIS DOES NOT
MEASURE 1 INCH. MALCOLM PIRNIE



NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT **IMPROVEMENTS**

ARCHITECTURAL PT / GAC BUILDING **ELEVATIONS II** SCALE: 3/32" = 1'-0"

ISSUED STATUS: BID SET

A-06-202

GENERAL NOTES:

1. COORDINATE MECHANICAL OPENINGS WITH APPROVED EQUIPMENT MANUFACTURER. 2. ALL PRECAST PANELS WILL HAVE A SMOOTH AS

SYMBOL KEY:

***KEYNOTES:**

2. NOT USED.

NOT USED. 7. NOT USED.

10.NOT USED.

MORTAR COLOR.

DETAIL ON SHEET C-02-312.

12.SEE PRECAST DETAIL 6/A-10-532. 13. SEE PRECAST DETAIL 9/A-10-532. 14.SEE PRECAST DETAIL 8/A-10-532. 15.SEE PRECAST DETAIL 7/A-10-532.

18. SEE RAILING DETAIL 8/A-10-541. 19.SEE PRECAST DETAIL 8/A-10-532.

BRICK SHELF DETAIL.

SEE ARCHITECTURAL GENERAL SHEET A-00-001 FOR TYPICAL SYMBOLS.

3. MECHANICAL EQUIPMENT - SEE 'H' SHEETS. 4. ALUMINUM GUARDRAIL, SEE 3/A-06-502. 5. MASONRY CONTROL / EXPANSION JOINT. SEE STRUCTURAL GENERAL DETAILS FOR JOINT IN

CONCRETE MASONRY. PROVIDE 3" COMPRESSIBLE MATERIAL, BACKER ROD, SEALANT AT CLAY MASONRY PORTION OF JOINT. SEALANT TO MATCH

8. WALL MOUNTED GUARDRAIL, SEE DETAIL A-10-541. 9. DOWNSPOUT, PIPE TO STORM SYSTEM. SEE BOOT

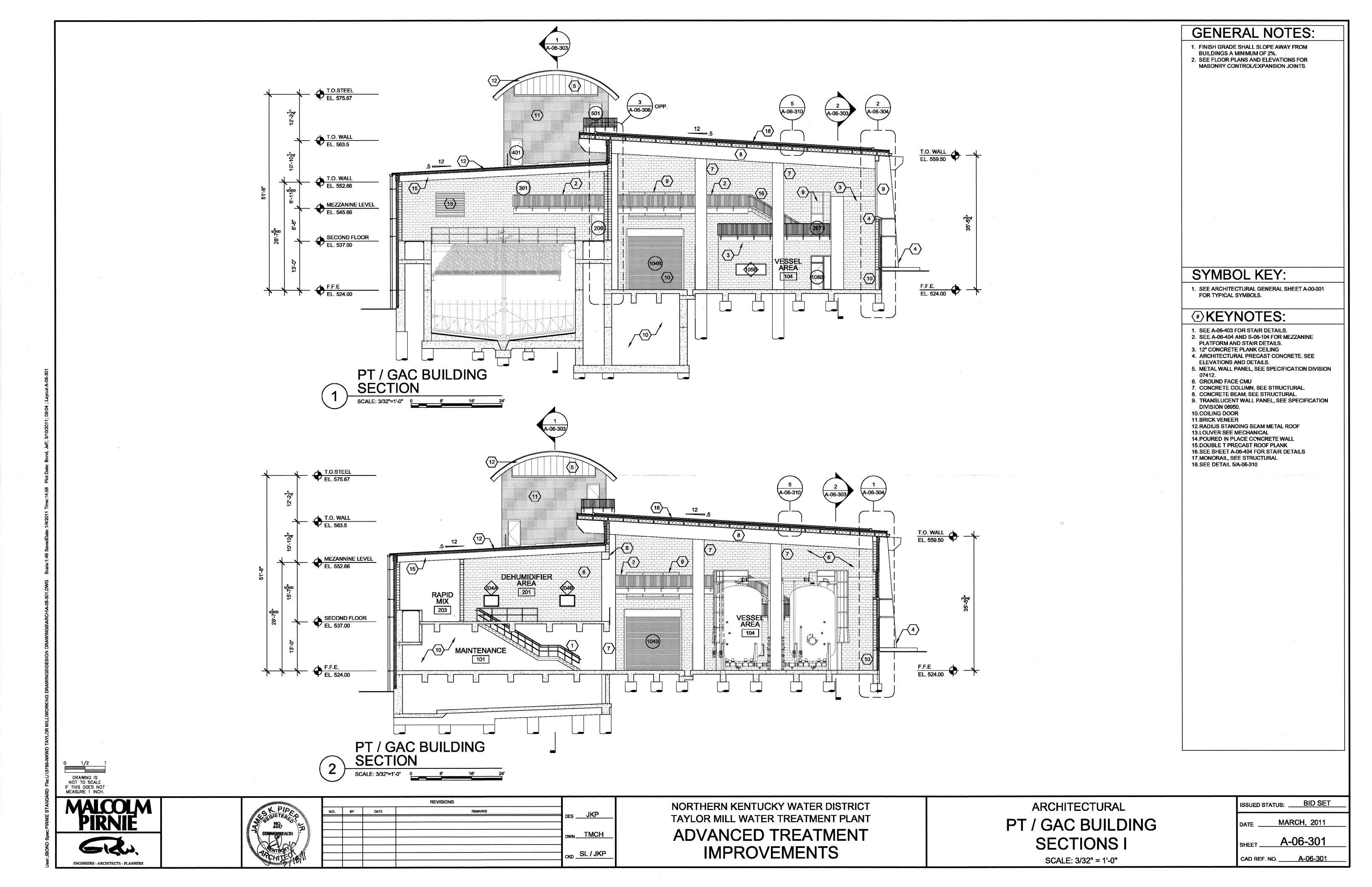
11.BRICK SHELF LOCATIONS - SEE 4/A-06-310 FOR

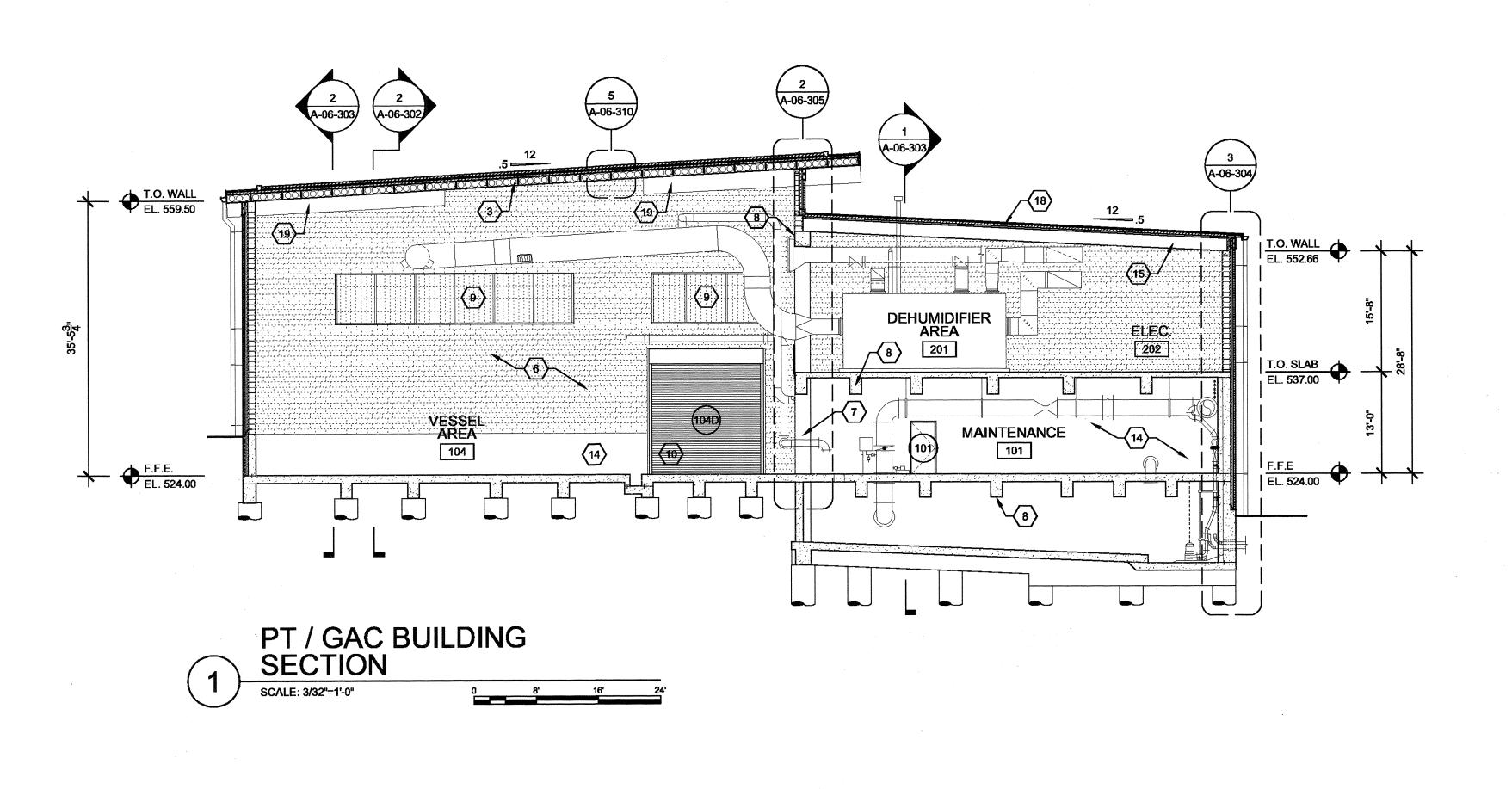
16.SEE PRECAST DETAIL ON SHEET A-10-533. 17. SEE PRECAST DETAIL ON SHEET A-10-534.

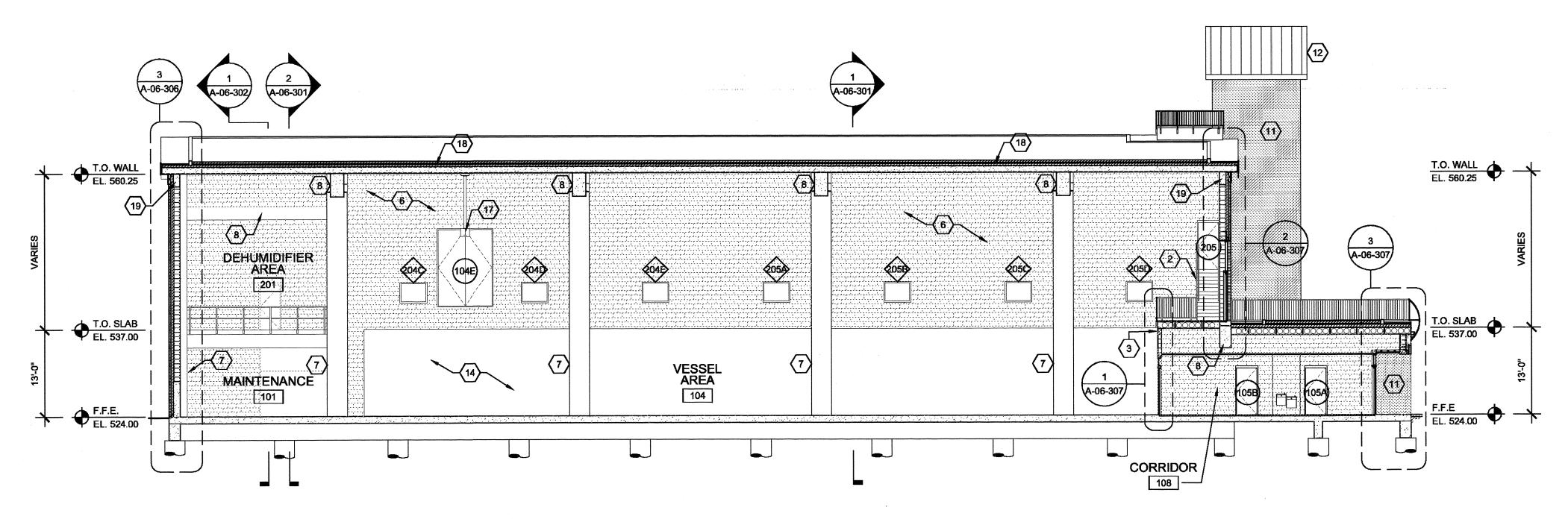
CAST FINISH.

MARCH, 2011

CAD REF. NO. <u>A-06-202</u>







PT / GAC BUILDING SECTION

SCALE: 3/32"=1'-0"

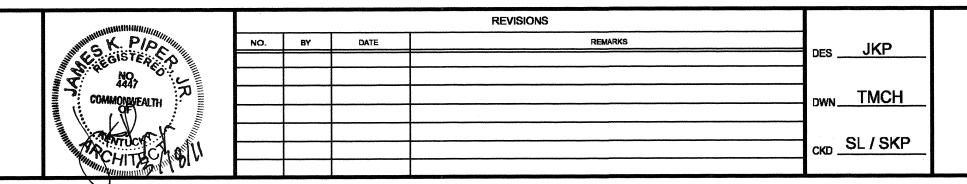
0 8' 16' 24'

DRAWING IS
NOT TO SCALE
IF THIS DOES NOT
MEASURE 1 INCH.

MALCOLM
PIRNIE

COLUMN

COLU



NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT

ADVANCED TREATMENT IMPROVEMENTS

ARCHITECTURAL
PT / GAC BUILDING
SECTIONS II

SCALE: 3/32" = 1'-0"

GENERAL NOTES:

1. FINISH GRADE SHALL SLOPE AWAY FROM

2. SEE FLOOR PLANS AND ELEVATIONS FOR MASONRY CONTROL/EXPANSION JOINTS.

BUILDINGS A MINIMUM OF 2%.

SYMBOL KEY:

***KEYNOTES:**

PLATFORM AND STAIR DETAILS.

3. 12" CONCRETE PLANK CEILING.

1. NOT USED.

4. NOT USED. 5. NOT USED.

16.NOT USED.

6. GROUND FACE CMU.

DIVISION 08950. 10.COILING DOOR. 11.BRICK VENEER.

1. SEE ARCHITECTURAL GENERAL SHEET A-00-001 FOR TYPICAL SYMBOLS.

2. SEE A-06-404 AND S-06-104 FOR MEZZANINE

CONCRETE COLUMN, SEE STRUCTURAL.
 CONCRETE BEAM, SEE STRUCTURAL.

12.RADIUS STANDING SEAM METAL ROOF.

14.POURED IN PLACE CONCRETE WALL.
15.DOUBLE T PRECAST ROOF PLANK.

13.LOUVER SEE MECHANICAL.

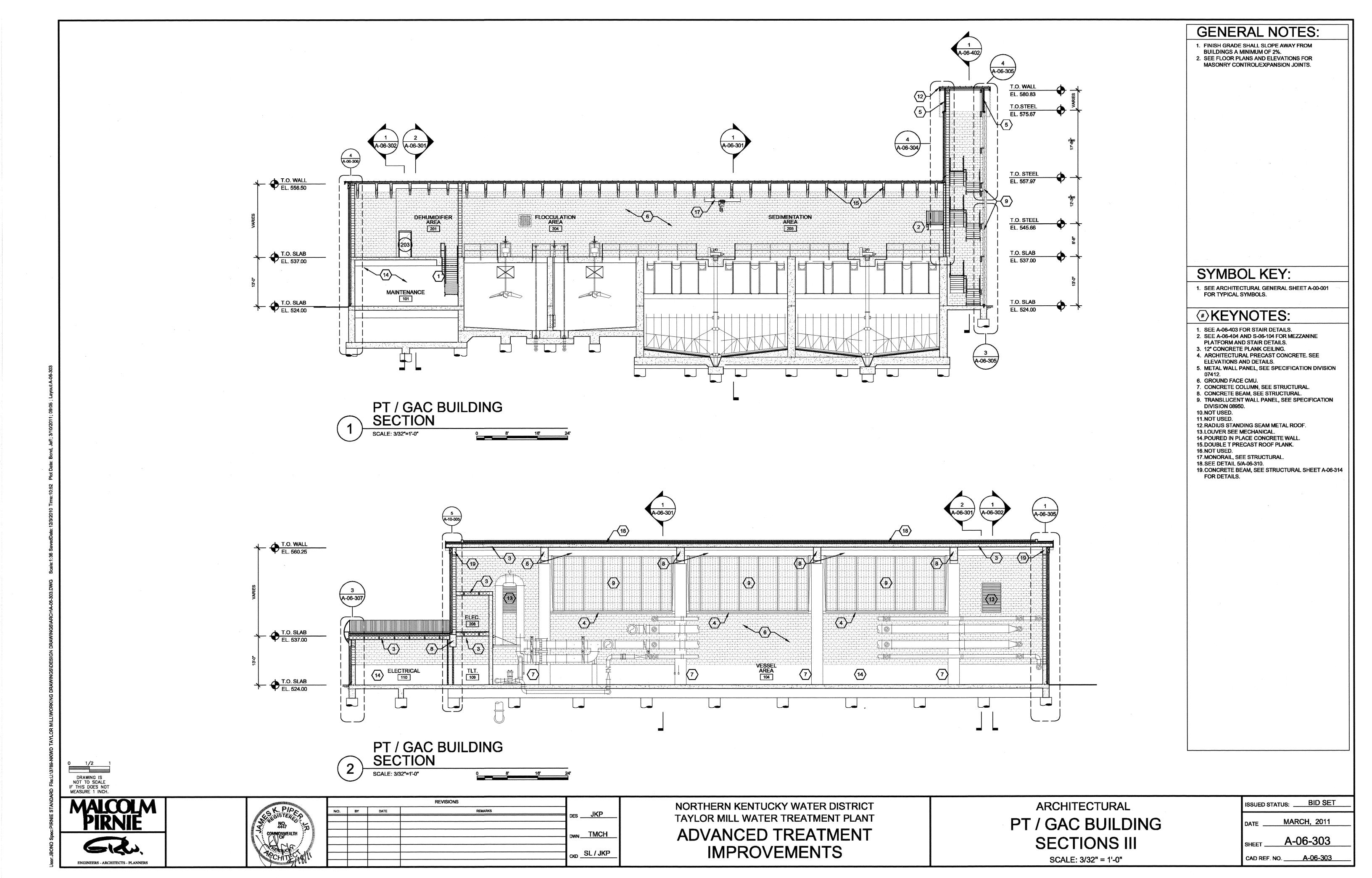
17.MONORAIL, SEE STRUCTURAL.

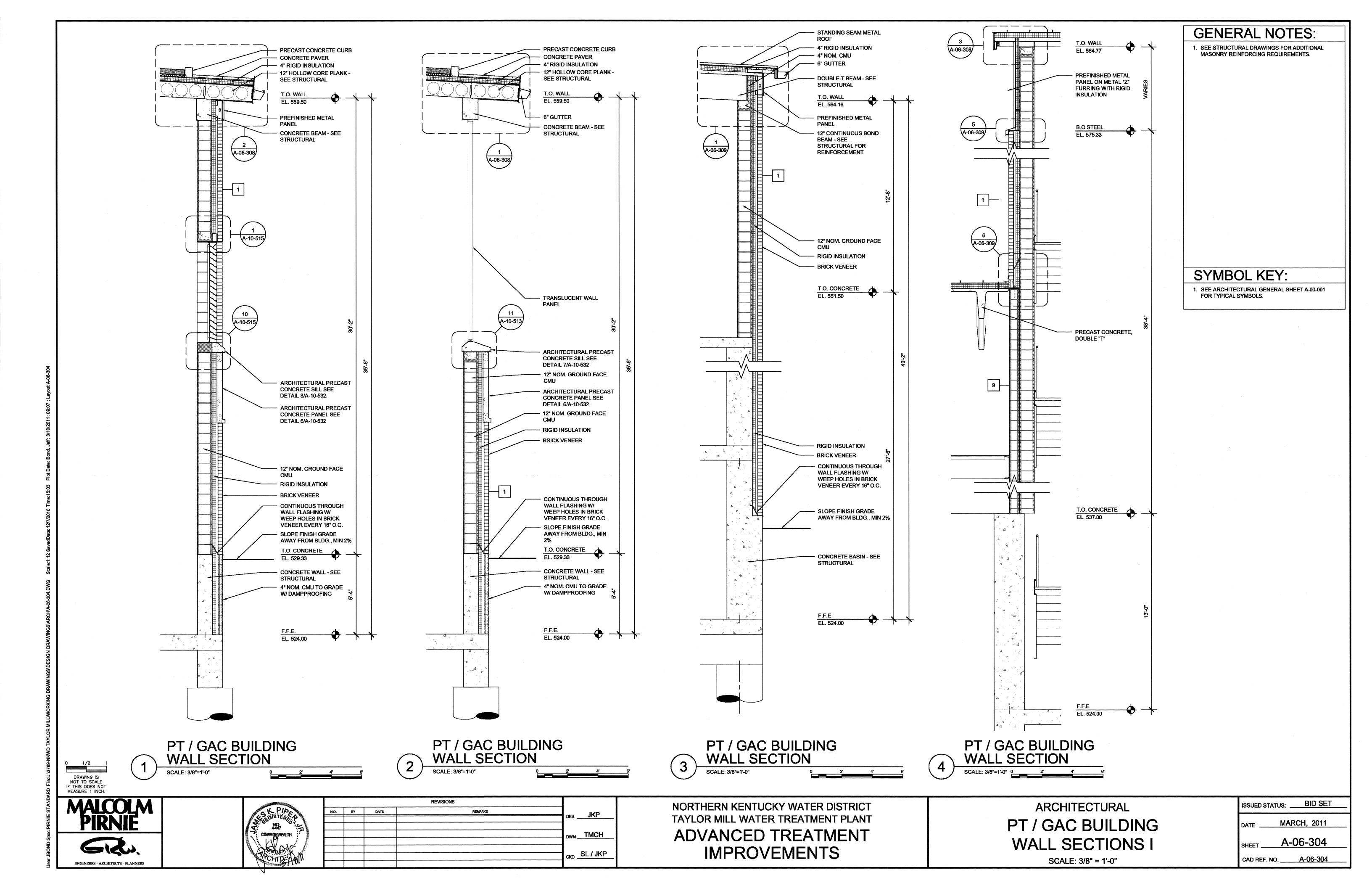
18.SEE DETAIL 5/6-10-310.

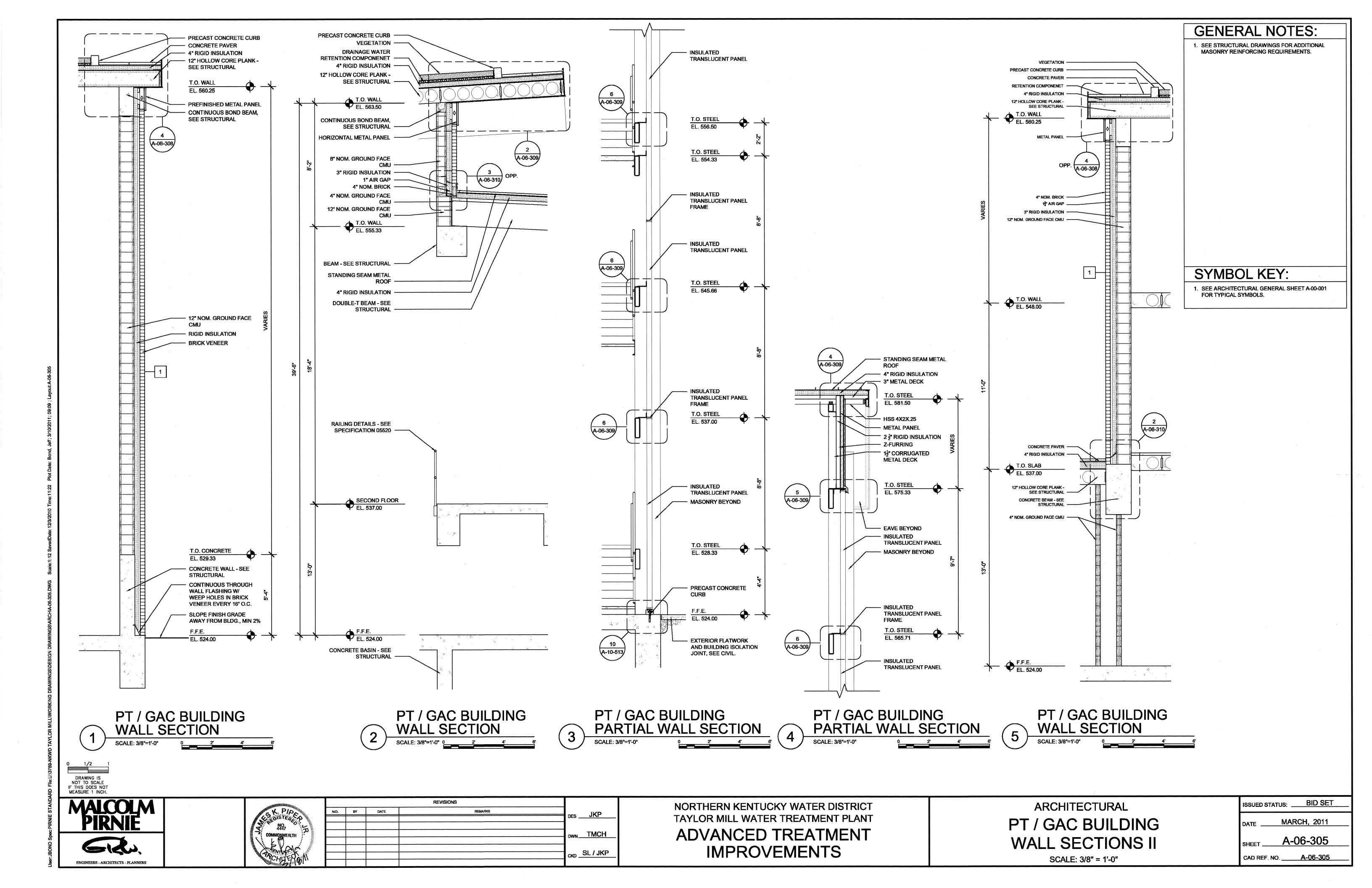
FOR DETAILS.

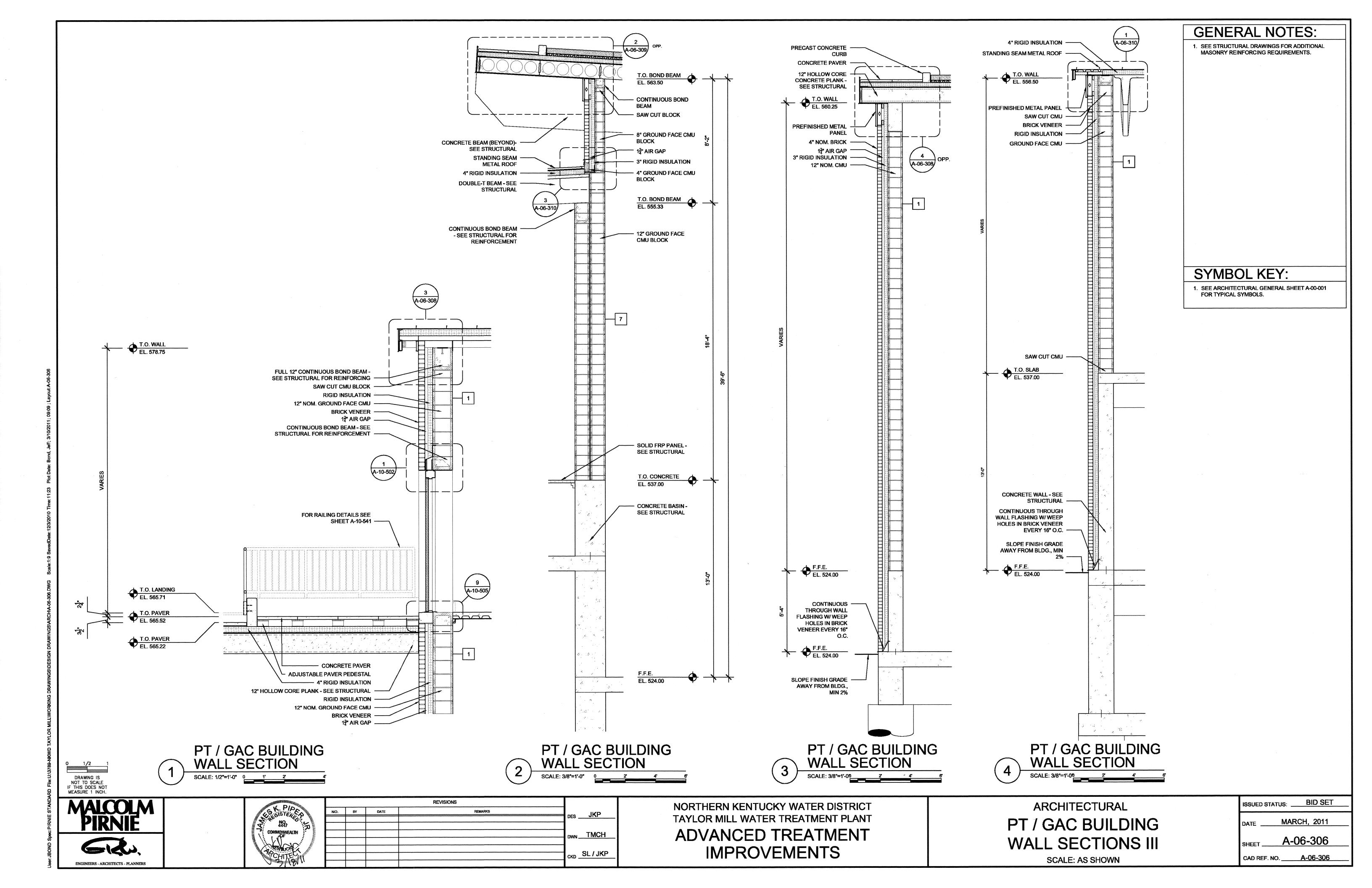
9. TRANSLUCENT WALL PANEL, SEE SPECIFICATION

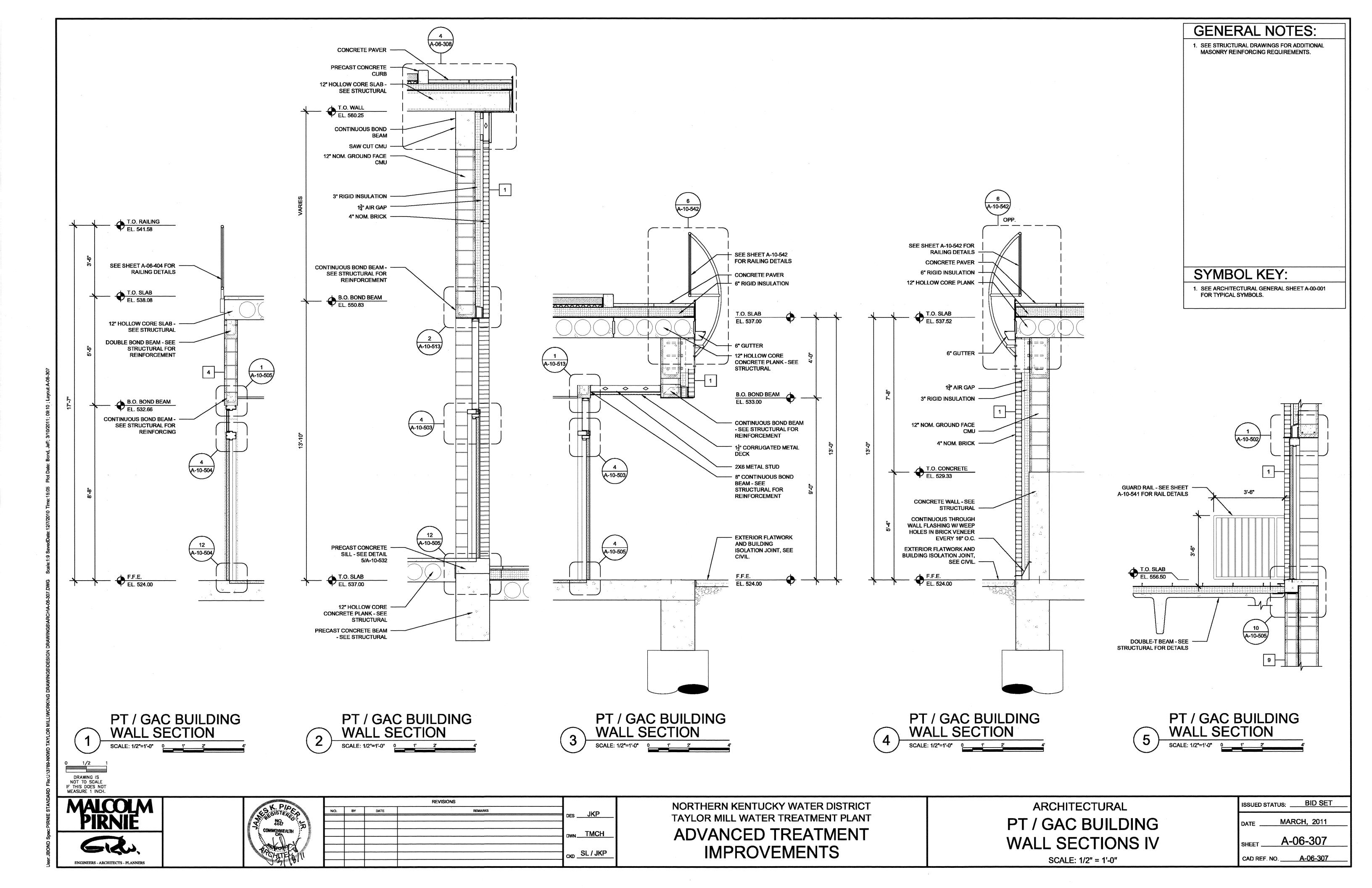
19. CONCRETE BEAM, SEE STRUCTURAL SHEET S-06-314

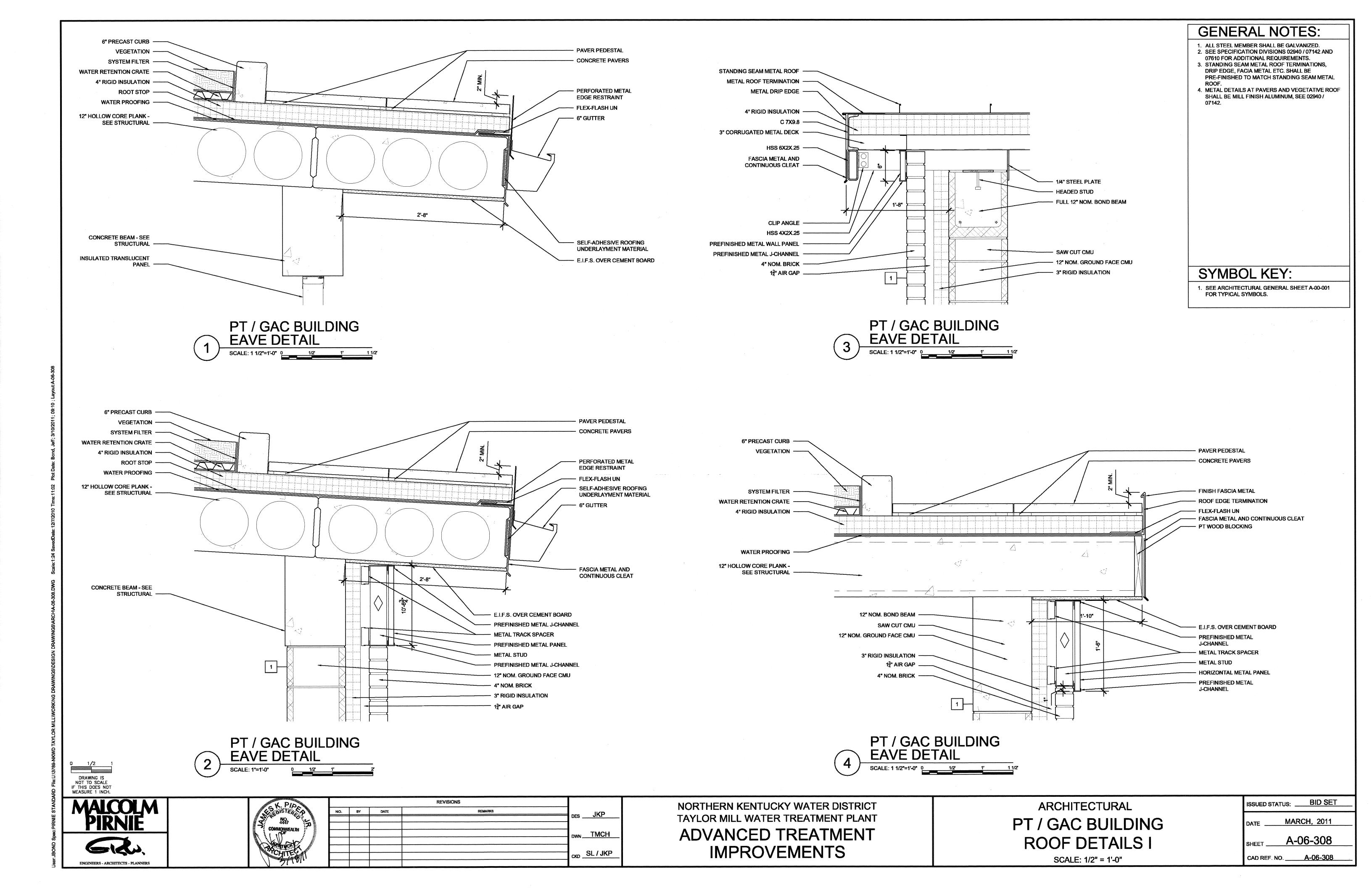


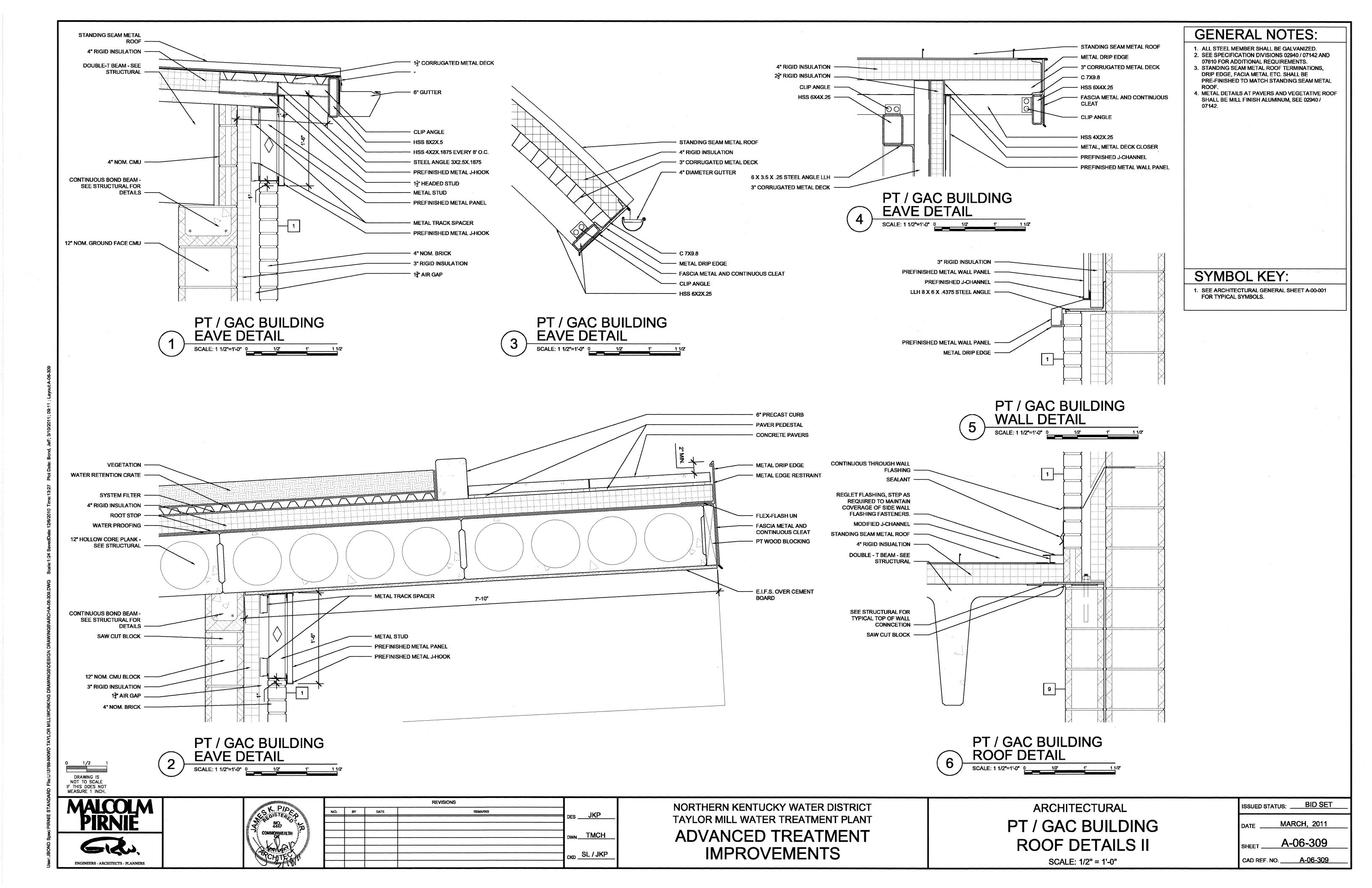


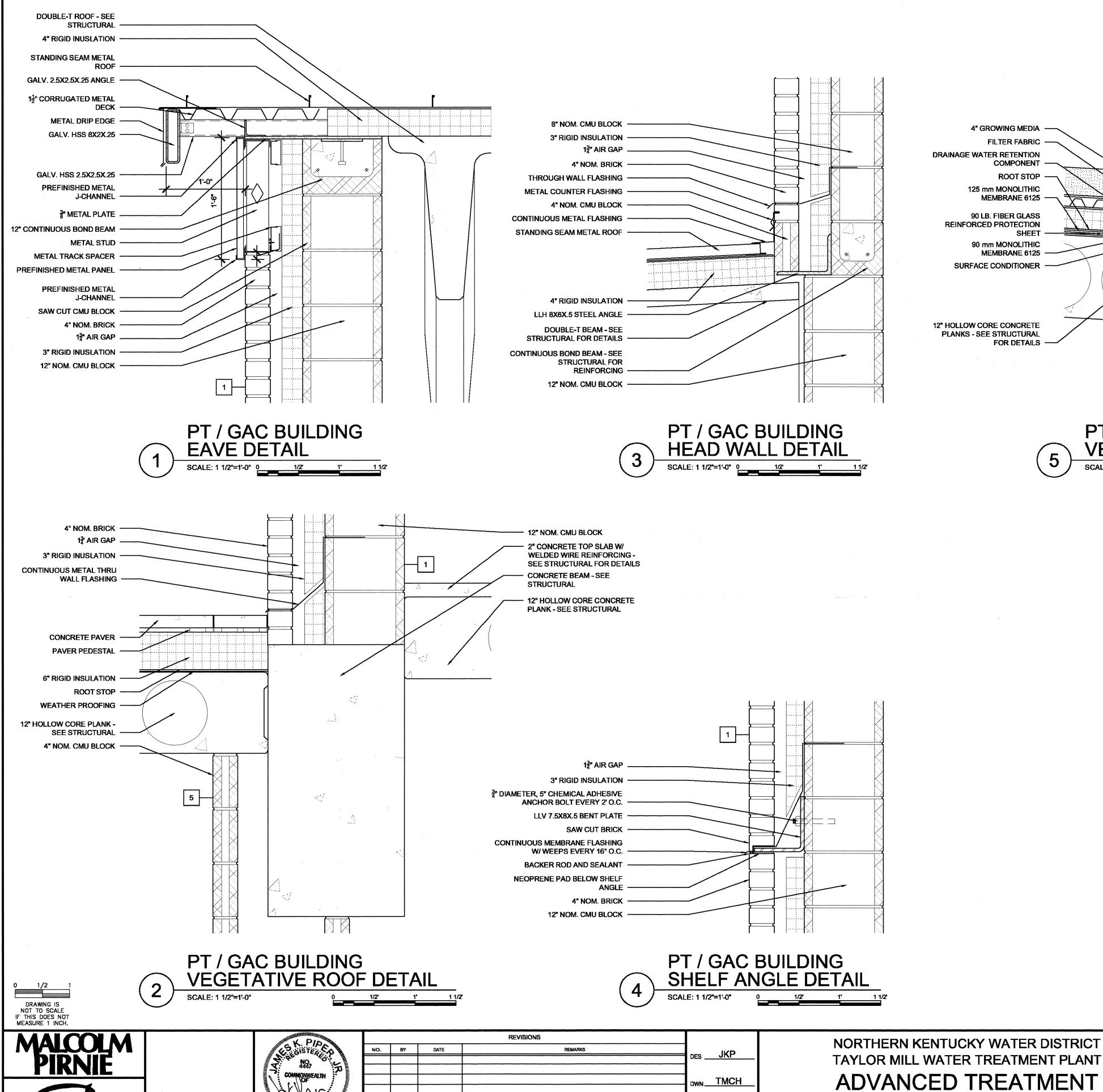


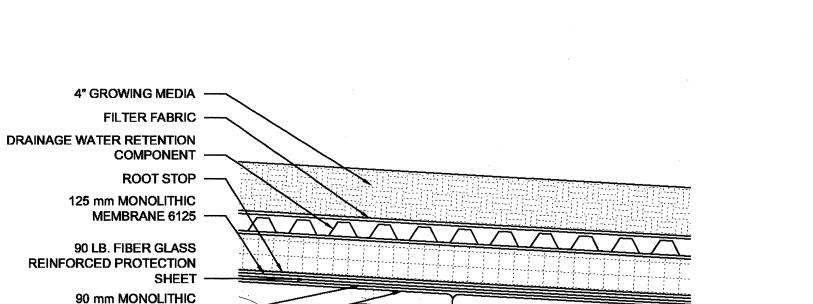












12" HOLLOW CORE CONCRETE PLANKS - SEE STRUCTURAL FOR DETAILS

IMPROVEMENTS

Kn SL/JKP

MEMBRANE 6125

SURFACE CONDITIONER

SYMBOL KEY: 1. SEE ARCHITECTURAL GENERAL SHEET A-00-001 FOR TYPICAL SYMBOLS.

GENERAL NOTES:

1. ALL STEEL MEMBER SHALL BE GALVANIZED.

3. STANDING SEAM METAL ROOF TERMINATIONS, DRIP EDGE, FACIA METAL ETC. SHALL BE

2. SEE SPECIFICATION DIVISIONS 02940 / 07142 AND 07610 FOR ADDITIONAL REQUIREMENTS.

PRE-FINISHED TO MATCH STANDING SEAM METAL

4. METAL DETAILS AT PAVERS AND VEGETATIVE ROOF SHALL BE MILL FINISH ALUMINUM, SEE 02940 /

PT / GAC BUILDING

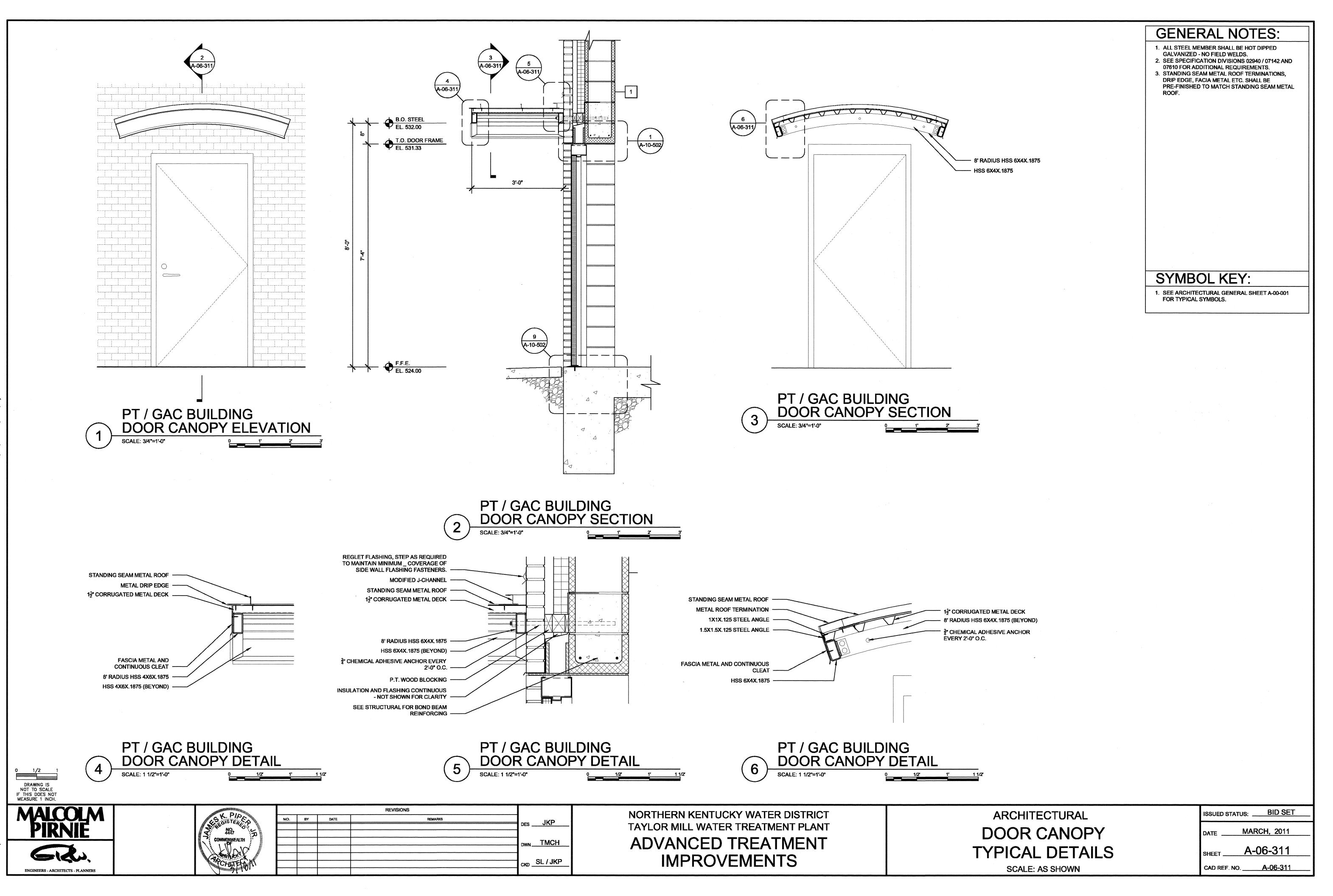
ARCHITECTURAL

PT / GAC BUILDING ROOF DETAILS III

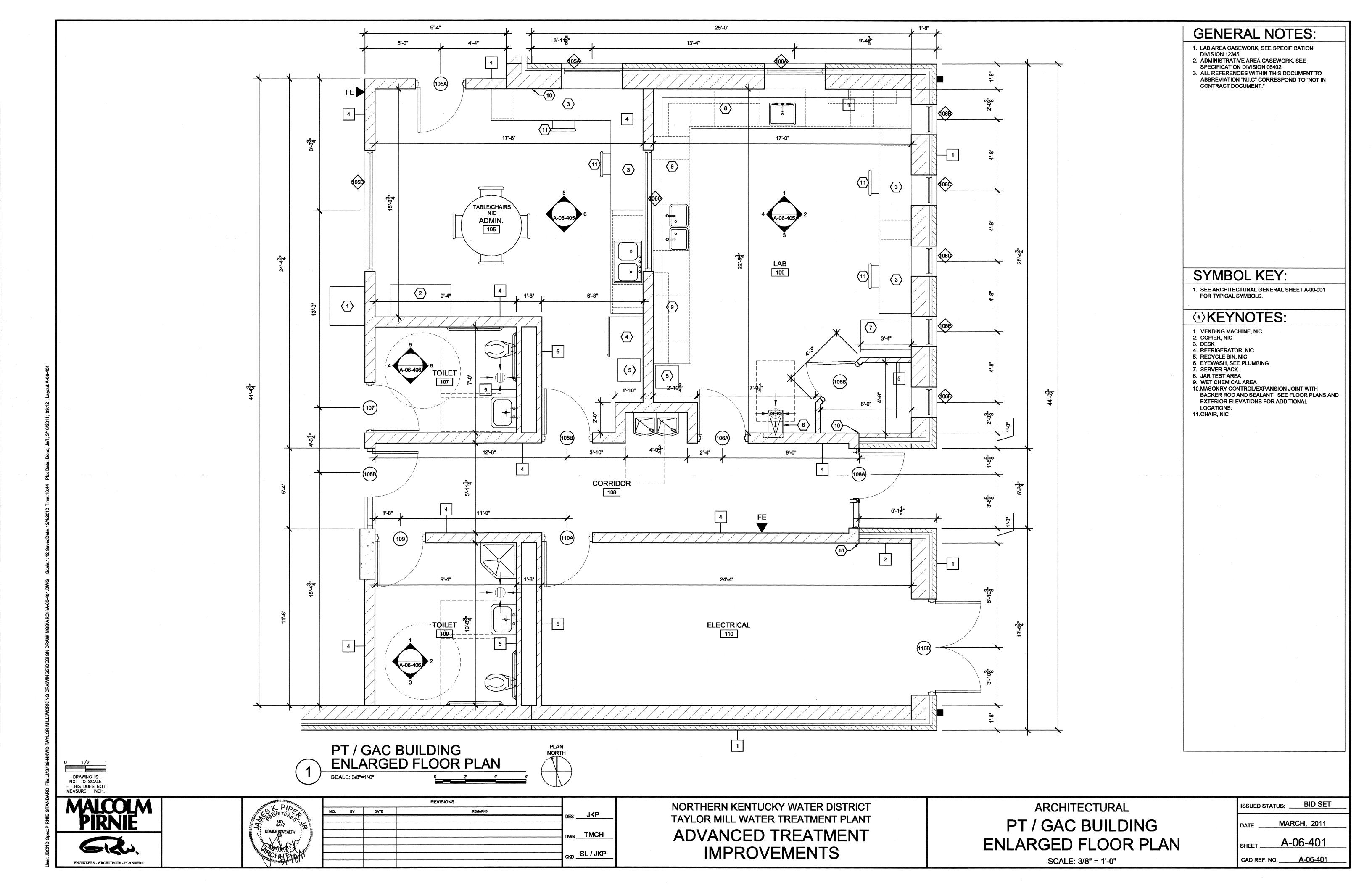
ISSUED STATUS: BID SET MARCH, 2011 A-06-310

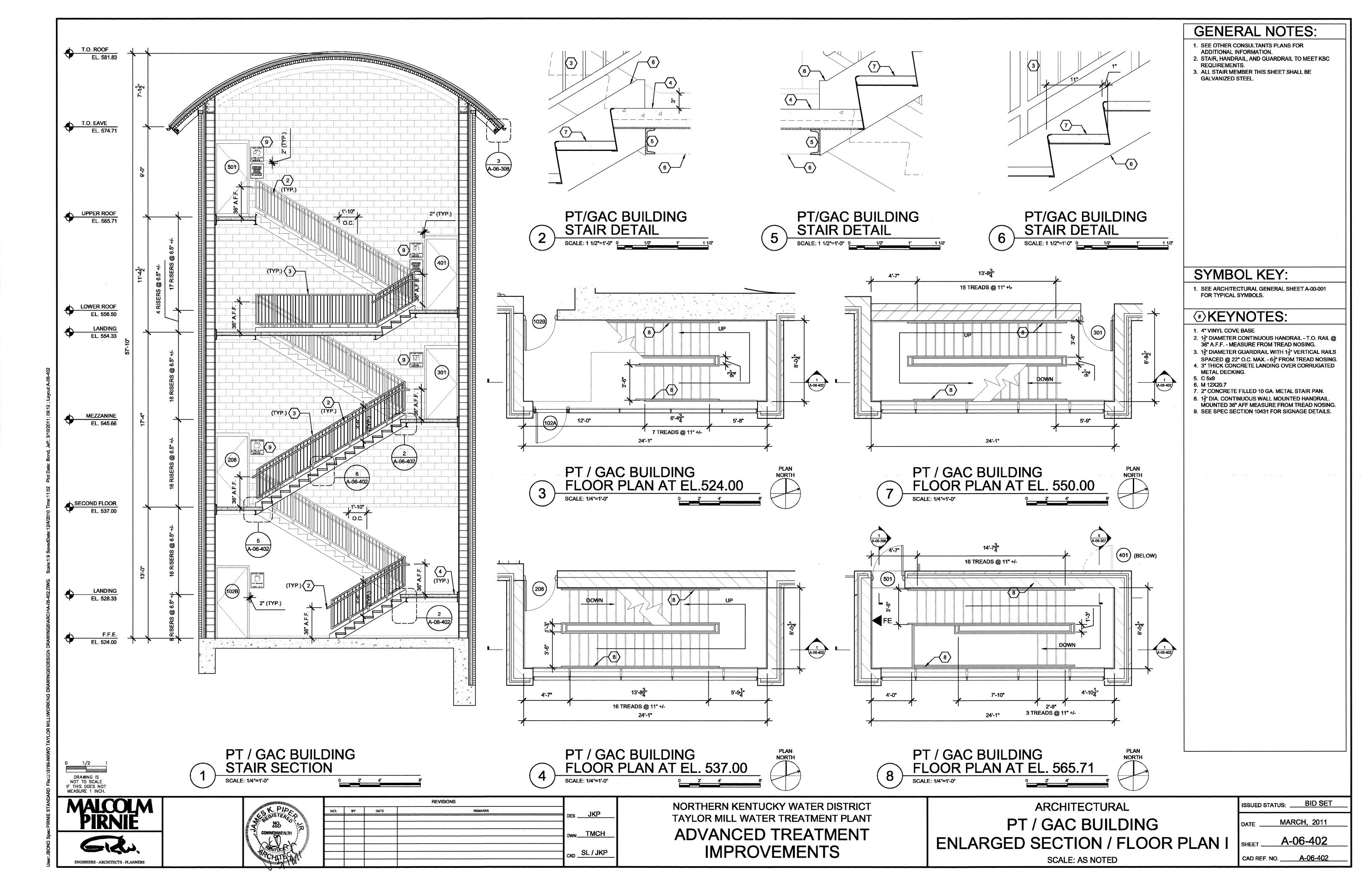
CAD REF. NO. <u>A-06-310</u>

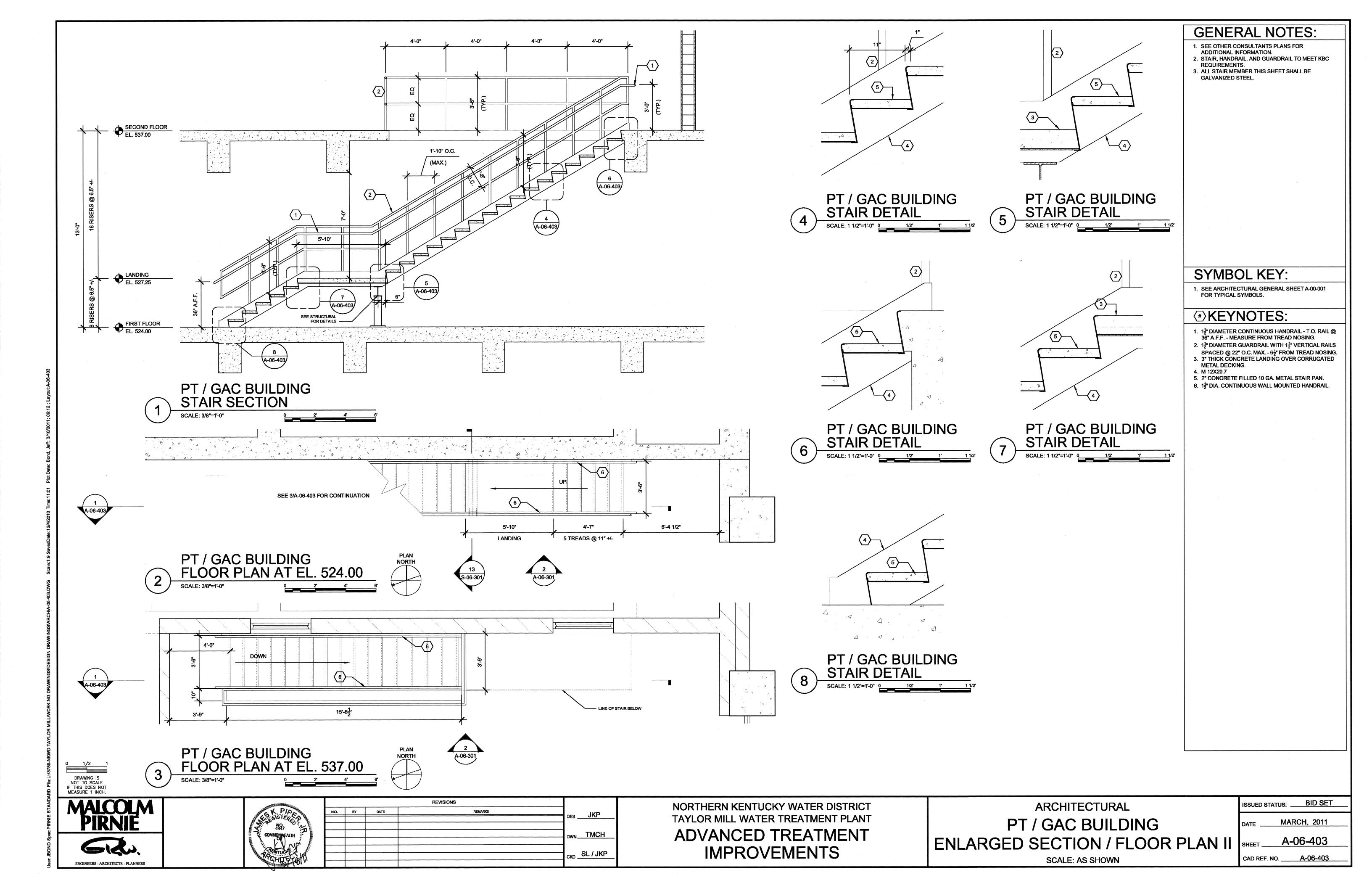
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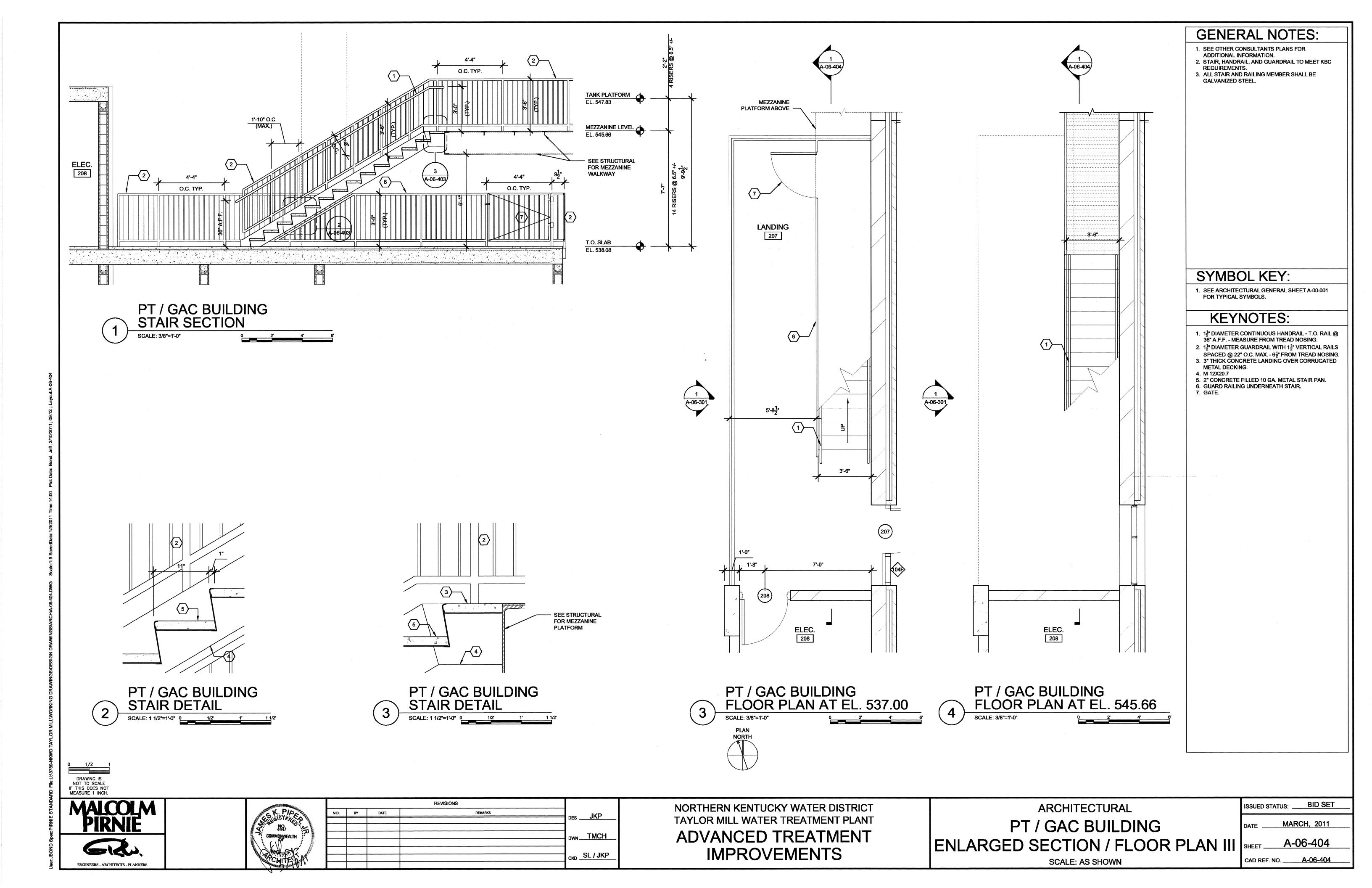


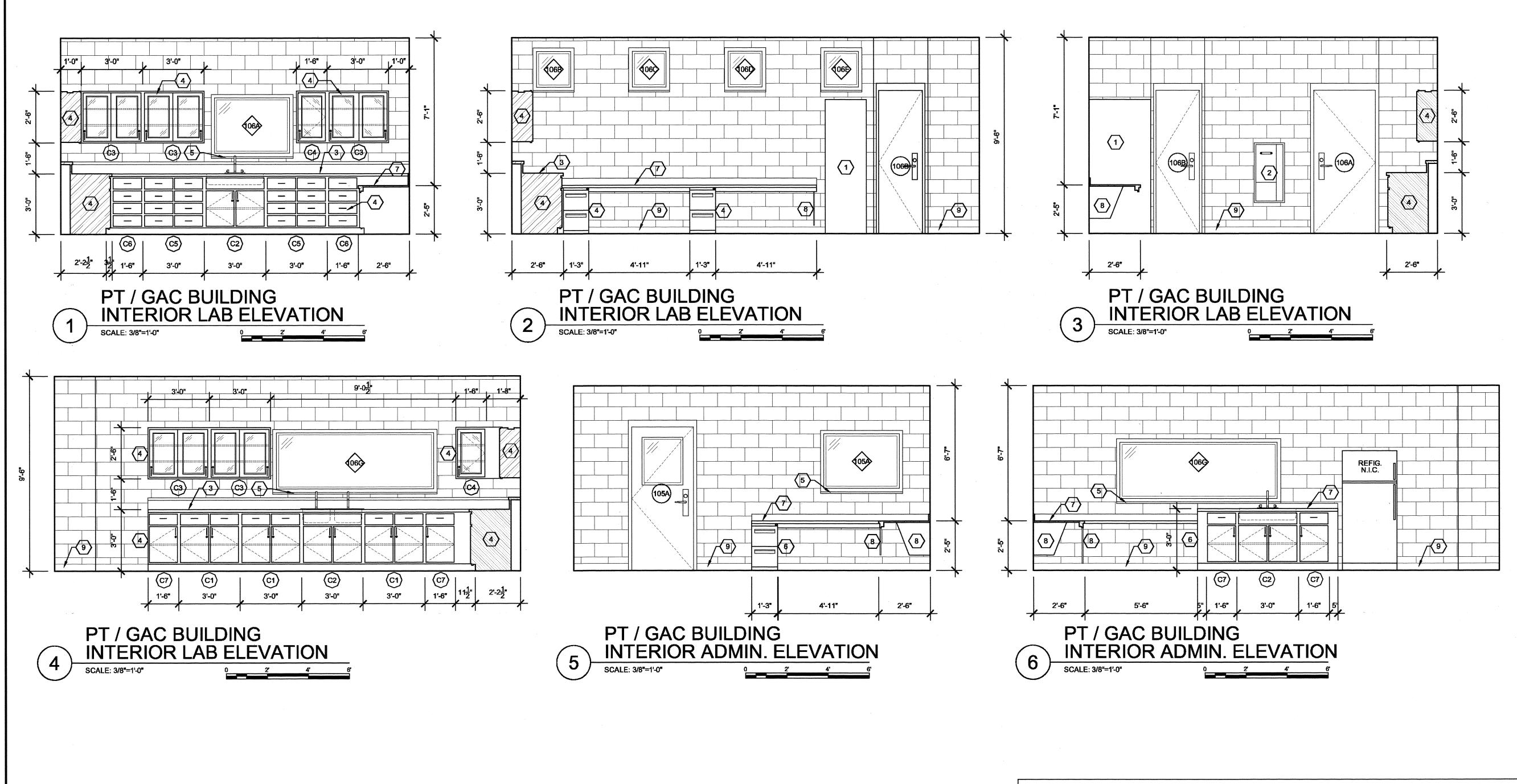
F.JBOND Spec: PIRNIE STANDARD File: U./3789-NKWD TAYLOR MILL/WORKING DRAWING











WN TMCH

SL/JKP

REVISIONS

NO. BY DATE

MALCOLM PIRNIE

6140,

KEY	TYPE	WIDTH	DEPTH	HEIGHT	REMARKS
C1	BASE	3'-0"	2'-0"	3'-0"	(2) DOORS / (2) DRAWERS / (1) ADJUSTABLE HALF-DEPTH SHELF
C2	BASE	3'-0"	2'-0"	3'-0"	(2) DOORS / (1) ADJUSTABLE HALF-DEPTH SHELF / SINK(S)
С3	WALL	3'-0"	1'-0"	3'-0"	(2) DOORS / (2) ADJUSTABLE SHELVES
C4	WALL	1'-6"	1'-0"	3'-0"	(1) DOOR / (2) ADJUSTABLE SHELVES
C5	BASE	3'-0"	2'-0"	3'-0"	(4) DRAWERS
C6	BASE	1'-6"	2'-0"	3'-0"	(4) DRAWERS
C7	BASE	1'-6"	2'-0"	3'-0"	(1) DOOR / (1) DRAWER / (1) ADJUSTABLE HALF - DEPTH SHELF

ISSUED STATUS: BID SET MARCH, 2011 __A-06-405

GENERAL NOTES:

1. LAB AREA CASEWORK, SEE SPECIFICATION

3. ALL REFERENCES WITHIN THIS DOCUMENT TO ABBREVIATION "N.I.C" CORRESPOND TO "NOT IN

2. ADMINISTRATIVE AREA CASEWORK, SEE SPECIFICATION DIVISION 06402.

DIVISION 12345.

CONTRACT DOCUMENT."

SYMBOL KEY:

***KEYNOTES**:

LAB COUNTER TOP AND SPLASH.
 METAL CASEWORK.
 SOLID SURFACE WINDOW SILL.

6. PLASTIC LAMINATE CASEWORK.

9. QUARRY TILE COVER BASE.

7. SOLID SURFACE COUNTER AND BOX CURB. 8. COUNTER SUPPORT CONSTRUCTED OF PLASTIC

FOR TYPICAL SYMBOLS.

1. SERVER RACK. 2. EYEWASH.

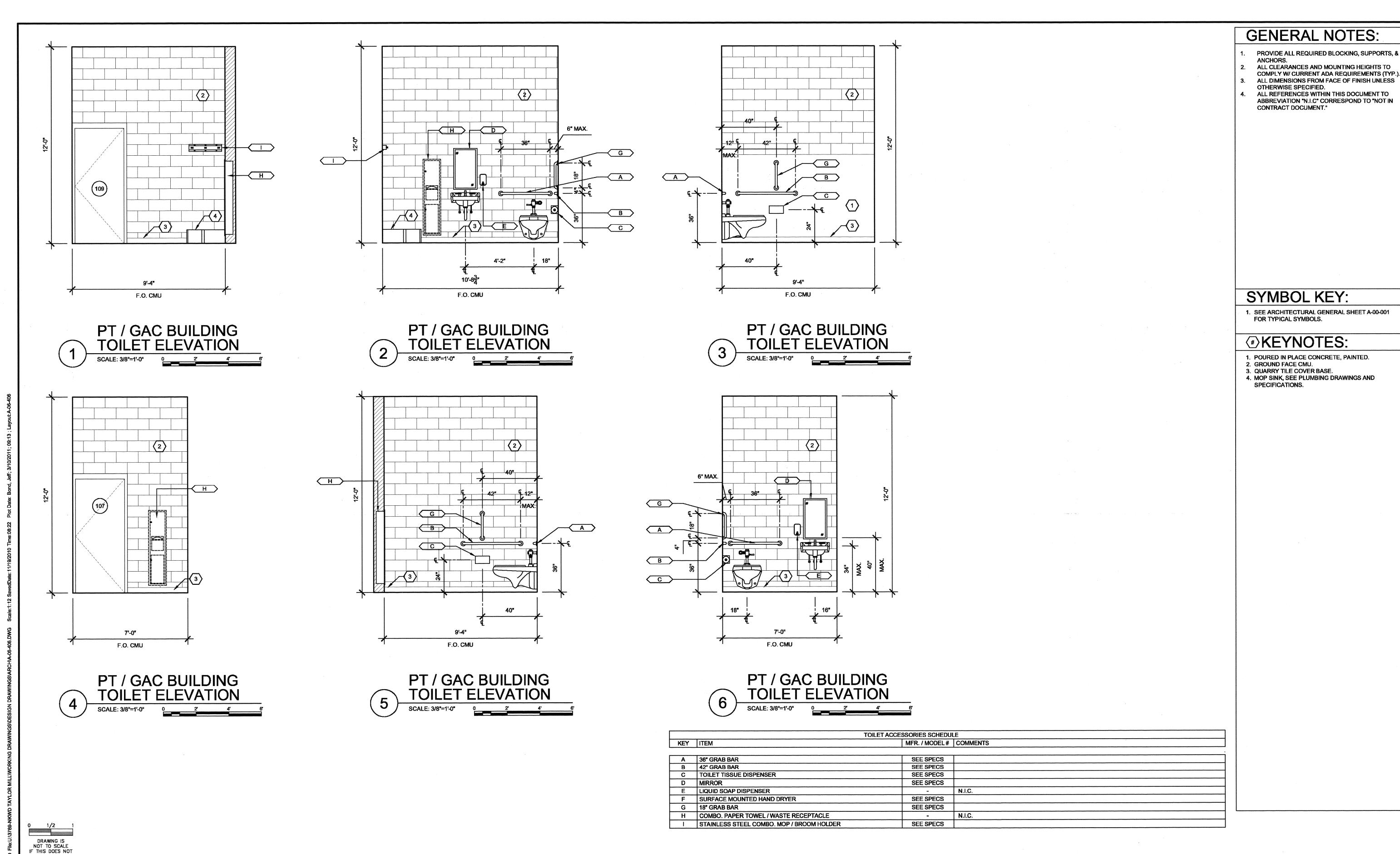
1. SEE ARCHITECTURAL GENERAL SHEET A-00-001

NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT **IMPROVEMENTS**

ARCHITECTURAL PT / GAC BUILDING INTERIOR ELEVATIONS I

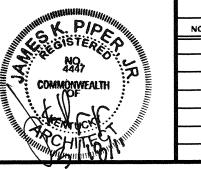
SCALE: 3/8" = 1'-0"

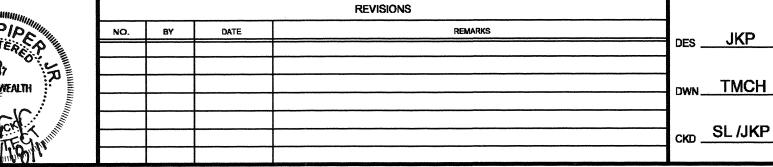
CAD REF. NO. <u>A-06-405</u>



MALCOLM

ENGINEERS - ARCHITECTS - PLANNERS





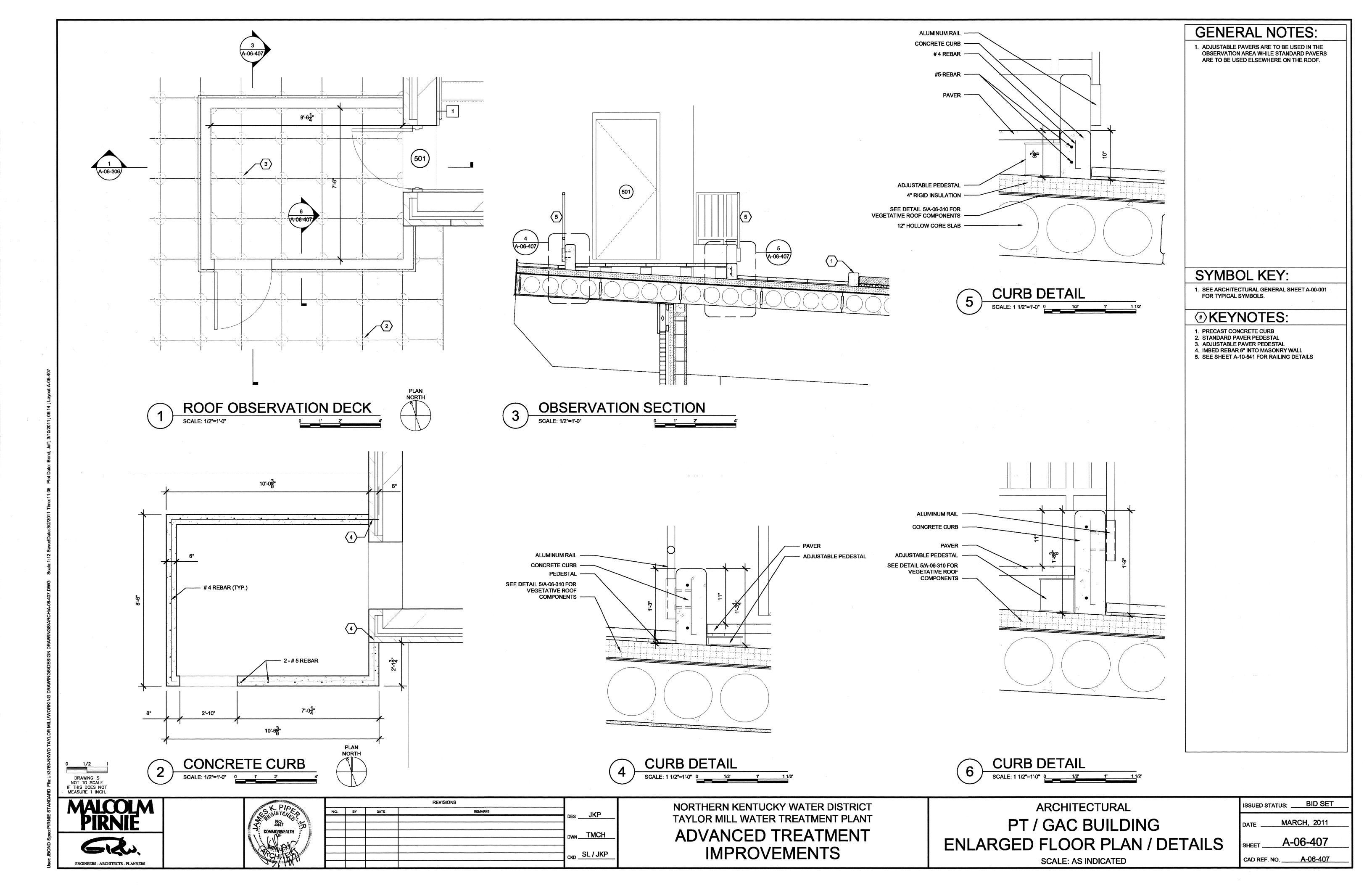
NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT

ADVANCED TREATMENT IMPROVEMENTS

ARCHITECTURAL PT / GAC BUILDING INTERIOR ELEVATIONS II

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

ISSUED STATUS: BID SET MARCH, 2011 A-06-406 CAD REF. NO. _____A-06-406



GFB

GFB

GFB

GFB

UNFINISHED

NOTES:

401

STAIR

CON: FP: VWC: QT: CPC: GFB:

FIBERGLASS PLATE
VINYL WAINSCOTING
QUARRY TILE
CAST-IN-PLACE CONCRETE
GROUND FACE BLOCK
INSULATED TRANSLUCENT PANEL
GLAZING
HOLLOW CORE CONCRETE PLANK
CORRUGATED METAL DECK

SUSPENDED ACOUSTICAL CEILING CHEMICALLY REACTIVE DENIFIER

DOUBLE 'T' BEAM

CON

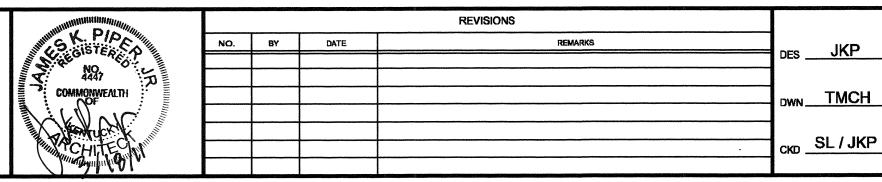
CON

CRD

CRD

DRAWING IS
NOT TO SCALE
IF THIS DOES NOT
MEASURE 1 INCH.





NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

ARCHITECTURAL
PT / GAC BUILDING
ROOM FINISH SCHEDULE
SCALE: AS INDICATED

FULL HEIGHT

FULL HEIGHT

PAINT

UNFINISHED PREFINISHED UNFINISHED

UNFINISHED

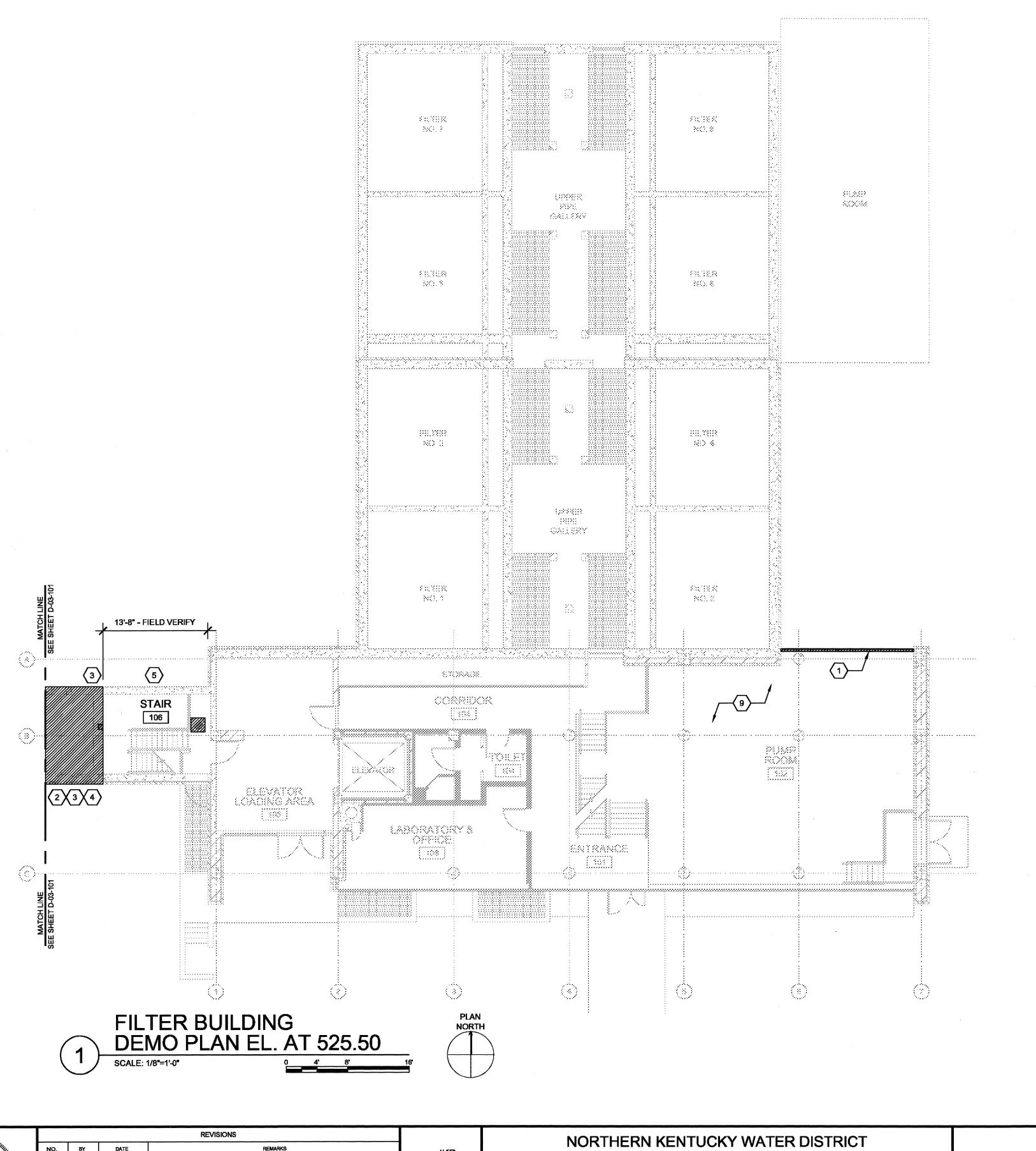
CMD

UNFINISHED PREFINISHED

DATE MARCH, 2011

SHEET A-06-601

CAD REF. NO. A-06-601



GENERAL NOTES:

- 1. CONTRACTOR SHALL PROTECT ALL EXISTING TO
- 2. PROVIDE TEMPORARY DUST BARRIERS AND WEATHER PROOF ENCLOSURES ACCEPTABLE TO THE OWNER.

SYMBOL KEY:

1. SEE ARCHITECTURAL GENERAL SHEET A-00-001 FOR TYPICAL SYMBOLS.

***KEYNOTES**:

- 1. REMOVE / MODIFY SPANDREL PANEL WALL FOR NEW MECHANICAL LOUVERS. COORDINATE OPENING SIZE WITH MECHANICAL SHOP DRAWINGS.
- 2. TOOTH OUT / SAW CUT EXISTING MASONRY AS REQUIRED TO PREPARE FOR NEW CONSTRUCTION.
- 3. SAW CUT CONCRETE WALL TO PREPARE FOR NEW
- 4. TUNNEL DEMOLITION SEE ADDITIONAL INFORMATION ON 'D' SHEETS.
- 5. EXCAVATE AS REQUIRED TO INSTALL NEW MASONRY WORK.
- 6. NOT USED 7. NOT USED
- 8. NOT USED
- 9. DEMOLISH CEILING BELOW MEZZANINE.

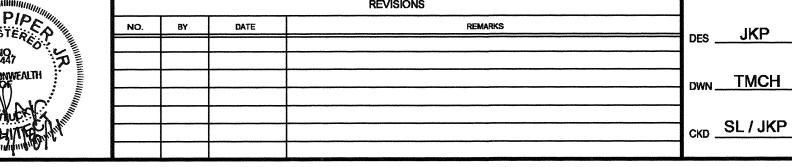
HAZARDOUS MATERIALS NOTES:

- PRESENT IN THE EXISTING BUILDING THAT REQUIRE SPECIAL HANDLING. SEE THE PROJECT MANUAL FOR THE HAZARDOUS MATERIALS REPORT, ASBESTOS ABATEMENT SPECIFICATIONS, AND OTHER REQUIREMENTS CONCERNING HAZARDOUS MATERIALS. IF ANY WORKMAN ENCOUNTERS ANY MATERIALS WHICH HE/SHE SUSPECTS IS HAZARDOUS OR TOXIC, DISCONTINUE WORK ON OR NEAR THAT MATERIAL AND IMMEDIATELY ADVISE THE OWNER.
- 2. BY EXECUTION OF THE CONTRACT FOR CONSTRUCTION, THE CONTRACTOR HEREBY CONSULTANTS HARMLESS FROM ANY SUCH CLAIMS RELATED TO HAZARDOUS MATERIALS THAT MAY BE BROUGHT BY THE CONTRACTORS, SUBCONTRACTORS, SUPPLIERS, OR THIRD PARTIES WHO MAY BE ACTING UNDER THE DIRECTION OF THE CONTRACTOR PURSUANT TO THIS PROJECT.









TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT **IMPROVEMENTS**

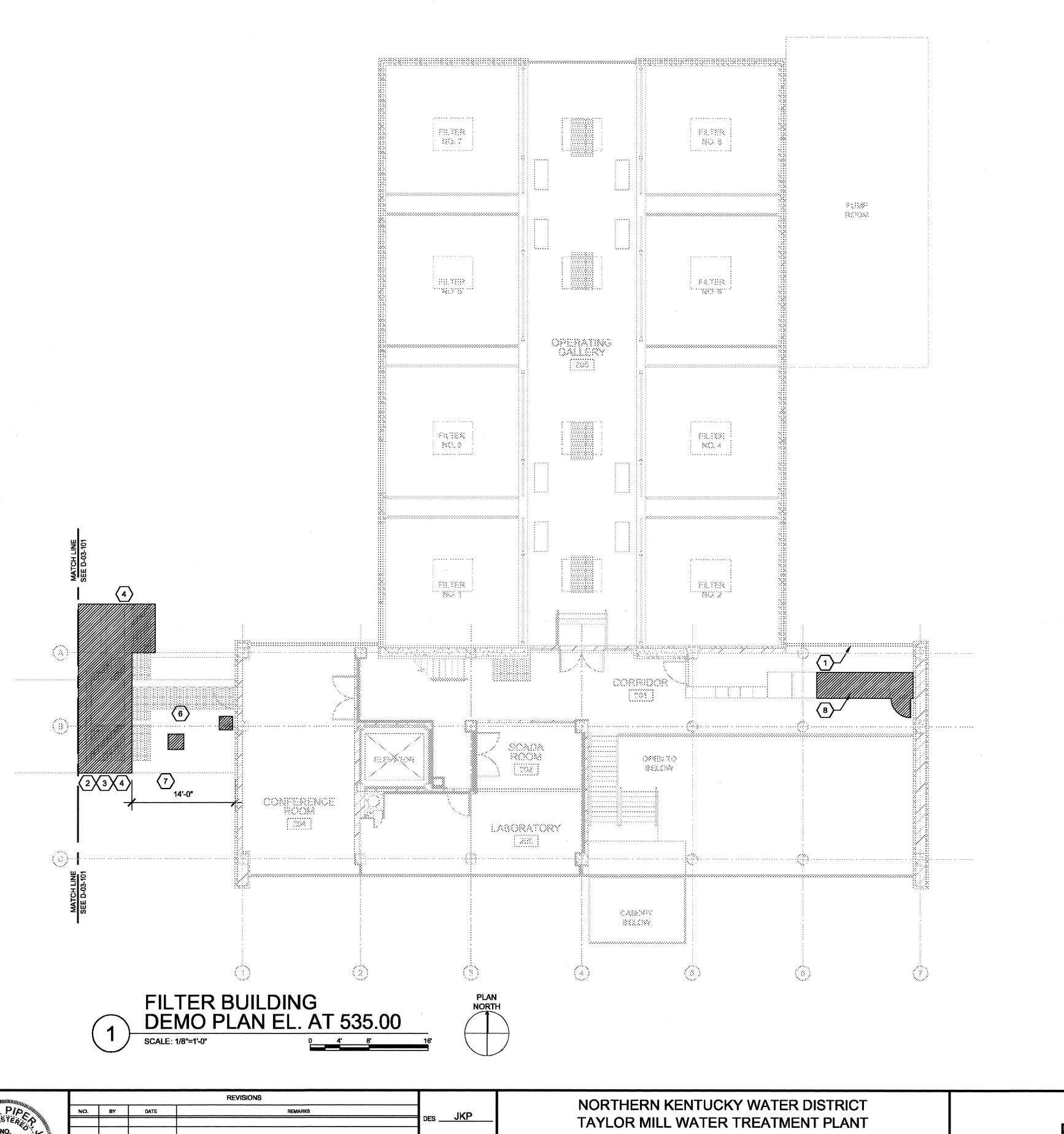
ARCHITECTURAL FILTER BUILDING **DEMOLITION PLAN AT EL. 525.50**

SCALE: 1/8" = 1'-0"

MARCH, 2011 A-08-101

ISSUED STATUS: BID SET

CAD REF. NO. <u>A-08-101</u>



GENERAL NOTES:

- 1. CONTRACTOR SHALL PROTECT ALL EXISTING TO
- 2. PROVIDE TEMPORARY DUST BARRIERS AND WEATHER PROOF ENCLOSURES ACCEPTABLE TO
- WEATHER PROOF ENCLOSURES ACCEPTABLE T THE OWNER.

SYMBOL KEY:

1. SEE ARCHITECTURAL GENERAL SHEET A-00-001 FOR TYPICAL SYMBOLS.

***KEYNOTES**:

- REMOVE / MODIFY SPANDREL PANEL WALL FOR NEW
 MECHANICAL LOUVERS. COORDINATE OPENING
- SIZE WITH MECHANICAL SHOP DRAWINGS.

 2. TOOTH OUT / SAW CUT EXISTING MASONRY AS
- REQUIRED TO PREPARE FOR NEW CONSTRUCTION.

 3. SAW CUT CONCRETE WALL TO PREPARE FOR NEW
- 4. TUNNEL DEMOLITION SEE ADDITIONAL
- INFORMATION ON 'D' SHEETS.
 5. NOT USED.
- 6. REMOVE CONCRETE SLAB SEE 2/D-03-301.
- 7. REMOVE COURSES OF EXISTING MASONRY LOOSENED DURING DEMOLITION.
- 8. REMOVE EXISTING FINISHES AND PREPARE CEILING,
- FLOOR, WALL SURFACES FOR SCHEDULE.
- 9. NOT USED.

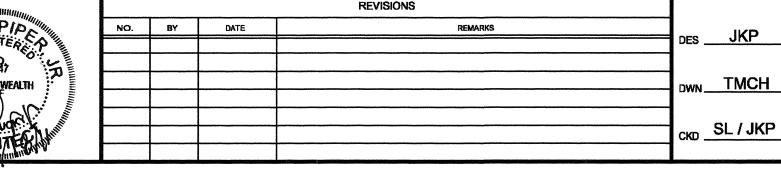
HAZARDOUS MATERIALS NOTES:

- PRESENT IN THE EXISTING BUILDING THAT REQUIRE SPECIAL HANDLING. SEE THE PROJECT MANUAL FOR THE HAZARDOUS MATERIALS REPORT, ASBESTOS ABATEMENT SPECIFICATIONS, AND OTHER REQUIREMENTS CONCERNING HAZARDOUS MATERIALS. IF ANY WORKMAN ENCOUNTERS ANY MATERIALS WHICH HE/SHE SUSPECTS IS HAZARDOUS OR TOXIC, DISCONTINUE WORK ON OR NEAR THAT MATERIAL AND IMMEDIATELY ADVISE THE OWNER.
- 2. BY EXECUTION OF THE CONTRACT FOR CONSTRUCTION, THE CONTRACTOR HEREBY AGREES TO BRING NO CLAIM FOR NEGLIGENCE, BREACH OF CONTRACT, INDEMNITY, OR OTHERWISE AGAINST THE ARCHITECT, HIS EMPLOYEES, AGENTS, AND CONSULTANTS HARMLESS FROM ANY SUCH CLAIMS RELATED TO HAZARDOUS MATERIALS THAT MAY BE BROUGHT BY THE CONTRACTORS, SUBCONTRACTORS, SUPPLIERS, OR THIRD PARTIES WHO MAY BE ACTING UNDER THE DIRECTION OF THE CONTRACTOR PURSUANT TO THIS PROJECT.

DRAWING IS
NOT TO SCALE
IF THIS DOES NOT
MEASURE 1 INCH.

MALCOLM
PIRNIE





TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

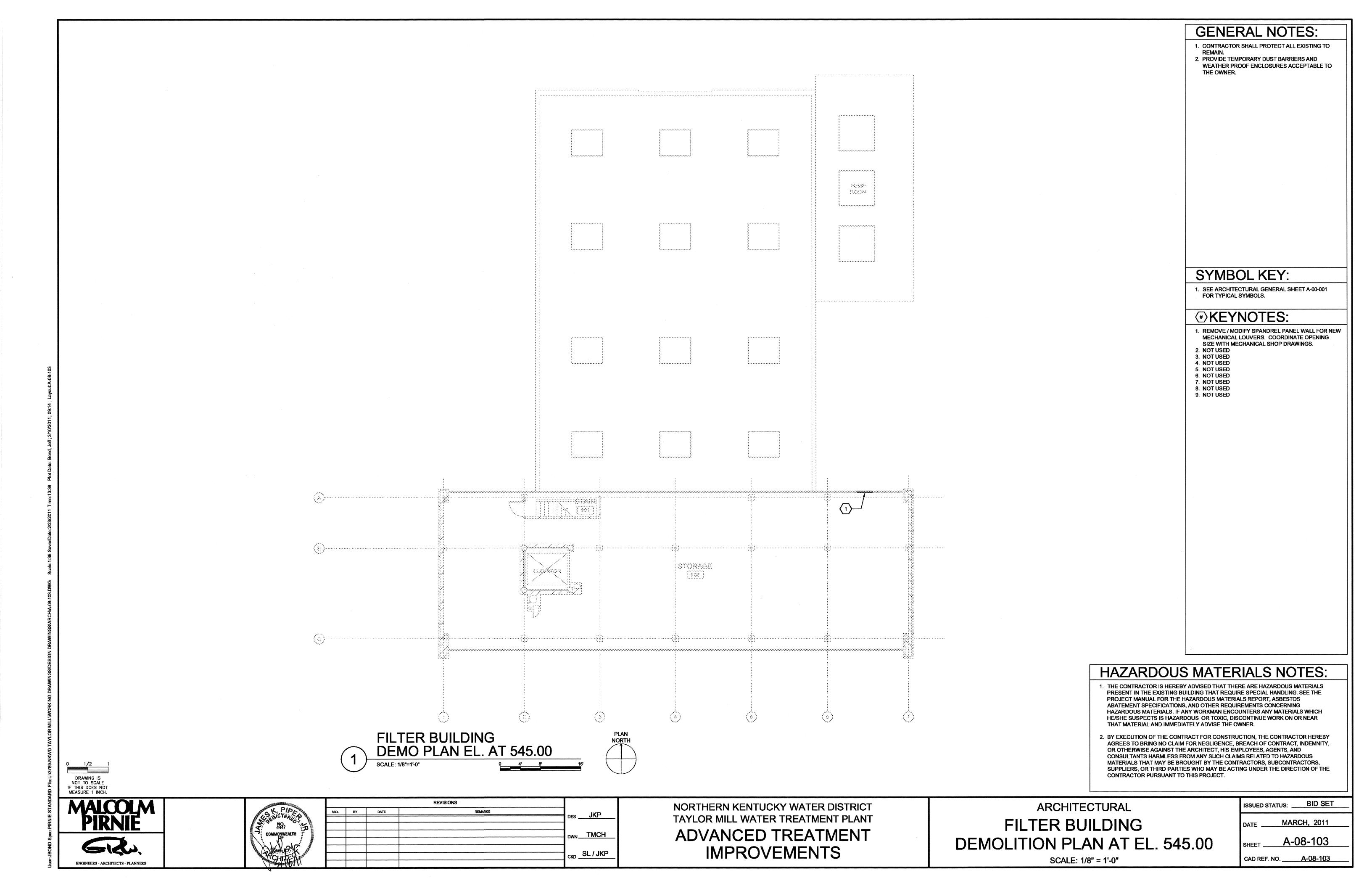
FILTER BUILDING
DEMOLITION PLAN AT EL. 535.00

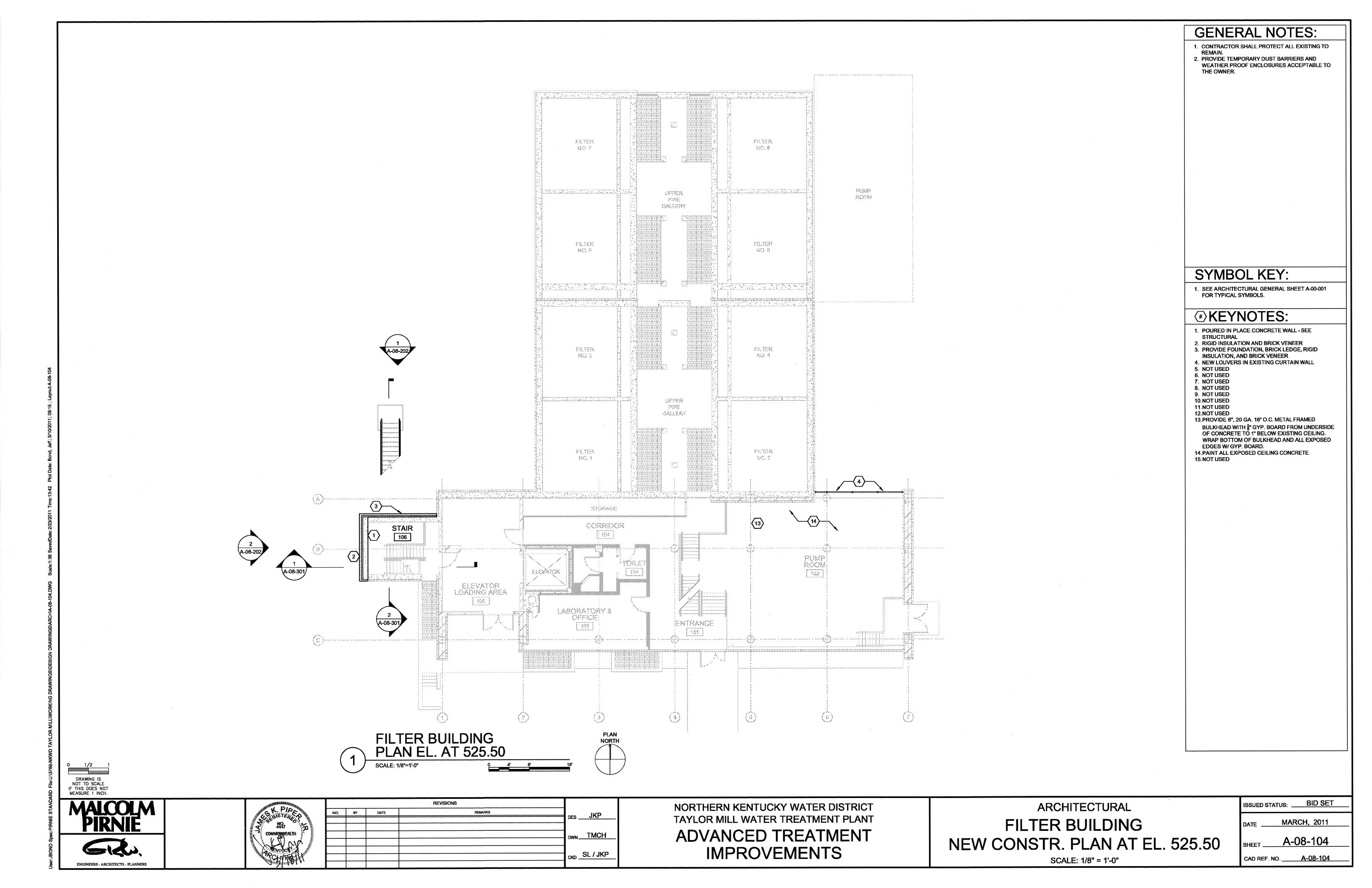
SCALE: 1/8" = 1'-0"

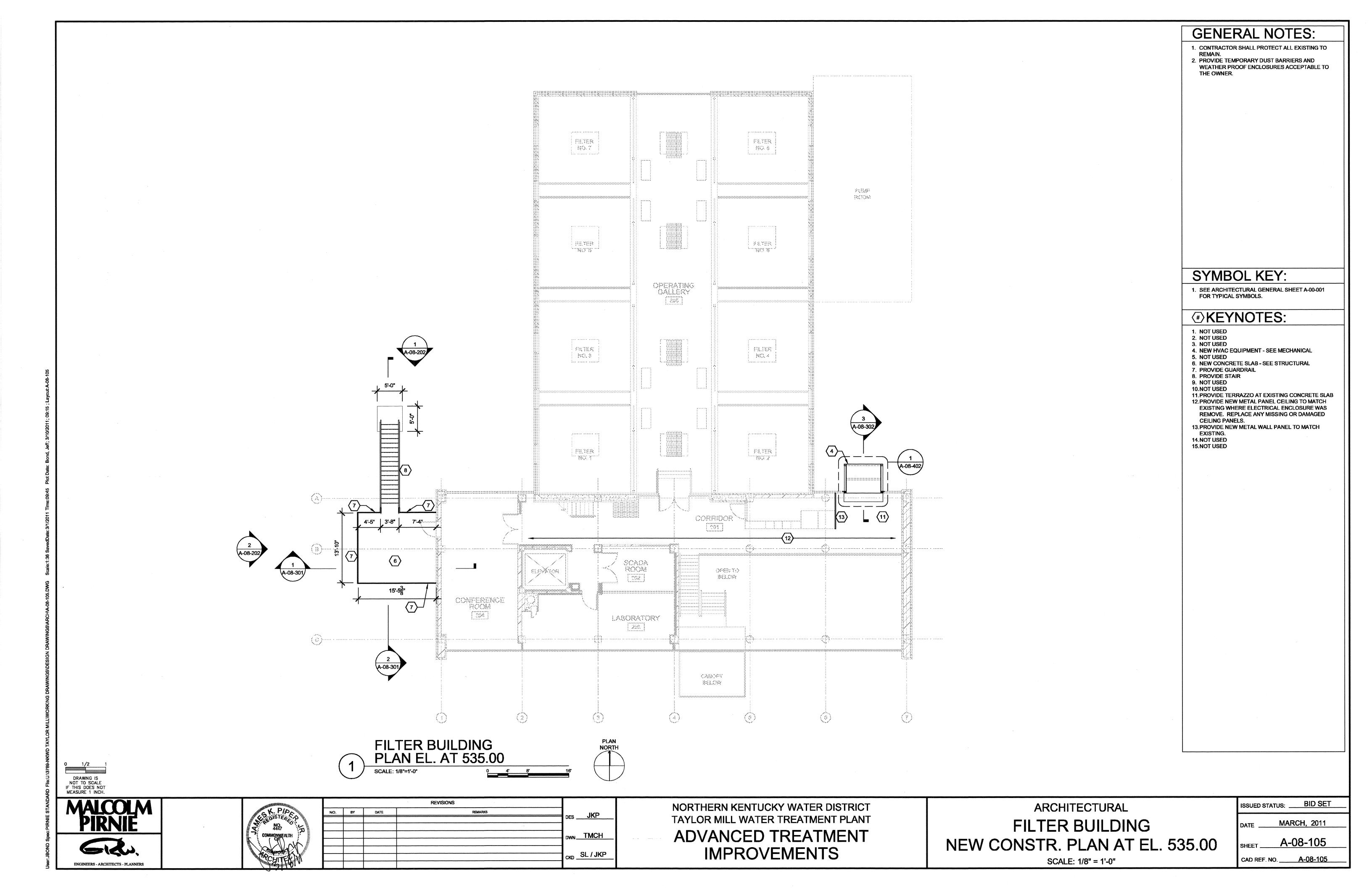
DATE MARCH, 2011

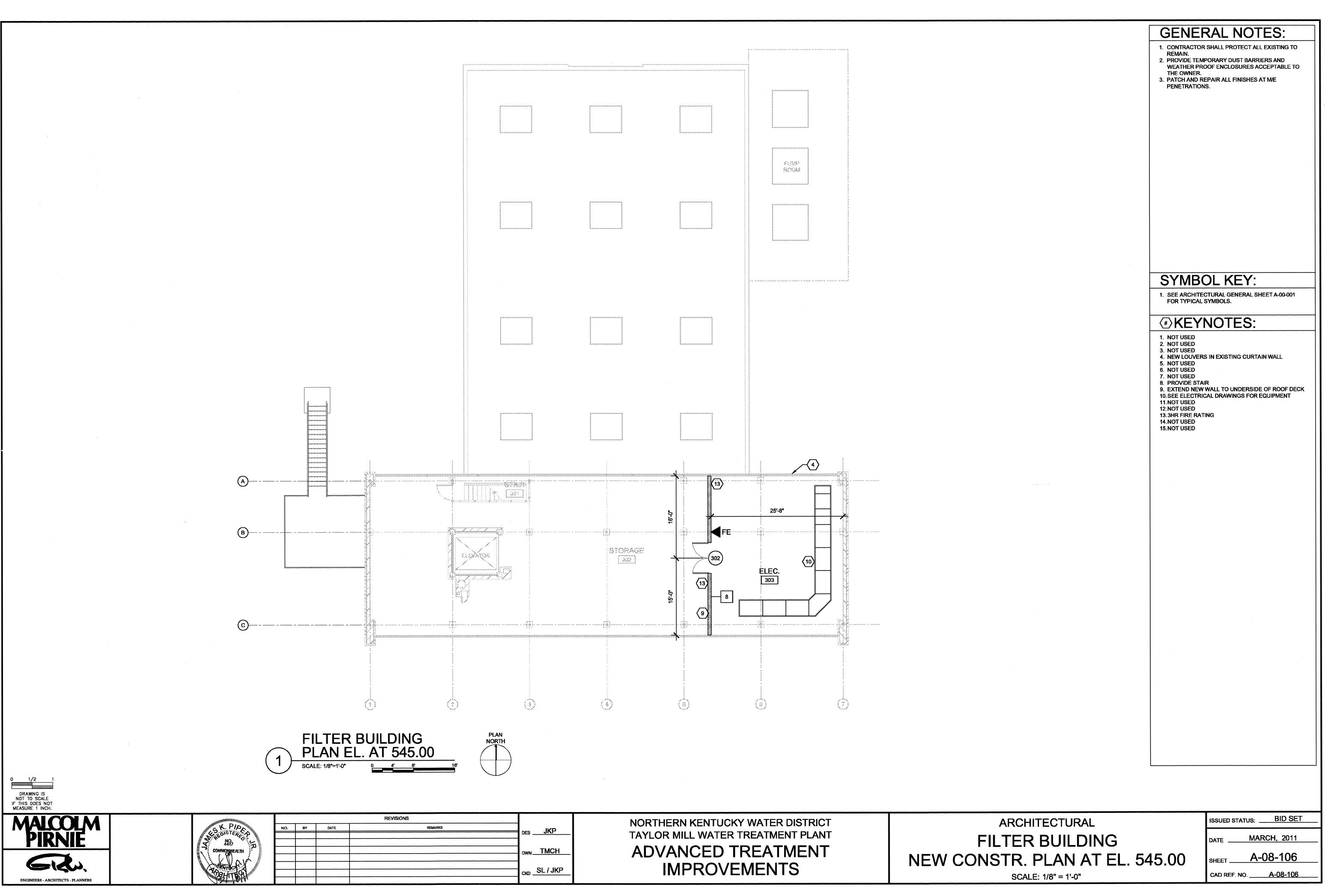
A-08-102

CAD REF. NO. <u>A-08-102</u>

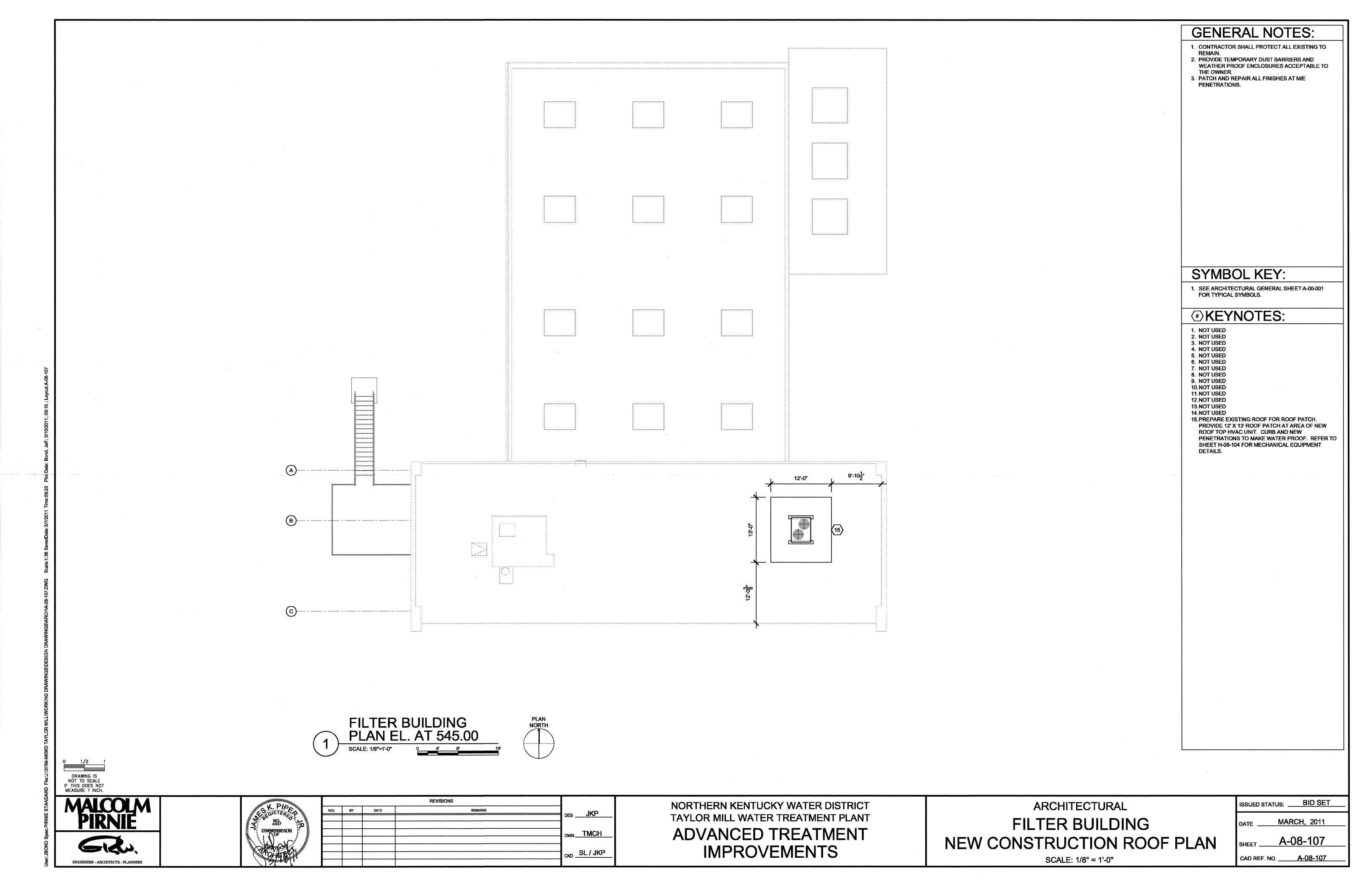


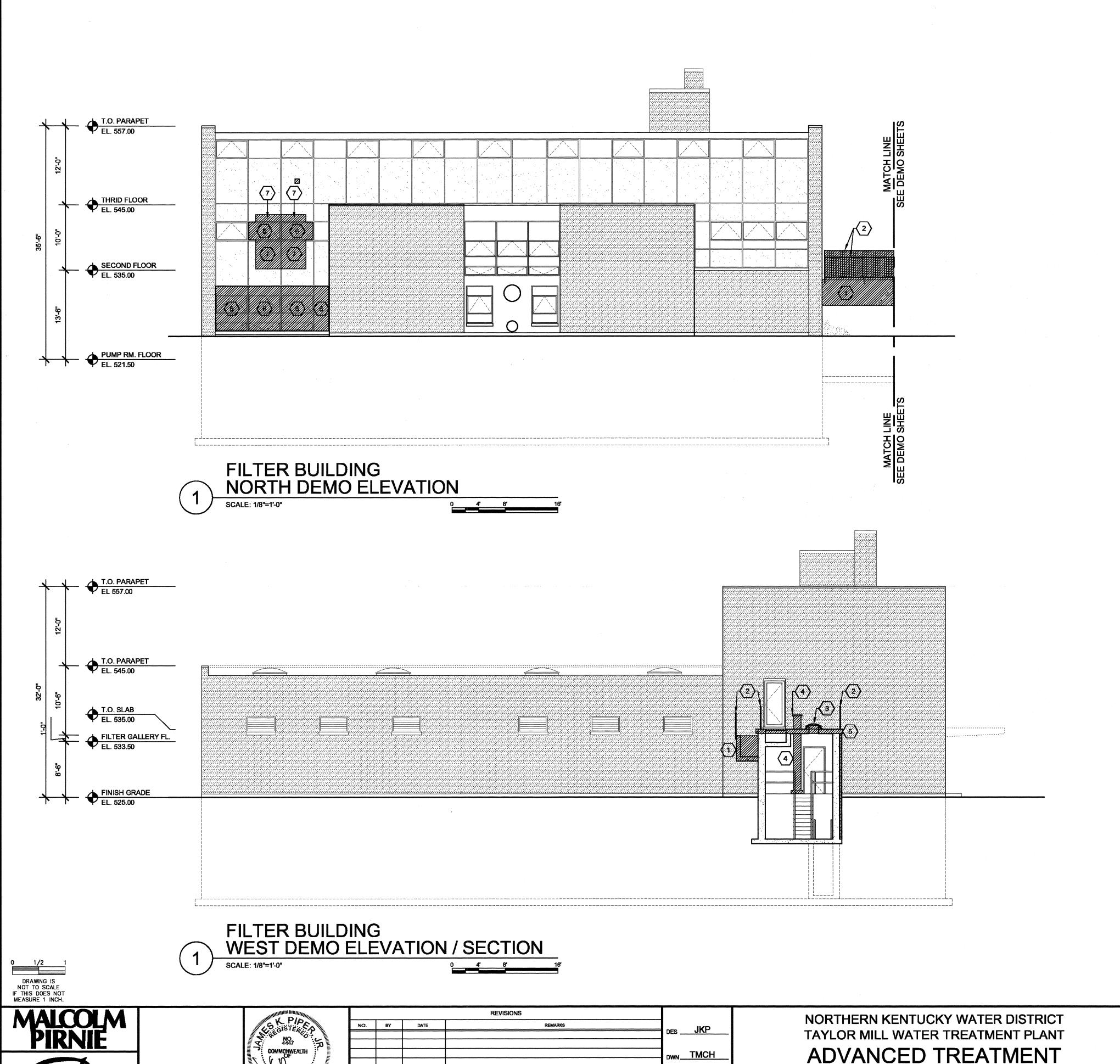






cale:1:36 SavedDate: 2/23/2011 Time: 13:42





GENERAL NOTES:

- 1. CONTRACTOR SHALL PROTECT ALL EXISTING TO
- 2. PROVIDE TEMPORARY DUST BARRIERS AND WEATHER PROOF ENCLOSURES ACCEPTABLE TO THE OWNER.
- 3. PATCH AND REPAIR ALL FINISHES AT M/E PENETRATIONS.

SYMBOL KEY:

1. SEE ARCHITECTURAL GENERAL SHEET A-00-001 FOR TYPICAL SYMBOLS.

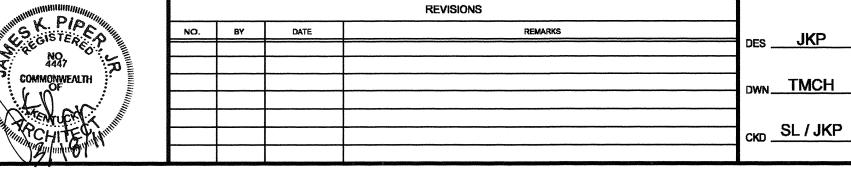
***KEYNOTES:**

- 1. DEMOLISH CONCRETE CHANNEL 2. DEMOLISH RAILING
- 3. DEMOLISH SKYLIGHT
- 4. DEMOLISH PIPE 5. DEMOLISH CONCRETE SLAB
- 6. REMOVE SPANDREL PANEL, GLASS, OPERABLE WINDOW SASH REQUIRED FOR INSTALLATION OF HVAC EQUIPMENT AND LOUVERS
- 7. SAW CUT SPANDREL PANEL FOR INSTALLATION OF HVAC EQUIPMENT AND LOUVERS. REFER TO STRUCTURAL SHEET S-08-302 FOR OPENING DIMENSIONS.

HAZARDOUS MATERIALS NOTES:

- 1. THE CONTRACTOR IS HEREBY ADVISED THAT THERE ARE HAZARDOUS MATERIALS PRESENT IN THE EXISTING BUILDING THAT REQUIRE SPECIAL HANDLING. SEE THE PROJECT MANUAL FOR THE HAZARDOUS MATERIALS REPORT, ASBESTOS ABATEMENT SPECIFICATIONS, AND OTHER REQUIREMENTS CONCERNING HE/SHE SUSPECTS IS HAZARDOUS OR TOXIC, DISCONTINUE WORK ON OR NEAR THAT MATERIAL AND IMMEDIATELY ADVISE THE OWNER.
- 2. BY EXECUTION OF THE CONTRACT FOR CONSTRUCTION, THE CONTRACTOR HEREBY AGREES TO BRING NO CLAIM FOR NEGLIGENCE, BREACH OF CONTRACT, INDEMNITY. OR OTHERWISE AGAINST THE ARCHITECT, HIS EMPLOYEES, AGENTS, AND CONSULTANTS HARMLESS FROM ANY SUCH CLAIMS RELATED TO HAZARDOUS MATERIALS THAT MAY BE BROUGHT BY THE CONTRACTORS, SUBCONTRACTORS, SUPPLIERS, OR THIRD PARTIES WHO MAY BE ACTING UNDER THE DIRECTION OF THE CONTRACTOR PURSUANT TO THIS PROJECT.





ADVANCED TREATMENT **IMPROVEMENTS**

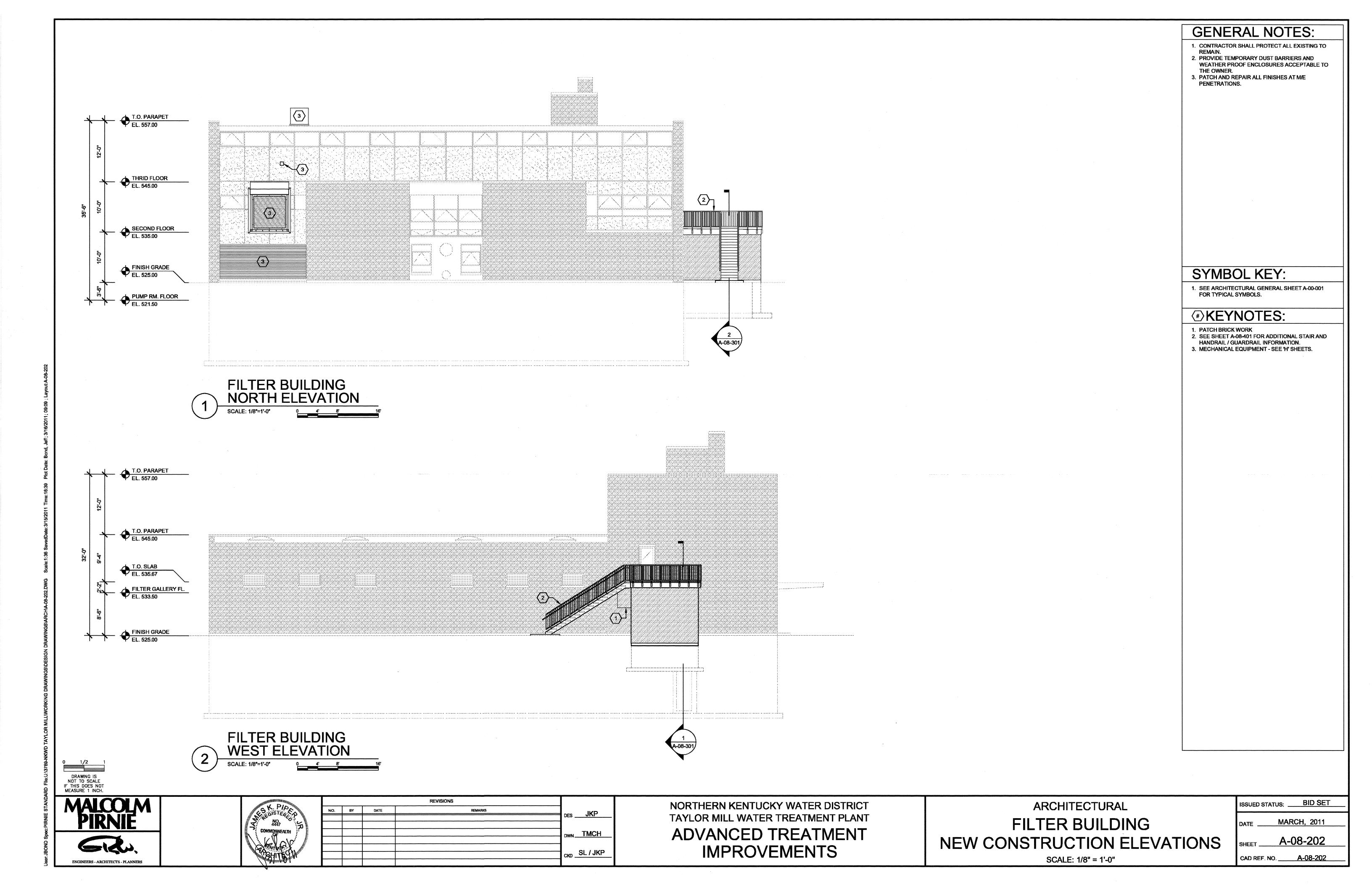
ARCHITECTURAL FILTER BUILDING DEMOLITION ELEVATIONS / SECTIONS SHEET_

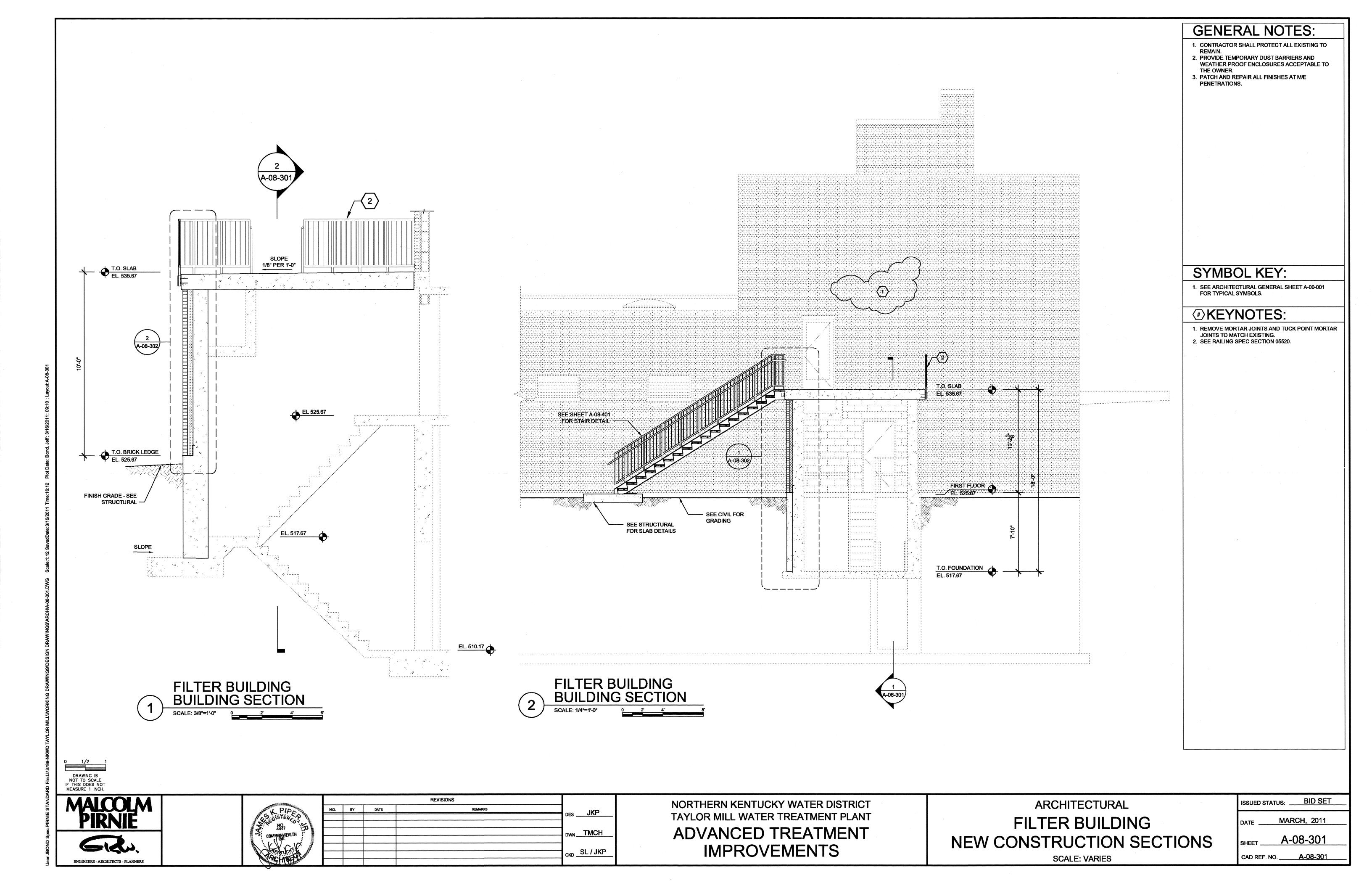
ISSUED STATUS: BID SET MARCH, 2011

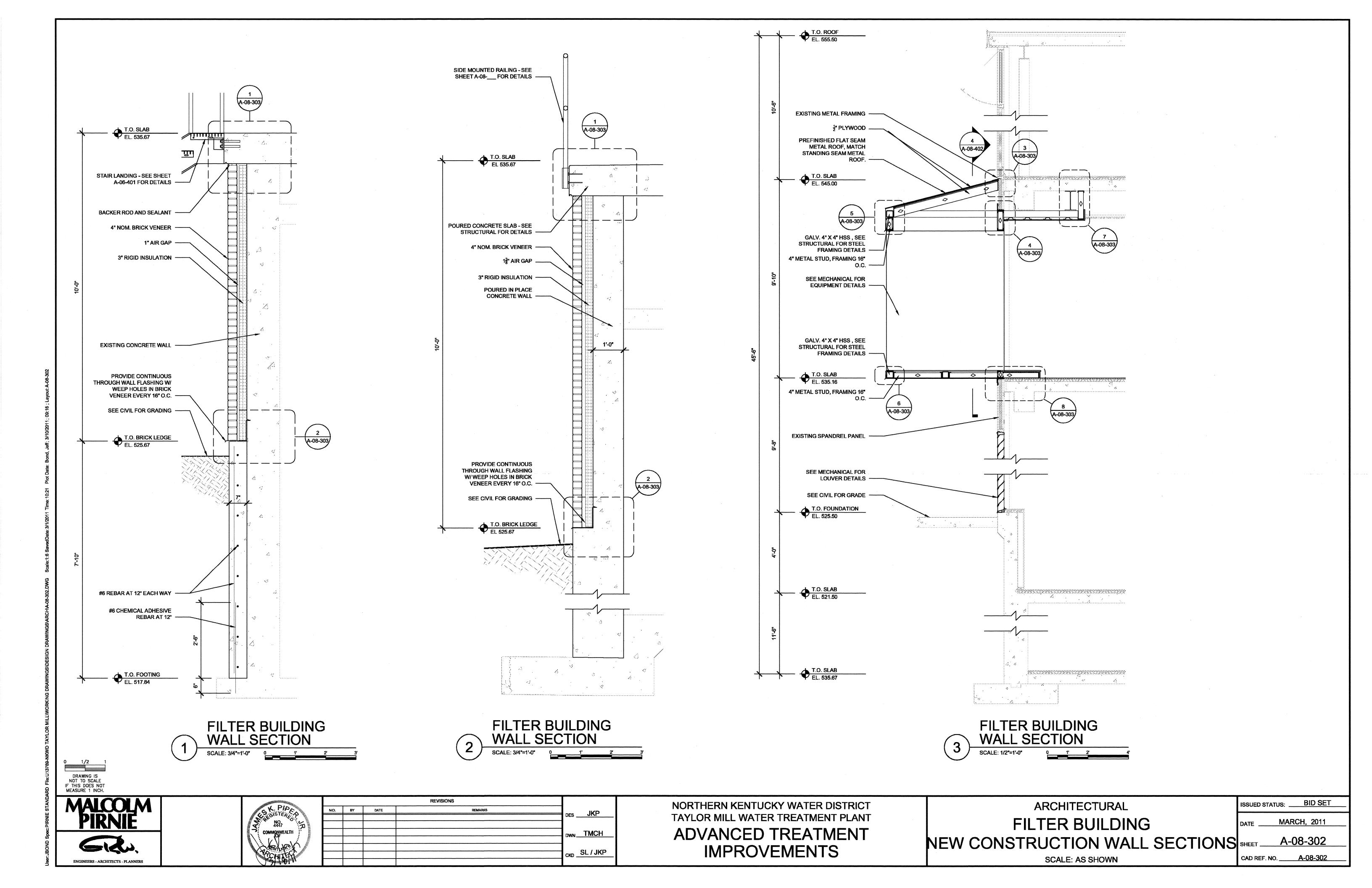
A-08-201

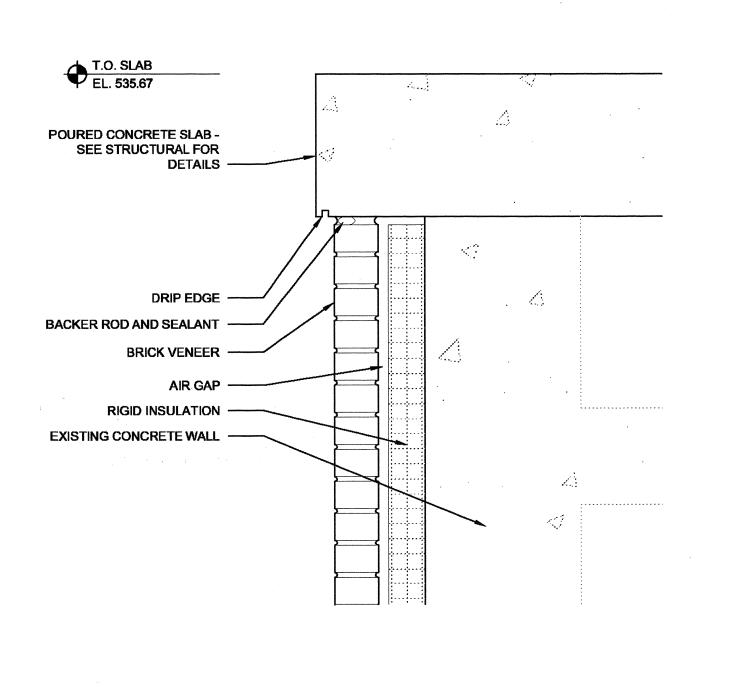
CAD REF. NO. <u>A-08-201</u>

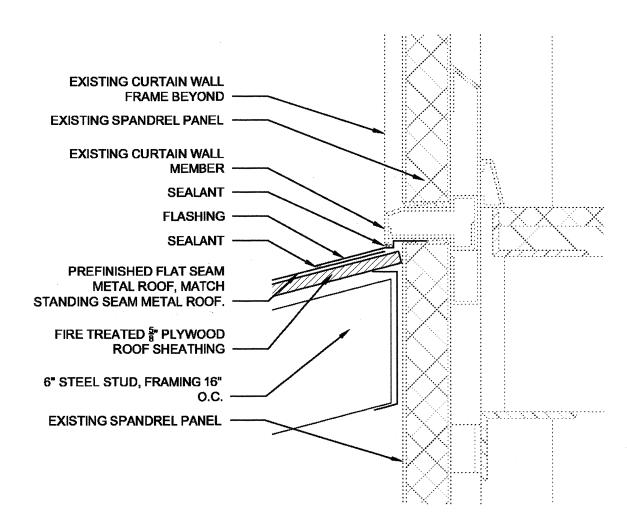
SCALE: 1/8" = 1'-0"

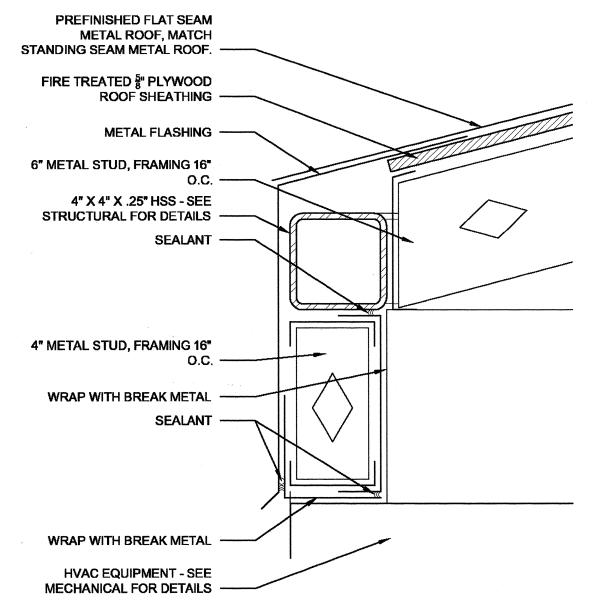


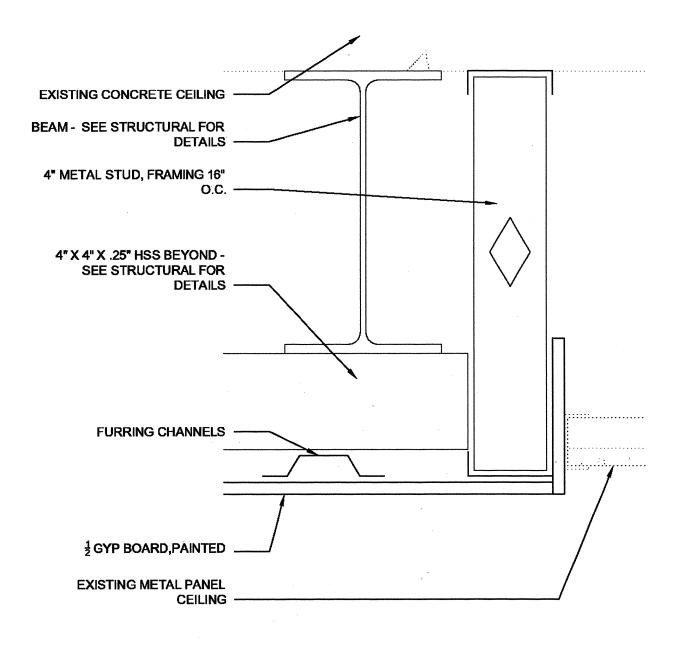




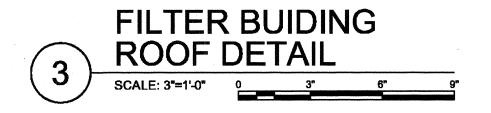


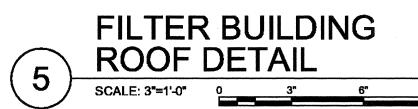




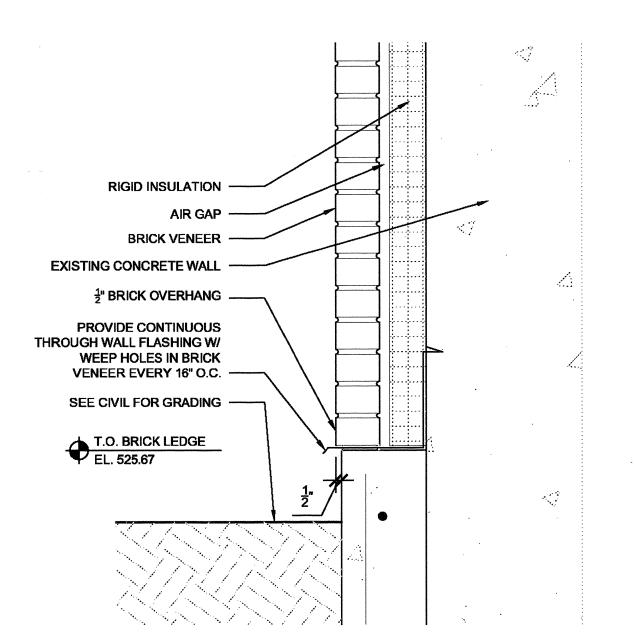


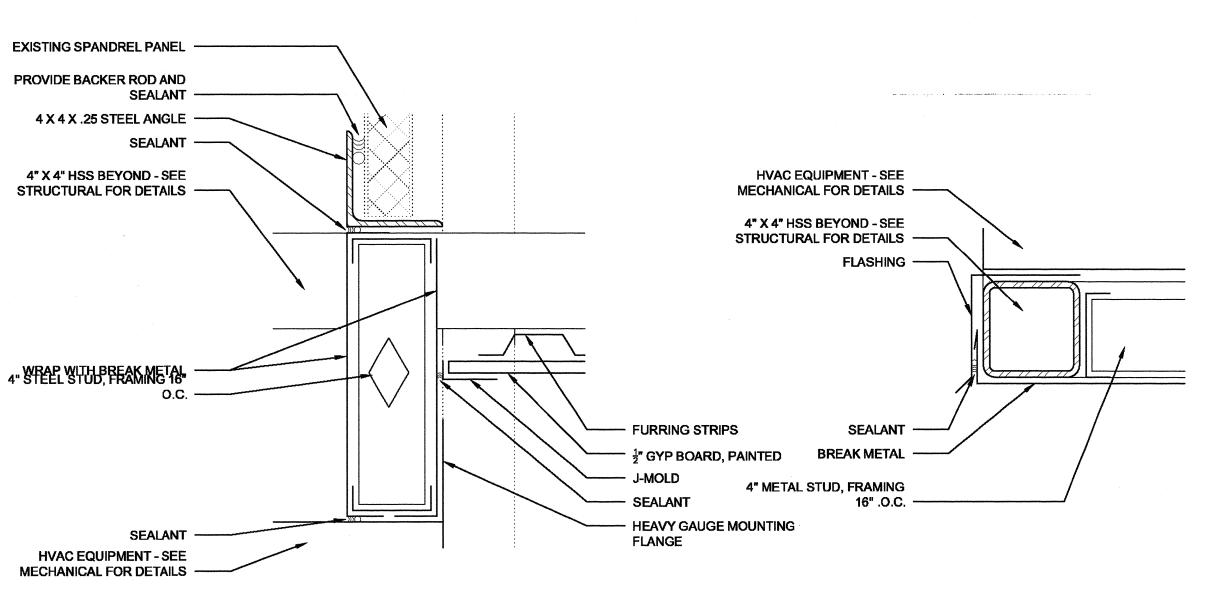


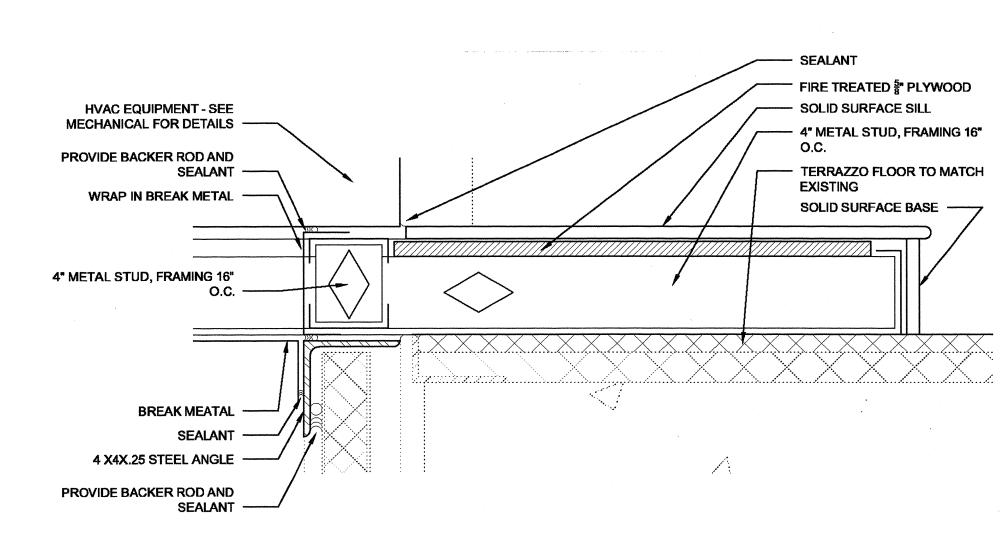












FILTER BUILDING
WALL DETAIL

SCALE: 3/4"=1'-0" 0 1' 2



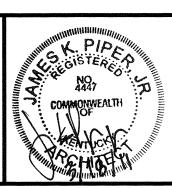




DRAWING IS
NOT TO SCALE
IF THIS DOES NOT
MEASURE 1 INCH.



GINEERS - ARCHITECTS - PLANNERS



			REVISIONS	
NO.	BY	DATE	REMARKS	DES JKP
				DES JKP
				DWN TMCH
				CKD SL/JKP
				CKD

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT

ADVANCED TREATMENT IMPROVEMENTS

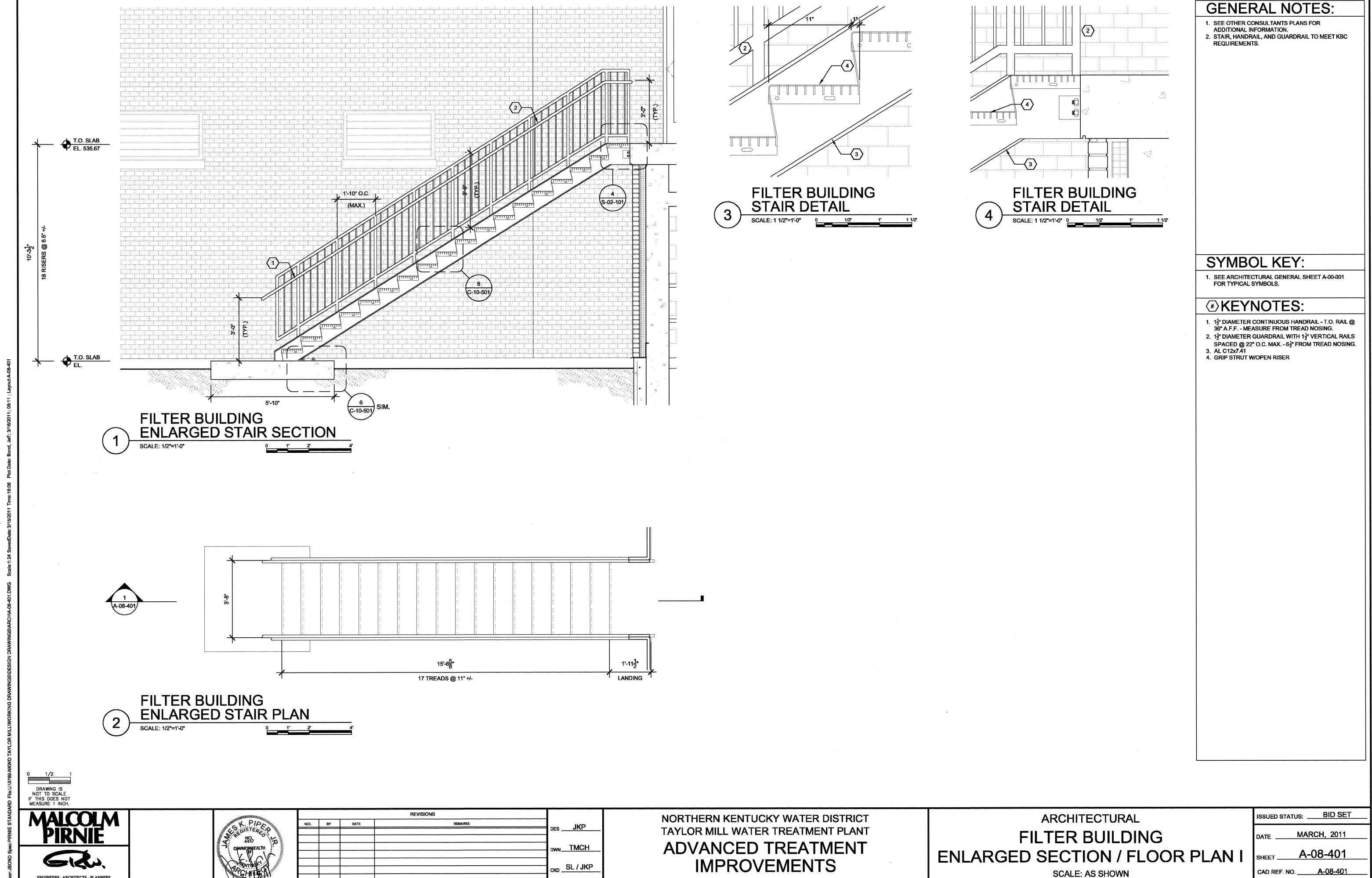
FILTER BUILDING
ROOF / WALL DETAILS

SCALE: AS SHOWN

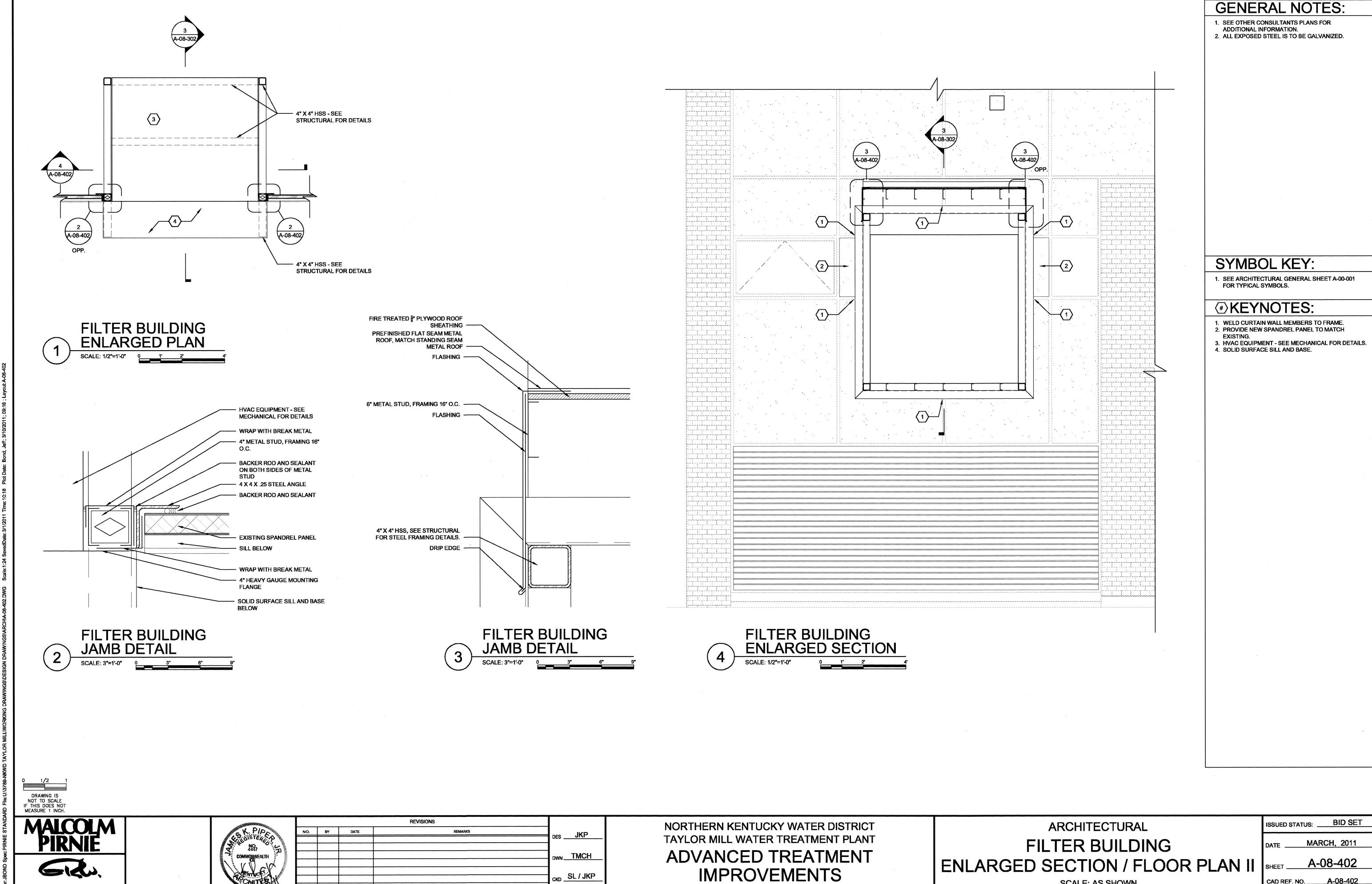
DATE MARCH, 2011

SHEET A-08-303

CAD REF. NO. A-08-303



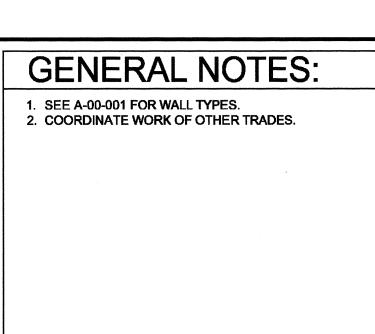
SCALE: AS SHOWN



CKD SL/JKP

CAD REF. NO. <u>A-08-402</u>

SCALE: AS SHOWN



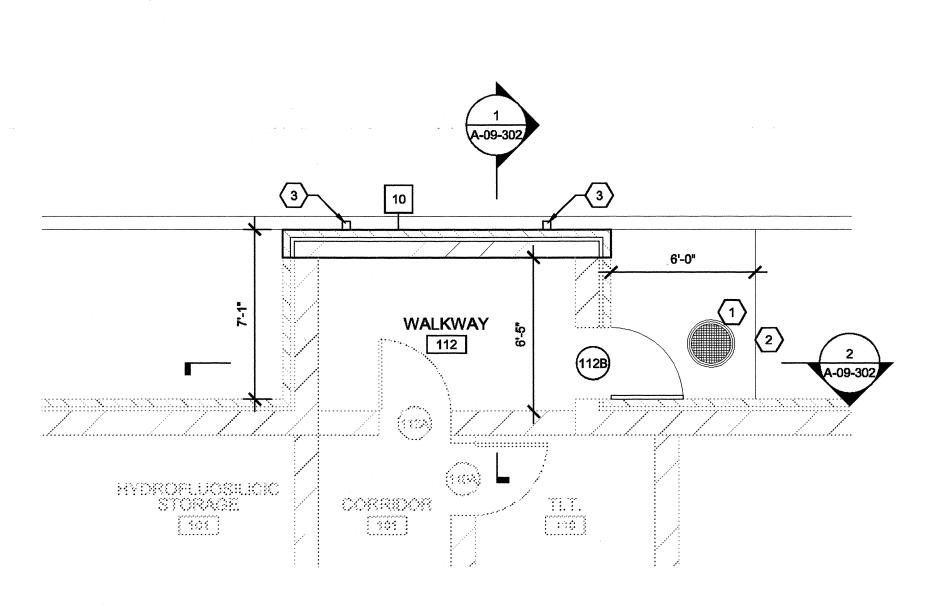
SYMBOL KEY:

SEE ARCHITECTURAL GENERAL SHEET A-00-001 FOR TYPICAL SYMBOLS.

***KEYNOTES**:

- 1. MANHOLE SEE PLUMBING
- 2. NEW CONCRETE PAD
 3. 4" DIA. DOWNSPOUT W/ BOOTS
- 4. DEMOLISH STEPS
- 5. REMOVE RAILING
- 6. REMOVE DOOR

7. DEMOLISH CURB AND CONCRETE PAD

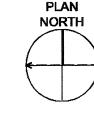


HAZARDOUS MATERIALS NOTES:

- PRESENT IN THE EXISTING BUILDING THAT REQUIRE SPECIAL HANDLING. SEE THE PROJECT MANUAL FOR THE HAZARDOUS MATERIALS REPORT, ASBESTOS ABATEMENT SPECIFICATIONS, AND OTHER REQUIREMENTS CONCERNING HAZARDOUS MATERIALS. IF ANY WORKMAN ENCOUNTERS ANY MATERIALS WHICH HE/SHE SUSPECTS IS HAZARDOUS OR TOXIC, DISCONTINUE WORK ON OR NEAR THAT MATERIAL AND IMMEDIATELY ADVISE THE OWNER
- AGREES TO BRING NO CLAIM FOR NEGLIGENCE, BREACH OF CONTRACT, INDEMNITY, OR OTHERWISE AGAINST THE ARCHITECT, HIS EMPLOYEES, AGENTS, AND CONSULTANTS HARMLESS FROM ANY SUCH CLAIMS RELATED TO HAZARDOUS MATERIALS THAT MAY BE BROUGHT BY THE CONTRACTORS, SUBCONTRACTORS, SUPPLIERS, OR THIRD PARTIES WHO MAY BE ACTING UNDER THE DIRECTION OF THE CONTRACTOR PURSUANT TO THIS PROJECT.

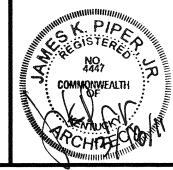


HYDROFLUOSILICIC STORAGE









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3 4447						TMOLL
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NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT **IMPROVEMENTS**

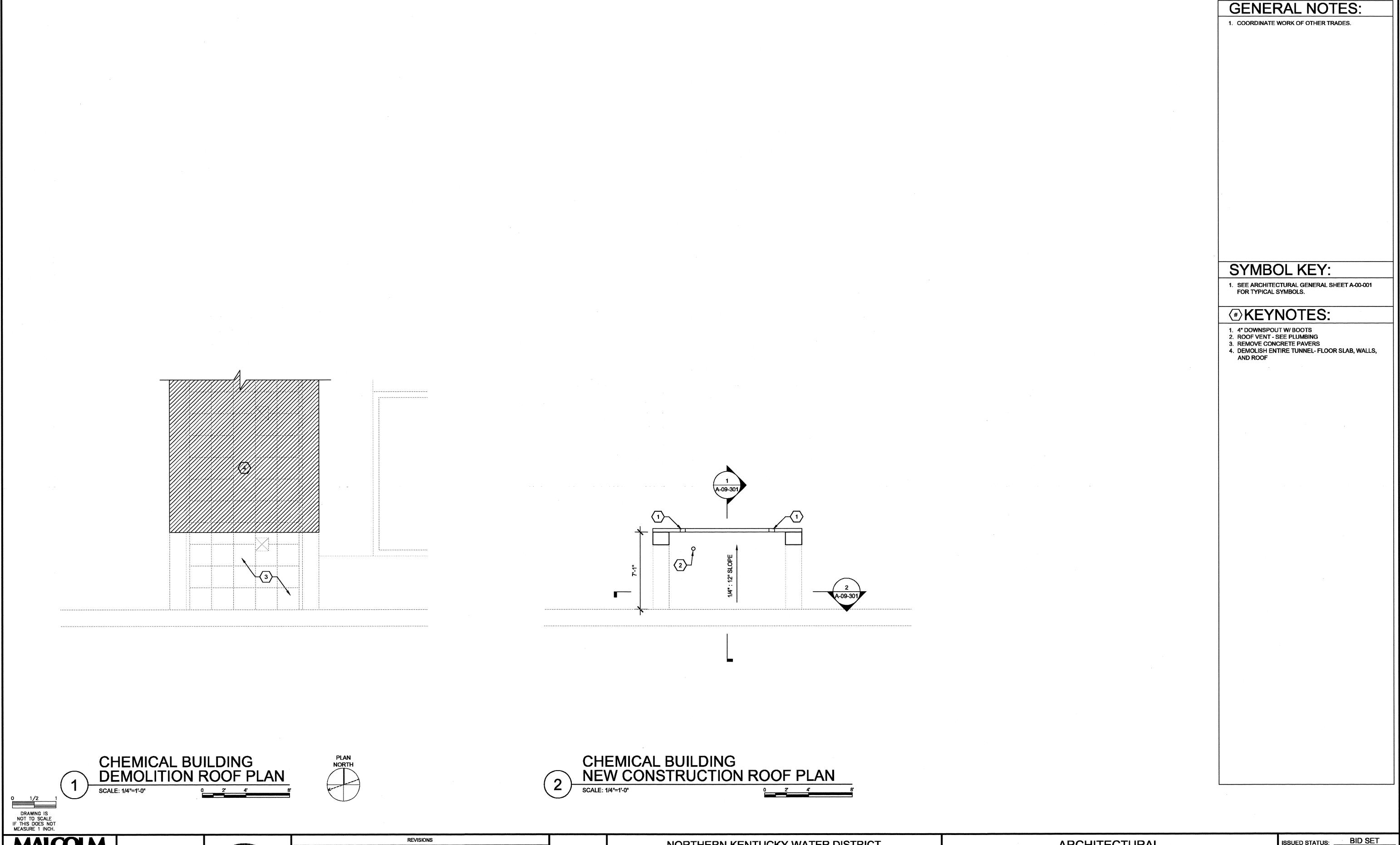
ARCHITECTURAL CHEMICAL BUILDING DEMO / NEW CONSTRUCTION PLANS AT EL. 521.80

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

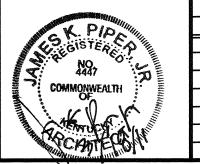
ISSUED STATUS: BID SET MARCH, 2011

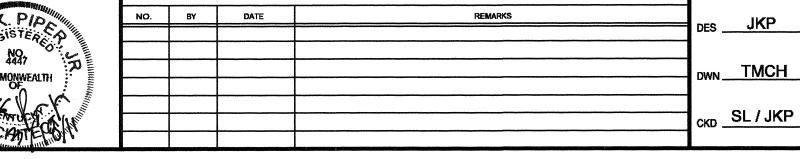
A-09-101

CAD REF. NO. <u>A-09-101</u>



MALCOLM PIRNIE





NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT

ADVANCED TREATMENT **IMPROVEMENTS**

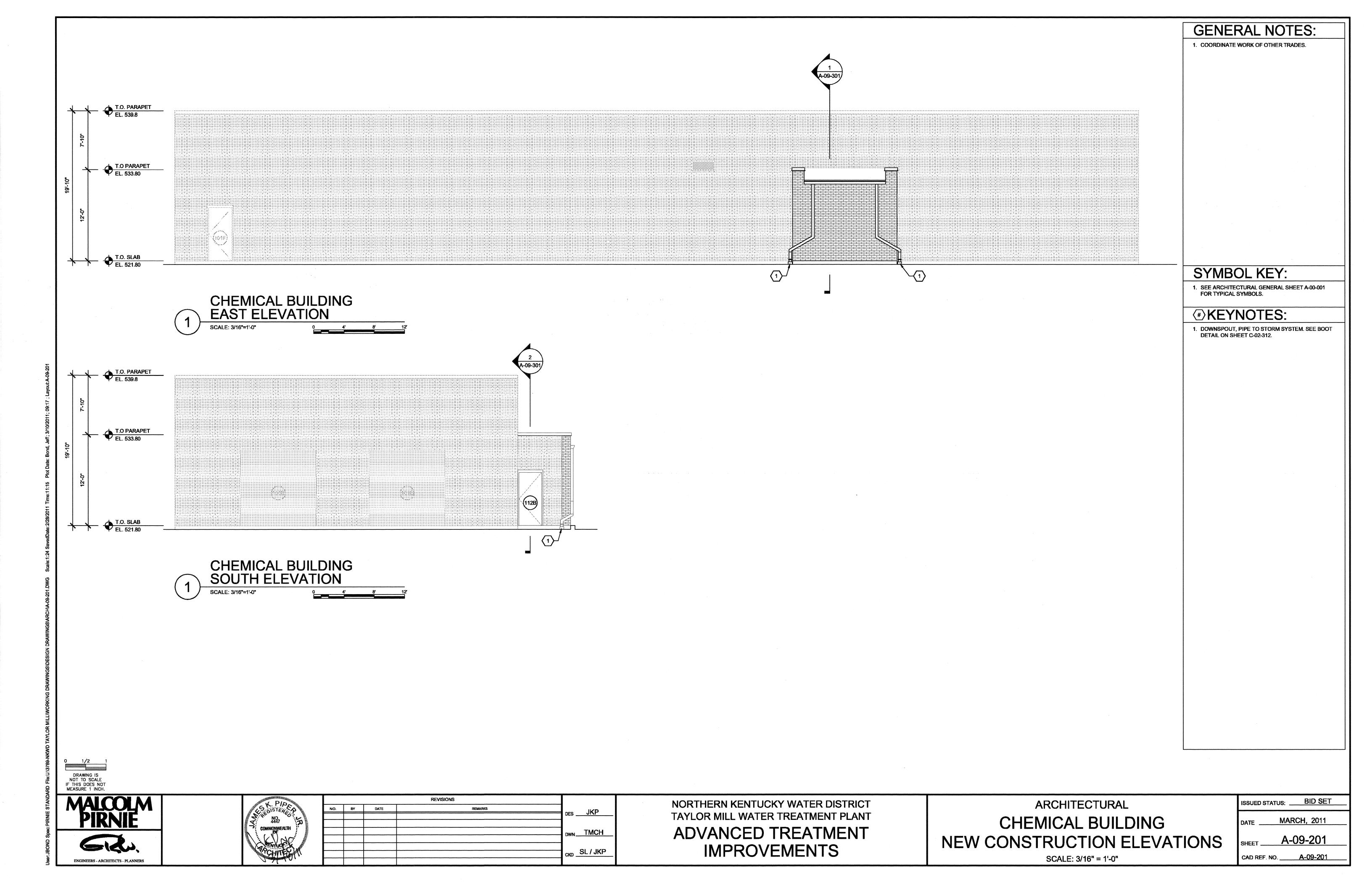
ARCHITECTURAL

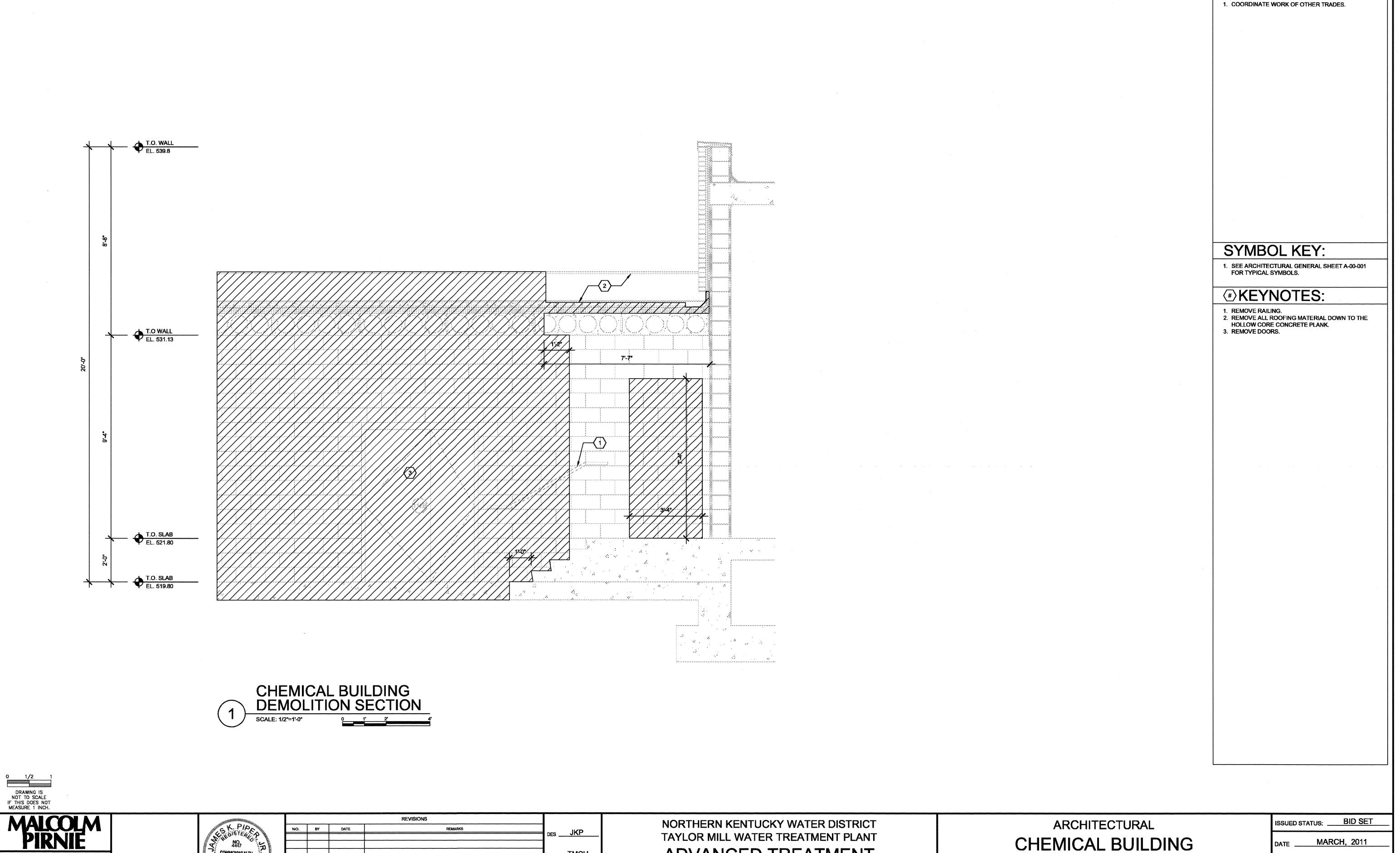
CHEMICAL BUILDING DEMO / NEW CONSTRUCTION ROOF PLAN

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

ISSUED STATUS: BID SET MARCH, 2011 SHEET ______A-09-102

CAD REF. NO. <u>A-09-102</u>





ADVANCED TREATMENT

IMPROVEMENTS

WN TMCH

CKD SL/JKP

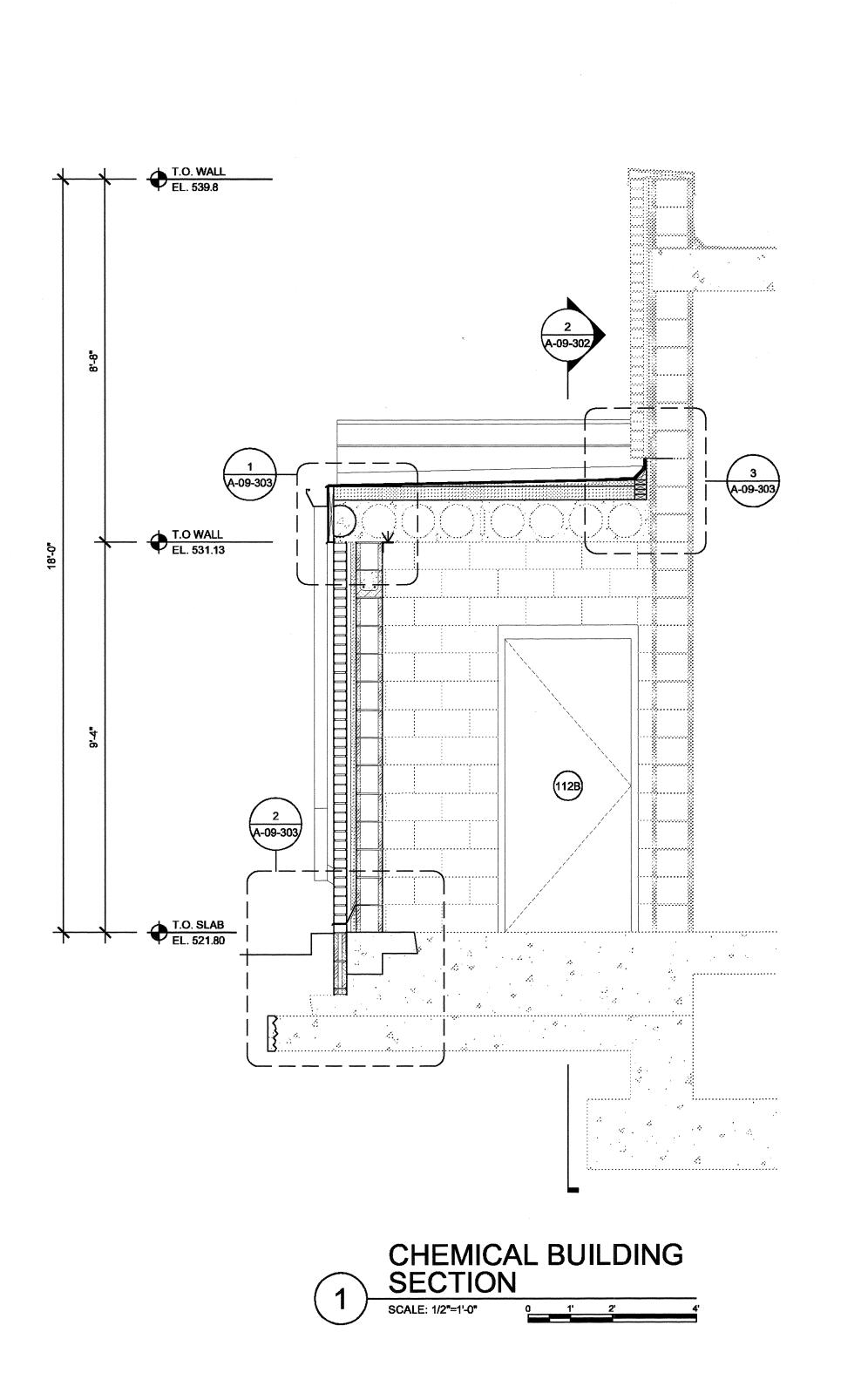
MARCH, 2011

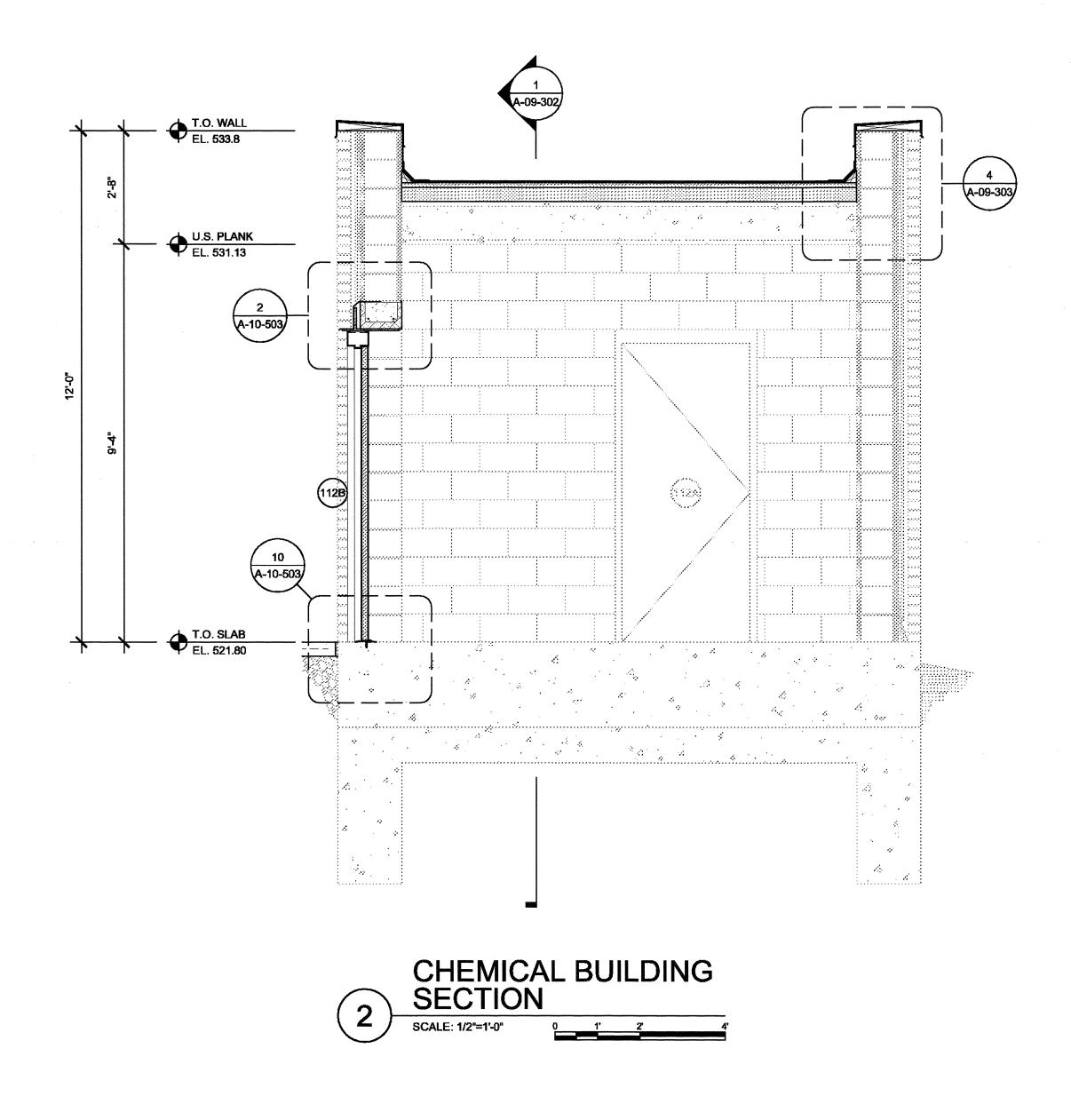
A-09-301 CAD REF. NO. _____A-09-301

GENERAL NOTES:

SCALE: 3/16" = 1'-0"

DEMOLITION SECTION





GENERAL NOTES: 1. COORDINATE WORK OF OTHER TRADES.

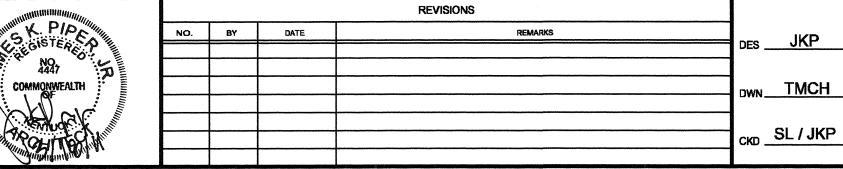
SYMBOL KEY:

SEE ARCHITECTURAL GENERAL SHEET A-00-001 FOR TYPICAL SYMBOLS.

#KEYNOTES:

MALCOLM PIRNIE





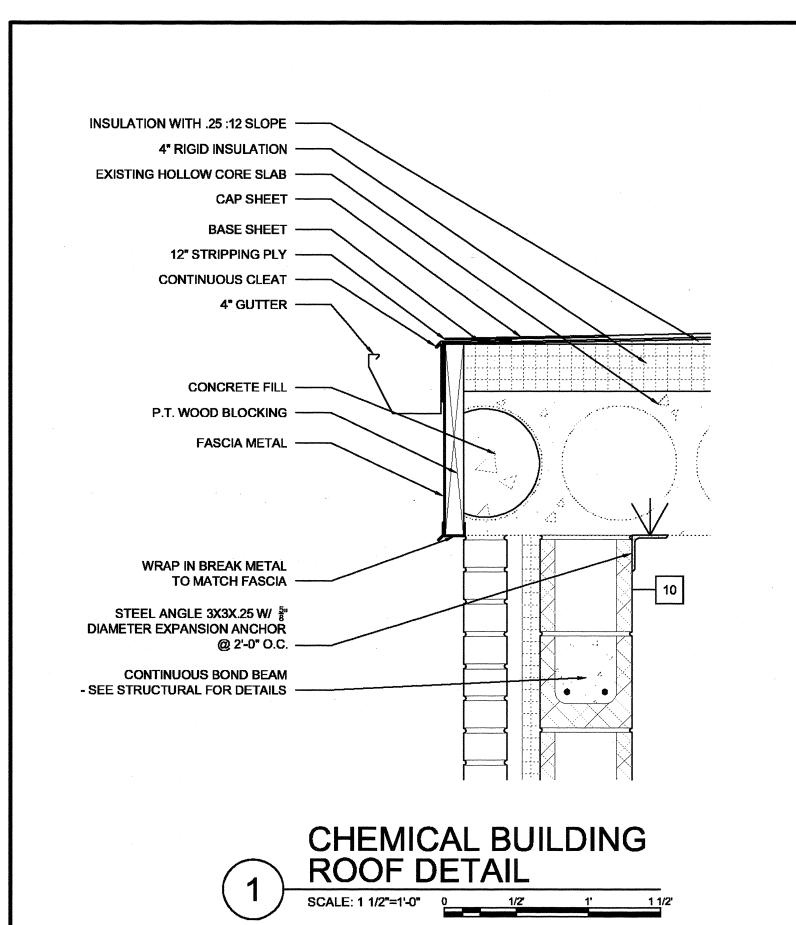
NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT **IMPROVEMENTS**

ARCHITECTURAL CHEMICAL BUILDING

NEW CONSTRUCTION SECTIONS SCALE: 3/16" = 1'-0"

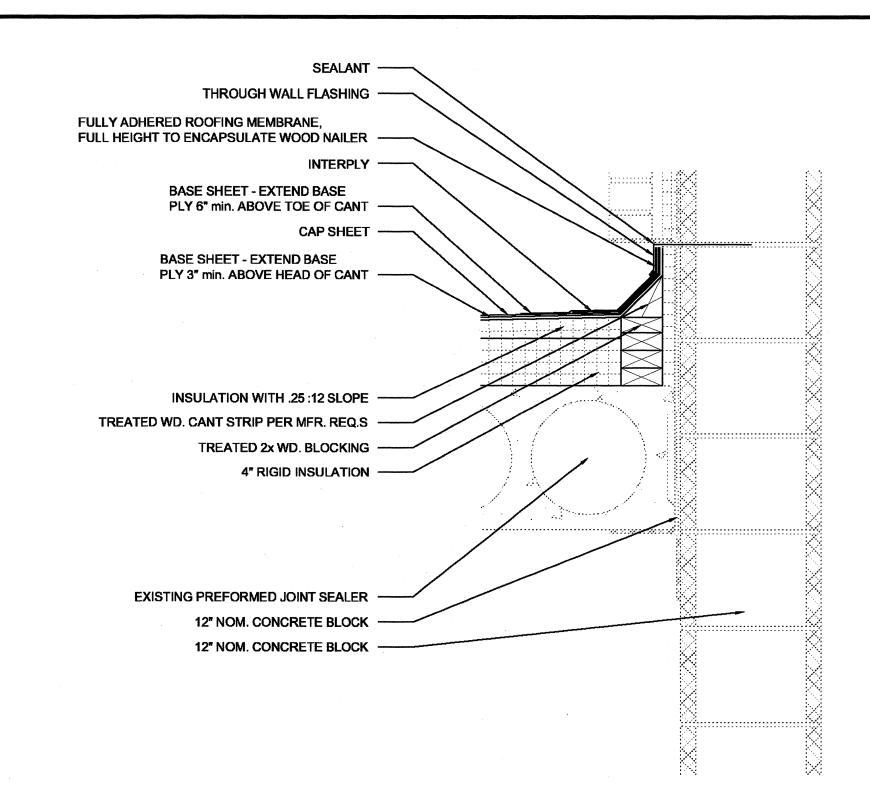
ISSUED STATUS: BID SET MARCH, 2011 A-09-302

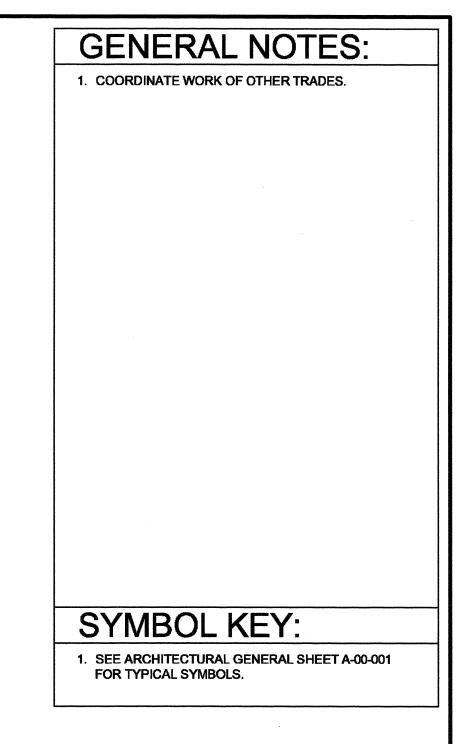
CAD REF. NO. <u>A-09-302</u>



CHEMICAL BUILDING

WALL DETAIL





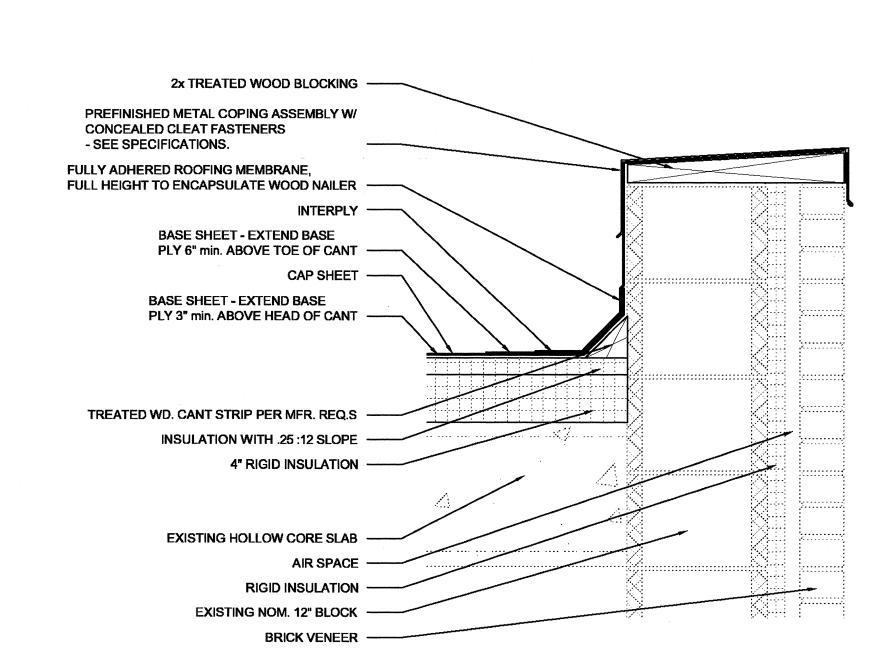
2 CHEMICAL BUILDING ROOF DETAIL

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

CHEMICAL BUILDING

ROOF DETAIL

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



DES JKP

WN TMCH

SL/JKP

ı

CONTINUOUS THROUGH WALL

SEE CIVIL FOR CURB AND DRIVE AISLE DETAILS —

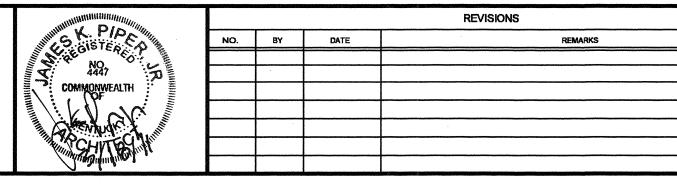
NEW POURED CONCRETE

EXISTING CONCRETE
STAIRS/LANDING —

EXISTING FLOOR SLAB -

F.F.E. EL. 521.80

MALCOLM PIRNIE



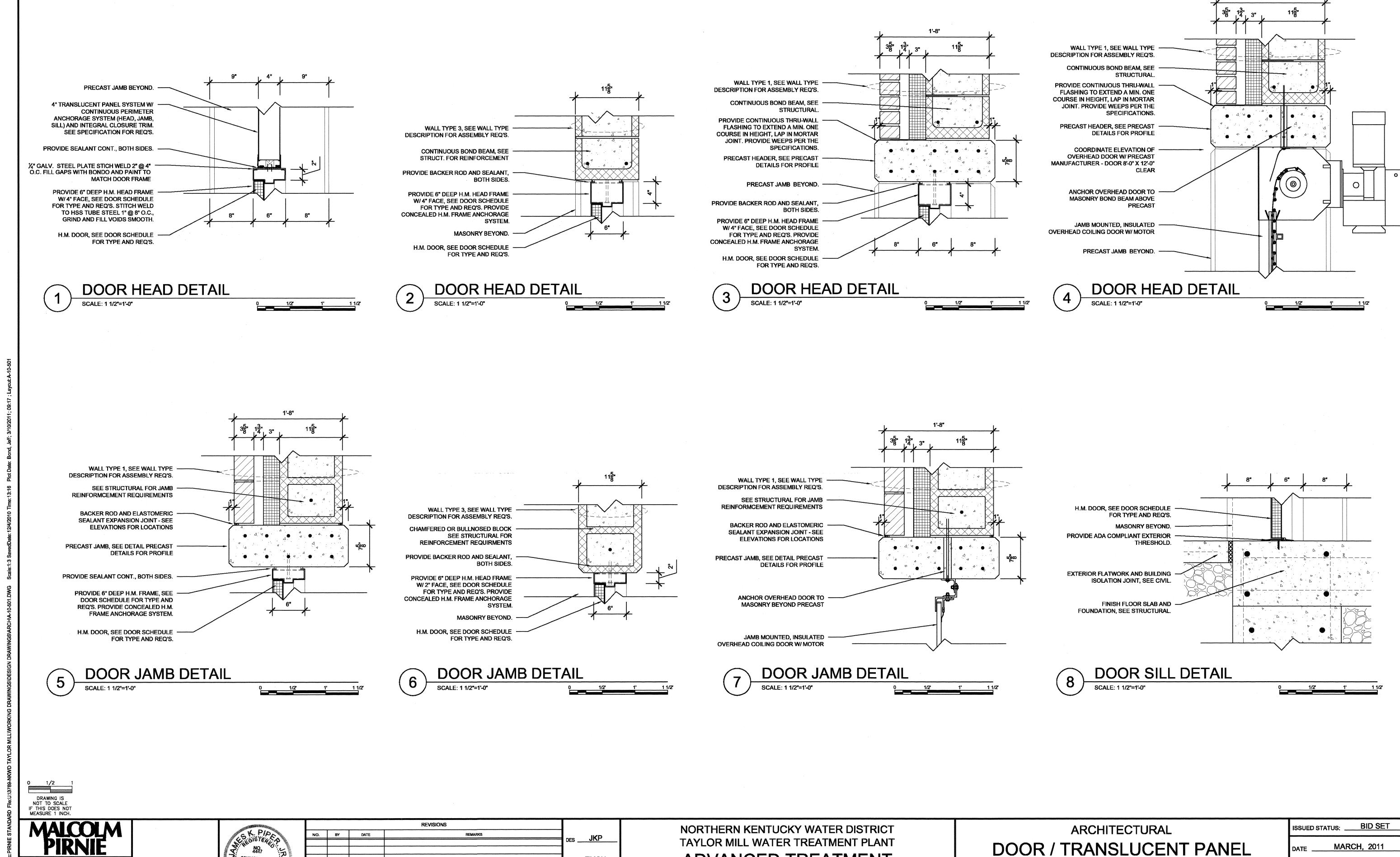
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT
ADVANCED TREATMENT
IMPROVEMENTS

ARCHITECTURAL
CHEMICAL BUILDING
ROOF / WALL DETAILS
SCALE: 3/16" = 1'-0"

DATE _______ MARCH, 2011

SHEET ______ A-09-303

CAD REF. NO. ______ A-09-303



ADVANCED TREATMENT

IMPROVEMENTS

TYPICAL DETAILS I

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

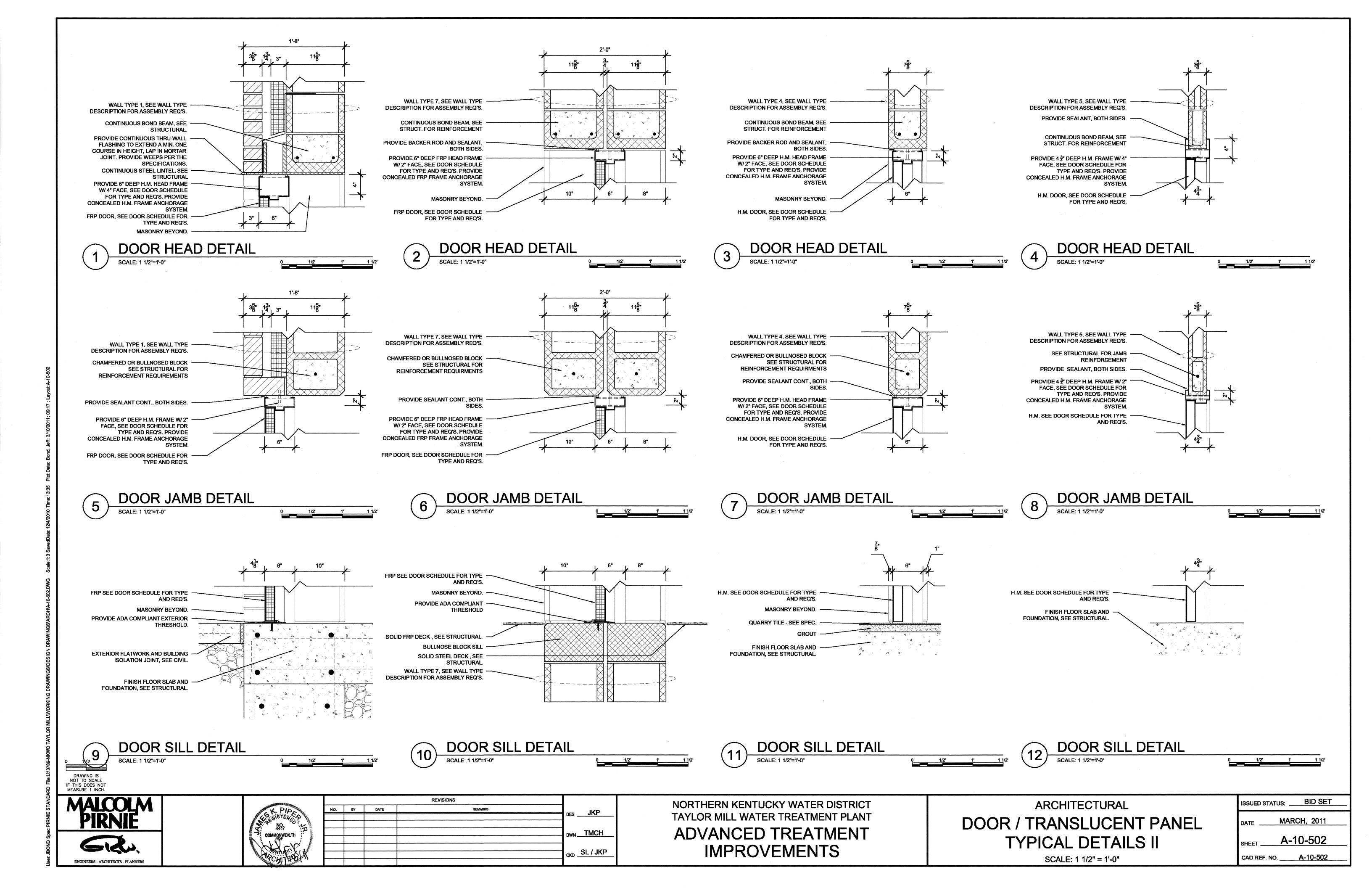
A-10-501

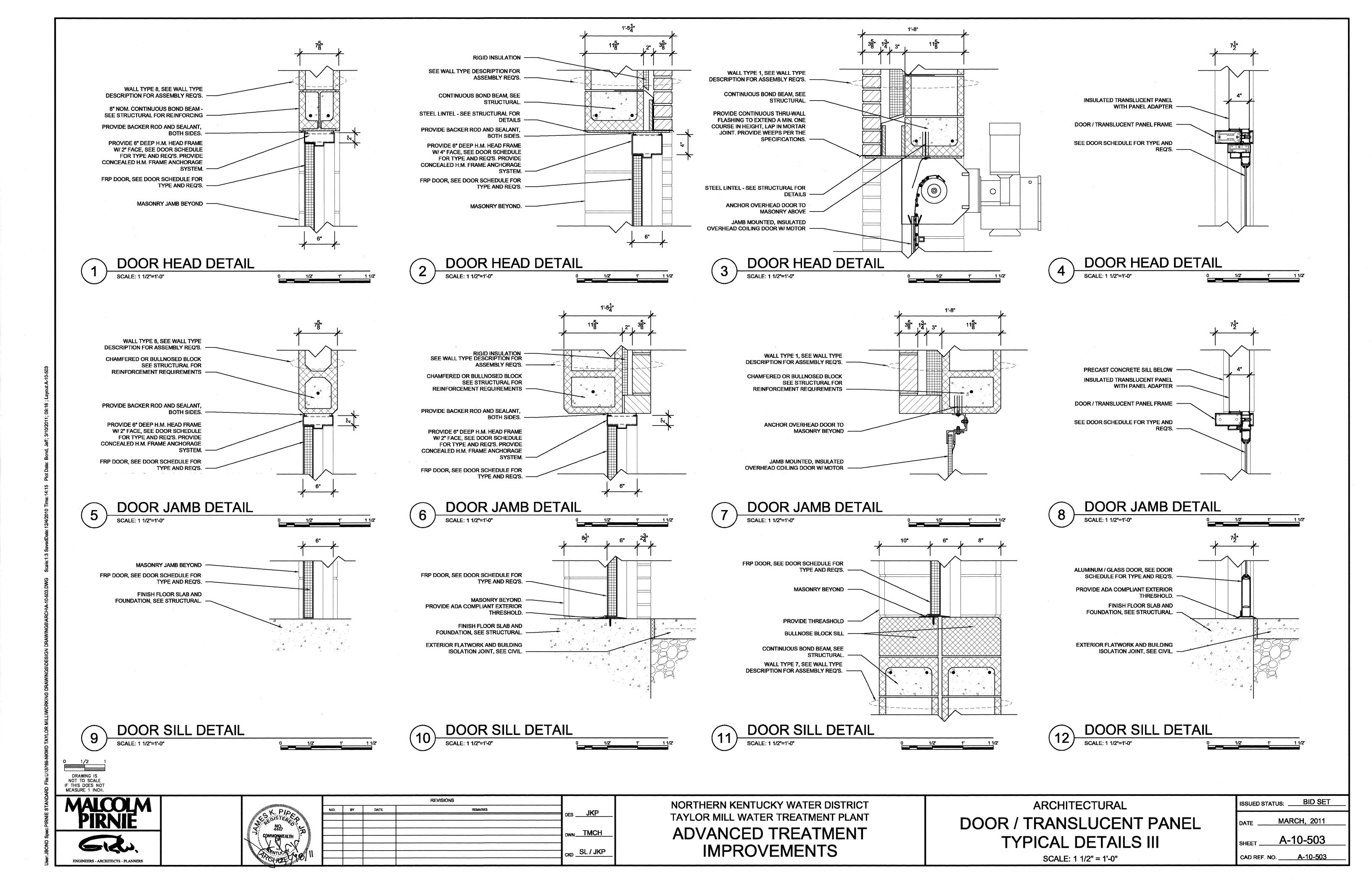
CAD REF. NO. <u>A-10-501</u>

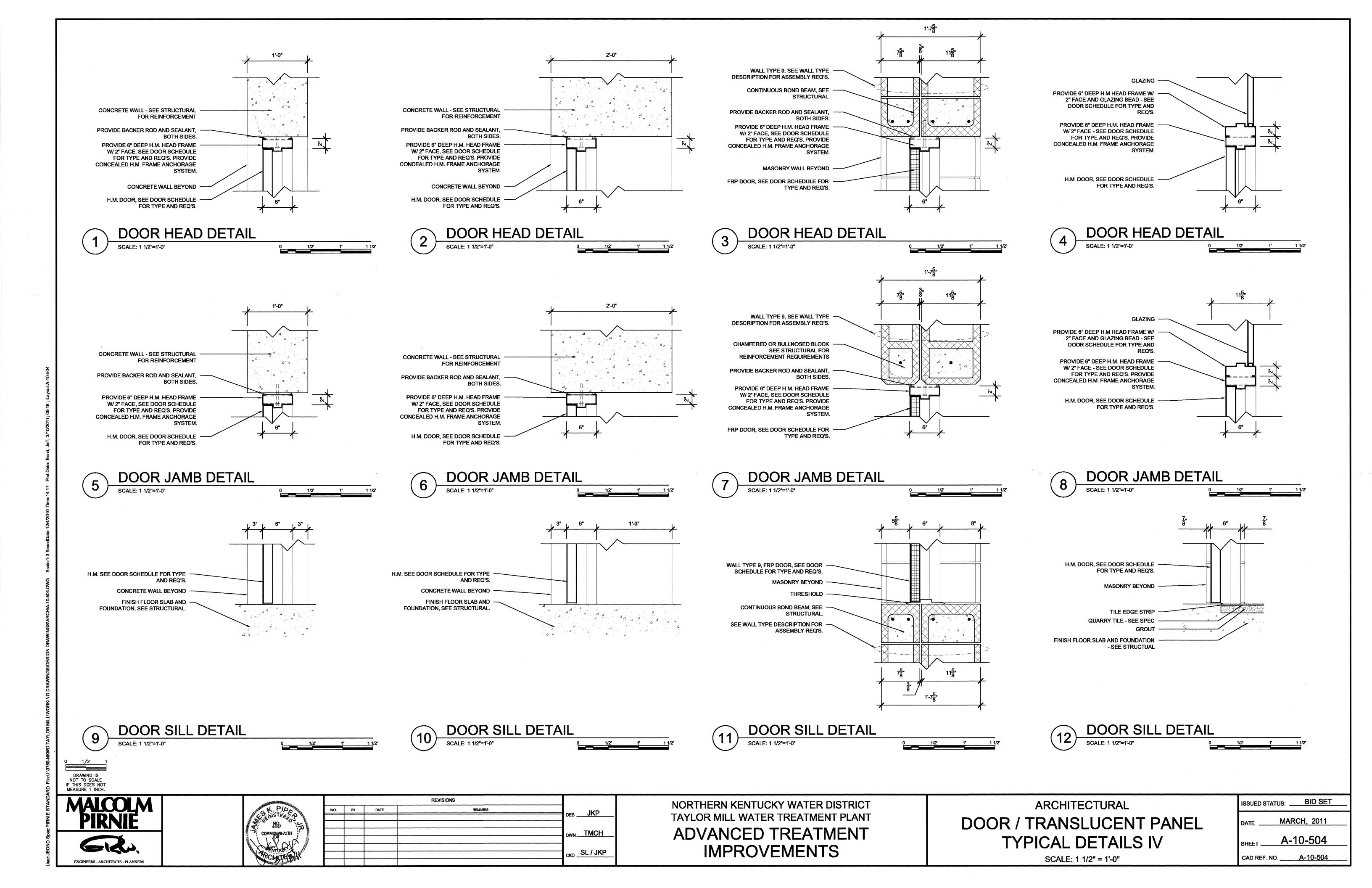
WN_TMCH

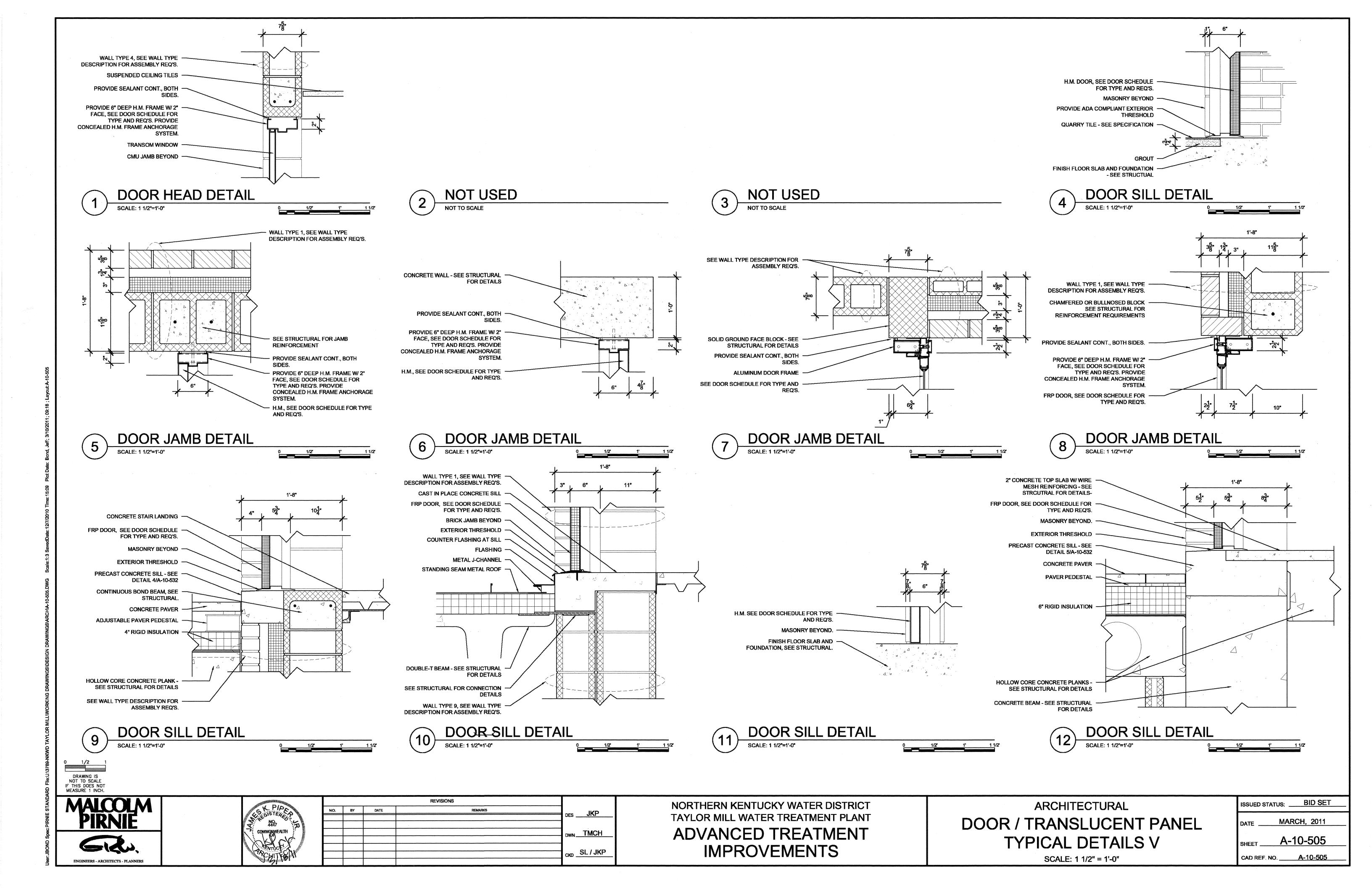
n SL/JKP

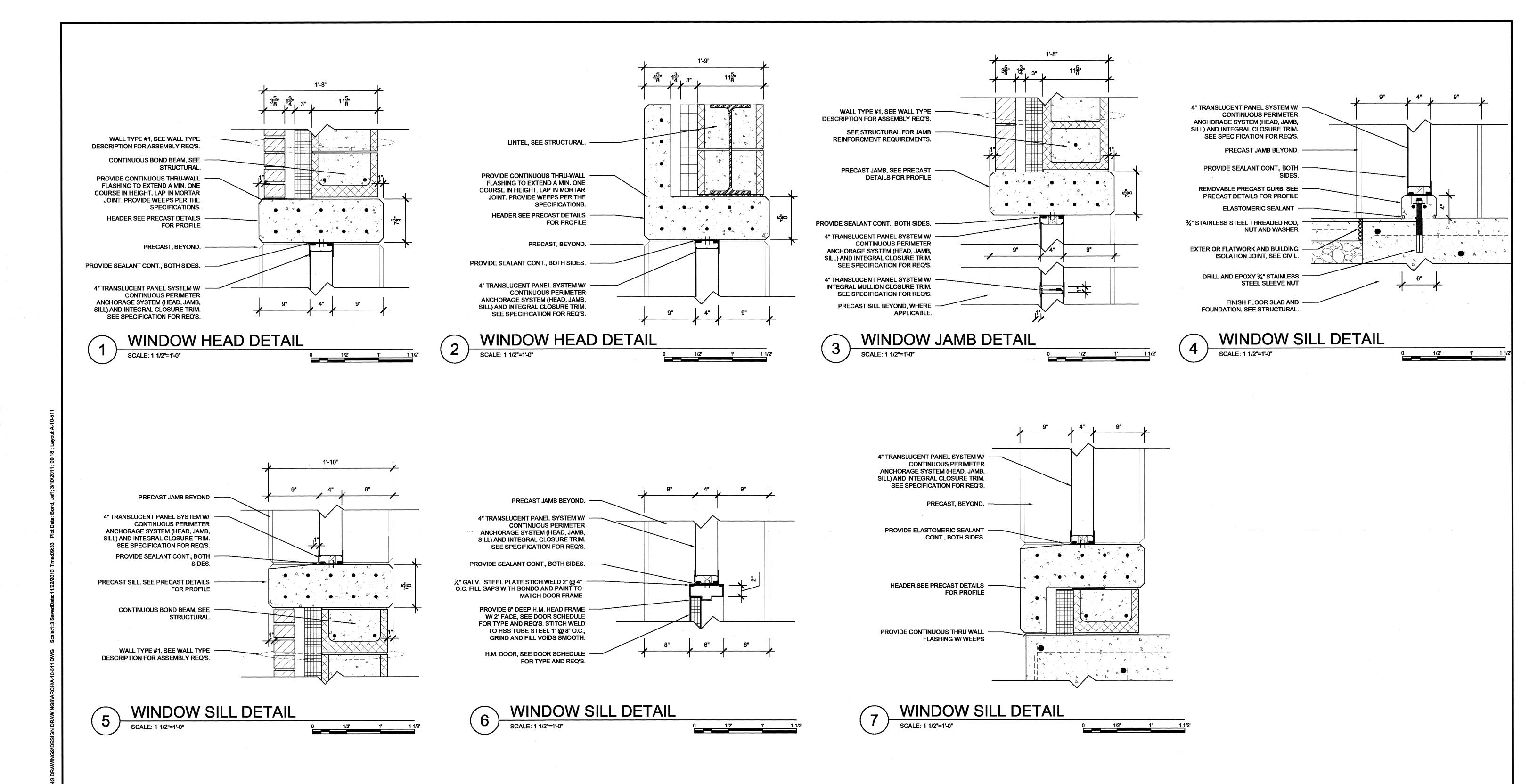
User JBOND Spec PIRNIE STANDARD File: U.

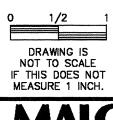
















		REVISIONS	
BY	DATE	REMARKS	DES JKP
			DES
			DWN TMCH
			CKD SL/JKP
			CRD
	BY	BY DATE	BY DATE REMARKS

NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT

ADVANCED TREATMENT IMPROVEMENTS

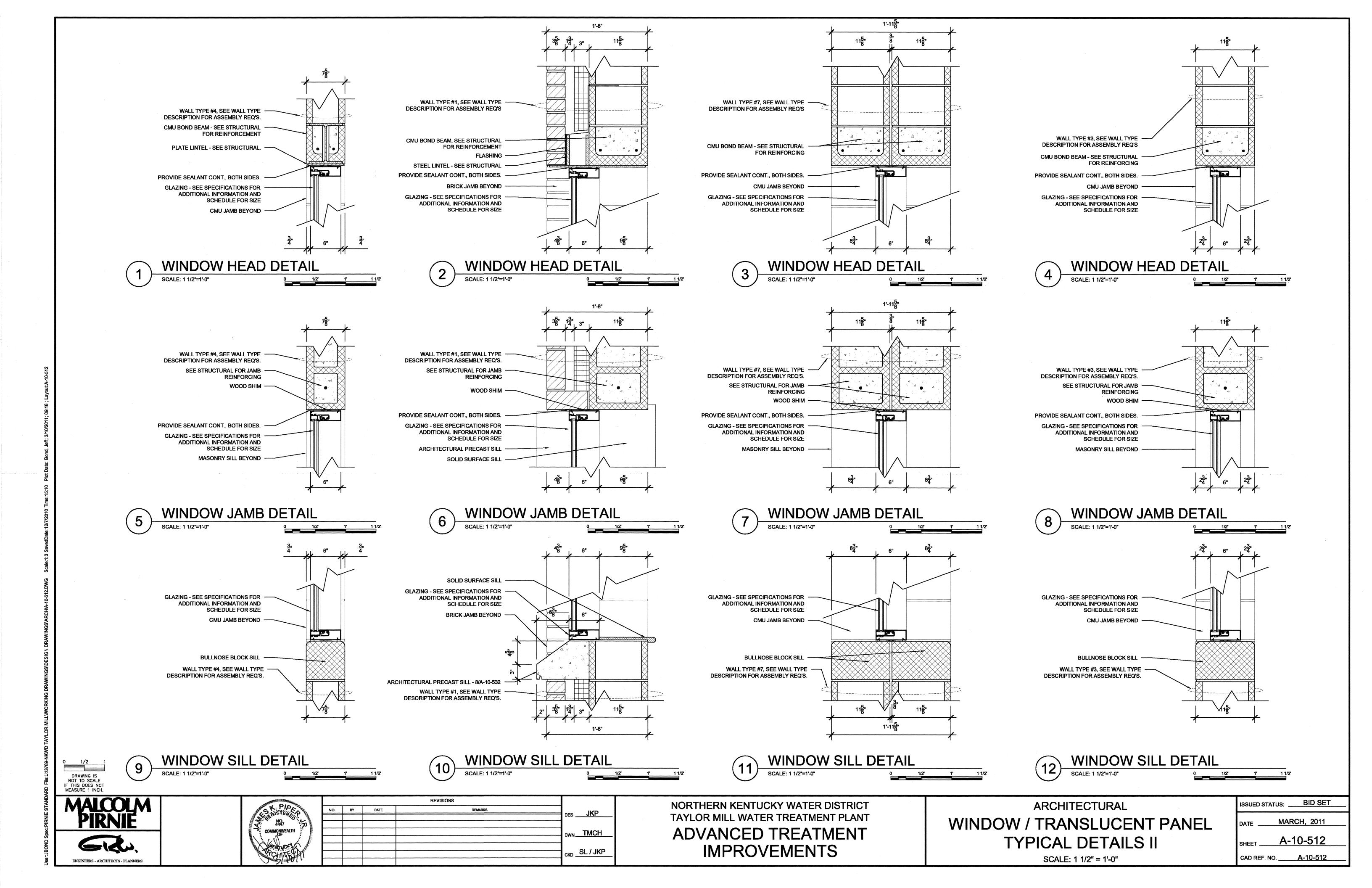
ARCHITECTURAL
WINDOW / TRANSLUCENT PANEL

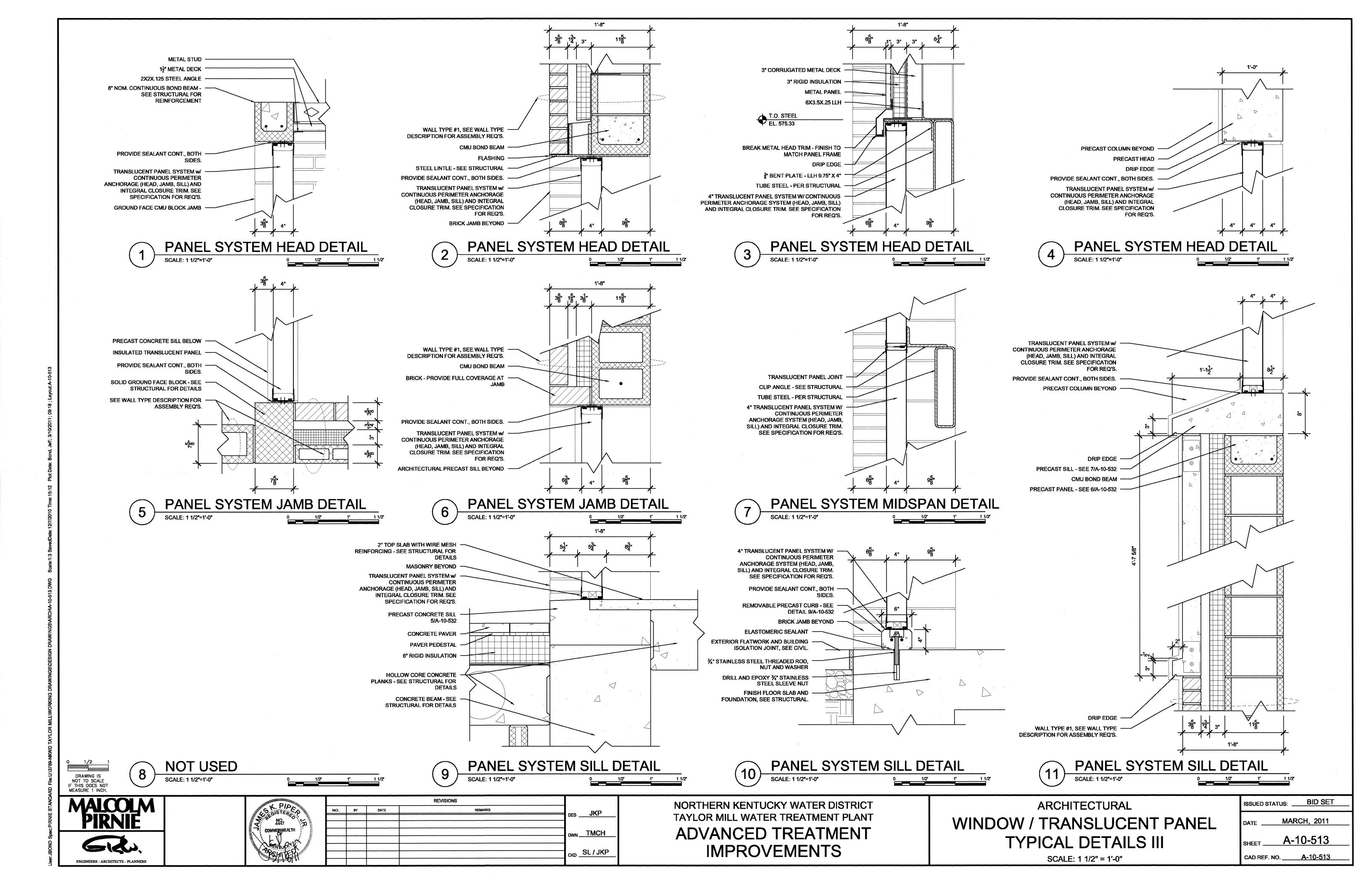
DATE MARCH, 2011

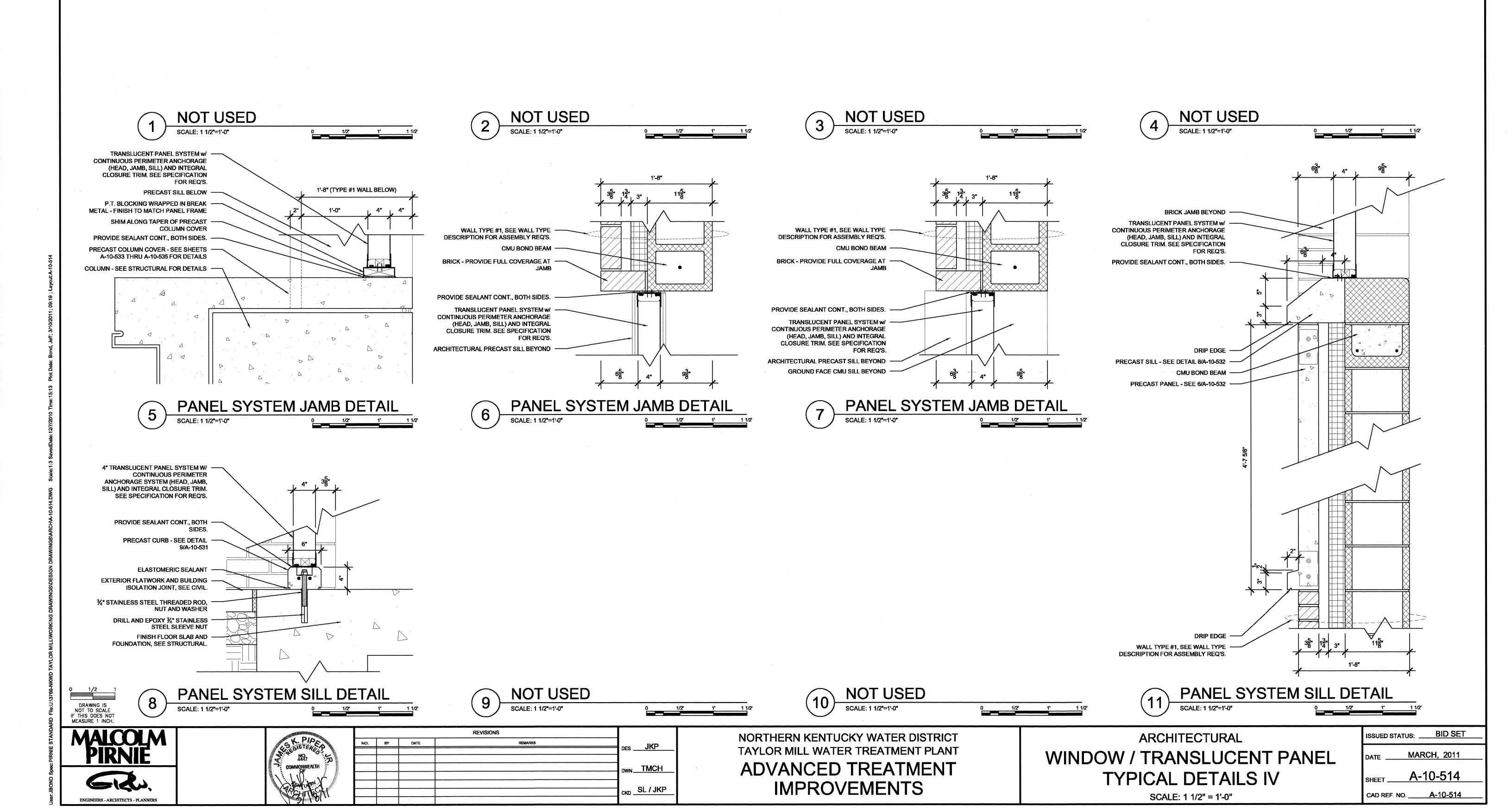
SHEET A-10-511

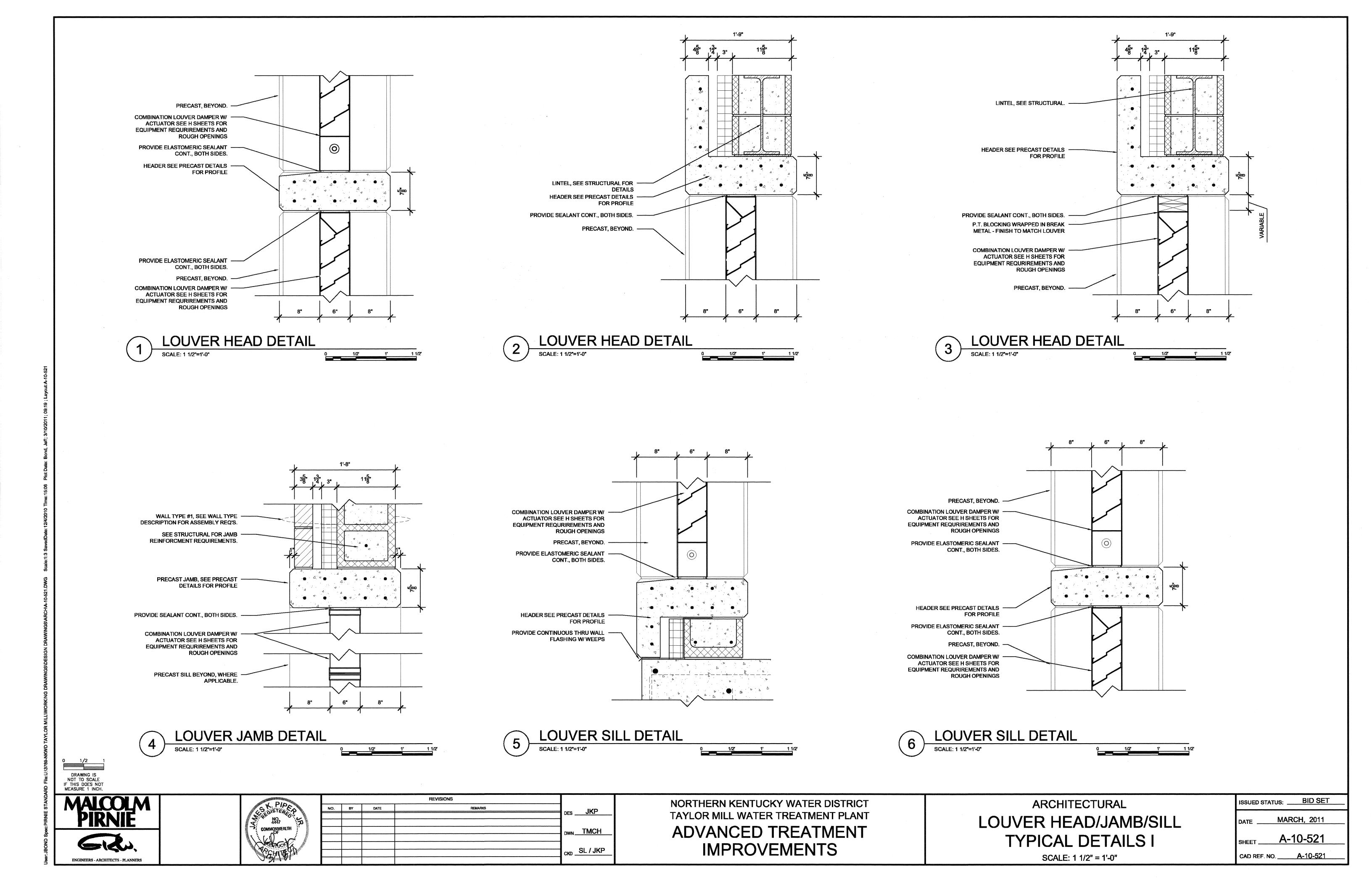
CAD REF. NO. A-10-511

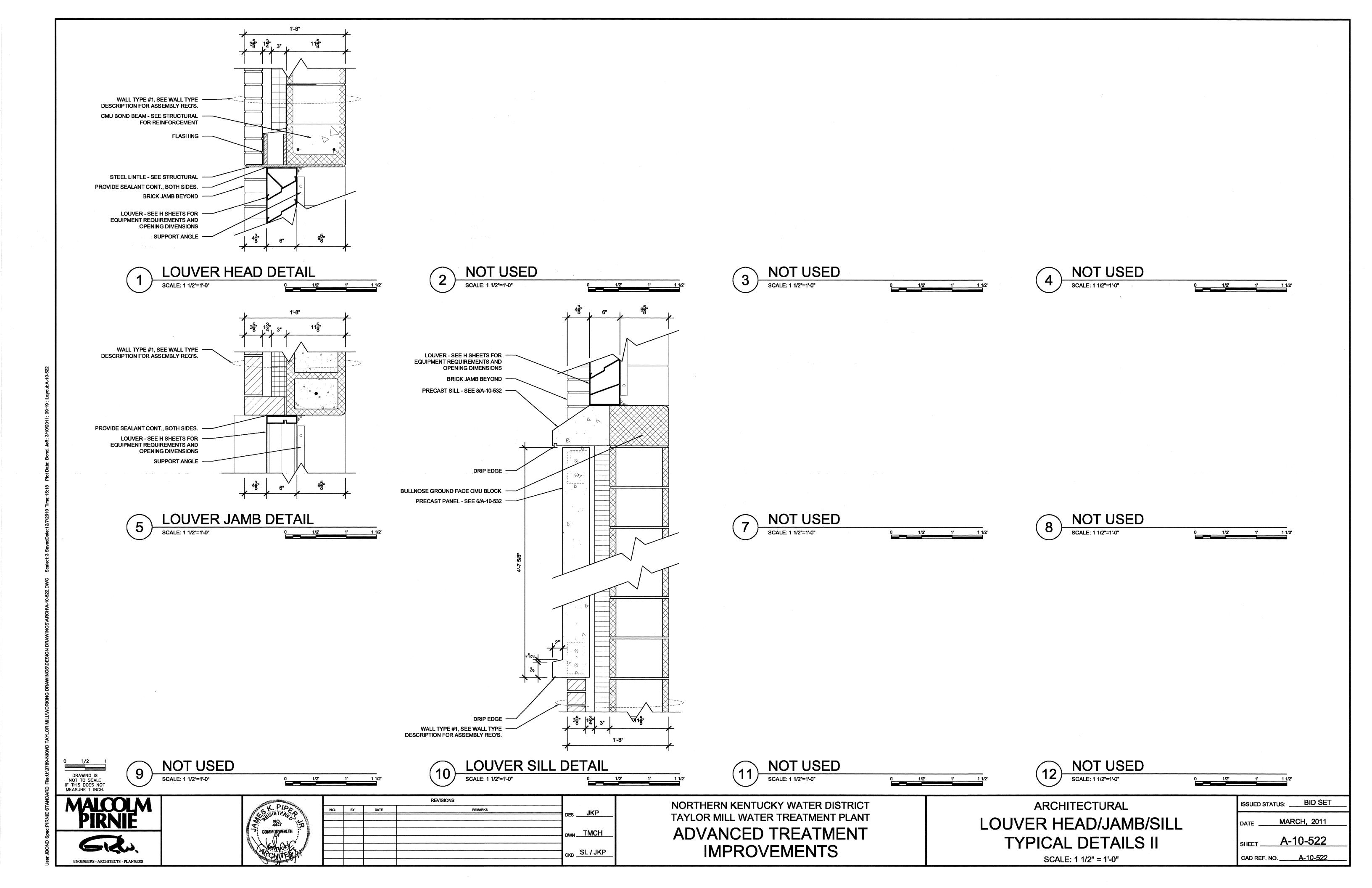
ISSUED STATUS: BID SET

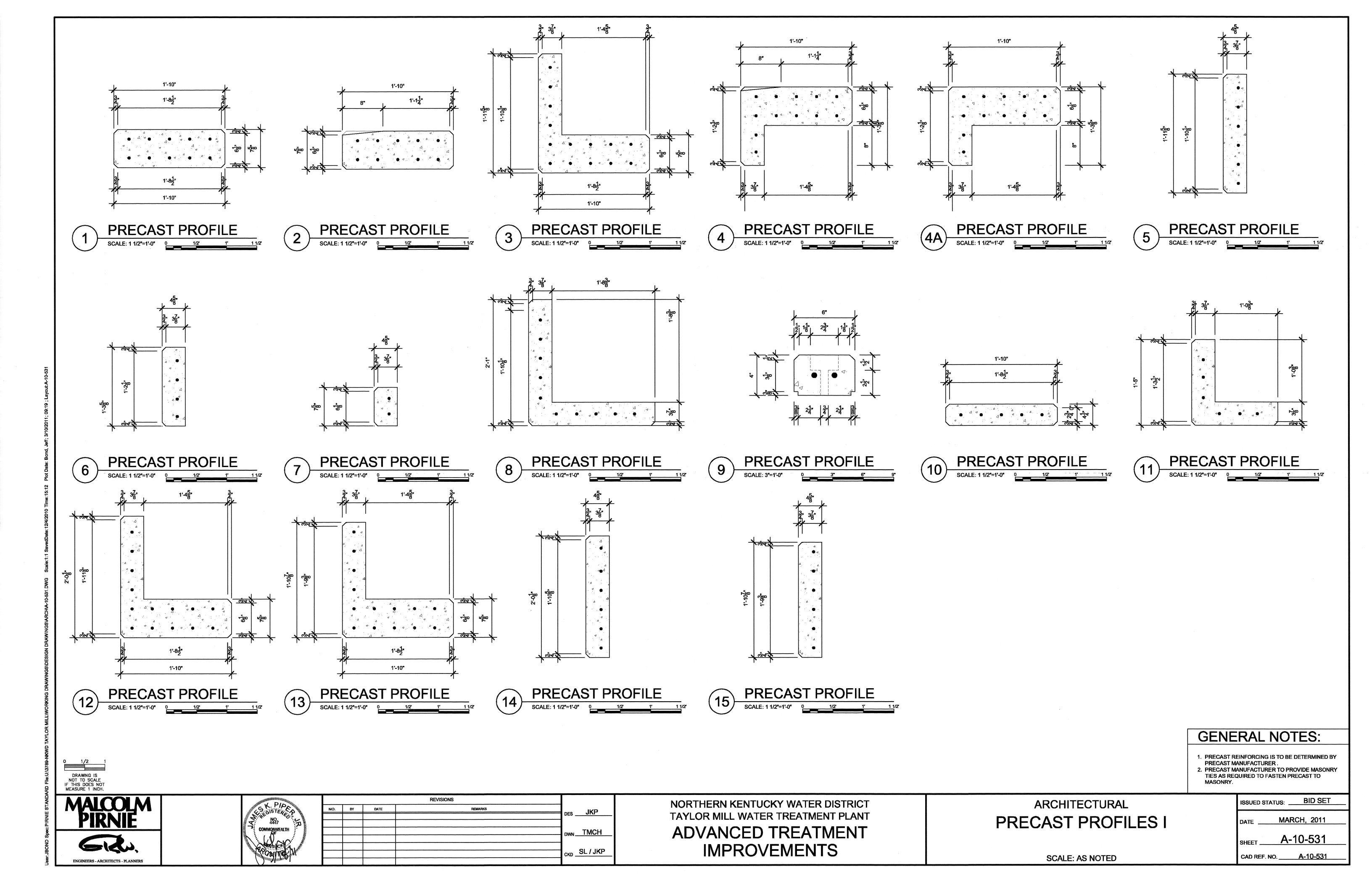


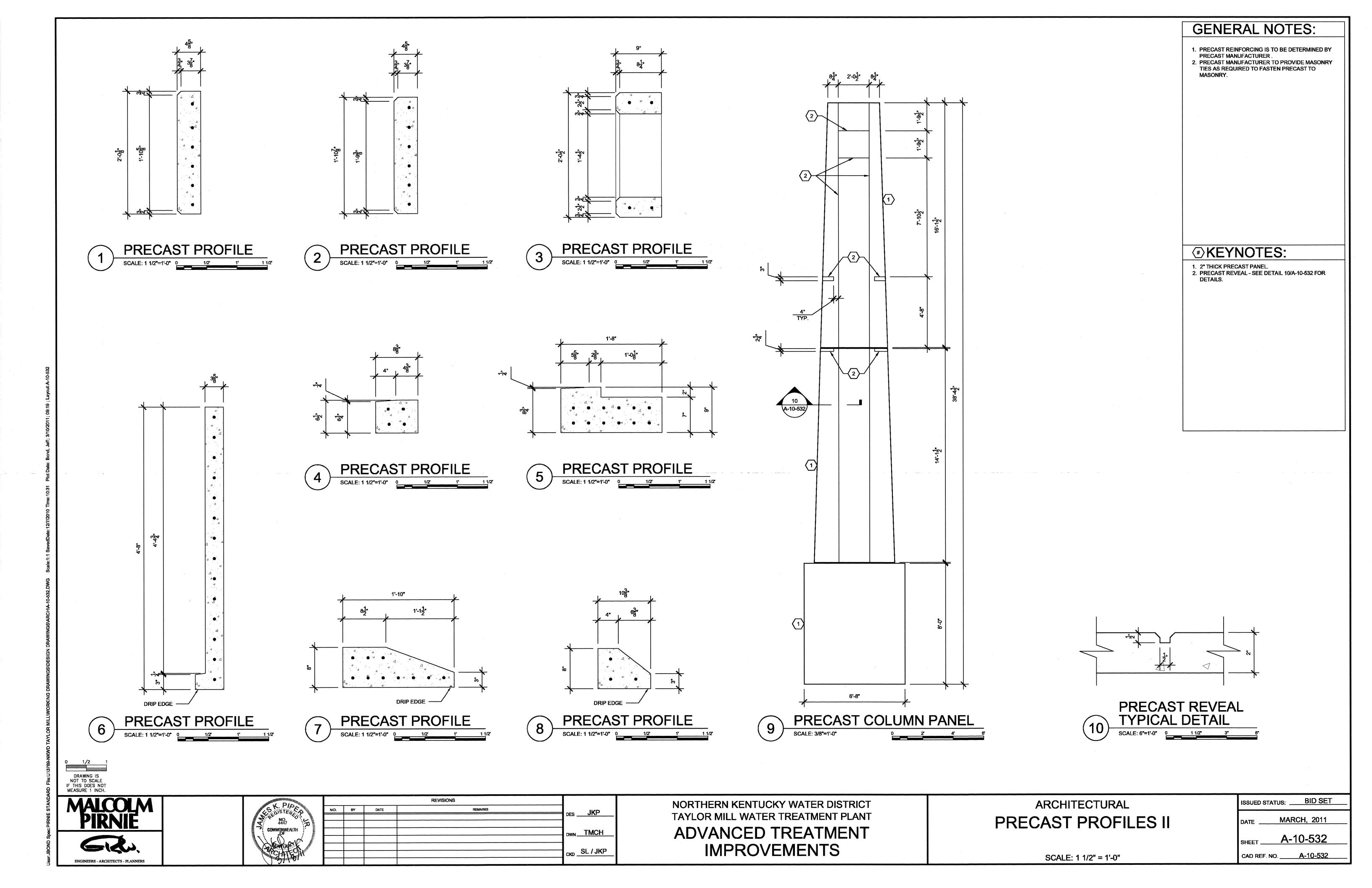


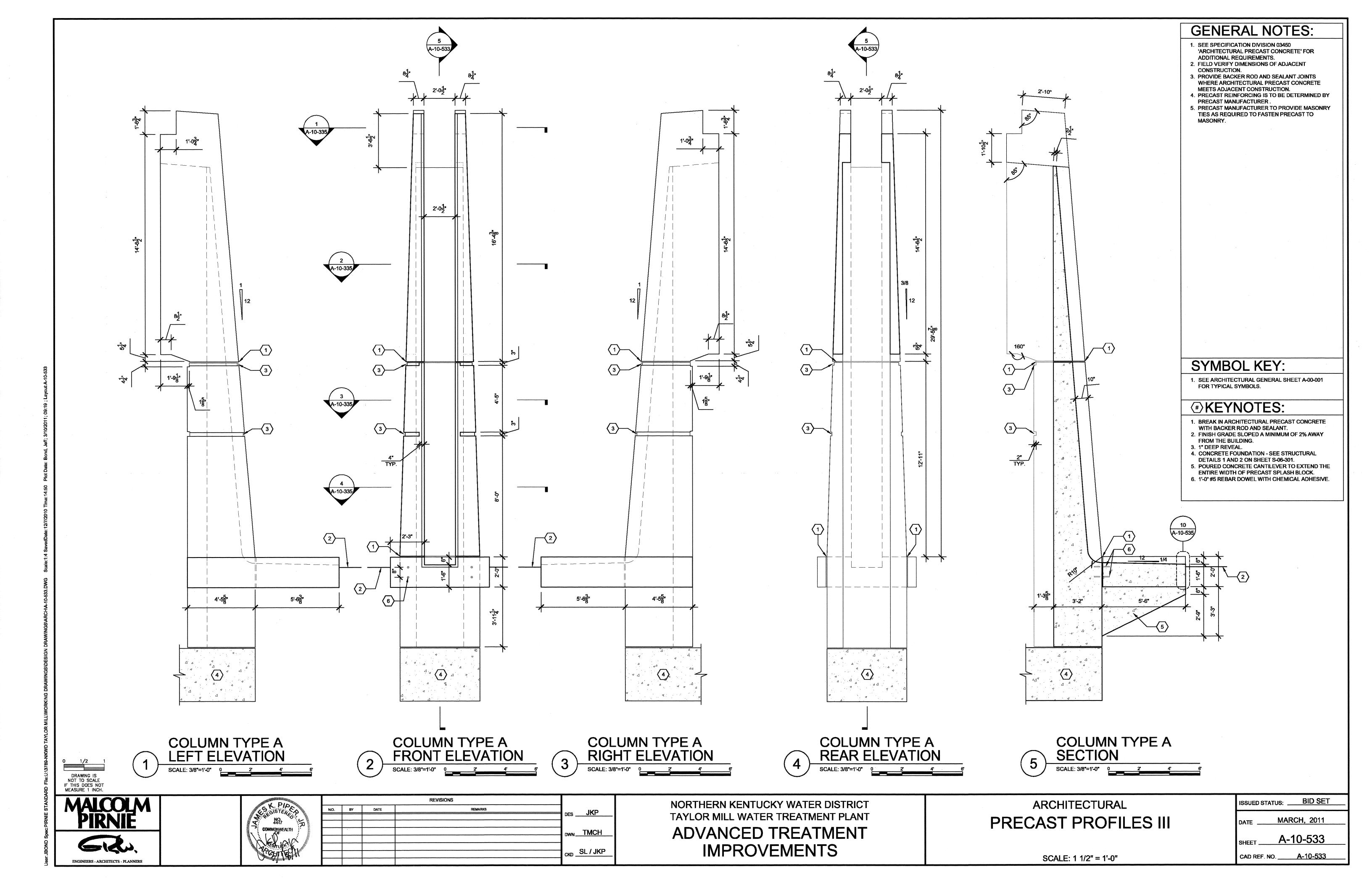


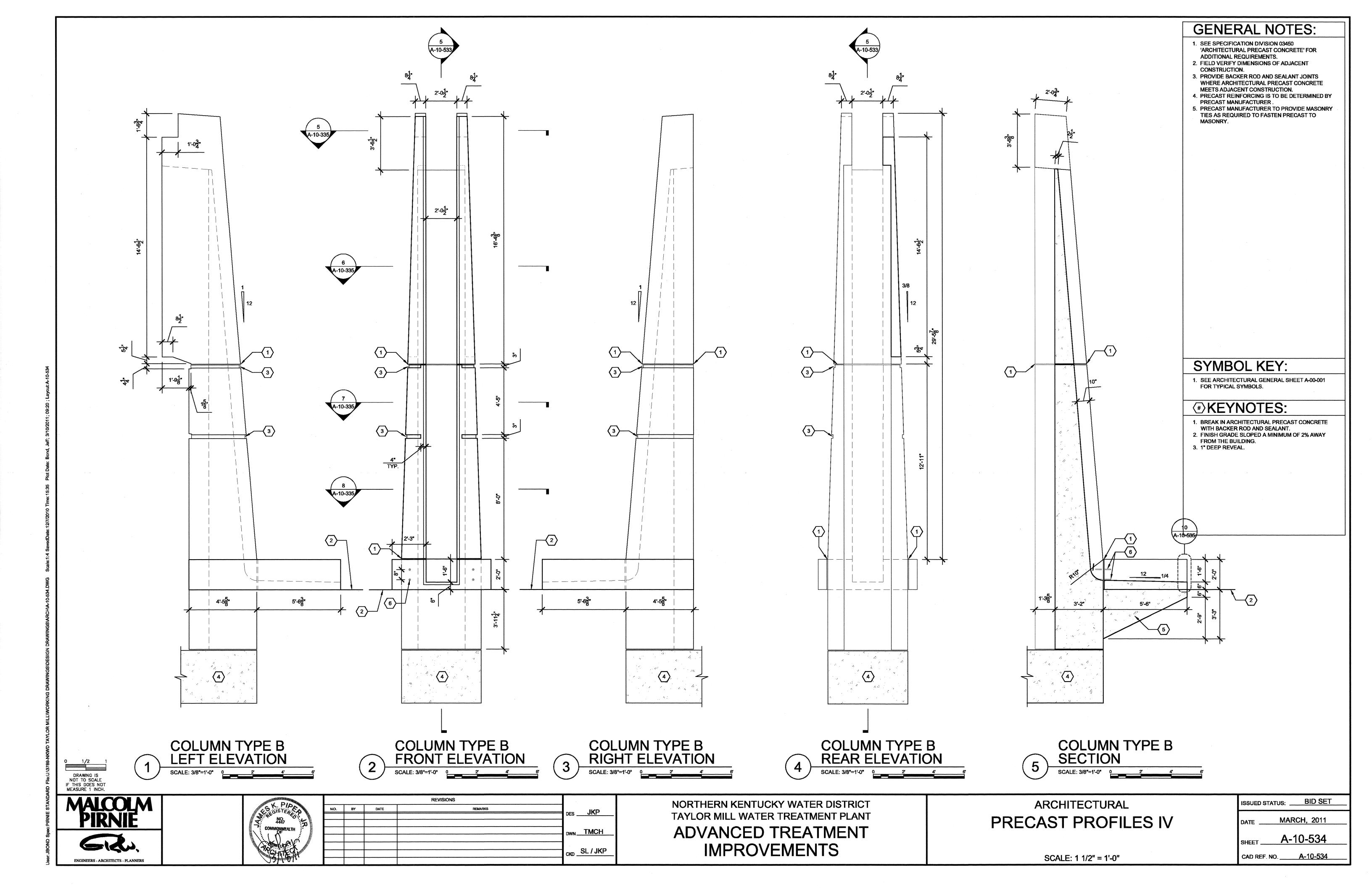


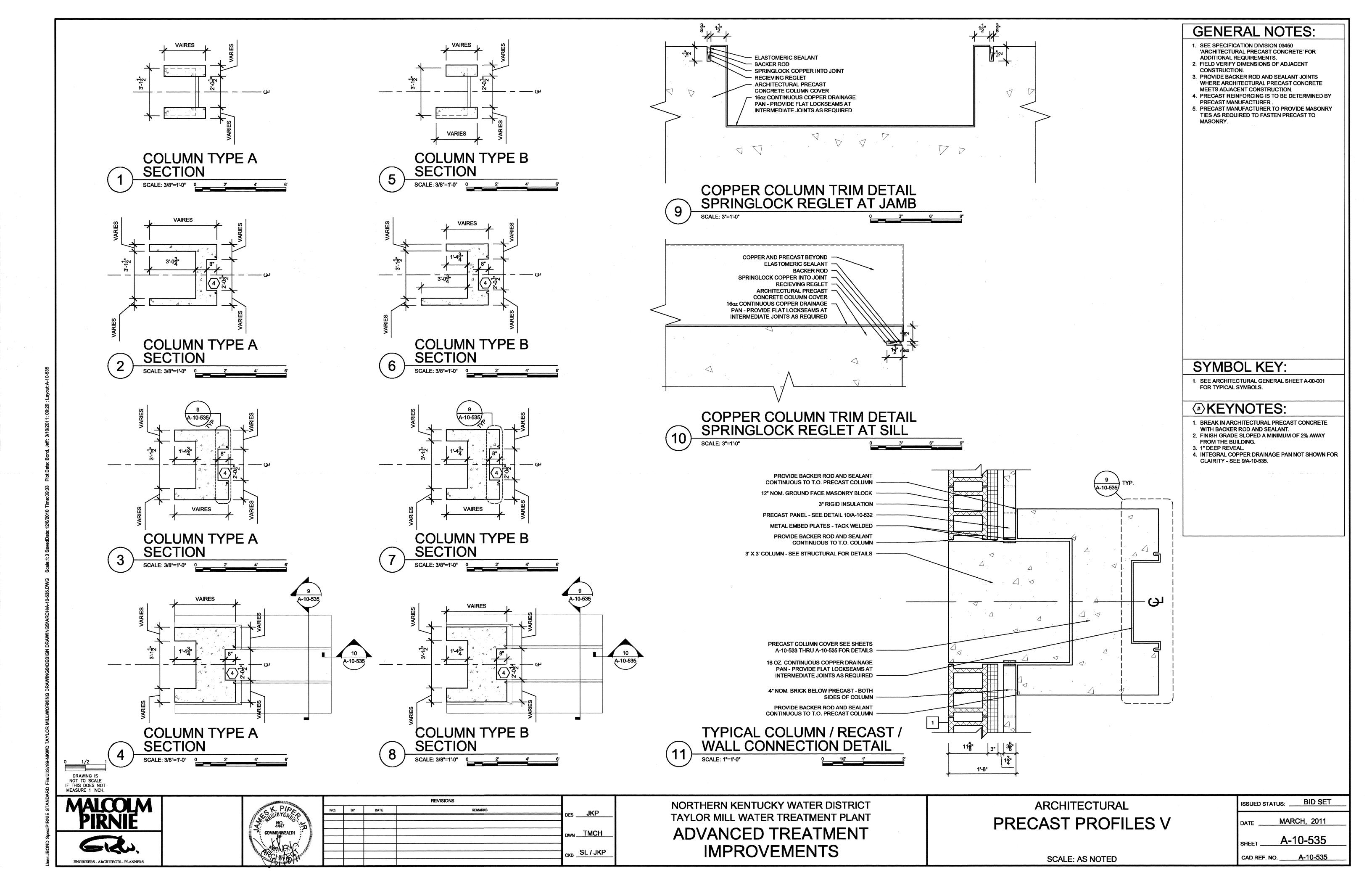


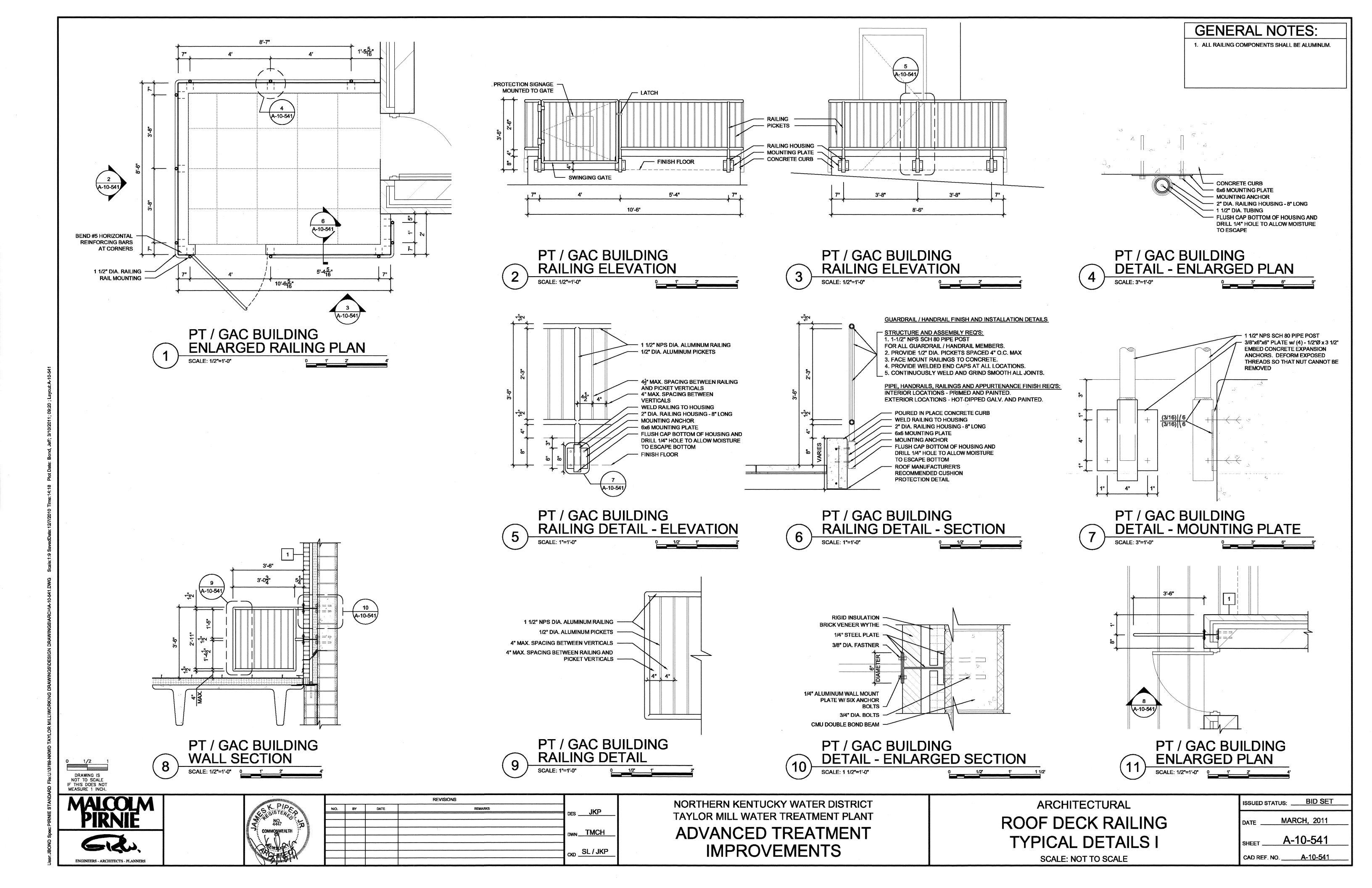


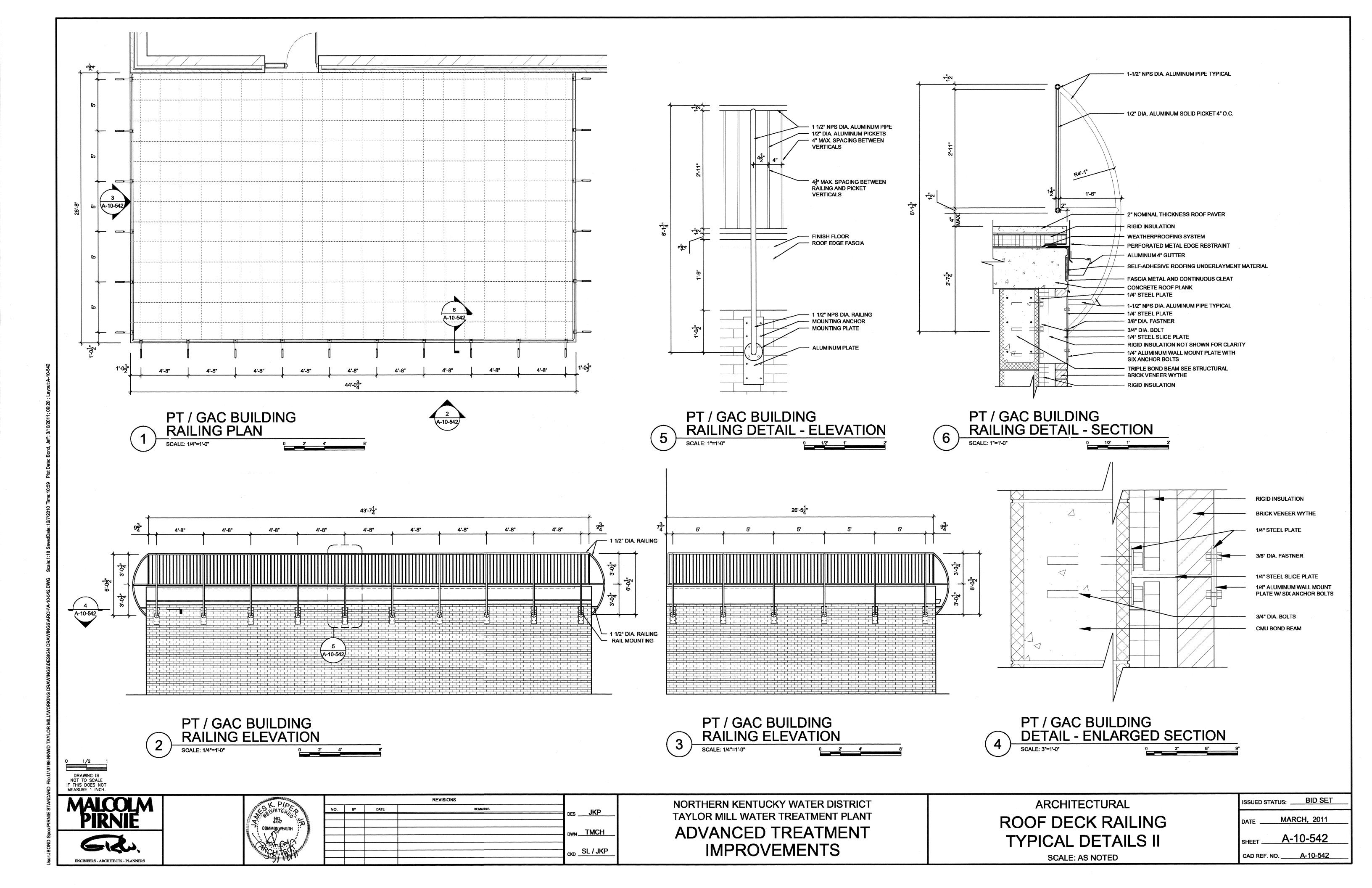


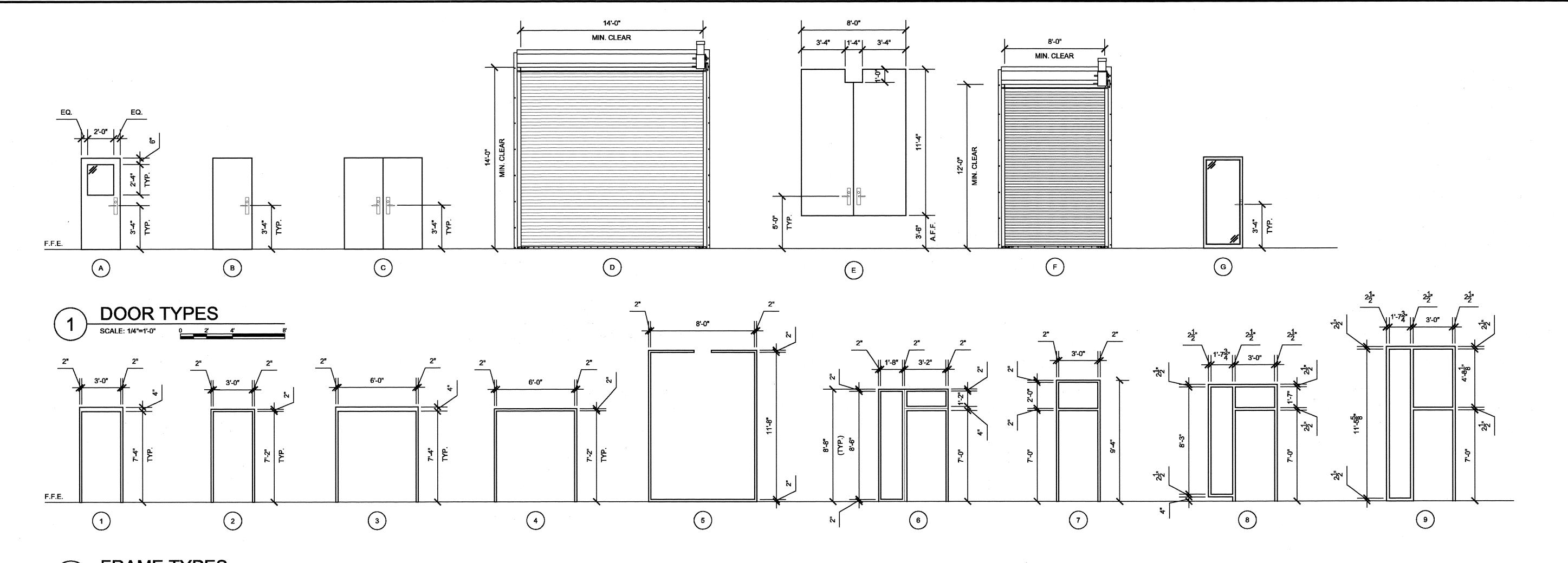












2 FRAME TYPES

SCALE: 1/4"=1'-0" 0 2 4' 8'

<u> </u>									DOOR SCHEDULE						
			FIRE	DOOR / FRAME	JAMB	HARDWARE						JAMB D	ETAIL		
BLDG#	MARK	DOOR SIZE	RATING	TYPE	DEPTH	SET	FRAME MATERIAL	FRAME FINISH	DOOR MATERIAL	DOOR FINISH	HEAD DETAIL	STRIKE	HINGE	SILL DETAIL	COMMENTS
	<u> </u>										<u> </u>				
05	101A	3'-0" X 7'-0" X 1 ¾"		B/7	6	01	GALV. HOLLOW METAL	PAINT	INSULATED GALV. HOLLOW METAL	PRE-FINISHED	1/A-10-501	5/A-10-501	5/A-10-501	8/A-10-501	
05	101B	(2) 3'-0" X 7'-0" X 1 ¾"	eta .	C/3	6	02	GALV. HOLLOW METAL	PAINT	INSULATED GALV. HOLLOW METAL	PAINT	2/A-10-501	6/A-10-501	6/A-10-501	8/A-10-501	
05	102	(2) 3'-0" X 7'-0" X 1 ¾"	-	C/3	6	03	GALV. HOLLOW METAL	PAINT	INSULATED GALV. HOLLOW METAL	PRE-FINISHED	3/A-10-501	5/A-10-501	5/A-10-501	8/A-10-501	
05	103A	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	04	GALV. HOLLOW METAL	PAINT	INSULATED GALV. HOLLOW METAL	PAINT	2/A-10-501	6/A-10-501	6/A-10-501	8/A-10-501	
05	103B	8'-0" X 12'-0" X SPEC.	-	F/-	-	07	ALUMINUM	PRE-FINISHED	INSULATED ALUMINUM	PRE-FINISHED	4/A-10-501	7/A-10-501	7/A-10-501	-	COORD. WITH ELECTRONIC HARDWARE REQ'S OF SPEC. SECTION 13701
05	103B ALT	(2) 3'-0" X 7'-0" X 1 ¾"	-	C/3	6	03	GALV. HOLLOW METAL	PAINT	INSULATED GALV. HOLLOW METAL	PRE-FINISHED	3/A-10-501	5/A-10-501	5/A-10-501	8/A-10-501	BID ALTERNATE 1 - SKYLIGHT ACCESS
05	103C	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	04	GALV. HOLLOW METAL	PAINT	GALV. HOLLOW METAL	PAINT	2/A-10-501	6/A-10-501	6/A-10-501	8/A-10-501	
06	101	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	05	ALUMINUM	PRE-FINISHED	ALUMINUM / GLASS	PRE-FINISHED	1/A-10-502	5/A-10-502	5/A-10-502	9/A-10-502	
06	102A	3'-0" X 7'-0" X 1 ¾"	•	G/-	6	01	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	4/A-10-503	8/A-10-503	7/A-10-505	12/A-10-503	CUSTOM FRAME
06	102B	3'-0" X 7'-0" X 1 ¾"	60 MIN.	B/2	6	06	GALV. HOLLOW METAL	PAINT	GALV. HOLLOW METAL	PAINT	1/A-10-504	5/A-10-504	5/A-10-505	9/A-10-504	
06	104A	3'-0" X 7'-0" X 1 ¾"	-	B/2	6	04	GALV. HOLLOW METAL	PAINT	GALV. HOLLOW METAL	PAINT	2/A-10-504	6/A-10-504	5/A-10-505	10/A-10-504	
06	104B	14'-0" X 14'-0" X 2"	-	D/-	-	07	ALUMINUM	PRE-FINISHED	INSULATED ALUMINUM	PRE-FINISHED	3/A-10-503	7/A-10-503	7/A-10-503	-	COORD. WITH ELECTRONIC HARDWARE REQ'S OF SPEC. SECTION 13701
06	104C	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	05	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	1/A-10-502	5/A-10-502	5/A-10-502	9/A-10-502	
06	104D	14'-0" X 14'-0" X 2"	-	D/-	-	07	ALUMINUM	PRE-FINISHED	INSULATED ALUMINUM	PRE-FINISHED	3/A-10-503	7/A-10-503	7/A-10-503	-	COORD. WITH ELECTRONIC HARDWARE REQ'S OF SPEC. SECTION 13701
06	104E	(2) 4'-0" X 11'-4" X 1 ¾" +/-	. -	E/5	6	08A 08B	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	2/A-10-503	6/A-10-502	6/A-10-502	11/A-10-503	CUSTOM SIZE DOOR AND FRAME
06	105A	3'-0" X 7'-0" X 1 ¾"	-	A/1	.6	09	GALV. HOLLOW METAL	PAINT	GALV. HOLLOW METAL	PAINT	3/A-10-502	7/A-10-502	7/A-10-502	12/A-10-504	
06	105B	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	10	HOLLOW METAL	PAINT	HOLLOW METAL	PAINT	3/A-10-502	7/A-10-502	7/A-10-502	11/A-10-502	
06	106A	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	11	HOLLOW METAL	PAINT	HOLLOW METAL	PAINT	3/A-10-502	7/A-10-502	7/A-10-502	11/A-10-502	
06	106B	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	12	HOLLOW METAL	PAINT	HOLLOW METAL	PAINT	4/A-10-502	8/A-10-502	8/A-10-502	12/A-10-502	
06	107	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	13	GALV. HOLLOW METAL	PAINT	GALV. HOLLOW METAL	PAINT	3/A-10-502	7/A-10-502	7/A-10-502	12/A-10-504	
06	108A	3'-0" X 7'-0" X 1 ¾"	-	B/8	6	01	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	4/A-10-503	8/A-10-503	7/A-10-505	4/A-10-505	CUSTOM FRAME
06	108B	3'-0" X 7'-0" X 1 ¾"	-	B/6	6	14	GALV. HOLLOW METAL	PAINT	GALV. HOLLOW METAL	PAINT	4/A-10-504	8/A-10-504	7/A-10-502	12/A-10-504	
06	109	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	15	HOLLOW METAL	PAINT	HOLLOW METAL	PAINT	3/A-10-502	7/A-10-502	6/A-10-505	11/A-10-502	
06	110A	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	16	HOLLOW METAL	PAINT	HOLLOW METAL	PAINT	3/A-10-502	7/A-10-502	7/A-10-502	11/A-10-502	
06	110B	(2) 3'-0" X 7'-0" X 1 ¾"	_	C/3	6	03	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	1/A-10-502	5/A-10-502	5/A-10-502	9/A-10-502	
06	203	3'-0" X 7'-0" X 1 ¾"	-	B/2	6	17	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	3/A-10-502	7/A-10-502	7/A-10-502	11/A-10-505	
06	205	3'-0" X 7'-0" X 1 ¾"	-	B/2	6	18	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	2/A-10-502	5/A-10-505	6/A-10-502	10/A-10-502	
06	206	3'-0" X 7'-0" X 1 ¾"	60 MIN.	B/2	6	06	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	3/A-10-504	7/A-10-504	5/A-10-505	11/A-10-504	
06	207	3'-0" X 7'-0" X 1 ¾"	_	B/9	6	19	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED		8/A-10-503	5/A-10-502		CUSTOM FRAME
06	208	3'-0" X 7'-0" X 1 ¾"		B/2	6	16	GALV. HOLLOW METAL	PAINT	GALV. HOLLOW METAL	PAINT	3/A-10-502	7/A-10-502	8/A-10-505	11/A-10-505	
06	301	3'-0" X 7'-0" X 1 ¾"	60 MIN.	B/2	6	06	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	3/A-10-504	7/A-10-504	7/A-10-504	11/A-10-504	
06	401	3'-0" X 7'-0" X 1 ¾"	60 MIN.	B/1	6	20	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	1/A-10-502	5/A-10-502	5/A-10-502	10/A-10-505	
06	501	3'-0" X 7'-0" X 1 ¾"	60 MIN.	B/1	6	20	FRP	PRE-FINISHED	INSULATED STEEL	PRE-FINISHED	1/A-10-502	5/A-10-502	5/A-10-502	9/A-10-505	
80	302	(2) 3'-0" X 7'-0" X 1 ¾"	3 HR.	C/4	6	21	STEEL	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	1/A-10-503	5/A-10-503	5/A-10-503	9/A-10-503	
09	112B	3'-0" X 7'-0" X 1 ¾"	-	B/1	6	01	FRP	PRE-FINISHED	INSULATED FRP	PRE-FINISHED	2/A-10-503	6/A-10-503	6/A-10-503	10/A-10-503	

DRAWING IS
NOT TO SCALE
IF THIS DOES NOT
MEASURE 1 INCH.

MALCOLM PIRNIE



				REVISIONS	
	NO.	BY	DATE	REMARKS	DES JKP
					DESJKP
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ominingerenensister					DWN TMCH
					CKD SL/JKP
					

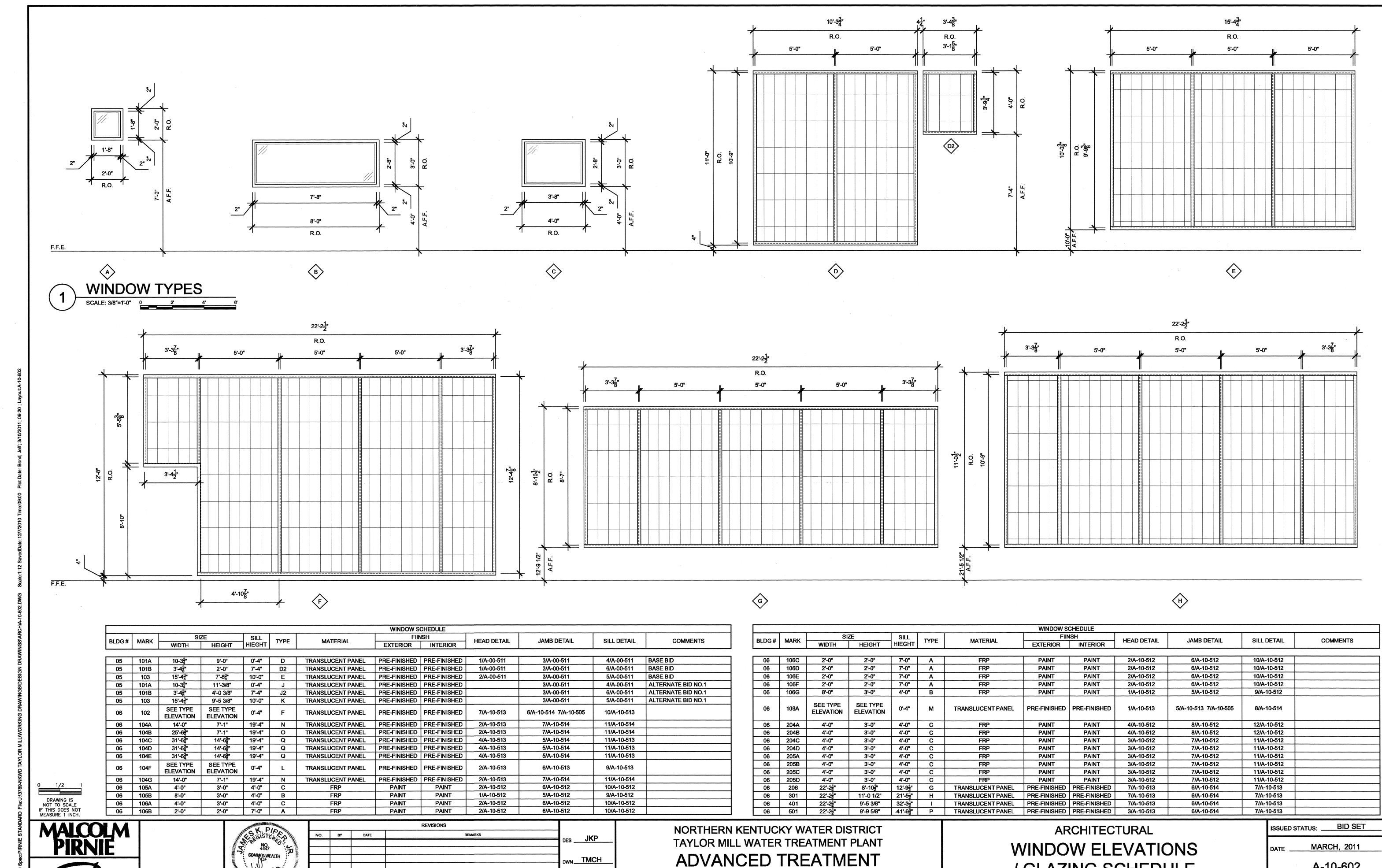
NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT

ADVANCED TREATMENT IMPROVEMENTS

ARCHITECTURAL

DOOR AND FRAMING ELEVATIONS / DOOR SCHEDULE

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



IMPROVEMENTS

/ GLAZING SCHEDULE

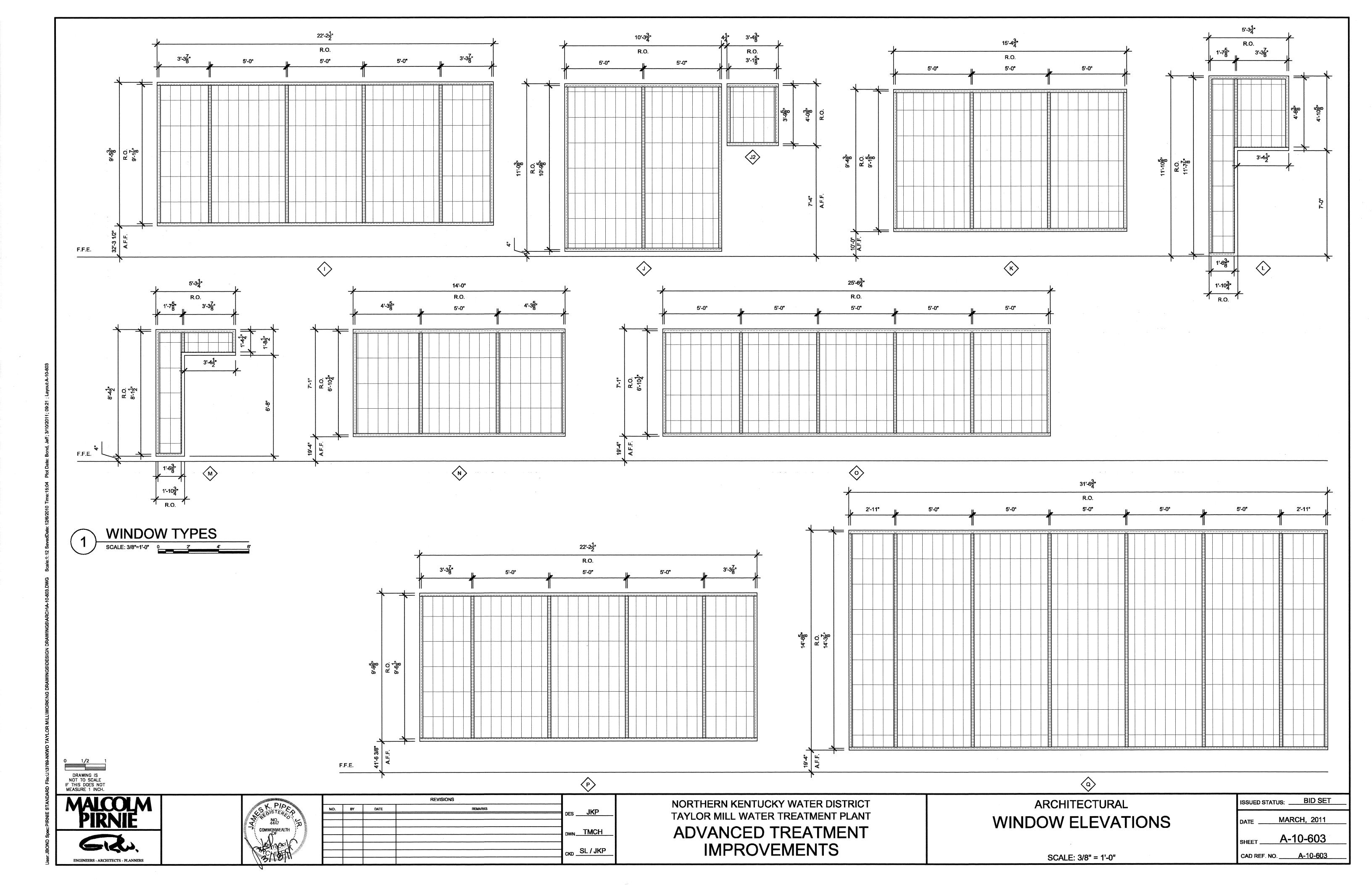
SCALE: 3/8" = 1'-0"

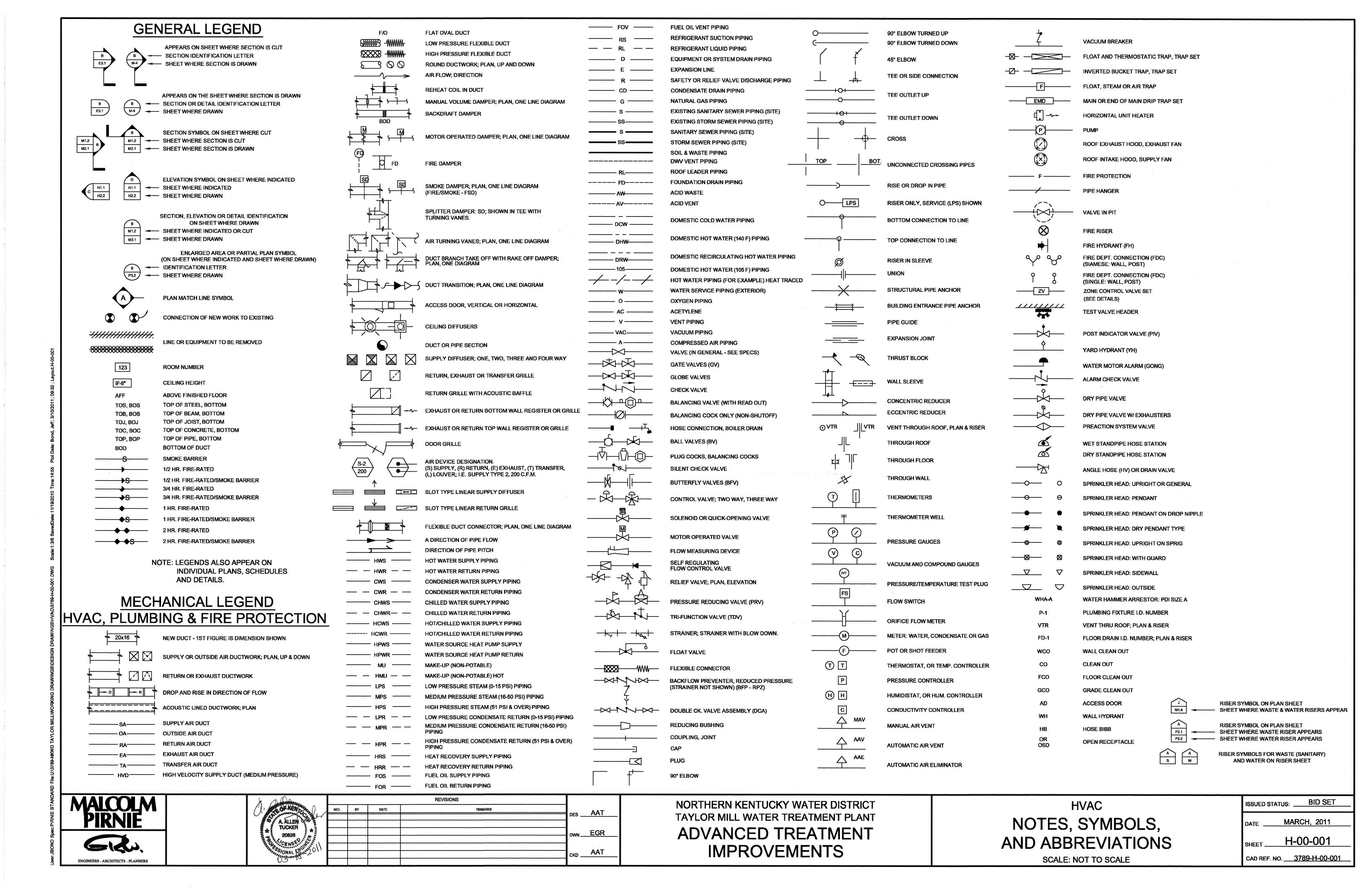
A-10-602

CAD REF. NO. <u>A-10-602</u>

DWN TMCH

CKD SL/JKP





- 2. CONTRACTOR SHALL UTILIZE ALL INFORMATION IN THE CONTRACT DOCUMENTS FOR PROVIDING THE WORK. CONTRACTOR SHALL UTILIZE DETAILS AND FLOW DIAGRAMS FOR THE WORK WHERE APPROPRIATE, WHETHER OR NOT THEY ARE SPECIFICALLY REFERENCED ON THE PLANS OR SUPPORTING DRAWINGS.
- 3. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND CONTRACT DOCUMENTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ANY WORK RELATING TO THOSE CONDITIONS IS PERFORMED.
- 4. LEGENDS OR LISTS OF SYMBOLS AND ABBREVIATIONS ARE GENERAL IN NATURE AND MAY CONTAIN ITEMS NOT USED IN THE CONTRACT DOCUMENTS. IF ANY SUCH ITEMS ARE FOUND WHICH ARE NOT DEFINED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER SHALL BE CONTACTED FOR CLARIFICATION BEFORE THE BID.
- 5. CONTRACTOR SHALL MAINTAIN A 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 VARIANCE IN EXISTING CONDITIONS.
- 6. 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 TRAPEZE ASSEMBLIES OR FOUR INTEGRAL MOUNTING POINTS WITH VIBRATION ISOLATORS ON ALL FOUR SUPPORTS. DO NOT HANG ANYTHING 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.
- 7. NO CONCRETE RIBS OR JOISTS SHALL BE CUT WITHOUT SPECIFIC PERMISSION FROM THE ENGINEER. ALL ROOF OR FLOOR DECK PENETRATIONS IN WAFFLE STRUCTURE SHALL BE IN THE THIN-SLAB DEPRESSIONS IN THE STRUCTURE UNLESS OTHERWISE SHOWN.
- 8. NO STEEL STRUCTURAL MEMBERS SHALL BE CUT, BURNED, WELDED OR DRILLED WITHOUT SPECIFIC PERMISSION OF THE ENGINEER.
- 9. NO WOODEN STRUCTURAL MEMBERS SHALL BE CUT OR DRILLED EXCEPT AS INDICATED IN THE CONTRACT DOCUMENTS OR AS APPROVED BY THE ENGINEER.
- 10. CONSULT ROOF PLAN AND STRUCTURAL DRAWINGS FOR PLACEMENT OF ROOF MOUNTED EQUIPMENT. PROVIDE ALL NECESSARY ROOF CURBS, EQUIPMENT RAILS AND BASES AND ANY ADDITIONAL REQUIRED FRAMING IN COORDINATION WITH STRUCTURAL AND ROOFING
- 11. CONSULT ARCHITECTURAL PLANS FOR DIMENSIONING AND POSITIONS OF WALL LOUVERS.
- 12. ALL EQUIPMENT, DUCT, PIPING AND ACCESSORIES INSTALLED OUTSIDE OR OTHERWISE EXPOSED TO THE ELEMENTS SHALL BE ADEQUATELY WEATHERPROOFED, IN KEEPING WITH THE SPECIFICATIONS. ALL FERROUS METAL FRAMING COMPONENTS SHALL BE STAINLESS STEEL OR HOT-DIP GALVANIZED.
- 13. ALL EQUIPMENT, ACCESSORIES, PIPING, WIRING, DUCT AND OTHER WORK, WHICH IS INSTALLED IN FINISHED SPACES SHALL BE CONCEALED IN WALLS, FLOORS, FURRED CHASES OR SUSPENDED CEILINGS, EXCEPT FOR INDICATED TERMINAL UNITS, CONTROLS, AIR INLETS AND OUTLETS, AS SHOWN.
- 14. PROVIDE ALL ACCESS DOORS AS SHOWN, EXCEPT THOSE SPECIFIED UNDER OTHER DIVISIONS. IN ADDITION, PROVIDE ANY OTHER ACCESS DOORS WHETHER OR NOT SHOWN ON PLANS, NECESSARY FOR ACCESS TO CONCEALED EQUIPMENT, VALVES, DAMPERS, ACTUATORS, JUNCTION BOXES, CONTROLS OR OTHER OPERATIONAL OR SERVICEABLE ITEMS, UNLESS ITEM IS REASONABLY ACCESSIBLE THROUGH LAY-IN CEILING PANELS.
- 15. DUCT DAMPERS IN INACCESSIBLE CEILINGS MAY BE PROVIDED WITH APPROVED REMOTE OPERATORS INSTEAD OF ACCESS DOORS.
- 16. DO NOT CHANGE PATH OF PIPING OR DUCT RUNS, ADD TURNS OR OFFSETS OR CHANGE DUCT DIMENSIONS OR PIPE SIZE WITHOUT FIRST CONSULTING THE ENGINEER. PIPE SIZES SHOWN ON DRAWINGS ARE NOMINAL UNLESS OTHERWISE INDICATED. ALL DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE DIMENSIONS FOR SHOP OR FIELD-FABRICATED DUCT AND NOMINAL SIZES FOR FACTORY FABRICATED DUCT.

- 17. SEE ALSO RISER DIAGRAMS OR FLOW/CONTROL DIAGRAMS FOR SIZES NOT SHOWN ON PLANS.
- 18. FOR TYPICAL STEAM, WATER, REFRIGERANT AND AIR CONNECTIONS TO EQUIPMENT, SEE STANDARD DETAILS.
- 19. ALL COPPER PIPING SHALL BE ASSEMBLED WITH WROUGHT COPPER OR CAST COPPER ALLOY FITTINGS AND 95/5 TIN ANTIMONY SOLDER OR SILVER BRAZING. NO SOLDER CONTAINING LEAD SHALL BE USED.
- 20. REDUCED SIZE TAKE-OFFS FROM WELDED PIPING MORE THAN ONE SIZE LOWER THAN MAIN MAY BE MADE WITH WELD-O-LETS. FULL-SIZE TAKE-OFFS AND ONE SIZE LOWER SHALL BE MADE WITH TEES.
- 21. ALL CHECK VALVES IN PUMP DISCHARGES SHALL BE SPRING-LOADED OR SILENT TYPE OR FOR LARGE WASTE: LEVER-WEIGHTED TYPE.
- 22. ALL EXTERIOR MECHANICAL UTILITIES SHALL BE IN GENERAL COMPLIANCE WITH APPROPRIATE DIVISION 15 SPECIFICATION SECTION (FOR CORRESPONDING INTERIOR UTILITIES).
- 23. CONTRACTOR SHALL CERTIFY AT THE TIME OF OWNER OCCUPANCY THAT ALL BELT-DRIVEN EQUIPMENT HAS BEEN CHECKED FOR BELT TIGHTNESS AFTER WEAR-IN PERIOD.
- 24. ALL EXISTING EQUIPMENT SHUTDOWNS OR INTERRUPTIONS OF UTILITY SERVICE REQUIRED FOR COMPLETION OF THE WORK SHALL BE SCHEDULED IN ADVANCE, AS REQUIRED BY THE OWNER.
- 25. COORDINATE ALL PIPING AND DUCTWORK WITH BOTH NEW AND EXISTING MECHANICAL AND ELECTRICAL WORK, INCLUDING HVAC, PLUMBING, ELECTRICAL, FIRE ALARM, SPRINKLER AND COMMUNICATIONS.
- 26. CONTRACTOR IS RESPONSIBLE FOR MAKING ALL REQUIRED CONNECTIONS FOR A COMPLETE SYSTEM. CONNECTIONS OF NEW WORK TO EXISTING IS USUALLY INDICATED BY SPECIAL SYMBOL (SEE LEGEND). SYMBOLS MISSING FROM THE DRAWINGS DO NOT EXCUSE THE CONTRACTOR FROM PROVIDING THE WORK
- 27. PROVIDE LINTELS AS REQUIRED FOR ALL NEW OPENINGS GREATER THAN 12" WIDE IN MASONRY OR LOAD-BEARING WALLS, MATERIAL TO BE APPROVED BY ENGINEER.
- 28. ANY AND ALL DAMAGE DUE TO DEMOLITION OR CONSTRUCTION IS TO BE REPAIRED OR REPLACED AS APPROPRIATE, SUBJECT TO ENGINEER'S APPROVAL, AND AT NO ADDITIONAL COST TO THE OWNER.
- 29. THE CONTRACTOR SHALL NOT REMOVE OR DISTURB ANY SUSPECTED HAZARDOUS MATERIALS, INCLUDING ASBESTOS-CONTAINING MATERIALS (ACM), LEAD-BASED PAINTS, ELECTRICAL GEAR CONTAINING PCB'S OR ANY OTHER, EXCEPT AS INSTRUCTED IN THIS CONTRACT. IF ANY MATERIAL NOT COVERED BY THE CONTRACT IS ENCOUNTERED, NOTIFY THE ENGINEER AT ONCE.
- 30. ALL DEMOLISHED OR REMOVED EQUIPMENT, PIPING, DUCTWORK, SUPPORTS, CONTROLS AND THE LIKE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE NOTED.
- 31. REINSULATE ALL DUCTWORK AND PIPING WHERE EXISTING INSULATION HAS BEEN REMOVED OR DAMAGED DURING THE PROJECT.
- 32. EXISTING OUTLETS (EXS) ARE SHOWN FOR BALANCING PURPOSES ONLY. NO MODIFICATIONS ARE REQUIRED.
- 33. ALL DUCTWORK AND SHEET METAL SHALL BE PROVIDED AS INDICATED AND SHALL BE MANUFACTURED AND SHOP- OR FIELD-FABRICATED, AS A MINIMUM, IN ACCORDANCE WITH THE RECOMMENDATIONS AND DETAILS OF SMACNA, UNLESS SPECIFICALLY INDICATED OTHERWISE.
- 34. FANS SHALL BE PROVIDED AS INDICATED BY GREENHECK, CARNES, COOK OR APPROVED EQUAL. GRILLES, REGISTERS AND DIFFUSERS SHALL BE PROVIDED AS INDICATED BY TITUS, TUTTLE AND BAILEY, PRICE, CARNES OR APPROVED EQUAL. LOUVERS, HOODS AND PENTHOUSES SHALL BE PROVIDED AS INDICATED BY GREENHECK, AIRSTREAM, LOUVERS AND DAMPERS, CARNES, RUSKIN OR APPROVED EQUAL. PROVIDE FIRE AND SMOKE DAMPERS IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA AND THE KY BUILDING CODE.
- 35. ALL HVAC PIPING SHALL BE IN ACCORDANCE WITH ASME STANDARDS AND PRACTICES AND THE REQUIREMENTS OF THE KY BUILDING CODE. HVAC PIPING SHALL BE FLANGED AND WELDED STEEL 3" AND ABOVE, TYPE L COPPER FOR 2" AND BELOW AND EITHER FOR 2 1/2". ALL WELDING SHALL BE IN ACCORDANCE WITH AWS STANDARDS.
- 36. PROVIDE ALL HVAC EQUIPMENT AND ACCESSORIES AS INDICATED. INSTALL IN COMPLIANCE WITH ALL REQUIREMENTS OF THE KY BUILDING CODE.

- 37. MOUNT ALL ROOM THERMOSTATS OR ADJUSTABLE SENSORS AT HEIGHTS ABOVE FINISHED FLOOR, AS DIRECTED BY THE ENGINEER.
- 38. ALL HYDRONIC PIPING SYSTEMS SHALL BE PITCHED UP 1" IN 40 FT. IN DIRECTION OF FLOW.
- 39. ALL HIGH POINTS IN HYDRONIC PIPING SYSTEMS SHALL CONTAIN AIR CHAMBERS WITH AUTOMATIC AIR VENTS,
- 40. ALL LOW POINTS IN HYDRONIC PIPING SYSTEMS SHALL CONTAIN A 3/4" DRAIN BALL VALVE WITH HOSE CONNECTION.

PIPED PER DETAILS.

- 41. PIPING TO HEATING AND COOLING WATER COILS SHALL BE MADE TO PROVIDE COUNTERFLOW BETWEEN WATER AND AIR.
- 42. DO NOT USE BULL-HEADED TEE FITTINGS, EITHER ON PIPE OR ON DUCT, UNLESS SPECIFICALLY SHOWN, OR IN THE CASE OF DUCT, UNLESS INTERNAL TURNING VANES PER SMACNA ARE PROVIDED.
- 43. CONSULT ARCHITECTURAL REFLECTED CEILING PLAN FOR PLACEMENT OF AIR TERMINALS. COORDINATE WITH MECHANICAL WORK AND WORK OF OTHER TRADES.
- 44. (OUTSIDE AIR DUCT FOR THE LAB/ADMIN AREA UNITS)(RECTANGULAR OR ROUND DUCT RUNS SHOWN AS SINGLE-LINE DIAGRAM ON PLANS) SHALL BE EXTERNALLY INSULATED GALVANIZED RECTANGULAR DUCT, CONSTRUCTED PER SMACNA STANDARDS, OR SINGLE WALL ROUND PIPE AS SPECIFIED. ALL HIGH VELOCITY DUCT ON EXHAUST OR PRIMARY AIR SIDE OF SYSTEM, SHOWN AS SINGLE LINE DIAGRAM ON PLANS, SHALL BE ROUND OR FLAT OVAL SPIRAL PIPE, EXTERNALLY INSULATED. APPROPRIATELY RATED FLEX DUCT MAY BE SUBSTITUTED FOR A MAXIMUM OF FIVE FEET OF MORE OR LESS STRAIGHT (MAX 90 DEGREE BEND) RUN ON EITHER HIGH OR LOW VELOCITY DUCT.
- 45. PROVIDE MANUAL DAMPERS IN ALL SUPPLY AND EXHAUST BRANCHES CONTAINING GRILLES, REGISTERS OR DIFFUSERS WHETHER SHOWN ON PLANS OR NOT AND PROVIDE DAMPERS IN RETURNS WHERE SHOWN. PROVIDE ADJUSTABLE TAKE-OFF FITTINGS WITH GRIDS IN LIEU OF MANUAL DAMPERS FOR ALL ROUND TAKE-OFFS FROM RECTANGULAR MAINS OR PLENUMS. DAMPERS IN DUCT DO NOT REPLACE DAMPERS SPECIFIED AS PART OF THE AIR TERMINAL ASSEMBLY OR VICE VERSA.
- 46. USE TURNING VANES, PER SMACNA CONSTRUCTION GUIDELINES, FOR ALL MITERED RECTANGULAR TURNS OF 45 DEGREES OR MORE.
- 47. CONTRACTOR [SHALL] MAY MAKE TRANSITIONS FROM ROUND TO FLAT OVAL (F/O) AND BACK ON HIGH VELOCITY DUCT OR ROUND TO RECTANGULAR AND BACK ON LOW PRESSURE DUCT AND OFFSET AS REQUIRED, WITH ENGINEER'S APPROVAL, WHERE OBSTRUCTIONS OR OTHER DUCT REQUIRE MODIFICATIONS TO THE PLANS.
- 48. CONTRACTOR SHALL MAKE MINOR OFFSETS AND LOCATION CHANGES IN PIPE AND DUCT AND IN DUCT ASPECT RATIO AS REQUIRED IN CONGESTED CEILING OR MECHANICAL SPACES. GENERALLY, THESE WILL BE AT NO COST TO THE OWNER AND APPROVED BY THE ENGINEER WITHOUT FORMAL DOCUMENTS. MAJOR REROUTING OF LINES OR MAJOR ADDITION OF FITTINGS WILL BE REVIEWED AND APPROVED AS A CHANGE ORDER OR A FORMAL DIRECTIVE. ENGINEER ALONE SHALL CLASSIFY CHANGES AS MAJOR OR MINOR.
- 49. ALL EQUIPMENT PROVIDED WITH FILTERS SHALL HAVE FILTERS IN PLACE AT THE TIME OF STARTUP. ALL NEW FILTERS SHALL BE INSTALLED AT THE TIME OF OWNER OCCUPANCY, AND A COMPLETE SET OF EXTRA FILTERS SHALL BE TURNED OVER TO THE OWNER AT THIS TIME. IN THE EVENT THAT CARE IS NOT TAKEN DURING INITIAL OPERATION TO PREVENT CONTAMINATION OF THE FILTERS WITH CONSTRUCTION DUST, ADDITIONAL SETS OF FILTERS SHALL BE PROVIDED TO PROTECT THE EQUIPMENT.
- 50. ALL REDUCTIONS IN HIGH VELOCITY DUCT ABOVE CEILINGS SHALL BE MADE WITH ECCENTRIC REDUCING FITTINGS FOLLOWING THE TOP HORIZONTAL LINE OF THE DUCT.
- 51. TOTAL STATIC PRESSURE NOTED IN FAN SCHEDULES INCLUDES DUCT SYSTEM, TERMINAL UNITS, [FILTERS,]COILS, ETC. AIR HANDLER EXTERNAL STATIC PRESSURE DOES NOT INCLUDE COILS, [FILTERS] OR ANY OTHER PRESSURE DROPS ASSOCIATED WITH ITEMS WITHIN THE AIR HANDLER ASSEMBLY [EXCEPT FILTERS].
- 52. ALL KITCHEN HOOD EXHAUST DUCT SHALL BE CONTINUOUS-WELDED STAINLESS STEEL OR GALVANIZED STEEL CONSTRUCTED PER NFPA 96. ANY EXPOSED AREAS OF HOOD OR DUCT WORK SHALL BE STAINLESS STEEL WITH #4 FINISH. DO NOT INSTALL DAMPERS OR OTHER DEVICES IN DUCT FROM KITCHEN HOOD.
- 53. ALL DISHWASHER AREA EXHAUST DUCT SHALL BE STAINLESS STEEL, FABRICATED TO MEET NFPA 96 AND SMACNA CONSTRUCTION STANDARDS, WITH ALL

- EXPOSED SURFACES HAVING A #4 FINISH.
- 54. ALL EXHAUSTS OR RETURNS FROM ROOMS CONTAINING SHOWERS SHALL BE ALUMINUM OR STAINLESS STEEL, CONSTRUCTED PER SMACNA STANDARDS.
- 55. ALL DUCT CARRYING FUME HOOD EXHAUST SHALL BE CONTINUOUS-WELDED 316L STAINLESS STEEL CONNECTED BY STAINLESS STEEL SLIP RINGS. HIGHLY CORROSIVE FUME DUCT, SUCH AS PERCHLORIC OR CONCENTRATED ACIDS, SHALL BE FLANGE-CONNECTED PER DETAILS. SLOPE ALL HOOD EXHAUST DUCT BACK TO DRAIN AT HOODS. 1%.
- 56. MOUNT SMOKE DETECTORS, FURNISHED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS IN DUCT OR ON UNITS AS REQUIRED BY CODES.
- 57. PROVIDE ALL CONTROLS NECESSARY TO OPERATE EQUIPMENT AS SHOWN OR DESCRIBED, INCLUDING VALVES, ACTUATORS, THERMOSTATS, DAMPERS, ALL ACCESSORY DEVICES, POWER AND/OR PNEUMATIC SERVICE.
- 58. PROVIDE ADDITIONAL INPUT/OUTPUT POINTS REQUIRED TO IMPLEMENT CONTROL SEQUENCES SPECIFIED.
- 59. PROVIDE ALL PLUMBING CONNECTIONS, PIPING, FIXTURES AND EQUIPMENT AS INDICATED, NOTED AND SCHEDULED, FOR A COMPLETE WORKING SYSTEM. WORK SHALL BE PROVIDED BY A LICENSED PLUMBING CONTRACTOR, IN ACCORDANCE WITH THE KY. STATE PLUMBING CODE AND THE KY BUILDING CODE, AND SHALL BE ACCOMPANIED BY A CERTIFICATE OF INSPECTION AND APPROVAL. ALL WATER PIPING SHALL BE TYPE L COPPER. ALL DWV PIPING SHALL BE DWV COPPER OR NO-HUB SOIL PIPE ABOVE AND HUB AND SPIGOT SOIL PIPE BELOW GROUND.
- 60. PLUMBING FIXTURES, EQUIPMENT AND SPECIALTIES SHALL BE TYPES INDICATED BY THE FOLLOWING MANUFACTURERS OR APPROVED EQUALS: FIXTURES IN GENERAL SHALL BE AMERICAN STANDARD OR EQUALS BY KOHLER OR CRANE, MOP BASINS AND FIBERGLASS SHOWERS BY FIAT, STAINLESS STEEL SINKS BY ELKAY, FITTINGS BY DELTA, AMERICAN STANDARD OR ELKAY, SEATS BY CHURCH OR BEEMIS, COOLERS BY OASIS, SPECIALTIES BY ZURN, WOODFORD, BRADLEY, HEATERS BY A. O. SMITH, TANKS BY AMTROL, PUMPS BY B & G, WEIL.
- 61. ALL FUEL GAS OR OIL PIPING OR SPECIALTIES SHALL BE PROVIDED IN ACCORDANCE WITH THE APPROPRIATE SECTIONS OF THE NFPA NATIONAL FIRE CODE, THE KY BUILDING CODE, THE ICC MECHANICAL CODE AND ANY REQUIREMENTS OR REGULATIONS OF THE FUEL SUPPLIER, INCLUDING ALL PROVISIONS FOR COMBUSTION AIR AND VENTING.
- 62. PROVIDE ALL WORK NECESSARY FOR THE COMPLETE FIRE PROTECTION SYSTEM AS INDICATED AND NOTED, INCLUDING ALL CONNECTIONS TO EXISTING WORK, NEW PIPING AND ACCESSORIES AND FINAL FINISH MOUNTING OF SPRINKLERS IN LOCATIONS INDICATED AND TESTING, ALL AS REQUIRED TO MEET ALL PROVISIONS OF NFPA-13 AND THE KY BUILDING CODE. WORK SHALL BE PERFORMED BY A LICENSED SPRINKLER CONTRACTOR AND SHALL BE ACCOMPANIED BY CERTIFICATIONS OF INSPECTION AND APPROVAL BY THE DEPT. OF HOUSING, BUILDINGS AND CONSTRUCTION. ALL SCREWED PIPING SHALL BE MINIMUM SCH 40 STEEL. ALL VICTAULIC TYPE PIPING SHALL BE MINIMUM SCH 10 STEEL.
- 63. PROVIDE ALL WORK NECESSARY FOR THE COMPLETE FIRE PROTECTION SYSTEM AS INDICATED AND NOTED, INCLUDING ALL CONNECTIONS TO EXISTING WORK, NEW PIPING AND ACCESSORIES AND FINAL FINISH MOUNTING OF SPRINKLERS IN LOCATIONS INDICATED AND TESTING, ALL AS REQUIRED TO MEET ALL PROVISIONS OF NFPA-13, NFPA-14, NFPA-20 AND THE KY BUILDING CODE. WORK SHALL BE PERFORMED BY A LICENSED SPRINKLER CONTRACTOR.
- 64. ALL FIRE PROTECTION COMPONENTS, INCLUDING BUT NOT LIMITED TO PUMPS, VALVES, PIPE & FITTINGS, CONTROL SYSTEMS AND TRIM SHALL BE UL AND/OR FM LISTED FOR FIRE SERVICE, WHERE SUCH LISTING
- 65. PROVIDE LISTED AIR RELEASE FOR ALL TRAPPED RUNS OF FIRE PROTECTION PIPING.
- 66. ALL FERROUS FIRE PROTECTION PIPING SHALL BE PAINTED RED WHERE EXPOSED TO VIEW; SHADE TO BE APPROVED BY ENGINEER.
- 67. ALL FIRE PROTECTION SHUTOFF VALVES SHALL BE SUPERVISED BY THE ALARM SYSTEM EXCEPT ON JOCKEY PUMP AND BYPASS.
- 68. FIRE PROTECTION PIPING CONNECTIONS MAY BE WELDED, FLANGED, SCREWED OR GROOVE-JOINT TYPE PER NFPA 13, 14, 20 AND THE SPECIFICATIONS FOR THIS PROJECT. NO SCREWED PIPING LARGER THAN 2 INCHES. PITCH ALL PIPING TO DRAIN.
- 69. SPRINKLER HEADS SHOWN IN FIRE PROTECTION DRAWINGS ARE LOCATED APPROXIMATELY. CONSULT ARCHITECTURAL REFLECTED CEILING PLAN FOR PLACEMENT OF SPRINKLER HEADS IN FINISHED CEILINGS AND CEILING GRIDS. CONTRACTOR SHALL

- PROVIDE HYDRAULICALLY-DESIGNED PIPING SYSTEMS
 AND SHALL MODIFY LOCATION OF SPRINKLER HEADS
 ONLY AS REQUIRED TO CONFORM WITH CODE AND
 PREVENT BLOCKAGE OF PATTERN. [PROVIDE HEADS AS
 SHOWN UNLESS IN VIOLATION OF CODE].
- 70. SPRINKLER HEADS SHALL BE CENTERED IN 2' x 2' SPACE IN EITHER 2' x 2' OR 2' x 4' GRID LAYOUT.
- 71. COORDINATE ALL WORK. DO NOT MOUNT SPRINKLER HEADS OR HANG PIPING SUCH AS TO BLOCK ACCESS TO HVAC OR ELECTRICAL EQUIPMENT OR THE CHANGEOUT OF EQUIPMENT WHEN NECESSARY.
- 72. PROVIDE SPECIAL HEADS AS REQUIRED FOR COMPLETE DESIGN. PROVIDE HIGH TEMPERATURE HEADS FOR AREAS NEAR SPACE HEATING OUTLETS AND EQUIPMENT.
- 73. PROVIDE DISCONNECTS AND MAGNETIC STARTERS (OR RELAYS WITH OVERLOAD PROTECTION FOR SINGLE PHASE) FOR ALL EQUIPMENT SUPPLIED UNDER DIVISION 15 WHICH IS SPECIFIED TO HAVE FACTORY CONTROL PANEL. POWER WIRING AND CONDUIT TO THESE DEVICES AND BETWEEN THESE DEVICES AND MECHANICAL EQUIPMENT, IF REQUIRED, SHALL BE SUPPLIED UNDER DIVISION 16. SEE SECTION 15025 OF THE SPECIFICATIONS.

MALCOLM PIRNIE

REVISIONS

NO. BY DATE

REMARKS

DES AAT

ONAL

CKD AAT

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT

ADVANCED TREATMENT IMPROVEMENTS

HVAC
GENERAL NOTES

SHEET H-00-002

SCALE: NOT TO SCALE

DATE ______MARCH, 2011

CAD REF. NO. 3789-H-00-002

ACCESSORIES:

1. PROVIDE SIDEWALL MOUNTING HARWARE 2. SINGLE POINT ELECTRICAL CONNECTION

4. LOW AMBIENT OPERATION DOWN TO 33 F.

3. INTEGRAL HUMIDISTAT

1. CRAWL SPACE TYPE DEHUMIDIFIER

MARK	SERVICE	LOCATION	TYPE	CFM	S.P.	RPM	DRIVE	FAN TIP		MOTOR	ACCESSORIES	BASIS OF DESIGN
					IN WG			FPM	HP	V/PH/HZ		GREENHECK
EF-1	LAB/OFFICE	GAC PT BLDG	4	275	0.375	1550	DIRECT	4413	1/12	115/1/60	2,3,4,8	MOD: SQ-80-D
EF-2	PRE TREAT	GAC PT BLDG	5	13000	0.5	1391	BELT	10925	5	460/3/60	2,3,4,8,9	MOD: SBE-3H30-50
EF-3	RES PUMP RM	GAC PT BLDG	4	2050	0.75	1725	DIRECT	6576	1	460/3/60	2,3,4,8	MOD: SQ-140-A
EF-4A	FEED PUMP	GAC FEED PMP STN	2	17500	0.5	1272	BELT	11988	5	460/3/60	2,3,4,8	MOD: RBE-3H54-30
EF-4B	FEED PUMP	GAC FEED PMP STN	2	17500	0.5	1272	BELT	11988	5	460/3/60	2,3,4,8	MOD: RBE-3H54-30
EF-5	SWITCHGEAR	GAC FEED PMP STN	2	21000	0.5	837	BELT	9203	7 1/2	460/3/60	2,3,4,8	MOD: SBE-3H30-50
EF-6	PUMP RM	FILTER BLDG MEZZANINE	5	80000	0.4	508	BELT	9576	20	460/3/60	2,3,4,8,9	MOD: SBE-3L72-200
EF-7	STAIRWELL	GAC PT BLDG	3	150	0.25	1550	DIRECT	NA	FRAC	115/1/60	2,3,4,8	MOD: CW-060-D

FAN TYPE:

1. CENTRIFUGAL ROOF EXHAUSTER

2. HOODED ROOF PROPELLER EXHAUST FAN

3. SIDEWALL CENTRIFUGAL FAN 4. INLINE CENTRIFUGAL FAN

5. SIDEWALL PROPELLER FAN 6. SWSI CENTRIFUGAL UTILITY FAN

7. TOILET RM CEILING EXHAUST FAN

FAN ACCESSORIES:

1. EXPLOSION PROOF ELECTRICAL DISCONNECT SWITCH (NEMA 7)

2. INLET SCREEN, WALL HOUSING OR CAP OSHA MOTOR GUARD

3. ADJ. SHEAVES, OSHA MOTOR AND/OR BELT GUARD

4. MOTOR OPERATED BACKDRAFT DAMPER

6. WEATHERHOOD

7. NEOPRENE VIBRATION ISOLATORS

8. FACTORY INSTALLED SINGLE POINT WIRING

9. MOTOR STARTER AND DISCONNECT

5. MANUFACTURER'S PREFABRICATED INSULATED ROOF CURB

10. CAST ALUMINUM BLADES AND HUB

1. EGGCRATE GRILLES, ½" X ½" X 1" DEEP CORE.

2. ADJUSTABLE DIRECTION DIFFUSER, INDIVIDUALLY ADJUSTABLE AIRFOIL BLADES.

AIR DEVICES SCHEDULE

MARK | SERVICE | TYPE

SUPPLY

RETURN

TRANSFER

EXHAUST

MODULE

SIZE IN

24x24

20x10

24x24

20x20

20x20

MAX. AIR MAX.

30

30

30

30

30

30

30

PD IN WG NC

0.10

0.10

0.10

THROW FT

@ 50 FPM

PATTERN

2 - WAY

2 - WAY

GRILLE

GRILLE

GRILLE

GRILLE

MATERIAL

ALUMINUM

ALUMINUM

ALUMINUM

ALUMINUM

ALUMINUM

ALUMINUM

ALUMINUM

MAX.

CFM

125

200

350

550

800

1150

700

1200

15000

250

500

2100

MAX CONNECT

SIZE IN (DIM)

10

12

14

22x12

22x10

22x22

60x48

10x10

18x18

MOUNTING

SURFACE

SURFACE

SURFACE

SURFACE

SURFACE

DUCT

DUCT

SURFACE

DUCT

SURFACE

SURFACE

SURFACE

REMARKS

2

2

2

2

3

3

3. AJUSTABLE LOUVERED DRUM DIFFUSER

REMARKS:

1. PROVIDED WITH DAMPER

2. BASIS OF DESIGN: TITUS MODEL TDC & DL

3. HINGED GRILLE WITH FILTER FRAME

4. EGG CRATE GRILLE BASIS OF DESIGN: TITUS MODEL 50F

P	A(CK	A	GI)	A	IR	C	OI	V	D	T	O	N		1G	J	JN	IIT	S	CI	HE	ED	U		
TI	1 1 1	7 6	1	77	77	1		7 7	7/51			7	7		17	M	7	_			77	7-7	777	317	XT		

INIVITY	SUF VUL	OH VOL	LOI	AAQI	_	LECIN	IUAL					LICAI	COIL		DA	COIL					- I E N		ACCESSORIES	NOIES
	CFM	CFM	IN. W.G.	LBS	VOLTS	PH	FLA	MCA	MFS	HEAT	EAT	LAT	VEL	TOTAL	SENS	EAT	EAT	LAT	LAT	TYPE	LOCATION	•		
			, .							KW	F	F	FPM	MBH	MBH	F db	F wb	F db	F wb					
PACU-1	1800	50	0.50	550	480	3	21.4	23.0	30.0	8.3	50	64.7	500	46.0	45.5	80	65	58	57	TA	RA GRILLE	9.5	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 4, 5, 6
PACU-2	1450	50	0.50	550	480	3	16.5	19.0	25.0	5.5	50	62.2	500	39.0	37.0	81.5	66	59.5	58	TA	RA GRILLE	10.0	1, 2, 3, 4, 5, 6, 7	1, 2, 3, 4, 5, 6

SYSTEM TYPE:

1. SINGLE ZONE, VERT DRAW THRU PACKAGE UNIT

ACCESSORIES 1. LOW AMBIENT CONTROLS - 0 F

2. SINGLE POINT ELECT CONNECTION

3. PROVIDE STARTER & DISCONNECT 4. CONTROL PANEL/WIRING C/W PROG T'STAT

5. TWO (2) SPARE TA FILTERS

6. VARIABLE SPEED SUPPLY FAN

7. MIN 2 STAGE ELECT HEAT

1. ELECT HEAT VELOCITY IS MINIMUM ACCEPATBLE

2. SUPPLY AND RETURN GRILLES

3. SELECT UNIT FOR LOWEST POSSIBLE SOUND LEVELS 4. VERTICAL UNIT WALL MOUNTED c/w MOUNTING HARWARE 5. EVAP & COND COILS FACTORY APPLIED COATING 6. BASIS OF DESIGN: PACU-1 - BARD MOD: W70A1-C09MPSX3

BASIS OF DESIGN: PACU-2 - BARD MOD: W61A1-C09MHSX3

HEA	T RECOVERY I	TINL	SCH	HEDULI		,																
MARK	LOCATION	WGT	OA	OA	OUT	SIDE AI	R CONE	DITIONS	OA	EA	EA	EXH	AUST A	IR CON	DITIONS	EA			ELECT	RICAL		ACCESSORIES
		LBS	CFM	EXT SP	EAT	EAT	LAT	LAT	FAN	CFM	EXT SP	EAT	EAT	LAT	LAT	FAN	VOLTS	PH	FLA	MCA	MFS	
				IN W.G.	F db	Fwb	F db	F wb	HP		IN W.G.	F db	Fwb	F db	F wb	HP		-	Amps	Amps	Amps	
HRU-1	PT GAC BLDG OFFICE	150	125	0.50	1	0	51	43	0.33	125	0.35	70	54	20	19	0.33	115	1	11	13.8	15	1 - 9
	(SUMMER CONDITIONS)					91	77	79	67			75	62	87	74							
HRU-2	PT GAC BLDG OFFICE	150	150	0.50	1	0	51	43	0.33	150	0.35	70	54	20	19	0.33	115	1	11	13.8	15	1 - 9
	(SUMMER CONDITIONS)					91	77	79	67			75	62	87	74							
																-					1	

SYSTEM TYPE:

1. INTEGRAL INDOOR UNIT

ACCESSORIES

1. OA AND EA FILTERS 1 INCH MERV 7

2. PROVIDE STARTERS

3. DISPOSABLE FILTER (2 SPARES)

6. BALANCED MIN EFF: 70%

4. END OA AND END EA CONNECTIONS

5. OA AND EA AIRSTREAMS DUCTED

7. OA AND EA MOTORIZED ISOLATION DAMPERS 8. FACTORY INSTALLED LOW VOLTAGE CONTROL

INTERFACE FOR CONNECTION TO PROG T-STAT

9. MANUFACTURERS: GREENHECK, AMERICAN ALDES OR APPROVED EQUAL

K COOLE	ED CONDE	NSING UN	118	-						
MARK	SERVICE	TOTAL	AMBIENT	SUCTION			ELECTR	ICAL		NOTES
		CAPACITY (MBH)	AIR TEMP. (F)	TEMP F	VOLTS	PH	FLA	MCA	MFS	
ACCU-1	FCU-1A-D	72	95	45	208	. 3	29	36.1	40	1, 2, 4, 5, 6
ACCU-2	FCU-2	30	95	45	208	1	13.2	16.5	20	1, 2, 4, 6
ACCU-3	AHU-1	92.8	95	45	460	3	13.4	16.8	25	1, 2, 4, 6
ACCU-4	DDH-1	817	95	45	460	3	103	129	150	1, 2, 3, 4, 6
								-		

1. SINGLE POINT ELECTRICAL CONNECTION WITH INTEGRAL CONTROLS

2. SPLIT UNITS WITH R-410A

3. DUAL COMPRESSOR / REFRIGERANT CIRCUITS

4. DIGITAL SCROLL COMPRESSOR(S) 5. VARIABLE REFRIGERANT VOLUME WITH HEAT RECOVERY

6. MANUFACTURERS: CARRIER, DAIKIN, MITSUBISHI & TRANE

BASIS OF DESIGN:

1. ACCU-1 - DAIKIN MOD: RXYQ72PTJU 2. ACCU-2 - DAIKIN MOD: RZQ30PVJU

3. ACCU-3 - CARRIER MOD: 38AUZ-08

4. ACCU-4 - CARRIER MOD: 38APD070

DESI	CCAN	T DE	HUM	IDIF	FIER	S UN	IIT S	CHE	DULE	- -																																	
MARK	LOCATIO	N WG	T SA	O	A F	AN E	EXT SF	MIN C	AP \	WINT	ER SPA	CE CON	IDITIONS	SUM	MER SP	PACE CON	DITIONS		ELE	ECTRI	CAL						DX CO	OLING	COIL			.*	PROCES	SS NAT GAS	FURNACE	REA	CTIVA	FION FAN	N RE/	ACT NAT GA	S FURNACE	ACCESSORIES	NOTES
		LB	SCFM	/ CF	M F	HP ∥	N W.G	. LBS/I	HR E	AT	EAT	LAT	LAT	EAT	EAT	LAT	LAT	VOLTS	PH	FLA	MCA	MFS 1	OTAL	SENS	EAT	EAT	LAT	LAT I	ROWS	FINS	MAX AIR	MIN	MIN EFF	NG PRESS	OUTPUT	SA	FAN	EXT SP	MIN E	FF NG PRES	SS OUTPUT		. !
					·				F	db	F wb	F db	Fwb	F db	F wb	F db	Fwb		A	Amps A	Amps A	Amps	MBH	MBH	F db	F wb	F db F	wb		PER IN	PD IN WC	EER	%	IN WG	CAP MBH	CFM	HP	IN W.G.	. %	IN WG	CAP MBH		
DDH-1	PT GAC BL	DG 1200	00 16000	0 57	75 2	25	2.5	45.0) !	52	45	87	60	92	65	63	48	460	3	45.3	56.5	70	817	802.2	105	66	59	48	6	10	0.60	9.7	80	7-14	610.4	3000	5.0	1.0	80	7-14	657.3	1 - 23	1, 2, 3, 4,5
																																									'		'

SYSTEM TYPE:

1. INDOOR UNIT

ACCESSORIES

1. OA & RA FILTERS 2 INCH MERV 8

2. PROVIDE DISCONNECTS WITH STARTERS

3. DISPOSABLE FILTERS (2 SPARES) 4. CONTROL PANEL/WIRING c/w CO SENSOR, OA DEW POINT & ROOM DEW POINT SENSOR 5. SINGLE POINT ELECT CONNECTION

6. PLENUM MIXING BOX

7. ECONOMIZER KIT - 100% OA 8. DX POST COOLING COIL 9. DIRECT VENT COMBUSTION AIR PACKAGE 10. DOUBLE WALL POS PRESS FLUE KIT c/w CAP 11. REMOTE AIR COOLED CONDENSING UNIT

14. PHASE LOSS & BROWN OUT PROTECTION

12. GAS TRAIN & BURNER PER IRI SPECS 13. SIGHT GLASS ON REFRIGERANT CIRCUITS 15. HIGH & LOW REFRIG PRESSURE CUT OUTS

16. COMPRESSOR OVERLOAD PROTECTION 17. DUAL REFRIGERANT CIRCUITS

21. VARIABLE FREQUENCY DRIVE 22. INDIRECT NG FIRED PROCESS AIR FURNACE 23. MANUFACTURERS: BRY-AIR, CDIMS, **MUNTERS OR APPROVED EQUAL**

20. DIRECT NG FIRED REACT AIR FURNACE

1. SUMMER SPACE - 92 F 2. WINTER SPACE - 55 F

3. PROC H2O HI TEMP - 85 F 4. PROC H2O LOW TEMP - 35 F

5. BASIS OF DESIGN: CDIMS OR MUNTERS

MALCOLM PIRNIE

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(CONTROL OF THE PARTY OF THE P	NO.	BY	DATE	REMARKS	DEC	AAT
A ALLEN COM					DES	
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ZUOZO					DWN	
SONAL ENGINE 2011						AAT
OS PROPOSOS					CKD	

NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT **IMPROVEMENTS**

18. ANTI-SHORT CYCLE TIMER

19. DIGITAL SCROLL COMPRESSORS

HVAC HVAC SCHEDULES I

H-00-601 CAD REF. NO. 3789-H-00-601

ISSUED STATUS: BID SET

SCALE: NOT TO SCALE

MARCH, 2011

SYSTEM TYPE:

WITH R-410A

1. SPLIT SYSTEM

ACCESSORIES 1. LOW AMBIENT KIT (0 F)

2. SINGLE POINT ELECT CONNECTION 3. CLEANABLE REUSABLE FILTER (2 SPARES)

4. CONTROL PANEL/WIRING c/w

PROGRAMABLE THERMOSTAT

5. OA VENT KIT c/w KNOCKOUTS & OA DAMPER

6. ANTI-SHORT CYCLE PROTETCTION

7. FREEZE PROTECTION

8. SECONDARY CONDENSATE DRAIN PAN c/w CUTOFF SWTCH

9. MANUF: CARRIER, DAIKIN, MITSUBISHI & TRANE

10. VARIABLE REFRIGERANT VOLUME

11. PLENUM MIXNG BOX 12. CONDENSATE PUMP

13. INTEGRAL ELECTRIC STRIP HEAT

14. SUPPLY AND RETURN GRILLES

15. VERTICAL SUBBASE ASSEMBLY

LOUVER	S													
MARK	SERVICE	LOCATION	FLOW RATE	VELOCITY	MIN FREE AREA	PRESS LOSS	LVR SIZE	TYPE	MATERIAL	FINISH	NOTES			
			CFM	FPM	SF	IN WG	HxWxD - IN							
LV-1	EF-3	PT/GAC BLDG	2050	700	2.93	0.06	18x48x6	STATIONARY	ALUM	KYNAR	1,6,8			
LV-2	RES PMP	PT/GAC BLDG	2050	700	2.93	0.06	18x48x6	STATIONARY	ALUM	KYNAR	1,5,8			
LV-3	STAIRWELL	PT/GAC BLDG	150	500	0.30	0.06	12x18x6	COMBINATION	ALUM	KYNAR	1,3,5,8			
LV-4	EF-1	PT/GAC BLDG OFFICE	275	700	0.39	0.05	18x18x6	BRICK VENT	CAST ALUM	MILL	1,6.8			
LV-5	OA	PT/GAC BLDG OFFICE	275	500	0.55	0.05	12x18x6	STATIONARY	ALUM	KYNAR	1,5,8			
LV-6	DDH-1	PT/GAC BLDG	20000	500	40.00	0.06	84x114x6	STATIONARY	ALUM	KYNAR	1,5,8			
LV-7	DDH-1	PT/GAC BLDG	4000	700	5.71	0.06	42x42x6	STATIONARY	ALUM	KYNAR	1,6,8			
LV-8	GAC-OA	PT/GAC BLDG	8000	700	11.43	0.06	72x48x6	COMBINATION	ALUM ·	KYNAR	1,3,6,8			
LV-9	GAC-OA	PT/GAC BLDG	8000	700	11.43	0.06	72x48x6	COMBINATION	ALUM	KYNAR	1,3,6,8			
LV-10	PT-OA IN	PT/GAC BLDG	13000	500	26.00	0.06	96x78x6	COMBINATION	ALUM	KYNAR	1,3,5,8			
LV-11	PUMP RM	FILTER BLDG	33800	500	67.60	0.06	82x192x6	STATIONARY	ALUM	KYNAR	1,3,5,8			
LV-12A	OA	GAC FEEDPUMP STN	9141	500	18.28	0.06	120x80x6	COMBINATION	ALUM	KYNAR	1,3,5,8,9			
LV-12B	OA	GAC FEEDPUMP STN	9141	500	18.28	0.06	120x80x6	COMBINATION	ALUM	KYNAR	1,3,5,8,9			
LV-13A	OA	GAC FEEDPUMP STN	7576	500	15.15	0.06	110x80x6	COMBINATION	ALUM	KYNAR	1,3,5,8,9,10			
LV-13B	OA	GAC FEEDPUMP STN	9141	500	18.28	0.06	120x80x6	COMBINATION	ALUM	KYNAR	1,3,5,8,9,			
LV-14A	OA	GAC FEEDPUMP STN	9489	500	18.98	0.06	94x80x6	COMBINATION	ALUM	KYNAR	1,3,5,8			
LV-14B	OA	GAC FEEDPUMP STN	11511	500	23.02	0.06	120x80x6	COMBINATION	ALUM`	KYNAR	1,3,5,8,9			
BID ALT														
LV-15A	OA	GAC FEEDPUMP STN	9363	500	18.73	0.06	54x96x6	COMBINATION	ALUM	KYNAR	1,3,5,8			
LV-15B	OA	GAC FEEDPUMP STN	9363	500	18.73	0.06	54x96x6	COMBINATION	ALUM	KYNAR	1,3,5,8			
LV-16A	OA	GAC FEEDPUMP STN	6910	500	13.82	0.06	48x96x6	COMBINATION	ALUM	KYNAR	1,3,5,8,10			
LV-16B	OA	GAC FEEDPUMP STN	9363	500	18.73	0.06	54x96x6	COMBINATION	ALUM	KYNAR	1,3,5,8			
LV-17	OA	GAC FEEDPUMP STN	21000	500	42.00	0.06	96x126x6	COMBINATION	ALUM	KYNAR	1,3,5,8			

1. BIRD SCREEN

2. INSECT SCREEN

4.EXPLOSION PROOF DAMPER ACTUATOR (NEMA 7)

5. INTAKE

6. EXHAUST

8. FIELD VERIFY DIMENSIONS TO MATCH ARCHITECTURAL OPENINGS

9. TWO (2) SECTION LOUVER WITH TWO (2) CONCEALED ACTUATORS / LINKAGE 10. HEAD HEIGHT OF LOUVER VARIES DUE SEE DETAIL 3 SHEET A-10-521

MARK	SERVICE	LOCATION CFM FAN ELECTRICAL ELECT COIL							-	ACCESSORIES	NOTES	
				HP	VOLTS	PH	FLA	POWER	EAT	LAT		
							AMPS	KW	F db	F db		
EUH-1	PRE TREAT	GAC PT BLDG	700	1/4	460	3	8.0	5.0	50	73	1, 2, 3	1, 2
EUH-2	PRE TREAT	GAC PT BLDG	700	1/4	460	3	8.0	5.0	50	73	1, 2, 3	1, 2
EUH-3	PRE TREAT	GAC PT BLDG	700	1/4	460	3	8.0	5.0	50	73	1, 2, 3	1, 2
EUH-4	PUMP RM	GAC FEEDPUMP BLDG	700	1/4	460	3	8.0	5.0	50	73	1, 2, 3	1, 2
EUH-5	SWTCHGR	GAC FEEDPUMP BLDG	700	1/4	460	3	8.0	5.0	50	73	1, 2, 3	1, 2
EUH-6	RES PMP RM	GAC PT BLDG	700	1/4	460	3	5.0	3.0	50	63.5	1, 2, 3	1, 2
EWH-1	NORM	TOILET	160	FRAC	277	1	11.2	3.0	5	65	1, 2, 3, 4, 6	3
EWH-2	NORM	TOILET	160	FRAC	277	1	11.2	3.0	5	65	1, 2, 3, 4, 6	3
EUH-7	STAIRS	FILTER BLDG	700	1/4	208	1	12.0	2.0	40	49	1, 2, 3	1, 2
EUH-8	WALKWAY	CHEMICAL BLDG	700	1/4	208	1	12.0	2.0	40	49	1, 2, 3	1, 2

ACCESSORIES:

1. PROVIDE MOUNTING HARWARE

2. SINGLE POINT ELECTRICAL CONNECTION

3. INTEGRAL THERMOSTAT 4. WALL TYPE SURFACE MOUNTED

5. EXPLOSION PROOF 6. FACTORY BUILT-IN DISCONNECT SWITCH

1. WASH DOWN CORROSION RESISTANT HEATER

2. BASIS OF DESIGN: INDEECO TRIAD

3. BASIS OF DESIGN: INDEECO WAI SERIES

MODEL 933U0400V

MALCOLM PIRNIE

000			<u></u>	REVISIONS	
	NO.	BY	DATE	REMARKS	DES AAT
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NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT

IMPROVEMENTS

HVAC HVAC SCHEDULES II

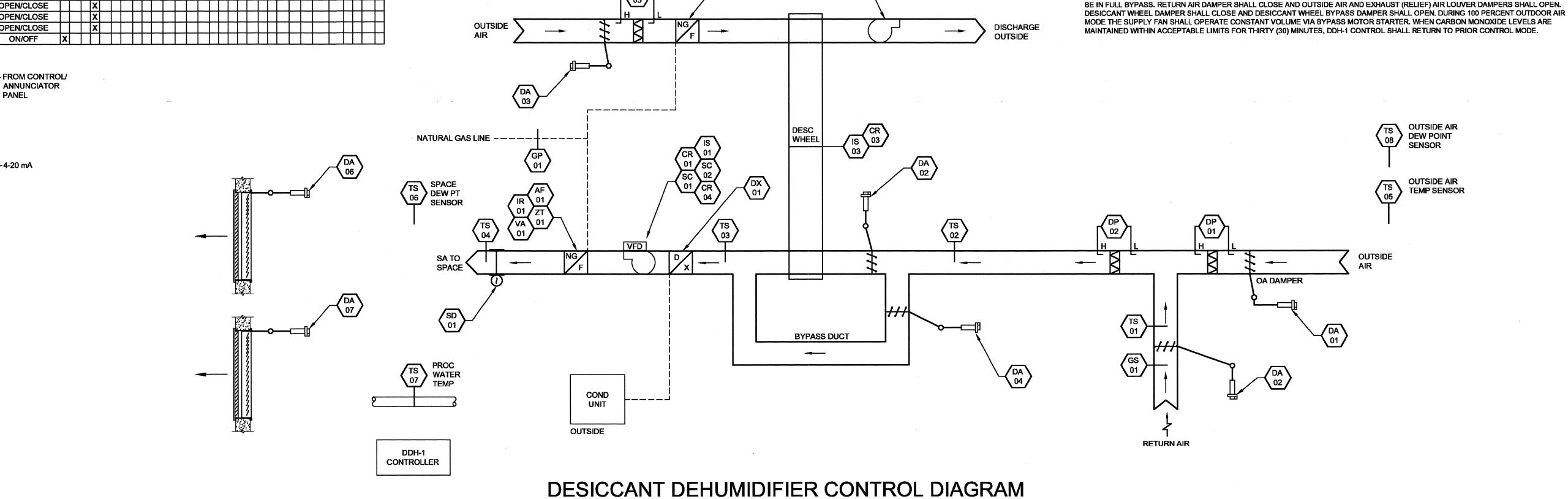
MARCH, 2011 H-00-602 CAD REF. NO. 3789-H-00-602

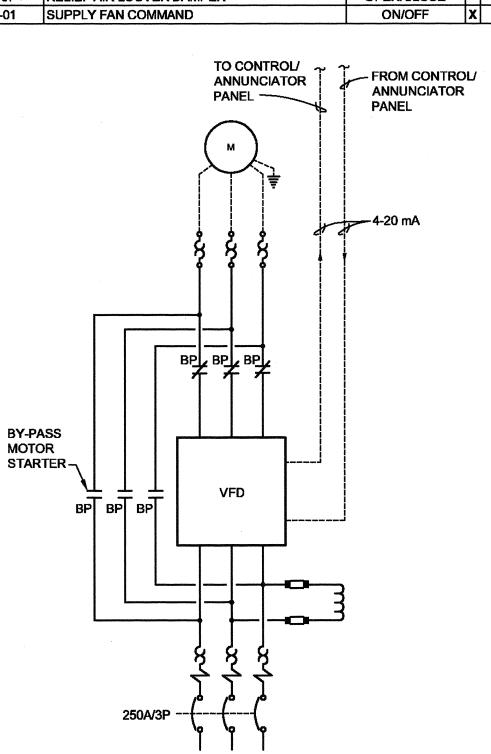
ISSUED STATUS: BID SET

SCALE: NOT TO SCALE

		HARDWARE	·															.,						WAI		\perp	
		OUTPUT													NP	ALARMS											
TAG	POINT LIST DESCRIPTION	UNITS	D	IGIT	TAL	A	NA	LO	G	D	IGI	TAL	_			Al	IA	O	G		D	IGIT	AL	AN	ALO	G	
	DESICCANT DEHUMIDIFIER UNIT w/ RETURN AIR , NATURAL GAS HEAT, NATURAL GAS REACTIVATION, AND DX POST COOLING		START/STOP	ENABLE/DISABLE	YES/NO OPEN/CI OSE	CONTROL PNT ADJ	OSITION ADJ	-10 VDC SPEED	4-20 MA	NFRARED SENSOR	AUX CONTACTS	CURRENT SENSOR	PRESS SWITCH	DEW POINT LEMP	TEMPERATURE	WATER TEMP	C DPM	NOILISO	SPEED 4-20 MA	PRESSURE		ALARM STATUS		HIGH LIMIT ADJ	LOW LIMIT ADJ		CETDOINT AD I
TS-01	RETURN AIR TEMPERATURE	DEG F (DEG C)	╫	╣	7	+	╫	1		十	+	\dashv	+	_	X	+	十	屵	٣	旹	┪	十	T	99	45	\dashv	弋
TS-02	MIXED AIR TEMPERATURE BEFORE WHEEL	DEG F (DEG C)	H	\dashv	\top	T	T	\vdash	H	\dashv	7	\dashv	十		X	\dagger	十	T	T	TT	1	T		65	45	十	1
TS-03	MIXED AIR TEMPERATURE AFTER WHEEL	DEG F (DEG C)	$\dagger\dagger$	寸	\top	十	T	\vdash	\sqcap	\forall	寸	寸	寸		X	十	T	十	T	$\dagger \dagger$	1	T	T			十	T
TS-04	SUPPLY AIR TEMPERATURE	DEG F (DEG C)	$\dagger \dagger$		\top	T	T		H	十	7	_			x	十	十	T	T	TT	\top	T		99	75	十	8
TS-05	OUTSIDE AIR TEMPERATURE	DEG F (DEG C)	TT	\neg		1	T	T	H	寸	T		T		\mathbf{x}	十	十	T	1	$\dagger \dagger$	┪	1				十	T
TS-06	SPACE DEW POINT TEMPERATURE	DEG F (DEG C)	TT	ヿ		T			Ħ	十	T	寸	寸	x	寸	十	1	T	十	TT	T	T				┪	十
TS-07	PROCESS WATER TEMPERATURE	DEG F (DEG C)	$\dagger \dagger$	\dashv	\top	T	1	<u> </u>	T	寸	十	\dashv	十	_	\mathbf{x}	十	十	T	T	$\dagger \dagger$	+	1			М	十	十
TS-08	OUTSIDE AIR DEW POINT TEMPERATURE	DEG F (DEG C)	††	寸	\top	T	T	T	$\dagger \dagger$	\forall	十	\dashv	十	\mathbf{x}^{\dagger}	\dagger	T	T	十	T	$\dagger \dagger$	1	1				1	十
SC-02	SUPPLY FAN VFD FEEDBACK	PER (%)	$\dagger \dagger$	$\neg 1$	\top	T	T	T	T^{\dagger}	\forall	寸	\dashv	寸	+	寸	T	T	T	X	$\dagger \dagger$	\top	T				\dashv	十
			T	一	十	T	T	Г	H	一	寸		7	十	7	T	十	T	T	TT	1	T	T			T	T
DP-01	FILTER STATUS - OUTSIDE AIR SPACE	IN WG (PA)	Ħ	ヿ		T	T	T	П	\dashv	1	7				T	T	T	T	X		X		0.7	0.1	T	T
DP-02	FILTER STATUS - MIXED RETURN AIR	IN WG (PA)	П	\Box		T	T	Г	П	T				T	T	T	T	T	T	X		X		0.7	0.1	T	T
DP-03	FILTER STATUS - OUTSIDE AIR REACT	IN WG (PA)	П			Τ			П								Τ		Π	X		X		0.7	0.1	\Box	T
									П																		
GS-01	CARBON MONOXIDE (CO) SENSOR	PPM															X	(X		35	5		1
ZT-01	NAT GAS VALVE FEEDBACK - SPACE HEAT	PER (%)					$oldsymbol{\perp}$		Ш								$oldsymbol{\perp}$	X	_	Ш							\perp
ZT-02	NAT GAS VALVE FEEDBACK- REACT HEAT	PER (%)	\coprod			1	_		Ш		_	_	\perp	_		1	\perp	X	4_	\sqcup	_		_				\bot
			$\bot \downarrow$		4	↓	<u> </u>		Н	\dashv	4		4	_	4	_	4	\downarrow	4	\sqcup	_	1_	_			4	4
IS-01	SUPPLY FAN STATUS	ON/OFF	$\bot \downarrow$	-	4	<u> </u>	1	_	\sqcup	\dashv		X	_	4	_	4	4	╀	╀	++	4	1	_			4	4
IS-02	REACTIVATION FAN STATUS	ON/OFF	+	_		┿	╁	<u> </u>	\sqcup	\dashv		X	\dashv	-	-	_	4	4	4	++	_	1	-	<u> </u>		+	+
IS-03	DESICCANT WHEEL STATUS	ON/OFF	+		_	╀-	4	├	\vdash			X		+		+	+	+	╀-	++	-	+	1			+	+
IR-01	NAT GAS BURNER STATUS - SPACE HEAT	ON/OFF	+	\dashv	_	4	_	┞	\perp	X	_	\dashv	-	\dashv	\dashv	4	+	+	+	++	-	+	╄			+	+
IR-02	NAT GAS BURNER STATUS - REACT HEAT	ON/OFF	+	-		+-	+	-	H	X	-			\dashv	-+	+	+	+	+	++	+	╁	-			+	+
AF-1	AIR FLOW SWITCH - SPACE HEAT	ON/OFF	+	\dashv		╀-	+	├	H		X		\dashv	\dashv	\dashv	+	+	+	+-	₩	+	X			-	+	+
AF-2	AIR FLOW SWITCH - REACT HEAT	ON/OFF	+	\dashv	\vdash	+-	+	├	\vdash	_	X	\dashv	\dashv	\dashv	\dashv	+	+	╀	+	++	+	X	+	 	-	+	+
SD-01 GP-01	SUPPLY SMOKE DETECTOR	ON/OFF ON/OFF	+	\dashv	-	+-	+	\vdash	H		X	\dashv	\dashv	+	\dashv	+	╬	╀	+	++	╬	X			-	+	+
CR-04	NAT GAS PRESSURE SWITCH SUPPLY FAN VFD ALARM	ON/OFF ON/OFF	+	\dashv	\vdash	╁	+	╁	+		^		\dashv	+	\dashv	+	+	╁	╫	++	+	 				+	+
CR-04	SUPPLY FAIN VPD ALARINI	ON/OFF	+		\vdash	+	╫	\vdash	H	\dashv	^	-	\dashv	\dashv	\dashv	+	╁	╁	+	++	+	+^	╁	<u> </u>		+	+
VA-01	NAT GAS VALVE COMMAND- SPACE HEAT	PER (%)	╁┤	\dashv	$\vdash \vdash$	+	X	\vdash	H	\dashv	\dashv	\dashv	\dashv	+	\dashv	+	+	+	+	++	+	+	+	 	\vdash	+	+
VA-02	NAT GAS VALVE COMMAND- REACT HEAT	PER (%)	+	\vdash	\vdash	\dagger	X		H	\dashv	\dashv	\dashv	\dashv	\dashv	\dashv	\dagger	\dagger	+	T	††	+	+	T	 	\vdash	\forall	十
DX-01	DX COOLING COIL COMMAND	PER (%)	$\dagger \dagger$	\vdash	+	$\dagger_{\mathbf{x}}$		\vdash	H	\forall	\dashv	寸	\dashv	十	\dashv	十	\dagger	十	T	††	十	T		<u> </u>		+	十
SC-01	SUPPLY FAN VFD COMMAND	PER (%)	$\dagger \dagger$	\vdash	+	Ť	+	X	H	\dashv	\dashv	寸	十	十	\dashv	\dagger	T	十	T	$\dagger \dagger$	1	1				T	\dagger
		1	$\dagger \dagger$		$\vdash \vdash$	T	T	Ħ	Ħ	$ \; $	\dashv	寸	T	\dashv	\dashv	十	十	十	T	$\dagger \dagger$	\top	T	T			十	十
DA-01	OUTSIDE AIR DAMPER	OPEN/CLOSE	$\dagger \dagger$	\Box	K	t	T	T	H	\dashv	\dashv	寸	\dashv	\forall	\dashv	十	T	十	T	$\dagger \dagger$	十	T	T		П	十	十
DA-02	RETURN DAMPER	OPEN/CLOSE	$\top \top$		K		十	T	Ħ	\sqcap	\dashv	寸	\dashv	\forall	\dashv	T	T	†	T	T T	1	1	T			十	十
DA-03	REACTIVATION OUTSIDE AIR DAMPER	OPEN/CLOSE	\top		X		T	T	H		\dashv	寸	\dashv	T	\dashv	T	十	T	T	T^{\dagger}	T	T	T			T	T
DA-04	DESC WHEEL BYPASS DAMPER	OPEN/CLOSE	\top		K	_	T	T	П	T	\dashv	寸	1	寸	\dashv	十	T	T	T	TT	\top	T					T
DA-05	DESC WHEEL DAMPER	OPEN/CLOSE	\sqcap		K	T	T		П					\Box		T	T	T	T	\prod		Τ	Γ				T
DA-06	RELIEF AIR LOUVER DAMPER	OPEN/CLOSE	\prod		K		T		П								Ţ	Ī	Ι								T
DA-07	RELIEF AIR LOUVER DAMPER	OPEN/CLOSE	\prod		X		I^{T}		\prod								floor	Ι	Ι	\prod							J
CR-01	SUPPLY FAN COMMAND	ON/OFF	X		П	T	Т	Π	П	T			\neg			Т	Т	Т	Τ	П	T	T	T				T

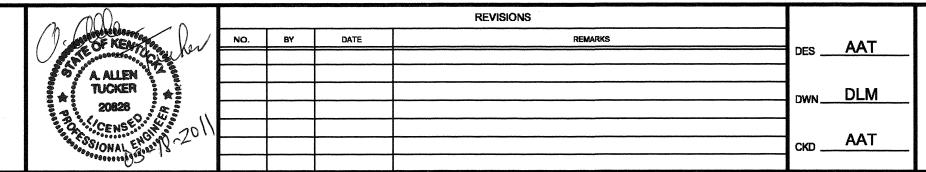
	OPERATING PARAMETERS	
FUNCTION	SET POINT (ADJUSTABLE)	REMARKS
PROCESS WATER TEMPERATURE MEASUREMENT	NOT APPLICABLE	PROCESS WATER TEMPERATURE VARIES FROM WINTER LOW: 35 F (2 C) TO SUMMER HIGH: 85 F (29 C)
SPACE DEWPOINT TEMPERATURE	VARIABLE	AT ALL TIME 5 F (3 C) BELOW PROCESS WATER TEMP
COOLING COIL DISCHARGE AIR TEMPERATURE SETPOINT	52 F (11 C)	
NAT GAS FURNACE DISCHARGE AIR TEMP SETPOINT	87 F (31 C)	NG FURNACE SERVING THE SPACE
SPACE TEMPERATURE - COOLING SPACE TEMPERATURE - HEATING	92 F (33 C) 55 F (13 C)	DEAD BAND +/- 2 F (1 C) DEAD BAND +/- 2 F (1 C)
MIXED AIR TEMPERATURE AFTER WHEEL - COOLING MIXED AIR TEMPERATURE AFTER WHEEL - HEATING	88 F (31 C) 52 F (11 C)	DEAD BAND +/- 2 F (1 C) DEAD BAND +/- 2 F (1 C) - 100% BYPASS OF WHEEL
ECONOMIZER SWITCHOVER TEMPERATURE NOT HEATING NO COOLING	VARIABLE	IF ALL THE FOLLOWING CONDITIONS ARE MET: TOA DP is 5 F (3 C) < Tproc water AND Tspace > 55 F (13 C) AND Tspace < 92 F (33 C) THEN UNIT IS ECONOMIZER CAPABLE
FILTER ALARM	0.75" WG (185 Pa)	
CARBON MONOXIDE SENSOR	20 PPM	LOCATE CO SENSOR AT RETURN GRILLE TO DDH-1





DDH-1 SUPPLY FAN VFD DIAGRAM WITH BY-PASS DETAIL

MALCOLM PIRNIE



NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT

ADVANCED TREATMENT **IMPROVEMENTS**

HVAC HVAC CONTROLS DESICCANT DEHUMIDIFIER SYSTEM

SEQUENCE OF OPERATION:

REACTIVATION FAN SHALL RUN AS REQUIRED TO MAINTAIN DESICCANT WHEEL.

DESICCANT WHEEL BYPASS DAMPER SHALL OPEN.

CONTROL PANEL AND POWER OFF DDH-1.

GENERAL SYSTEM DESCRIPTION - THE DESICCANT DEHUMIDIFICATION SYSTEM CONSISTS OF A PROCESS AIR SUPPLY FAN, DESICCANT

INTERNAL DESICCANT WHEEL DAMPER(S), INTERNAL DESICCANT WHEEL BYPASS DAMPER(S) AND STAND ALONE CONTROLS INCLUDING CONTROL PANEL WITH SCREEN, SPACE DEW POINT TEMPERATURE SENSOR, PROCESS WATER TEMPERATURE SENSOR, OUTSIDE AIR TEMPERATURE SENSOR, AND OUTSIDE AIR DEW POINT TEMPERATURE SENSOR COMPLETE WITH TRANSMITTERS AND WIRING.

SOFTWARE NECESSARY FOR A FULLY FUNCTIONING SYSTEM. DURING OPERATION ALL LISTED POINTS (SEE POINT LIST DESCRIPTION) SHALL BE VISIBLE TO THE OPERATOR AT ALL TIMES VIA THE SCREEN OF THE REMOTE CONTROL PANEL SERVING THE DESICCANT

DAMPER CONTROL - DURING HEATING, COOLING AND DEHUMIDIFICATION MODES OUTSIDE AIR DAMPER SHALL OPEN TO THE REQUIRED OUTSIDE AIR VOLUME PER DESICCANT DEHUMIDIFIER UNIT SCHEDULE. OUTSIDE AIR DAMPER POSITION REQUIRED TO MAINTAIN SCHEDULED OUTSIDE AIR VOLUME SHALL BE DETERMINED BY THE TAB PROVIDER. RETURN AIR DAMPER SHALL OPEN FULLY AND EXHAUST (RELIEF) AIR LOUVER DAMPERS SHALL CLOSE. DESICCANT WHEEL DAMPER AND DESICCANT WHEEL BYPASS DAMPER SHALL MODULATE TO MAINTAIN MIXED AIR TEMPERATURE SETPOINTS DURING ECONOMIZER MODE RETURN AIR DAMPER SHALL CLOSE. OUTSIDE AIR AND EXHAUST (RELIEF) AIR LOUVER DAMPERS SHALL OPEN FULLY. DESICCANT WHEEL DAMPER SHALL CLOSE AND

6. DESICCANT DEHUMIDIFIER - DEHUMIDIFICATION DEHUMIDIFIER SHALL MAINTAIN SPACE DEW POINT TEMPERATURE SETPOINT OF 5 F (3 C) BELOW PROCESS WATER TEMPERATURE AT ALL TIMES. SPACE DEWPOINT TEMPERATURE SHALL BE DETERMINED BY A SPACE MOUNTED DEW POINT TEMPERATURE SENSOR, PROCESS WATER TEMPERATURE SHALL BE DETERMINED BY A PROCESS PIPE MOUNTED

7. DX COIL CONTROL - COOLING DX COOLING COIL SHALL MAINTAIN COOLING COIL DISCHARGE AIR SETPOINT BY STAGING COMPRESSORS AND VARYING REFRIGERANT FLOW VIA A DIGITAL SCROLL COMPRESSOR . DURING HEATING THE DX COOLING COIL SHALL BE DISABLED.

8. NATURAL GAS PROCESS AIR FURNACE - HEATING NATURAL GAS VALVE SHALL MODULATE TO MAINTAIN THE HEATING COIL DISCHARGE

9. ECONOMIZER ENABLE ECONOMIZER MODE WHEN OUTSIDE AIR DEW POINT TEMPERATURE AND INSIDE SPACE TEMPERATURE MEET ECONOMIZER SWITCHOVER CONDITIONS. IF SPACE TEMPERATURE DEW POINT AND PROCESS WATER TEMPERATURE DIFFERENTIAL DECREASES BELOW SETPOINT THEN DESICCANT DEHUMIDIFICATION CYCLE SHALL OPERATE UNTIL ECONOMIZER SWITCHOVER CONDITIONS ARE MET. WHEN ECONOMIZER SWITCHOVER CONDITIONS ARE MET DX COOLING COIL AND NATURAL GAS HEATING SHALL BE DISABLED DESICCANT DEHUMIDIFIER UNIT SHALL BE IN FULL BYPASS. RETURN AIR DAMPER SHALL CLOSE AND OUTSIDE AIR AND EXHAUST (RELIEF) AIR LOUVER DAMPERS SHALL OPEN. DESICCANT WHEEL DAMPER SHALL CLOSE AND DESICCANT WHEEL BYPASS

IR TEMPERATURE SETPOINT. DURING COOLING THE NATURAL GAS PROCESS AIR FURNACE SHALL BE DISABLED.

10. <u>NATURAL GAS REACTIVATION FURNACE</u> NATURAL GAS VALVE SHALL MODULATE TO MAINTAIN THE REACTIVATION FURNACE DISCHARGE AIR TEMPERATURE SETPOINT AS DETERMINED BY THE MANUFACTURER.

11. SMOKE CONTROL ACTIVATION OF THE DDH-1 DUCT MOUNTED SMOKE DETECTOR SHALL SEND AN ALARM SIGNAL TO THE FIRE ALARM

12. CARBON MONOXIDE MONITOR - IF THE CARBON MONOXIDE LEVEL EXCEEDS THE SETPOINT LIMITS, THEN A CRITICAL ALARM SHALL REGISTER AT THE CONTROL PANEL AND THE UNIT SHALL OPERATE IN 100 PERCENT OUTDOOR AIR MODE UNTIL CARBON MONOXIDE LEVELS DROP TO WITHIN ACCEPTABLE LIMITS. DURING 100 PERCENT OUTDOOR AIR MODE THE DESICCANT DEHUMIDIFIER UNIT SHALL

ROTARY WHEEL, REACTIVATION FAN, INDIRECT FIRED NATURAL GAS PROCESS AIR FURNACE, DIRECT FIRED NATURAL GAS REACTIVATION FURNACE, POST DX COOLING COIL, REMOTE CONDENSING UNIT, RETURNDAMPER(S), OUTSIDE AIR DAMPER(S),

2. DESIGN INTENT - THE DESIGN INTENT OF THE SYSTEM IS TO PREVENT CONDENSATION ON PROCESS PIPING, MAINTAIN SPACE TEMPERATURE BETWEEN A LOW OF 55 F (13 C) AND A HIGH OF 92 F (33 C), AND ALLOW FOR ECONOMIZER VENTILATION.

DEHUMIDIFIER UNIT. THE UNIT WILL BE ENABLED AND DISABLED AS SCHEDULED BY THE UNIT CONTROL SYSTEM

TEMPERATURE SENSOR INSTALLED ON GAC SUPPLY (GS) PIPING AS IT ENTERS THE PT/GAC BUILDING.

3. CONTROL PANEL - STAND ALONE CONTROLS SHALL INCLUDE CONTROL PANEL AND SCREEN COMPLETE WITH ALL HARDWARE AND

4. FAN CONTROL - SUPPLY FAN SHALL BE ENABLED CONTINUOUSLY UNDER HAND-OFF-AUTOMATIC (H-O-A) CONTROL. SUPPLY FAN VFD SHALL OPERATE IN VARIABLE VOLUME ONLY DURING ECONOMIZER MODE AS ADJUSTED BY THE OPERATOR AT THE REMOTE CONTROL PANEL. DURING NON-ECONOMIZER MODES SUPPLY FAN SHALL OPERATE IN CONSTANT VOLUME VIA THE VFD BYPASS CONTACTOR.

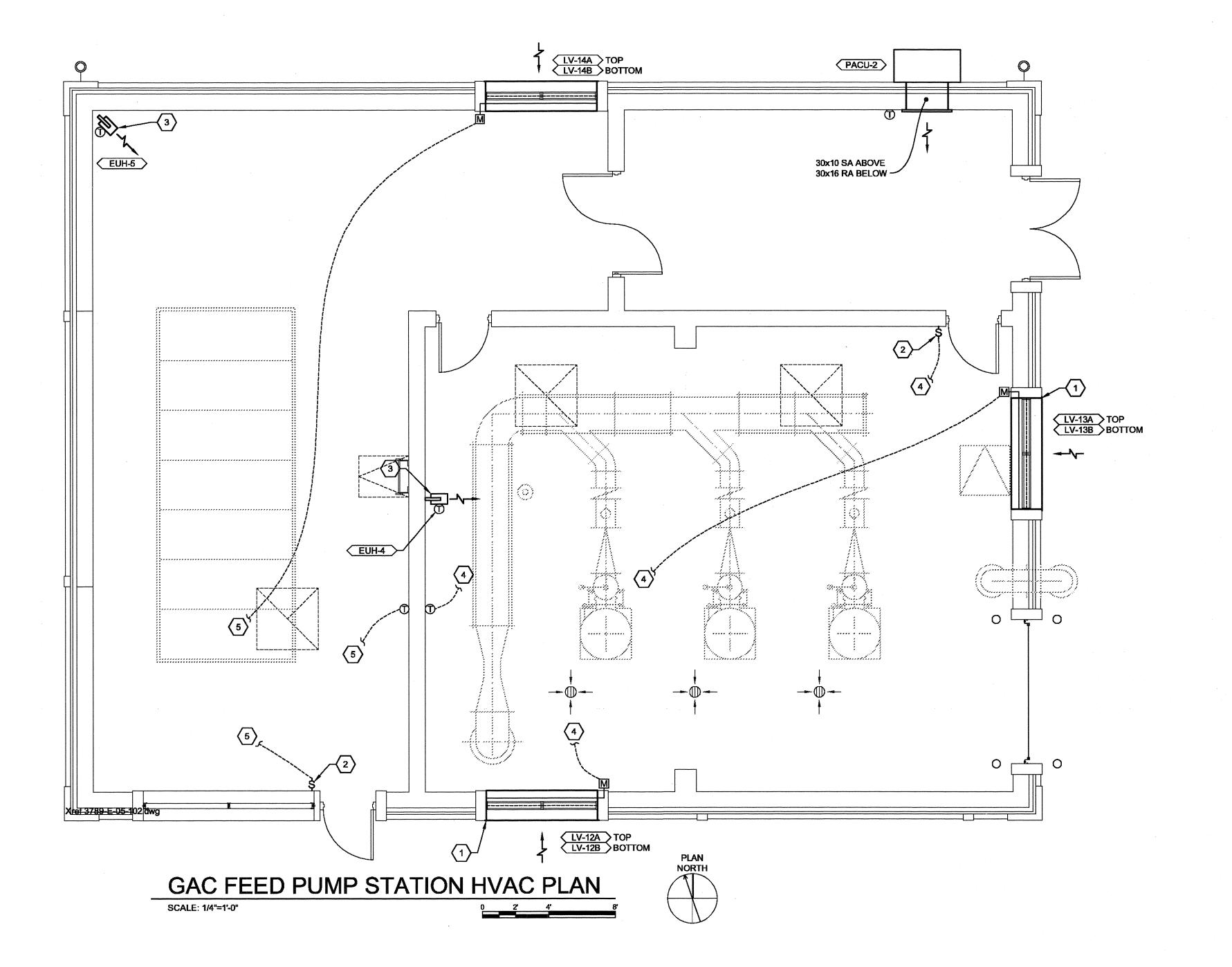
DESICCANT DEHUMIDIFICATION (DDH-1)

SCALE: NOT TO SCALE

ISSUED STATUS: BID SET MARCH, 2011

H-00-701

CAD REF. NO. 3789-H-00-701

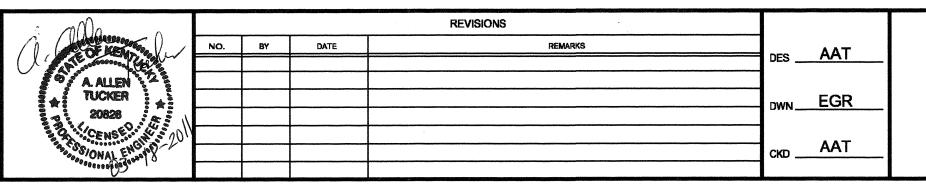


 REFER TO SHEET E-00-607 EXHAUST FAN CONTROL CIRCUIT FOR EXHAUST FAN, DAMPER (S), SWITCH AND THERMOSTAT CONTROL DIAGRAM.

○ SHEET KEYNOTES:

- 1. SEE ARCHITECTURAL LOUVER DETAILS FOR AFF ELEVATION.
- 2. MOUNT FAN SWITCH 4'-0" AFF.
- 3. 7'-0" AFF TO BOTTOM OF UNIT HEATER (S). MINIMUM OF 8" FROM ANY WALL.
- 4. UP TO EF-4 ON ROOF.
- 5. UP TO EF-5 ON ROOF.





NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT

IMPROVEMENTS

HVAC
GAC FEED PUMP STATION
BRIDGECRANE - HVAC PLAN

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

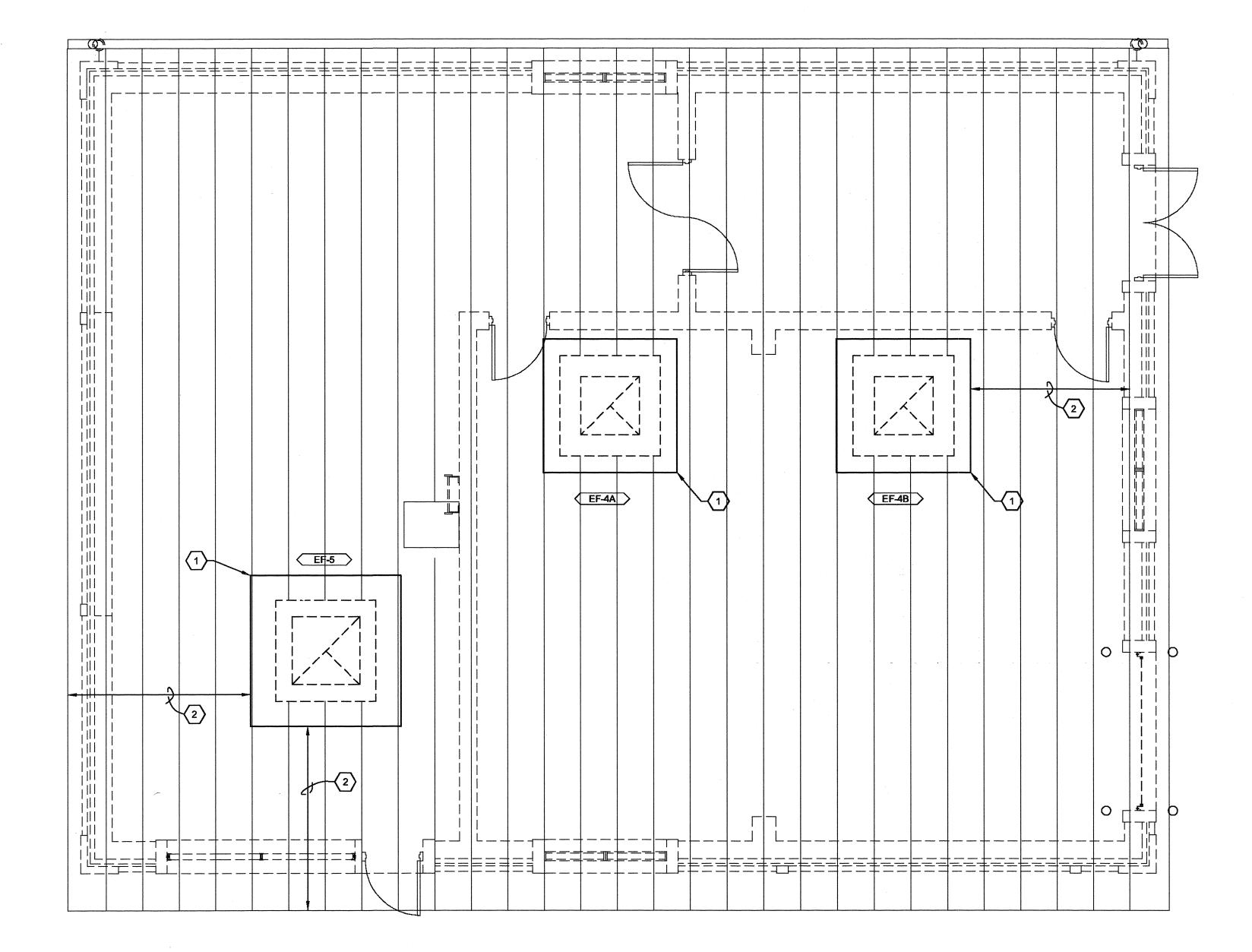
ISSUED STATUS: BID SET

DATE MARCH, 2011

SHEET H-05-101

CAD REF. NO. 3789-H-05-101

1. COORDINATE ROOF PENETRATION LOCATIONS WITH STRUCTURAL, ARCHITECTURAL, AND APPROVED EXHAUST FAN MANUFACTURER.

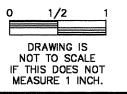


○ SHEET KEYNOTES:

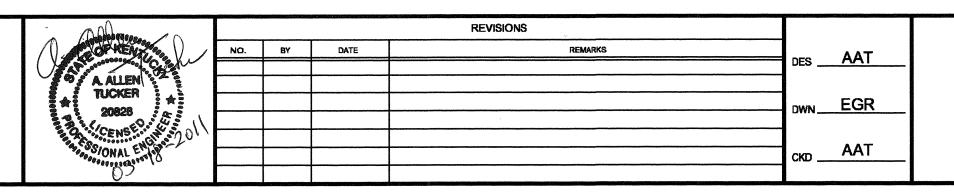
- 1. TIE TO LOUVER ACTUATORS AND SWITCH (S) BELOW.
- 2. MAINTAIN A MINIMUM DISTANCE OF 10'-0" FROM ROOF EDGE.











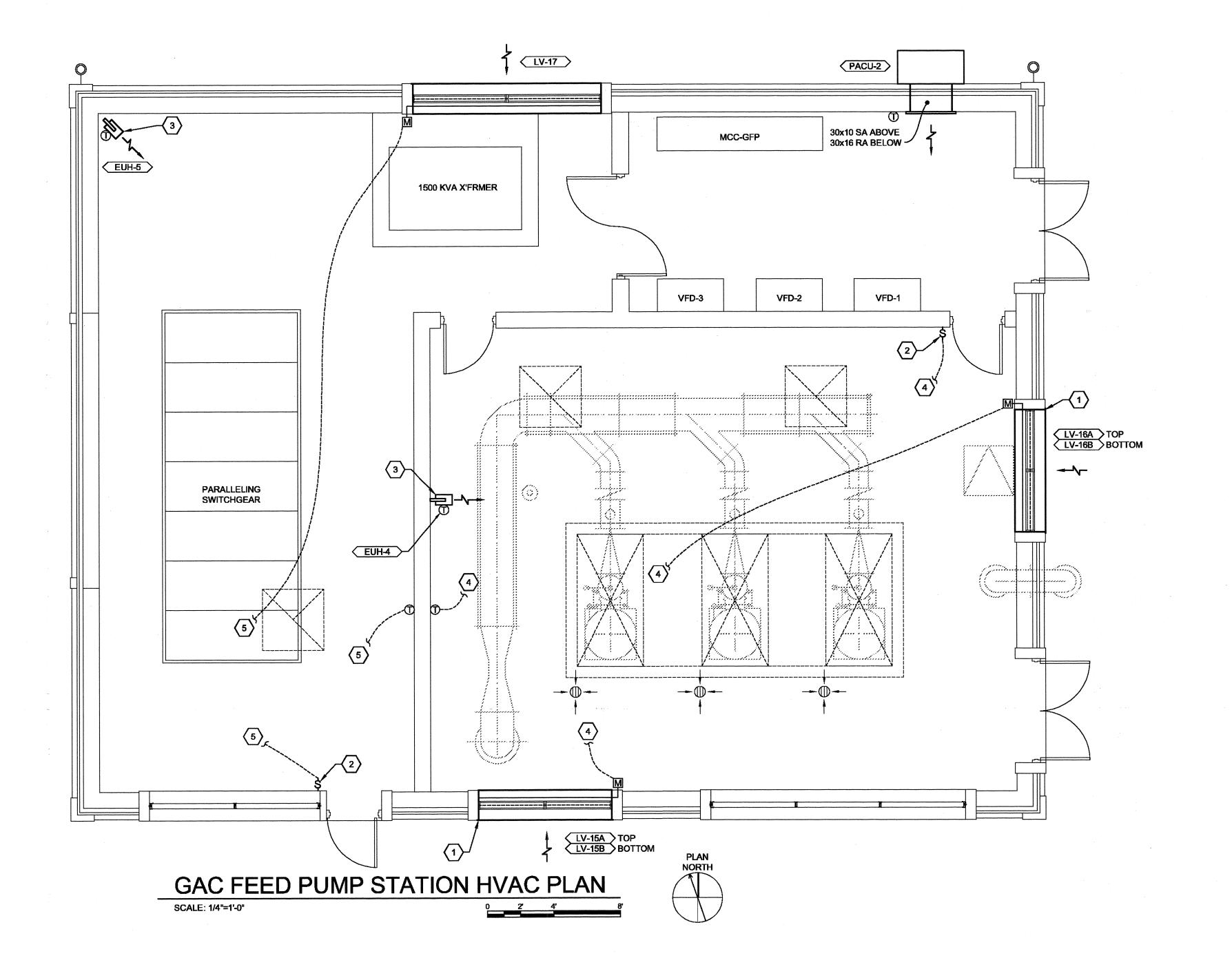
NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT **IMPROVEMENTS**

GAC FEED PUMP STATION BRIDGECRANE-ROOF HVAC PLAN

MECHANICAL

SCALE: 1/4" = 1'

ET
1
2
-102

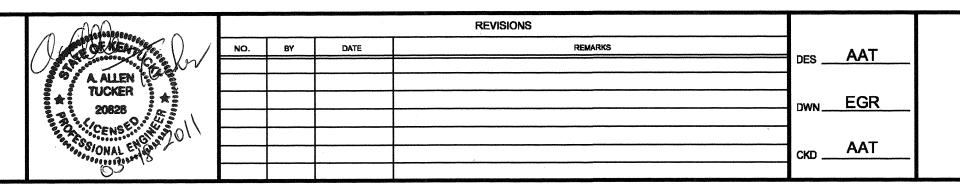


REFER TO SHEET E-00-607 EXHAUST FAN CONTROL CIRCUIT FOR EXHAUST FAN, DAMPER (S), SWITCH AND THERMOSTAT CONTROL DIAGRAM.

○ SHEET KEYNOTES:

- 1. SEE ARCHITECTURAL LOUVER DETAILS FOR AFF ELEVATION.
- 2. MOUNT FAN SWITCH 4'-0" AFF.
- 3. 7'-0" AFF TO BOTTOM OF UNIT HEATER (S). MINIMUM OF 8" FROM ANY WALL.
- 4. UP TO EF-4 ON ROOF.
- 5. UP TO EF-5 ON ROOF.

MALCOLM PIRNIE



NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT **IMPROVEMENTS**

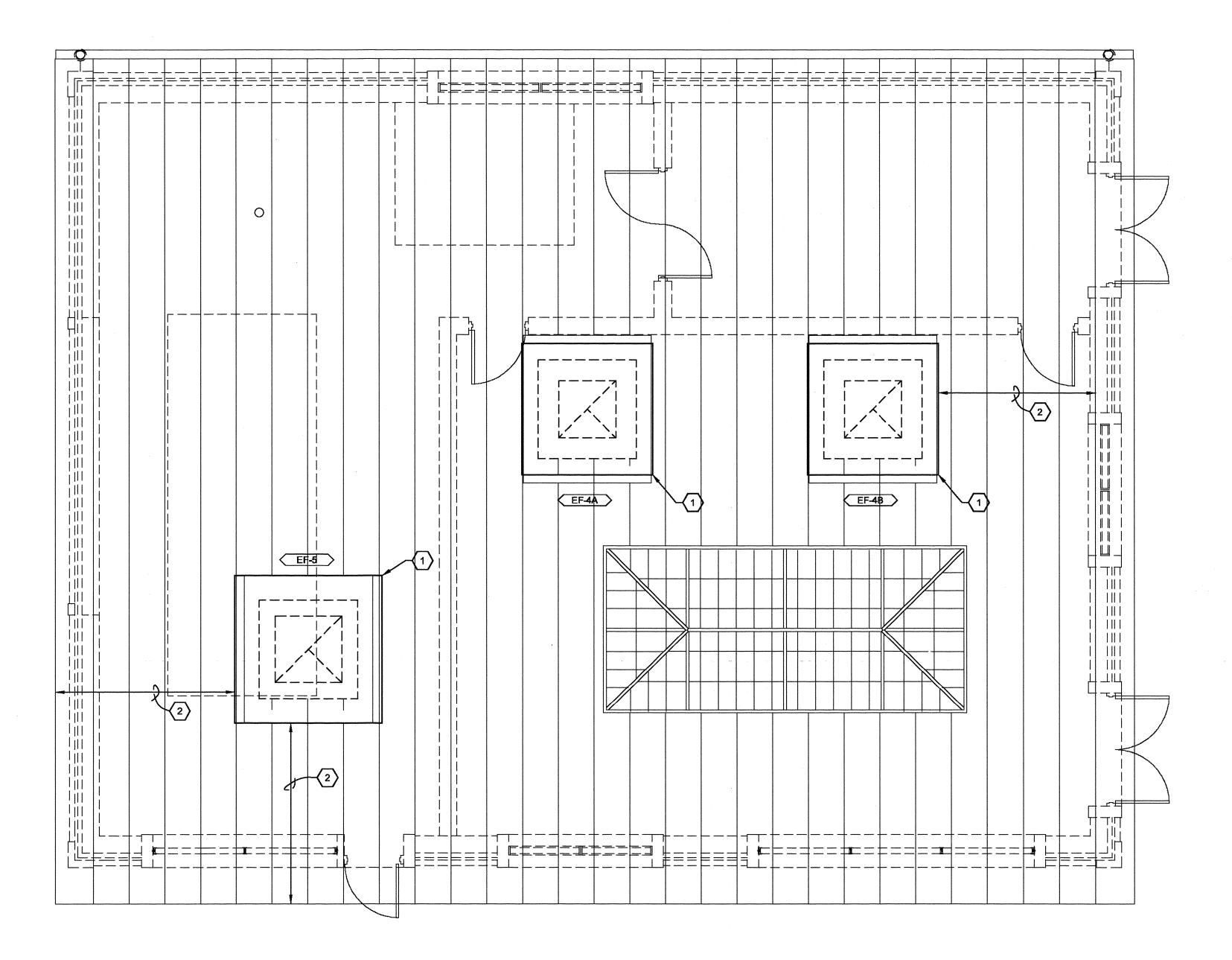
HVAC

GAC FEED PUMP STATION - HVAC PLAN DATE _____MARCH, 2011 ALT BID No. 1 - SKYLIGHT ACCESS

CAD REF. NO. <u>3789-H-05-101A</u> SCALE: 1/4" = 1'-0"

ISSUED STATUS: BID SET SHEET H-05-101A

1. COORDINATE ROOF PENETRATION LOCATIONS WITH STRUCTURAL, ARCHITECTURAL, AND APPROVED EXHAUST FAN MANUFACTURER.

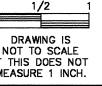


○ SHEET KEYNOTES:

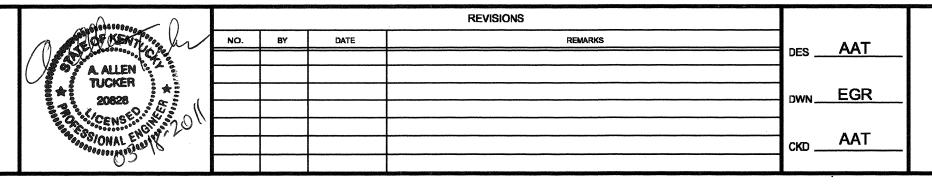
- 1. TIE TO LOUVER ACTUATORS AND SWITCH (S) BELOW.
- 2. MAINTAIN DISTANCE OF 10'-0" FROM ROOF EDGE.

GAC FEED PUMP STATION **ROOF PLAN**









NORTHERN KENTUCKY WATER DISTRICT TAYLOR MILL WATER TREATMENT PLANT ADVANCED TREATMENT **IMPROVEMENTS**

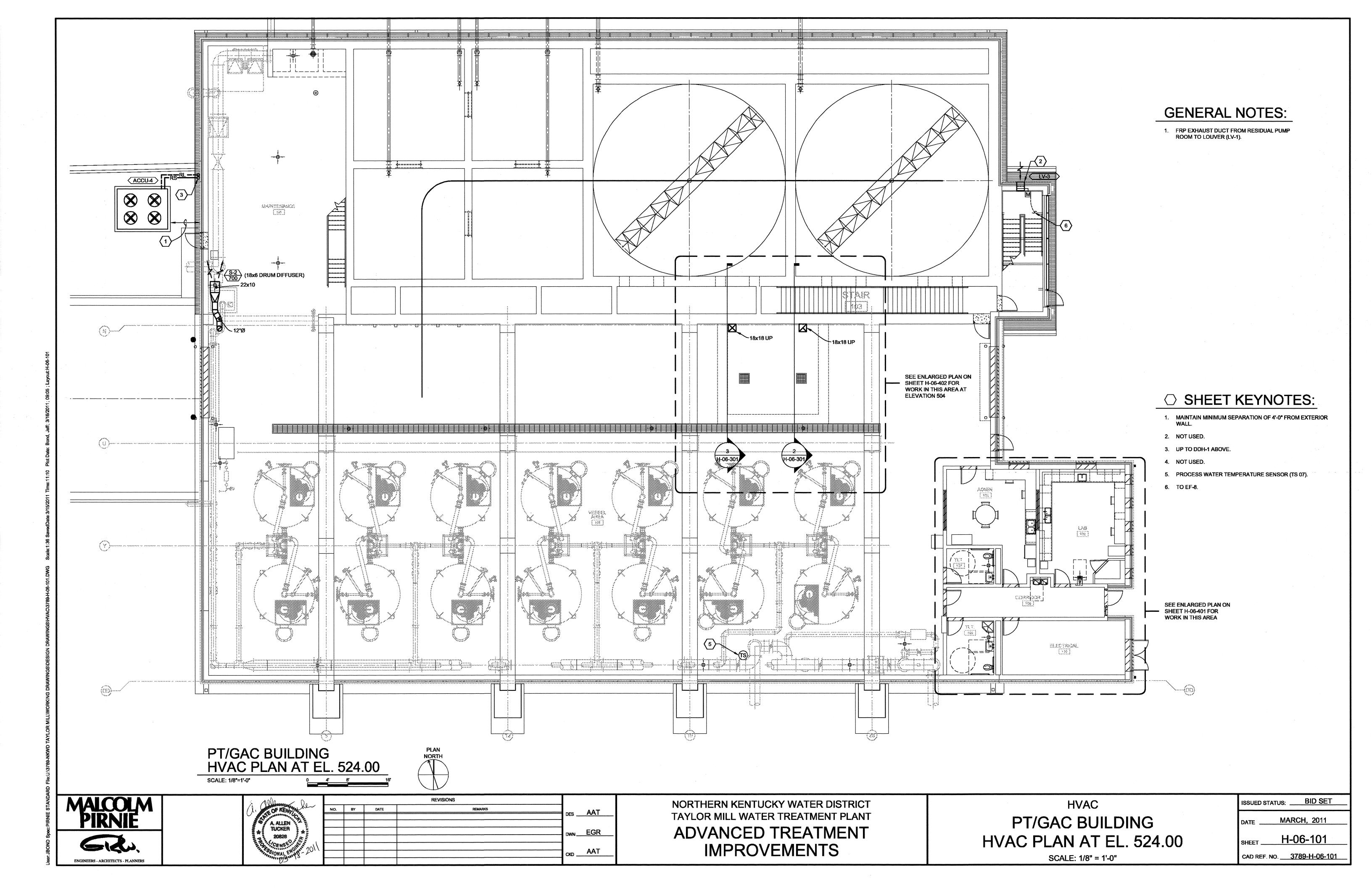
HVAC GAC FEED PUMP STATION - HVAC ROOF DATE — ALT. BID No.1 - SKY LIGHT ACCESS

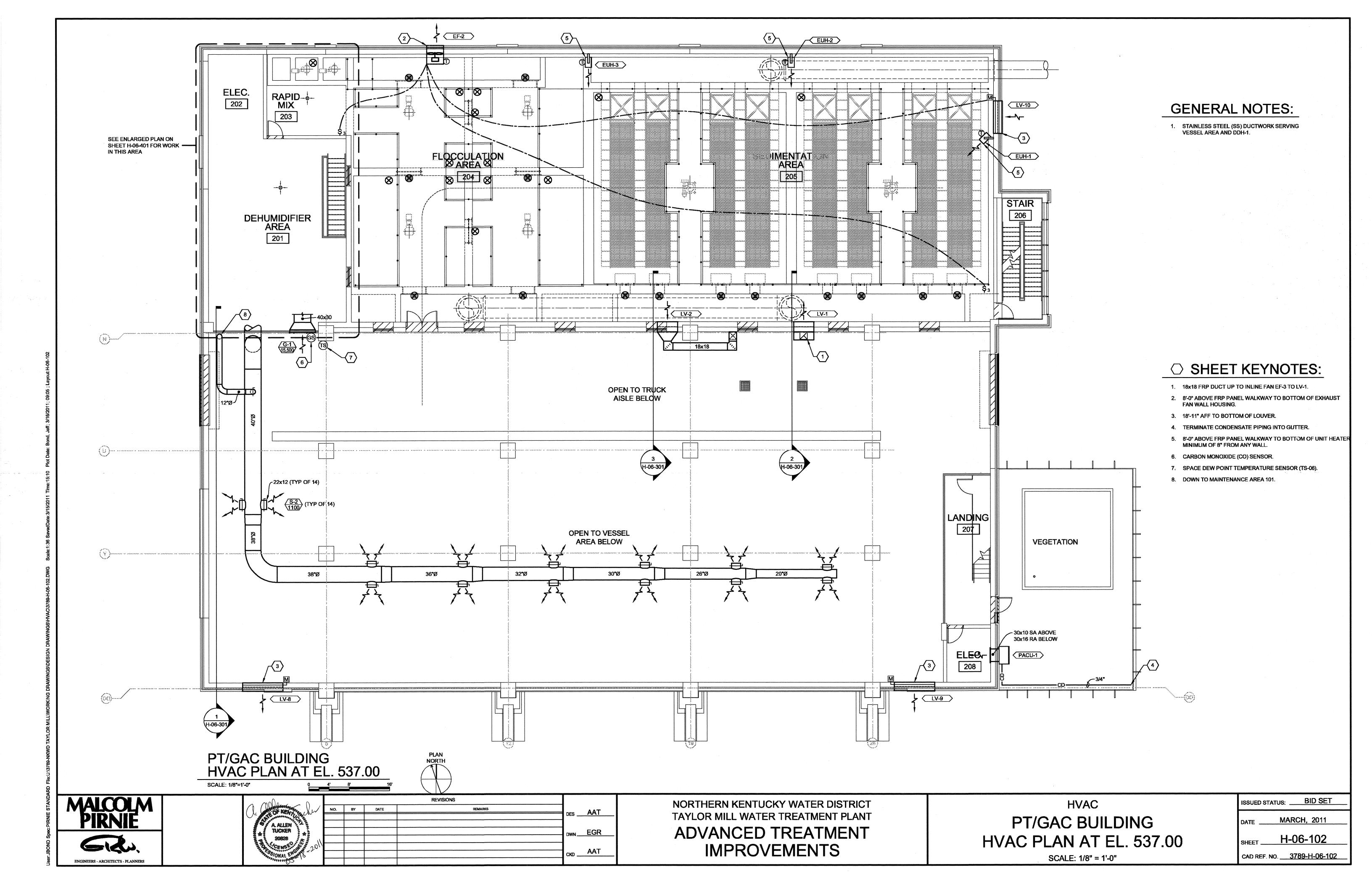
SCALE: 1/4" = 1'

MARCH, 2011

SHEET H-05-102A CAD REF. NO. <u>3789-H-05-102A</u>

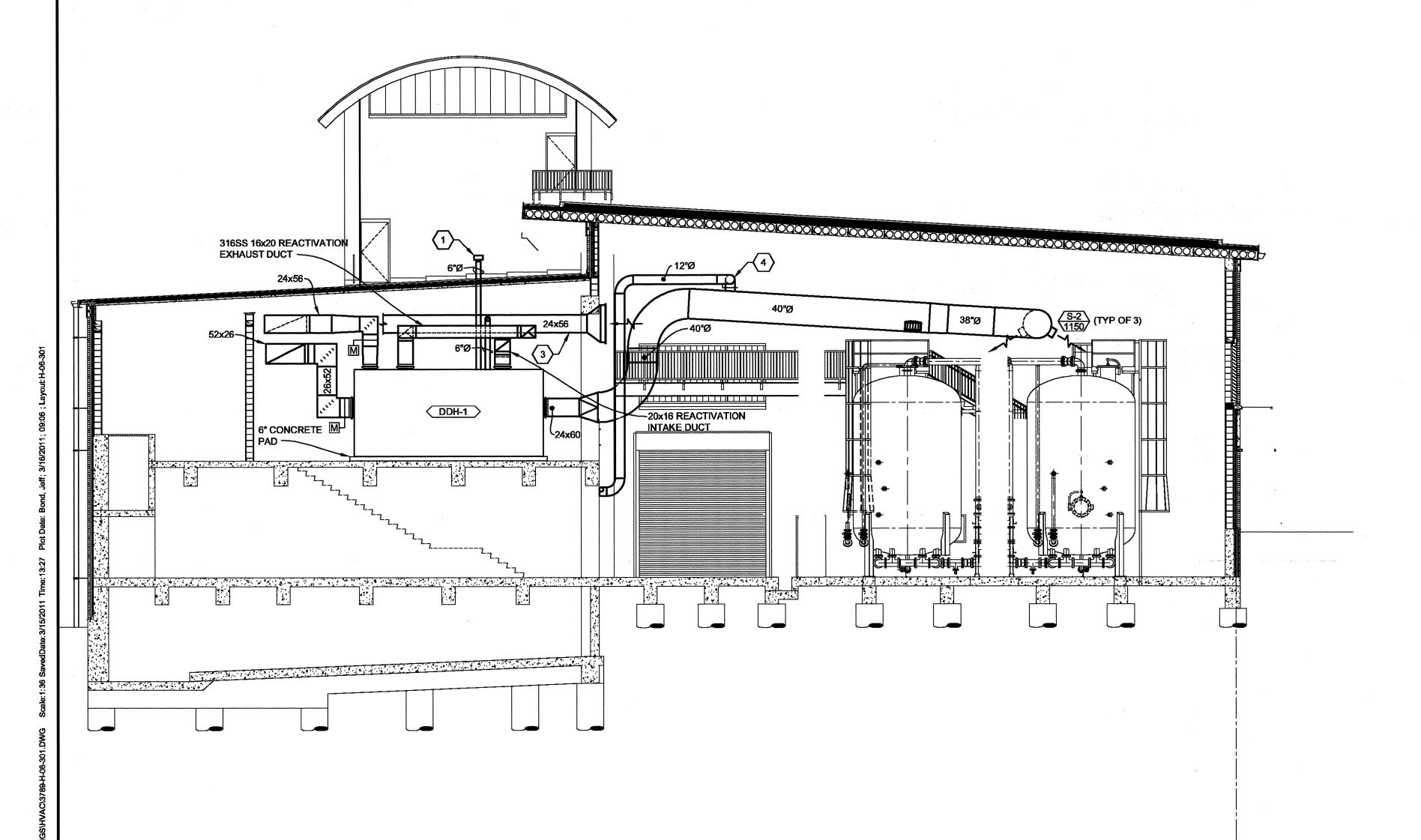
ISSUED STATUS: BID SET

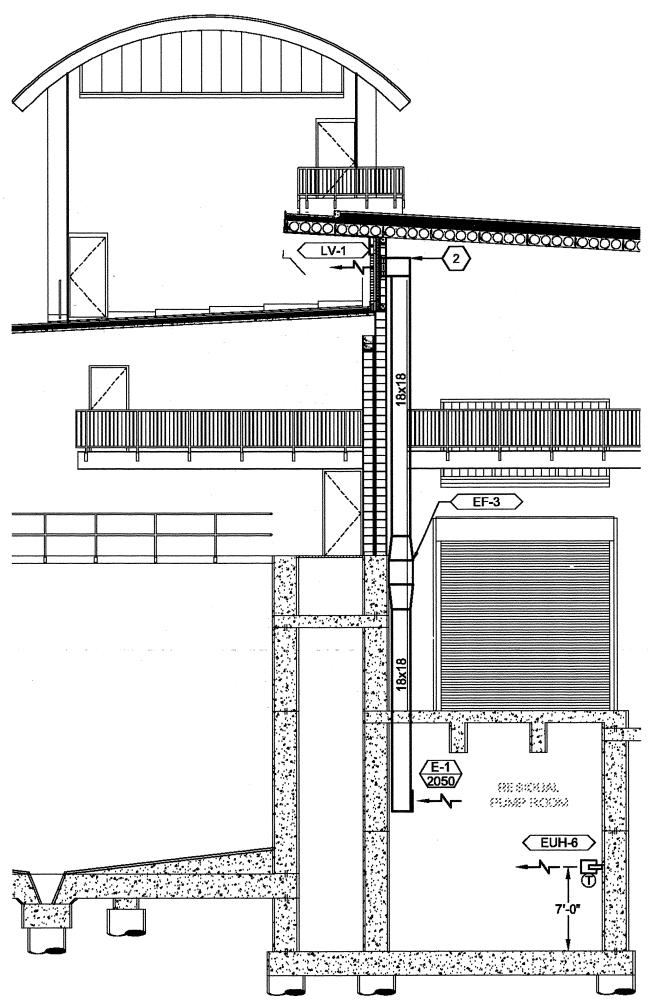


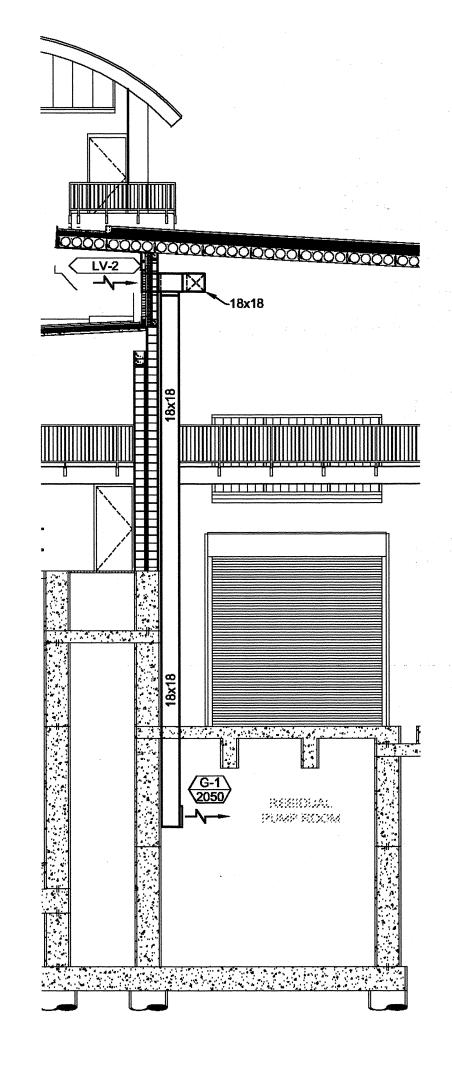


○ SHEET KEYNOTES:

- 1. SEE DETAIL 1 ON SHEET H-10-503 FOR INFORMATION ON ROOF PENETRATION.
- 2. TAP 18x18 FRP DUCT INTO BOTTOM OF 48"Wx18"Hx24"D FRP PLENUM. PLENUM IS TIED INTO LV-1.
- 3. BOD 14'-0" AFF OF MEZZANINE DEHUMIDIFIER AREA 201.
- 4. DOWN TO MAINTENANCE AREA 101.







PT/GAC BUILDING
HVAC SECTION

SCALE: 1/8"=1'-0"

9
4'
8'

PT/GAC BUILDING
HVAC SECTION

SCALE: 1/8"=1'-0"

0 4' 8' 16'



REVISIONS

NO. BY DATE REMARKS

DES AAT

DWN EGR

CKD AAT

PT/GAC BUILDING HVAC SECTION

SCALE: 1/8"=1'-0"

1 4 8

NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT

ADVANCED TREATMENT IMPROVEMENTS

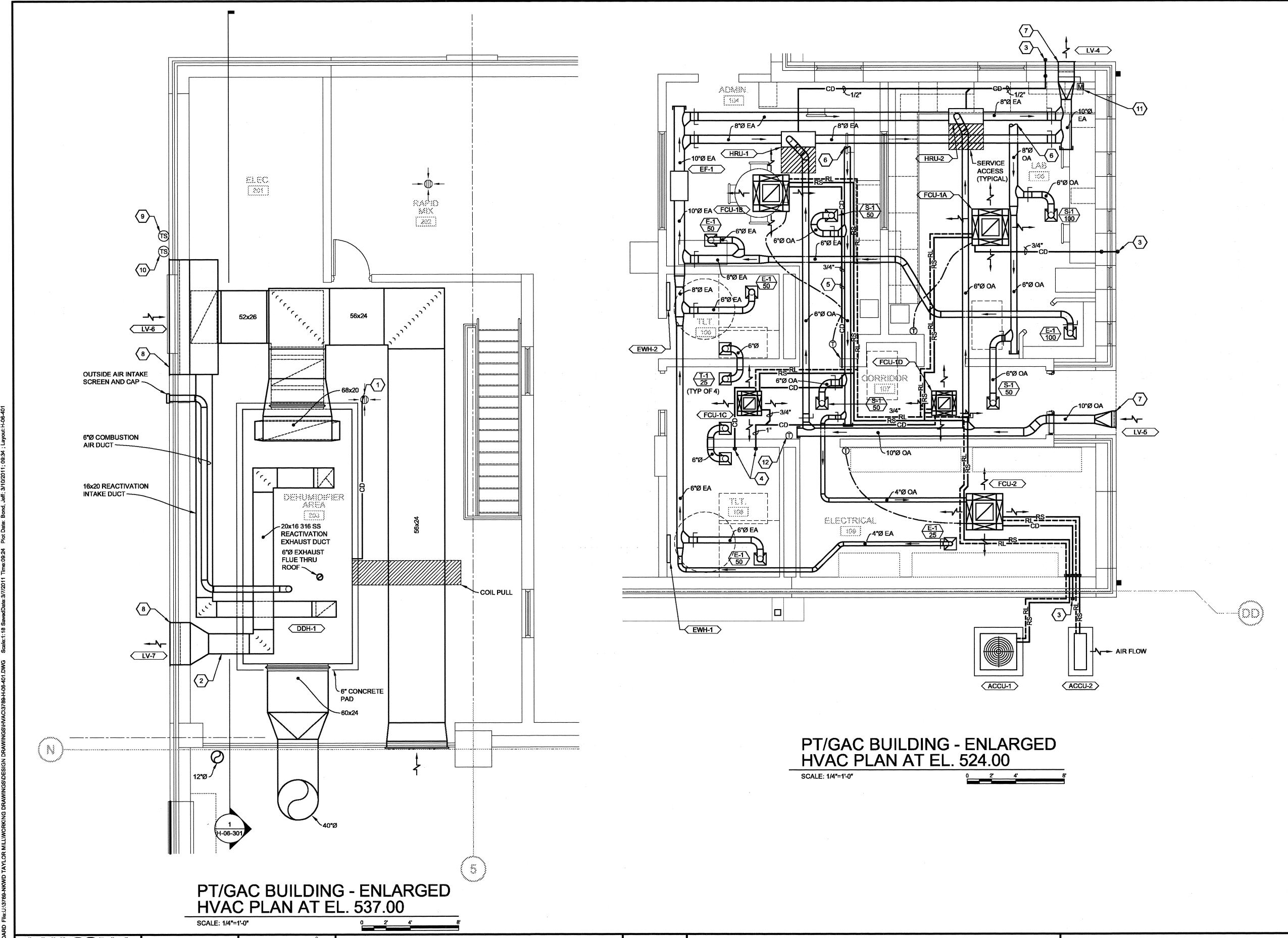
HVAC
PT/GAC BUILDING
HVAC SECTIONS

ISSUED STATUS: BID SET

DATE MARCH, 2011

SHEET H-06-301
CAD REF. NO. 3789-H-06-301

SCALE: 1/8" = 1'-0"



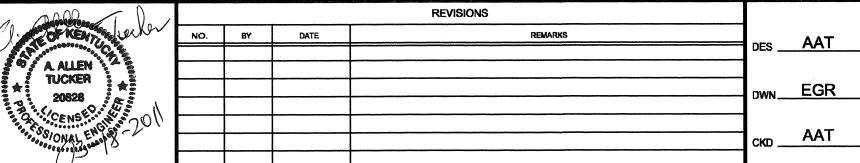
- 1. OUTSIDE AIR QUANTITY TO EACH FCU PER FCU SCHEDULE.
- 2. OFFICE/LAB/CORRIDOR/TOILETS/ELECTRICAL ROOM DUCTWORK SHALL BE GALVANIZED G90 STEEL.
- 3. SIZE AND CONFIGURATION OF REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATIONS.
- 4. DO NOT INSTALL REFRIGERANT PIPING OR CONDENSATE PIPING OVER ANY ELECTRICAL EQUIPMENT.

○ SHEET KEYNOTES:

- 1. ROUTE INSULATED CONDENSATE PIPING TO NEAREST FLOOR
- 2. PITCH DUCT DOWN TOWARD EXHAUST LOUVER.
- 3. ROUTE 3/4" INSULATED CONDENSATE PIPING TO SPLASH BLOCK AT GRADE.
- 4. ROUTE INSULATED CONDENSATE PIPING TO SERVICE SINK.
- 5. ROUTE PUMPED CONDENSATE TO SERVICE SINK.
- 6. OA AND EA DISCHARGE DUCT STACKED.
- 7. 9'-8" AFF TO BOTTOM OF LOUVER.
- 8. 18'-11" AFF TO BOTTOM OF LOUVER.
- 9. OUTSIDE AIR DEWPOINT TEMPERATURE SENSOR (TS 08).
- 10. OUTSIDE AIR TEMPERATURE SENSOR (TS 05).
- 11. INTERLOCK WITH EF-1.
- 12. THERMOSTAT FOR FCU-1C AND FCU-1D.

PLAN
NORTH

MALCOLM
PIRNIE



NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT

ADVANCED TREATMENT IMPROVEMENTS

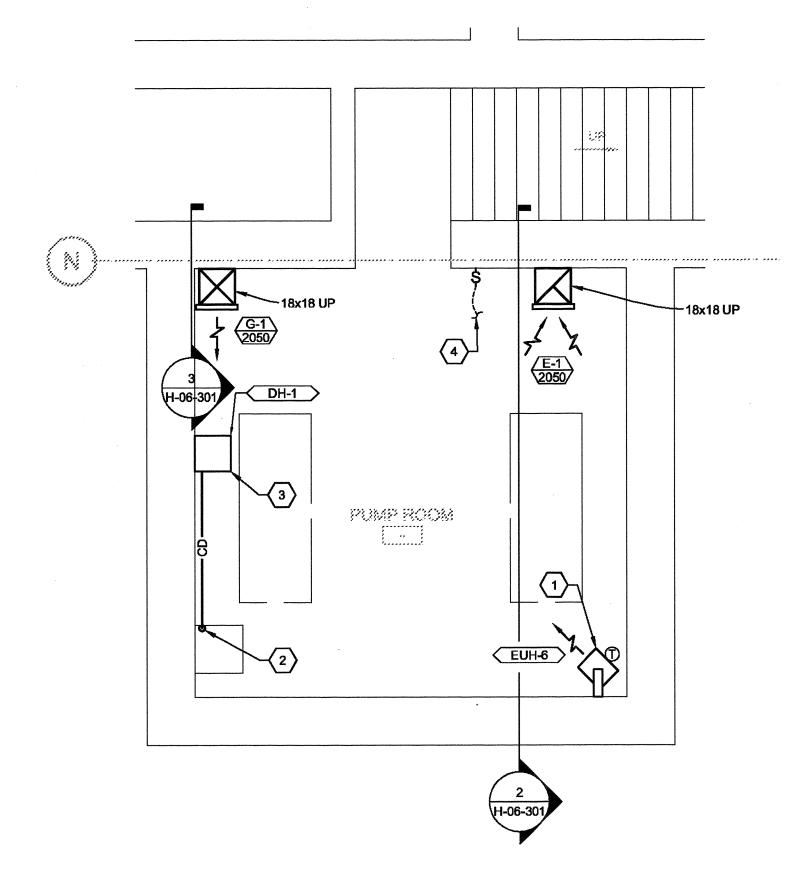
PT/GAC BUILDING ENLARGED HVAC PLANS I

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

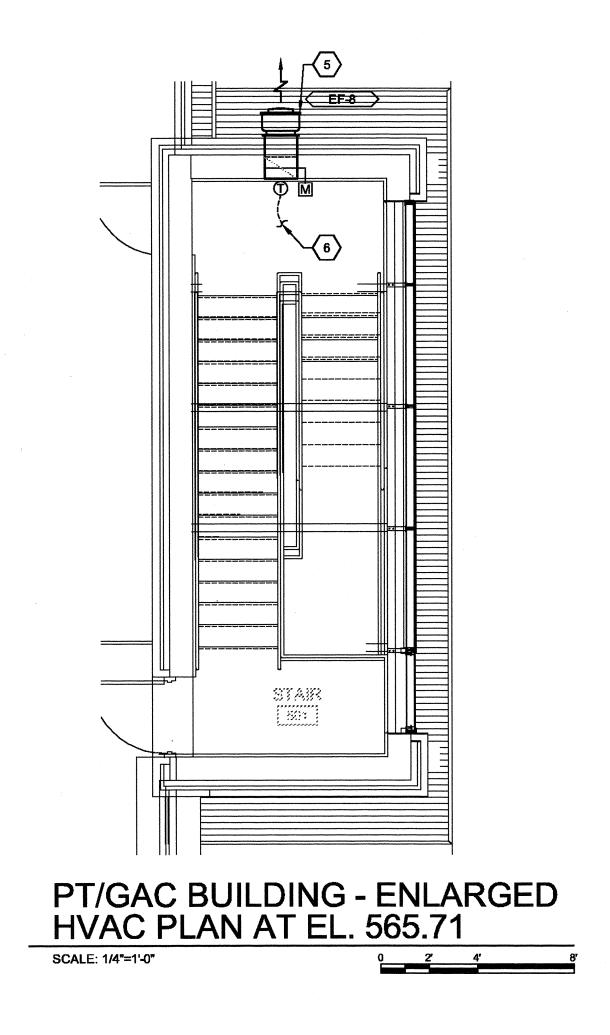
ISSUED STATUS: BID SET

MARCH, 2011
HEET H-06-401

CAD REF. NO. 3789-H-06-401

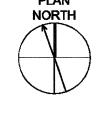




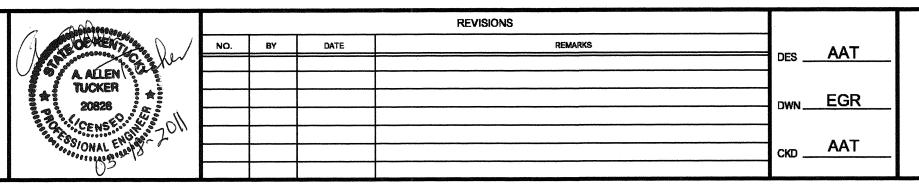


○ SHEET KEYNOTES:

- 1. MOUNT MINIMUM 7'-0" AFF. MINIMUM OF 8" FROM ANY WALL.
- 2. ROUTE CONDENSATE PIPING TO SUMP.
- 3. 8'-0" AFF TO BOTTOM OF DH-1.
- 4. TO EF-3. MOUNT EF-3 SWITCH 4'-0" AFF.
- 5. 50'-0" AFF TO BOTTOM OF FAN.
- 6. TO MOTORIZED DAMPER ACTUATOR OF LOUVER (LV-3).







NORTHERN KENTUCKY WATER DISTRICT
TAYLOR MILL WATER TREATMENT PLANT

ADVANCED TREATMENT IMPROVEMENTS

HVAC PT/GAC BUILDING

ENLARGED HVAC PLANS II

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

DATE MARCH, 2011

SHEET H-06-402

CAD REF. NO. 3789-H-06-402