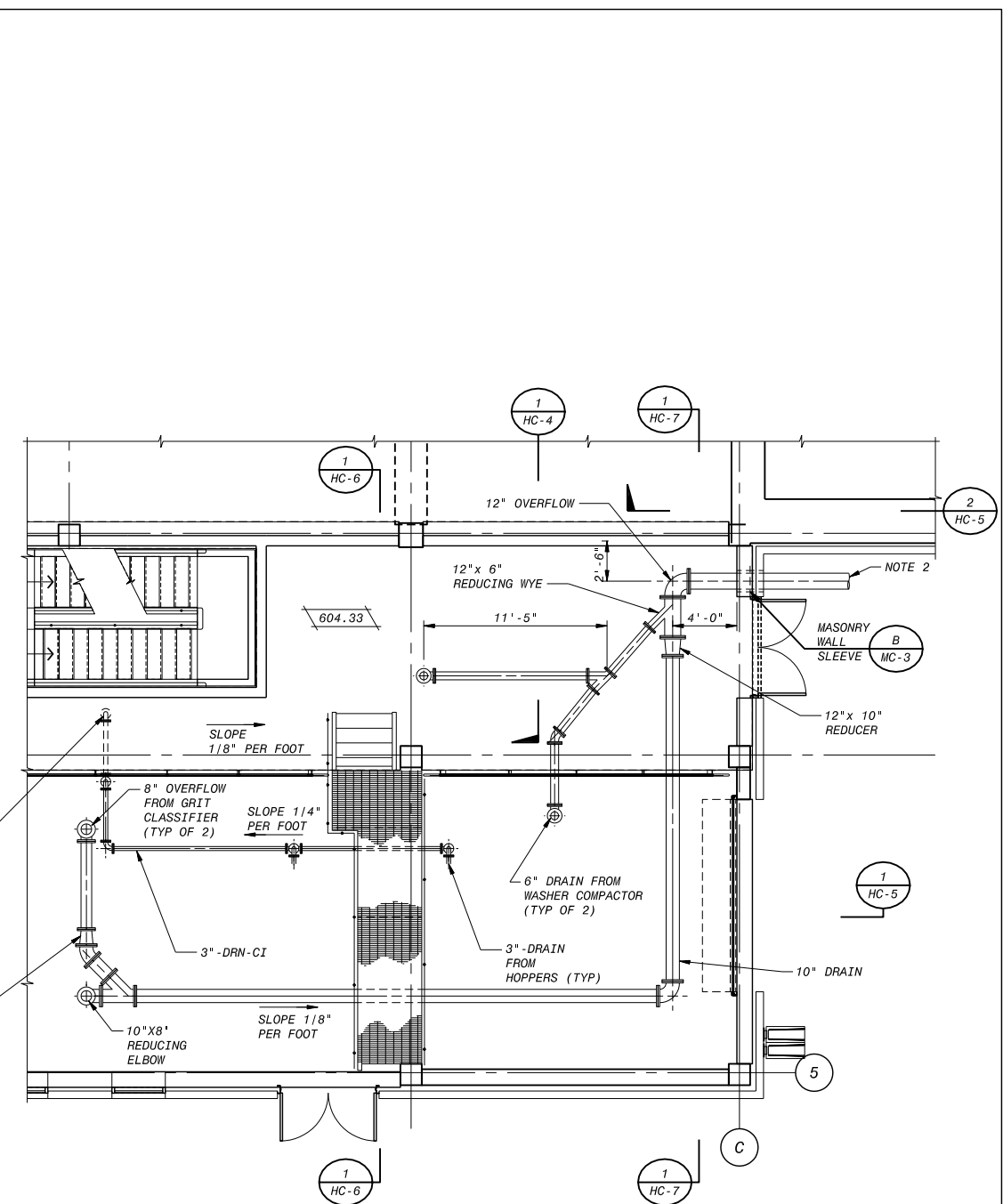


LOWER FLOOR PLAN - EL 592.00
3/16" = 1' - 0"



INTERMEDIATE FLOOR PLAN - EL 604.33
3/16" = 1' - 0"

- NOTES:**
1. ALL CONCRETE SURFACES OF THE INFLUENT CHANNEL, SCREEN CHANNELS, SCREEN CHANNEL OUTLET, GRIT BASINS, FLOW DISTRIBUTION CHANNEL, FLOW OUTLET BOXES, AND EXCESS FLOW DIVERSION WELL SHALL BE LINED IN ACCORDANCE WITH SPECIFICATION 09886.
 2. 12" OVERFLOW PIPE SHALL DISCHARGE TO HEADWORKS FLOW OUTLET BOX. PIPES SHALL PENETRATE WALL IN ACCORDANCE WITH DETAIL C ON DRAWING MC-3 AT INVERT ELEVATION 611.50, AND EXTEND 6" BEYOND INSIDE FACE OF WALL. WALL SLEEVE SHALL EXTEND THROUGH CONCRETE WALL AND BRICK FACADE.

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
HEADWORKS BUILDING
CIVIL
LOWER FLOOR PLANS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

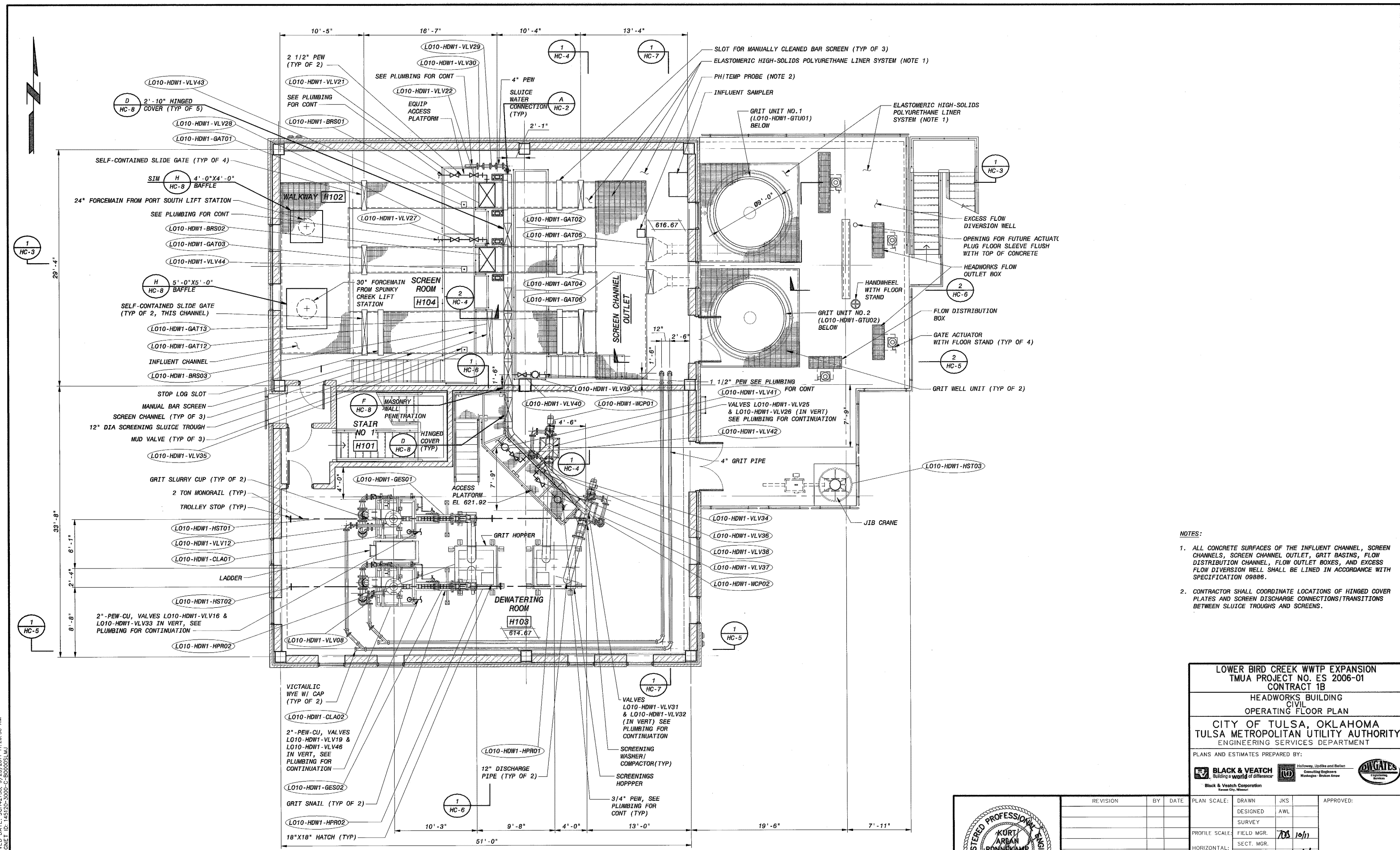
PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
Building a world of difference
McIntyre, Uzdinec and Stollen
Consulting Engineers
Managers - Broken Arrow
DVGATES
Engineering Services

REVISION	BY	DATE	PLAN SCALE:	DRAWN	JGC	APPROVED:
ADDENDUM NO. (1)	PSB	1-6-12	DRAWN	AWL		
			DESIGNED	AWL		
			SURVEY			
			PROFILE SCALE:			
			FIELD MGR.	TBJ 10/11		
			SECT. MGR.			
			PROJ. MGR.	PBV 10/3/11		
			RECOMMENDED:			
			VERTICAL	AWL 10/30/11		
			FILE:	DRAWING: HC-1		DATE 10/28/2011
			ATLAS PAGE NO.:			SHEET 101 OF 261 SHEETS



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SCH42798, 5/3/2012 2:37:39 PM
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FD145120

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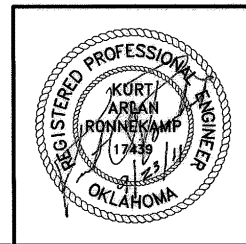


- NOTES:**
1. ALL CONCRETE SURFACES OF THE INFLUENT CHANNEL, SCREEN CHANNELS, SCREEN CHANNEL OUTLET, GRIT BASINS, FLOW DISTRIBUTION CHANNEL, FLOW OUTLET BOXES, AND EXCESS FLOW DIVERSION WELL SHALL BE LINED IN ACCORDANCE WITH SPECIFICATION 09886.
 2. CONTRACTOR SHALL COORDINATE LOCATIONS OF HINGED COVER PLATES AND SCREEN DISCHARGE CONNECTIONS/TRANSITIONS BETWEEN SLUICE TROUGHS AND SCREENS.

OPERATING FLOOR PLAN
 3/16" = 1'-0"

LOWER BIRD CREEK WWT EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
 HEADWORKS BUILDING
 CIVIL
 OPERATING FLOOR PLAN
 CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

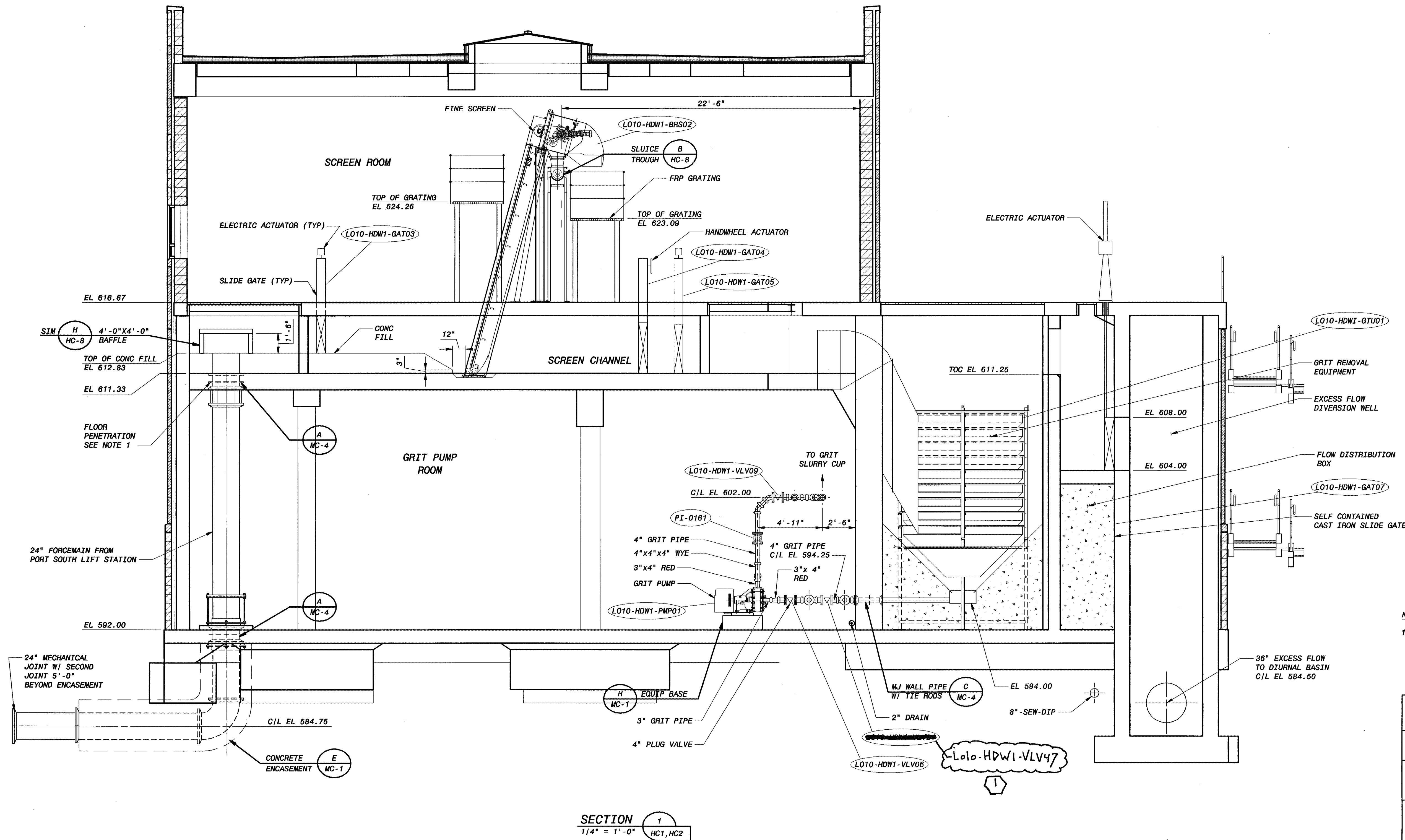
PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
 Building a world of difference
 Consulting Engineers
 1700 North Lincoln
 Oklahoma City, Missouri



REVISION	BY	DATE

PLAN SCALE:	DRAWN	JKS	APPROVED:
	DESIGNED	AWL	
PROFILE SCALE:	SURVEY		
	FIELD MGR.	JOS 10/11	
HORIZONTAL:	SECT. MGR.		
1" =	PROJ. MGR.	2011/10/31/11	
VERTICAL	RECOMMENDED:		
1" =		10/30/11	
FILE:	DRAWING: HC-2	DATE 10/28/2011	
ATLAS PAGE NO:		SHEET 102 OF 261 SHEETS	

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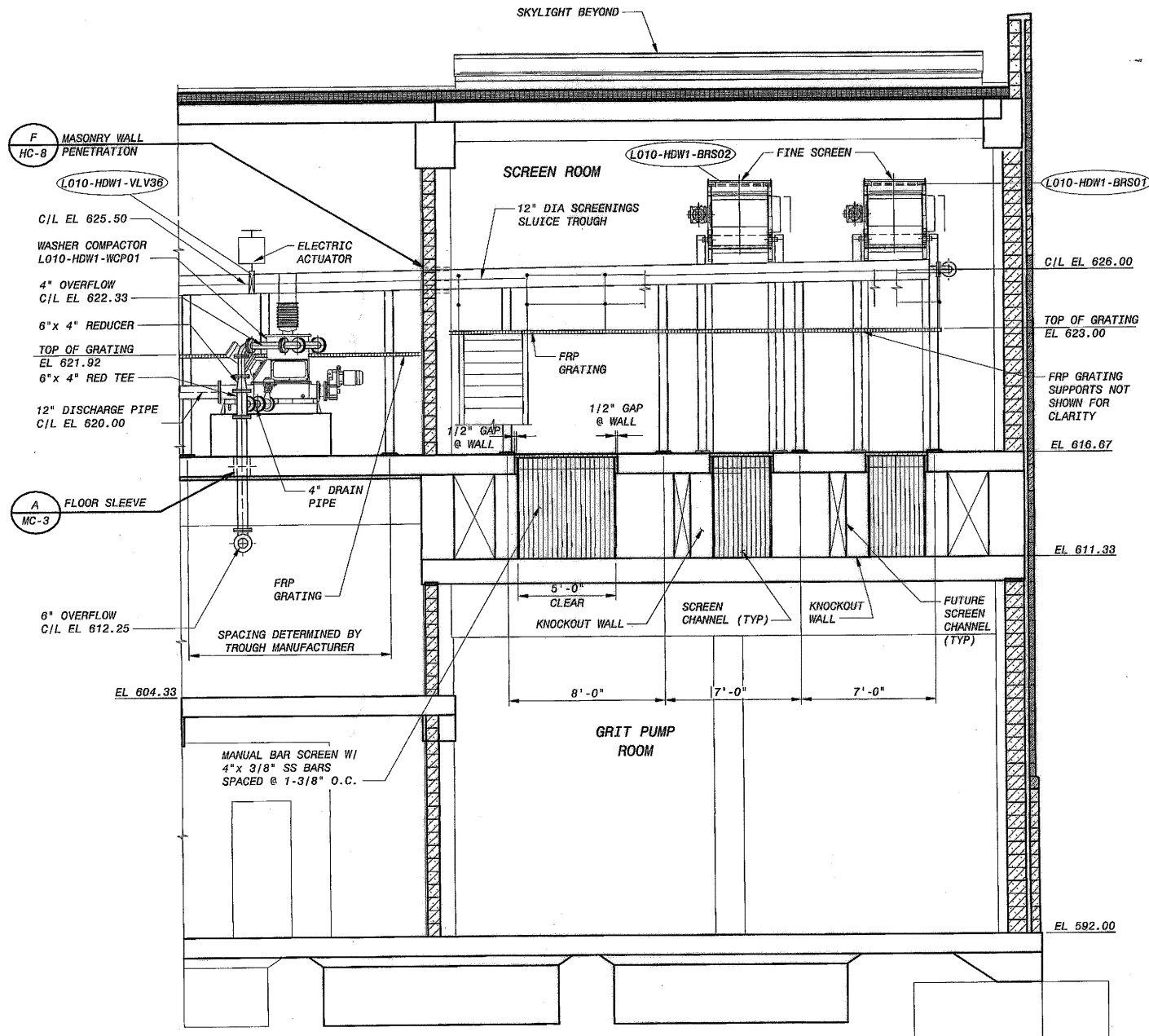
NOTE:
 1. FLOOR PENETRATION SHALL BE A MECHANICAL JOINT-WALL COLLAR-PLAIN END, WITH NO CONCRETE CURB.

SECTION 1
 1/4" = 1'-0"
 HC1, HC2

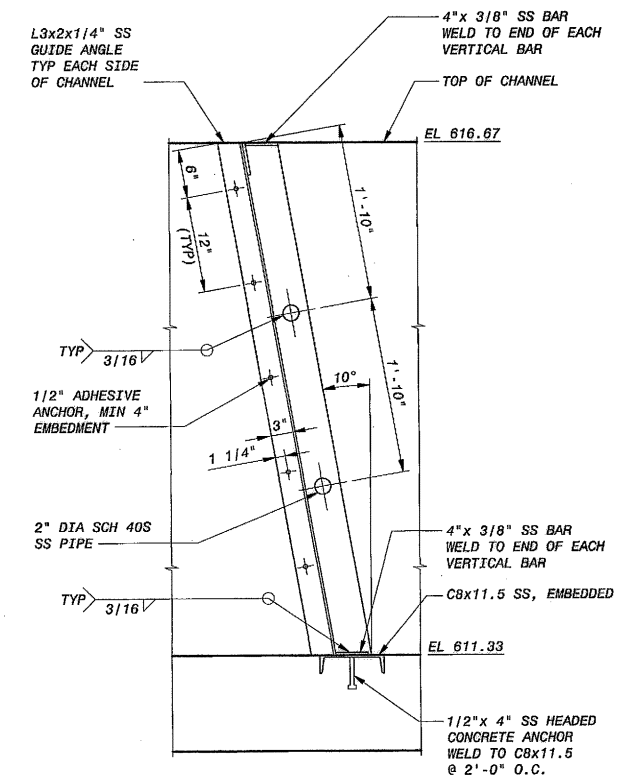
LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
 HEADWORKS BUILDING
 CIVIL SECTIONS
 CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
 Consulting Engineers
 Building a world of difference
 Kansas City, Missouri

	REVISION	BY	DATE	PLAN SCALE:	DRAWN	JKS	APPROVED:
	ADDENDUM NO. 1	PSB	1-6-12	DESIGNED	AWL		
				SURVEY			
	PROFILE SCALE:	FIELD MGR.	JDS 10/11	SECT. MGR.			
	HORIZONTAL:	PROJ. MGR.	REN 10/11	RECOMMENDED:			
	VERTICAL:		HBJ 10/11				
	FILE:	DRAWING: HC-3	DATE 10/28/2011				
	ATLAS PAGE NO:		SHEET 103 OF 261 SHEETS				



SECTION 1
1/4" = 1'-0"
HC1, HC2



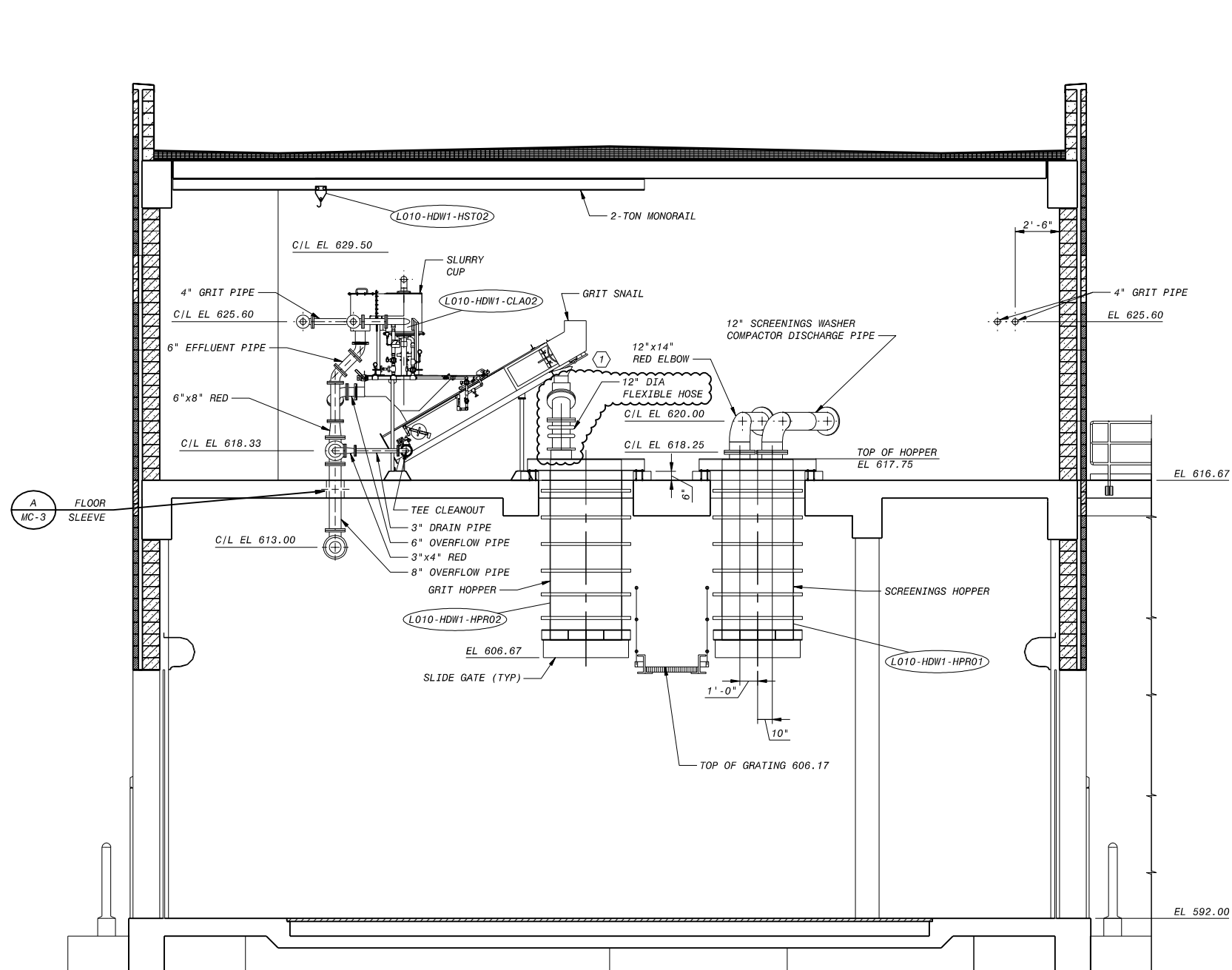
SECTION 2
1" = 1'-0"
HC-2

LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
 HEADWORKS BUILDING
 CIVIL SECTIONS
 CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

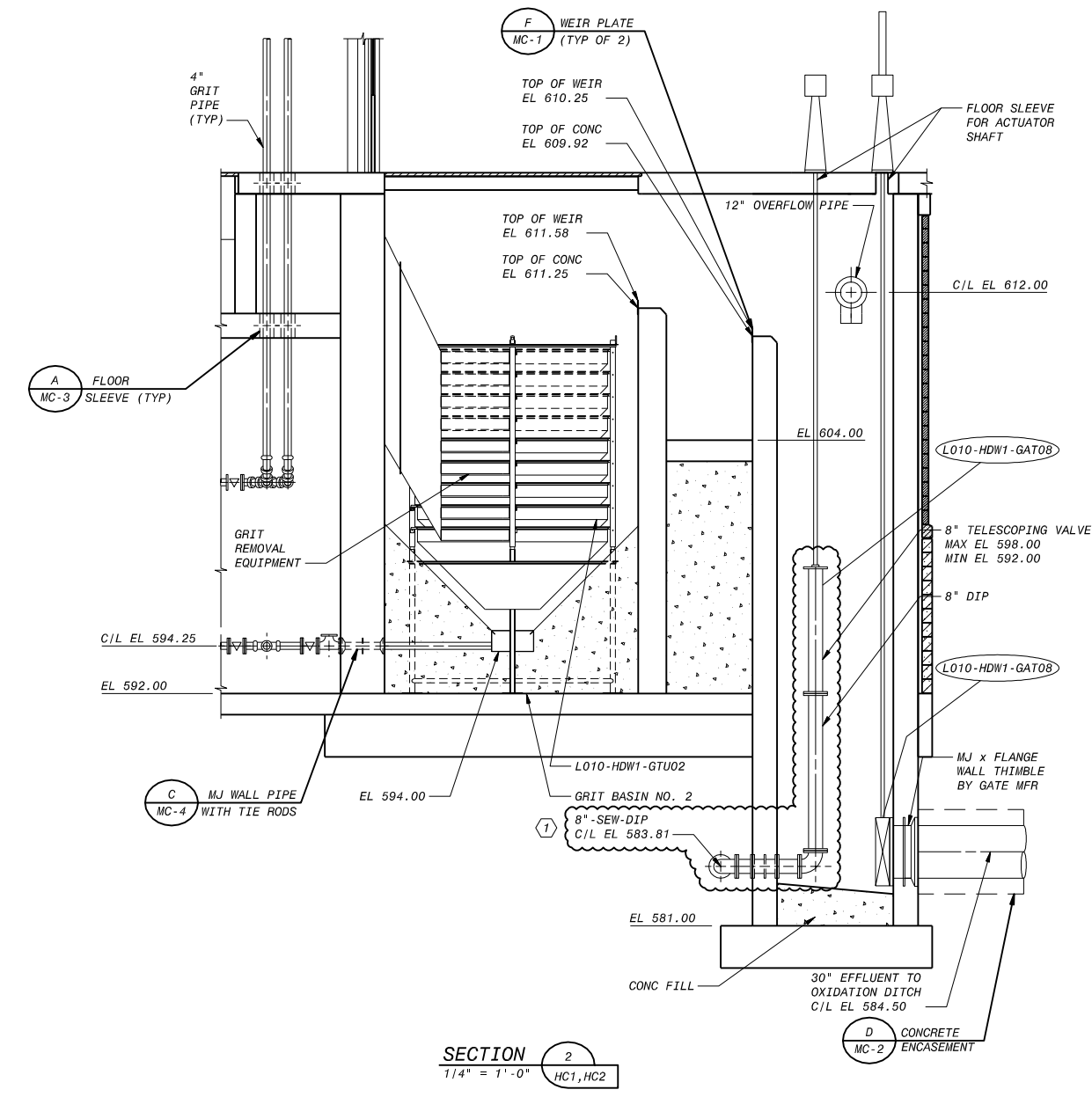
PLANS AND ESTIMATES PREPARED BY:
 BLACK & VEATCH
 Building a world of difference
 HOLLOWAY, UPTON AND BATES
 Consulting Engineers
 Managing - Design - Drive
 BUGHES
 Consulting Engineers
 Kansas City, Missouri

REVISION	BY	DATE	PLAN SCALE:	DRAWN	JKS	APPROVED:
			DESIGNED	AWL		
			SURVEY			
			PROFILE SCALE:	FIELD MGR.	708 10/11	
			HORIZONTAL:	SECT. MGR.		
			1" =	PROJ. MGR.	BNV 10/11	
			VERTICAL	RECOMMENDED:	HAB 10/30/11	
			1" =			
			FILE:	DRAWING: HC-4		DATE 10/28/2011
			ATLAS PAGE NO:			SHEET 104 OF 261 SHEETS

PLOTTED DATE: 9/22/2011 10:54:48 AM, Batch Plot
 SAVED DATE: 9/21/2011 12:13:09 PM
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SECTION 1
1/4" = 1'-0"
HC1, HC2



SECTION 2
1/4" = 1'-0"
HC1, HC2

SCH42738, 5/3/2012, 2:44:18 PM
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 FD145120

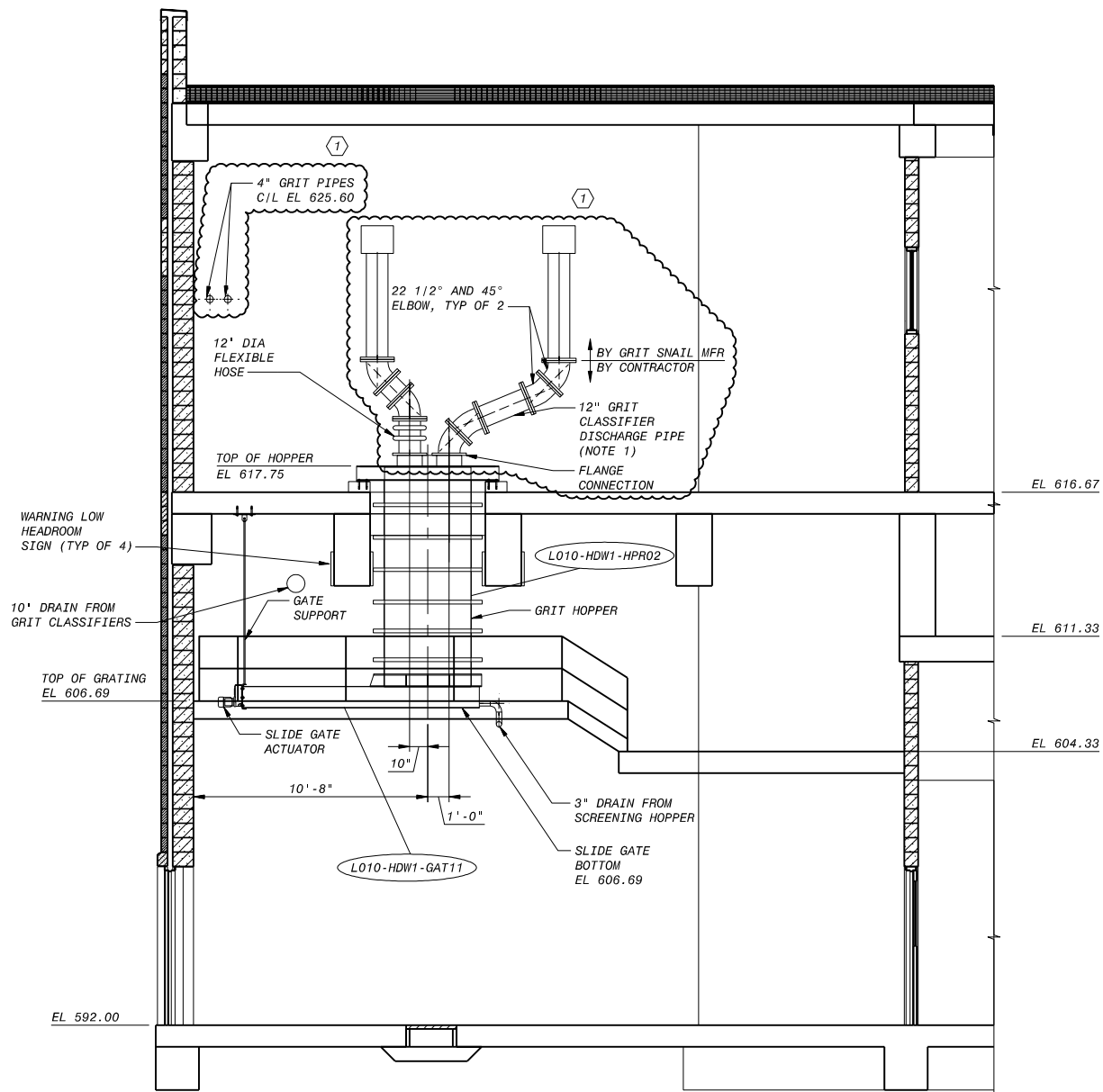
LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
HEADWORKS BUILDING
 CIVIL SECTIONS
CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
 Building a world of difference
 Black & Veatch Corporation
 Kansas City, Missouri

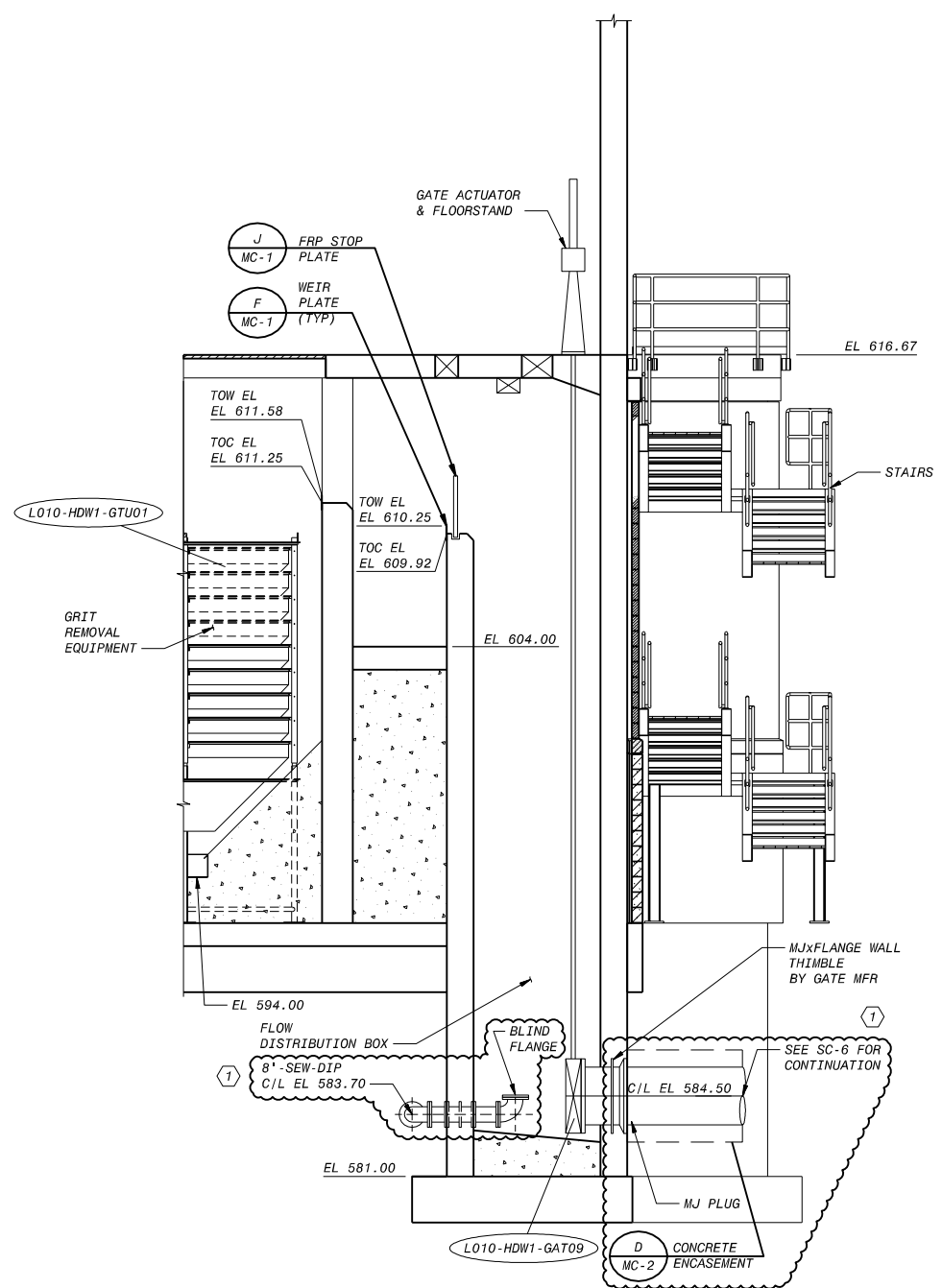


REVISION	BY	DATE
ADDENDUM NO. (1)	PSB	1-16-12

PLAN SCALE:	DRAWN	JKS	APPROVED:
DESIGNED	AWL		 DIRECTOR
SURVEY			
PROFILE SCALE:			
HORIZONTAL:	FIELD MGR.	DB 10/11	
1" =	SECT. MGR.		
VERTICAL	PROJ. MGR.	BB 11/11	
1" =	RECOMMENDED:		
FILE:	DRAWING: HC-5	DATE 10/28/2011	
ATLAS PAGE NO:		SHEET 105 OF 261 SHEETS	



SECTION 1
1/4" = 1'-0"
HC1, HC2



SECTION 2
1/4" = 1'-0"
HC1, HC2

NOTES:
1. CONTRACTOR SHALL COORDINATED DISCHARGE PIPING AND SUPPORTS WITH GRIT SMALL MANUFACTURER.

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
HEADWORKS BUILDING
CIVIL SECTIONS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
Building a world of difference.
Holloway, Updike and Ballen
Consulting Engineers
Muskegon - Broken Arrow
DWGATES
Engineering Services

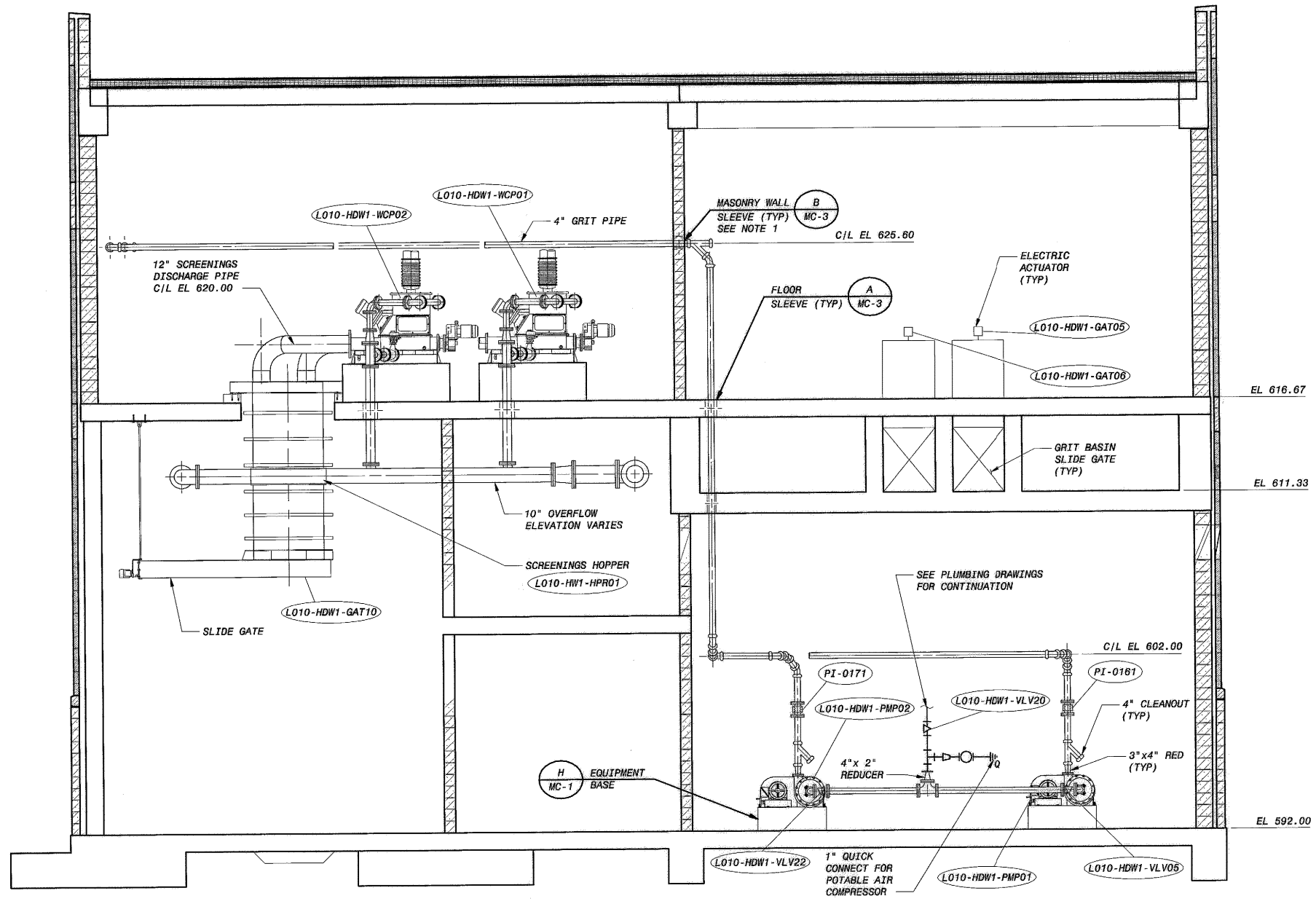


REVISION	BY	DATE
ADDENDUM NO. (1)	PSB	1-6-12

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DESIGNED	AWL		
SURVEY			
PROFILE SCALE:	FIELD MGR.	DS 10/11	
HORIZONTAL:	SECT. MGR.		
1' =	PROJ. MGR.	PAW 10/5/11	
VERTICAL	RECOMMENDED:		
1' =			
FILE:	DRAWING: HC-6	DATE 10/28/2011	
ATLAS PAGE NO:		SHEET 106 OF 261 SHEETS	

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SCH42738, 5/3/2012 2:59:28 PM
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FD145120

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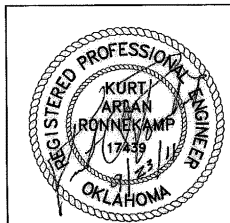


NOTE:
 1. MASONRY WALL SLEEVES SHALL HAVE ONE MODULAR CASING SEAL AT EACH FACE OF WALL AND STAINLESS STEEL SHEET METAL CLOSURE PLATES.

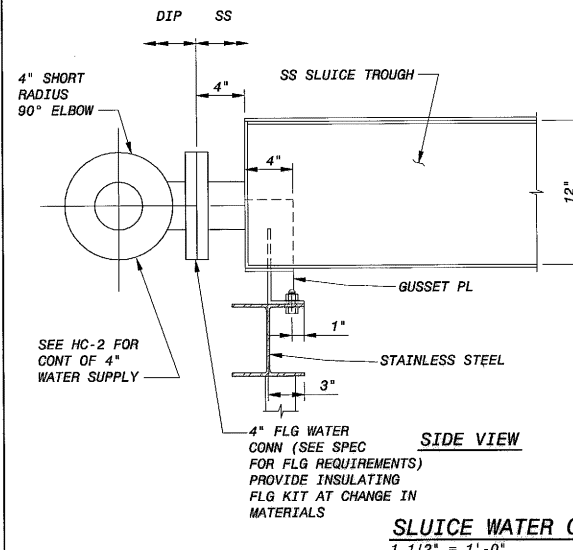
SECTION 1
 1/4" = 1'-0" HC1, HC2

LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
 HEADWORKS BUILDING
 CIVIL SECTIONS
 CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

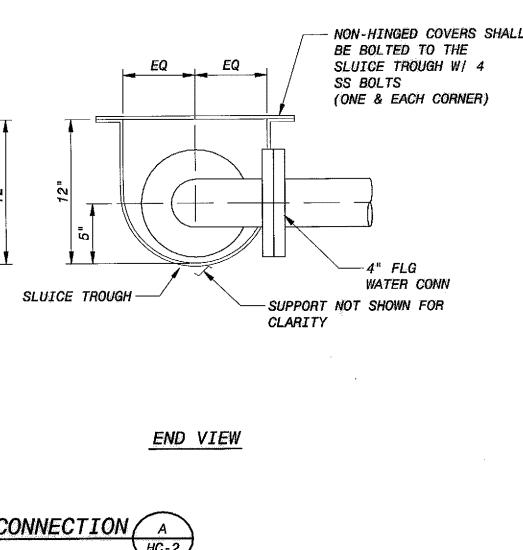
PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
 Building a World of Difference
 Holloway, Uppike and Bolton
 Consulting Engineers
 Managers - Tulsa, OK
OWGATES
 Engineering Services



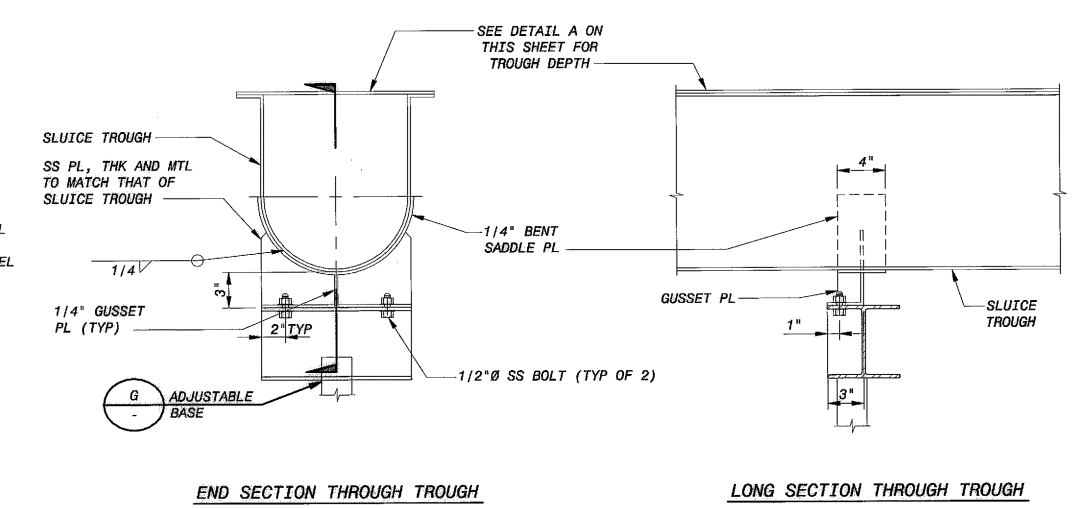
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			HORIZONTAL:	SECT. MGR.		
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			VERTICAL	RECOMMENDED:	HB 10/30/11	
			1" =	DIRECTOR		
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			ATLAS PAGE NO:			SHEET 107 OF 261 SHEETS



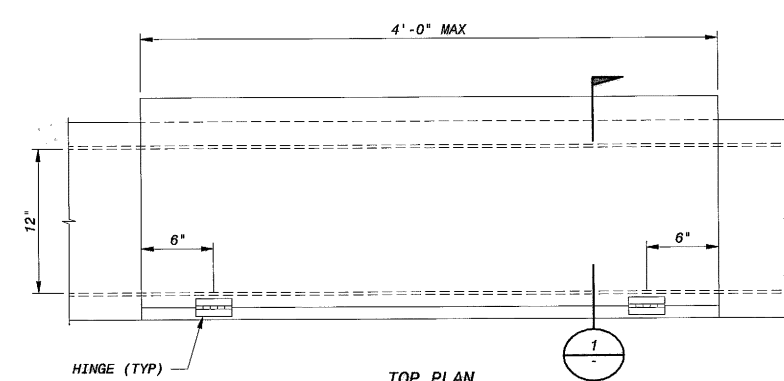
SLUDGE WATER CONNECTION
1 1/2" = 1'-0"



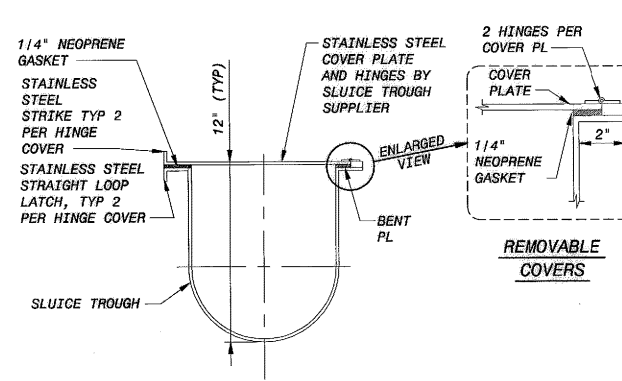
SCREENINGS TRANSITION CHUTE
1 1/2" = 1'-0"



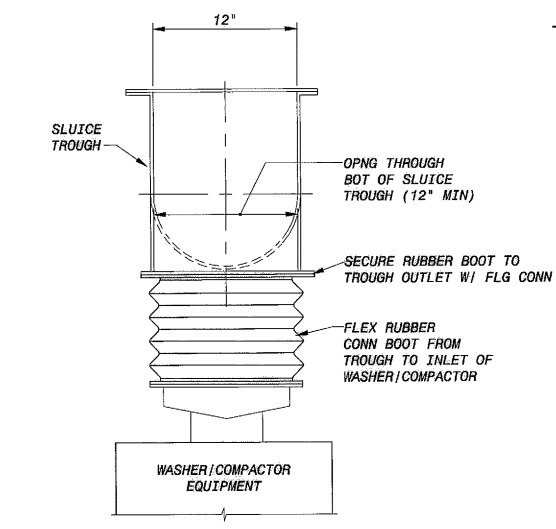
END SECTION THROUGH TROUGH
LONG SECTION THROUGH TROUGH



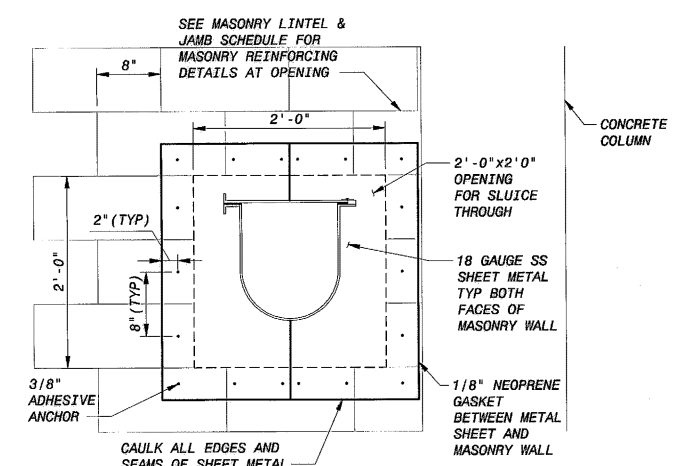
SLUDGE TROUGH HINGED COVER
1 1/2" = 1'-0"



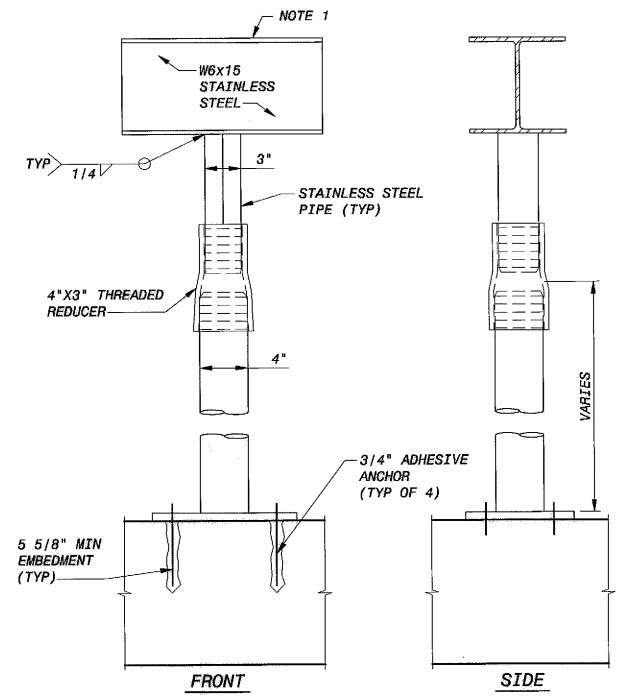
TYPICAL SLUDGE TROUGH SECTION
1 1/2" = 1'-0"



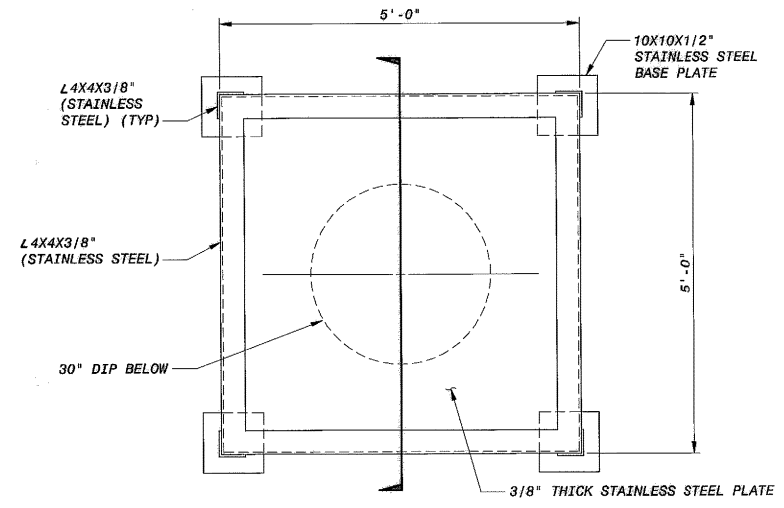
SLUDGE TROUGH CONNECTION TO GRINDER/WASHER/COMPACTOR
1 1/2" = 1'-0"



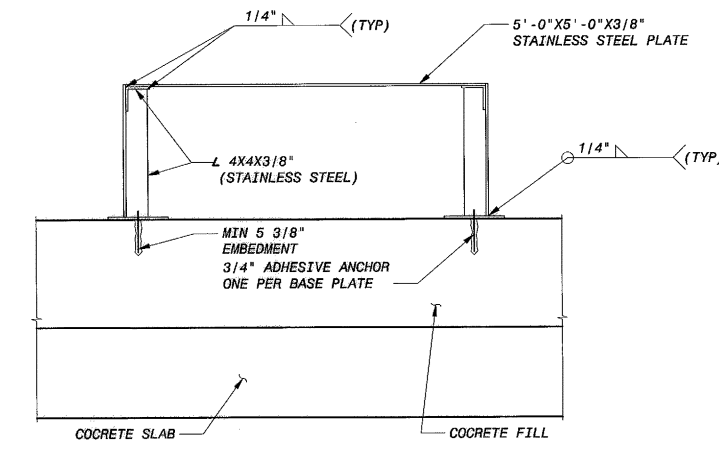
MASONRY WALL PENETRATION
1" = 1'-0"



ADJUSTABLE BASE
1 1/2" = 1'-0"



5'-0" X 5'-0" BAFFLE
3/4" = 1'-0"



SECTION

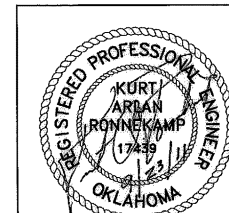
LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
HEADWORKS BUILDING
CIVIL
SLUDGE TROUGH DETAILS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH Building a world of difference	Holloway, Updike and Bolton Consulting Engineers Masterpiece - Broken Arrow	OWGATES Engineering Services
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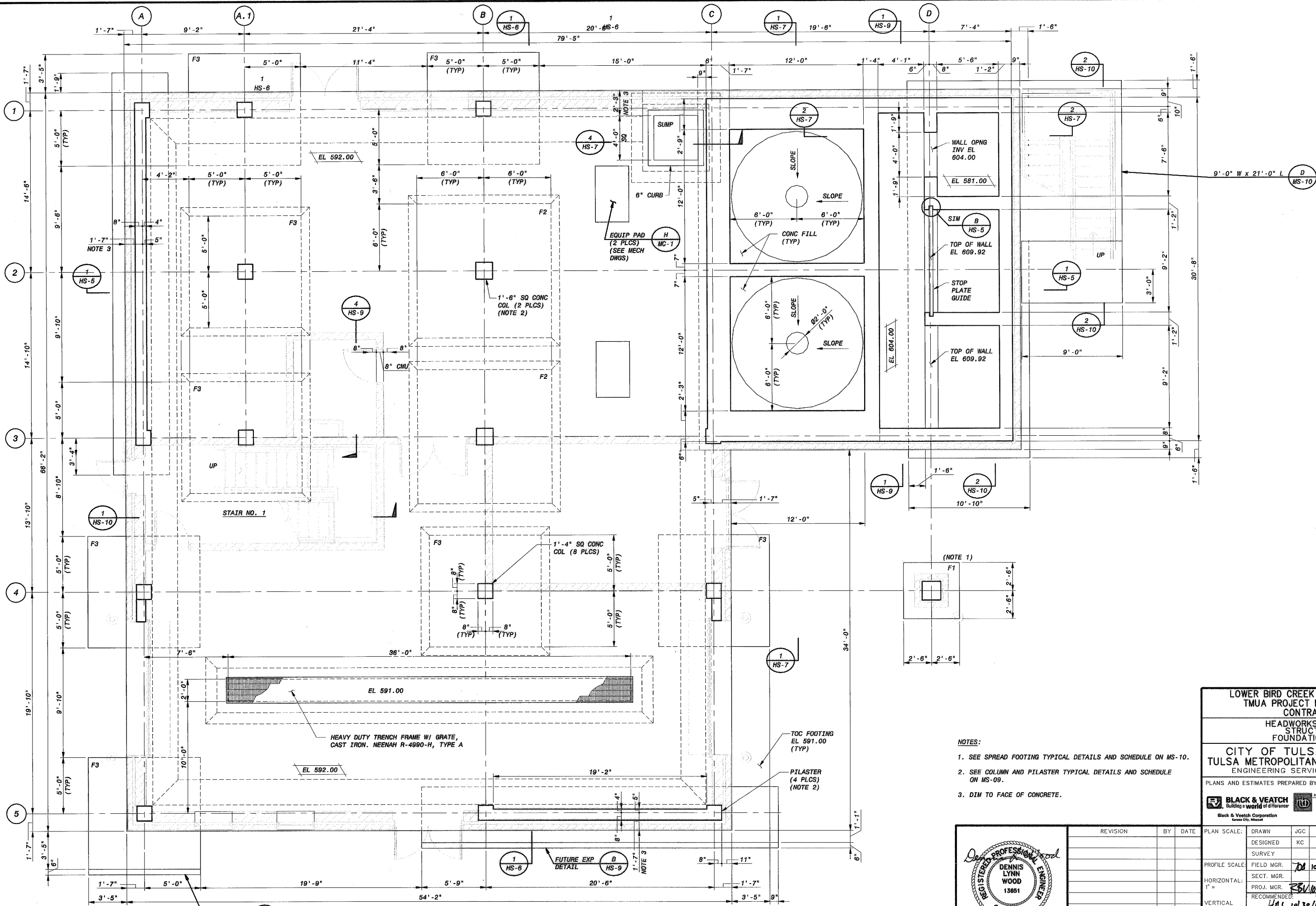
PLANS AND ESTIMATES PREPARED BY:

REVISION	BY	DATE	PLAN SCALE:	DRAWN	SS	APPROVED:
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			HORIZONTAL:	SECT. MGR.	10/11	
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			FILE:	DRAWING: HC-8		DATE 10/28/2011
			ATLAS PAGE NO:			SHEET 108 OF 261 SHEETS



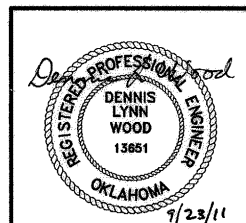
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PLOTTED DATE: 9/21/2011 11:26:24 AM
 SAVED DATE: 9/21/2011 11:26:24 AM
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FOUNDATION PLAN
 1/4" = 1'-0"

- NOTES:**
- SEE SPREAD FOOTING TYPICAL DETAILS AND SCHEDULE ON MS-10.
 - SEE COLUMN AND PILASTER TYPICAL DETAILS AND SCHEDULE ON MS-09.
 - DIM TO FACE OF CONCRETE.



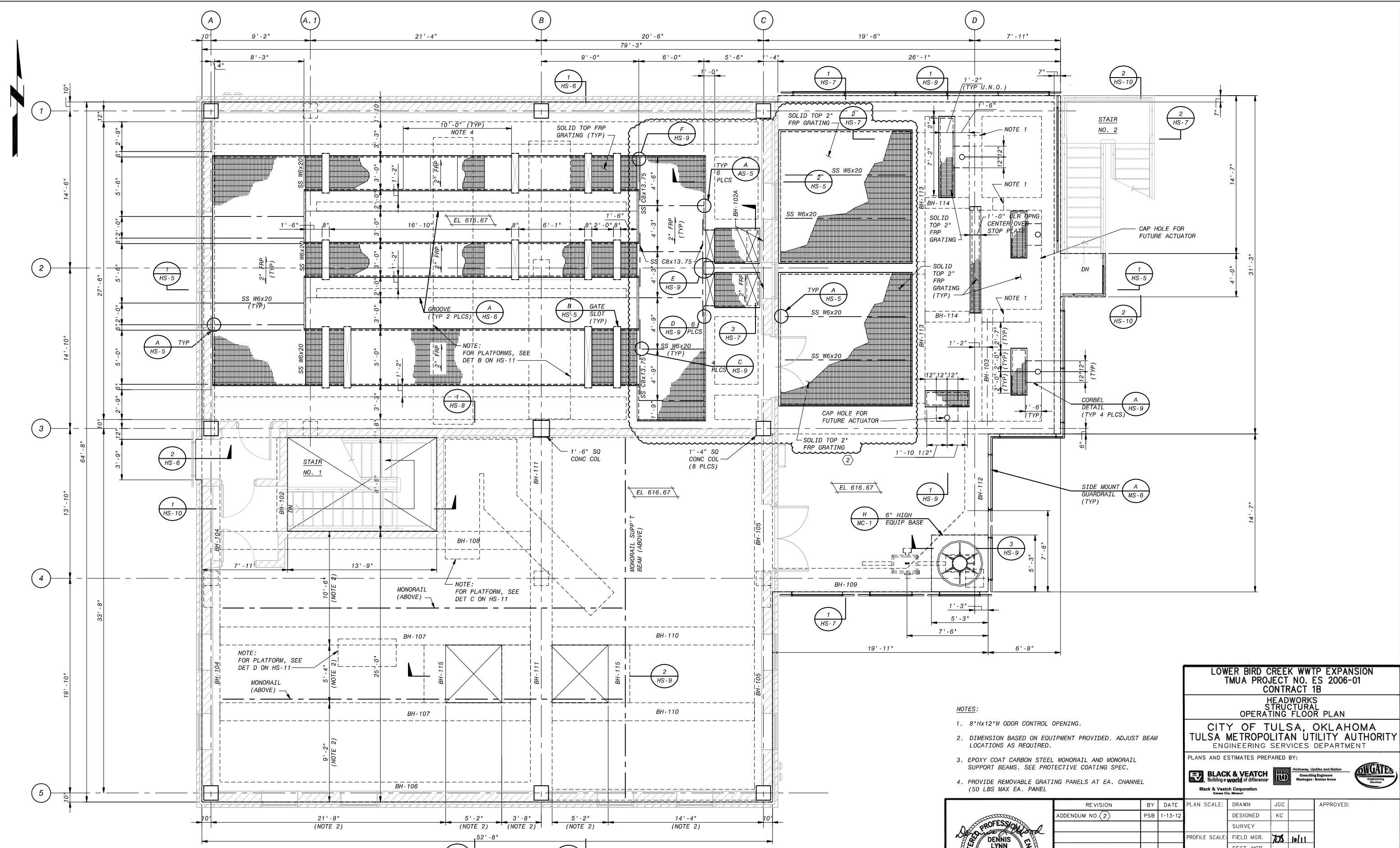
REVISION	BY	DATE

LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
 HEADWORKS BUILDING
 STRUCTURAL
 FOUNDATION PLAN
CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT
 PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH Holloway, Uditia and Shelton
Building a world of difference Consulting Engineers
Black & Veatch Corporation Kansas City, Missouri Murphy - Broken Arrow INGATES
Engineering Services

PLAN SCALE:	DRAWN	JGC	APPROVED:
	DESIGNED	KC	
PROFILE SCALE:	SURVEY		
	FIELD MGR.	DL 10/11	
HORIZONTAL:	SECT. MGR.		
1" =	PROJ. MGR.	RSV/MS/11	
VERTICAL:	RECOMMENDED:		
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FILE: HS1.DWG	DRAWING: HS-1		DATE 10/28/2011
ATLAS PAGE NO:			SHEET 109 OF 261 SHEETS

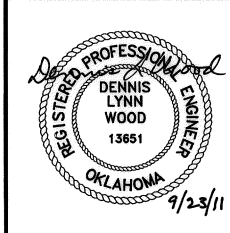
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 SCH42738, 5/3/2012 3:09:45 PM
 PW FLDR: 145120...Headworks Building

FD145120



OPERATING FLOOR PLAN
 1/4" = 1'-0"

- NOTES:**
- 8"Hx12"W ODOR CONTROL OPENING.
 - DIMENSION BASED ON EQUIPMENT PROVIDED. ADJUST BEAM LOCATIONS AS REQUIRED.
 - EPOXY COAT CARBON STEEL MONORAIL AND MONORAIL SUPPORT BEAMS. SEE PROTECTIVE COATING SPEC.
 - PROVIDE REMOVABLE GRATING PANELS AT EA. CHANNEL (50 LBS MAX EA. PANEL)



REVISION	BY	DATE
ADDENDUM NO. (2)	PSB	1-13-12

LOWER BIRD CREEK WWTB EXPANSION
 TMAU PROJECT NO. ES 2006-01
 CONTRACT 1B

HEADWORKS STRUCTURAL OPERATING FLOOR PLAN

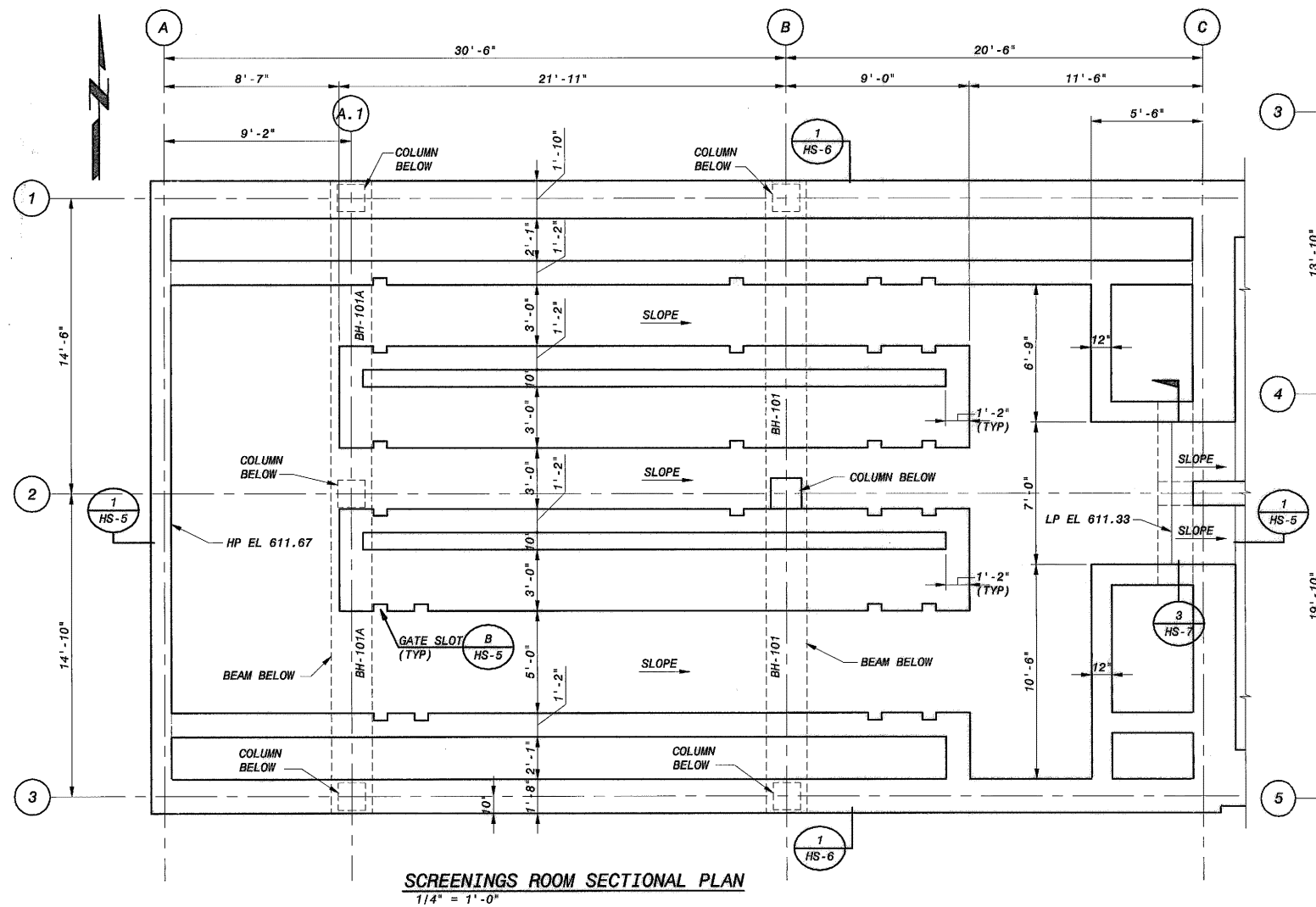
CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

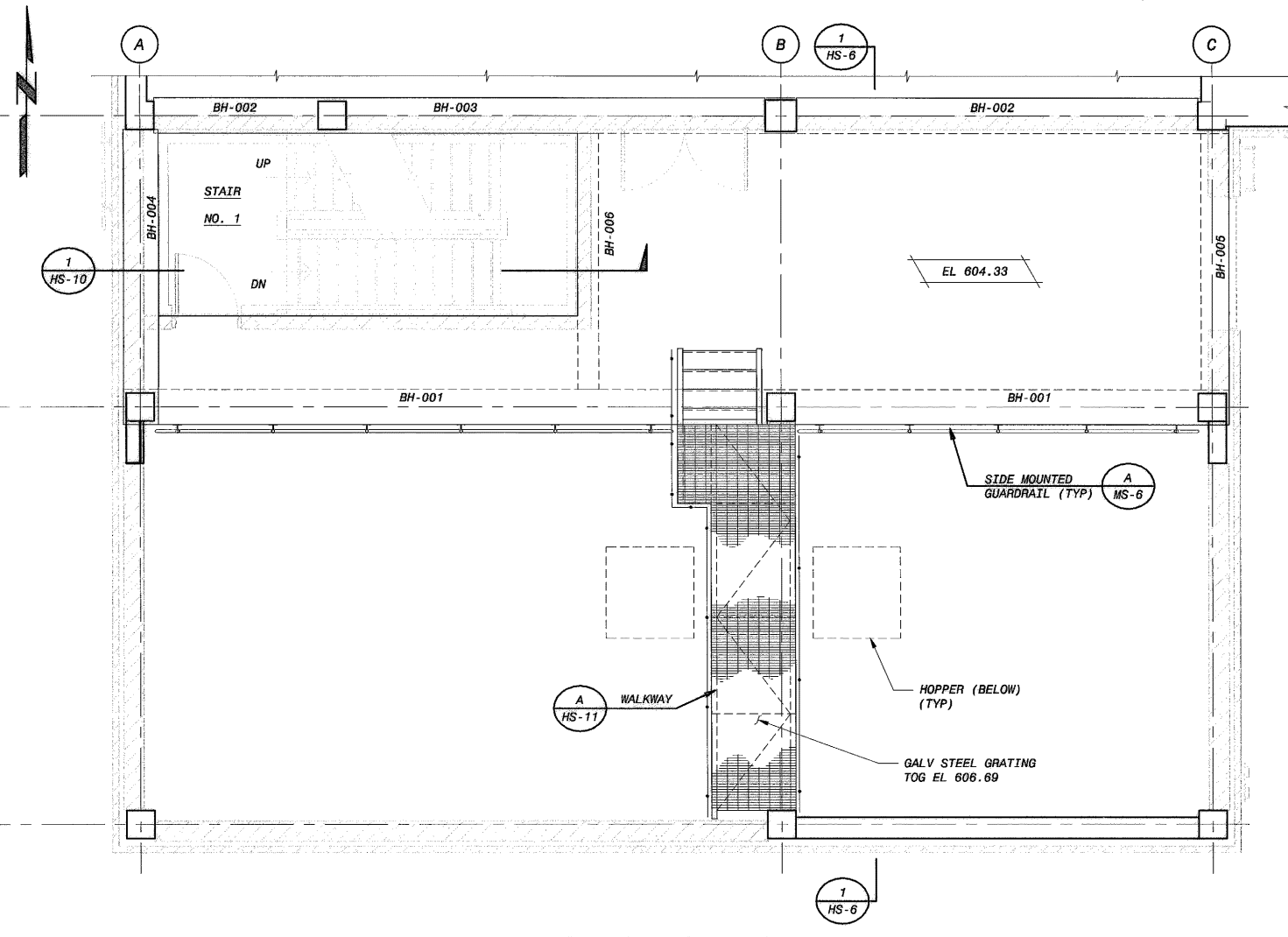
BLACK & VEATCH
 Building a world of difference
 Consulting Engineers
 Muskegon - Broken Arrow
 Kansas City, Missouri

PLAN SCALE:	DRAWN	JGC	APPROVED:
DESIGNED	KC		
SURVEY			
PROFILE SCALE:	FIELD MGR.	JOS 10/11	
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1" =			

FILE: HS2.DWG DRAWING: HS-2 DATE 10/28/2011
 ATLAS PAGE NO: SHEET 110 OF 261 SHEETS



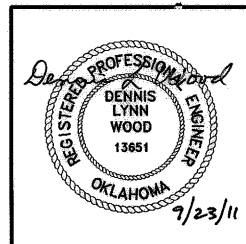
SCREENINGS ROOM SECTIONAL PLAN
1/4" = 1'-0"



MEZZANINE LEVEL - EL 604.33
1/4" = 1'-0"

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 SAVED DATE: 09/21/2011 11:31:28 AM
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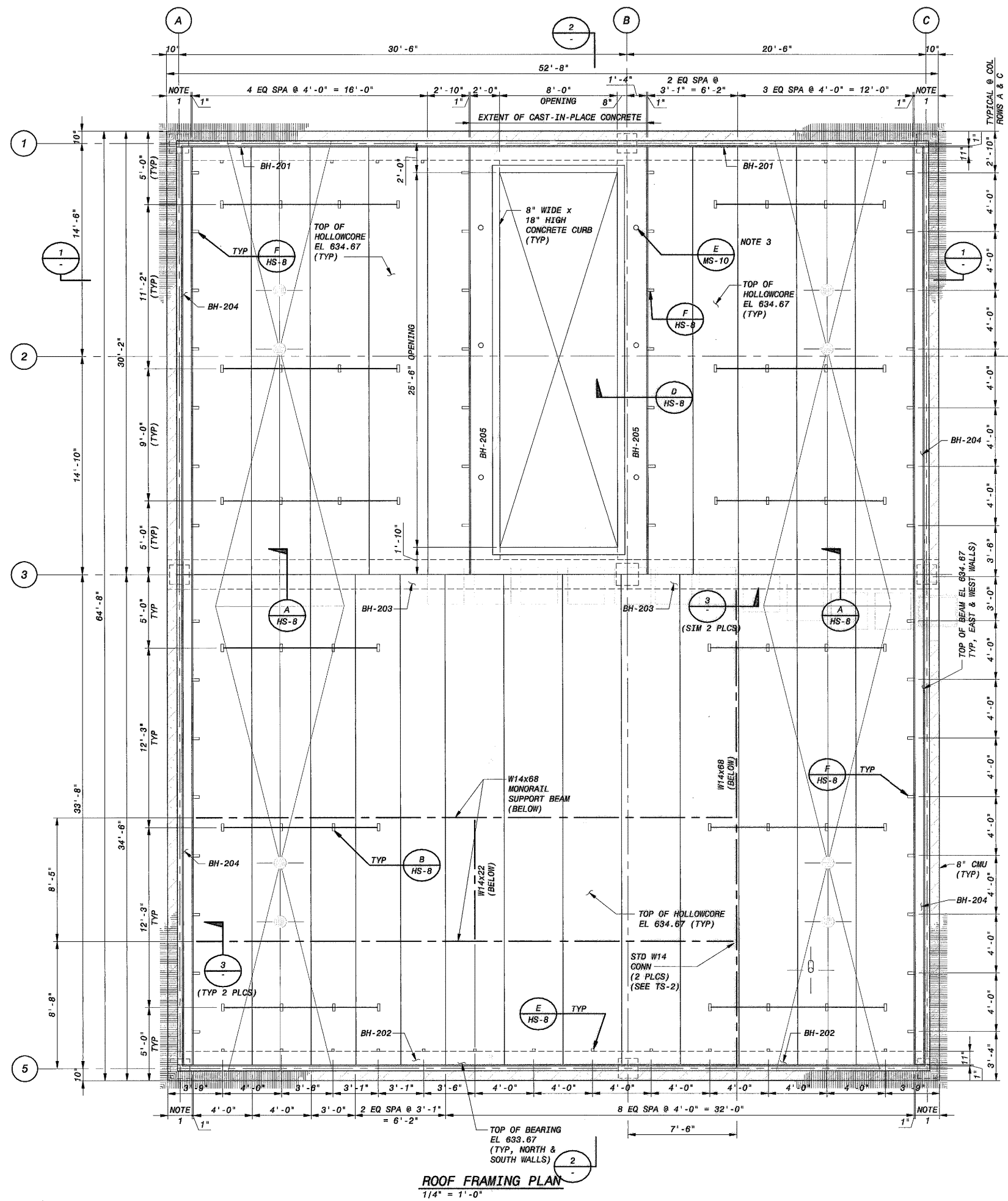
LOWER BIRD CREEK WWTP EXPANSION TMUA PROJECT NO. ES 2006-01 CONTRACT 1B			
HEADWORKS STRUCTURAL MISCELLANEOUS PLANS			
CITY OF TULSA, OKLAHOMA TULSA METROPOLITAN UTILITY AUTHORITY ENGINEERING SERVICES DEPARTMENT			
PLANS AND ESTIMATES PREPARED BY:			
Black & Veatch Corporation Kansas City, Missouri			
PLAN SCALE:		TSH	
DESIGNED		RED	
SURVEY			
PROFILE SCALE:		TOS 10/11	
HORIZONTAL:		PROJ. MGR.	
1" =		10/30/11	
VERTICAL:		RECOMMENDED:	
1" =		10/30/11	
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ATLAS PAGE NO:		DATE 10/28/2011	
		SHEET 111 OF 261 SHEETS	



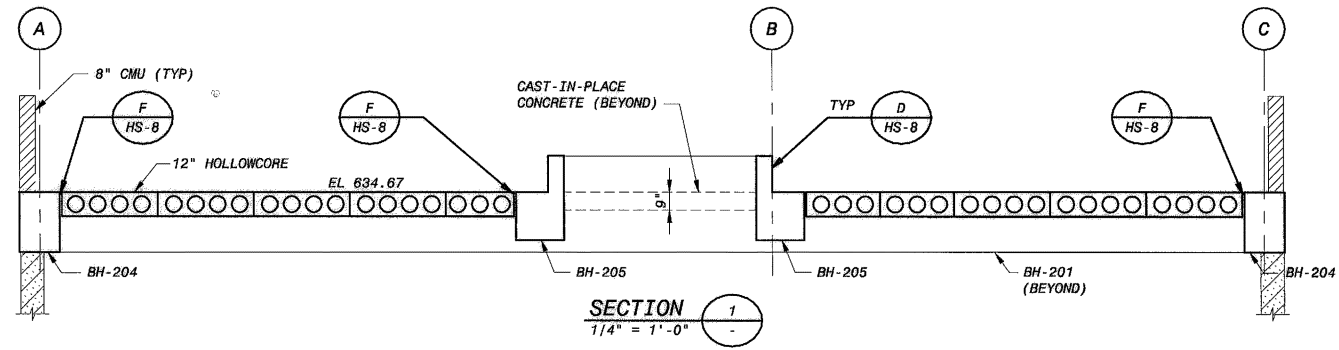
REVISION	BY	DATE

APPROVED:	
DIRECTOR:	

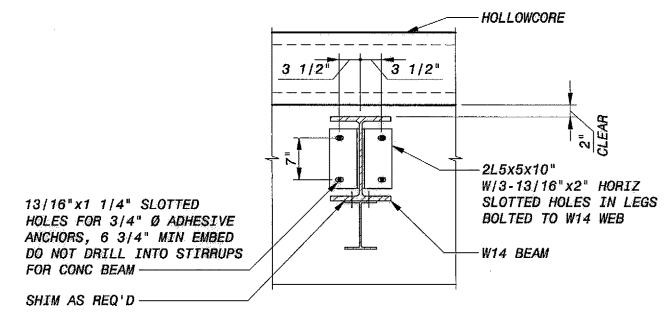
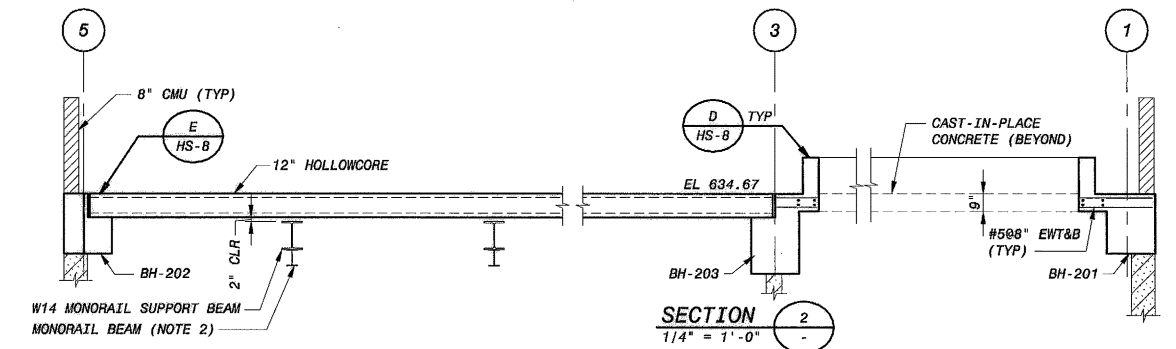
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ROOF FRAMING PLAN
 1/4" = 1'-0"



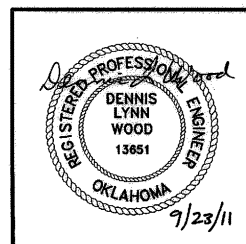
NOTES:
 1. SEE DETAILS ON MS-5 FOR LATERAL SUPPORT AT TOPS OF MASONRY WALLS.



- NOTES:
 1. SEE BEAM SCHEDULE FOR DIMENSION.
 2. MONORAIL BEAM AND CONNECTIONS TO SUPPORT BEAM SHALL BE DESIGNED BY MONORAIL MFR. EPOXY COAT MONORAIL & SUPPORT BEAMS. SEE PROTECTIVE COATING SPECIFICATION.
 3. EYEBOLT CENTERED OVER CHANNEL (TYP 6 PLCS).

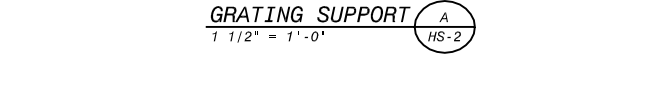
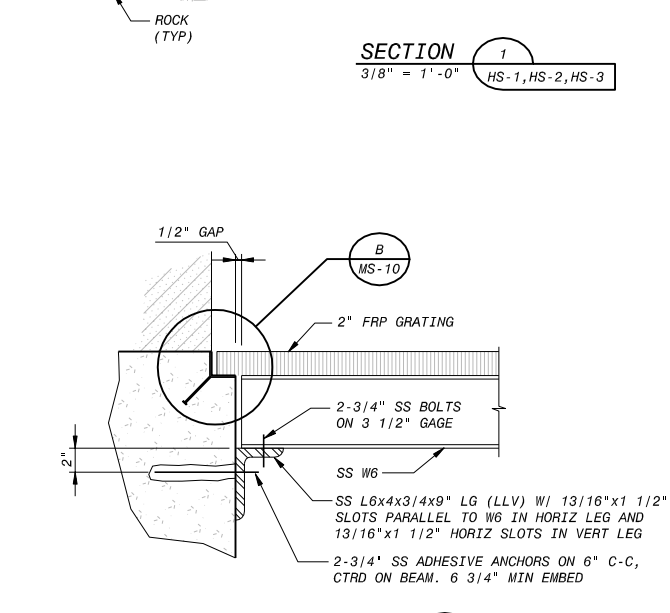
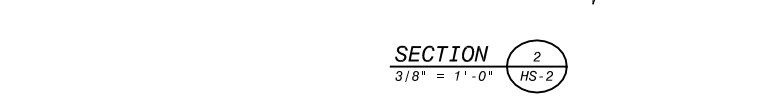
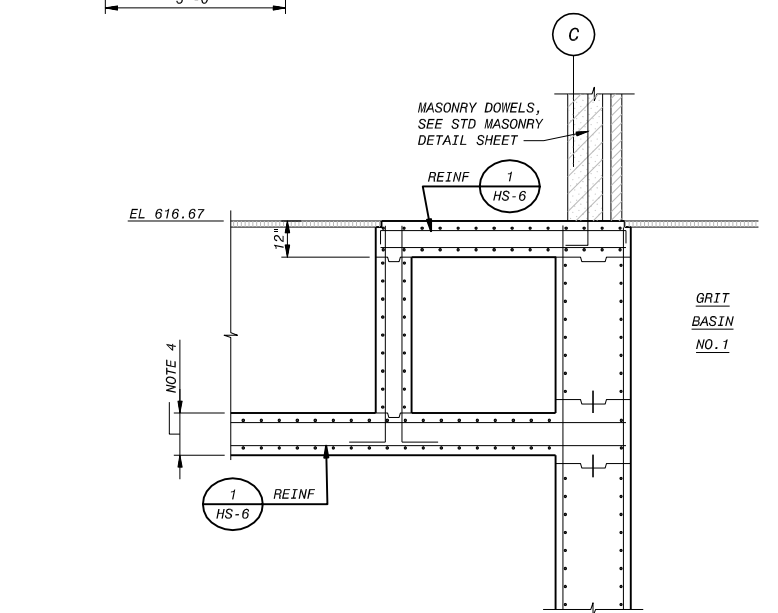
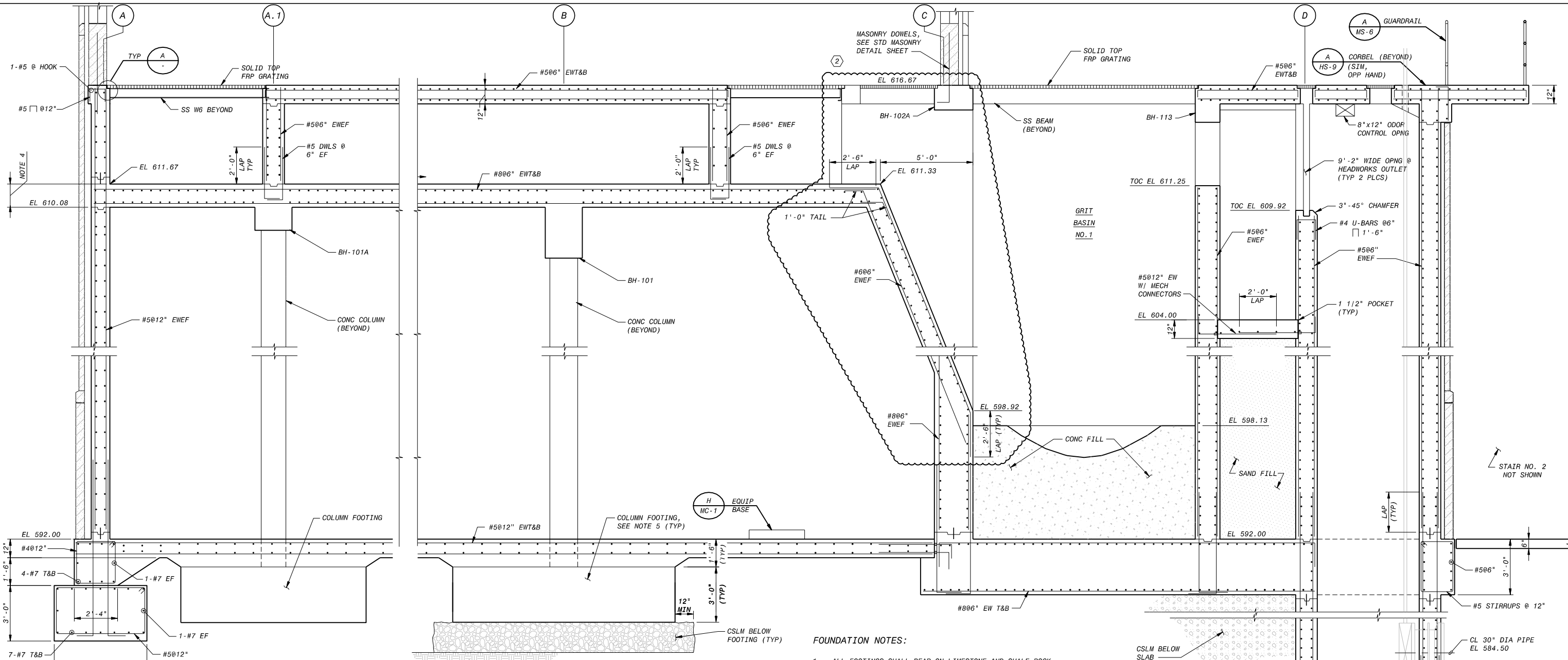
LOWER BIRD CREEK WWTW EXPANSION
 TMAU PROJECT NO. ES 2006-01
 CONTRACT 1B
 HEADWORKS
 STRUCTURAL
 ROOF FRAMING PLAN
 CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
 Building a world of differences
 Holloway, Little and Shelton
 Consulting Engineers
 Mustange - Broken Arrow
BNGATES
 Engineering
 Builders



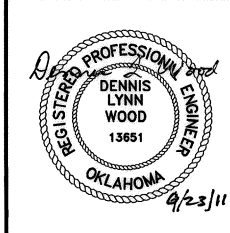
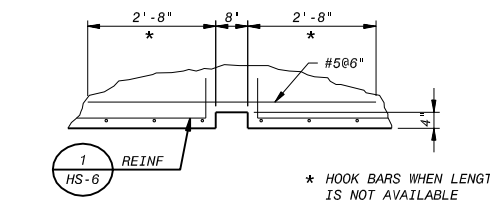
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DESIGNED	KC		
SURVEY			
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HORIZONTAL:	SECT. MGR.		
1" =	PROJ. MGR.	TWP 10/11	
VERTICAL:	RECOMMENDED:		
1" =			
FILE: HS4.DWG	DRAWING: HS-4	DATE 10/28/2011	
ATLAS PAGE NO:		SHEET 112 OF 261 SHEETS	



FOUNDATION NOTES:

- ALL FOOTINGS SHALL BEAR ON LIMESTONE AND SHALE ROCK.
- IF SHALE ROCK IS EXPOSED DURING FOOTING EXCAVATION, A 2 INCH MUD MAT SHALL BE USED TO COVER THE SHALE ROCK AND PROTECT IT FROM WEATHERING DURING CONSTRUCTION.
- IF UNSUITABLE BEARING ROCK IS ENCOUNTERED IN FOOTING EXCAVATIONS, THE EXCAVATIONS SHALL BE EXTENDED DEEPER TO SUITABLE ROCK. THE OVER EXCAVATION SHALL BE BACKFILLED WITH CSLM AS PER SECTION 02200.
- SLAB THICKNESS VARIES FROM 1'-7" AT EL 611.67 TO 1'-3" AT EL 611.33. BOTTOM OF SLAB ELEVATION STAYS CONSTANT.
- SEE SPREAD FOOTING TYPICAL DETAILS AND SCHEDULE ON MS-10
- SELECT FILL PER SECTION 02200 SHALL BE PLACED BELOW SLAB ON GRADE AND ABOVE ROCK OR CSLM.



REVISION	BY	DATE	PLAN SCALE:	TSH	APPROVED:
ADDENDUM NO. (1)	PSB	1-6-12	DRAWN	KC	
ADDENDUM NO. (2)	PSB	1-13-12	DESIGNED		
			SURVEY		
			PROFILE SCALE:	FIELD MGR. JCS 10/11	
			HORIZONTAL:	SECT. MGR.	
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			ATLAS PAGE NO:		SHEET 113 OF 261 SHEETS

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

HEADWORKS BUILDING
STRUCTURAL SECTIONS

CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

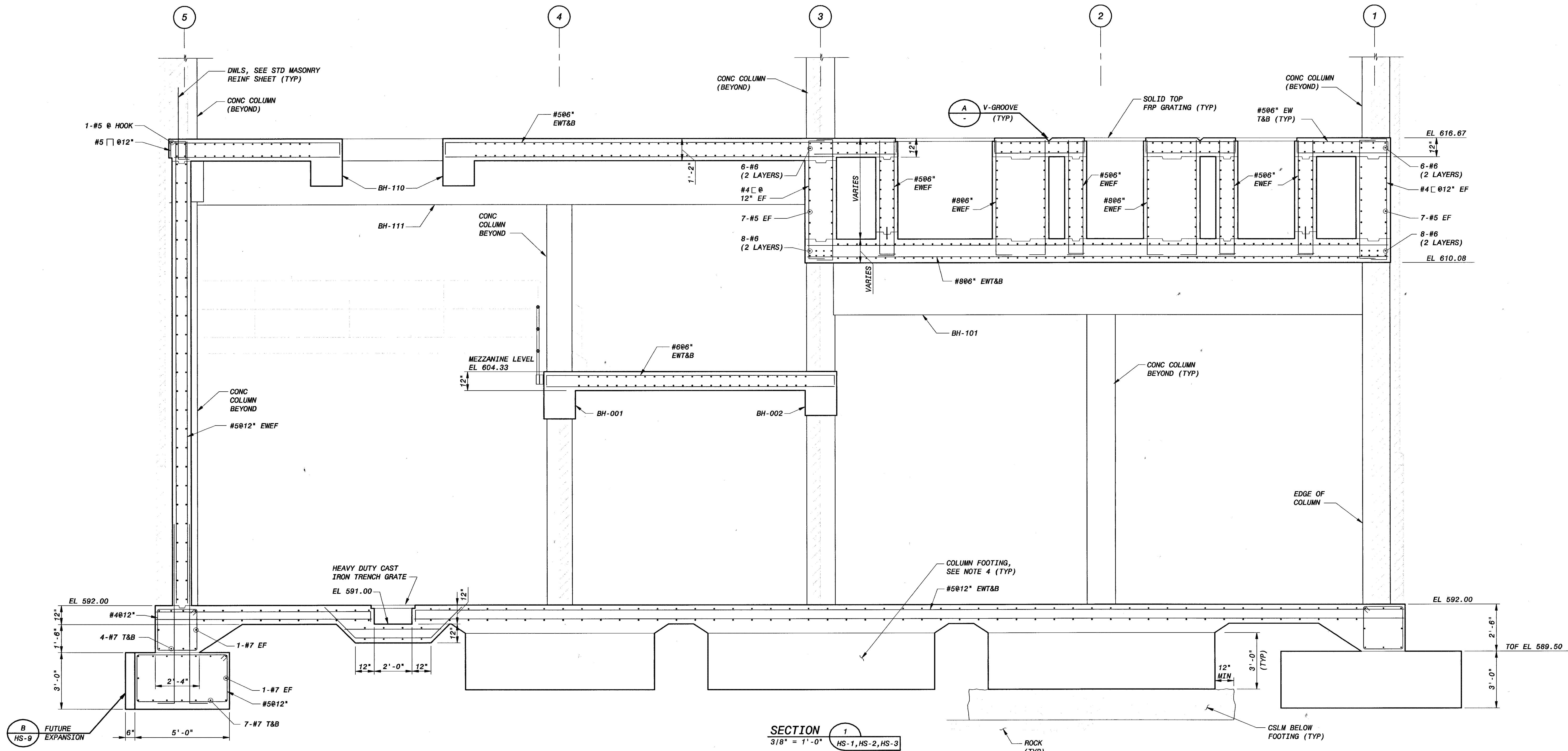
BLACK & VEATCH
 Building a world of difference

HOLLOWAY, UPSHIE AND BELLIN
 Consulting Engineers
 Muskogee - Broken Arrow

OWGATES
 Engineering Services

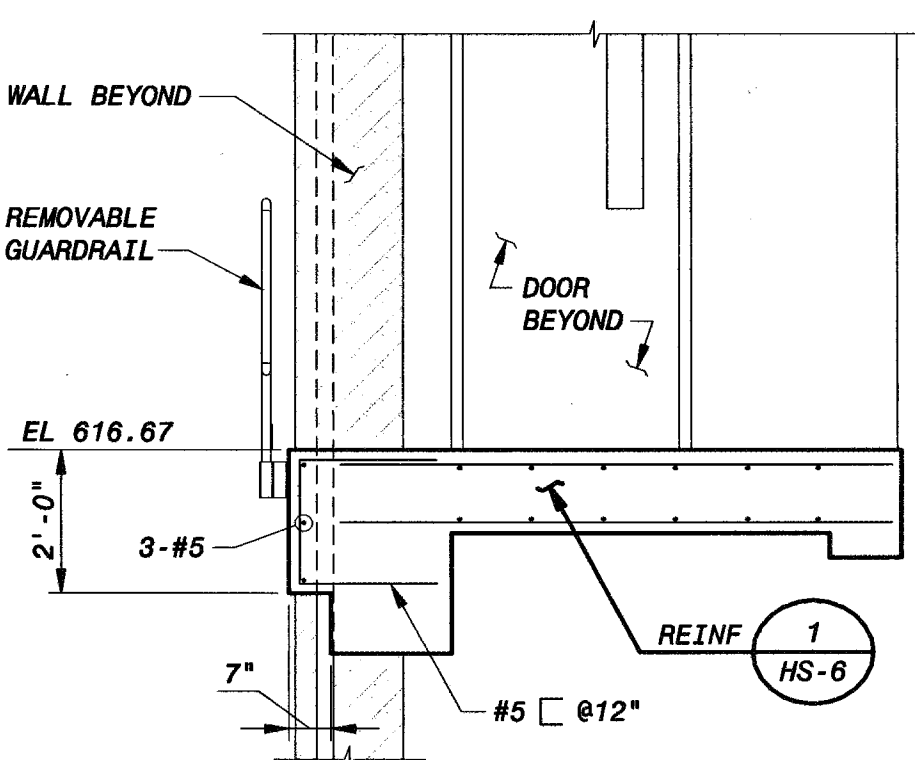
Black & Veatch Corporation
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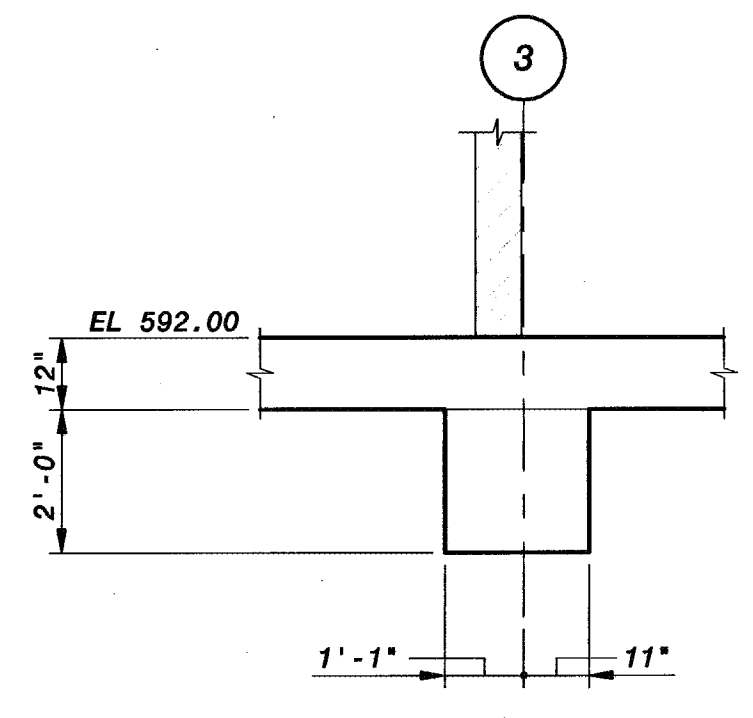


B
HS-9

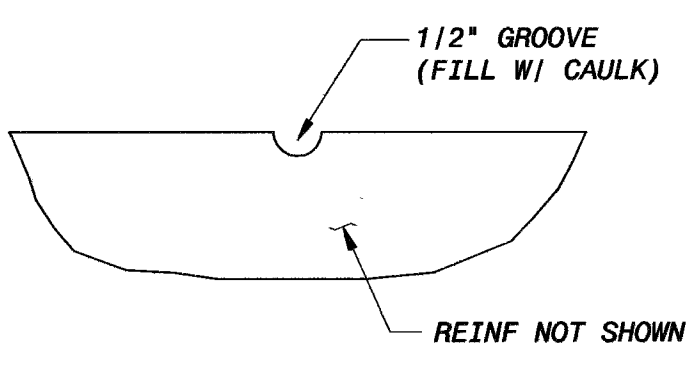
SECTION 1
3/8" = 1'-0"
HS-1, HS-2, HS-3



SECTION 2
3/8" = 1'-0"
HS-2



SECTION 3
3/8" = 1'-0"
HS-1

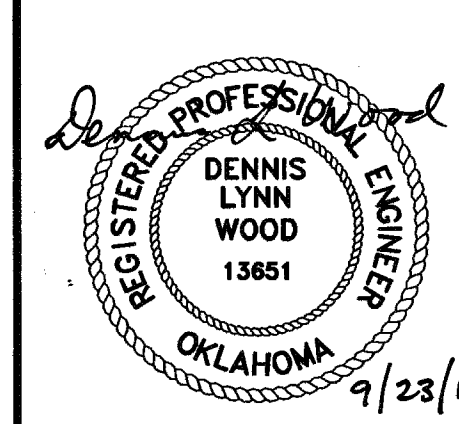


DETAIL A
3" = 1'-0"
HS-2, HS-6

FOUNDATION NOTES:

1. ALL FOOTINGS SHALL BEAR ON LIMESTONE AND SHALE ROCK.
2. IF SHALE ROCK IS EXPOSED DURING FOOTING EXCAVATION, A 2 INCH MUD MAT SHALL BE USED TO COVER THE SHALE ROCK AND PROTECT IT FROM WEATHERING DURING CONSTRUCTION.
3. IF UNSUITABLE BEARING ROCK IS ENCOUNTERED IN FOOTING EXCAVATIONS, THE EXCAVATIONS SHALL BE EXTENDED DEEPER TO SUITABLE ROCK. THE OVER EXCAVATION SHALL BE BACKFILLED WITH CSLM AS PER SECTION 02200.
4. SEE SPREAD FOOTING TYPICAL DETAILS AND SCHEDULE ON MS-10.

5. Select fill per Section 02200 shall be placed below slab on grade and above rock or CSLM.



REVISION	BY	DATE
Addendum No. 1	PSB	1-6-12

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

HEADWORKS BUILDING
STRUCTURAL
SECTIONS

CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH
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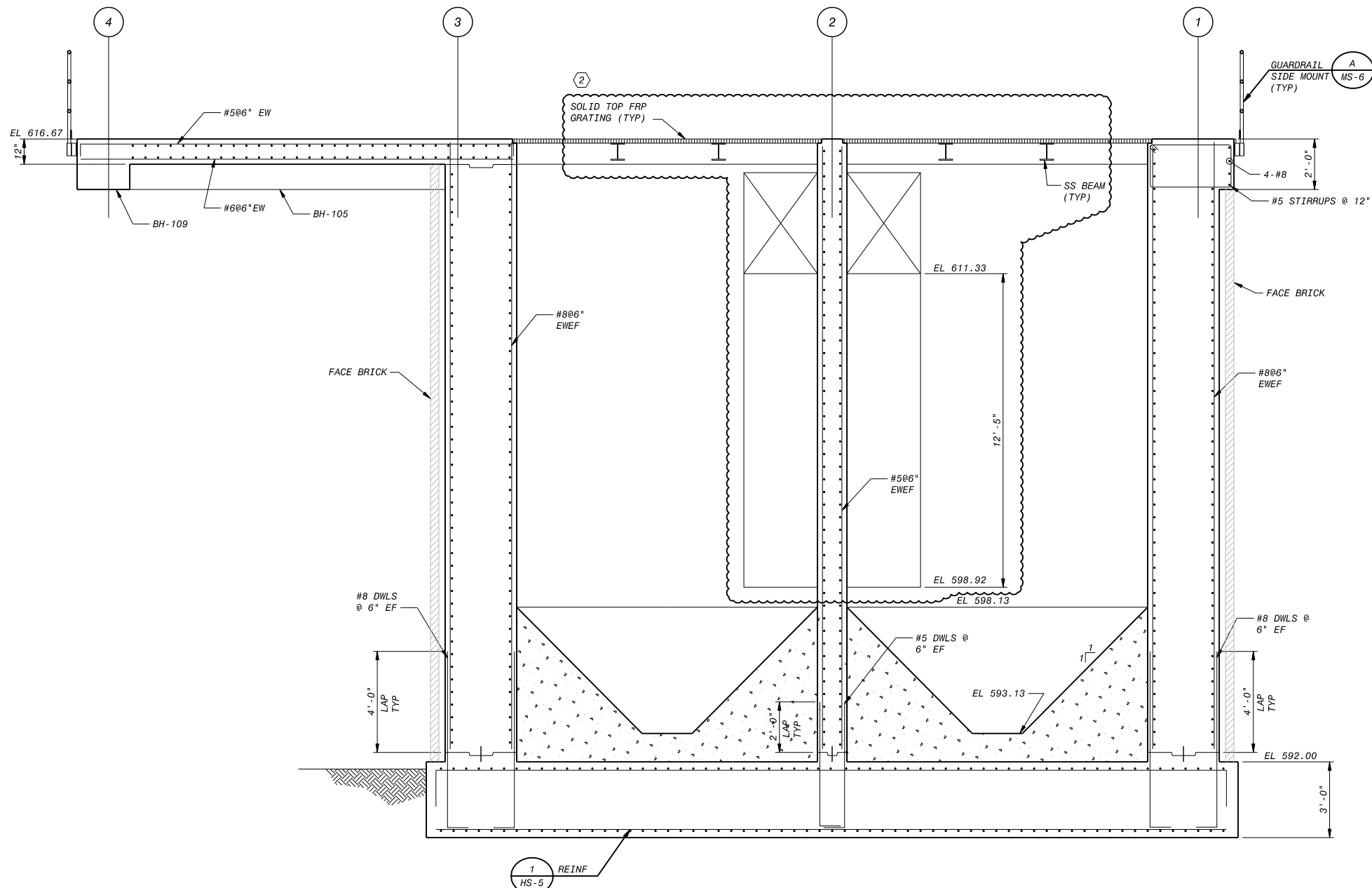
Holloway, Uptake and Bolton
Consulting Engineers
Muskegon - Broken Arrow

OWGATES
Engineering Services

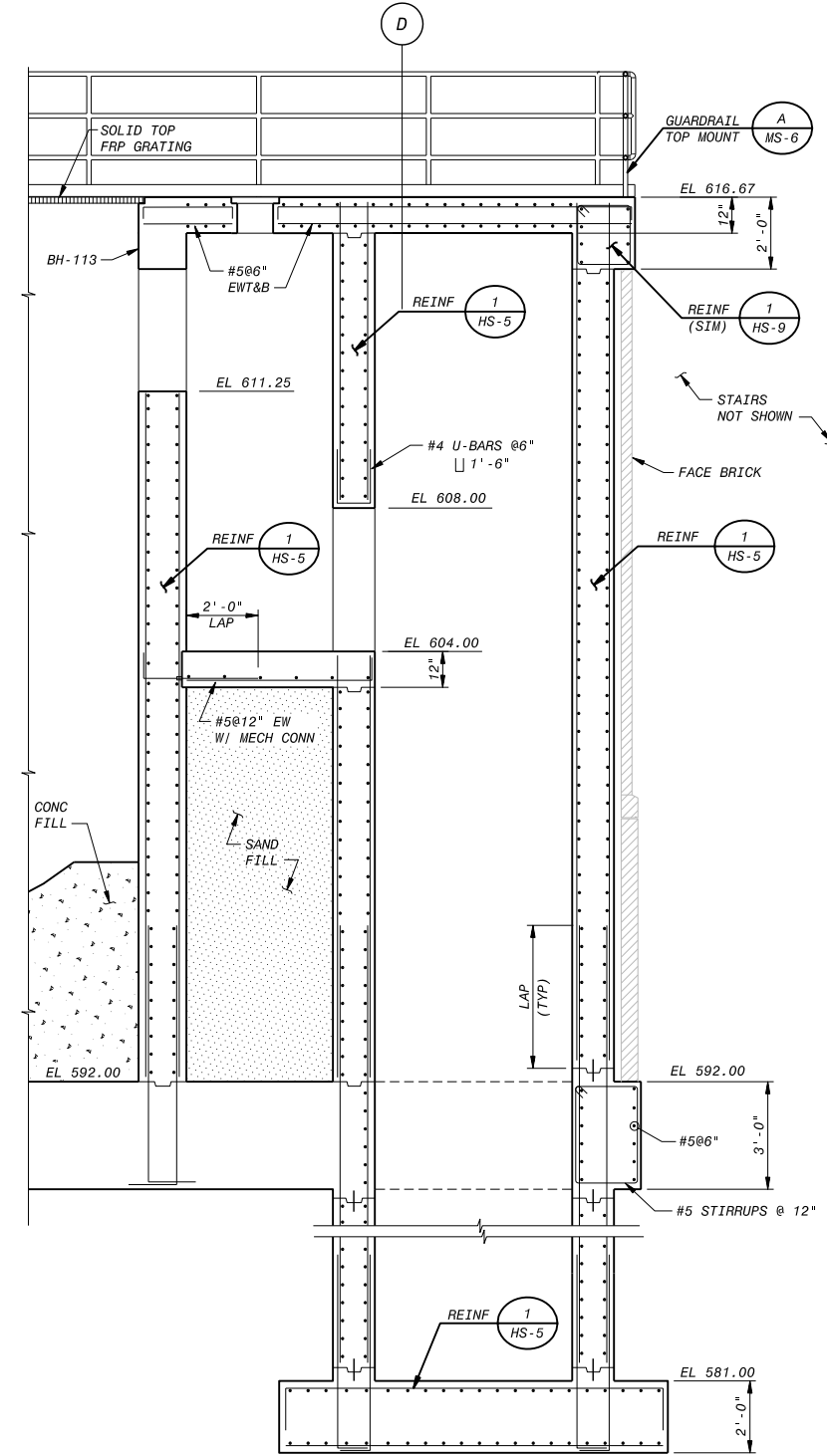
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	PROJ. MGR.	HW 10/3/11	
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FILE: HS6.DWG DRAWING: HS-6 DATE: 10/28/2011
ATLAS PAGE NO: SHEET 114 OF 261 SHEETS

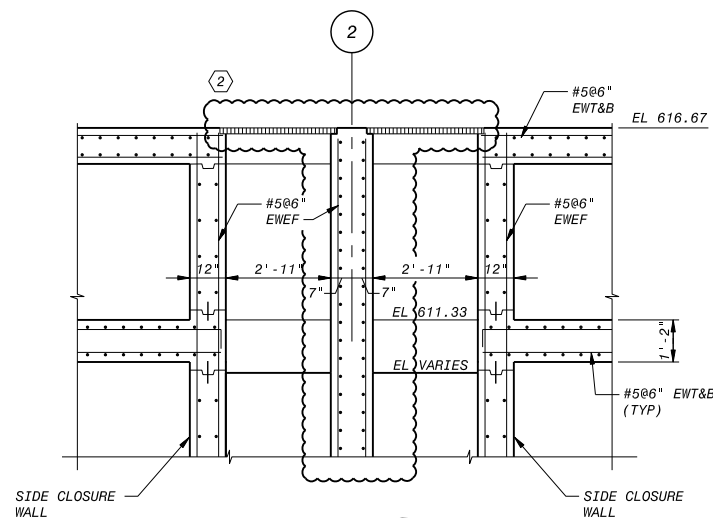
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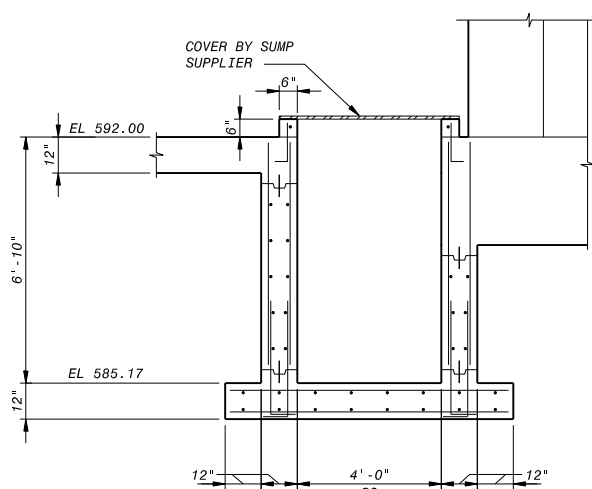
SECTION 1
3/8" = 1'-0" HS-1, HS-2



SECTION 2
3/8" = 1'-0" HS-1, HS-2



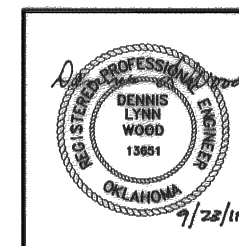
SECTION 3
3/8" = 1'-0" HS-2, HS-3



SECTION 4
3/8" = 1'-0" HS-1

FOUNDATION NOTES:

- ALL FOOTINGS SHALL BEAR ON LIMESTONE AND SHALE ROCK.
- IF SHALE ROCK IS EXPOSED DURING FOOTING EXCAVATION, A 2 INCH MUD MAT SHALL BE USED TO COVER THE SHALE ROCK AND PROTECT IT FROM WEATHERING DURING CONSTRUCTION.
- IF UNSUITABLE BEARING ROCK IS ENCOUNTERED IN FOOTING EXCAVATIONS, THE EXCAVATIONS SHALL BE EXTENDED DEEPER TO SUITABLE ROCK. THE OVER EXCAVATION SHALL BE BACKFILLED WITH CLSM AS PER SECTION 02200.



REVISION	BY	DATE	PLAN SCALE:	DRAWN	JGC	APPROVED:
ADDENDUM NO. (2)	PSB	1-13-12		DESIGNED	KC	
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	JCS 10/11	
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			1" =	PROJ. MGR.	PSB 10/11	
			VERTICAL:	RECOMMENDED:	HAS 12/30/11	
			1" =	DIRECTOR		
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			ATLAS PAGE NO:			SHEET 115 OF 261 SHEETS

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

HEADWORKS BUILDING
STRUCTURAL SECTIONS

CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

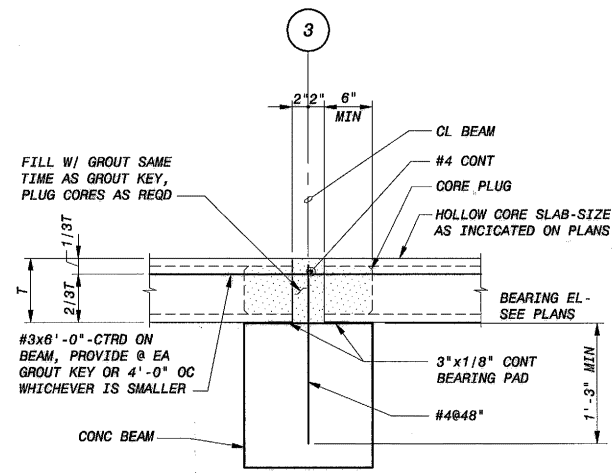
PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH
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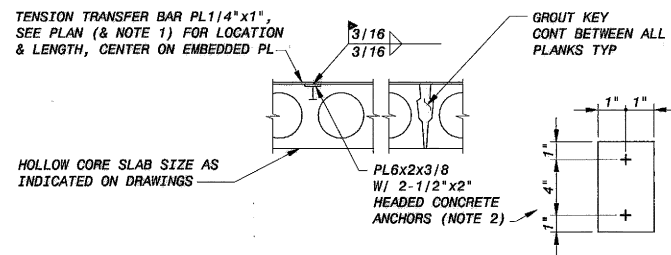
Black & Veatch Corporation
Kansas City, Missouri

REGISTERED PROFESSIONAL ENGINEER
DENNIS LYNN WOOD
13651
9/28/11

9-28-11 B&V PROJECT NO. 145120

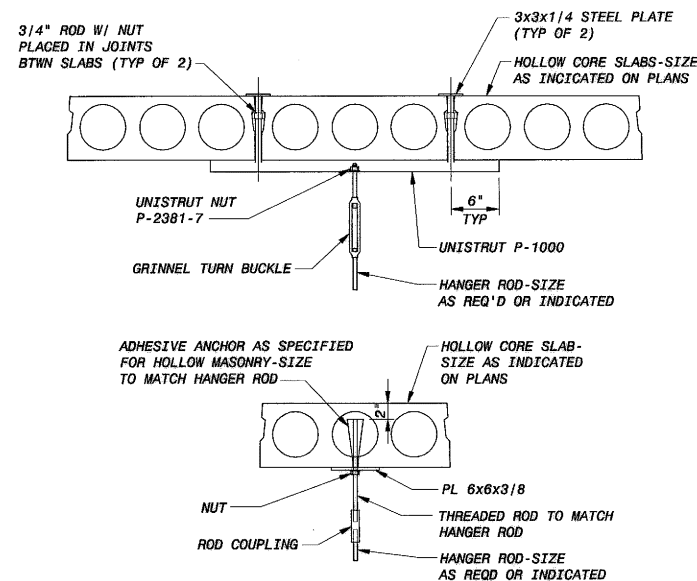


HOLLOW CORE BEARING ON INTERIOR CONCRETE BEAM
REBAR CONNECTION DETAIL A
 1" = 1'-0"

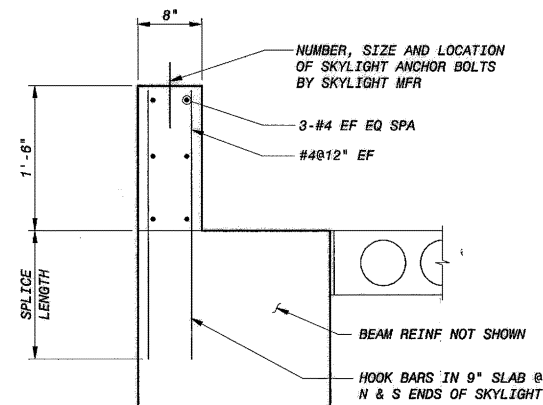


- NOTES:
- TENSION TRANSFER BAR SHALL BE MINIMUM LENGTH SHOWN ON PLANS, BUT SHALL EXTEND A MINIMUM OF 2" BEYOND THE CENTERLINE OF THE FARTHEST INTERIOR EMBEDDED PLATE. TENSION TRANSFER PLATE SHALL START 2" ON THE EXTERIOR SIDE OF THE FIRST EMBEDDED PLATE.
 - PLATE IN HOLLOW CORE MAY BE CAST IN DURING MANUFACTURE AS SHOWN IN THE DETAIL, OR MAY BE GROUTED IN A HOLLOW CORE VOID BY THE PRECASTER AFTER CASTING; GROUT IN VOID SHALL EXTEND A MINIMUM OF 6" BEYOND HEADED ANCHOR CENTERLINE EACH WAY. IN EITHER CASE, THE PLATE SHALL BE AS CLOSE TO THE MIDDLE OF THE HOLLOW CORE AS POSSIBLE AND SHALL BE IN THE SAME RELATIVE LOCATION IN EACH HOLLOW CORE THAT WOULD BE WITHIN THE LENGTH OF THE TENSION TRANSFER BAR. IF NEEDED, THE TENSION TRANSFER BAR SHALL BE LONGER AS REQUIRED TO OBTAIN THE CORRECT LOCATION OF THE EMBEDDED PLATE IN THE FARTHEST INTERIOR HOLLOW CORE.

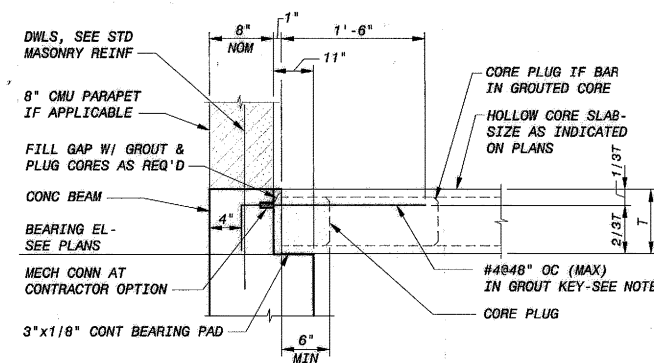
HOLLOW CORE PANEL TO PANEL
MECHANICAL CONNECTION DETAIL B
 1" = 1'-0"



UTILITY SUPPORT DETAILS C
 1" = 1'-0"

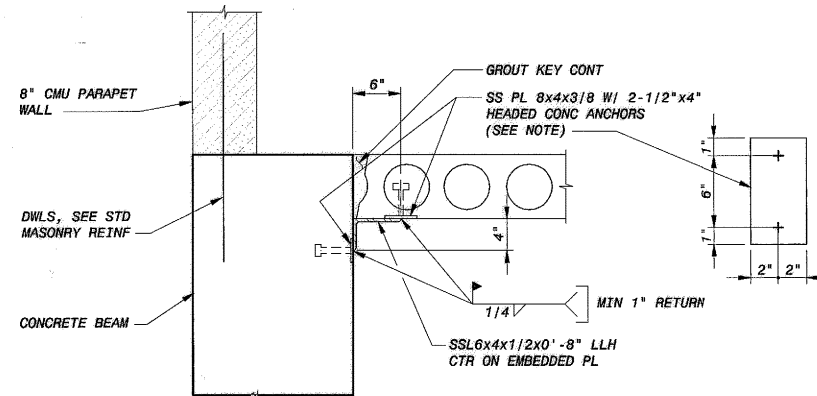


DETAIL D
 1" = 1'-0"



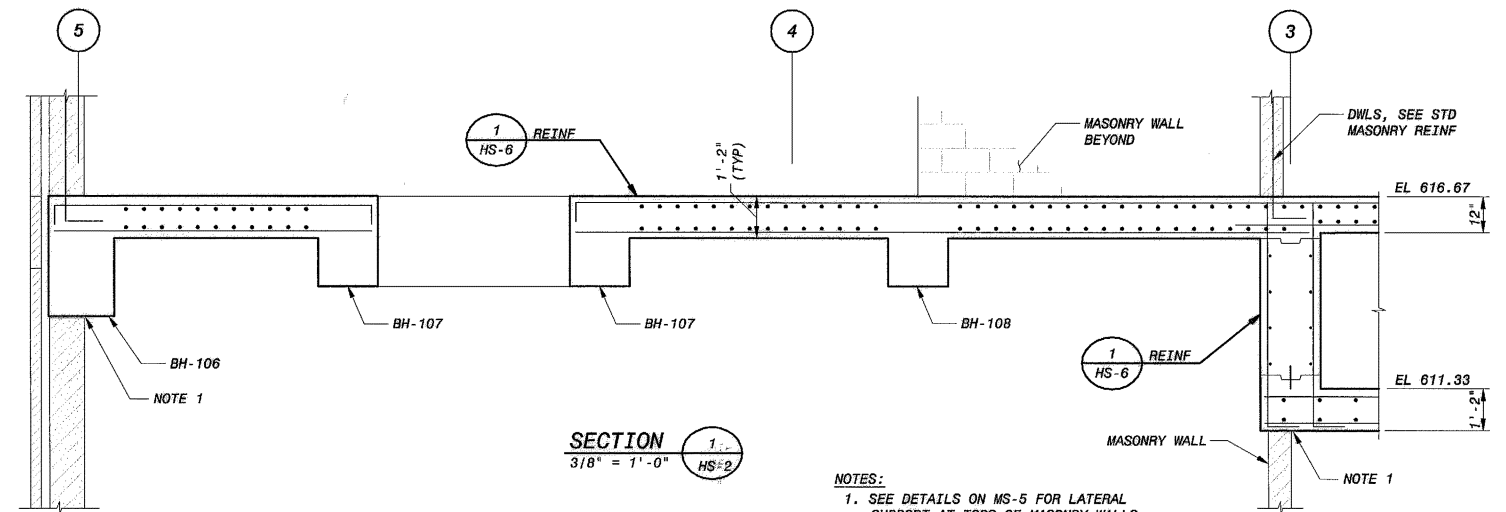
NOTE:
 UNLESS INDICATED ON THE PLANS, BAR SHALL BE AT 4'-0" ON CENTER AND PLACED IN GROUT KEY. CONTRACTOR SHALL COORDINATE CONNECTION LOCATIONS WITH HOLLOW CORE SHOP DRAWINGS. IF HOLLOW CORE PANEL WIDTHS ARE BETWEEN 2'-0" AND 4'-0", THE BAR SHALL BE AT EACH GROUT KEY. IF HOLLOW CORE PANEL WIDTHS ARE GREATER THAN 4'-0", THE BARS SHALL BE IN GROUT KEYS AND IN GROUTED CORES AS REQUIRED TO PROVIDE 4'-0" MAXIMUM SPACING.

HOLLOW CORE BEARING ON CONNECTION BEAM
REBAR CONNECTION DETAIL E
 1" = 1'-0"



NOTE:
 UNLESS INDICATED OTHERWISE ON THE PLANS, PROVIDE ABOVE CONNECTIONS AT 4'-0" ON CENTER (MAXIMUM). PLATE IN HOLLOW CORE MAY BE CAST IN DURING MANUFACTURE, IN WHICH CASE THE FIRST VOID NEXT TO THE WALL SHALL BE OMITTED. ALTERNATIVELY, PLATE IN HOLLOW CORE MAY BE GROUTED IN A HOLLOW CORE VOID BY THE PRECASTER AFTER CASTING; GROUT IN VOID SHALL EXTEND A MINIMUM OF 6" BEYOND HEADED ANCHOR CENTERLINE EACH WAY. CONTRACTOR SHALL COORDINATE CONNECTION LOCATIONS WITH HOLLOW CORE SHOP DRAWINGS.

HOLLOW CORE EDGE CONNECTION AT MASONRY WALL
MECHANICAL CONNECTION DETAIL F
 1" = 1'-0"



SECTION 1
 3/8" = 1'-0"

- NOTES:
 1. SEE DETAILS ON MS-5 FOR LATERAL SUPPORT AT TOPS OF MASONRY WALLS.

LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B

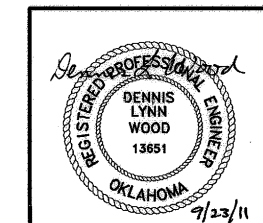
HEADWORKS BUILDING
 STRUCTURAL
 SECTION AND DETAILS

CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

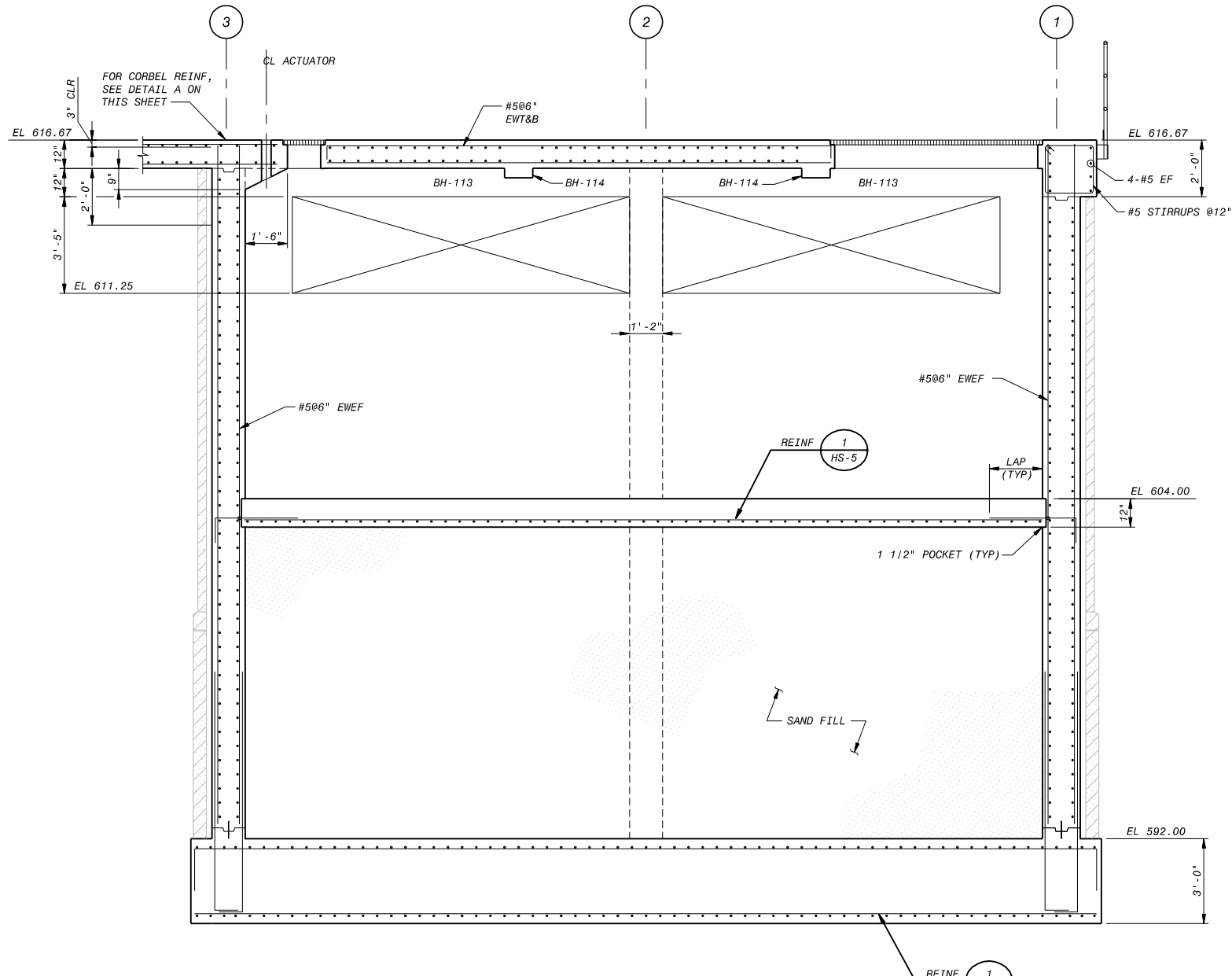
PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
 Building a world of difference

PLANNING: JCC
 DESIGN: KC
 SURVEY: JCS 10/11
 FIELD MGR. JCS 10/11
 SECT. MGR. JCS 10/11
 PROJ. MGR. JCS 10/11
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 DIRECTOR: [Signature]

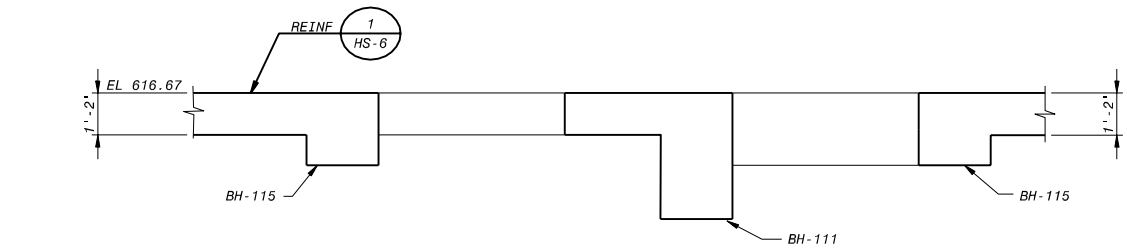
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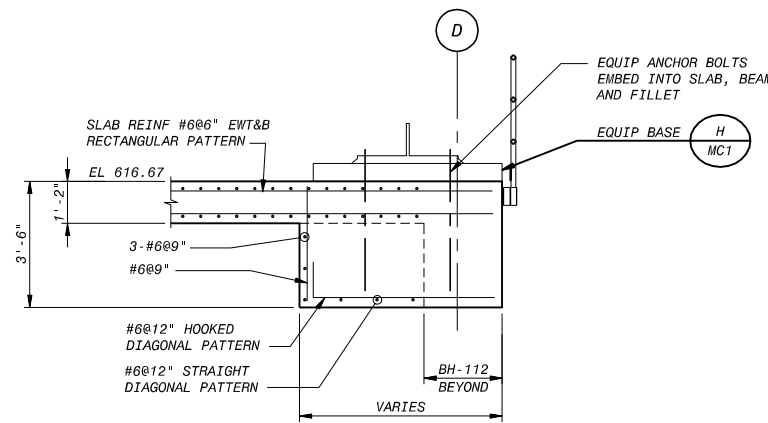
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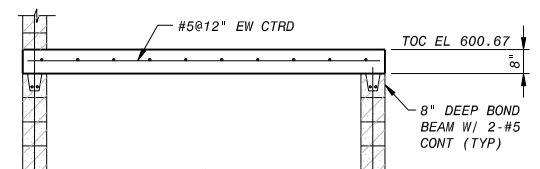
SECTION 1
3/8" = 1'-0"
HS-1, HS-2



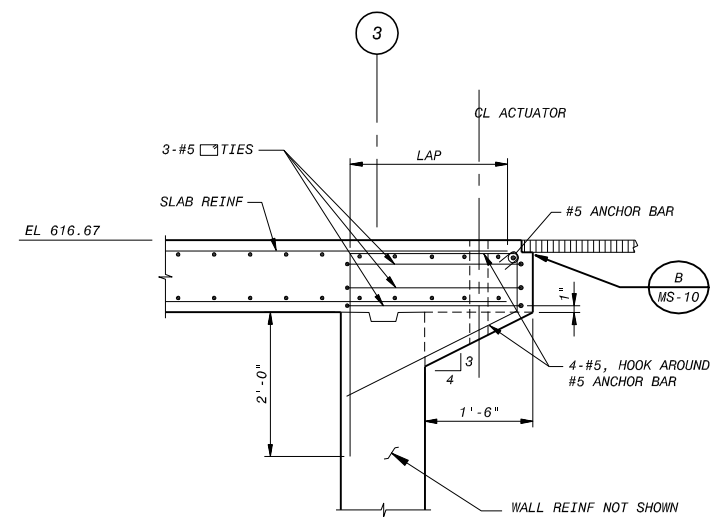
SECTION 2
3/8" = 1'-0"
HS-2



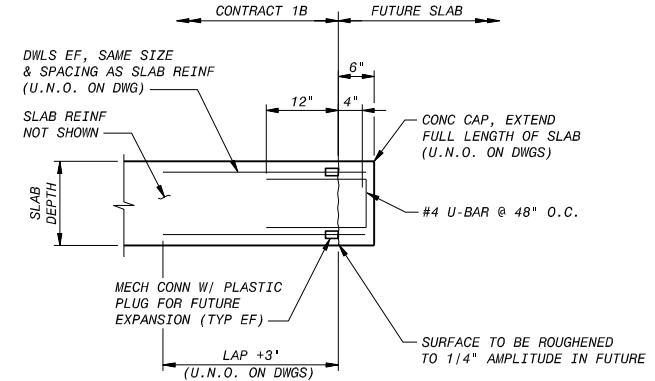
SECTION 3
3/8" = 1'-0"
HS-2



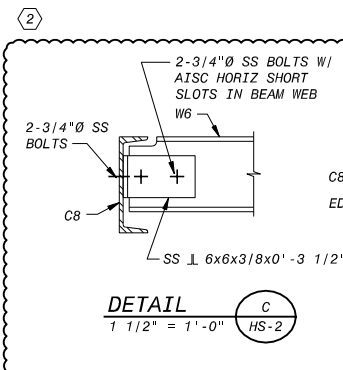
SECTION 4
3/8" = 1'-0"
HS-1



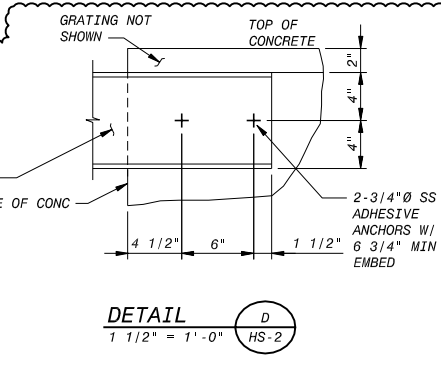
DETAIL A
3/4" = 1'-0"
HS-2



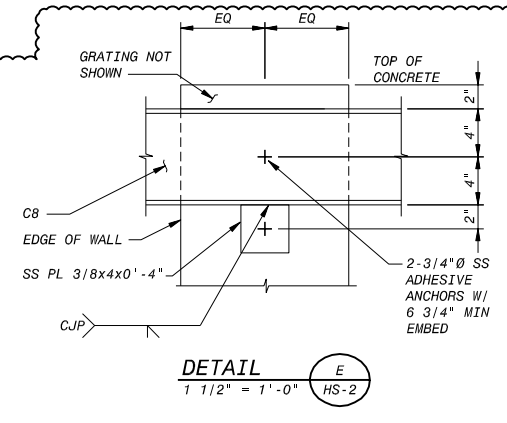
SLABS (SECTIONAL VIEW)
FUTURE EXPANSION DETAIL B
NO SCALE
HS-2



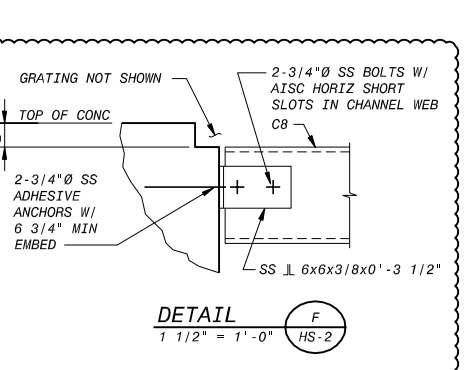
DETAIL C
1 1/2" = 1'-0"
HS-2



DETAIL D
1 1/2" = 1'-0"
HS-2

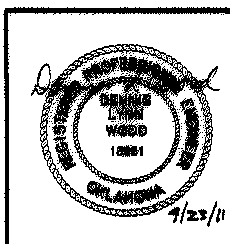


DETAIL E
1 1/2" = 1'-0"
HS-2

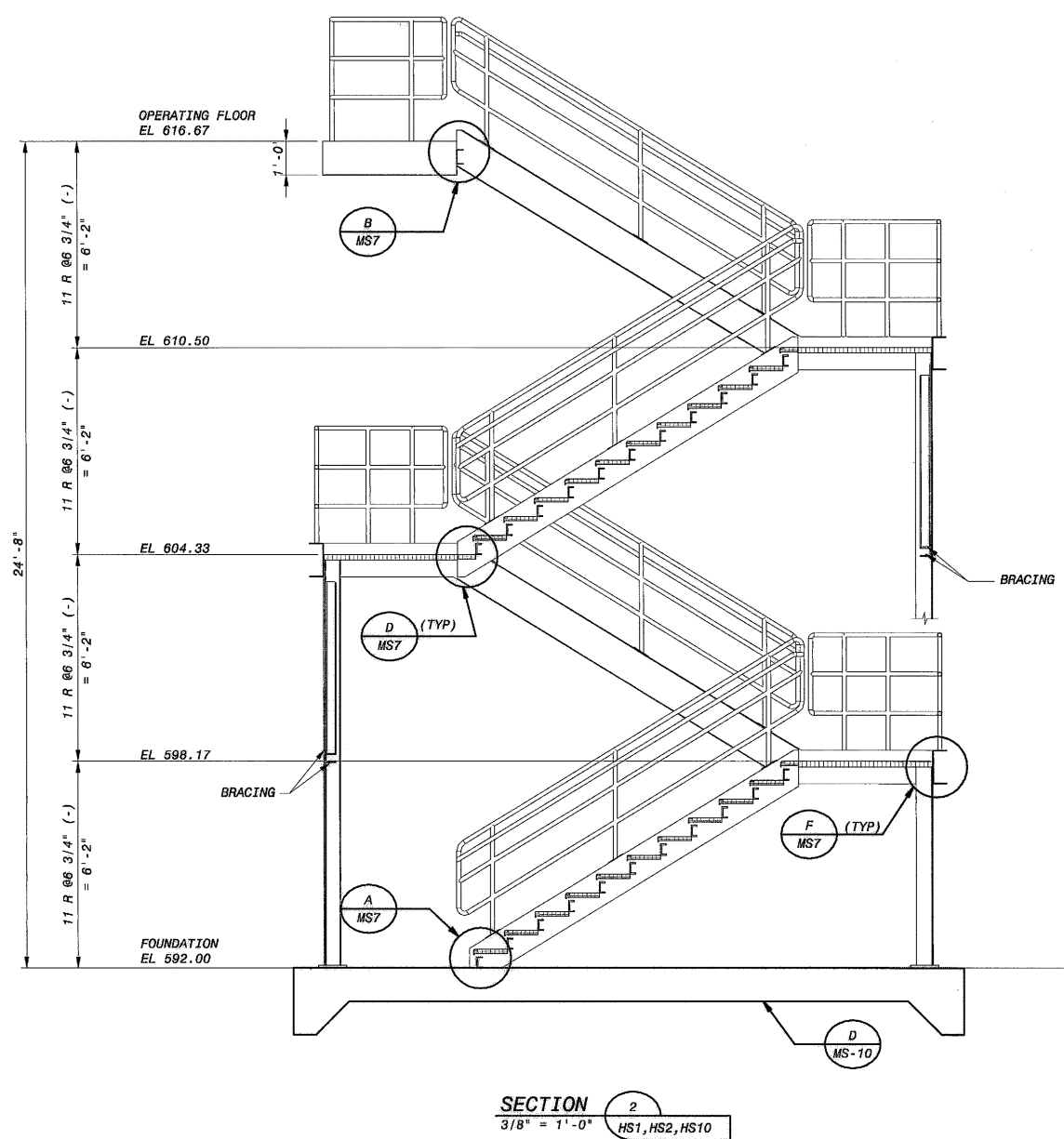
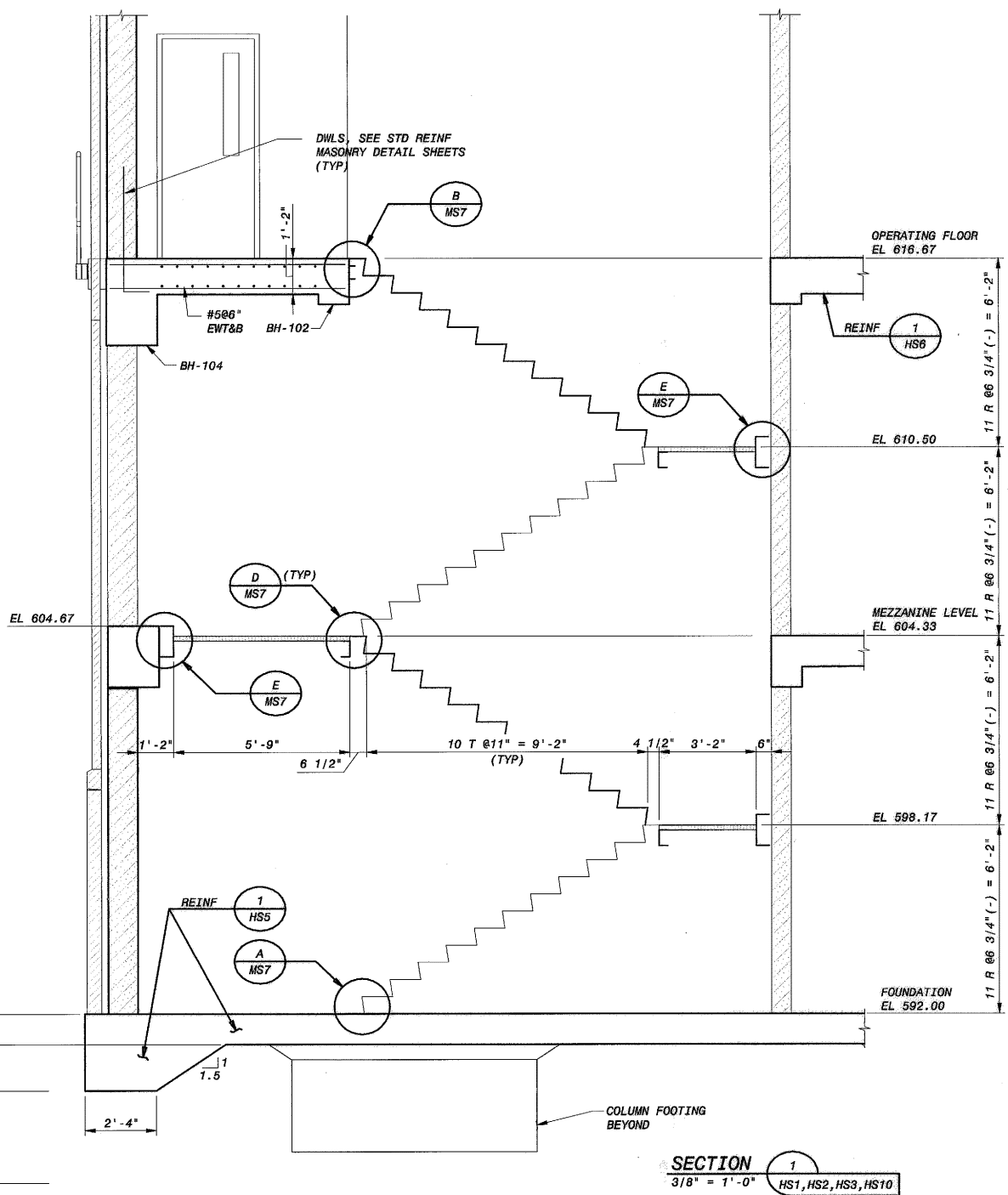
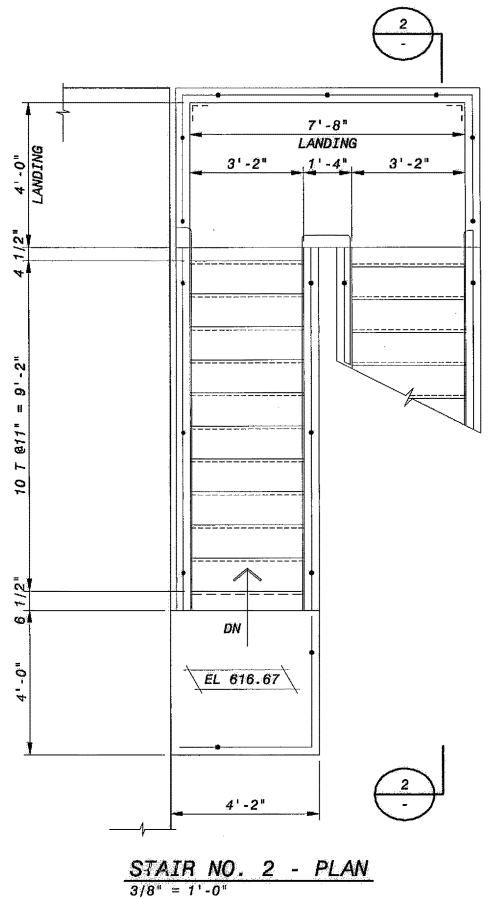
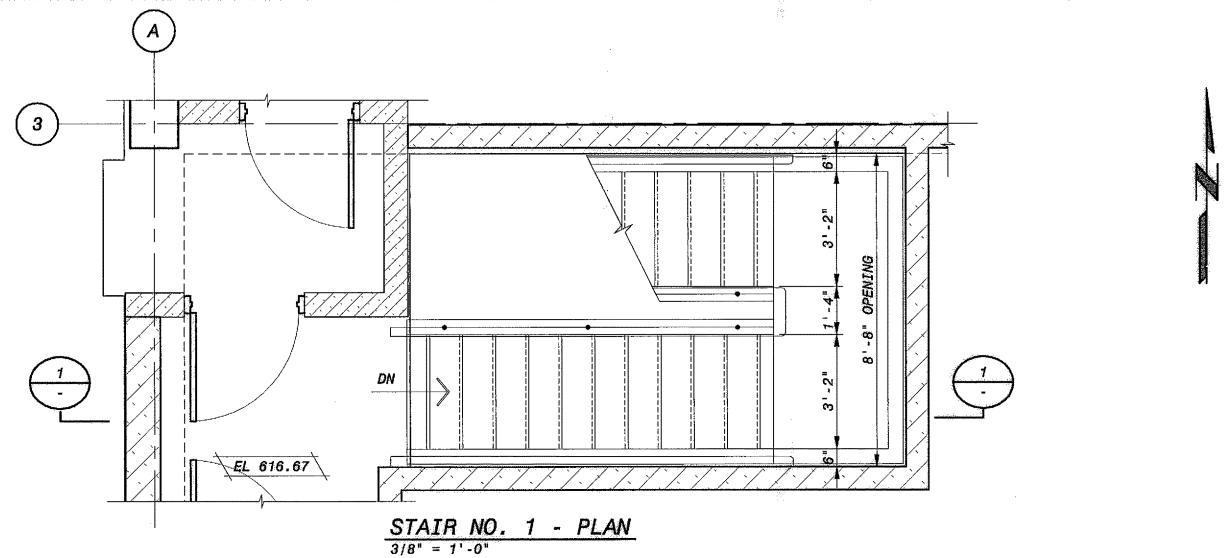


DETAIL F
1 1/2" = 1'-0"
HS-2

LOWER CREEK WWTP EXPANSION
TMAA PROJECT NO. ES 2006-01
CONTRACT 1B
HEADWORKS BUILDING
STRUCTURAL
SECTIONS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT
PLANS AND ESTIMATES PREPARED BY:
BLAKE & VEATCH
10/28/2011
REVISION: ADDENDUM NO. (2)
BY: PSB
DATE: 1-13-12
PLAN SCALE: DRAWN TSH
DESIGNED KC
SURVEY
PROFILE SCALE: FIELD MGR. [Signature]
SECT. MGR. [Signature]
HORIZONTAL: 1" = [Signature]
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DATE 10/28/2011
SHEET 117 OF 261 SHEETS
B&V PROJECT NO. 145120



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LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B

HEADWORKS BUILDING
 STRUCTURAL
 STAIR PLANS AND SECTIONS

CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH Building a world of difference
 Holloway, Utidine and Gellon
 Consulting Engineers
 Muskogee - Broken Arrow

DIGATES
 Engineering Services

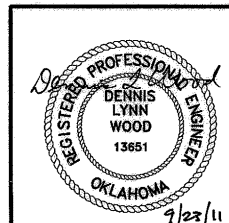
REVISION	BY	DATE

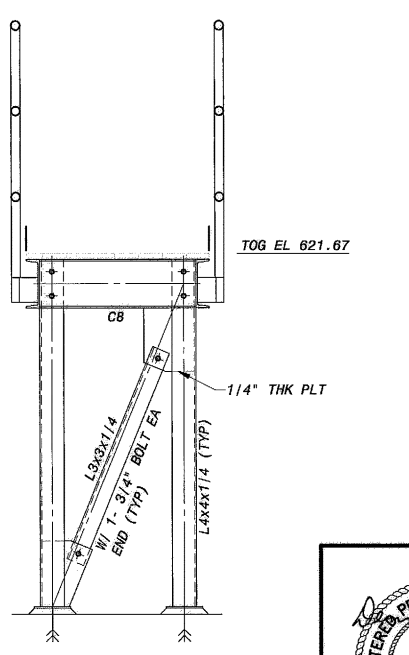
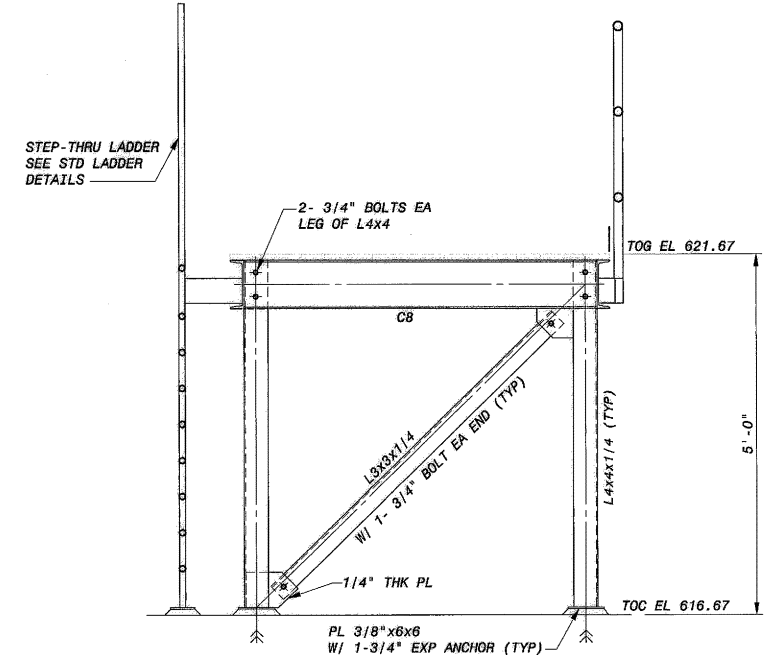
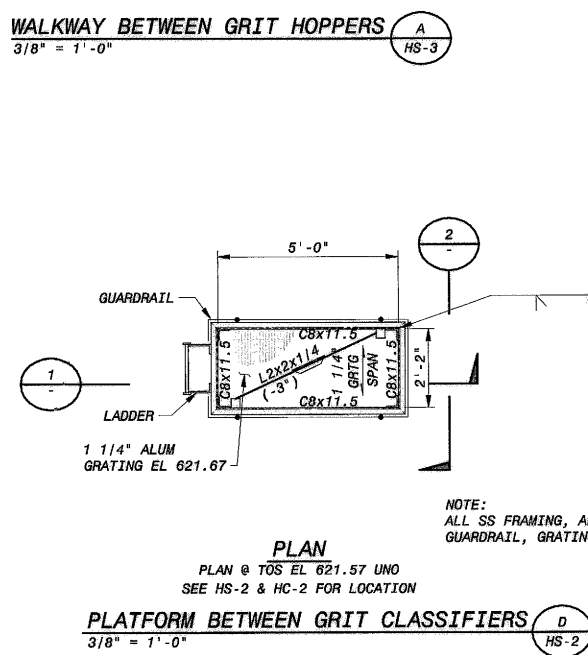
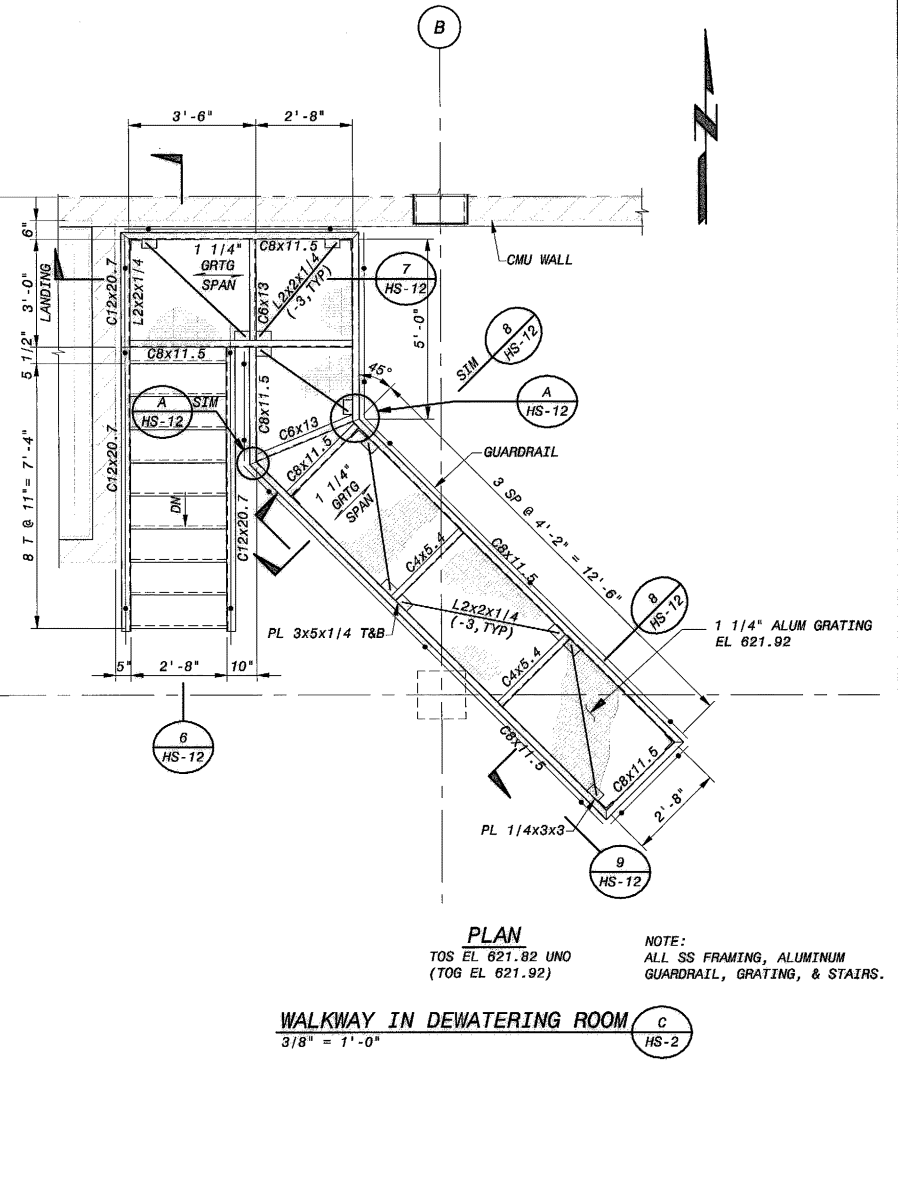
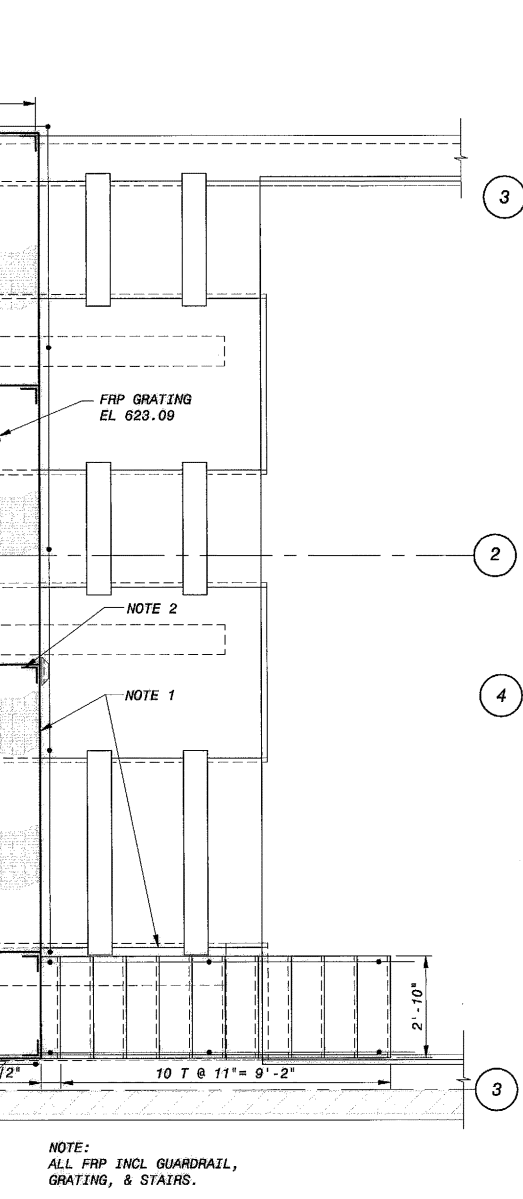
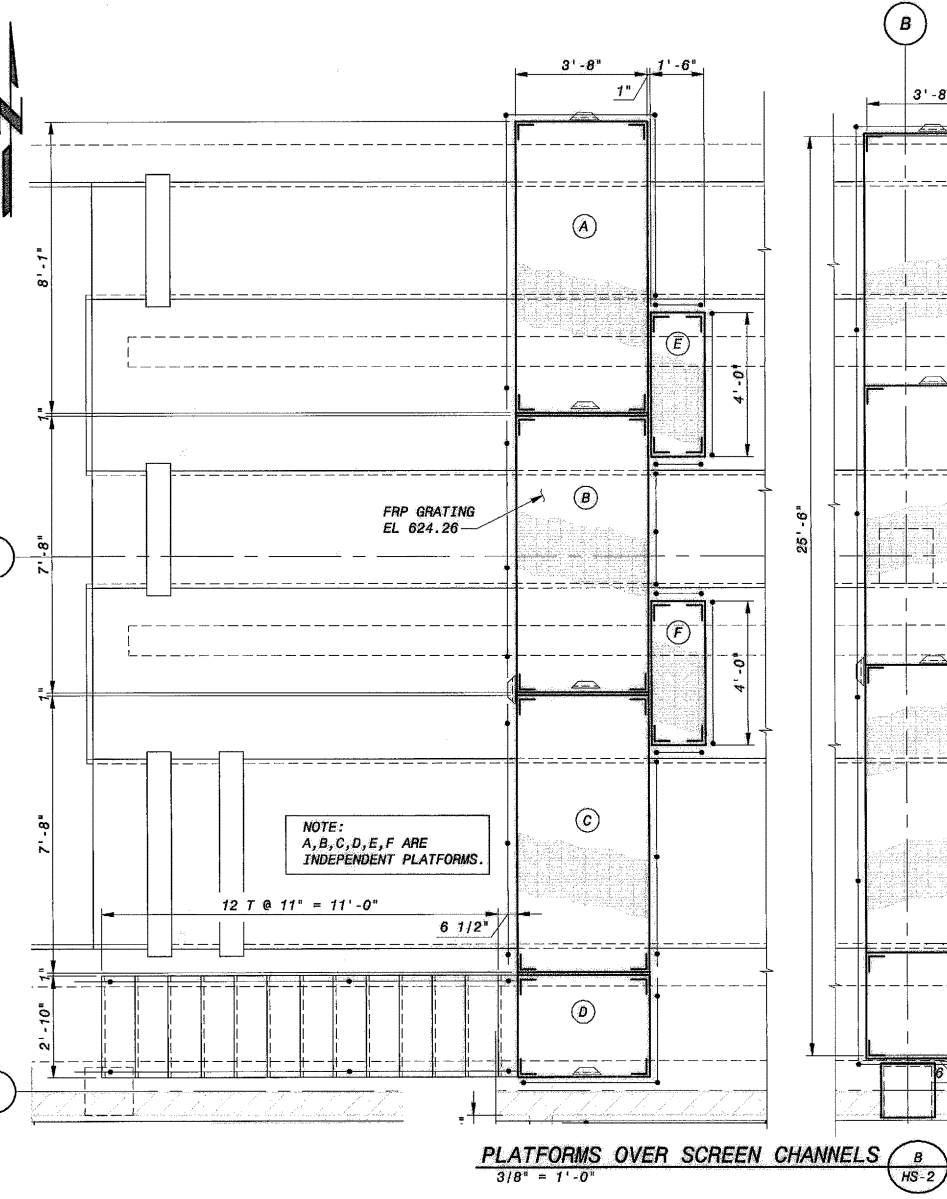
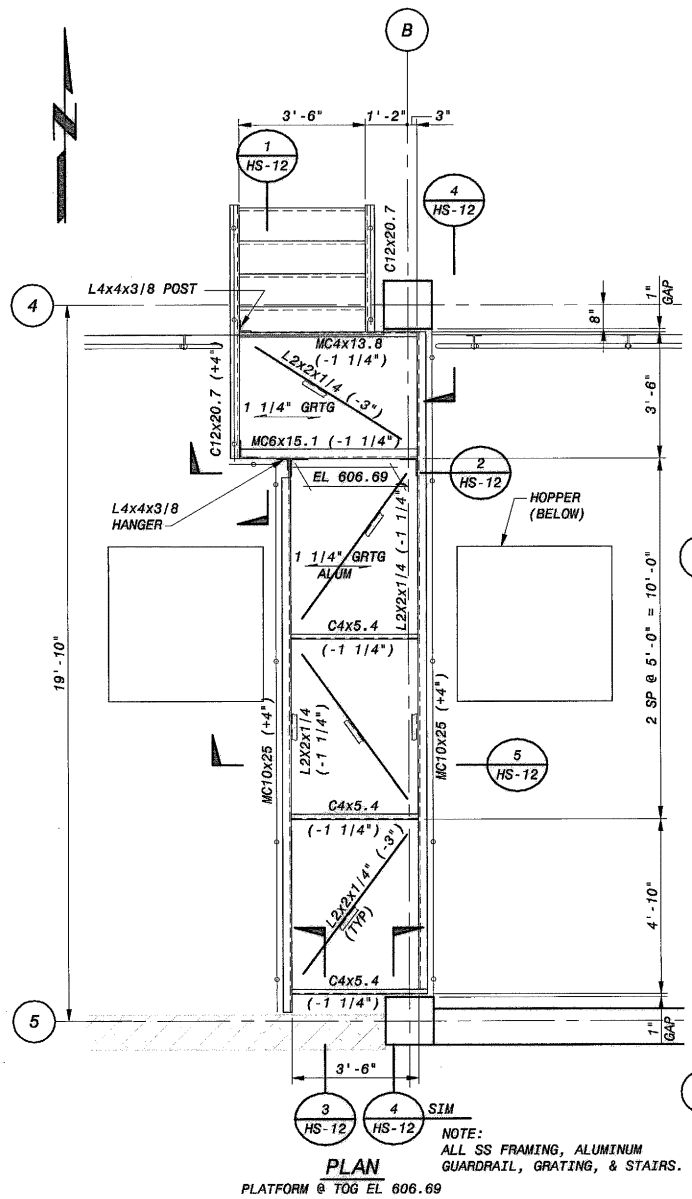
PLAN SCALE: DRAWN TSH
 DESIGNED KC
 SURVEY

PROFILE SCALE: FIELD MGR. 705 10/11
 HORIZONTAL: SECT. MGR.
 1" = PROJ. MGR. 200 10/11
 VERTICAL: RECOMMENDED:
 1" = 1/4" 10/11

FILE: HS10.DWG DRAWING: HS-10
 ATLAS PAGE NO. DATE 10/25/2011

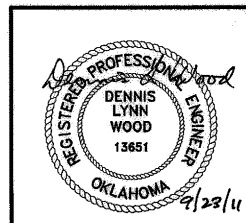
APPROVED: *[Signature]*
 DIRECTOR





- NOTES:
- FRP STAIRS AND PLATFORM SHALL BE DESIGNED BY PLATFORM MFR FOR THE FOLLOWING LOADS:
 DEAD SELF WT
 LIVE 100 PSF UNIFORM LOAD, 250 LB POINT LOAD.
 SEISMIC SEE STRUCTURAL GENERAL NOTE SHEET FOR ACCELERATIONS
 SEE SPECIFICATION 06600 FOR ADDITIONAL REQUIREMENTS.
 - POST LOCATIONS SHALL BE DETERMINED BY PLATFORM DESIGNER AND MAY BE LOCATED ANY WHERE EXCEPT IN THE CHANNELS (AT THEIR FUTURE WIDER WIDTH)

PLOTTED DATE: 04/23/2011 5:26:50 PM
 SAVED DATE: 04/23/2011 11:43:47 AM
 C:\GNET\ID:145120-3000-5-B00000707



REVISION	BY	DATE

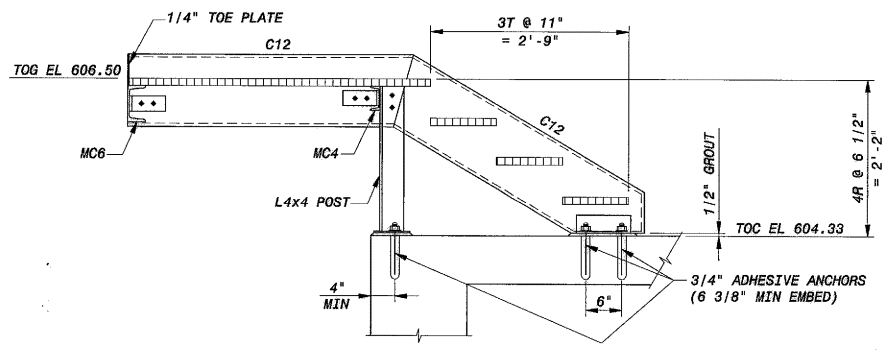
LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B

HEADWORKS
 STRUCTURAL
 ACCESS PLATFORM PLANS AND SECTIONS

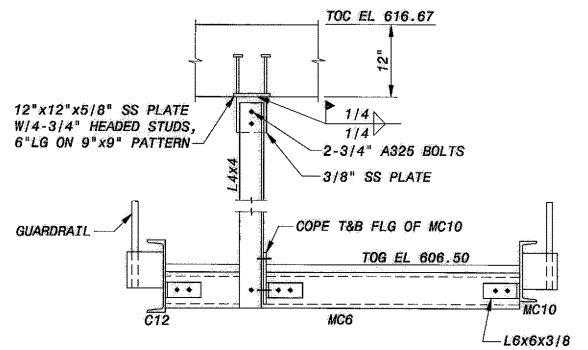
CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH Consulting Engineers
 Building a world of difference
 Holloway, Urdila and Stollen
 Consulting Engineers
 Marking - Broken Arrow
DIGATES Engineering Services

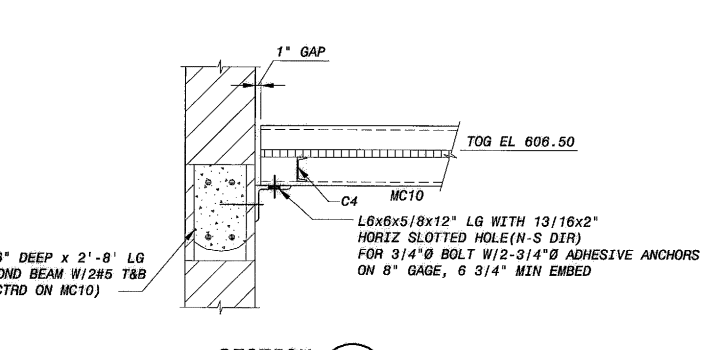
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	DESIGNED	KC	
	SURVEY		
PROFILE SCALE:	FIELD MGR.	TCB 10/11	
HORIZONTAL:	SECT. MGR.		
1" =	PROJ. MGR.	PH 10/11	
VERTICAL:	RECOMMENDED:		
1" =		HS 10/30/11	
FILE: HS11.DWG	DRAWING: HS-11		DATE 10/28/2011
ATLAS PAGE NO:			SHEET 119 OF 261 SHEETS



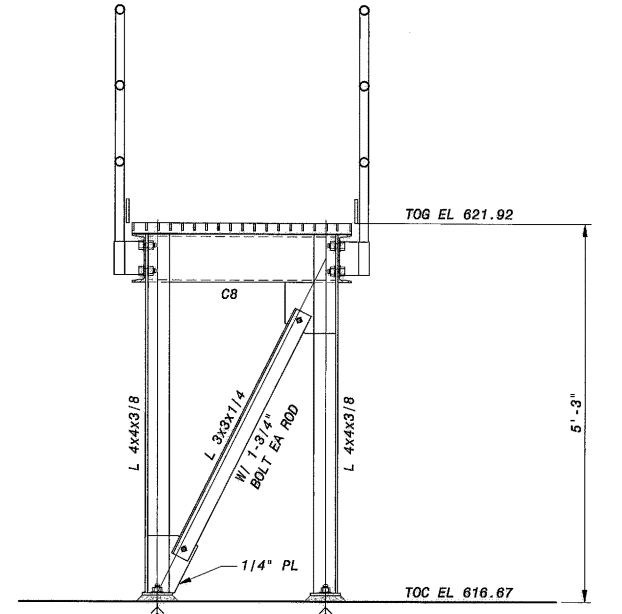
SECTION 1
3/4" = 1'-0" HS-11



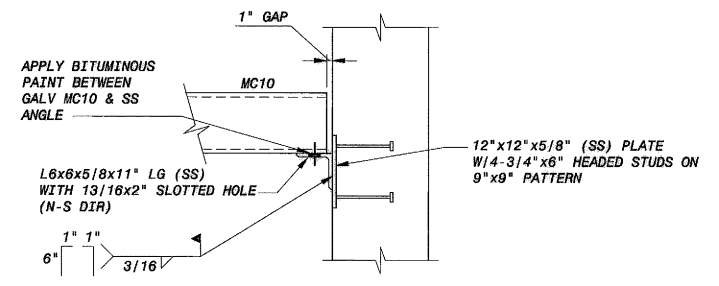
SECTION 2
3/4" = 1'-0" HS-11



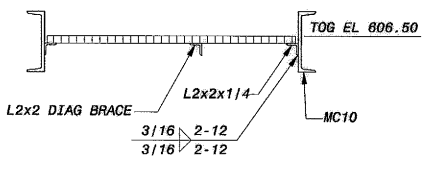
SECTION 3
3/4" = 1'-0" HS-11



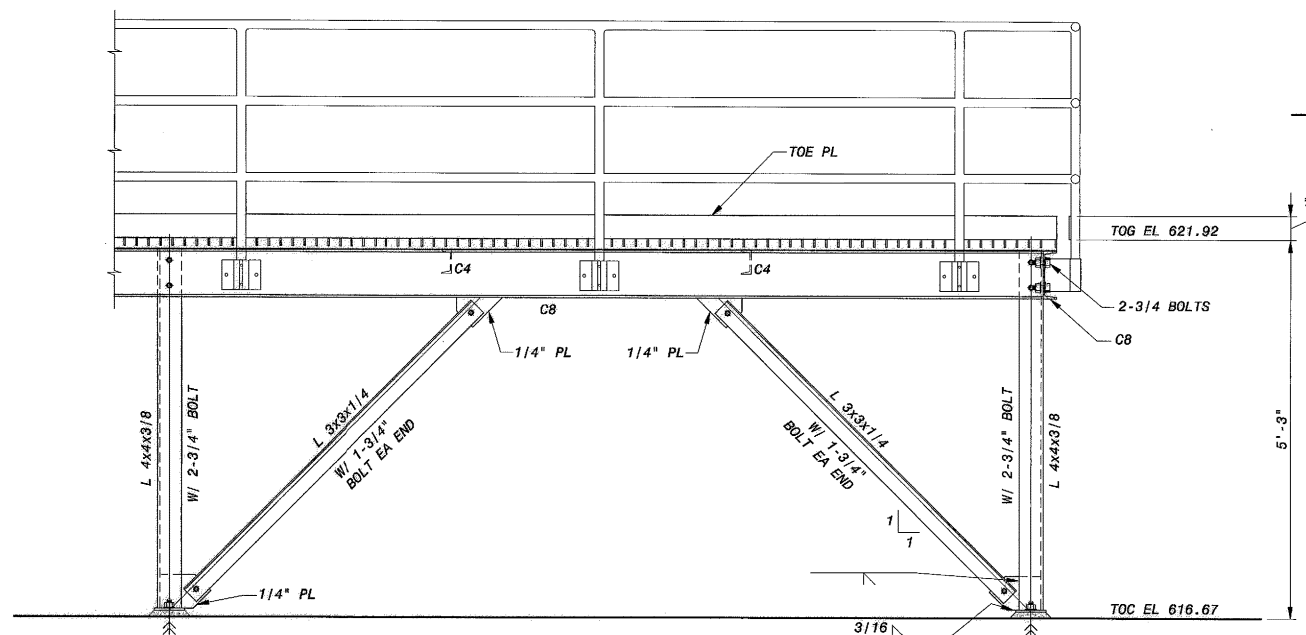
SECTION 8
3/4" = 1'-0" HS-11



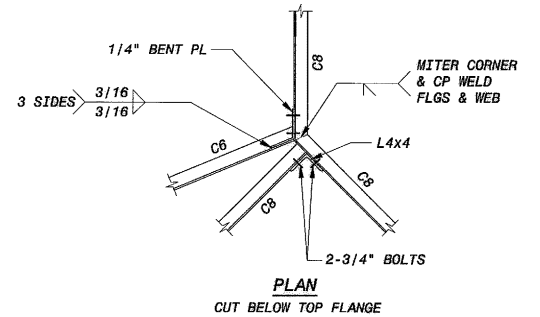
SECTION 4
3/4" = 1'-0" HS-11



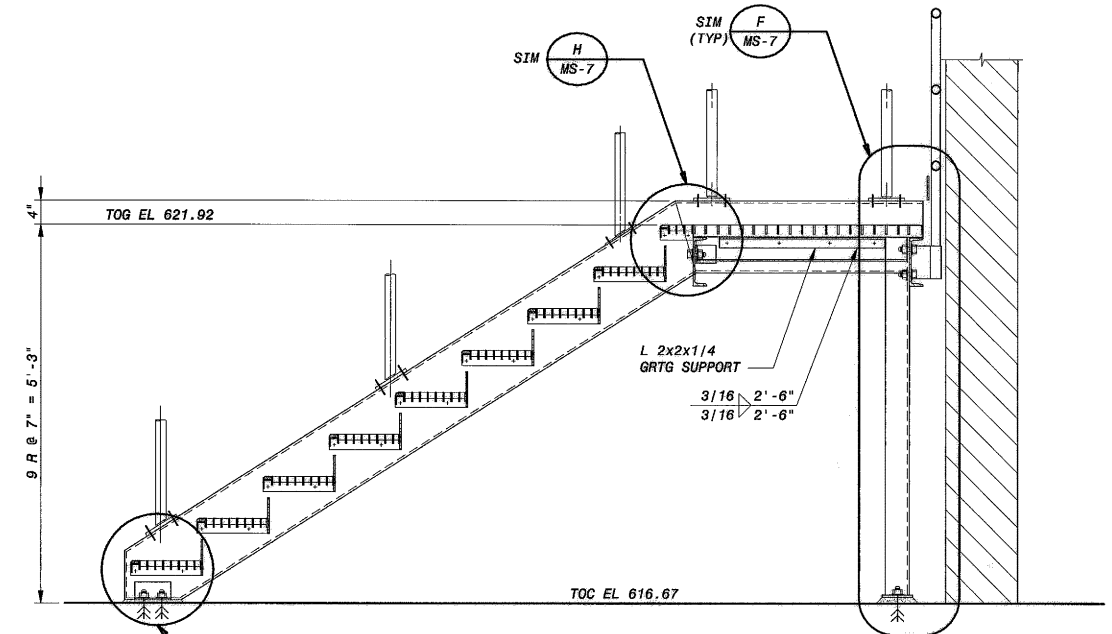
SECTION 5
3/4" = 1'-0" HS-11



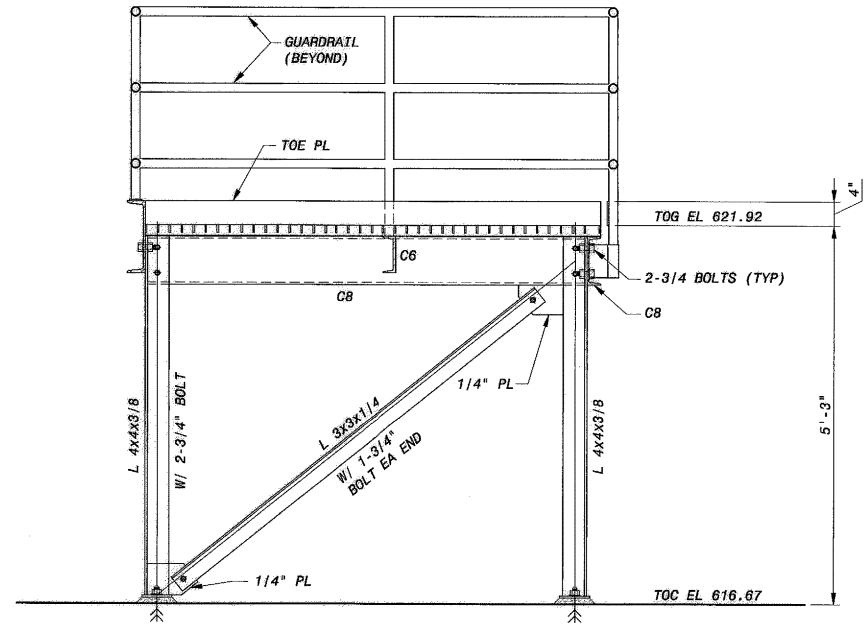
SECTION 9
3/4" = 1'-0" HS-11



DETAIL A
3/4" = 1'-0" HS-11



SECTION 6
3/4" = 1'-0" HS-11



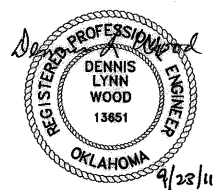
SECTION 7
3/4" = 1'-0" HS-11

NOTE:
SS FRAMING, ALUM GUARDRAIL, GRATING AND STAIRS

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
HEADWORKS BUILDING
STRUCTURAL
ACCESS PLATFORM SECTIONS AND DETAILS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

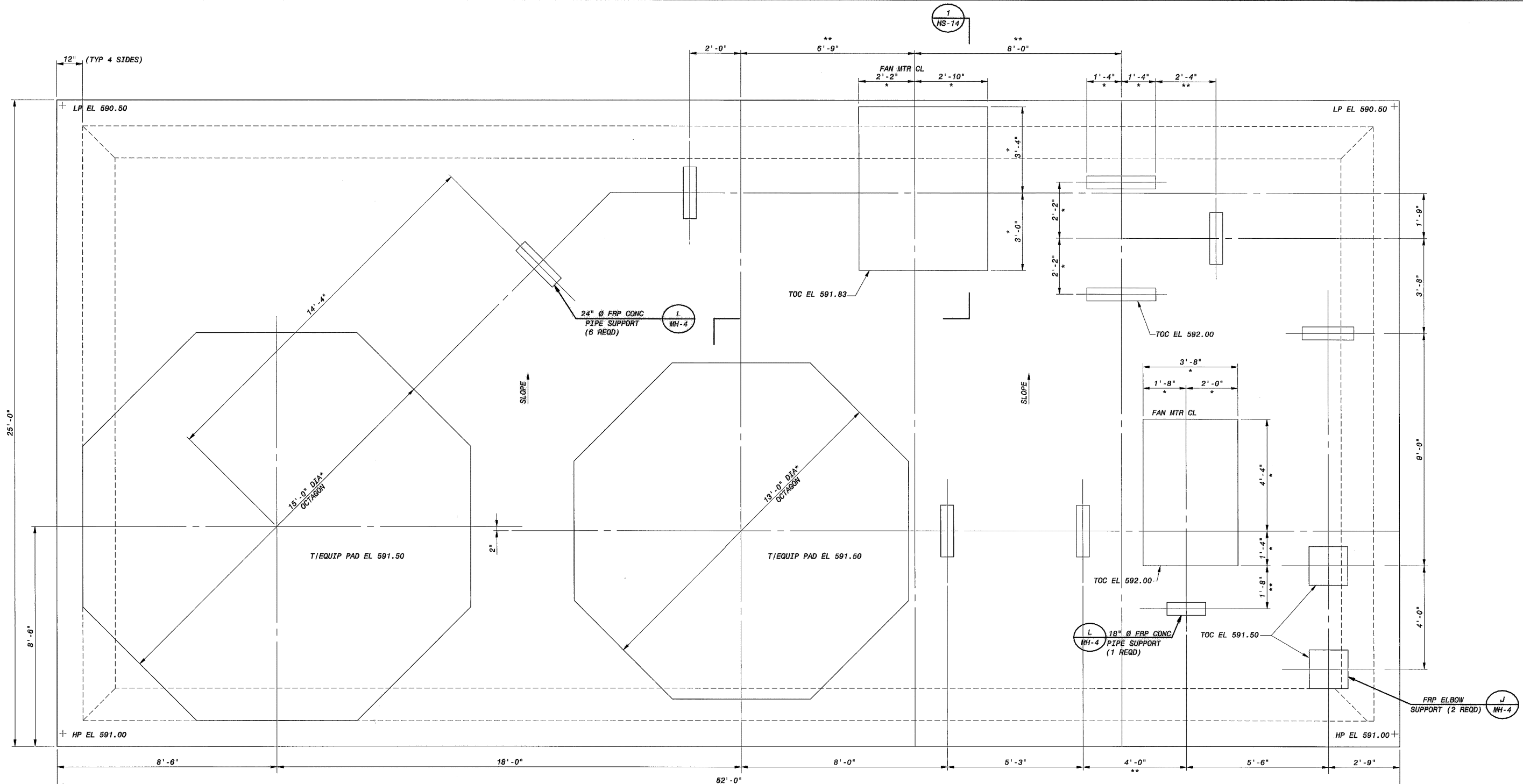
PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
Building a world of difference
Holloman, Updegraff and Batten
Consulting Engineers
Muskogee - Broken Arrow
OWGATES
Engineering Services

REVISION	BY	DATE	PLAN SCALE:	DRAWN	TSH	APPROVED:
			DESIGNED	KC		
			SURVEY			
			PROFILE SCALE:	FIELD MGR.	DS 10/11	
			HORIZONTAL:	SECT. MGR.	10/11	
			1" =	PROJ. MGR.	10/11	
			VERTICAL:	RECOMMENDED:	10/30/11	
			1" =			
			FILE: HS12.DWG	DRAWING: HS-12	DATE 10/28/2011	
			ATLAS PAGE NO:		SHEET 120 OF 261 SHEETS	



PLOTTED DATE: 04/20/11 2:58:44 PM
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FD-145120
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PLOTTED DATE: DAL53298, 6/10/2011 11:29:09 AM
 SAVED DATE: MCK02672, 9/21/2011 11:46:38 AM
 CYPNET ID: 145120-3000-S-B0000980



1
HS-14

PLAN
 1/2" = 1'-0"

- NOTES :
- * DENOTES DIMENSION TO BE DETERMINED BY EQUIPMENT FURNISHED.
 - ** COORDINATE DIMENSION WITH EQUIPMENT MFR.

LOWER BIRD WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
 HEADWORKS
 STRUCTURAL
 ODOR CONTROL PLAN
 CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

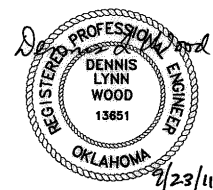
PLANS AND ESTIMATES PREPARED BY:

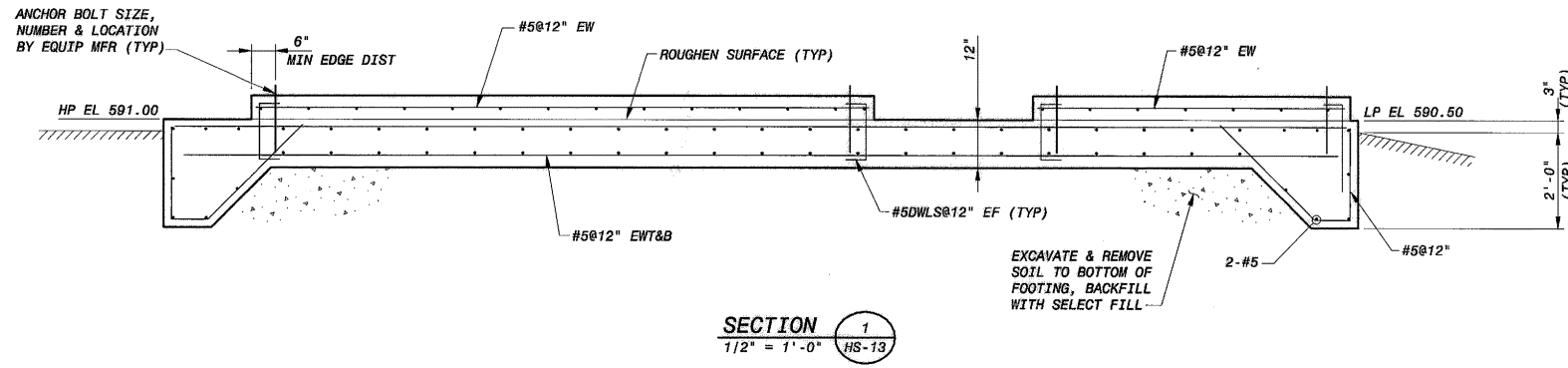
BLACK & VEATCH
 Building a world of difference

Holloway, Updike and Eaton
 Consulting Engineers
 Muskogee - Broken Arrow

DWIGATES
 Engineering
 Services

REVISION	BY	DATE	PLAN SCALE:	DRAWN	SDM	APPROVED:
			DESIGNED	DLW		
			SURVEY			
			PROFILE SCALE:	FIELD MGR.	TJL 10/11	
			HORIZONTAL:	SECT. MGR.		
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			1" =			
			FILE:	DRAWING: HS-13		DATE 10/28/2011
			ATLAS PAGE NO:			SHEET 121 OF 261 SHEETS





PLOTTED DATE: DAL53298_6/10/2011 11:28:47 AM
 SAVED DATE: MCK02672_9/21/2011 11:48:00 AM
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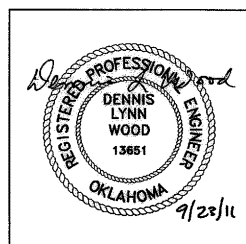
LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
 ODOR CONTROL
 STRUCTURAL
 EQUIP PAD- SECTION

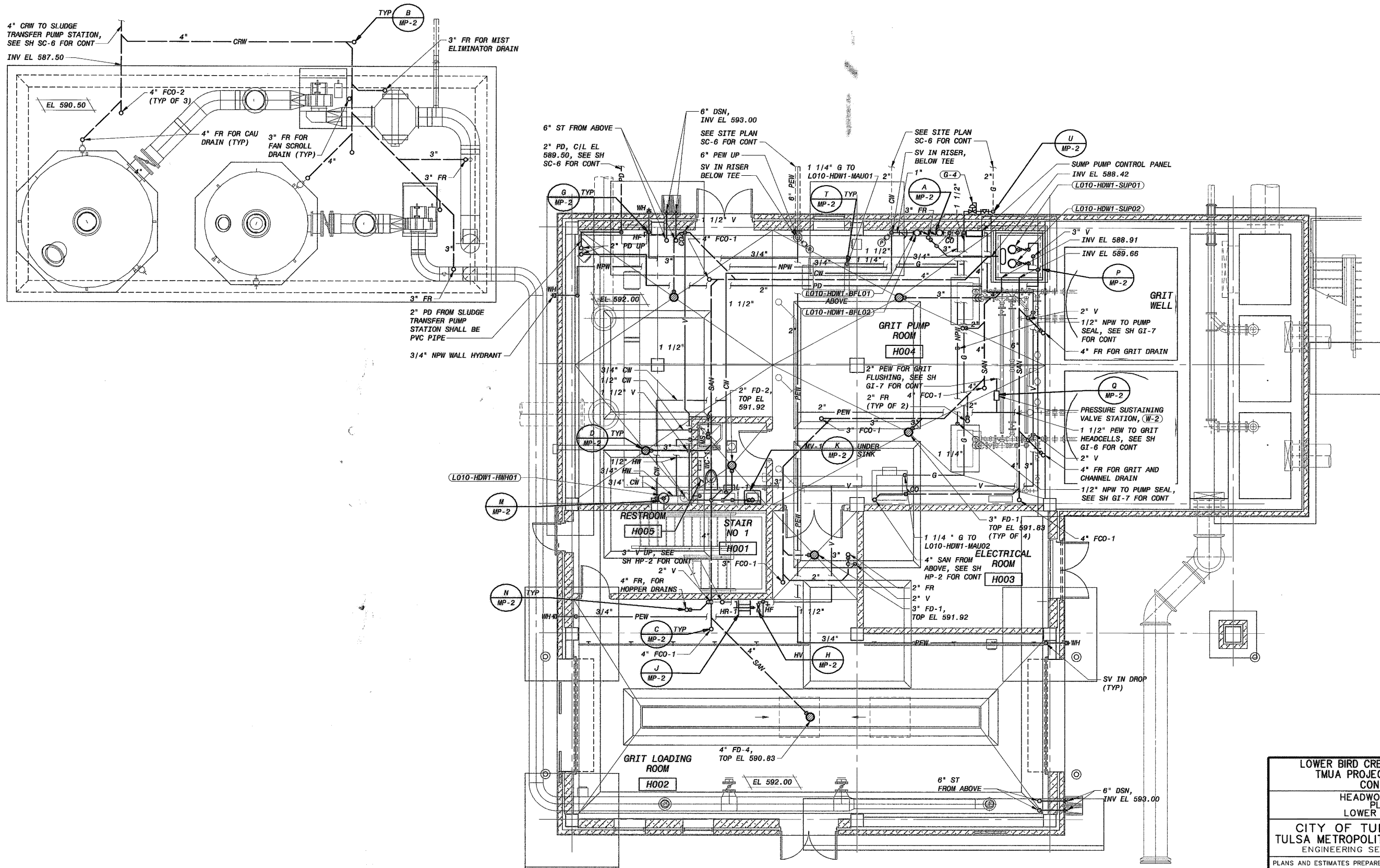
CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

Black & Veatch Corporation Kansas City, Missouri	Muller, Utz and Batten Consulting Engineers Muskegon - Broken Arrow	DVGATE Engineering Broken Arrow

REVISION	BY	DATE	PLAN SCALE:	DRAWN	SDM	APPROVED:
			DESIGNED	DLW		 DIRECTOR
			SURVEY			
			PROFILE SCALE:	FIELD MGR.	703 10/11	
			HORIZONTAL:	SECT. MGR.	200 10/11	
			VERTICAL:	PROJ. MGR.	200 10/11	
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			FILE:	DRAWING: HS-14	DATE 10/28/2011	
			ATLAS PAGE NO:		SHEET 122 OF 261 SHEETS	

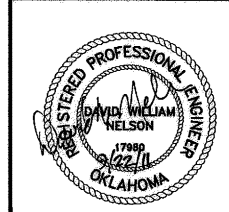




LOWER FLOOR PLAN
3/16" = 1'-0"

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
HEADWORKS BUILDING
PLUMBING
LOWER FLOOR PLAN
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

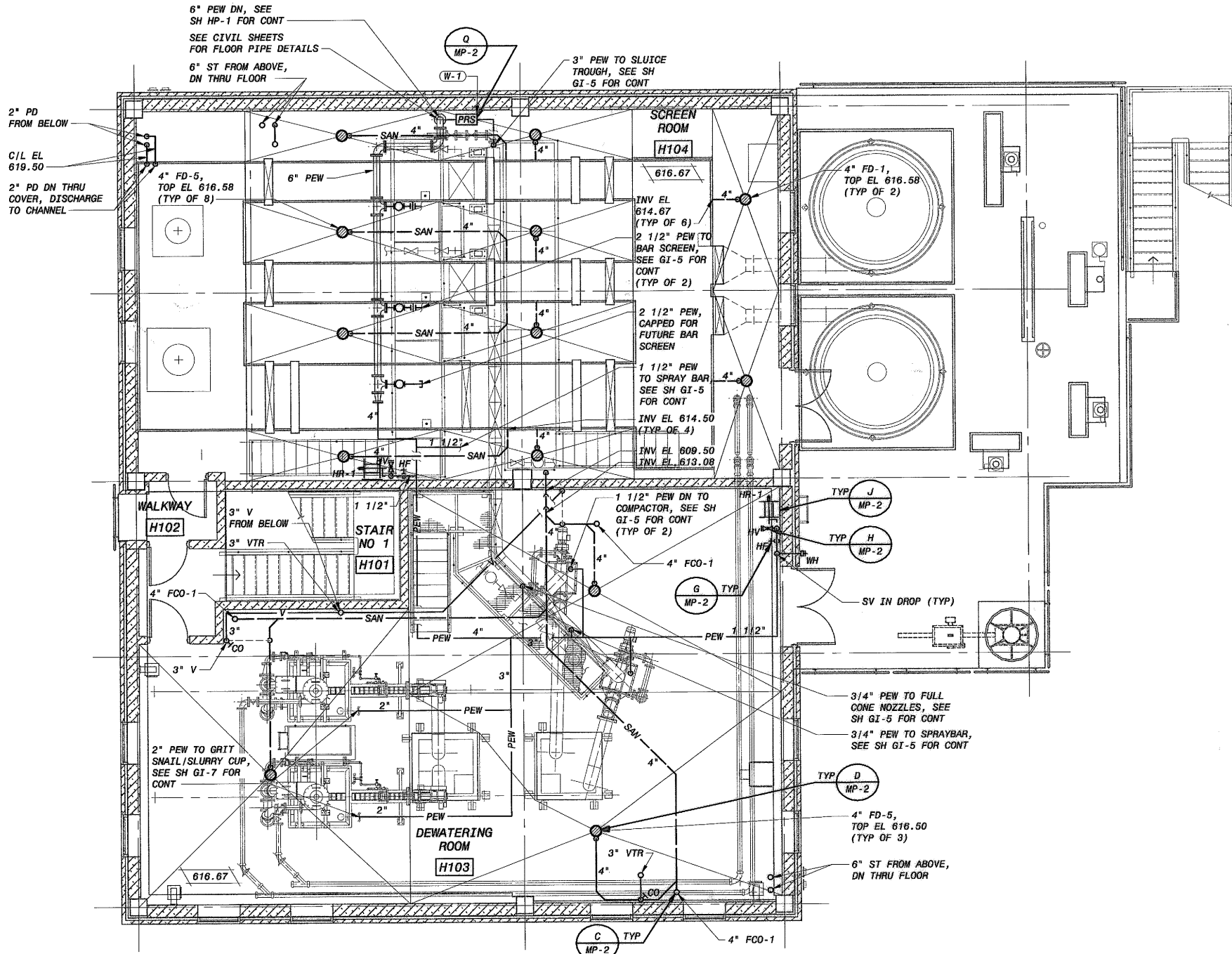
PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
Building a world of difference
Holloway, Utter and Drizin
Consulting Engineers
Marking - Decker Aron
ONGATES
Engineering Services



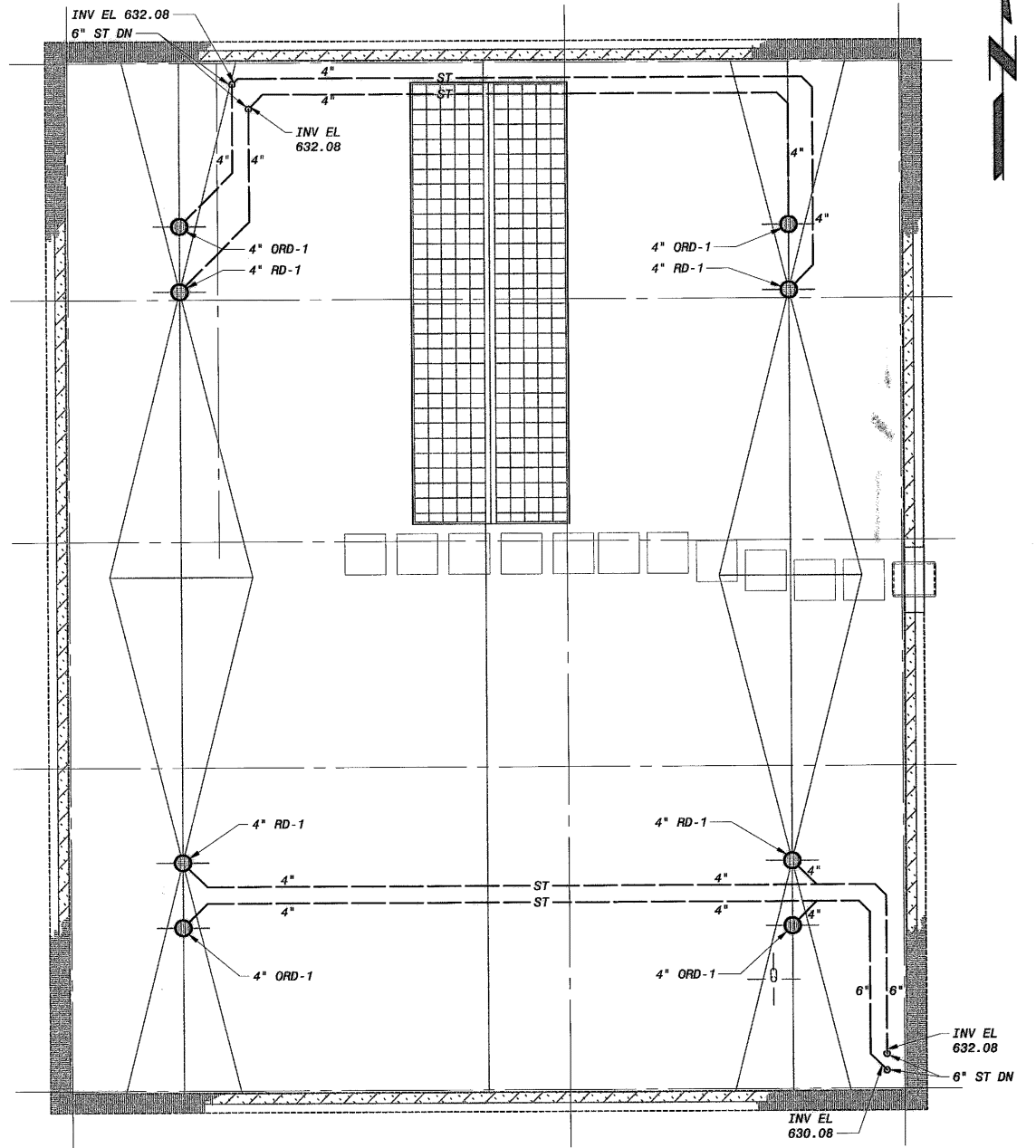
REVISION	BY	DATE

PLAN SCALE:	DRAWN	BDL	APPROVED:
3/16" = 1'-0"	DESIGNED	TRD	
	SURVEY		
PROFILE SCALE:	FIELD MGR.	TDS 10/11	
HORIZONTAL:	SECT. MGR.		
1" =	PROJ. MGR.	BV 10/11	
	RECOMMENDED:		
1" =	HAJ 10/11		
FILE: HP-01.DWG	DRAWING: HP-1	DATE 10/28/2011	
ATLAS PAGE NO:		SHEET 123 OF 261 SHEETS	

FD145120
D145120BY
PLOTTED DATE: 9/22/2011 5:45:43 AM, Batch Plot
SAVED DATE: 10/16/11 9:20/2011 8:24:03 AM
C:\NET ID: 145120-3000-PB-B0000100Z



OPERATING FLOOR PLAN
3/16" = 1'-0"



ROOF PLAN
3/16" = 1'-0"

PLOTTED DATE: 8/26/2011 5:47:08 AM Batch Plot
 SAVED DATE: 8/26/2011 9:20:01 AM 8:28:40 AM
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LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B

HEADWORKS BUILDING
 PLUMBING
 OPERATING FLOOR AND ROOF PLANS

CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH
 Building a world of difference
 Black & Veatch Corporation
 Kansas City, Missouri

HOLLOWAY, UPTON AND BELLIN
 Consulting Engineers
 Muskogee, Oklahoma Area

DWIGHTS
 Engineering Services

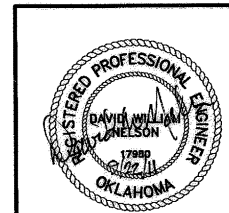
REVISION	BY	DATE

PLAN SCALE:	DRAWN	BDL	
3/16" = 1'-0"	DESIGNED	TRD	
PROFILE SCALE:	SURVEY		
HORIZONTAL:	FIELD MGR.	708	10/11
1" =	SECT. MGR.		
VERTICAL:	PROJ. MGR.		
1" =	RECOMMENDED:		

FILE: HP-02.DWG DRAWING: HP-2 DATE 10/28/2011

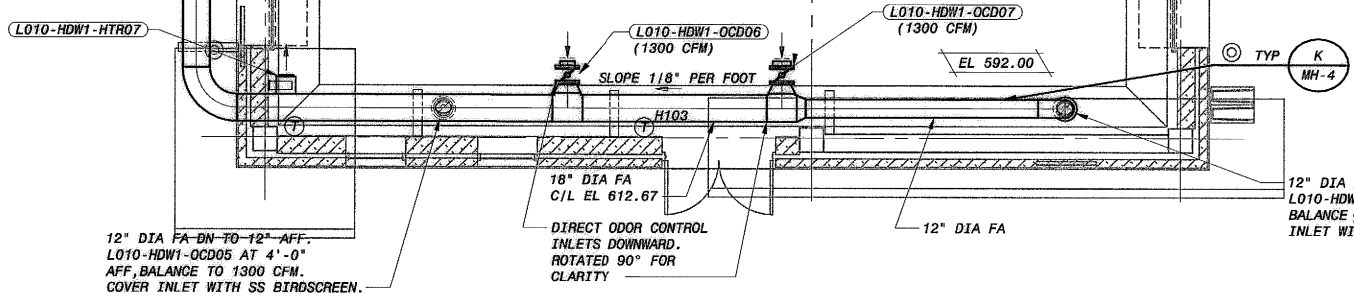
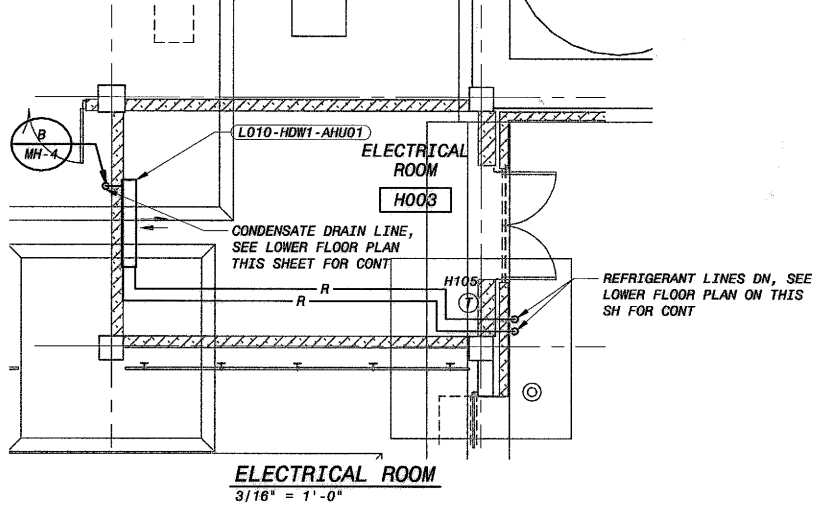
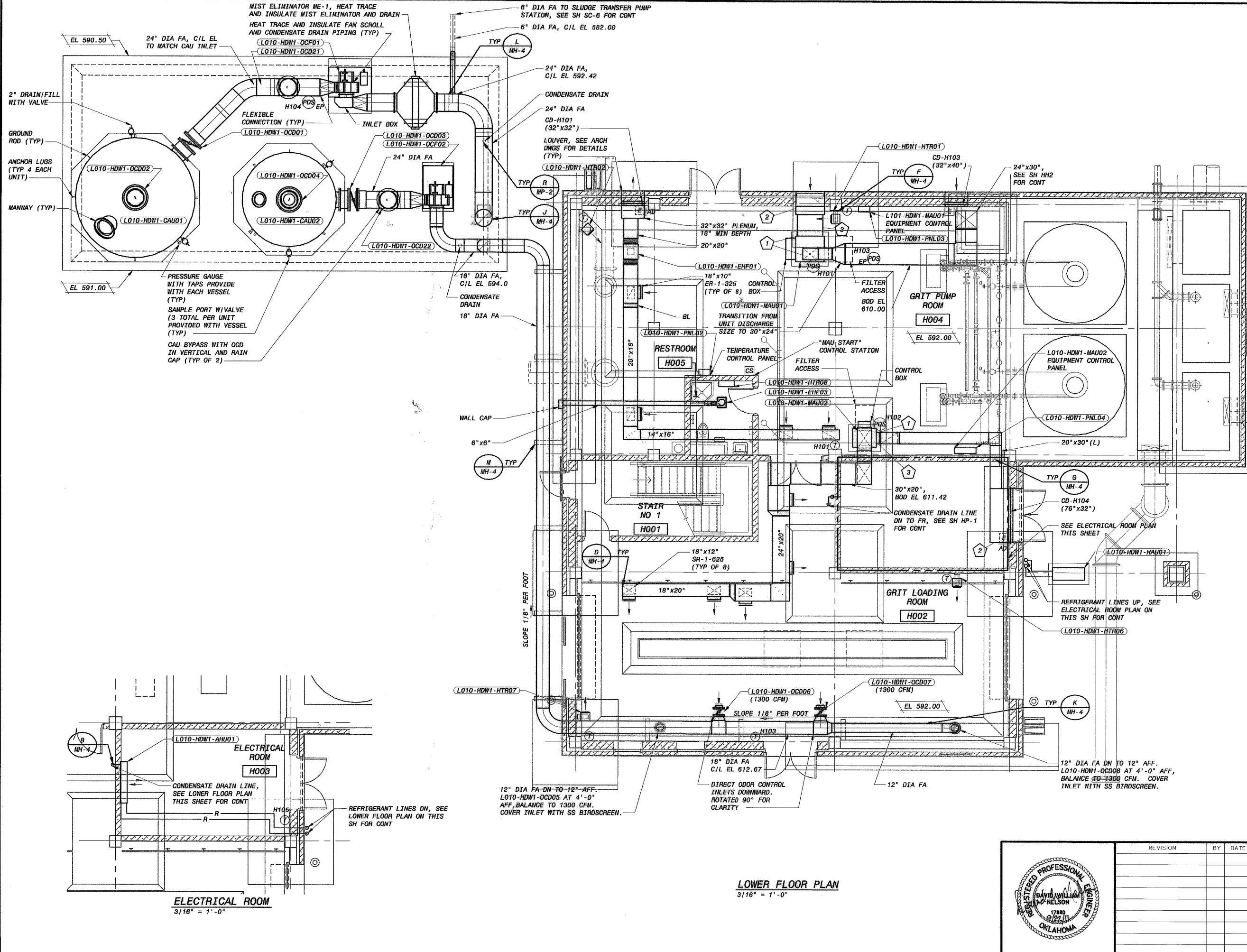
ATLAS PAGE NO: SHEET 124 OF 261 SHEETS

9-28-11 B&V PROJECT NO. 145120



[Signature]
DIRECTOR

- GENERAL NOTES:**
1. FA (FOUL AIR) DUCTING SHALL BE FRP PIPE.
 2. SEE ODOR CONTROL DAMPER SCHEDULE ON SH MH-2 FOR OCD AIRFLOW RATES.
 3. FRP PIPE SUPPORTS SHALL BE LOCATED AS PER SPEC 15140.
- PLAN NOTES:**
- 1 FLEXIBLE CONNECTION
 - 2 PLENUM BOX SHALL HAVE 1" INTERNAL DUCT LINER
 - 3 TRANSITION DUCT TO MATCH MAKEUP AIR UNIT INLET SIZE. DUCT SHALL HAVE 1" INTERNAL DUCT LINER.



LOWER FLOOR PLAN
3/16" = 1'-0"

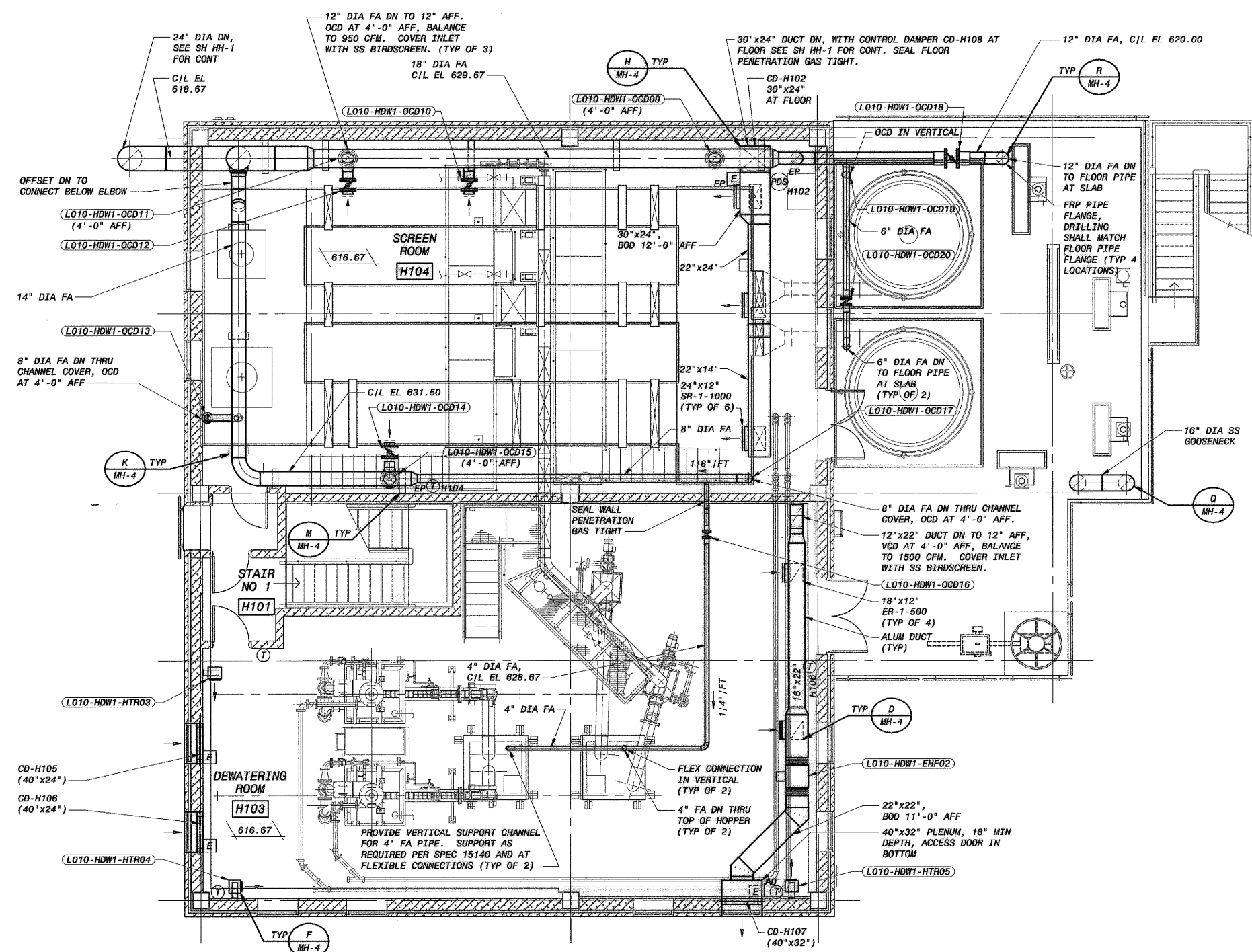
LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
 HEADWORKS BUILDING
 HVAC
 LOWER FLOOR PLAN
 CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
 Building a world of difference
 Consulting Engineers
 Mechanical - Structural - Electrical



REVISION	BY	DATE	PLAN SCALE:	DRAWN	BDL	APPROVED:
			3/16" = 1'-0"	DESIGNED	MM,TD	
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	Tbl jhl	
			HORIZONTAL:	SECT. MGR.		
			1" =	PROJ. MGR.	RBY 10/31/11	
			VERTICAL	RECOMMENDED:		
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			FILE: HH-01.DWG	DRAWING: HH-1		DATE 10/28/2011
			ATLAS PAGE NO:			SHEET 125 OF 261 SHEETS

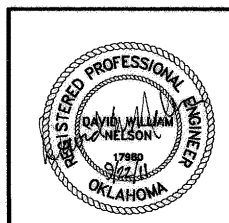
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 SAVED DATE: LOV16744, 9/20/2011 9:51:09 AM
 C:\NET ID: 145170-3000-H-500005273



- GENERAL NOTES:**
1. FA (FOUL AIR) DUCTING SHALL BE FRP PIPE.
 2. SEE ODOR CONTROL DAMPER SCHEDULE ON SH MH-2 FOR OCD FLOW RATE.
 3. FRP PIPE SUPPORTS SHALL BE LOCATED AS PER SPEC 15140.

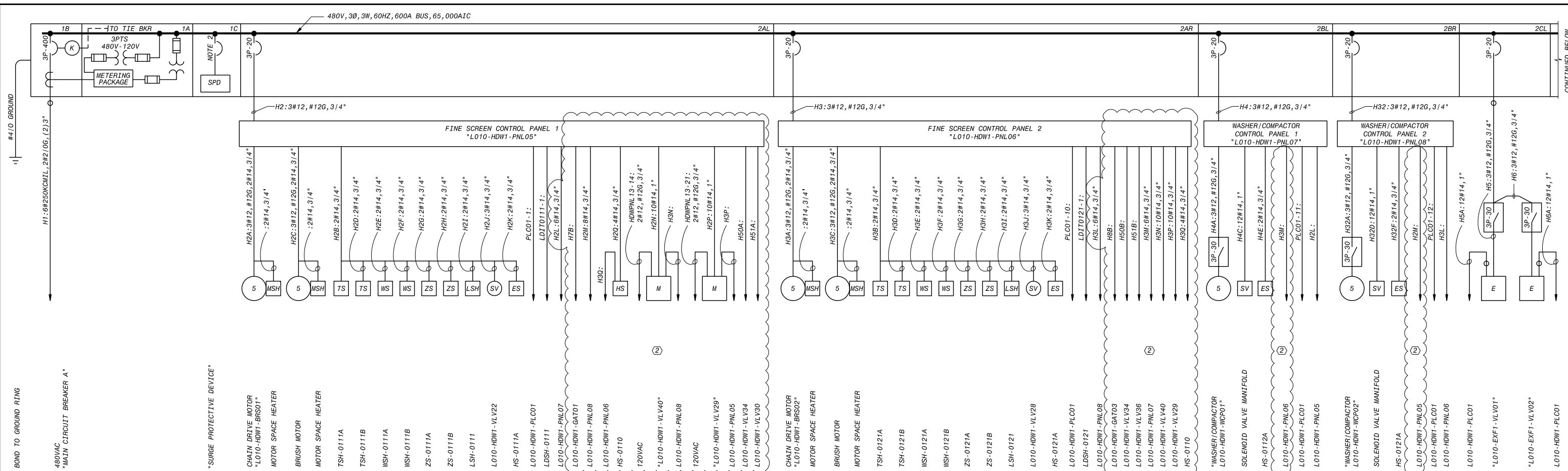
OPERATING FLOOR PLAN
3/16" = 1'-0"

<p>LOWER BIRD CREEK WWTP EXPANSION TMUA PROJECT NO. ES 2006-01 CONTRACT 1B</p>			
<p>HEADWORKS BUILDING HVAC OPERATING FLOOR PLAN</p>			
<p>CITY OF TULSA, OKLAHOMA TULSA METROPOLITAN UTILITY AUTHORITY ENGINEERING SERVICES DEPARTMENT</p>			
<p>PLANS AND ESTIMATES PREPARED BY:</p>			
<p>Black & Veatch Corporation Kansas City, Missouri</p>			
<p>PLAN SCALE:</p> <p>3/16" = 1'-0"</p>	<p>DRAWN</p> <p>DESIGNED</p> <p>SURVEY</p>	<p>BDL</p> <p>MM,TD</p>	<p>APPROVED:</p>
<p>PROFILE SCALE:</p> <p>HORIZONTAL:</p> <p>1" =</p>	<p>FIELD MGR.</p> <p>SECT. MGR.</p> <p>PROJ. MGR.</p>	<p>7/21 10/11</p> <p>10/13/11</p>	<p>DIRECTOR</p>
<p>VERTICAL</p> <p>1" =</p>	<p>RECOMMENDED:</p>	<p>10/30/11</p>	<p>DIRECTOR</p>
<p>FILE: HH-02.DWG</p> <p>ATLAS PAGE NO:</p>	<p>DRAWING: HH-2</p>	<p>DATE 10/28/2011</p>	<p>SHEET 126 OF 261 SHEETS</p>

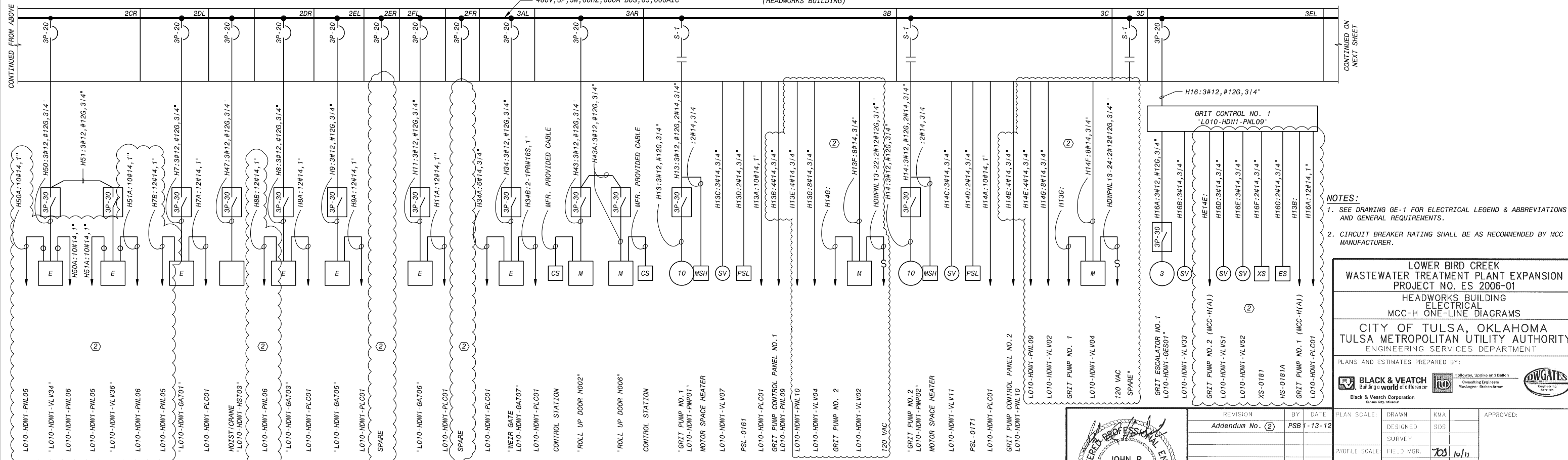


REVISION	BY	DATE

PLOTTED DATE: 9/22/2011 5:44:19 AM, Batch Plot
 SAVED DATE: LOV16744_9/20/2011 8:30:16 AM
 C:\NET ID: 145120-3000-H-8000057ZB



MCC-H(A) ONE-LINE DIAGRAM
(HEADWORKS BUILDING)



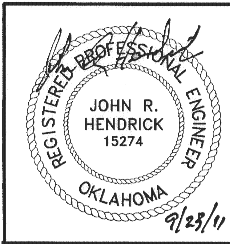
MCC-H(A) ONE-LINE DIAGRAM
(HEADWORKS BUILDING)

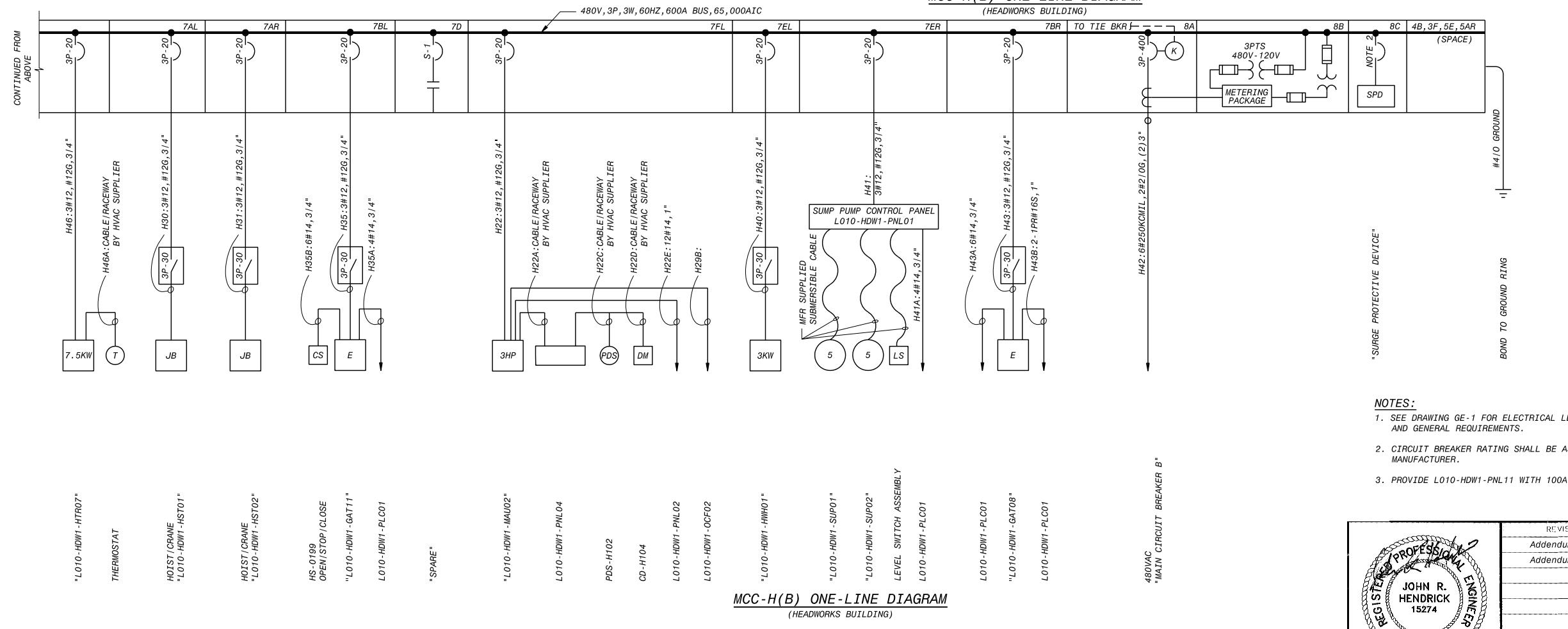
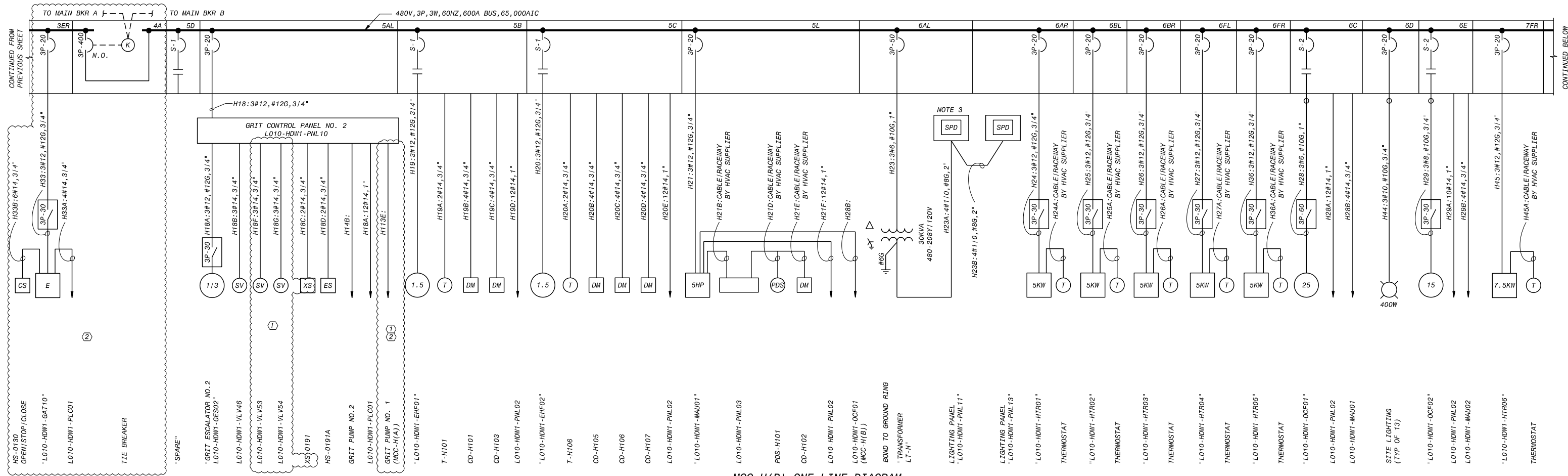
- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
 - CIRCUIT BREAKER RATING SHALL BE AS RECOMMENDED BY MCC MANUFACTURER.

LOWER BIRD CREEK
WASTEWATER TREATMENT PLANT EXPANSION
PROJECT NO. ES 2006-01
HEADWORKS BUILDING
ELECTRICAL
MCC-H ONE-LINE DIAGRAMS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

REVISION	BY	DATE	PLAN SCALE:	DRAWN	KMA	APPROVED:
Addendum No. ②	PSB	7-13-12		DESIGNED	SDS	
			PROFILE SCALE:	SURVEY		
			HORIZONTAL:	FILED MGR.	TSJ	10/11
			1" =	SEC. MGR.		
			VER. CAL:	PROL. MGR.	PSB	10/11
			1" =	RECOMMENDED:		
			FILE:			DIRECTOR
			ATLAS PAGE NO:	DRAWING: HE-1		DATE 10/26/2011
						SHEET 127 OF 261 SHEETS

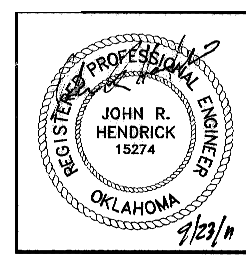




MCC-H FRONT ELEVATION
NO SCALE

1A	2AL	2AR	3AL	3AR	4A	5AL	5AR	6AL	6AR	7AL	7AR	8A
1B	2BL	2BR	3B			5B		6BL	6BR	7BL	7BR	8B
	2CL	2CR	3C			5C		6C		7C		
	2DL	2DR	3D			5D		6D		7D		
1C	2EL	2ER	3EL	3ER	4B	5E	6E	7EL	7ER	8C		
	2FL	2FR	3F			5FL	5FR	6FL	6FR	7FL	7FR	

- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
 - CIRCUIT BREAKER RATING SHALL BE AS RECOMMENDED BY MCC MANUFACTURER.
 - PROVIDE LO10-HDW1-PNL11 WITH 100A FEED THROUGH LUGS.



REVISION	BY	DATE
Addendum No. ①	PSB	1-6-12
Addendum No. ②	PSB	1-13-12

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

HEADWORKS BUILDING
ELECTRICAL
MCC-H ONE-LINE DIAGRAMS

CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

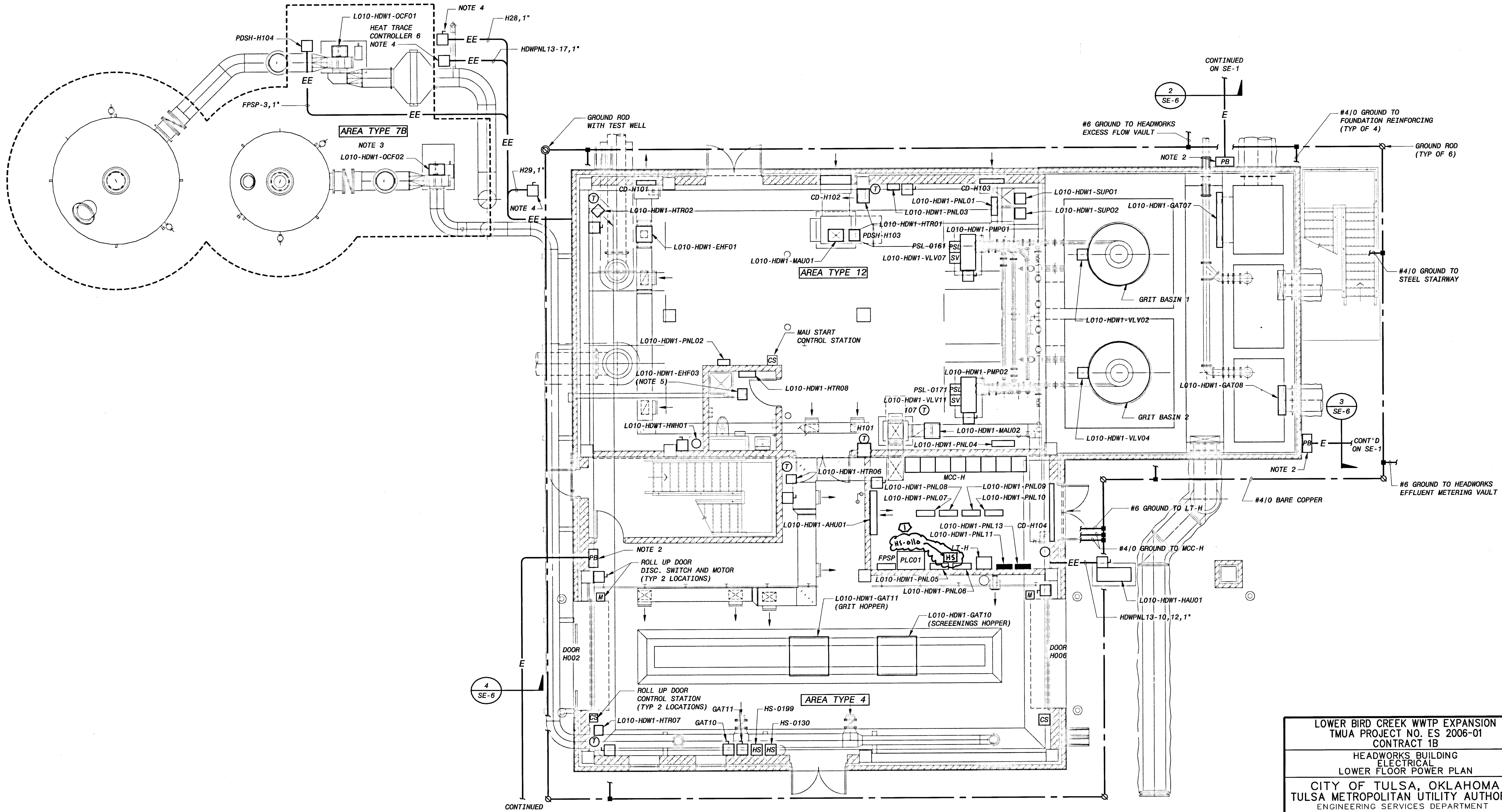
BLACK & VEATCH
Building a world of difference

HO
Consulting Engineers
Managing Broken Arrow

OKLAHOMA
Professional Engineer
John R. Hendrick
15274
9/23/11

PLAN SCALE:	DRAWN: XMA	APPROVED:
DESIGNED: SDS		
SURVEY:		
FIELD VGR: JDS 10/11		
SECT. MGR:		
PRJ. MGR: PSB 10/11		
RECOMMENDED:		
FILE:	DRAWING: HE-2	DATE: 10/28/2011
ATLAS PAGE NO:	SHEET 128 OF 261 SHEETS	

9-28-11 3&V PROJECT NO. 145120



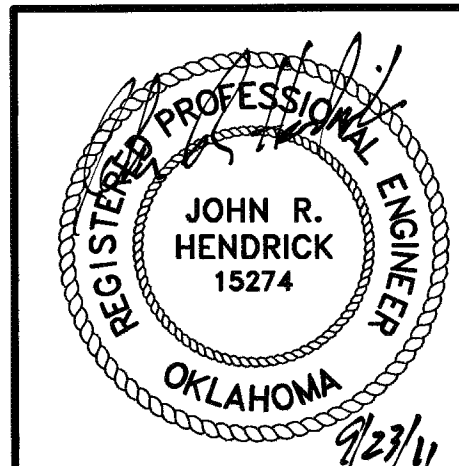
- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
 - TERMINATE SPARE CONDUITS AT PULL BOX.
 - ODOR CONTROL AREA SHALL BE CONSIDERED A CLASS I, DIVISION 2 AREA PER NFPA 820, TABLE 5.2, ROW 26B. EQUIPMENT & INSTALLATION WITHIN A 3 FOOT ENVELOPE OF POTENTIAL LEAKAGE SOURCES AS DEFINED BY NFPA 820 AND SHALL BE RATED FOR A CLASS I, DIVISION 2 AREA.
 - LOCATE ODOR CONTROL FAN DISCONNECTS AND HEAT TRACE CONTROLLER OUTSIDE OF THE CLASSIFIED AREA.
 - L010-HDW1-EHF03 SHALL BE INTERLOCKED WITH BATHROOM LIGHT SWITCH PER HVAC CONTROL DESCRIPTIONS.

LOWER FLOOR POWER PLAN
3/16" = 1'-0"

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
HEADWORKS BUILDING
ELECTRICAL
LOWER FLOOR POWER PLAN
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

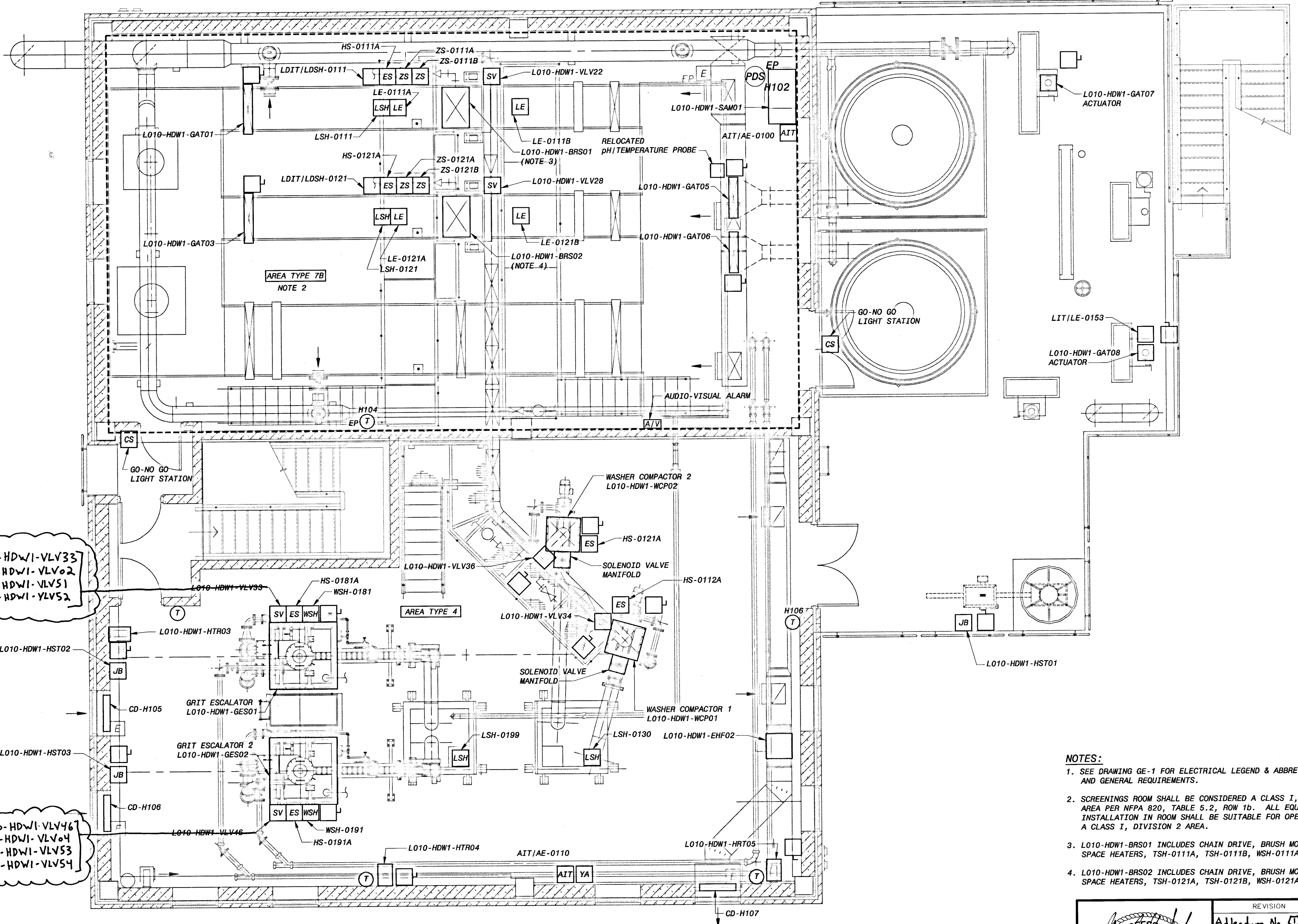
BLACK & VEATCH
Building a world of difference
Consulting Engineers
Managers - Broken Arrow
Engineering Services
Kansas City, Missouri



REVISION	BY	DATE
Attendum No. 1	PSB	1-6-12

PLAN SCALE:	DRAWN	KMA	APPROVED:
	DESIGNED	SDS	
	SURVEY		
PROFILE SCALE:	FIELD MGR.	JDS 10/11	
HORIZONTAL:	SECT. MGR.		
	PROJ. MGR.	26/10/11	
VERTICAL:	RECOMMENDED:	HAS 10/30/11	
FILE: HC-01.DWG	DRAWING: HE-3	DATE 10/28/2011	
ATLAS PAGE NO:		SHEET 129 OF 261 SHEETS	

PLOTTED DATE: DEVI2267, 5/26/2011 1:01:15 PM
 SAVED DATE: AND49974, 9/22/2011 9:23:02 AM
 C:\NET\ID: 145120-300-E-8000052\FE



L010-HDW1-VLV33
L010-HDW1-VLV02
L010-HDW1-VLV51
L010-HDW1-YLV52

L010-HDW1-VLV46
L010-HDW1-VLV04
L010-HDW1-VLV53
L010-HDW1-VLV54

- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
 - SCREENINGS ROOM SHALL BE CONSIDERED A CLASS I, DIVISION 2 AREA PER NFPA 820, TABLE 5.2, ROW 1b. ALL EQUIPMENT AND INSTALLATION IN ROOM SHALL BE SUITABLE FOR OPERATION IN A CLASS I, DIVISION 2 AREA.
 - L010-HDW1-BRS01 INCLUDES CHAIN DRIVE, BRUSH MOTOR, MOTOR SPACE HEATERS, TSH-0111A, TSH-0111B, WSH-0111A, & WSH-0111B.
 - L010-HDW1-BRS02 INCLUDES CHAIN DRIVE, BRUSH MOTOR, MOTOR SPACE HEATERS, TSH-0121A, TSH-0121B, WSH-0121A, & WSH-0121B.

OPERATING FLOOR POWER PLAN
1/4" = 1'-0"

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

HEADWORKS BUILDING
ELECTRICAL
OPERATING FLOOR POWER PLAN

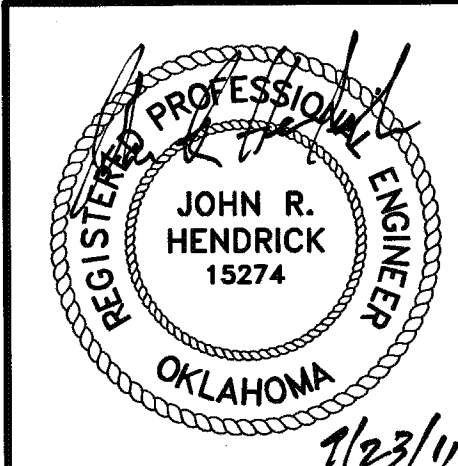
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH Consulting Engineers
Building a world of difference
Kansas City, Missouri

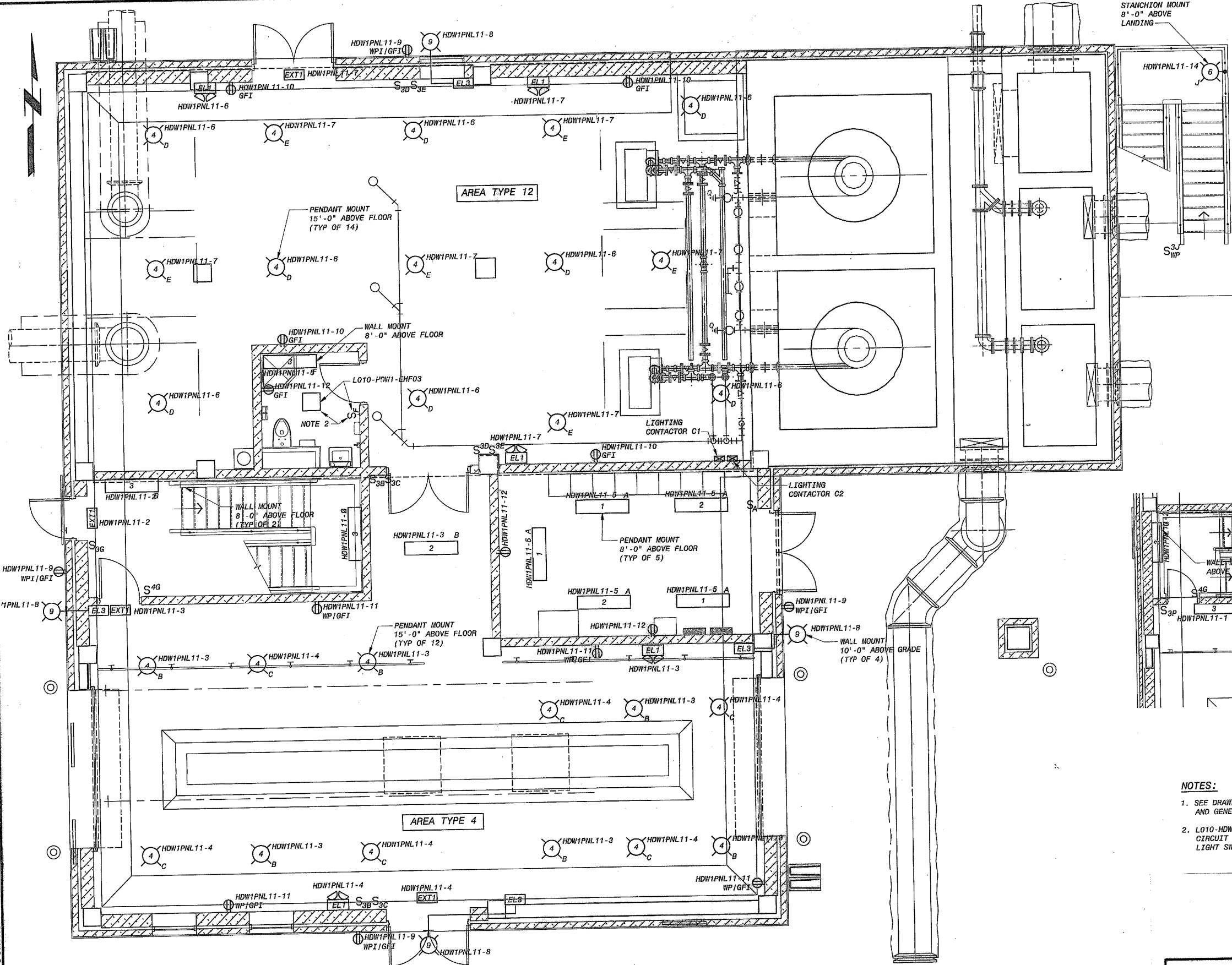
Holloway, Updike and Bolton
Consulting Engineers
Muskegon - Broken Arrow
Engineering Services

DWGATES
Engineering Services



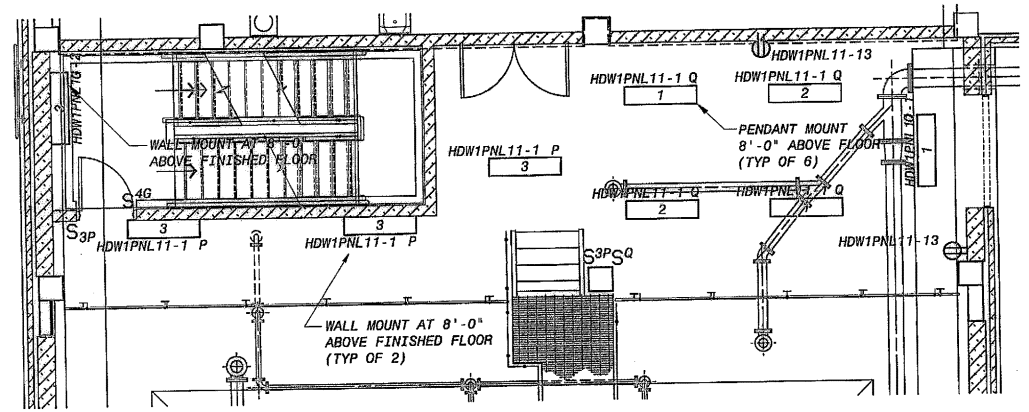
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			ATLAS PAGE NO:			SHEET 130 OF 261 SHEETS

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LOWER FLOOR LIGHTING PLAN
1/4" = 1'-0"

STANCHION MOUNT
8'-0" ABOVE
LANDING



INTERMEDIATE FLOOR LIGHTING PLAN
3/16" = 1'-0"

- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
 - L010-HDW1-EHF03 SHALL BE POWERED FROM L010-HDW1-PNL13 CIRCUIT #8, VIA 2#12, #12G, 3/4" AND CONTROLLED BY THE LIGHT SWITCH.

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

HEADWORKS BUILDING
ELECTRICAL
LOWER FLOOR LIGHTING PLAN

CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

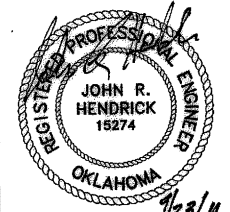
PLANS AND ESTIMATES PREPARED BY:

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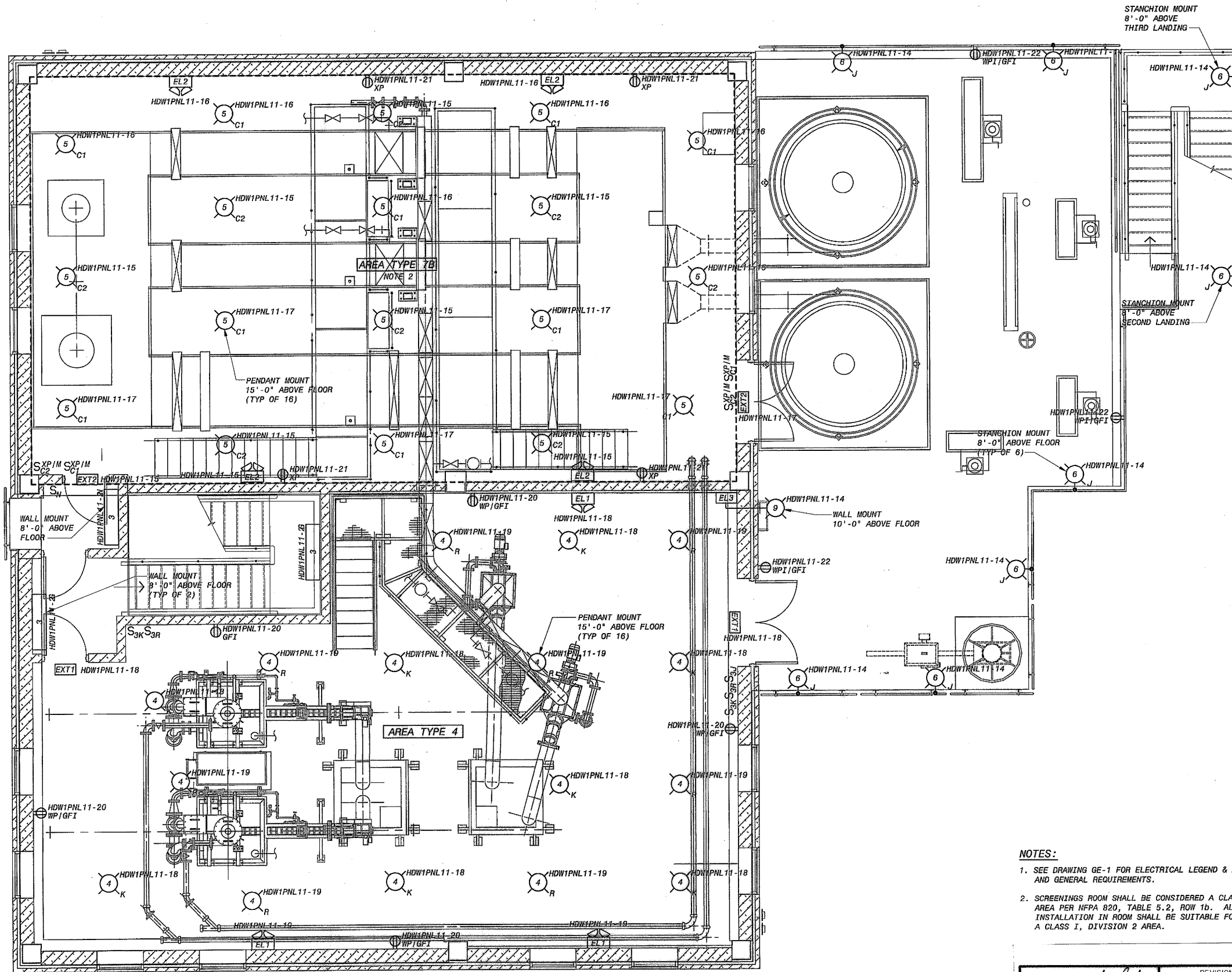
UD
Holloway, Urdahl and Gustin
Consulting Engineers
Multiple - Broken Arrow

INGATE
Engineering Services

REVISION	BY	DATE	PLAN SCALE:	DRAWN	KMA	APPROVED:
				DESIGNED	SDS	
				SURVEY		
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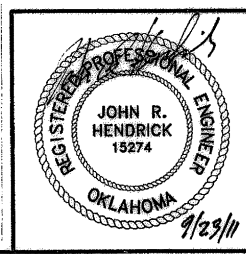


OPERATING FLOOR LIGHTING PLAN
1/4" = 1'-0"

- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
 - SCREENINGS ROOM SHALL BE CONSIDERED A CLASS I, DIVISION 2 AREA PER NFPA 820, TABLE 5.2, ROW 1b. ALL EQUIPMENT AND INSTALLATION IN ROOM SHALL BE SUITABLE FOR OPERATION IN A CLASS I, DIVISION 2 AREA.

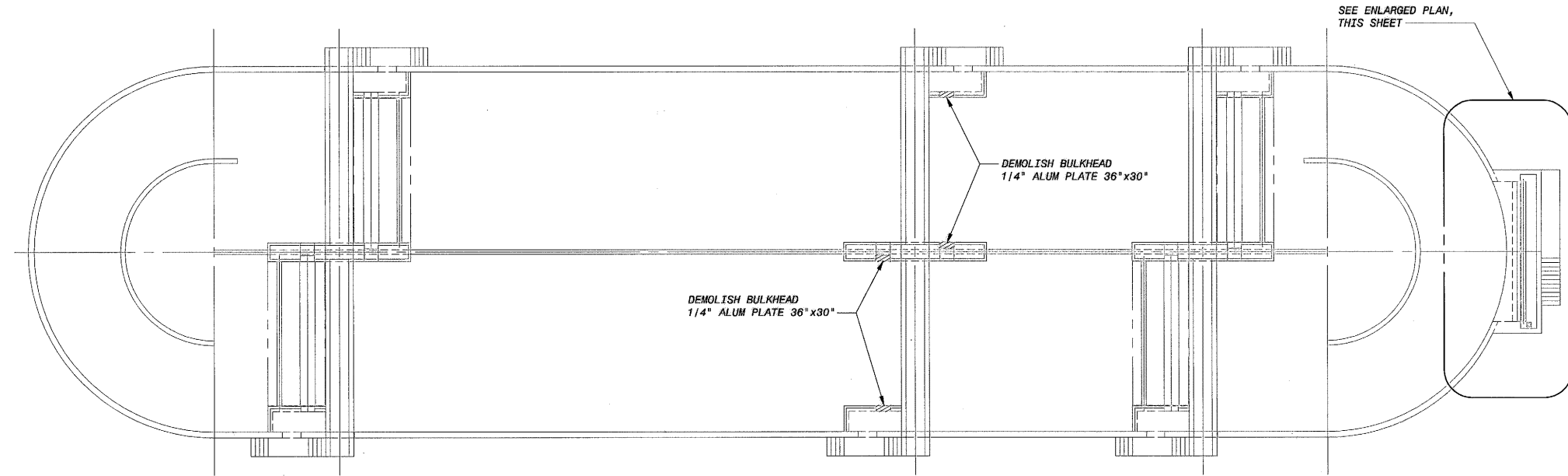
LOWER BIRD CREEK WWP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
HEADWORKS BUILDING
ELECTRICAL
OPERATING FLOOR LIGHTING PLAN
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
Building a world of difference.
Holloway, Udell and Stettin
Consulting Engineers
Mulliken, Strickland and
Burrows
Engineering Architects

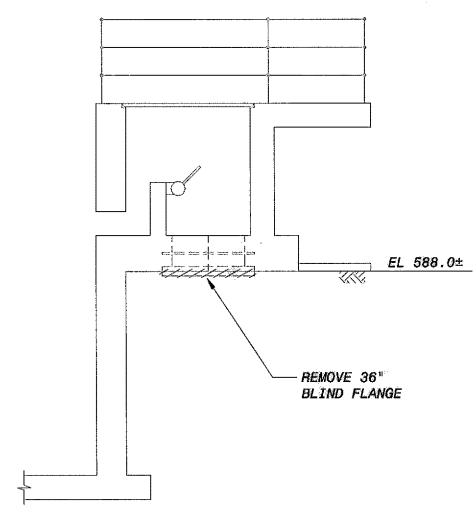


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			VERTICAL:	PROJ. MGR.	260 10/11	
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			ATLAS PAGE NO:			DIRECTOR

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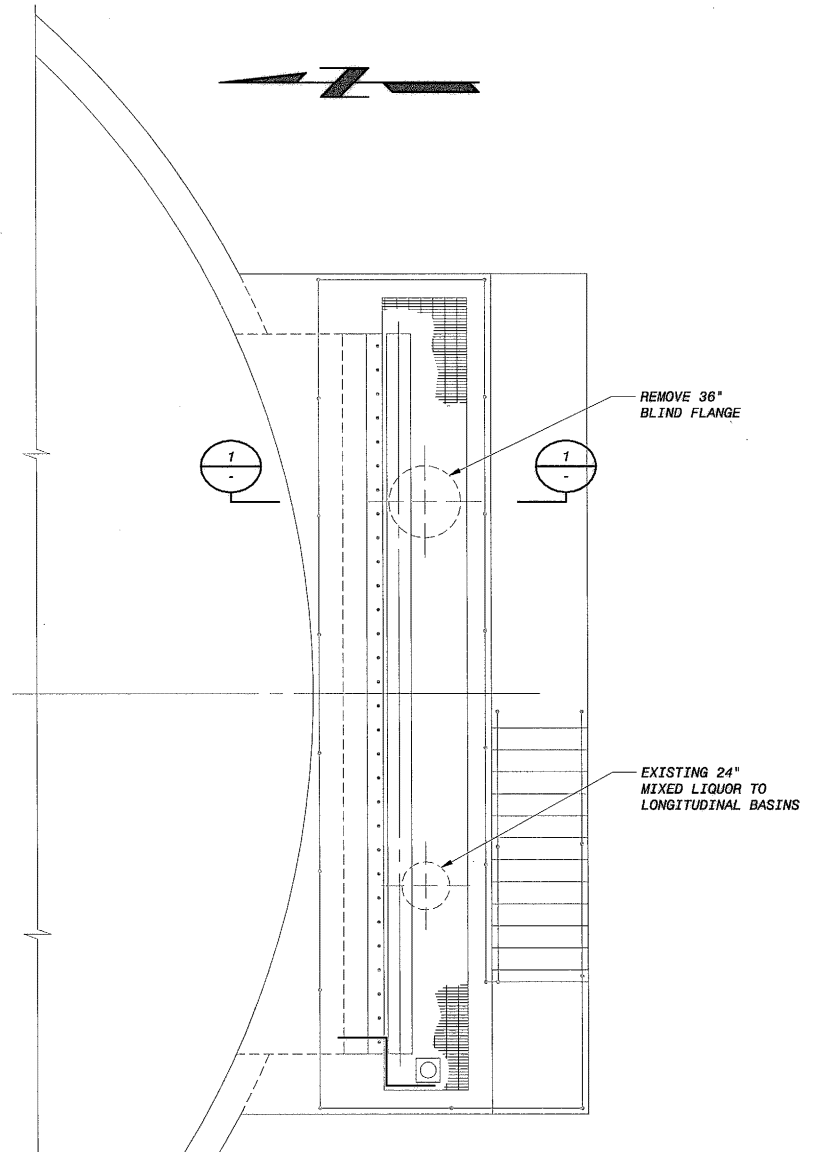


PLAN
1/16" = 1'-0"



SECTION 1
1/4" = 1'-0"

SEE ENLARGED PLAN,
THIS SHEET



ENLARGED PLAN - EL 593.00
1/4" = 1'-0"

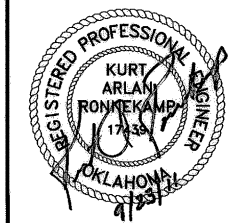
NOTES:
1. GRATING NOT ENTIRELY SHOWN FOR CLARITY.

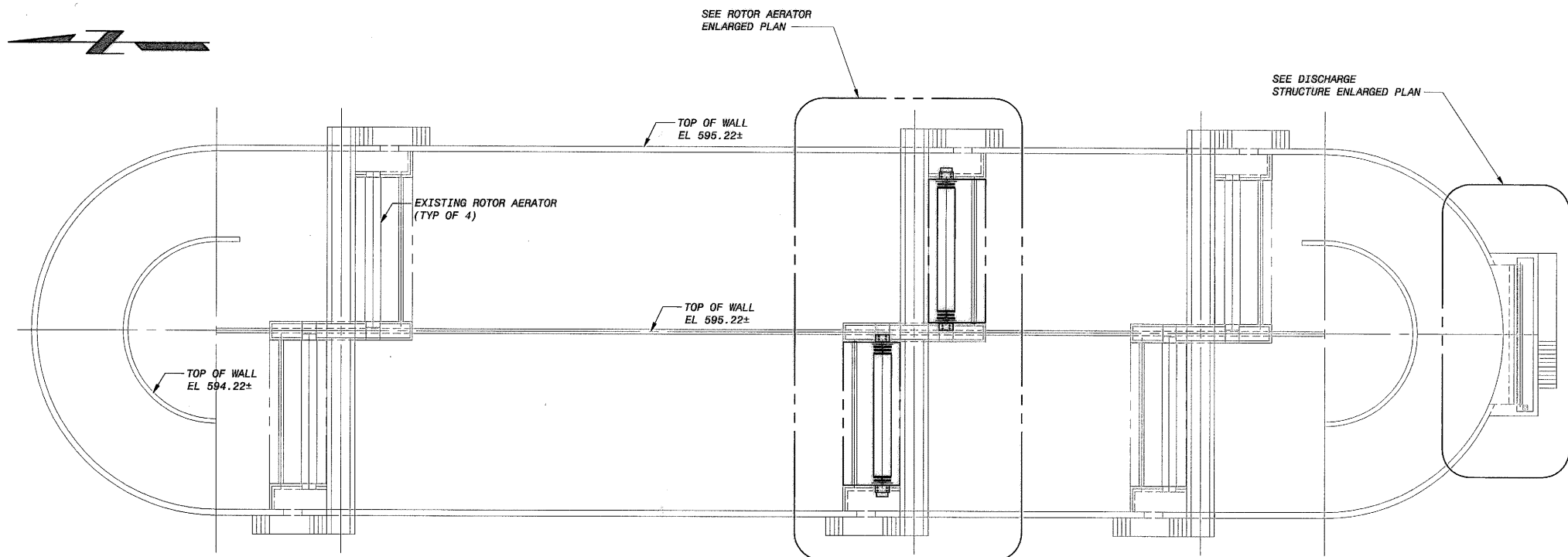
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LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
 OXIDATION DITCH AND LONGITUDINAL BASIN
 CIVIL/STRUCTURAL
 DEMOLITION PLANS AND SECTIONS
 CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

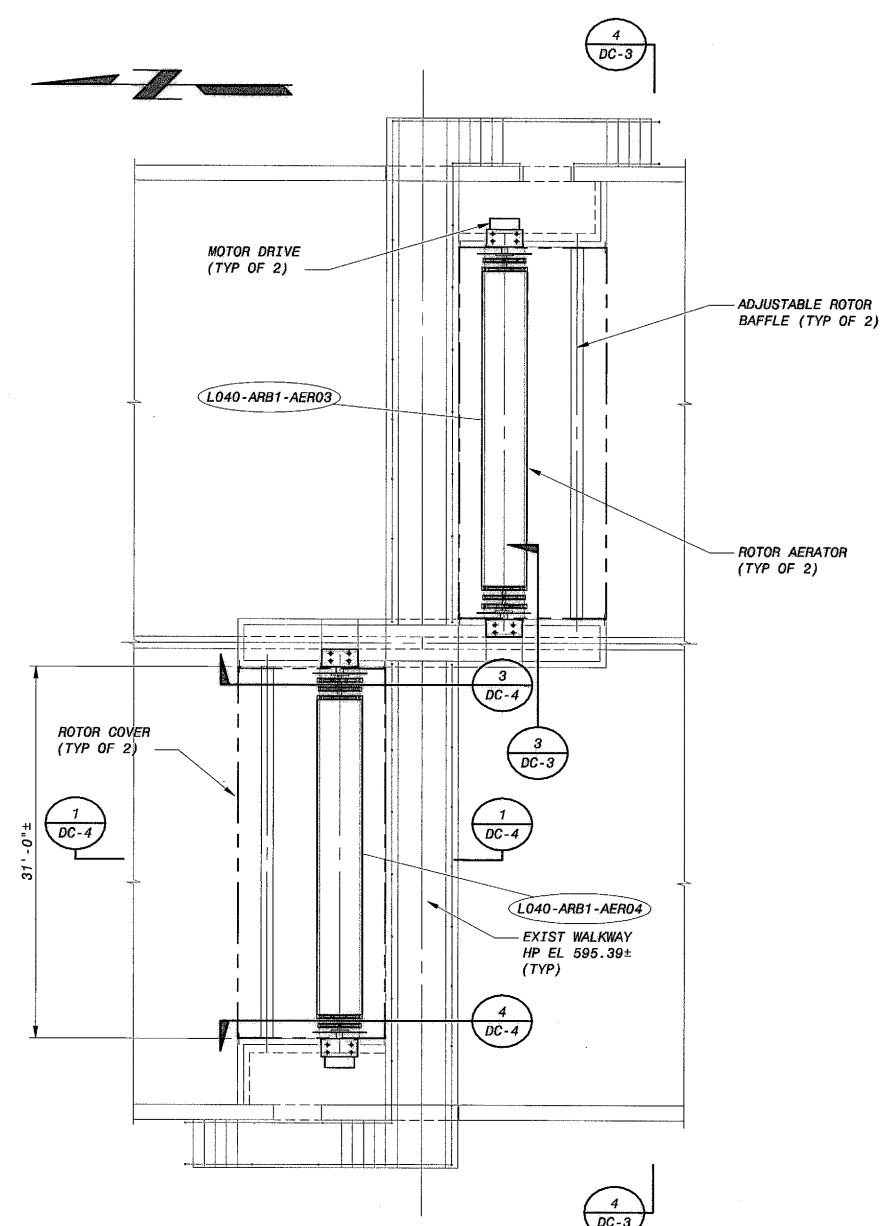
PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH   
 Building a world of difference
 Consulting Engineers
 Managing - Broken Arrow
 Black & Veatch Corporation
 Kansas City, Missouri

REVISION	BY	DATE	PLAN SCALE:	DRAWN	JKS	APPROVED:
				DESIGNED	CAC	
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	708 10/11	
			HORIZONTAL:	SECT. MGR.		
			1" =	PROJ. MGR.	EEB 10/11/11	
			VERTICAL	RECOMMENDED:	148 10/30/11	
			1" =	FILE:	DRAWING-DC-1	DATE 10/28/2011
			ATLAS PAGE NO:			SHEET 133 OF 261 SHEETS

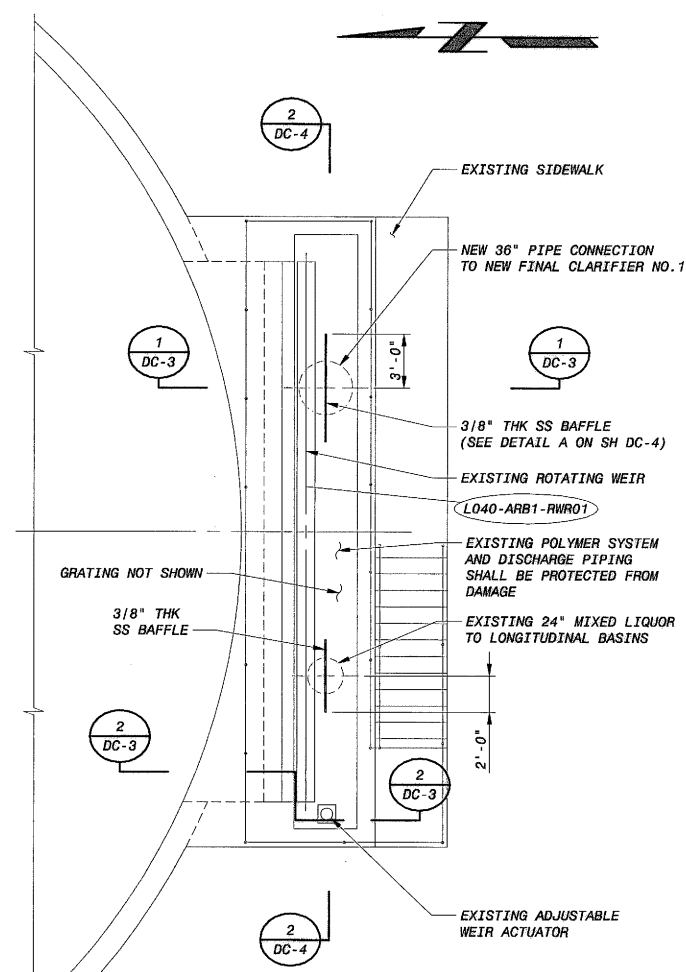




PLAN
1/16" = 1'-0"



ROTOR AERATOR ENLARGED PLAN
1/8" = 1'-0"



DISCHARGE STRUCTURE ENLARGED PLAN
3/16" = 1'-0"

NOTES:
1. DURING INSTALLATION OF THE TWO NEW ROTOR AERATORS, THE OXIDATION DITCH SHALL BE DRAINED. THE EXCESS GRIT AND SCREENINGS IN THE BOTTOM OF THE OXIDATION DITCH SHALL BE REMOVED.

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

OXIDATION DITCH AND LONGITUDINAL BASIN
CIVIL/STRUCTURAL
PLANS

CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

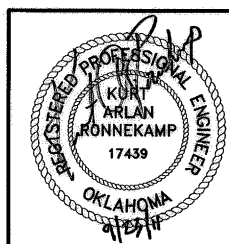
PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH Building a World of Difference
Kurt Arlan Ronnekamp
17439

Holloway, Updegraff and Beilan
Consulting Engineers
Mokeye - Broken Arrow

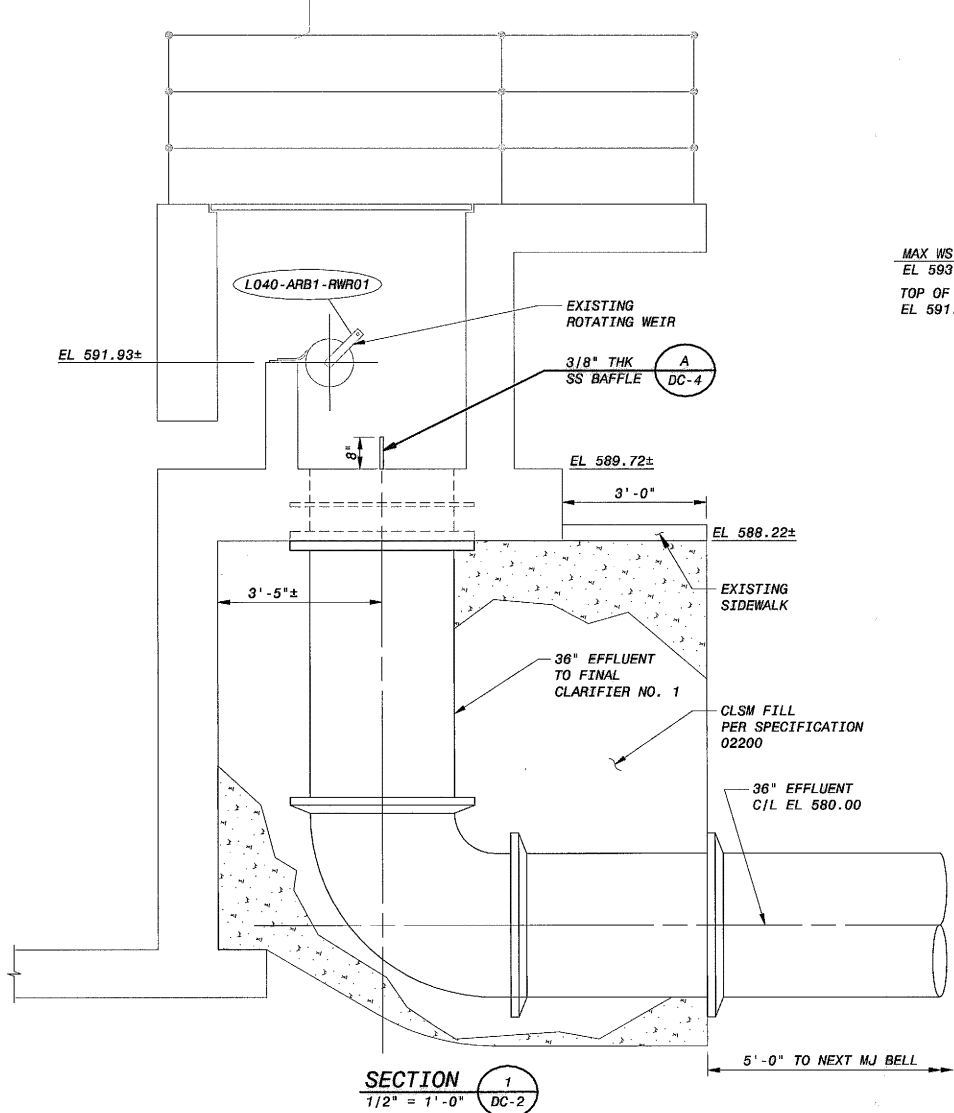
INGATES
Engineering Services

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	SURVEY		
PROFILE SCALE:	FIELD MGR.	708 10/11	
HORIZONTAL:	SECT. MGR.	26 10/3/11	
1" =	PROJ. MGR.		
VERTICAL:	RECOMMENDED:		
1" =			
FILE:	DRAWING: DC-2	DATE 10/26/2011	
ATLAS PAGE NO:		SHEET 134 OF 261 SHEETS	

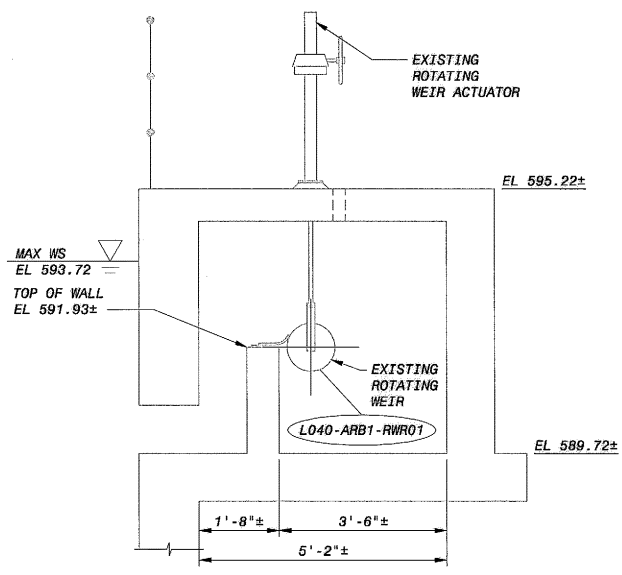


REVISION	BY	DATE

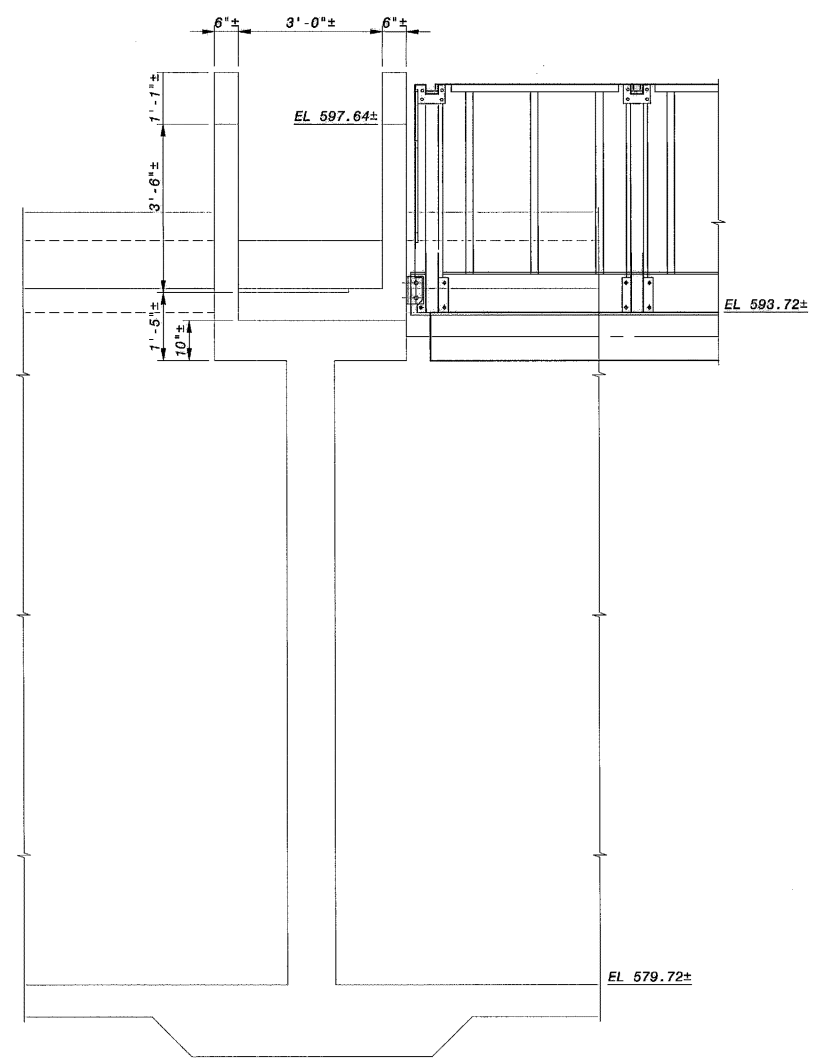
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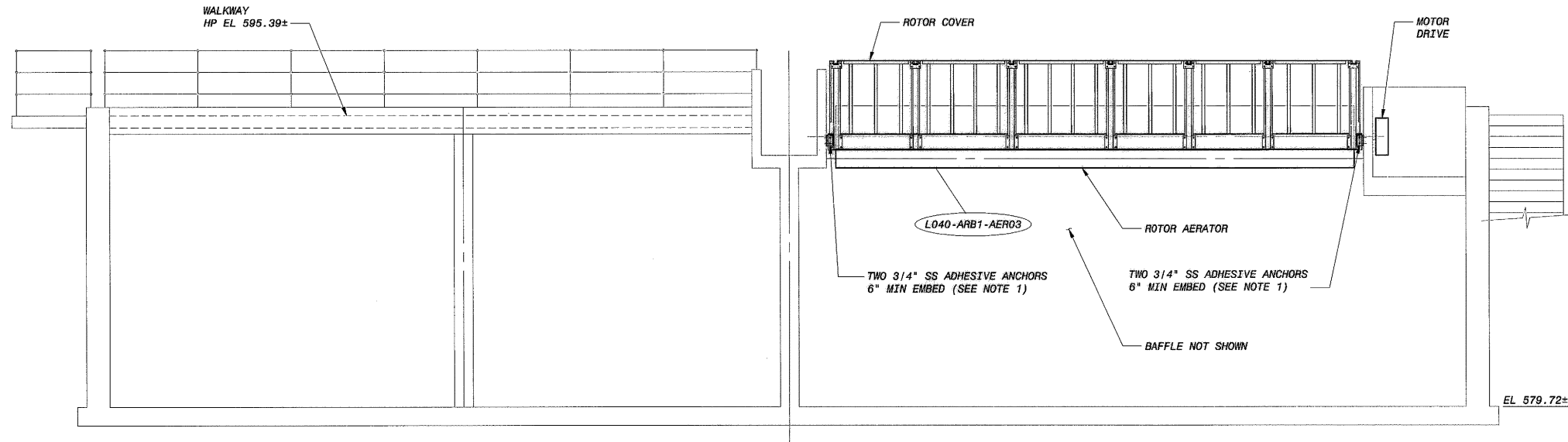
SECTION 1
1/2" = 1'-0" DC-2



SECTION 2
1/2" = 1'-0" DC-2



SECTION 3
1/2" = 1'-0" DC-2



SECTION 4
1/4" = 1'-0" DC-2

NOTES:
1. ADHESIVE ANCHORS CONNECT COVER TO CONCRETE STRUCTURE.

NOTES:
1. LOCATION OF ADJUSTABLE ROTOR BAFFLE FROM CENTERLINE OF ROTOR AERATOR NEEDS TO BE COORDINATED WITH ROTOR MANUFACTURER.
2. ROTOR AERATOR SHALL BE ATTACHED USING ADHESIVE ANCHORS TO EXISTING CONCRETE. EXPANSION ANCHORS SHALL NOT BE USED.

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
OXIDATION DITCH AND LONGITUDINAL BASIN
CIVIL/STRUCTURAL
SECTIONS AND DETAILS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
Building a world of difference

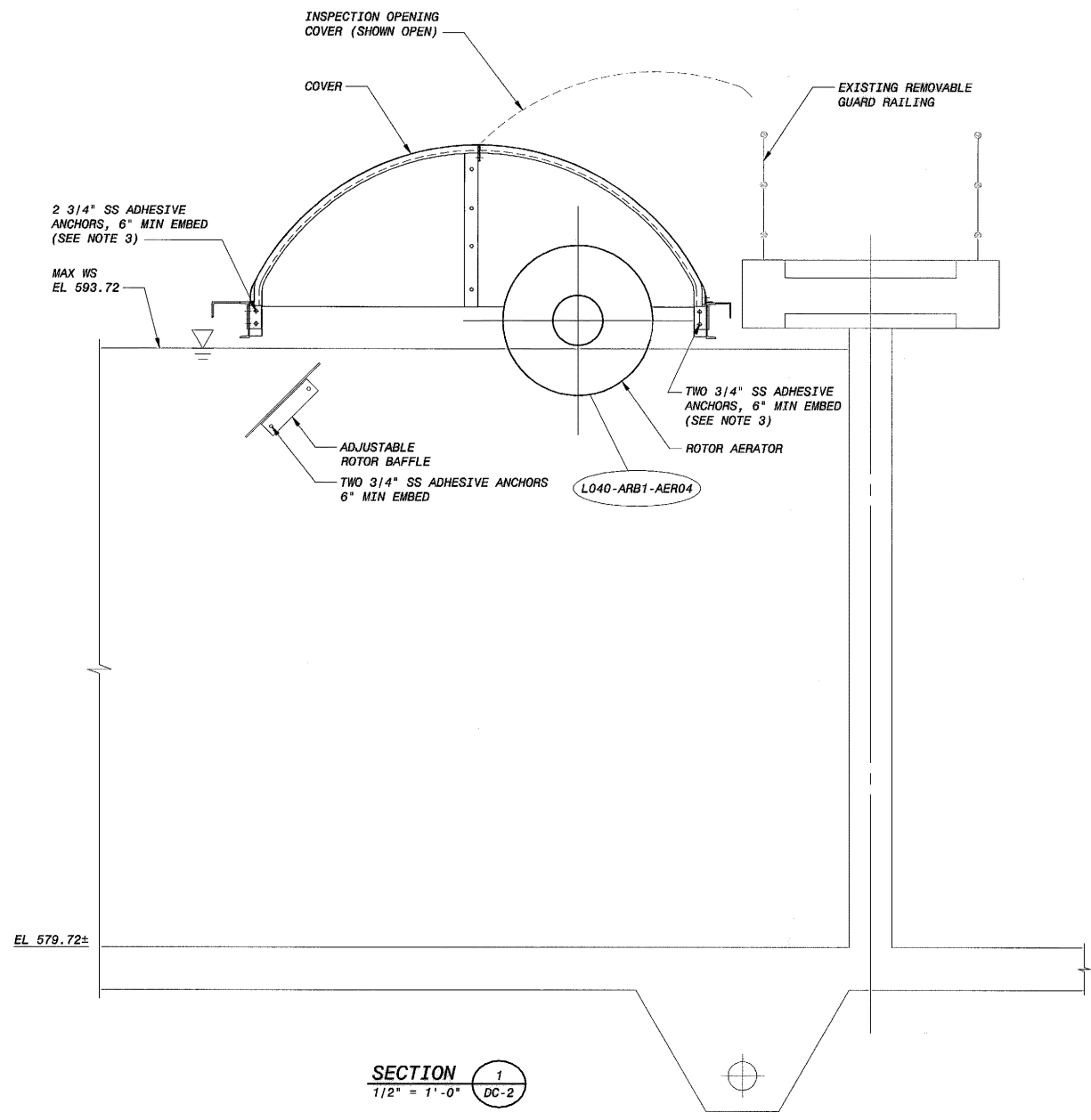
REGISTERED PROFESSIONAL ENGINEER
KURT ARLAN RONNEKAMP
17439
OKLAHOMA
9/21

REVISION	BY	DATE

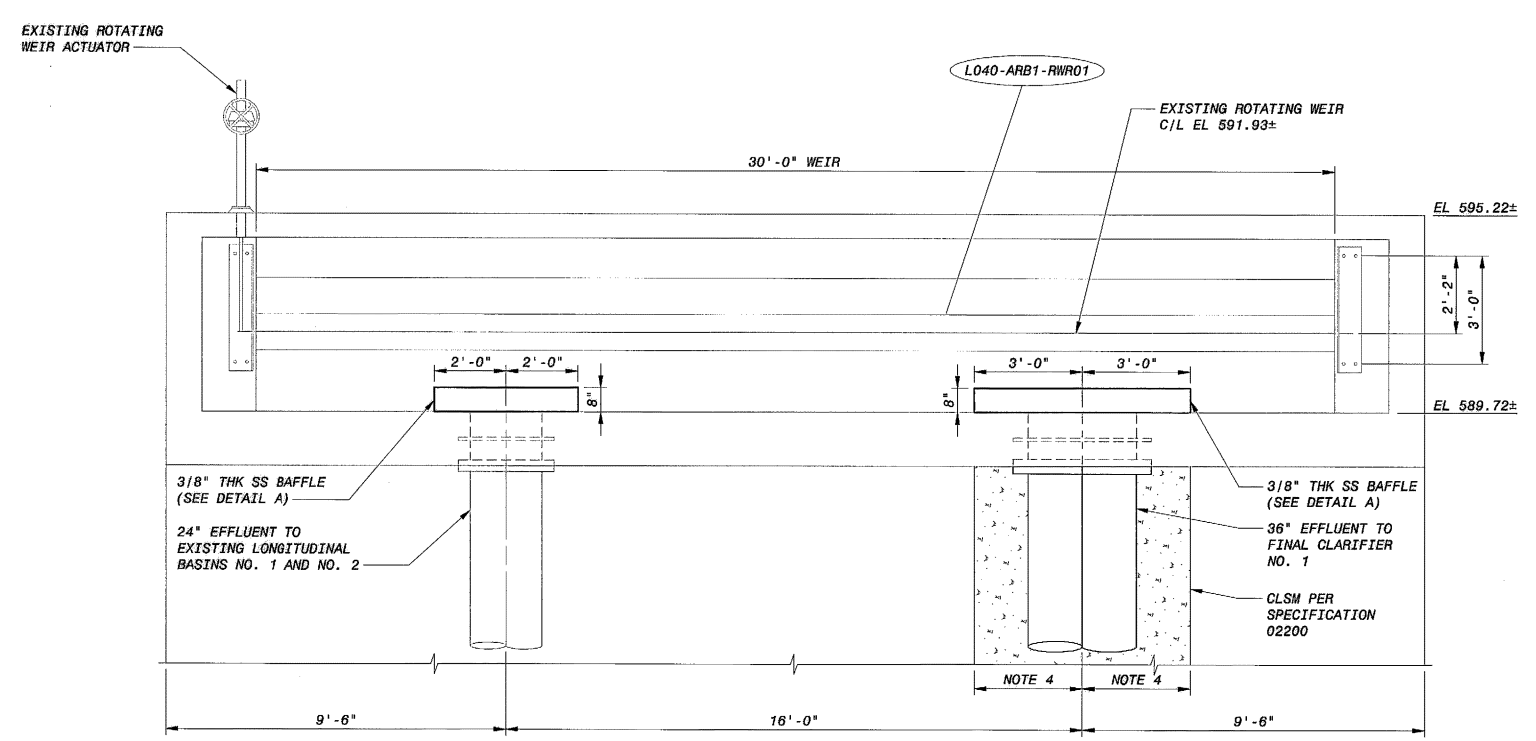
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	SURVEY		
PROFILE SCALE:	FIELD MGR.	708 10/11	
	SECT. MGR.		
HORIZONTAL:	PROJ. MGR.	10/3/11	
1" =	RECOMMENDED:		
VERTICAL:			
1" =			
FILE:	DRAWING: DC-3		DATE 10/28/2011
ATLAS PAGE NO:			SHEET 135 OF 261 SHEETS

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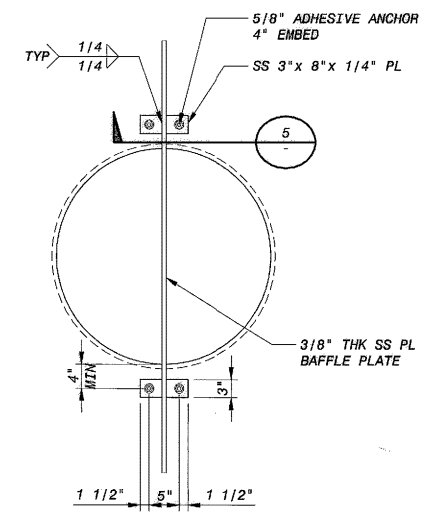
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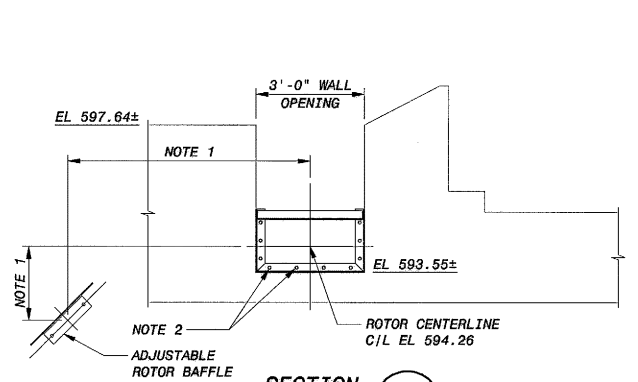
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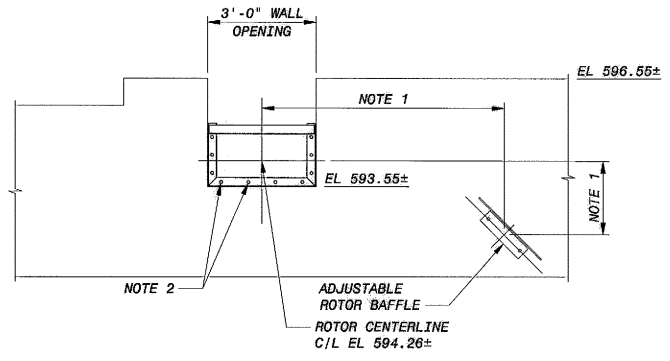
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 3/8" = 1'-0" DC-2



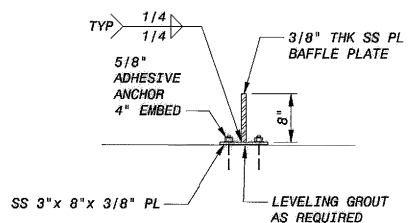
DETAIL A
 3/4" = 1'-0"



SECTION 3
 3/8" = 1'-0" DC-2

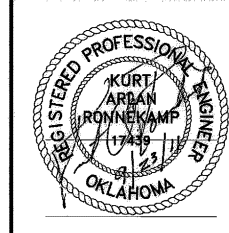


SECTION 4
 3/8" = 1'-0" DC-2



SECTION 5
 3/4" = 1'-0"

- NOTES:
1. LOCATION OF ADJUSTABLE ROTOR BAFFLE FROM CENTERLINE OF ROTOR AERATOR NEEDS TO BE COORDINATED WITH ROTOR MANUFACTURER.
 2. ROTOR AERATOR SHALL BE ATTACHED USING ADHESIVE ANCHORS TO EXISTING CONCRETE. EXPANSION ANCHORS SHALL NOT BE USED. ADHESIVE ANCHORS TO BE SIZED BY MANUFACTURER.
 3. ADHESIVE ANCHORS CONNECT COVER TO CONCRETE STRUCTURE.
 4. CLSM FILL SHALL BE PLACED TO THE EXTENTS OF EXCAVATION.



REVISION	BY	DATE

LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B

OXIDATION DITCH AND LONGITUDINAL BASIN
 CIVIL/STRUCTURAL
 SECTIONS AND DETAILS

CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

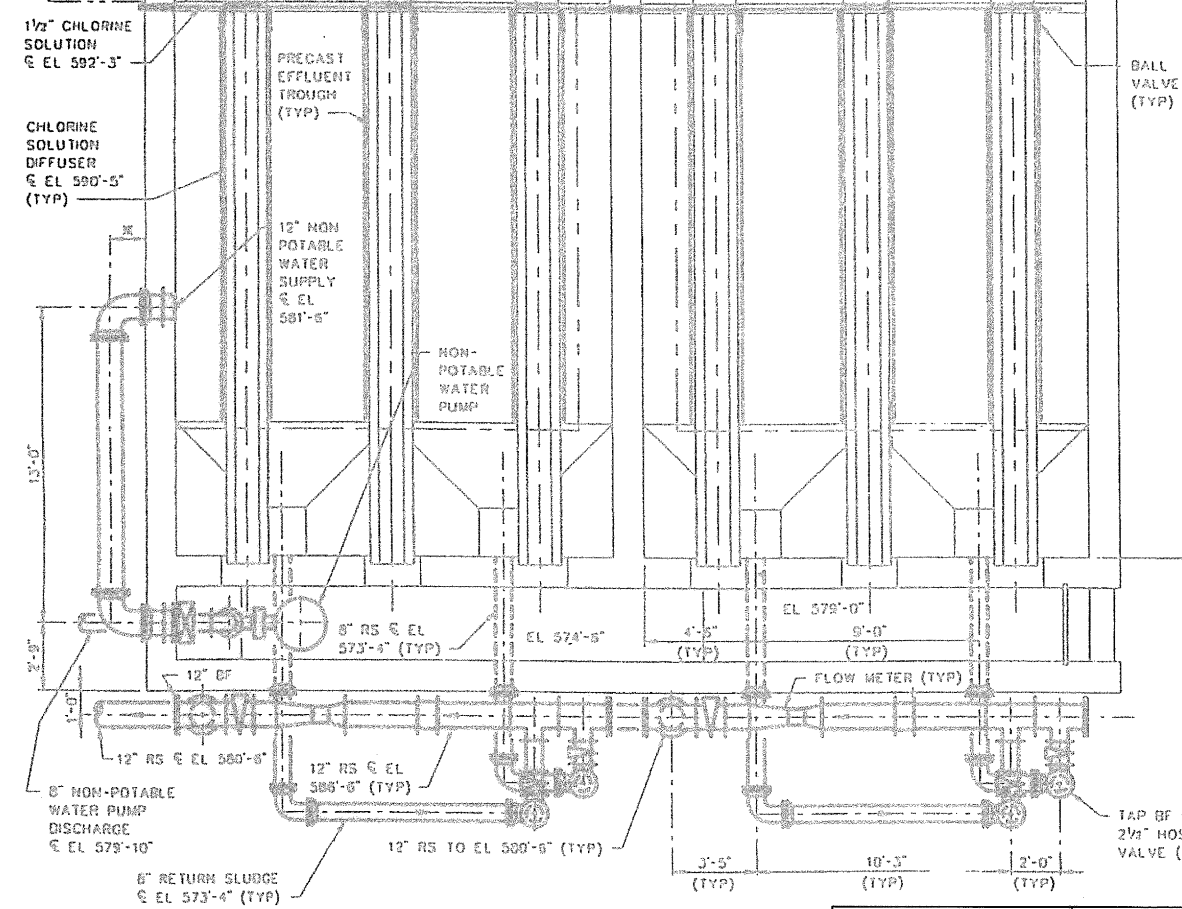
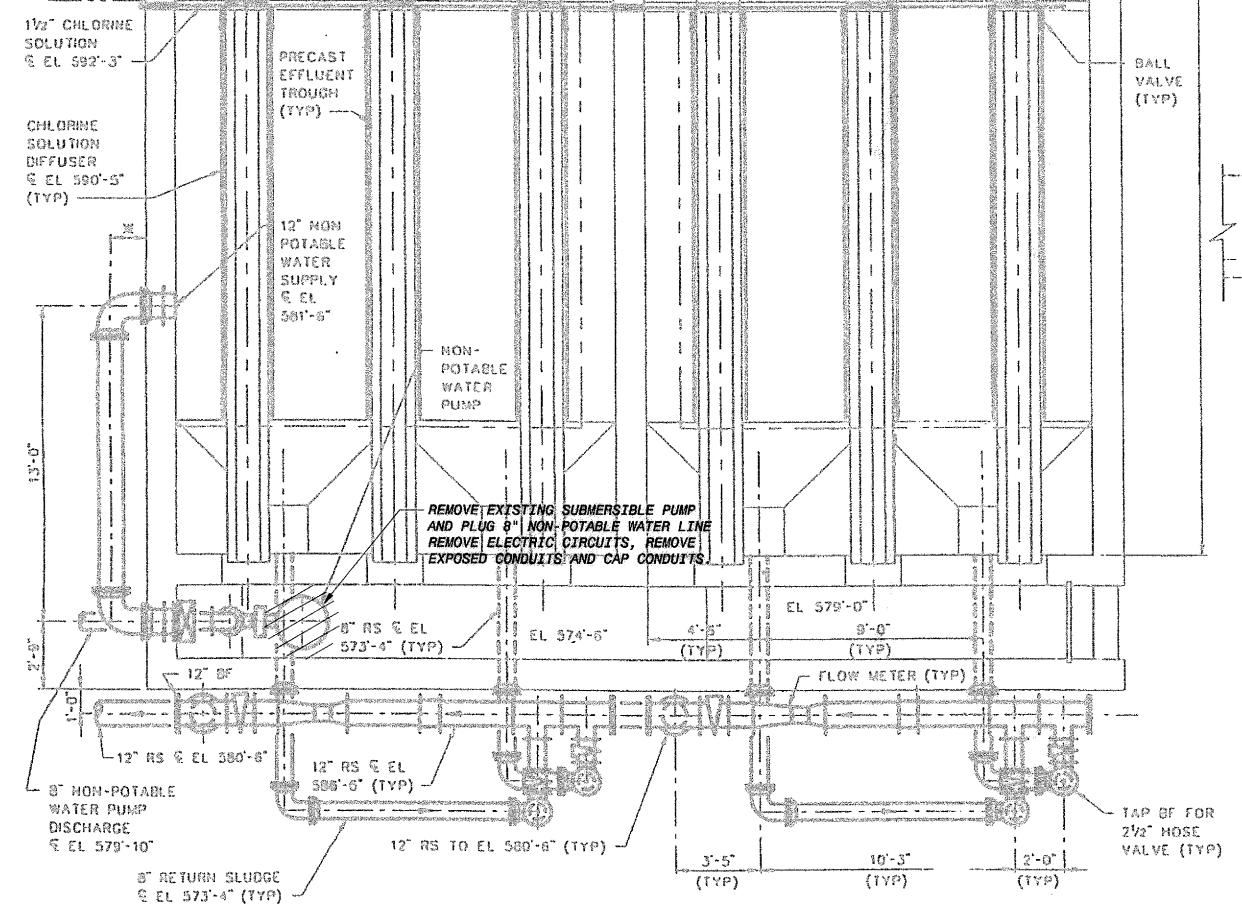
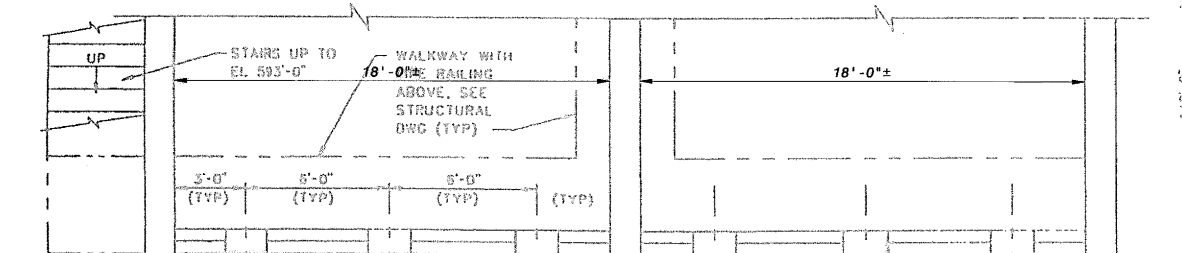
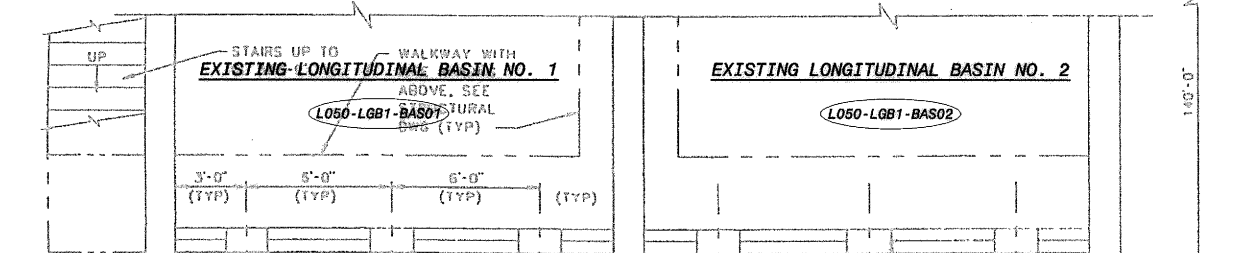
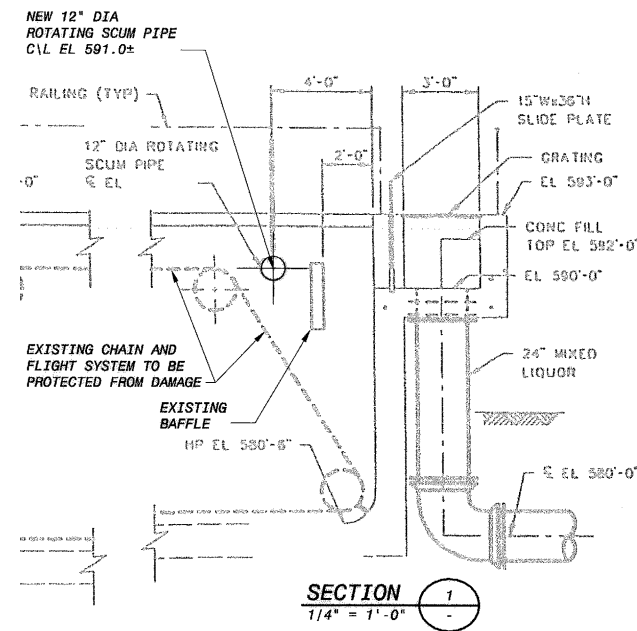
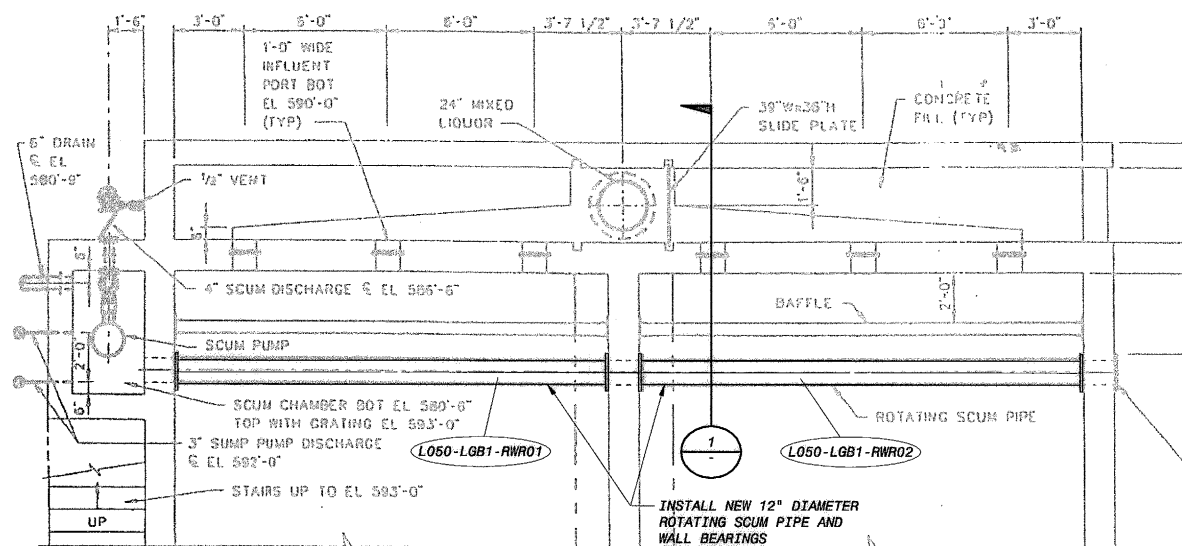
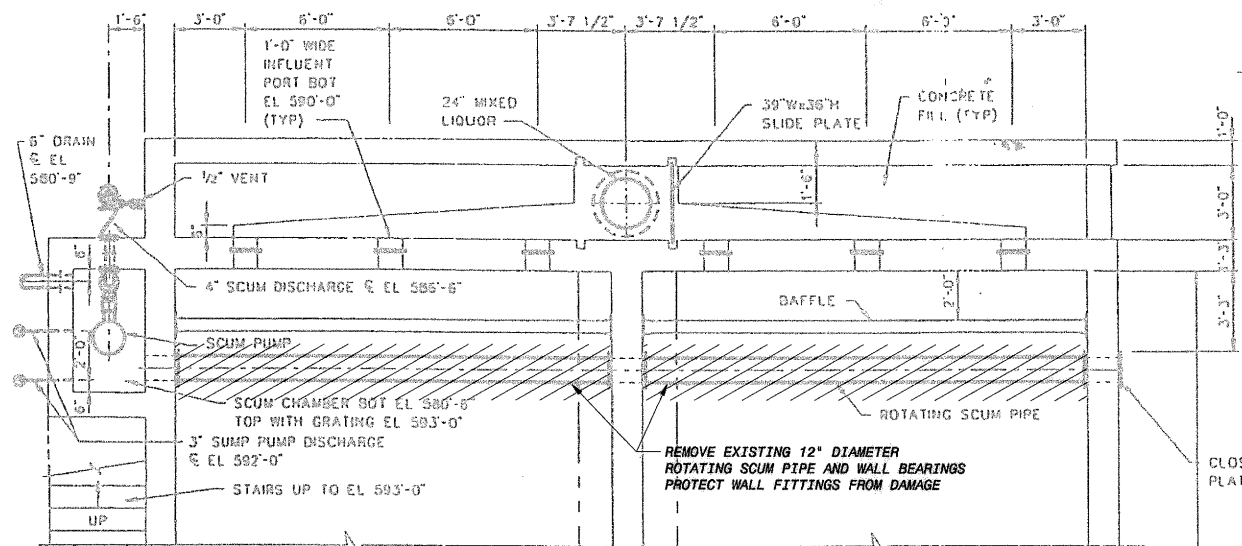
PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH
 Building a world of difference

Holloway, Urdine and Shelton
 Consulting Engineers
 Muskogee - Broken Arrow

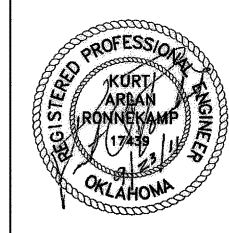
INGATES
 Engineering Services

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HORIZONTAL:	SECT. MGR.		
1" =	PROJ. MGR.	KEV 10/11	
VERTICAL:	RECOMMENDED:		
1" =		JHS 10/30/11	
FILE:	DRAWING: DC-4		DATE 10/28/2011
ATLAS PAGE NO:			SHEET 136 OF 261 SHEETS



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

EXISTING CLARIFIER PLAN
SCALE: 1/4" = 1'-0"

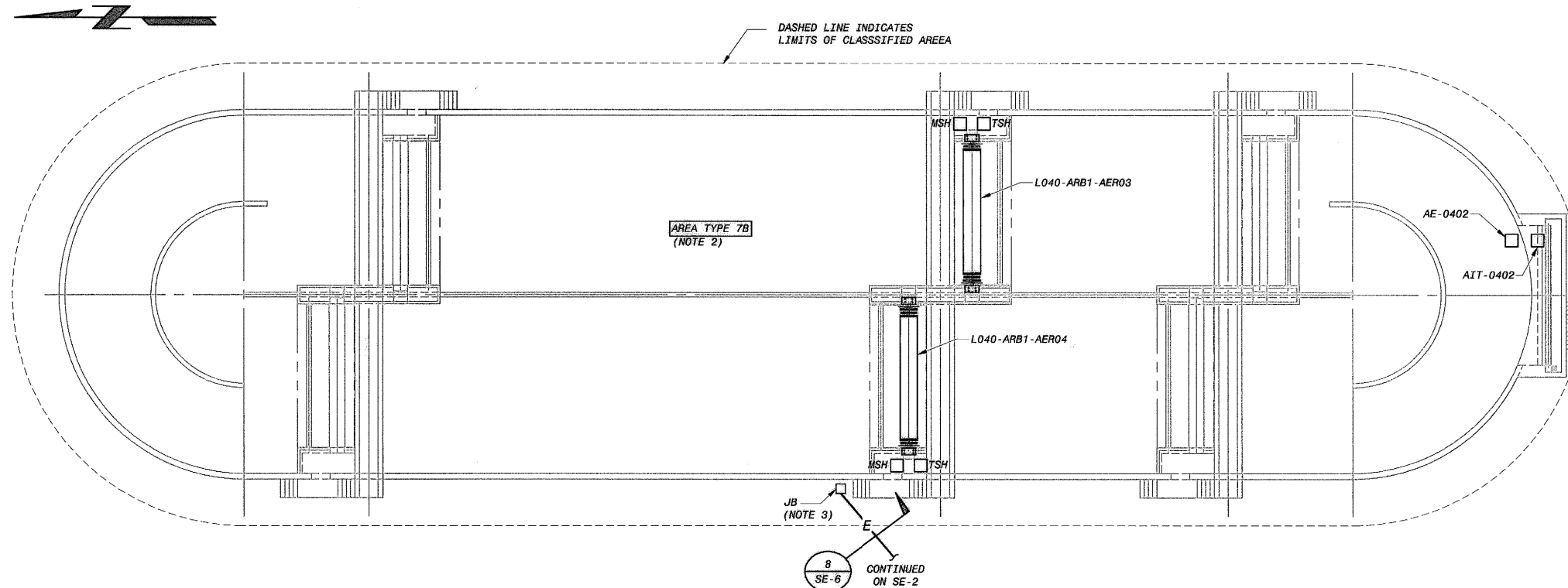


REVISION	BY	DATE	PLAN SCALE:	DRAWN	JKS	APPROVED:
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			1" =	FILE:	DRAWING: DC-5	DATE 10/28/2011
			ATLAS PAGE NO:			SHEET 137 OF 261 SHEETS

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
OXIDATION DITCH AND LONGITUDINAL BASIN
CIVIL / STRUCTURAL
PLANS AND SECTIONS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
Building a world of difference
Holliman, Udell and Butler
Consulting Engineers
Muskogee - Broken Arrow
DYGATES
Engineering Services

FD145120
D145120B
PLOTTED DATE: 9/27/2011 7:14:07 PM, Batch Plot
SAVED DATE: 9/14/2011 4:35:48 PM
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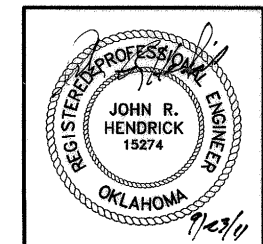


POWER PLAN
1/16" = 1'-0"

- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
 - OXIDATION DITCH SHALL BE CONSIDERED A CLASS I, DIVISION 2 AREA. ALL EQUIPMENT AND INSTALLATION INSIDE OXIDATION DITCH ENVELOPE SHALL BE AS DEFINED BY NFPA 820 TABLE 5.2 ROW 6C.
 - LOCATE JUNCTION BOX OUTSIDE CLASSIFIED AREA (MORE THAN 18" ABOVE GRADE).

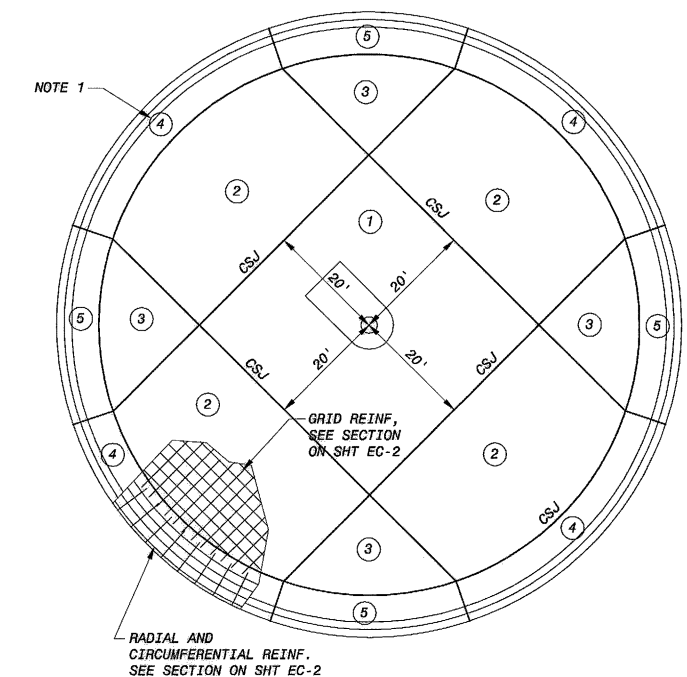
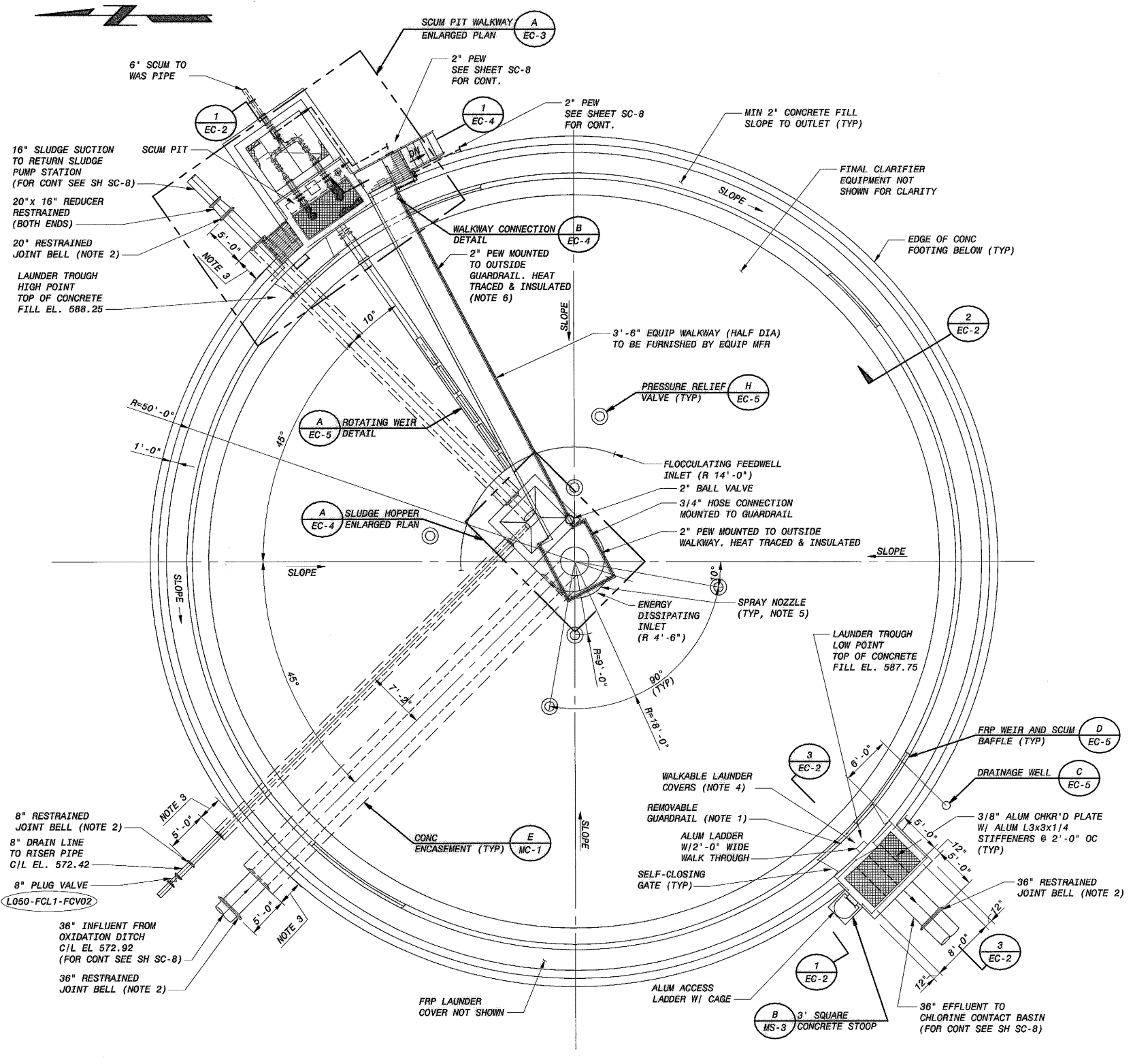
LOWER BIRD CREEK
WASTEWATER TREATMENT PLANT EXPANSION
PROJECT NO. ES 2006-01
OXIDATION DITCH
ELECTRICAL
POWER PLAN
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:



REVISION	BY	DATE	PLAN SCALE:	DRAWN	KMA	APPROVED:
			DESIGNED	SDS		
			SURVEY			
			PROFILE SCALE:	FIELD MGR.	TOS 10/11	
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			1" =			
			FILE:	DRAWING: DE-1		DATE 10/28/2011
			ATLAS PAGE NO:			SHEET 138 OF 261 SHEETS

PLOTTED DATE: 8/14/2009 11:17:59 AM
 SAVED DATE: 9/21/2011 10:54:25 AM
 CYGNET ID: 145120-3000-E-600007022
 FD145120
 D145120B



CONSTRUCTION JOINT AND REINFORCING DETAIL FOR CLARIFIER NO. 1
NO SCALE

- NOTE:
- ① INDICATES SLAB POUR SEQUENCE
 - ALL CSJ TO HAVE WATERSTOPS.

- NOTES:
- WHERE REQUIRED, ALUMINUM GUARDRAIL SHALL BE SUPPORTED BY FRP LAUNDRY COVER. CONTRACTOR SHALL COORDINATE WITH FRP LAUNDRY COVER MANUFACTURER.
 - INSTALL A SECOND RESTRAINED JOINT WITHIN 10' OF THE RESTRAINED JOINT BELL.
 - EXTEND CONCRETE ENCASEMENT BENEATH SLAB 3'-0" OUTSIDE EDGE OF FOOTING.
 - WALKABLE SECTION AT LAUNDRY COVER SHALL HAVE A MINIMUM OF TWO PANELS.
 - NOZZLES SHALL BE INSTALLED AT A 45° ANGLE DOWNWARD RELATIVE TO THE WALKWAY A MINIMUM OF TWO NOZZLES SHALL BE PLACED ON EACH FACE OF THE WALKWAY.
 - CONTRACTOR SHALL COORDINATE PIPE SUPPORTS WITH EQUIPMENT MANUFACTURER.

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

FINAL CLARIFIER NO. 1
CIVIL/STRUCTURAL
PLAN

CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH

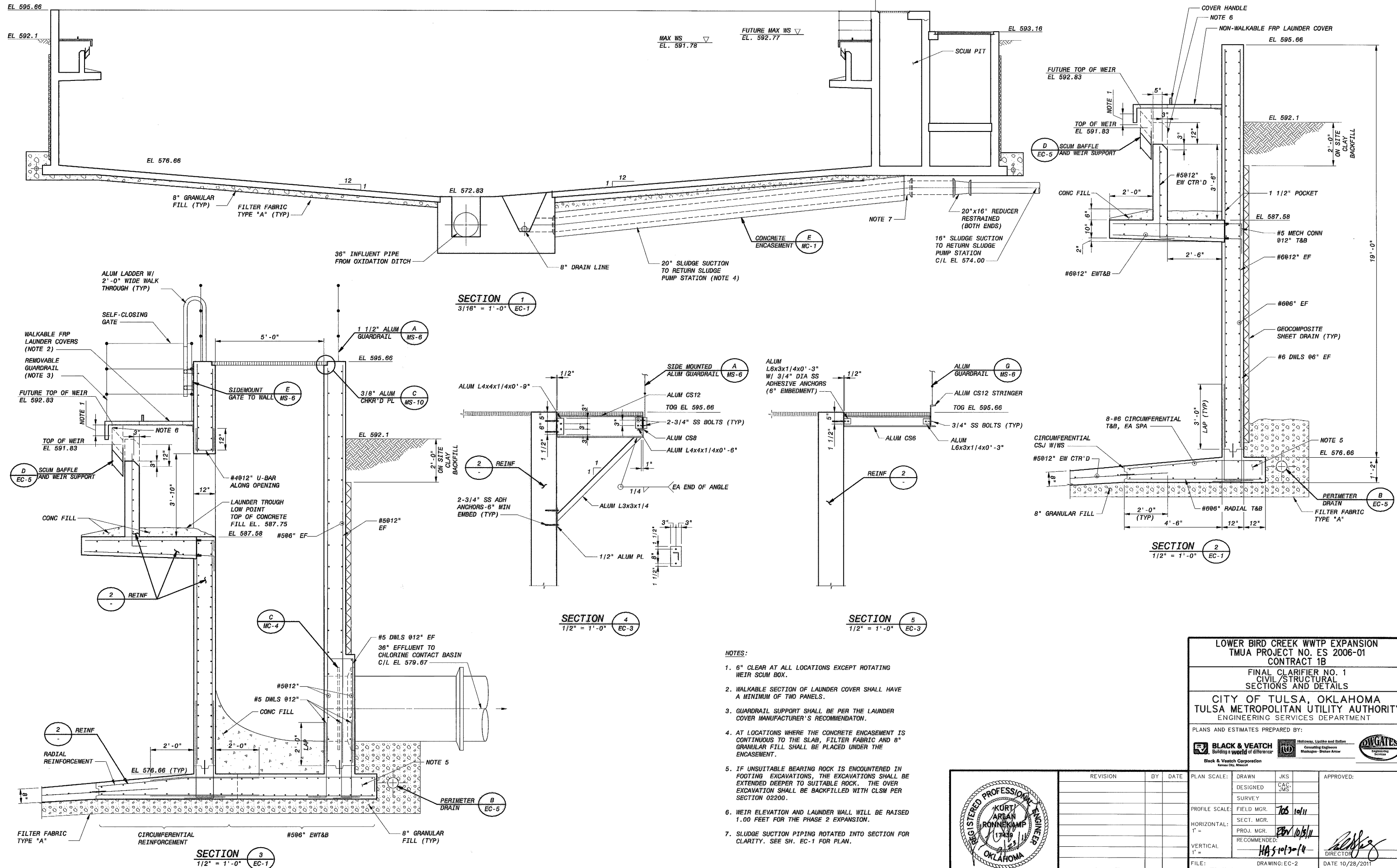
Black & Veatch Corporation
Kansas City, Missouri

REVISION	BY	DATE

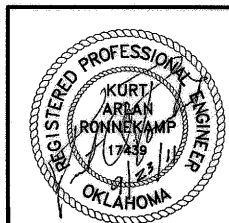
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	SURVEY	JMS	
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HORIZONTAL:	SECT. MGR.	DS	10/11
1" =	PROJ. MGR.	DS	10/11
VERTICAL	RECOMMENDED:	HAS	10/11
1" =			
FILE:	DRAWING: EC-1		DATE 10/28/2011
ATLAS PAGE NO:			SHEET 139 OF 261 SHEETS

REGISTERED PROFESSIONAL ENGINEER
KURT ARNOLD
17439
OKLAHOMA

PLOTTED DATE: 9/21/2011 7:15:39 PM Batch Plot
 SAVED DATE: SAN52655_9/17/2011 1:31:52 PM
 C:\NET\145120-3000-C-800005H46



- NOTES:**
- 6" CLEAR AT ALL LOCATIONS EXCEPT ROTATING WEIR SCUM BOX.
 - WALKABLE SECTION OF LAUNDER COVER SHALL HAVE A MINIMUM OF TWO PANELS.
 - GUARDRAIL SUPPORT SHALL BE PER THE LAUNDER COVER MANUFACTURER'S RECOMMENDATION.
 - AT LOCATIONS WHERE THE CONCRETE ENCASUREMENT IS CONTINUOUS TO THE SLAB, FILTER FABRIC AND 8" GRANULAR FILL SHALL BE PLACED UNDER THE ENCASUREMENT.
 - IF UNSUITABLE BEARING ROCK IS ENCOUNTERED IN FOOTING EXCAVATIONS, THE EXCAVATIONS SHALL BE EXTENDED DEEPER TO SUITABLE ROCK. THE OVER EXCAVATION SHALL BE BACKFILLED WITH CLSM PER SECTION 02200.
 - WEIR ELEVATION AND LAUNDER WALL WILL BE RAISED 1.00 FEET FOR THE PHASE 2 EXPANSION.
 - SLUDGE SUCTION PIPING ROTATED INTO SECTION FOR CLARITY. SEE SH. EC-1 FOR PLAN.



REVISION	BY	DATE	PLAN SCALE:	DRAWN	JKS	APPROVED:
				DESIGNED	CAC, JMS	
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	JOS 10/11	
			HORIZONTAL:	SECT. MGR.		
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			VERTICAL:	RECOMMENDED:		
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			ATLAS PAGE NO:			SHEET 140 OF 261 SHEETS

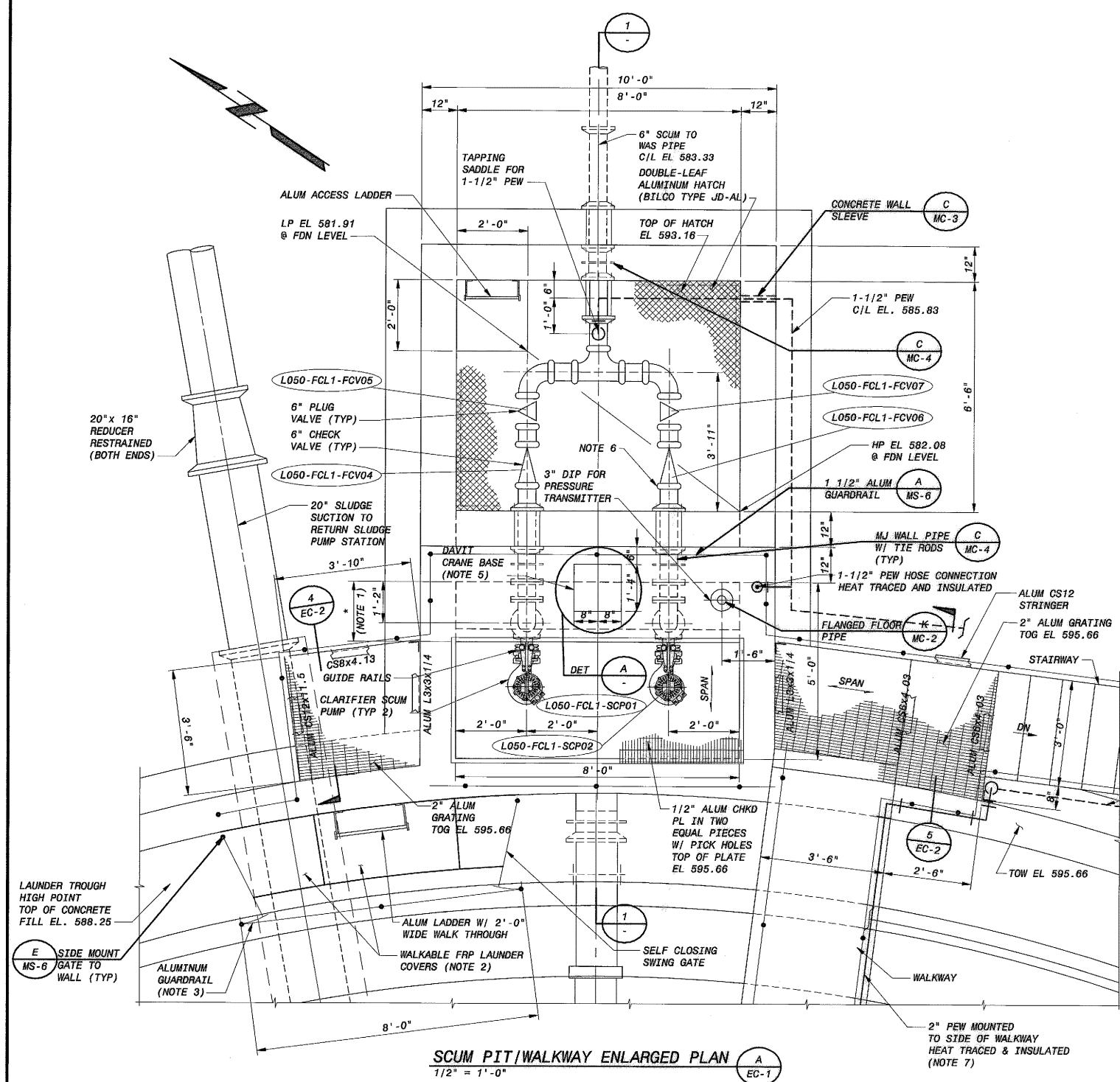
LOWER BIRD CREEK WWTP EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B
 FINAL CLARIFIER NO. 1
 CIVIL/STRUCTURAL
 SECTIONS AND DETAILS
 CITY OF TULSA, OKLAHOMA
 TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
 Building a world of difference
 Holloway, Updike and Sutton
 Consulting Engineers
 Mulholland - Broken Arrow
DWIGATES
 Engineering Services

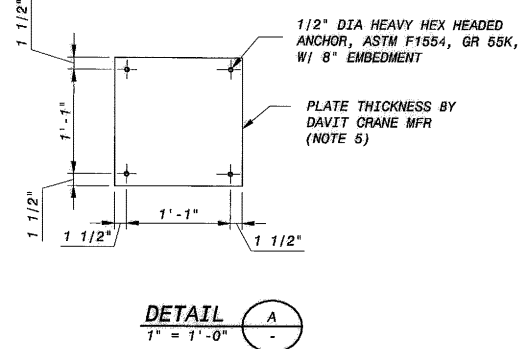
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 FD145120
 D145120B

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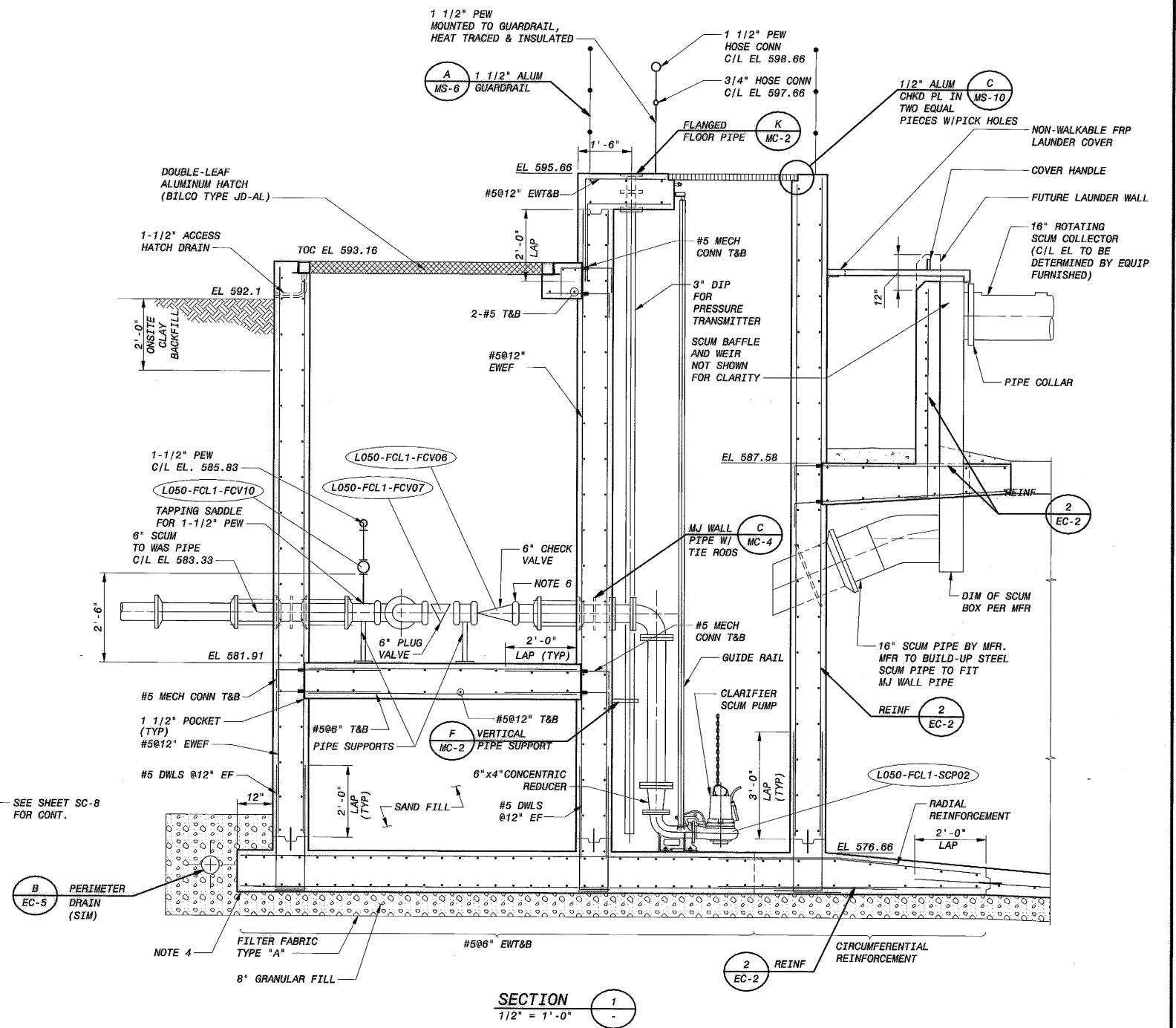
- NOTES:**
- DIMENSION OF CONCRETE SUSPENDED SLAB SHALL BE COORDINATED WITH GUIDE RAILS FROM PUMP MANUFACTURER. MAXIMUM WIDTH OF SLAB SHALL BE 2'-0".
 - WALKABLE SECTION OF LAUNDER COVER SHALL HAVE A MINIMUM OF 2 PANELS.
 - GUARDRAIL SUPPORT SHALL BE PER LAUNDER COVER MANUFACTURER'S RECOMMENDATIONS.
 - IF UNSUITABLE BEARING ROCK IS ENCOUNTERED IN FOOTING EXCAVATIONS, THE EXCAVATIONS SHALL BE EXTENDED DEEPER TO SUITABLE ROCK. THE OVER EXCAVATION SHALL BE BACKFILLED WITH CLSM PER SECTION 02200.
 - DAVIT CRANE BASE SHALL BE A MODEL 524 INDEPENDENT BASE AS MANUFACTURED BY THERN INC. CONTRACTOR SHALL VERIFY BASE IS COMPATIBLE WITH A MODEL 5124 PORTABLE DAVIT CRANE, AS MANUFACTURED BY THERN INC. PRIOR TO INSTALLATION.
 - WITH THE EXCEPTION OF WALL FITTINGS, ALL SCUM PIPE CONNECTIONS INSIDE VALVE VAULT SHALL BE WITH GROOVED COUPLINGS.
 - CONTRACTOR SHALL COORDINATE PIPE SUPPORTS WITH EQUIPMENT MANUFACTURER.



SCUM PIT/WALKWAY ENLARGED PLAN (A) EC-1
1/2" = 1'-0"



DETAIL (A) EC-1
1" = 1'-0"



SECTION (1) EC-2
1/2" = 1'-0"

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

FINAL CLARIFIER NO. 1
CIVIL/STRUCTURAL
SECTIONS AND DETAILS

CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH Building a world of difference
Kansas City, Missouri

INGATES Engineering Services
Holladay, Utah and Belton, Missouri

REGISTERED PROFESSIONAL ENGINEER
KURT ARBAN
RONNENKAMP
17439
OKLAHOMA

REVISION	BY	DATE

PLAN SCALE: DRAWN BY: CAC/JMS
DESIGNED BY: CAC/JMS
SURVEY BY: CAC/JMS

PROFILE SCALE: FIELD MGR. 708/10/11
SECT. MGR. 260/10/11
PROJ. MGR. 260/10/11
RECOMMENDED BY: HBS/10/30/11

HORIZONTAL: 1" = 100'
VERTICAL: 1" = 10'

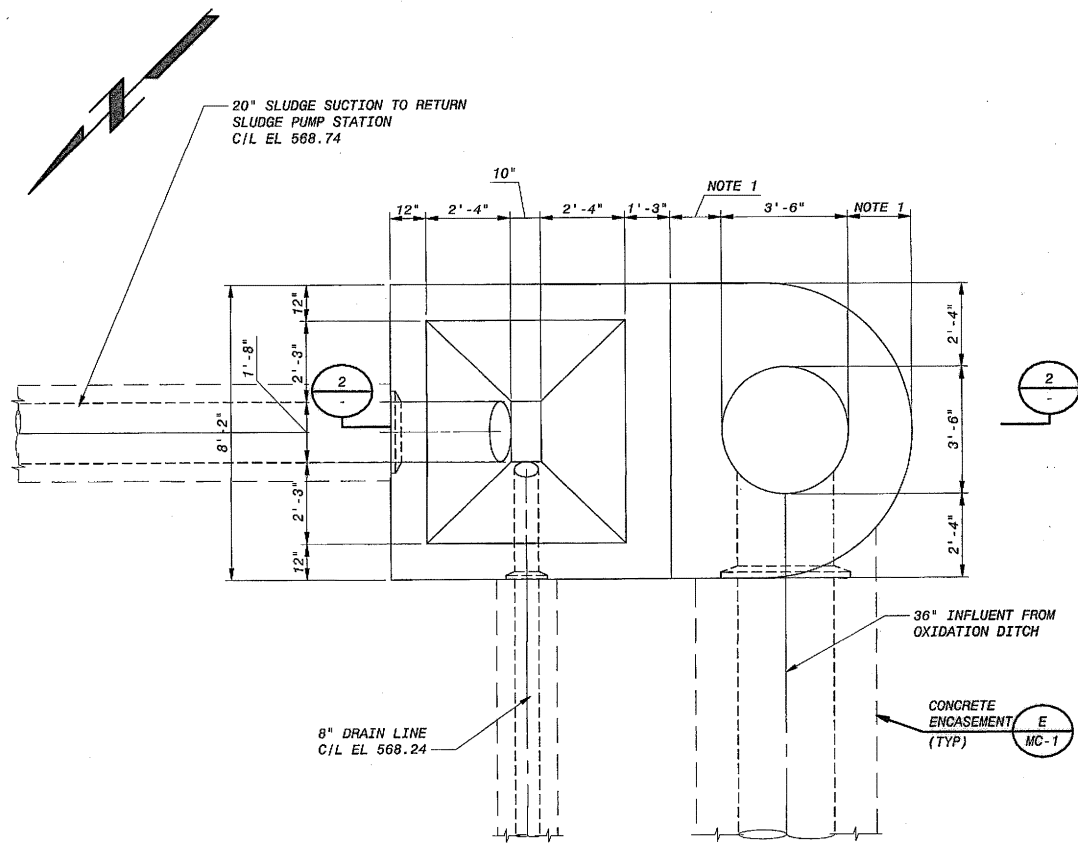
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DATE: 10/28/2011

ATLAS PAGE NO: SHEET 141 OF 261 SHEETS

APPROVED: [Signature]

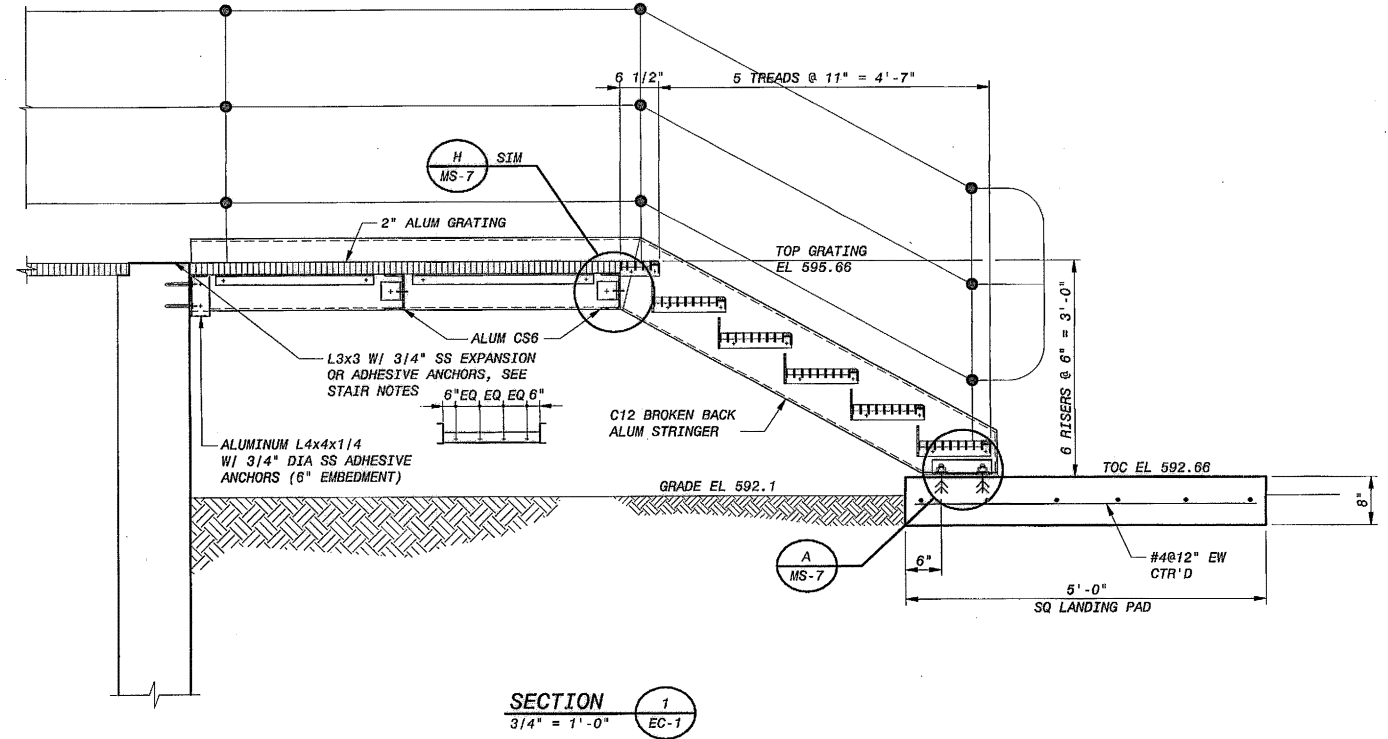
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9-28-11 B&V PROJECT NO. 145120

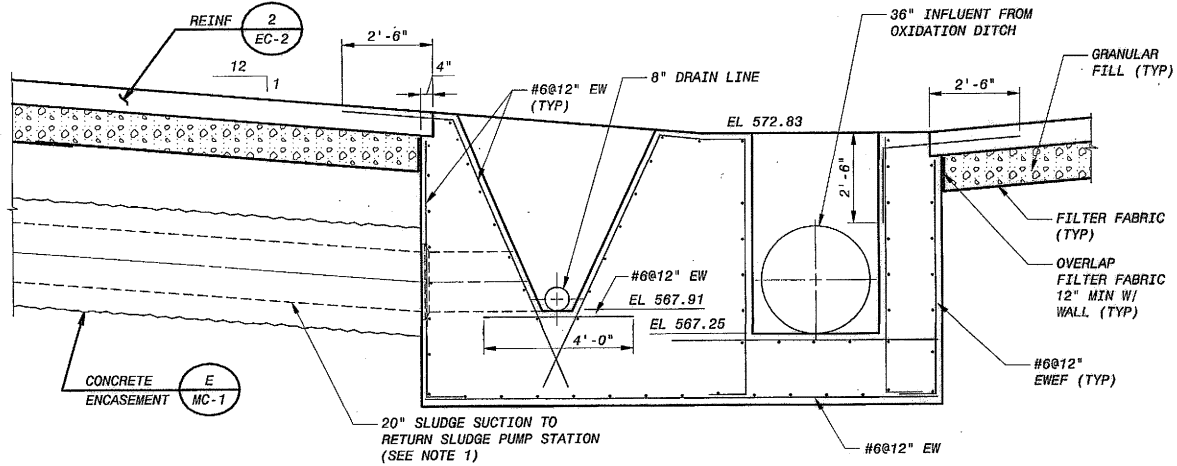


NOTE:
1. DIMENSIONS DETERMINED BY EQUIPMENT FURNISHED.

SLUDGE HOPPER - ENLARGED PLAN (A)
3/8" = 1'-0"

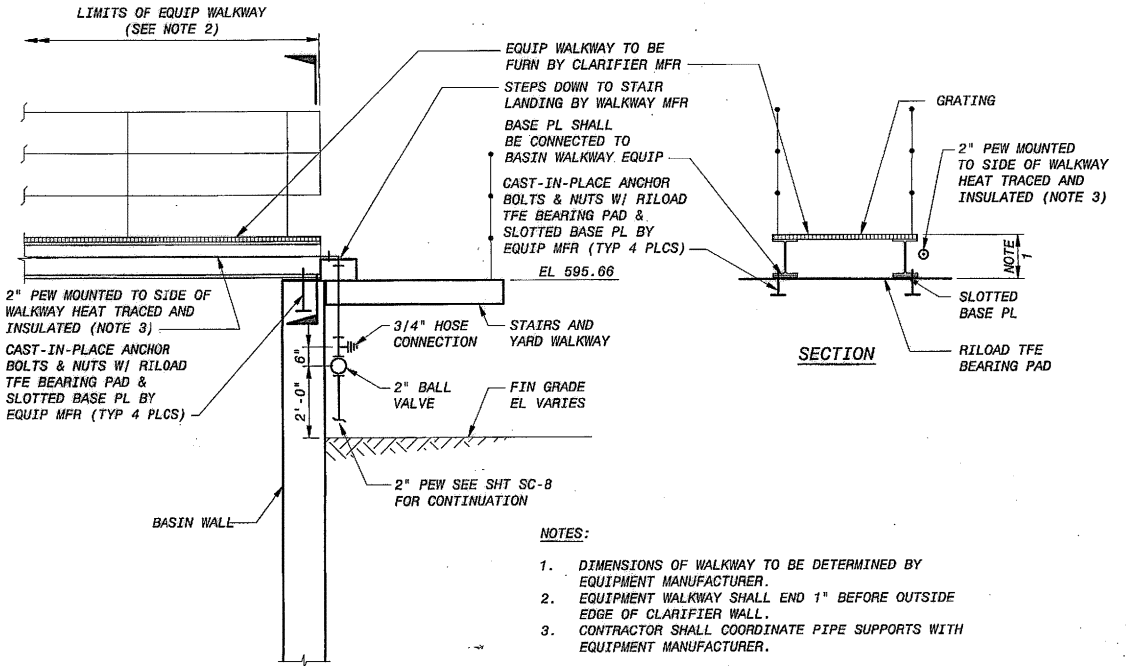


SECTION 1
3/4" = 1'-0"



NOTE:
1. AT LOCATIONS WHERE THE CONCRETE ENCASUREMENT IS CONTINUOUS TO THE SLAB, FILTER FABRIC AND 8\"/>

SLUDGE HOPPER SECTION (2)
3/8" = 1'-0"



WALKWAY CONNECTION (B)
3/8" = 1'-0"

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

FINAL CLARIFIER NO. 1
CIVIL/STRUCTURAL
SECTIONS AND DETAILS

CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH
Building a world of difference

REGISTERED PROFESSIONAL ENGINEER
KURT ARBAN
RONNEKAMP
17439
OKLAHOMA

REVISION	BY	DATE

PLAN SCALE: DRAWN JKS
DESIGNED CAC
SURVEY JMS

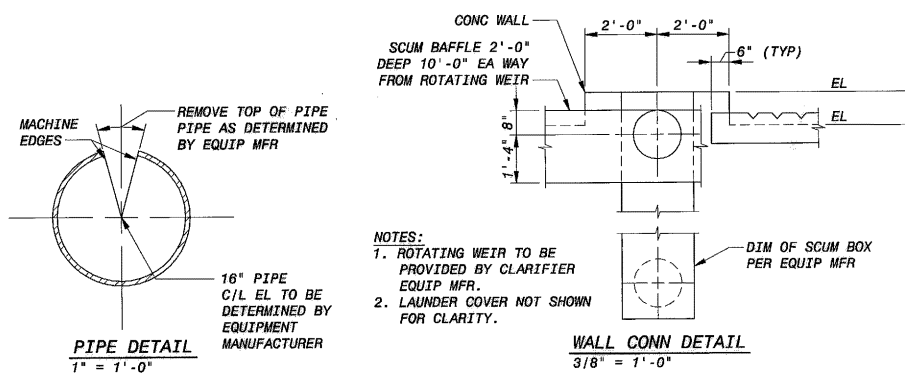
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HORIZONTAL: 1" = SECT. MGR.
PROJ. MGR. RBV 10/3/11
RECOMMENDED: HBS 11/30/11

FILE: DRAWING: EC-4
ATLAS PAGE NO: DATE 10/28/2011

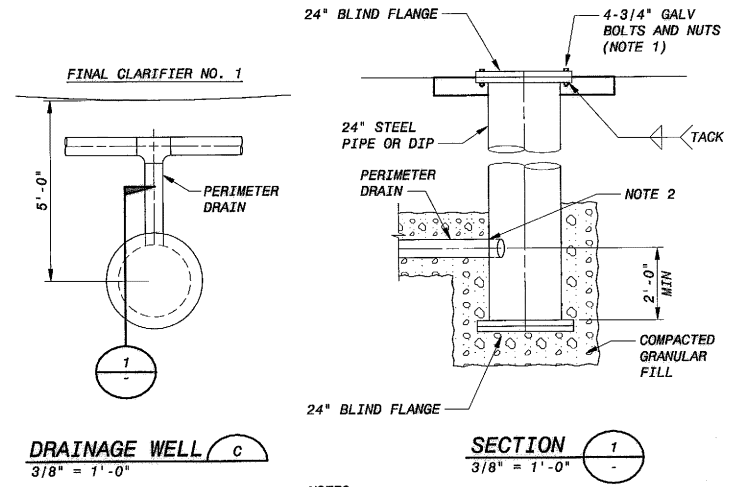
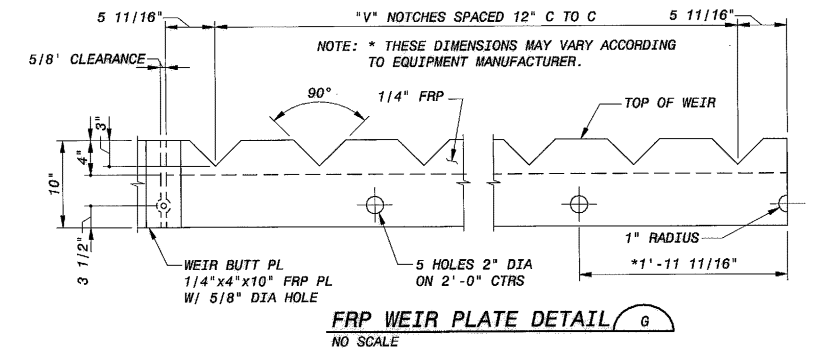
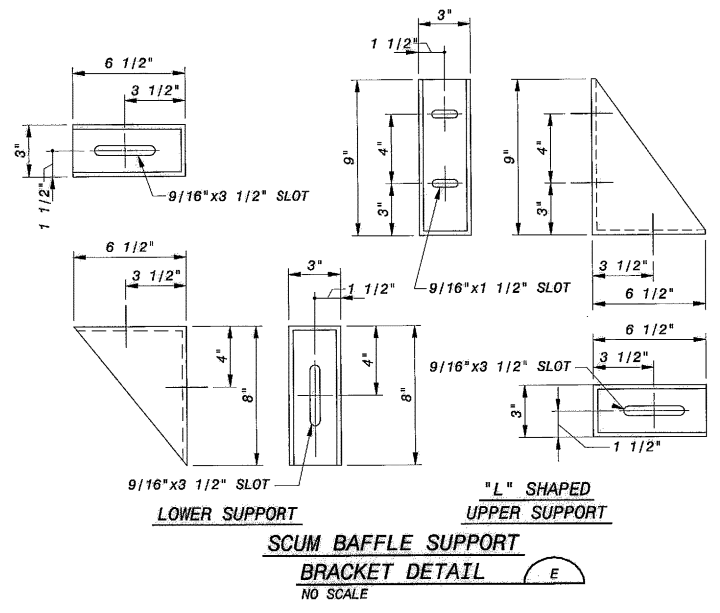
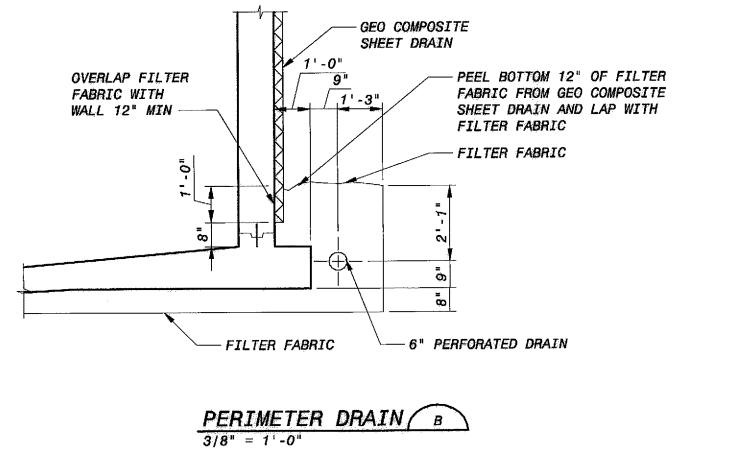
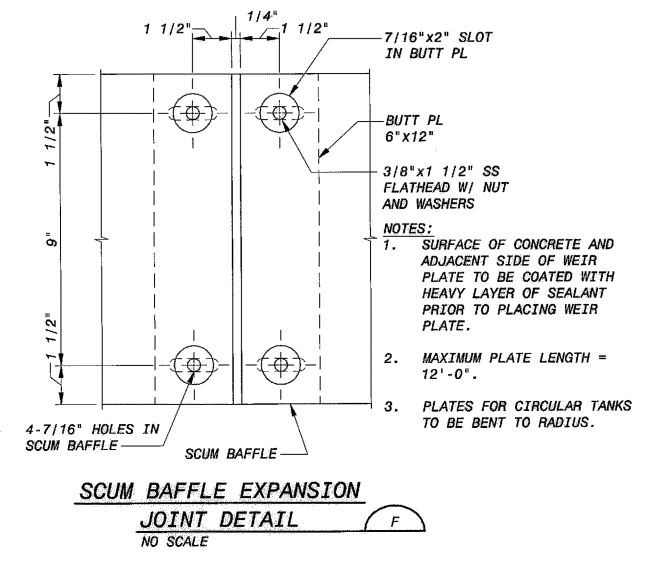
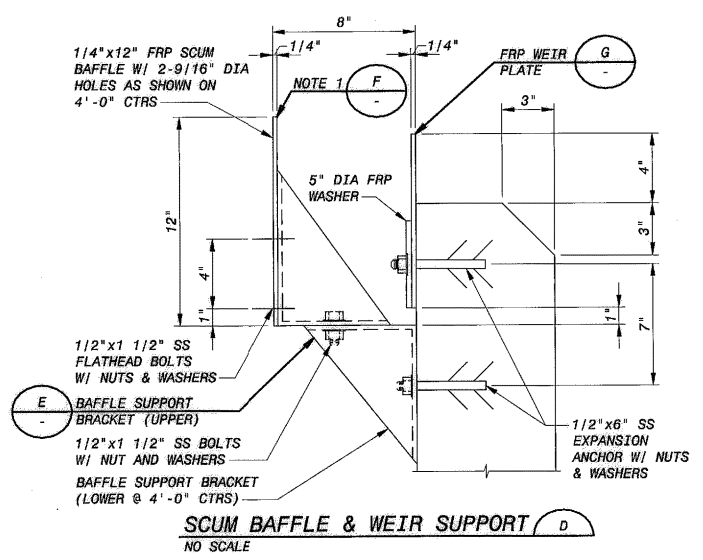
APPROVED: DIRECTOR

SHEET 142 OF 261 SHEETS

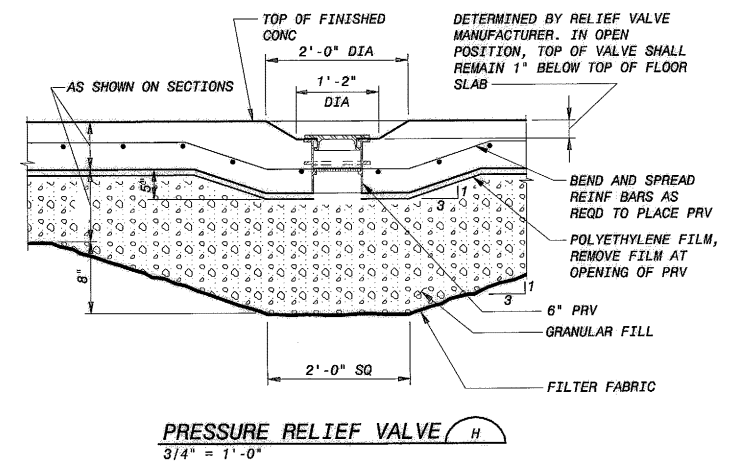
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ROTATING WEIR A
AS SHOWN EC-1



- NOTES:
1. NUTS SHALL BE WELDED TO UNDER SIDE OF FLANGE.
2. DRILL HOLE SIZED FOR 6" PVC PERIMETER DRAIN AS SPECIFIED IN SECTION 15067, WITH 1/2" CLOSED CELL FOAM.



- NOTES:
1. SCUM BAFFLE EXPANSION JOINT.

LOWER BIRD CREEK WWTW EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B

FINAL CLARIFIER NO. 1
CIVIL/STRUCTURAL
DETAILS

CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

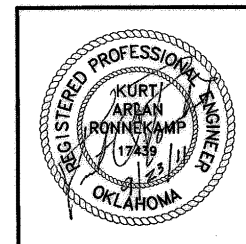
PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH
Building a world of difference

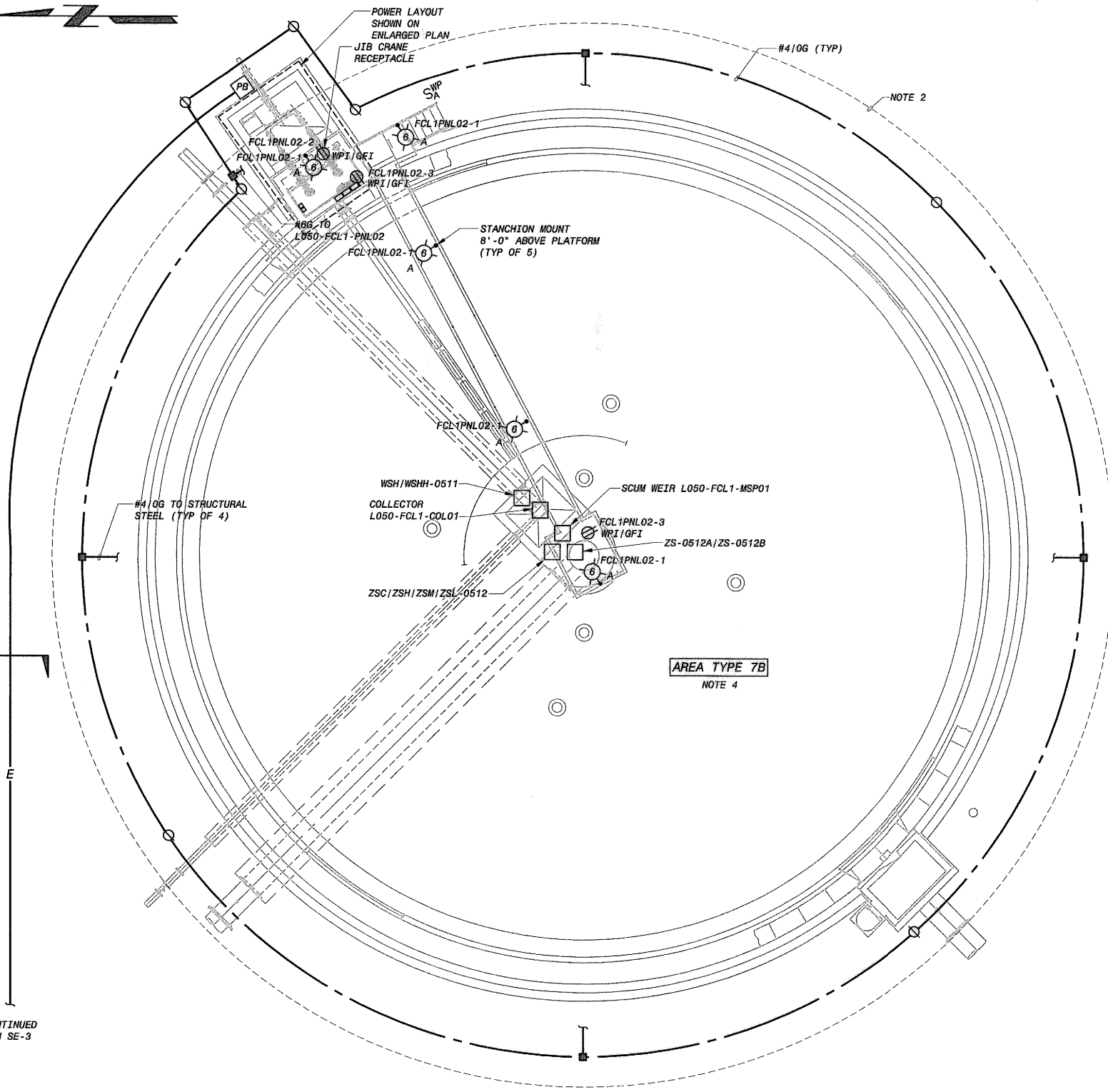
Holloway, Updike and Ballen
Consulting Engineers
Markogon - Broken Arrow

INGATES
Engineering Services

PLAN SCALE:	DRAWN	JKS	APPROVED:
	DESIGNED	CAC, JMS	
PROFILE SCALE:	SURVEY		
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HORIZONTAL:	SECT. MGR.	RBV 10/3/11	
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VERTICAL:	RECOMMENDED:	HAS 10/3/11	
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FILE:	DRAWING: EC-5		DATE 10/26/2011
ATLAS PAGE NO:			SHEET 143 OF 261 SHEETS

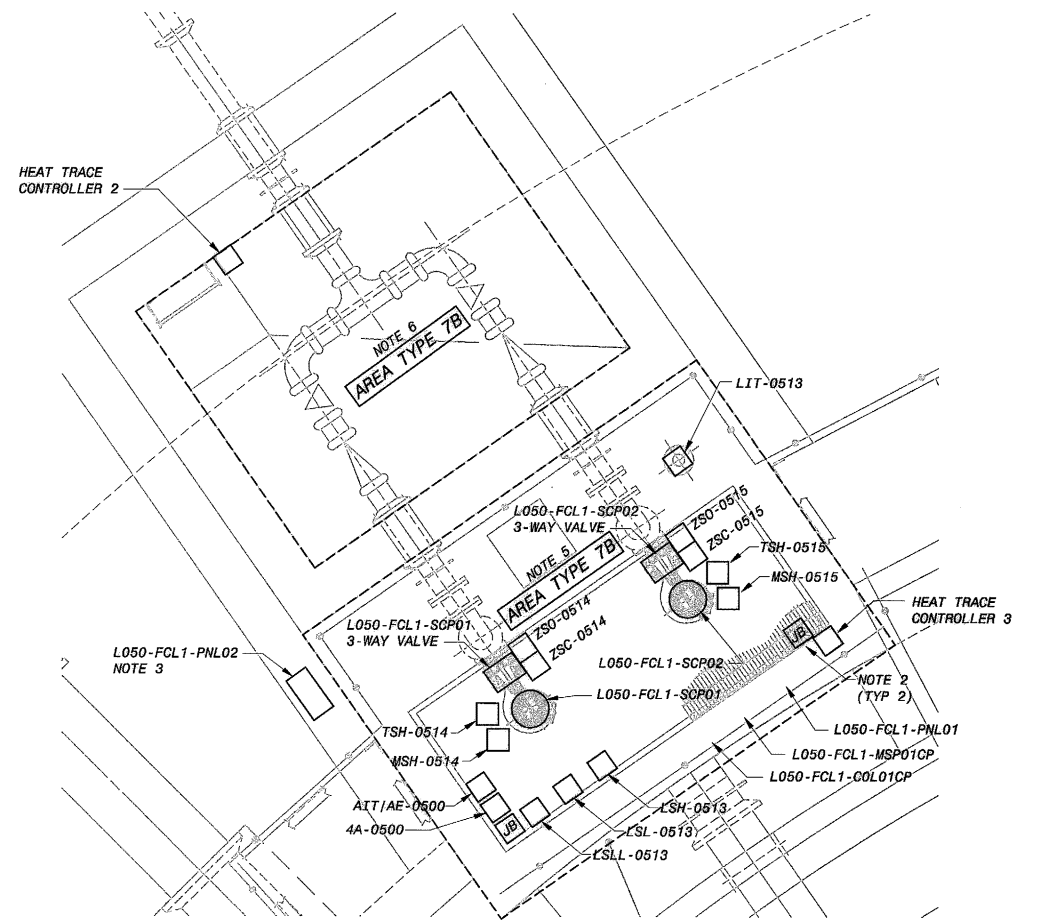


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POWER PLAN
1/8" = 1'-0"

CONTINUED
ON SE-3



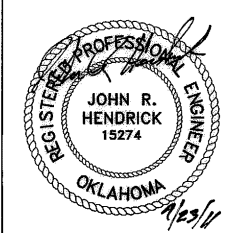
ENLARGED POWER PLAN
1/2" = 1'-0"

- NOTES:**
- SEE DRAWING GE-1 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND GENERAL REQUIREMENTS.
 - DASHED LINE INDICATES LIMITS OF CLASSIFIED AREA.
 - PROVIDE UNISTRUT MOUNTING RACK FOR L050-FCL1-PNL02.
 - ALL EQUIPMENT AND INSTALLATION INSIDE THE CLARIFIER ENVELOPE SHALL BE RATED FOR CLASS I, DIVISION 2 AS DEFINED BY NFPA 820, TABLE 5.2, ROW 6C. ALL LIGHTS AND RECEPTACLES SHALL BE INSTALLED OUTSIDE OF THE CLASSIFIED ENVELOPE.
 - ALL EQUIPMENT AND INSTALLATION INSIDE THE SCUM PUMPING STATION ENVELOPE SHALL BE RATED FOR CLASS I, DIVISION 2 AS DEFINED BY NFPA 820 TABLE 6.2 ROW 5C.
 - ALL EQUIPMENT INSTALLATION INSIDE SCUM PUMPING STATION - DRY SIDE SHALL BE RATED FOR CLASS 1, DIVISION 2 AREA AS DEFINED BY NFPA 820 TABLE 6.2, ROW 6A.

LOWER BIRD CREEK
WASTEWATER TREATMENT PLANT EXPANSION
PROJECT NO. ES 2006-01
FINAL CLARIFIER NO. 1
ELECTRICAL
POWER PLAN
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

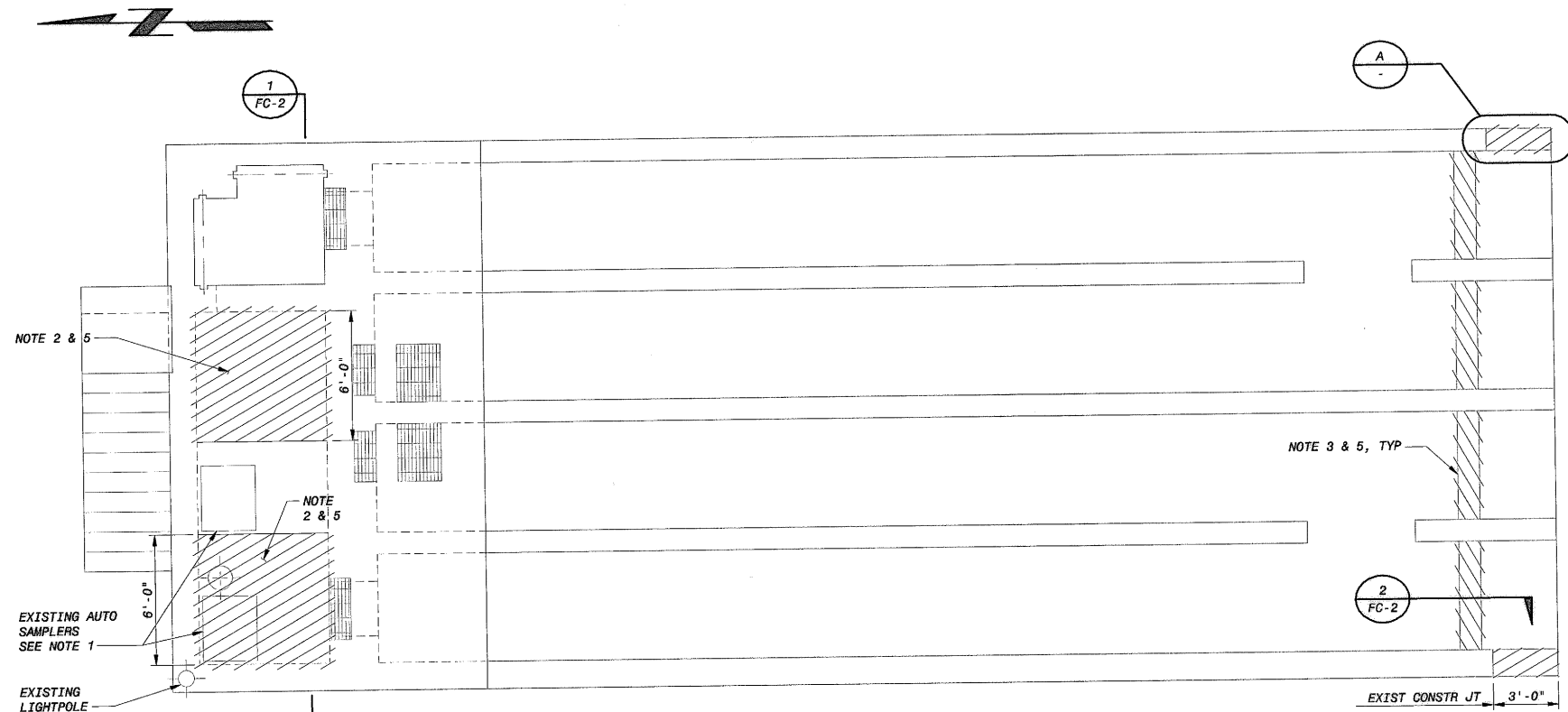
 Black & Veatch Corporation
 Building a world of difference
 Honeywell, Ustick and Bullen
 Consulting Engineers
 Musgrave - Broken Arrow
 O'GATES
 Engineering Services



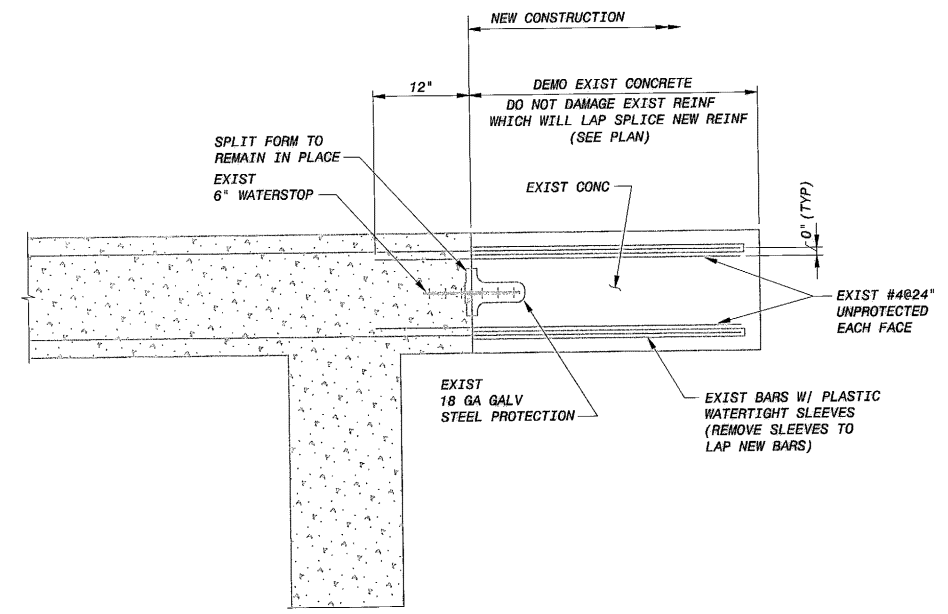
REVISION	BY	DATE

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	DESIGNED	SDS	
	SURVEY		
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HORIZONTAL:	SECT. MGR.		
	PROJ. MGR.	266 10/11	
VERTICAL:	RECOMMENDED:		
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ATLAS PAGE NO:		SHEET 144 OF 261 SHEETS	

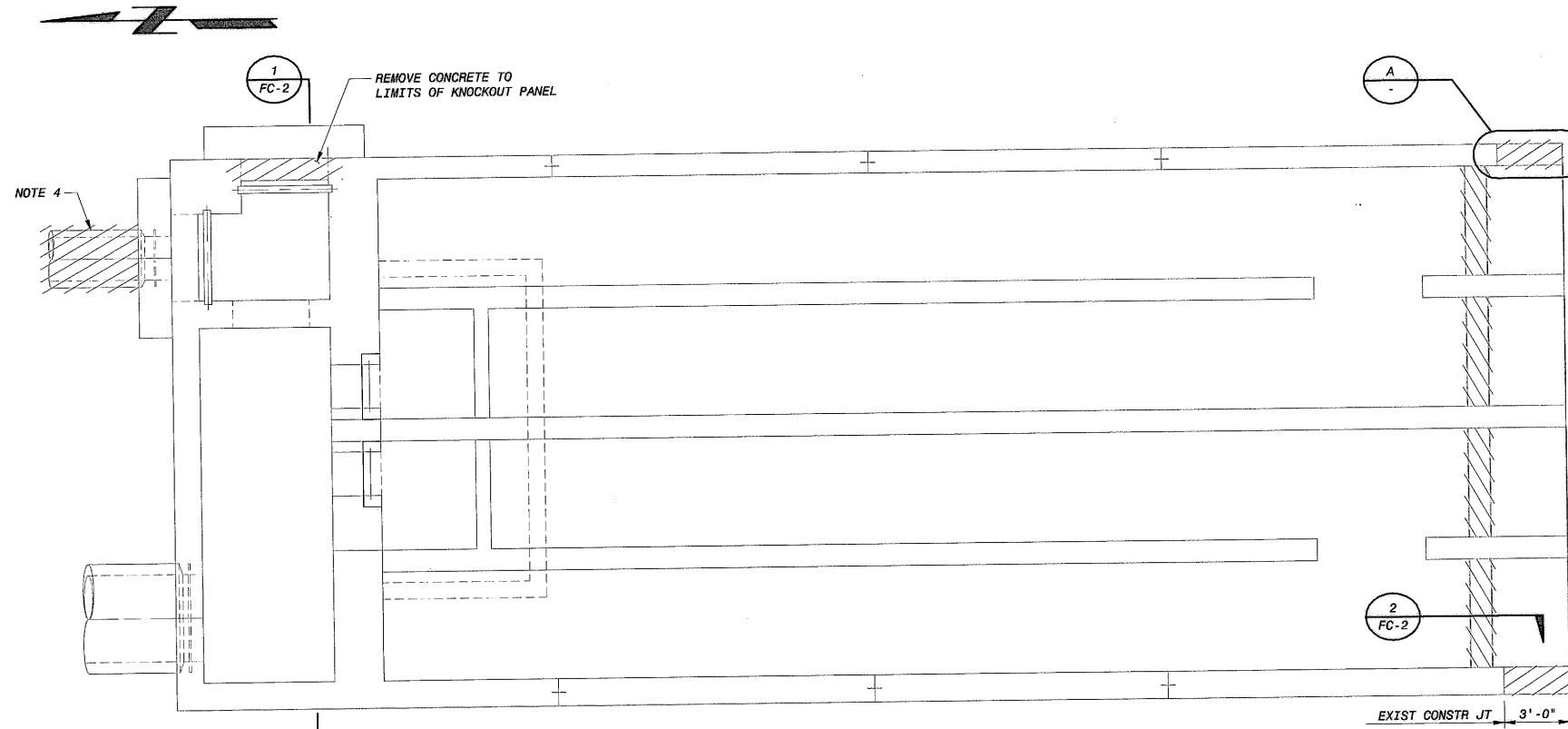
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 C:\NET ID: 145120-300-E-00001023



UPPER LEVEL PLAN - EL 591.50
1/4" = 1'-0"



DETAIL A
1" = 1'-0"



FOUNDATION PLAN - EL 584.50
1/4" = 1'-0"

NOTES:

1. CONTRACTOR SHALL RELOCATE EXISTING CHLORINE SAMPLING EQUIPMENT AS NECESSARY TO INSTALL NEW OPENINGS. CONTRACTOR SHALL COORDINATE ALL RELOCATIONS WITH OWNER PRIOR TO EXISTING CHLORINE SAMPLING EQUIPMENT REMOVAL.
2. CONCRETE SHALL BE REMOVED TO THE LIMITS SHOWN FOR INSTALLATION OF GRATING.
3. REMOVE EXISTING CHANNEL END WALLS TO ALLOW FOR EXPANSION OF BASINS.
4. REMOVE EXISTING 24" PIPE TO LIMITS SHOWN ON SHEET SC-8.
5. EMBEDS IN CONCRETE AND REINFORCING STEEL EXPOSED AFTER DEMOLITION SHALL BE GROUND FLUSH WITH THE FACE OF FINISHED CONCRETE. CARBON STEEL AND GALVANIZED EMBEDS, ALONG WITH REBAR, SHALL BE COATED WITH AN EPOXY COATING AFTER BEING GROUND FLUSH.

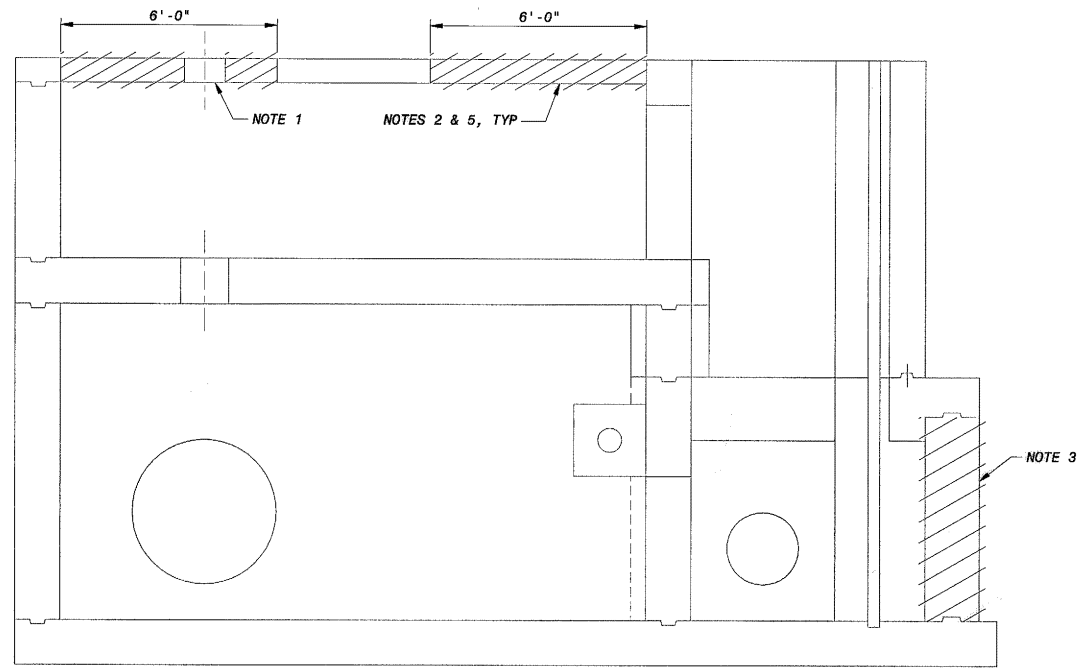
LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
MODIFIED CHLORINE CONTACT BASINS
CIVIL/STRUCTURAL
DEMOLITION PLANS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH CORPORATION
Kansas City, Missouri
Mott MacDonald
Consulting Engineers
Munksgaard - Broken Arrow
Engineering Services

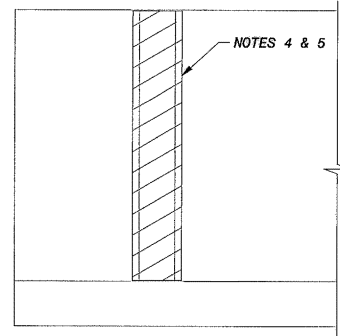


REVISION	BY	DATE	PLAN SCALE:	DRAWN	RR	APPROVED:
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			HORIZONTAL:	SECT. MGR.	10/13/11	
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			ATLAS PAGE NO:			SHEET 145 OF 261 SHEETS

PLOTTED DATE: 9/21/2011 7:21:38 PM, Batch Plot
 SAVED DATE: SCH42735, 9/20/2011 1:34:42 PM
 CYPNET ID: 45126-3000-C-B00035HFY



SECTION 1
3/8" = 1'-0" FC-1



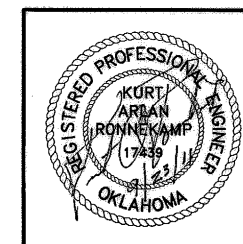
SECTION 2
3/8" = 1'-0" FC-1

NOTES:

1. SAMPLE PIPE SHALL BE PROTECTED FROM DAMAGE DURING REMOVAL OF SLAB.
2. CONCRETE SHALL BE REMOVED TO THE LIMITS SHOWN FOR INSTALLATION OF GRATING.
3. REMOVE CONCRETE TO LIMITS OF KNOCKOUT PANEL.
4. REMOVE EXISTING EXISTING CHANNEL END WALLS TO ALLOW FOR EXPANSION OF BASINS.
5. EMBEDS IN CONCRETE AND REINFORCING STEEL EXPOSED AFTER DEMOLITION SHALL BE GROUND FLUSH WITH THE FACE OF FINISHED CONCRETE. CARBON STEEL AND GALVANIZED EMBEDS, ALONG WITH REBAR, SHALL BE COATED WITH AN EPOXY COATING AFTER BEING GROUND FLUSH.

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
MODIFIED CHLORINE CONTACT BASINS
CIVIL/STRUCTURAL
DEMOLITION SECTIONS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

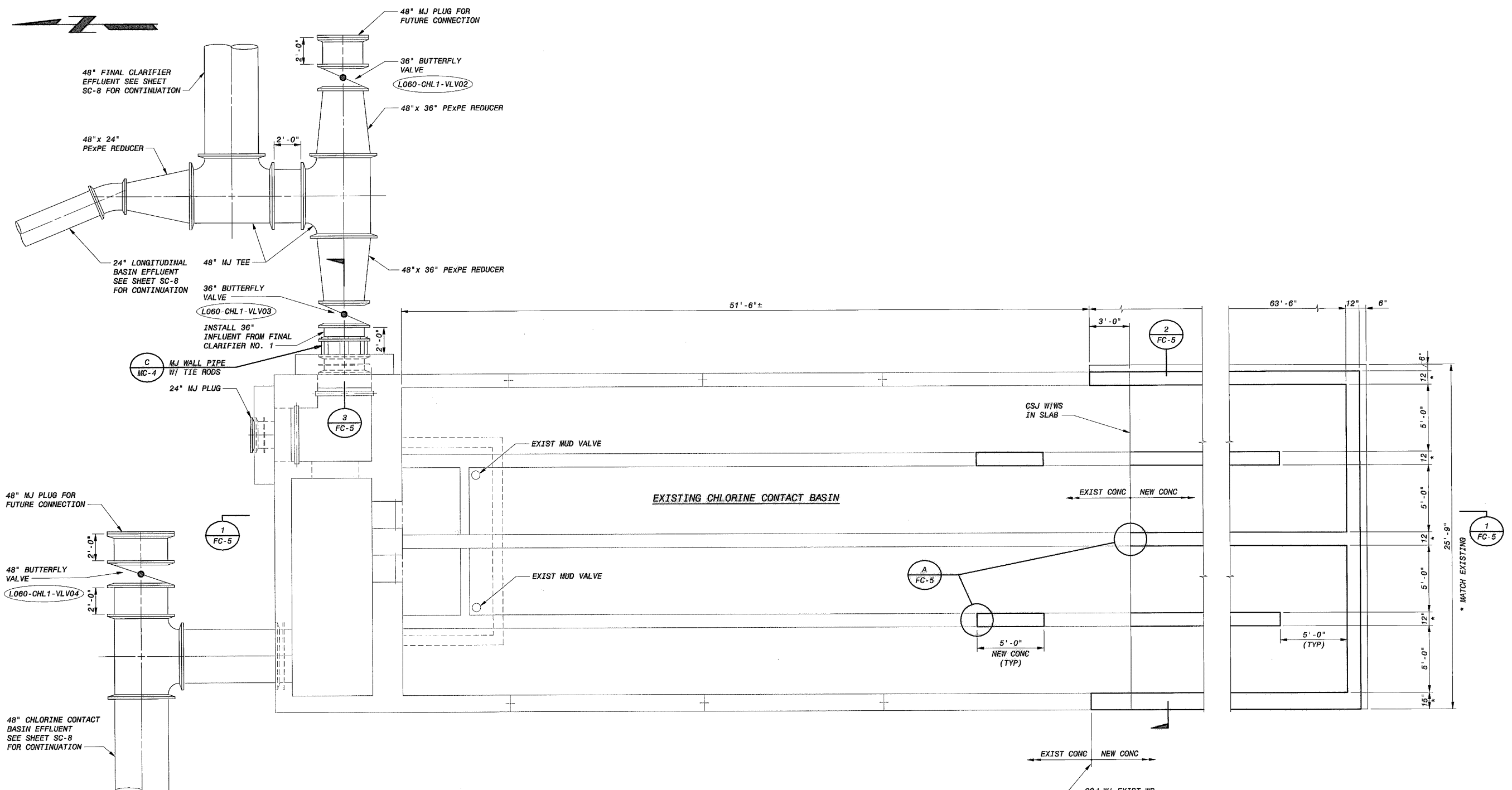
PLANS AND ESTIMATES PREPARED BY:



REVISION	BY	DATE

PLAN SCALE:	DRAWN	RR	APPROVED:
	DESIGNED	JMS	
	SURVEY		
PROFILE SCALE:	FIELD MGR.	JMS 10/11	
HORIZONTAL:	SECT. MGR.		
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VERTICAL:	RECOMMENDED:		
1" =	HAS 01/30/11		
FILE:	DRAWING: FC-2	DATE 10/28/2011	
ATLAS PAGE NO:		SHEET 146 OF 261 SHEETS	

PLOTTED DATE: 9/21/2011 7:21:56 PM, Batch Plot
 SAVED DATE: SCH42738, 9/20/2011 12:10:37 PM
 CYGNET ID: 145120-3000-C-B00005HFZ
 FD145120
 DI45120B



FOUNDATION PLAN - EL 584.50
 1/4" = 1'-0"

CSJ W/ EXIST WS
 IN WALL (TYP @ EXT WALLS)
 LAP SPLICE NEW REINF
 TO EXIST REINF
 (SEE DETAIL A ON FC-1)

LOWER BIRD CREEK WWTW EXPANSION
 TMUA PROJECT NO. ES 2006-01
 CONTRACT 1B

MODIFIED CHLORINE CONTACT BASINS
 CIVIL/STRUCTURAL
 FOUNDATION PLAN

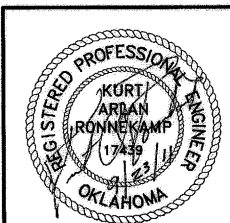
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
 ENGINEERING SERVICES DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH
 Building a world of difference

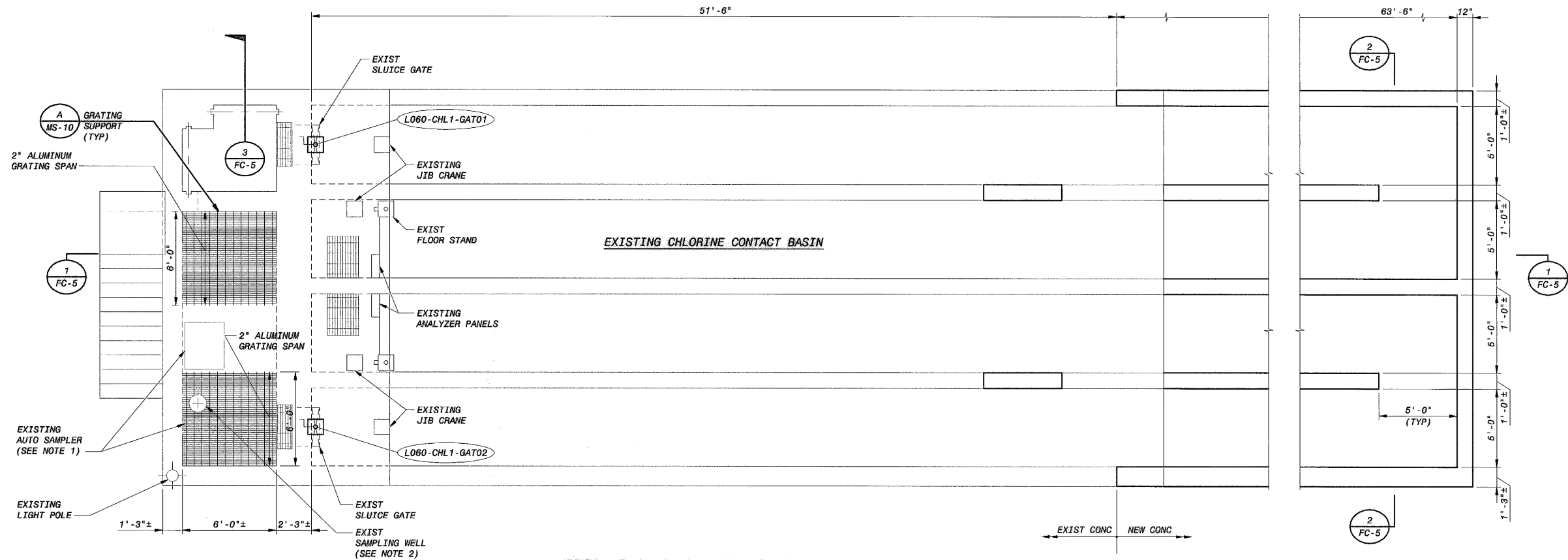
Holloway, Uppidge and Bolton
 Consulting Engineers
 Managers - Business Service

ONGATES
 Engineering Services



REVISION	BY	DATE	PLAN SCALE:	DRAWN	RR	APPROVED:
						 DIRECTOR
			PROFILE SCALE:	SURVEY		
				FIELD MGR.	JCS 10/11	
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			FILE:	DRAWING: FC-3		DATE 10/28/2011
			ATLAS PAGE NO:			SHEET 147 OF 261 SHEETS

PLOTTED DATE: 9/21/2011 7:22:20 PM, Batch Plot
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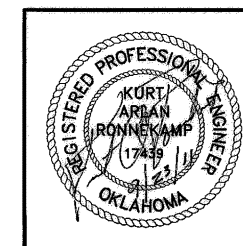
UPPER LEVEL PLAN - EL 591.50
1/4" = 1'-0"

NOTES:

1. CONTRACTOR SHALL RELOCATE EXISTING CHLORINE SAMPLING EQUIPMENT AS NECESSARY TO INSTALL NEW OPENINGS. CONTRACTOR SHALL COORDINATE ALL RELOCATIONS WITH OWNER PRIOR TO EXISTING CHLORINE SAMPLING EQUIPMENT REMOVAL.
2. SPLIT GRATING ON CENTER LINE OF SAMPLE WELL OPENING WITH A TOEPLATE AROUND OPENING PER SPECIFICATIONS SECTION 05530. OPENING SHALL BE 2" LARGER THAN THE OUTSIDE DIAMETER OF THE SAMPLE WELL PIPE.

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
MODIFIED CHLORINE CONTACT BASINS
CIVIL/STRUCTURAL
UPPER LEVEL PLAN
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

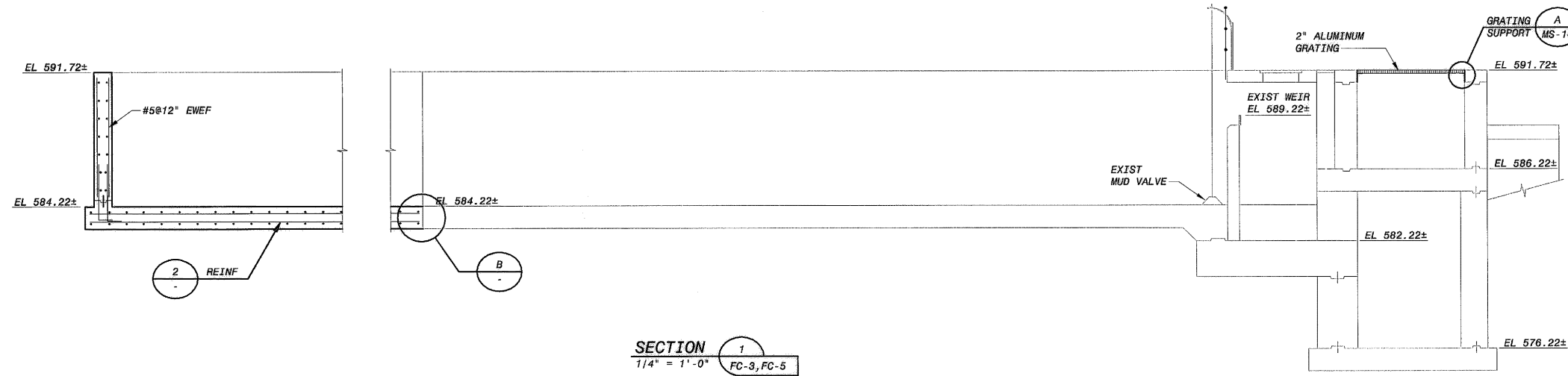
PLANS AND ESTIMATES PREPARED BY:



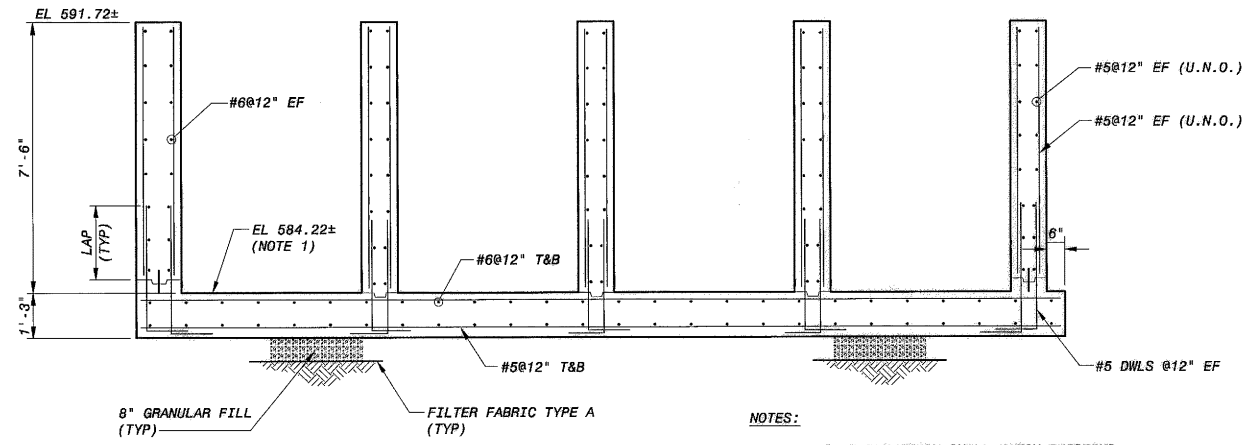
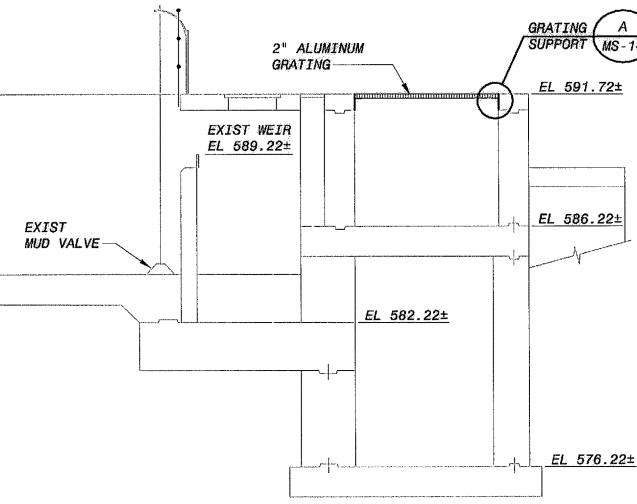
REVISION	BY	DATE

PLAN SCALE:	DRAWN	RR	APPROVED:
	DESIGNED	JMS	 DIRECTOR
	SURVEY		
PROFILE SCALE:	FIELD MGR.	708 10/11	
HORIZONTAL:	SECT. MGR.		
1" =	PROJ. MGR.	280 10/3/11	
VERTICAL:	RECOMMENDED:		
1" =		485 10/30/11	
FILE:	DRAWING: FC-4		DATE 10/28/2011
ATLAS PAGE NO:			SHEET 148 OF 261 SHEETS

PLOTTED DATE: 9/21/2011 7:23:25 PM, Batch Plot
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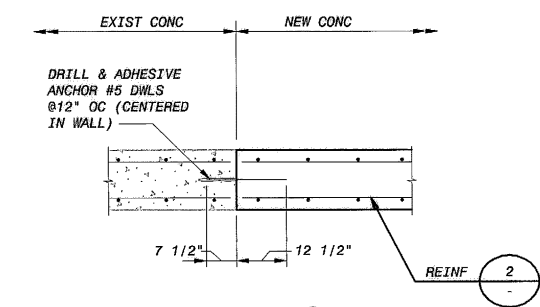


SECTION 1
1/4" = 1'-0"
FC-3, FC-5

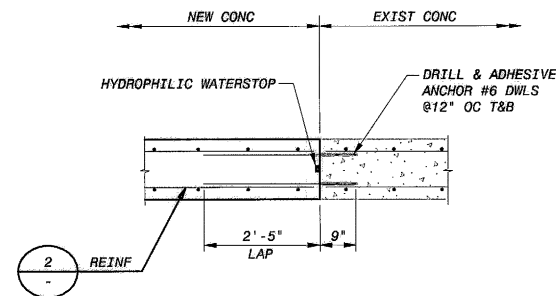


SECTION 2
3/8" = 1'-0"
FC-3

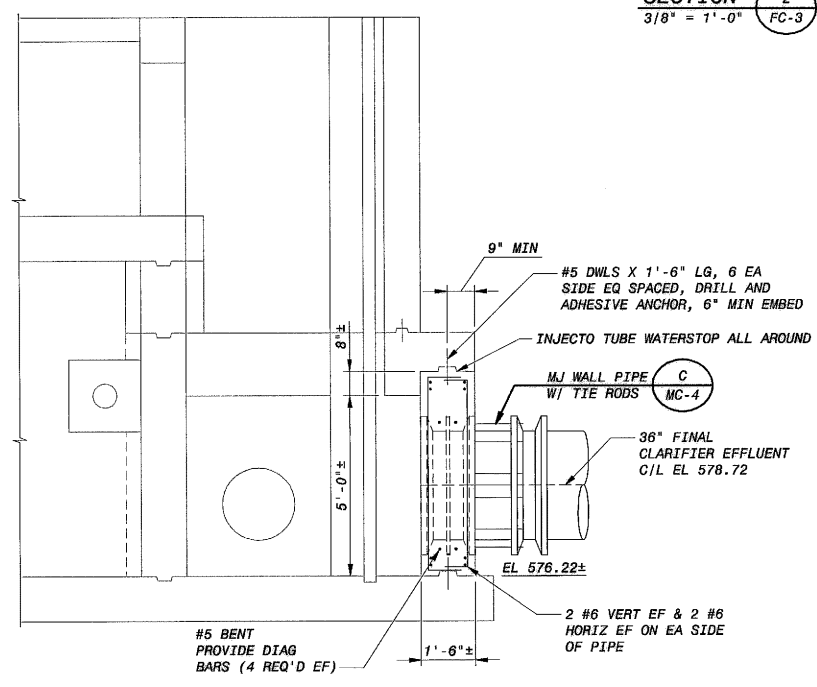
NOTES:
1. FINAL SLAB ELEVATION SHALL MATCH EXISTING SLAB ELEVATION.



DETAIL A
1/2" = 1'-0"
FC-3



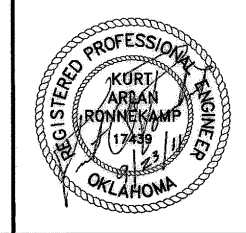
DETAIL B
1/2" = 1'-0"



SECTION 3
3/8" = 1'-0"
FC-3, FC-4

LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B
MODIFIED CHLORINE CONTACT BASINS
CIVIL/STRUCTURAL
SECTIONS AND DETAILS
CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT

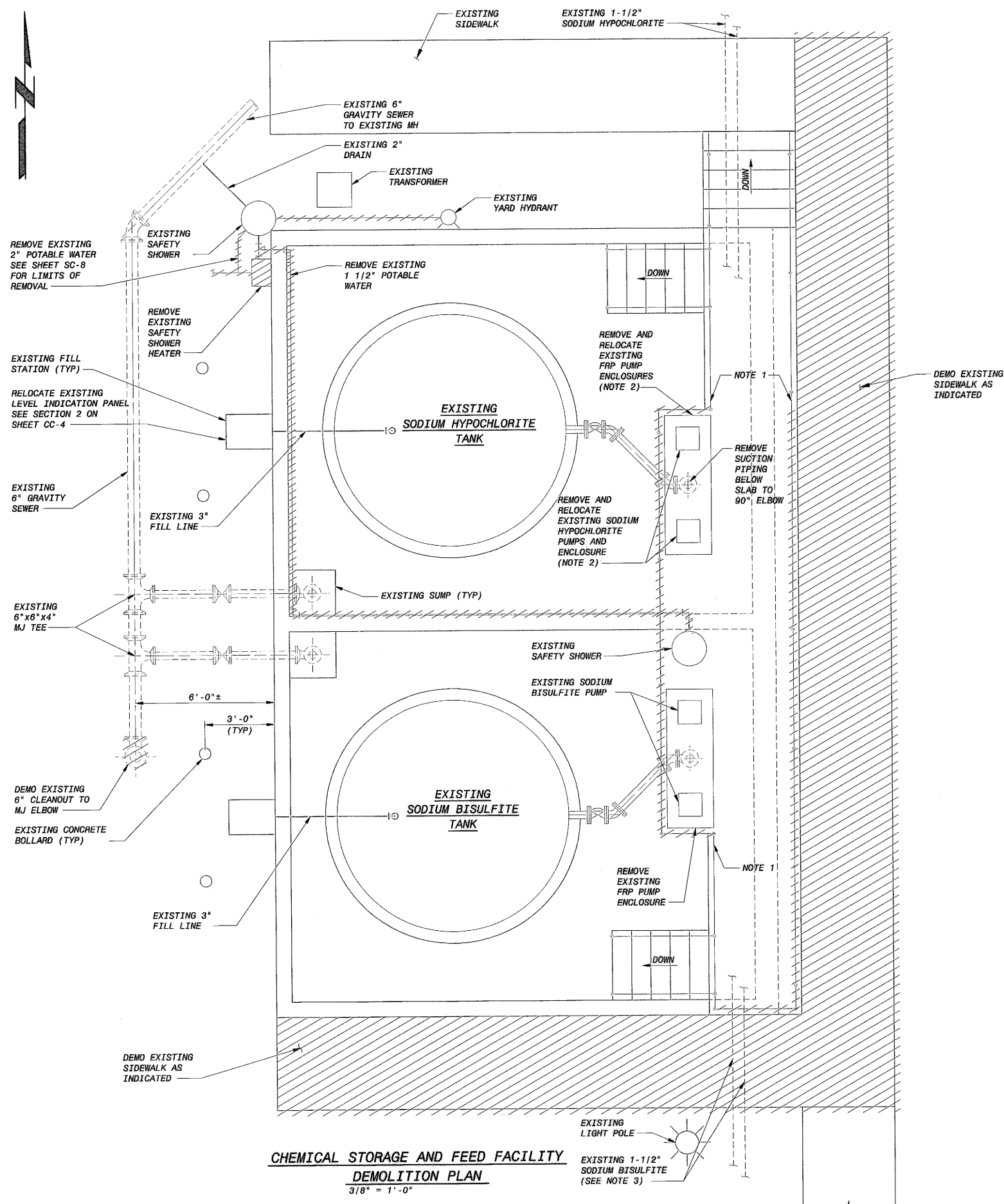
PLANS AND ESTIMATES PREPARED BY:
BLACK & VEATCH Building's world of difference
Holloway, Updike and Bellon Consulting Engineers
Waskaper Becken Arrow
DWGATES Engineering Services



REVISION	BY	DATE

PLAN SCALE:	DRAWN	TW	APPROVED:
	DESIGNED	DLW	
	SURVEY		
PROFILE SCALE:	FIELD MGR.	708 10/11	
	SECT. MGR.		
HORIZONTAL:	PROJ. MGR.	20 10/11	
1" =	RECOMMENDED:		
VERTICAL:		10/30/11	
1" =			
FILE:	DRAWING: FC-5	DATE 10/28/2011	
ATLAS PAGE NO:		SHEET 149 OF 261 SHEETS	

PLOTTED DATE: 9/21/2011 7:24:09 PM Batch Plot
 SAVED DATE: TUE 9/27/2011 1:36:25 PM
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**CHEMICAL STORAGE AND FEED FACILITY
DEMOLITION PLAN**
3/8" = 1'-0"

- NOTES:**
1. CONTRACTOR SHALL REMOVE ADDITIONAL GUARDRAIL AS NECESSARY TO ACCOMMODATE NEW FRP BUILDING ENCLOSURE.
 2. EXISTING SODIUM HYPOCHLORITE PUMPS AND THE ASSOCIATED FRP ENCLOSURE SHALL BE REMOVED AND RELOCATED TO THE PORT SOUTH LIFT STATION, SEE SHEET PC-2. EXISTING PUMP DISCHARGE LINES SHALL BE CAPPED BELOW ELEVATED SLAB AND ABANDONED IN PLACE.
 3. SODIUM BISULFITE LINES SHALL BE KEPT IN PLACE DURING REMOVAL OF SIDEWALK.

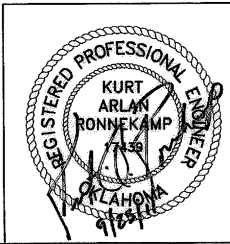
**LOWER BIRD CREEK WWTP EXPANSION
TMUA PROJECT NO. ES 2006-01
CONTRACT 1B**

**CHEMICAL STORAGE AND FEED FACILITY
CIVIL / STRUCTURAL
DEMOLITION PLANS**

**CITY OF TULSA, OKLAHOMA
TULSA METROPOLITAN UTILITY AUTHORITY
ENGINEERING SERVICES DEPARTMENT**

PLANS AND ESTIMATES PREPARED BY:

BLACK & VEATCH
Building a world of difference
Kansas City, Missouri



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				DESIGNED	JMS	 DIRECTOR
				SURVEY		
			PROFILE SCALE:	FIELD MGR.	DB 10/11	
			HORIZONTAL:	SECT. MGR.		
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			ATLAS PAGE NO:			SHEET 151 OF 251 SHEETS

PLOTTED DATE: 9/21/2011 7:15:43 PM, Batch Plot
 SAVED DATE: 10/16/11 9:26/2011 7:31:36 AM
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